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USER GUIDE

UGD071-0720

Carousel Plus Dryer

D Series Models 600 through 5000 with DC-C TouchView™ Technology

Please record your equipment's model and serial number(s) and the date you received it in the spaces provided.

Conair recommends recording the model and serial number(s) of your equipment and the date you received it in the User Guide. Our service department uses this information, along with the manual number, to provide help for the specific equipment you installed.

Please keep this User Guide and all manuals, engineering prints and parts lists together for documentation of your equipment.

Date:

Manual Number: UGD071-0720

Serial Number(s):

Model Number(s):

Software Version(s):

Firmware Version Number:

Application File Name:

Programmable Logic Controller:

Firmware Version Number:

Application File Name:

NOTE: The software, firmware and application file information for your specific Carousel Plus Dryer System is contained on a serial tag that was attached to the inside of the Carousel Plus Dryer's control panel during assembly.

DISCLAIMER: Neither Conair nor its employees shall be liable for errors contained in this User Guide or for incidental, consequential damages in connection with the furnishing, performance or use of this information. Conair makes no warranty of any kind with regard to this information, including, but not limited to the implied warranties of merchantability and fitness for a particular purpose.

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Introduction

Purpose of the User Guide

This User Guide describes the Conair Carousel Plus Dryer with TouchView™ Technology and explains step-by-step how to install, operate, maintain and repair this equipment.

Before installing this product, please take a few moments to read the User Guide and review the diagrams and safety information in the instruction packet. You also should review manuals covering associated equipment in your system. This review won't take long, and it could save you valuable installation and operating time later.

How the Guide is Organized

Symbols have been used to help organize the User Guide and call your attention to important information regarding safe installation and operation.

Symbols within triangles warn of conditions that could be hazardous to users or could damage equipment. Read and take precautions before proceeding.

1 Numbers indicate tasks or steps to be performed by the user.

◆ A diamond indicates the equipment's response to an action performed by the user.

An open box marks items in a checklist.

- A circle marks items in a list.

Indicates a tip. A tip is used to provide you with a suggestion that will help you with the maintenance and the operation of this equipment.

Indicates a note. A note is used to provide additional information about the steps you are following throughout the manual.

Using the Carousel Plus Dryer with Your System

The Conair Carousel Plus Dryer with TouchView™ Technology used within your system is factory configured to be used as a central dryer or in conjunction with ResinWorks or a dedicated hopper using a Heater Pack or GasTrac. Therefore, this manual incorporates the information necessary to use these dryers for central drying applications.

Your Responsibility as a User

You must be familiar with all safety procedures concerning installation, operation and maintenance of this equipment. Responsible safety procedures include:

- Thorough review of this User Guide, paying particular attention to hazard warnings, appendices and related diagrams.
- Thorough review of the equipment itself, with careful attention to voltage sources, intended use and warning labels.
- Thorough review of instruction manuals for associated equipment.
- Step-by-step adherence to instructions outlined in this User Guide.

ATTENTION:
Read this so no one gets hurt

We design equipment with the user's safety in mind. You can avoid the potential hazards identified within this system by following the procedures outlined below and elsewhere in the User Guide.

⚠ WARNING: Improper installation, operation or servicing may result in equipment damage or personal injury.

This equipment should be installed, adjusted and serviced by qualified technicians who are familiar with the construction, operation and potential hazards of this type of machinery.

All wiring, disconnects and fuses should be installed by qualified electrical technicians in accordance with electrical codes in your region. Always maintain a safe ground. Do not operate the equipment at power levels other than what is specified on the machine serial tag and data plate.

⚠ WARNING: Voltage hazard

This equipment is powered by three-phase alternating current, as specified on the equipment's serial tags and data plates. Reference supplemental equipment's manuals for their power requirements.

A properly-sized conductive ground wire from the incoming power supply must be connected to the chassis ground terminal inside the electrical enclosure. Improper grounding can result in severe personal injury and erratic machine operation.

Always disconnect and lock out the incoming main power source before opening the electrical enclosure or performing non-standard operating procedures, such as routine maintenance. Only qualified personnel should perform troubleshooting procedures that require access to the electrical enclosure while power is on.

(continued)

ATTENTION:

Read this so no one gets hurt (continued)

We design equipment with the user's safety in mind. You can avoid the potential hazards identified within this system by following the procedures outlined below and elsewhere in the User Guide.

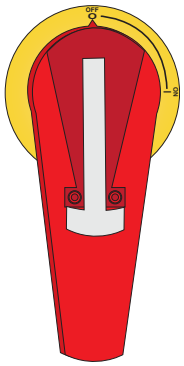
CAUTION: Hot Surfaces.

Always protect yourself from hot surfaces inside the dryer and hopper. Also exercise caution around exterior surfaces that may become hot during use. These include the hopper door frame, the exterior of an uninsulated hopper, the return air hose and the dryer's process filter housing and exhaust outlet and the Hopper Temperature Controller (HTC) GasTrac Heater (CGT), or Heater Pack.

WARNING: Do not place aerosol, compressed gas or flammable materials on or near this equipment.

The hot temperatures associated with the drying process may cause aerosols or other flammable materials placed on the dryer or hopper to explode.

How to Use the Lockout Device

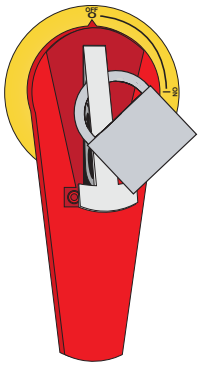


CAUTION: Before performing maintenance or repairs on this product, you should disconnect and lockout electrical power sources to prevent injury from unexpected energization or start-up. A lockable device has been provided to isolate this product from potentially hazardous electricity.

Lockout is the preferred method of isolating machines or equipment from energy sources. Your Conair product is equipped with the lockout device pictured.

To use the lockout device:

1 Stop or turn off the equipment.

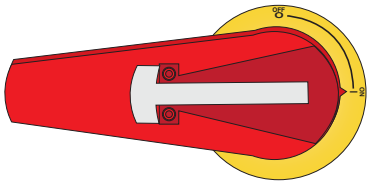


2 Isolate the equipment from the electric power. Turn the rotary disconnect switch to the OFF, or "O" position.

3 Secure the device with an assigned lock or tag. Insert a lock or tag in the holes to prevent movement.

4 The equipment is now locked out.

WARNING: Before removing lockout devices and returning switches to the ON position, make sure that all personnel are clear of the machine, tools have been removed and all safety guards reinstalled.



To restore power, turn the rotary disconnect back to the ON position:

1 Remove the lock or tag.

2 Turn the rotary disconnect switch to the ON or "I" position.

SECTION

2

Description

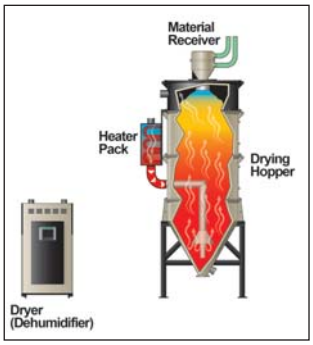
What is the Carousel Plus D Series Dryer?

The Carousel Plus D Series Dehumidifying Dryer produces low-dewpoint air that removes moisture from hygroscopic plastics. The dryer pulls moist air from a drying hopper and circulates it through a dehumidifying desiccant wheel. The dryer then circulates the air through the material in the hopper.

The dryer's closed-loop design ensures a continuous supply of dehumidified air while preventing contamination from moisture in the plant.

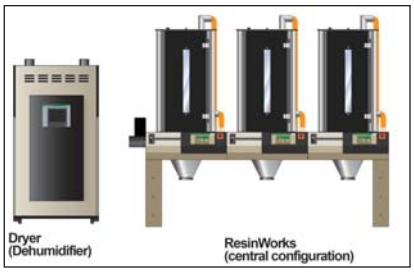
Typical Applications

1 Dryer on the floor, single hopper (with delivery air heat Heater Pack on the hopper or a HTC on a floor stand).

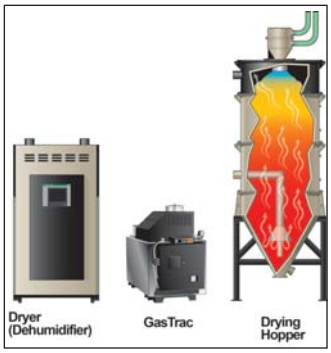


NOTE: The D600 - 5000 provides no heat to the delivery air. A separate heat source is required at the hopper(s) inlet to heat the air to the desired drying temperature.

2 Dryer on the floor, multiple hoppers in central configuration (ResinWorks) with separate heat source for each hopper.



3 Dryer on the floor, hopper(s) connected to Conair GasTrac delivery air heater.



The Carousel Plus D Series Dryer can be used successfully in applications that require:

- A contamination-free drying environment.
- A constant flow of dehumidified air.

(continued)

Typical Applications (continued)

Model	Drying Temperature Range
Low temperature (with precooler)*	100° - 150°F {38° - 66°C}
High heat (with aftercooler)*	150° - 375°F {66° - 191°C}
Low-high (with aftercooler & precooler)*	100° - 375°F {38° - 191°C}

** See Installation: Connecting the Aftercooler and Precooler of this User Guide for more information.*

- Throughput rates of 600 to 5000 lbs {271 to 2267 kg} per hour (some materials can be run at a higher rate).

- Dewpoints of -40°F {-40°C}.

Use the aftercooler when:
- Throughput rates are less than 50% of the dryer's rated capacity.
- You are pre-drying material at temperatures over 150°F {66°C}
- The return air is 120°F {49°C} or above.

✎ **NOTE:** The aftercooler reduces the temperature of air returning from the drying hopper, improving the efficiency of the desiccant.

✎ **NOTE:** All Carousel Plus D Series 600+ Dryers use an aftercooler located after the process blower.

How It Works

The Process (Drying) Cycle

Process air from the hopper is pulled into the dryer, through the process filter and then into the process blower inlet. Air exits the process blower and then enters the aftercooler, then passes through the desiccant wheel, where moisture is removed. The air exits the dryer and passes through the precooler (if installed), then into the delivery air heat source (Heater Pack, HTC, or GasTrac). After the air exits the delivery air heat source it then goes into the hopper inlet through internal piping, then to the spreader cone, which evenly distributes the air through the material.

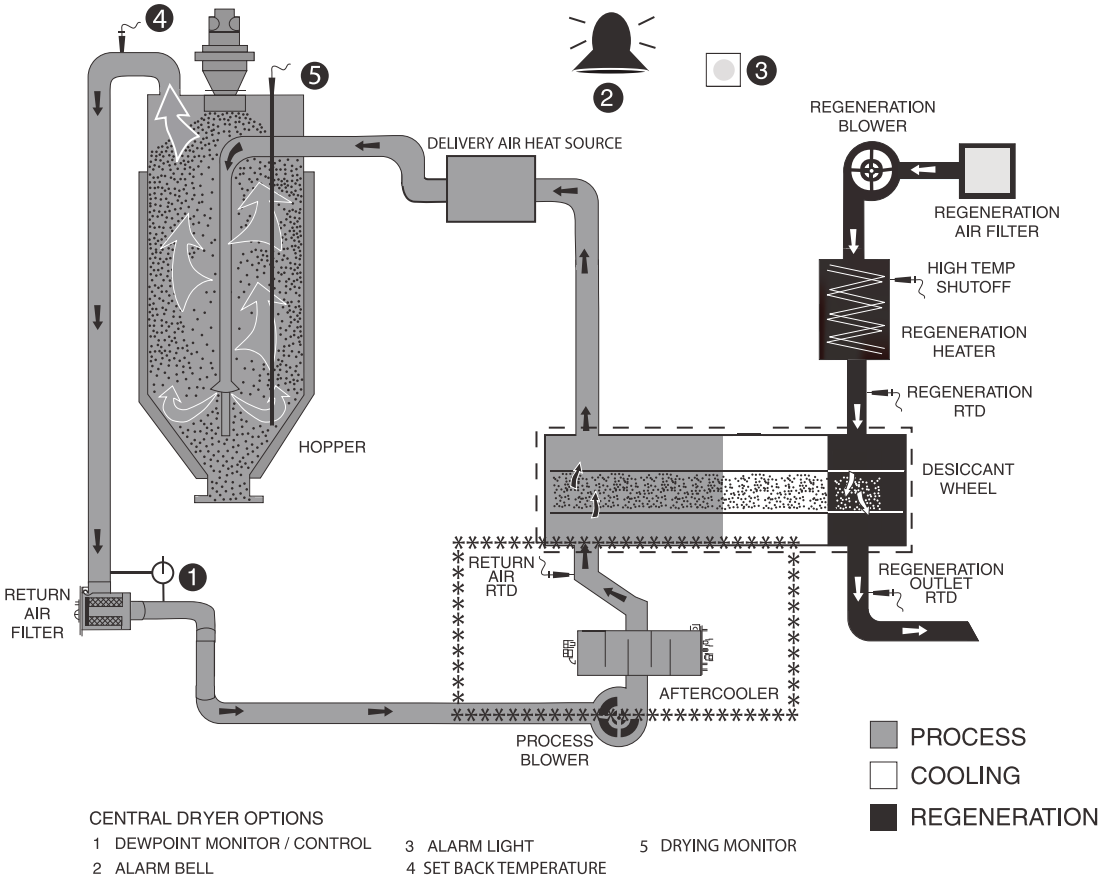
The Regeneration Cycle

The regeneration blower pulls air through the regeneration filter into the dryer's regeneration heater. The air is heated to 350°F {177°C} before it is pushed into the "wet" section of the desiccant wheel. The hot air purges moisture from the desiccant. The moist air is blown out the moisture exhaust at the top of the dryer.

The Cooling Cycle (All models except D2400, D4000 and D5000)

Regenerated desiccant must be cooled before it rotates back into the process cycle. The process blower pushes the process air through the desiccant wheel. A small amount of the process air is diverted through a small section of the desiccant wheel to cool the air. The cooling air then returns back to the process air stream at the start of the process cycle.

How It Works (continued)

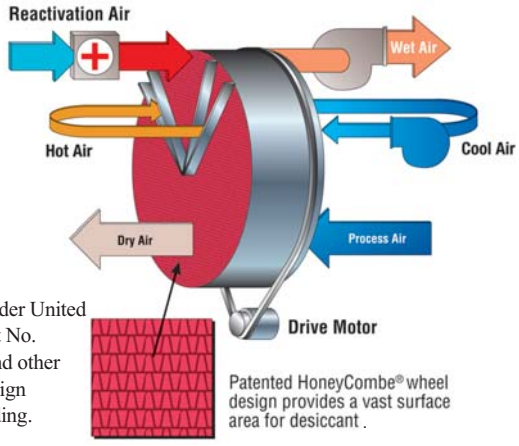


CENTRAL DRYER OPTIONS

1 DEWPOINT MONITOR / CONTROL
2 ALARM BELL
3 ALARM LIGHT
4 SET BACK TEMPERATURE
5 DRYING MONITOR

Power Purge

D2400, 4000 and 5000 models have a Power Purge (cooling fan) feature integral to the desiccant wheel assembly.

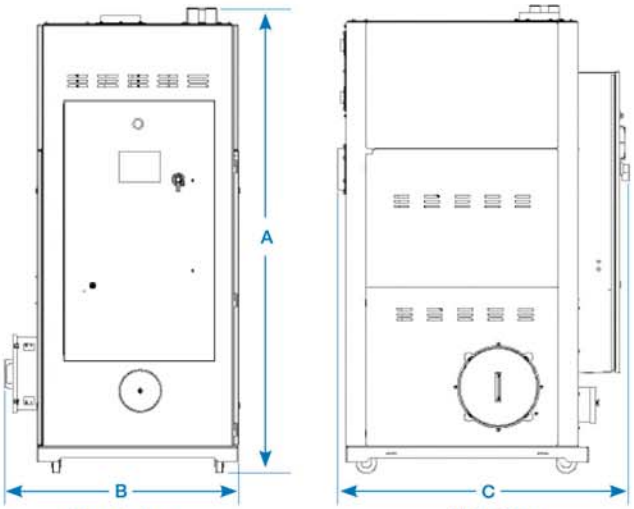


Protected under United States Patent No. 7,101,414 and other US and Foreign Patents Pending.

Patented HoneyCombe® wheel design provides a vast surface area for desiccant .

Specifications: Carousel Plus D Series Dehumidifying Dryers

See the next page for illustrations



Application Notes

All dryers are supplied with an aftercooler/intercooler as standard. The aftercooler/intercooler reduces the temperature of the return air from the drying hopper, improving the efficiency of the desiccant. The aftercooler/intercooler should be connected with the proper water flow rate and temperature to attain the optimal throughput.

When to use central models
Central dryers do not have process heaters. These models should be used when drying multiple materials that require different drying temperatures. Central models dehumidify the process air, which is then heated to the correct setpoint by a Hopper Temperature Controller (HTC) or a "pre-heater" mounted on the hopper.

When to use additional filtration
The standard return air cartridge filter is sized for the airflow of each dryer model and is suited for most applications. You should consider adding an optional dust collector and/or volatile trap if:

- The material contains excessive fines. An additional dust collector or cyclone will extend time between filter cleaning.
- The material produces volatiles during drying which condense into a waxy or oily residue. A volatile trap will help to protect the desiccant.

Models	D600*	D800*	D1000*	D1300*	D1600*	D2000*	D2400*	D3200*	D4000*	D5000*
Performance characteristics (with full hopper)										
Drying temperature	All models 100° - 375°F {38° - 191°C} with options									
Dewpoint	All models -40°F {-40°C}									
Dimensions inches {cm}										
A - Height	93.8 {238.3}			92.2 {234.2}				98.3 {249.7}		
B - Width	49.3 {125.2}			53.9 {136.9}				58.2 {147.8}		
C - Depth	63.1 {160.2}			97.5 {247.6}				112.9 {286.7}		
Outlet/inlet hose diameter	8.0 {20.3}			12.0 {30.5}						
Approximate weight lbs {kg}										
Installed	1300 {590}		1400 {636}	1600 {726}				2000 {907}		
Shipping	1495 {678}		1515 {687}	2620 {1188}				3385 {1535}		
Voltage - standard/central full load amps† ‡‡										
400 V/3 phase/50 Hz‡	89.1 / 34.2	116.6 / 34.2	116.6 / 34.2	180.1 / 70.3	186.5 / 76.7	214.0 / 76.7	249.6 / 84.9	282.2 / 90.0	371.4 / 96.9	371.4 / 96.9
460 V/3 phase/60 Hz	77.7 / 29.9	101.6 / 29.9	101.6 / 29.9	157.2 / 61.6	162.6 / 67.0	186.5 / 67.0	216.9 / 73.5	246.5 / 79.2	322.9 / 83.9	322.9 / 83.9
575 V/3 phase/60 Hz	61.9 / 26.7	81.0 / 26.7	81.0 / 26.7	125.6 / 49.2	130.0 / 53.6	149.1 /53.6	173.3 / 58.7	197.0 / 63.3	258.1 / 67.1	258.1 / 67.1
Water requirements (for aftercooler or optional precooler)§										
Recommended temperature**	45° - 85°F {7° - 29°C}									
Water flow gal./min. {liters/min.}	6 - 25 {22.7 - 94.6}††			12 - 40 {45.4 - 151.4}††				15 - 50 {56.8 - 189.3}††		
Water connections NPT	1 1/2 inch									

Specification Notes

* Dryers D600-D5000 that are central dryers do not have process heaters. Heater Packs, Hopper Temperature Controllers (HTC's), or GasTrac Dryers (CGT's) are used at the hopper for heating the process air. See the Hopper Temperature Controller (HTC) and GasTrac Dryer (CGT) specification sheets for further technical information. Even though Heater Packs are remote from the dryer, they are controlled by the dryer.

† The first full load amps number listed includes current to operate the dryer and the heat supply controlled by the dryer. The second full load amps number is current required for the dryer only, when operated as a central dryer with heaters (more than one) controlled and powered remotely. **Dryers that have the optional VFD will see an increase in FLA by up to 10% on standard units, and an increase of up to 20% on units used as central dryers.**

‡ Dryers running at 50 Hz will have 17% less airflow, and a 17% reduction in material throughput.

§ When drying below 150°F {66°C} a precooler is required.

**Temperatures above or below the recommended levels may affect dryer performance. Tower, chiller or municipal water sources can be used.

†† Higher chilling water temperatures will require a greater flow rate.

‡‡ FLA data for reference purposes only. Does not include any options or accessories on equipment. For full FLA detail for power circuit design of specific machines and systems, refer to the electrical diagrams of the equipment order and the nameplate applied to the machine.

Specifications may change without notice. Consult a Conair representative for the most current information.

Installation Note

Wiring between process air heater, Heater Pack, and dryer where control for this heater is located is not included. Maximum wire length between dryer and heat source is 100 feet {30 meters}. Consult Conair or a qualified electrician to determine gauge of wire required for distance. Maximum physical distance between dryer and hopper is 20 feet {6 meters}.

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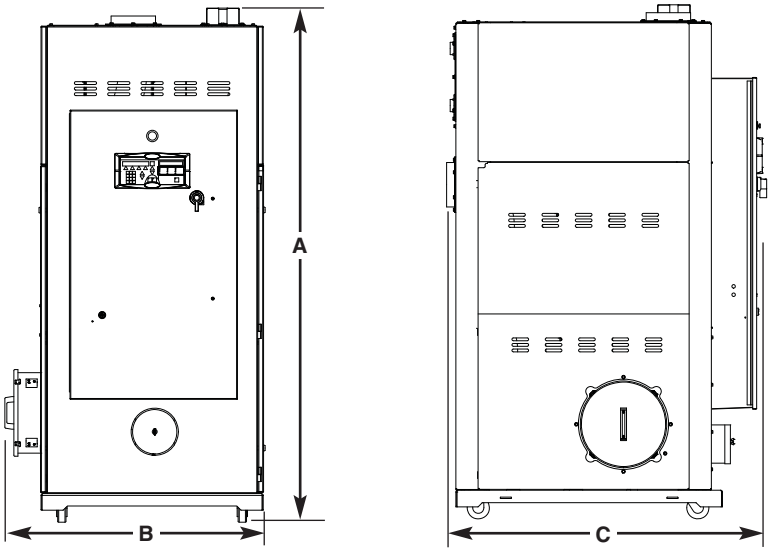
Specifications: Carousel Plus D Series Dehumidifying Dryers (continued)



SECTION
3

Installation

Unpacking the Boxes

The Carousel Plus D Series Dryer comes in one to four boxes, depending on the model and options ordered. The box(es) could include (depending on the options selected):

- Carousel Plus D Series Dryer
- Delivery air hose or pipe
- Return air hose or pipe
- Heater Pack (not applicable with Central/ResinWorks Systems)
- User Guide

✎ **NOTE:** Depending on what configuration you ordered, your dryer may arrive with flexible hose, or a hard piping kit.

1 **Carefully remove the dryer and components** from their shipping container(s). Note that the dryer is secured to its shipping container with metal bands that pass through the bottom of the dryer frame.

2 **Unbolt any additional items secured to the shipping pallet,** such as the regeneration exhaust cover and return air adapter. (Carousel Plus D Series 1300-2400 Dryers will have a dry air delivery adapter. Carousel Plus D Series 3200-5000 Dryers will have a dry air delivery adapter.)

3 **Remove all packing material,** protective paper, tape, and plastic.

4 **Cut and remove the desiccant wheel tie** securing the wheel assembly. (D600-1000) ✎

5 **Carefully inspect all components** to make sure no damage occurred during shipping, and that you have all the necessary hardware.

6 **Take a moment to record serial numbers** and electrical power specifications in the blanks provided on the back of the User Guide's title page. The information will be helpful if you ever need service or parts.

7 **You are now ready to begin installation.** Follow the preparation steps on the next page, then choose one of the following mounting options:

- Dryer on the floor, single hopper (with process Heater Pack mounted to hopper) on a floor stand. (See Figure 1.)
- Dryer on the floor, multiple hoppers in central configuration (ResinWorks) with separate heat source for each hopper. (See Figure 2.)
- Dryer on the floor with Conair GasTrac or HTCs for process heat connected to hopper(s). (See Figures 3 and 4.)

Figure 1

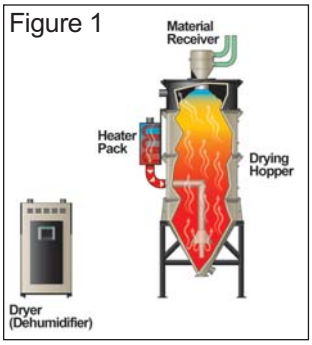


Figure 2

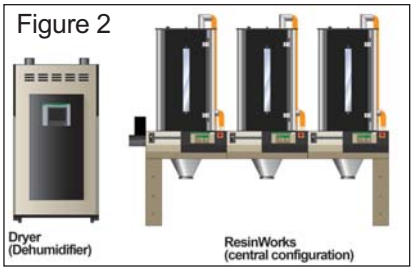
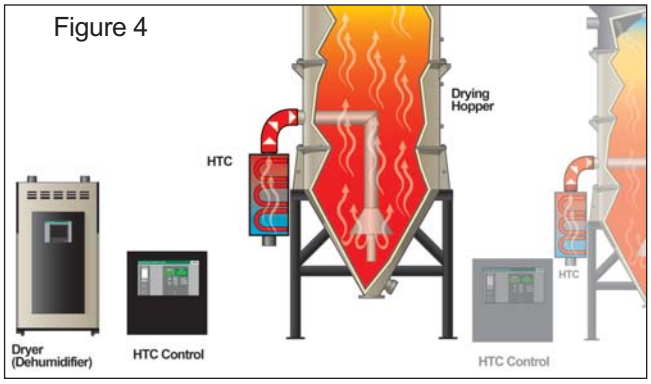


Figure 3

Figure 4



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Preparing for Installation

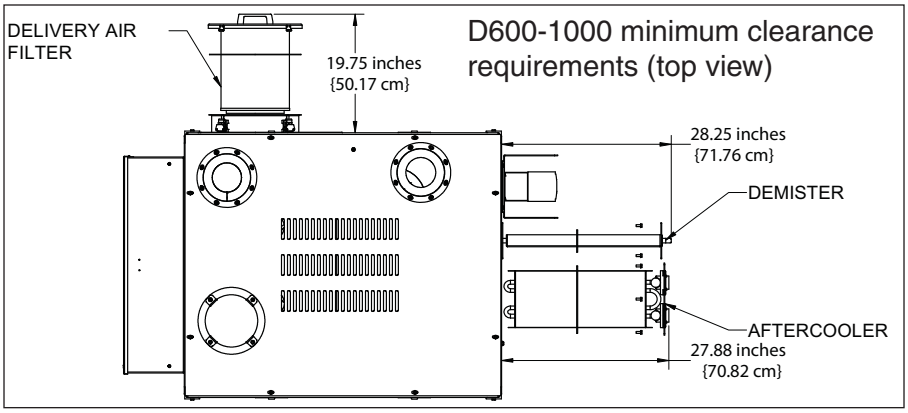
The Carousel Plus D Series Dryer is easy to install if you plan the location and prepare the mounting area properly.

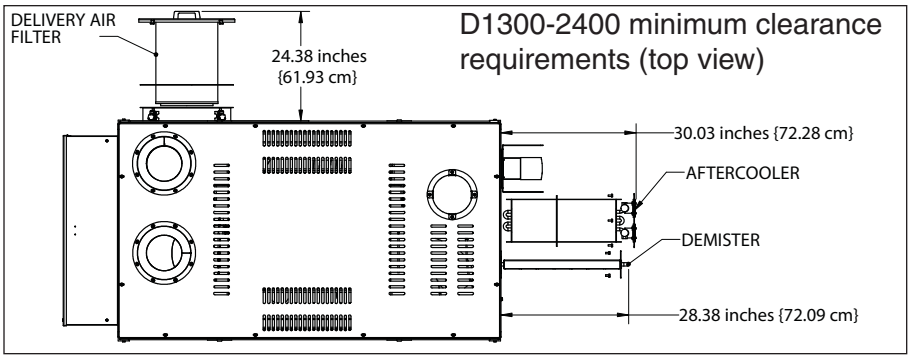
1 Make sure the mounting area provides:

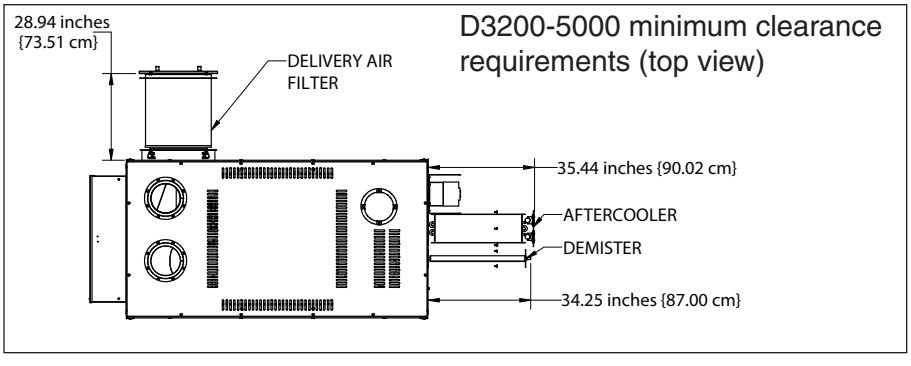
- ❒ **A grounded power source supplying the voltage and correct current** for your dryer model. Check the dryer's serial tag (on the control box) for the correct amps, voltage, phase, and cycles. Field wiring should be completed by a qualified personnel to the planned location for the dryer. All electrical wiring should comply with your region's electrical codes.
- ❒ **A source of water, when using the aftercooler and/or precooler.** The D Dryer's aftercooler and/or precooler require tower, city, or chiller water at temperatures of 45° to 85°F {7° to 29°C}. Refer to the Specifications Sheet (page 2-7) for flow rate for your unit. Piping should be ran to the planned dryer location. Use flexible hose to connect the water pipes to the aftercooler and/or optional precooler.
- ❒ **Minimum clearance for safe operation and maintenance.** Refer to the illustrations below for specific minimum clearance distance. Clearance on sides without specified distances should be 24 inches {61 cm} minimum.

TIP: If you plan to use vacuum or compressed air loaders to fill the hopper, install conveying lines to the drying hopper location.

NOTE: The aftercooler reduces the temperature of air returning from the drying hopper, improving the efficiency of the desiccant.







Positioning the Dryer on the Floor

1 **Lift the dryer from the shipping container** using a fork truck.

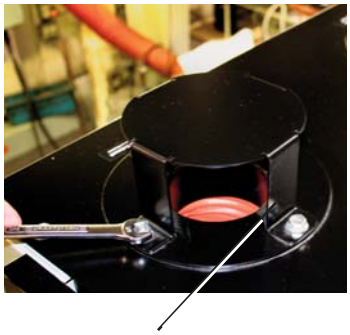
2 **Position the dryer on the floor** near the hopper or ResinWorks sled. Make sure the location allows for the connection of all hoses, keeping hose lengths as short as possible.

Removing the Cable Tie from the Desiccant Wheel (D600-1000 models)

Desiccant Cable Tie

1 **Open the dryer side panels and remove the cable tie(s) securing the desiccant wheel,** if it was not done while unpacking the dryer. Depending upon which size dryer you have, there may be several cable ties.

Installing the Regeneration Exhaust Cover



Regeneration Exhaust Cover

The Carousel Plus D Series Dryer's regeneration exhaust cover must be installed.

To install the regeneration exhaust cover:

1 **Remove the exhaust cover that is attached to the dryer's shipping pallet.**

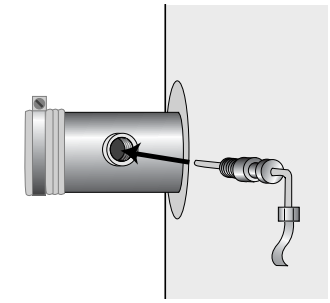
2 **Locate the bolt pattern at the top of the dryer**, on top of the regeneration exhaust outlet.

3 **Position the regeneration exhaust cover on top of the regeneration exhaust outlet**, aligning both bolt patterns.

4 **Secure the regeneration exhaust cover with supplied hardware**, using an appropriately sized wrench.

Connecting the Delivery Air RTD Probe

The delivery air RTD probe monitors the temperature of the drying air as it enters the hopper. If the probe is not installed correctly, temperature readings will be inaccurate.



1 **Insert the probe at the inlet to the hopper**. The end of the probe must not touch the walls of the inlet. The tip of the probe should be approximately in the center of the tube. Tighten the compression fittings to lock the probe in place.

2 **Plug the probe's cable into the receptacle labeled process on the left side of the electrical enclosure.** Hand tighten the connector. Coil any excess cable and secure it with a wire tie.

Central

When configured as a central dryer, monitoring the drying air temperature is not necessary since there is no delivery air heater in the system. Therefore, installation and connection of the RTD probe and/or setback probe is not applicable.

Connecting the Setback RTD Probe

(Optional)

1 **Insert the probe in the hopper outlet** at the top of the hopper. The end of the probe must not touch the walls of the inlet. The tip of the probe should be approximately in the center of the tube. Tighten the compression fittings to lock the probe in place.

2 **Plug the probe's cable into the receptacle labeled setback on the left side of the electrical enclosure.** Hand tighten the connector. Coil any excess cable and secure it with a wire tie.

Connecting the Process Protection RTD

(Optional)

1 **Insert the probe into the 1/8 inch NPT coupling** on heater manifold (before the hopper inlet). The manifold will be threaded for the process protection connection.

2 **Plug the probe's cable into the receptacle labeled Process Protection on the left side of the electrical enclosure.** Hand tighten the connector. Coil any excess cable and secure it with a wire tie.

Installing the Return Air Inlet and Air Outlet Adapters (D1300 - 5000)

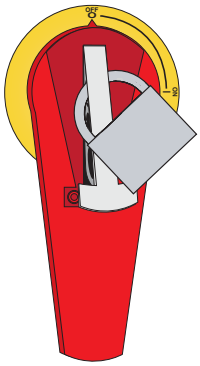
The Carousel Plus D Series Dryer's return air inlet and air outlet adapters will be removed when the dryer is shipped

To install the return air inlet and air outlet adapters:

1. **Remove the return air inlet and air outlet adapters that are attached to the dryer's shipping pallet.**
2. **Locate the bolt patterns on the top of the dryer**, on top of the return air inlet and air out outlet.
3. **Position the return air adapter on top of the return air inlet**, aligning both bolt patterns.
4. **Secure the return air adapter with supplied hardware**, using appropriately sized wrench.
5. **Position the air inlet adapter on top of the inlet air inlet**, aligning both bolt patterns.
6. **Secure the air inlet adapter with supplied hardware**, using an appropriately sized wrench.

Connecting the Main Power

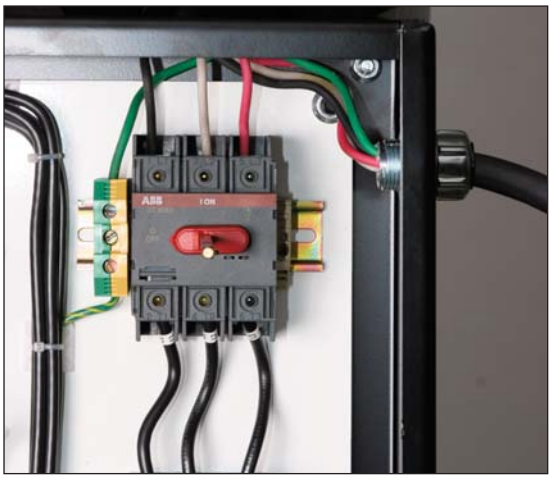
CAUTION: Always disconnect and lock out the main power sources before making electrical connections. Electrical connections should be made only by qualified personnel.



1 **Open the dryer's electrical enclosure.** Turn the disconnect dial on the dryer door to the Off or "O" position. Lock out the main power. *See Introduction: How to Use the Lockout Device for complete lock out information.* Turn the captive screw, and swing the door open.

2 **Insert the main power wire** through the knockout in the side of the enclosure. Secure the wire with an appropriate strain relief.

IMPORTANT: Always refer to the wiring diagrams that came with your dryer before making electrical connections.



3 **Connect the power wires** to the three terminals at the top of the power disconnect holder.

4 **Connect the ground wire** to the ground lug as shown in the photo.

NOTE: Models D600-5000 configured with process heat and a Heater Pack at the hopper will require conduit from the control panel to the Heater Pack. *See the Appendix, in this User Guide for more information about proper conduit and cable size for your application.*

NOTE: Wiring between process air heater, Heater Pack, and dryer where control for this heater is located is not included. Maximum working distance is 100 feet {30 meters}. Consult Conair or a qualified electrician to determine gauge of wire required for distance.

Opening the Dryer Doors

(D1300 - 5000)

Carousel Plus D Series 600-5000 Dryers designed after December 2012 will have locking removable side panels.

To unlock and remove the side panels:

1 **Rotate the locking panel bolt on each dryer panel counterclockwise** with a regular screw driver.

2 **Using the handle, lift the panel out and up to remove from the side of the dryer.** Repeat for each panel as necessary.

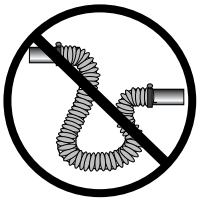
Dryer Panel Locking Bolts (W1300-5000)

✎ **NOTE:** The panel surrounding the delivery air filter is bolted on. Remove bolts to remove this panel.

Connecting the Air Hoses to a Single Hopper (D1300 - 5000)

Depending on how your dryer was configured, using the two flexible hoses or the hard piping kit provided, connect the inlet of the Heater Pack and outlet of the drying hopper to the dryer. Make sure the dryer is located as close as possible to the hopper (10 ft {3.05 m} of hose supplied).

1 **Attach one hose (or pipe) from the return air inlet, located on top of the dryer,** to the outlet of the hopper.

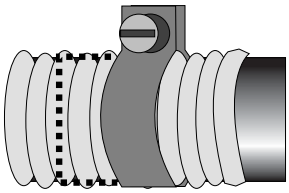


NOTE: Do not allow the flexible hoses to kink or crimp.

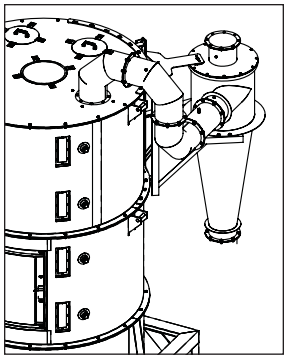
NOTE: Inlet and outlet locations may be different on your dryer. Refer to the labeling on your dryer.

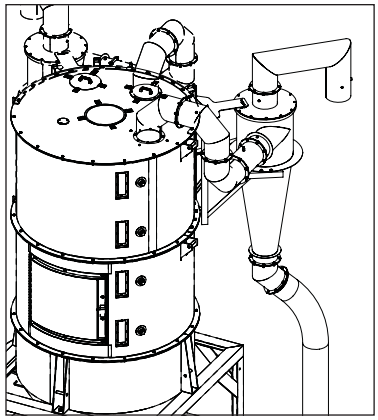
2 **Attach one hose (or pipe) from the delivery air outlet, located on top of the dryer,** to the inlet of the Heater Pack.

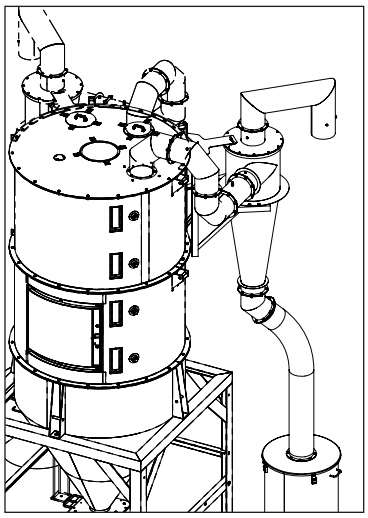
3 **Secure hoses with clamps.** The hose clamp should be secured at least 1/4 in. {0.64 cm} from the end of the inlet or outlet tube.



NOTE: If connecting your dryer to a cyclone or dust collector, your installation may very slightly. Refer to the instruction that came with your equipment (cyclone, dust collector, heater pack) for more information.

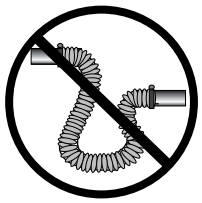






Connecting the Air Hoses to a Resin-Works

Using the two flexible hoses provided, connect the delivery air and return air manifolds of the ResinWorks to the dryer. Make sure the dryer is located as close as possible to the sleds (10 ft {3.05 m} of hose supplied).



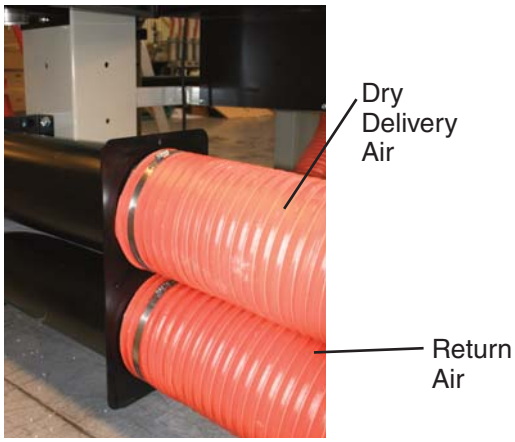
NOTE: Do not allow the flexible hoses to kink or crimp.

1. **Attach one hose from the return air inlet** of the dryer to the return air manifold of the ResinWorks.

2. **Attach one hose from the delivery air outlet** of the dryer to the delivery air manifold of the ResinWorks.

3. **Secure hoses with clamps.** The hose clamp should be secured at least 1/4 in. {0.64 cm} from the end of the inlet or outlet tube.

Insulated hose shown not standard.



Connecting the Dryer to the Hopper

If your dryer hose connection and your hopper Heater Pack hose connection are not the same size, you will need a hose adapter. Contact Conair Parts 1 800-458-1960.

✎ **NOTE:** Because the D600 - 5000 models require a separate heat source for the delivery air, all references to this heat source will be identified as a Heater Pack, or a Conair "HTC" (Hopper Temperature Controller). When using this dryer with an HTC, reference the User Guide supplied with the HTC for installation instructions.

Connecting the Dryer to ResinWorks

If your dryer hose connection and the connection on your ResinWorks sled are not the same size, you will need to use a hose adapter. Contact Conair Parts 1-800-458-1960.

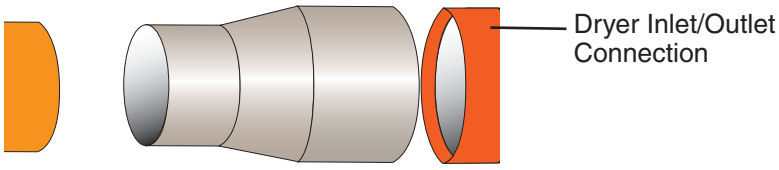
Connecting Air Hose Adapters

NOTE: Adapters should be located as close to the hopper as possible, and maintain the largest line size possible for the longest distance.

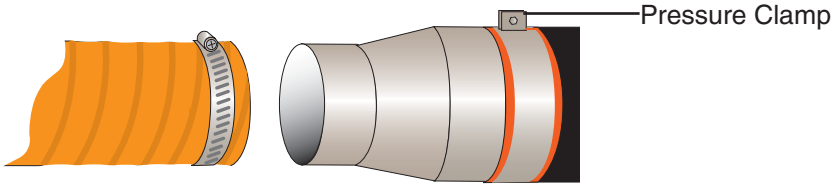
Depending on the hopper you purchased you may need to install an air hose adapter to connect the hopper to your dryer.

To connect the air hose adapter:

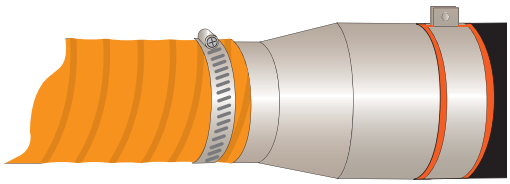
1 Place a high temperature gasket approximately half way down from the end of the dry air delivery outlet.



2 Place hose adapter inside high temperature gasket flush to the dryer outlet, secure with pressure clamp.



3 Attach the hopper inlet hose over the adapter, secure with clamp.



Connecting the Aftercooler and Optional Precooler (D600 - 1000)

The aftercooler and/or optional precooler require a source of city, tower, or chiller water and a discharge or return line. You can use water at temperatures of 45 to 85°F {7 to 29°C}. The water flow should be at least 3 gal/min {11.4 liters/min}.

1 **Connect the water supply line to the aftercooler or precooler inlet.** If a manual shut off valve is used, it should be mounted on the inlet line. Conair recommends that both the supply and return water lines have a shut off valve.

2 **Connect the water discharge or return line to the aftercooler or precooler outlet.**

IMPORTANT: Turn the water off when the dryer is not in use to prevent condensation.

IMPORTANT: Make the water supply and discharge / return connections with flexible hoses at least 24 in. (61 cm) long. This allows you to easily remove the aftercooler assembly for cleaning.

TIP: If an optional flow control is also being installed with the aftercooler, the manual shut off valve should be installed on the inlet line for the flow control.

NOTE: Models D600-1000 dryer aftercooler and dry air delivery configuration shown. Location on larger models are different. Refer to the labeling on your dryer.

Recommended Water Flow Rates	
Dryer Model	gal./min. {liters/min.}
600	15 {56.8}
800	15 {56.8}
1000	20 {75.7}
1300	25 {94.6}
1600	25 {94.6}
2000	25 {94.6}
2400	25 {94.6}
3200	30 {113.6}
4000	30 {113.6}
5000	30 {113.6}

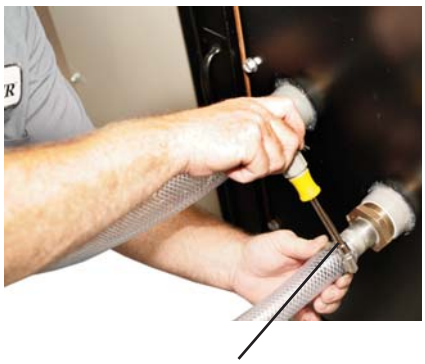
Connecting the Aftercooler and Optional Precooler (D1300 - 5000)

The aftercooler and/or optional precooler require a source of city, tower, or chiller water and a discharge or return line. You can use water at temperatures of 45 to 85°F {7 to 29°C}.

TIP: Make the water supply and discharge / return connections with flexible hoses at least 24 in. (61 cm) long. This allows you to easily remove the aftercooler assembly for cleaning.

IMPORTANT: If an optional flow control is also being installed with the aftercooler, the manual shut off valve should be installed on the inlet line for the flow control.

1 **Connect the water supply line to the aftercooler or precooler inlet.** If a manual shut off valve is used, it should be mounted on the inlet line. Conair recommends that a manual shut off valve be used on both the supply and return lines.



2 **Connect the water discharge or return line to the aftercooler or precooler outlet.**

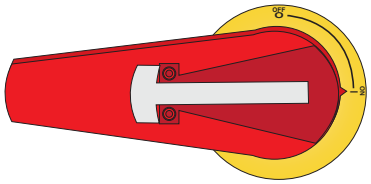
IMPORTANT: Turn the water off when the dryer is not in use to prevent condensation.

Recommended Water Flow Rates	
Dryer Model	gal./min. {liters/min.}
600	15 {56.8}
800	15 {56.8}
1000	20 {75.7}
1300	25 {94.6}
1600	25 {94.6}
2000	25 {94.6}
2400	25 {94.6}
3200	30 {113.6}
4000	30 {113.6}
5000	30 {113.6}

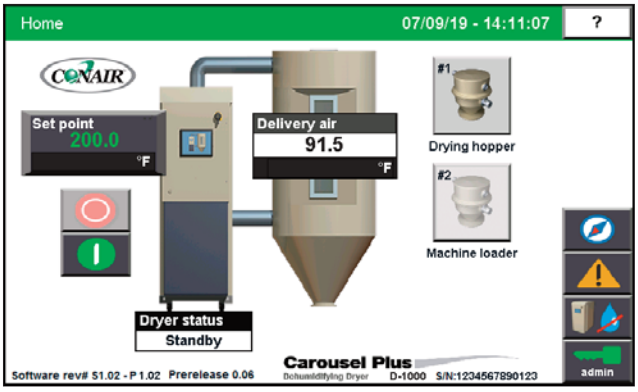
Checking for Proper Air Flow

⚠ **IMPORTANT:** This procedure must be performed before loading material into the hopper.

⚠ **CAUTION:** If the airflow direction is incorrect due to improper phase connection, material from the hopper can be pulled back into the dryer, causing permanent damage to this equipment.



1 **Turn on the main power to the dryer.** Make sure the dryer's disconnect dial is in the ON position. This powers up the control and the display will illuminate.



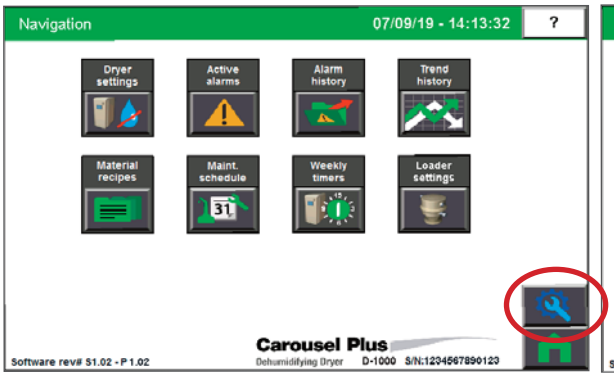
2 **From the Home Screen , press the "Navigation" button.** 

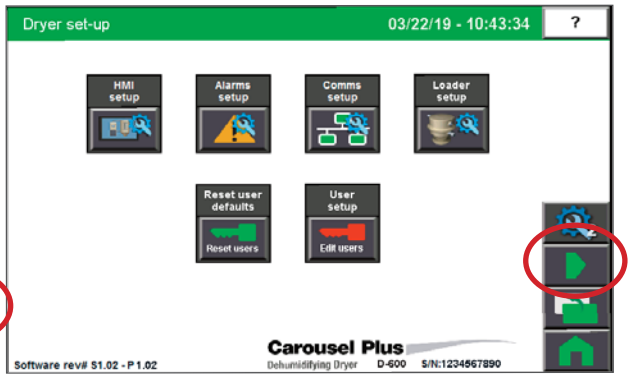
3 **Press the Set-up button (wrench) .** 

4 **Press Right Arrow button.** 

✎ **NOTE:** Must be no alarms, and in Standby mode.

✎ **NOTE:** Users must be logged in as Maint 1 (user level 3) in order to perform this operational test.



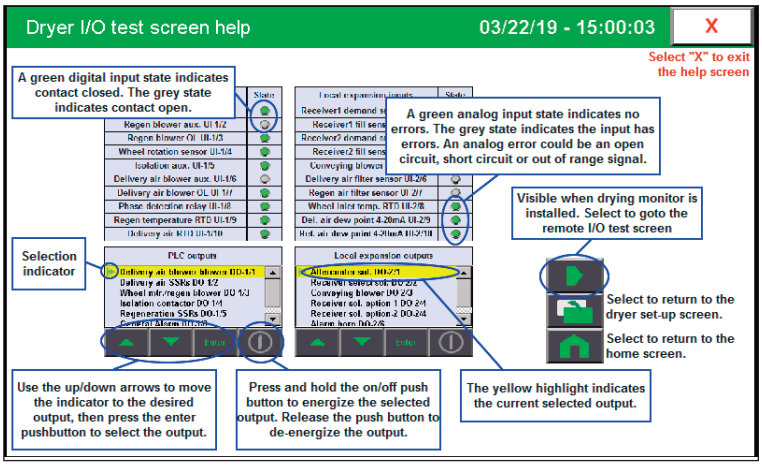


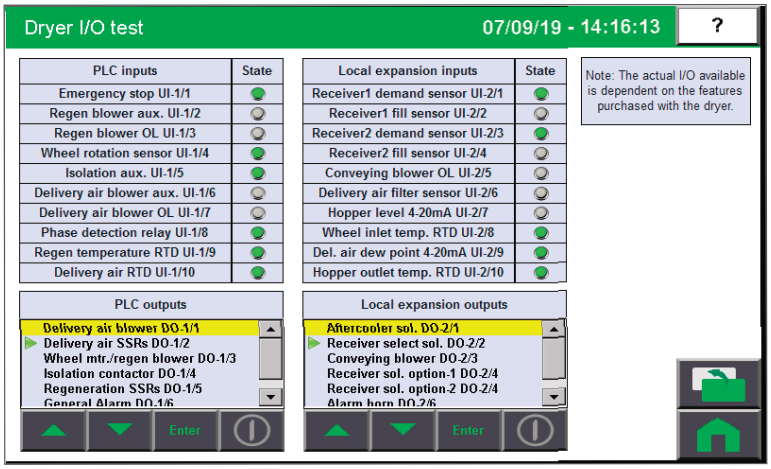
⚠ **WARNING:** All wiring, disconnects, and fuses should be installed by qualified electrical technicians in accordance with electrical codes in your region. Always maintain a safe ground. Do not operate the equipment at power levels other than what is specified on the machine serial tag and data plate.

(continued)

Checking for Proper Air Flow (continued)

5 **Select IO test.** *Refer to "Help Screens".*





⚠ **WARNING:** All wiring, disconnects, and fuses should be installed by qualified electrical technicians in accordance with electrical codes in your region. Always maintain a safe ground. Do not operate the equipment at power levels other than what is specified on the machine serial tag and data plate.

6 **Remove the dryer's side panels.** *See Installation section entitled, Opening the Dryer Doors.*

✎ **NOTE:** On initial test (first time in Dryer I/O Test Mode) use the arrows to select the blower and press enter, then holding the on/off button runs the blower and releasing it stops the blower.

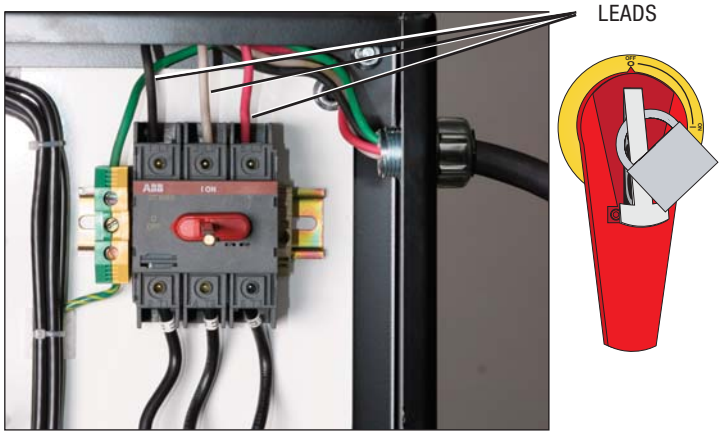
7 **Visually verify the delivery air blower motor is moving in the correct direction indicated by the arrow on the blower housing.** The Carousel Plus D Series 600-5000 dryers are equipped with centrifugal delivery air blowers.

(continued)

Checking for Proper Air Flow (continued)

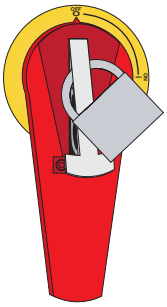
8 If airflow is incorrect disconnect power, follow proper lockout procedures and swap any 2 of the 3 incoming main power wires.

If the airflow is reversed, the delivery air blower is turning in the wrong direction. Turn off and lock out the main power source. Open the electrical enclosure and reverse any two leads connecting the main power supply to the dryer.



9 **Visually verify the regeneration blower motor is moving in the correct direction indicated by the arrow on the blower housing.**

10 **If airflow is incorrect disconnect power, follow proper lockout procedures and reverse the leads at the regeneration blower motor.**

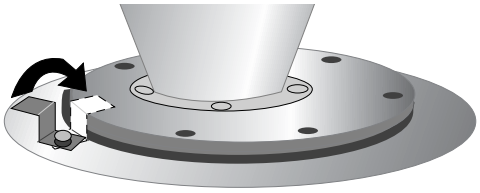


WARNING: All wiring, disconnects and fuses should be installed by qualified electrical technicians in accordance with electrical codes in your region. Always maintain a safe ground. Do not operate the equipment at power levels other than what is specified on the machine serial tag and data plate.

WARNING: All wiring, disconnects and fuses should be installed by qualified electrical technicians in accordance with electrical codes in your region. Always maintain a safe ground. Do not operate the equipment at power levels other than what is specified on the machine serial tag and data plate.

Mounting a Loader on the Hopper

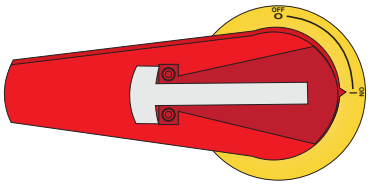
If you have a Conair loader or vacuum receiver, you can use the flange and mounting clips provided on the top of the hopper. Refer to the manuals that came with your specific receiver or loader for detailed installation instructions.



Testing the Installation

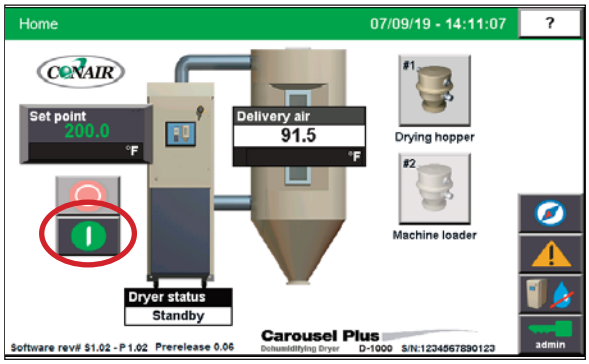
You have completed the installation. Now it's time to make sure everything works.

1 **Check to ensure that there is no material in the drying hopper.** If you have mounted an optional vacuum receiver on the hopper, disconnect the material inlet hose at the source.



2 **Turn on the main power to the dryer.** Check to ensure that the dryer's disconnect dial is in the ON position. This powers up the touch screen control.

3 **From the Home Screen, press the "Start" button.**

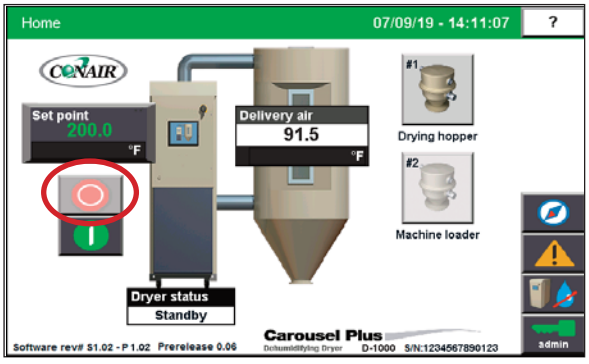


If everything is installed correctly:

- The regeneration and process blowers turn on
- The regeneration heater turns on
- The process heater will energize (if configured as a stand alone dryer)
- The dryer's desiccant wheel starts turning. (If the desiccant wheel does not turn, turn off the dryer, disconnect from power, and verify that the desiccant wheel tie has been removed

6 **Press the dryer stop button.** If everything is installed correctly:

- The blowers will continue running as needed to cool the heaters. (Until regeneration heaters are less than 150°F {66°C}.)



7 **The test is over.** If the dryer performed the normal operating sequences as outlined, reconnect the material source to the optional hopper receiver and begin normal operation. If it did not, *refer to the Troubleshooting section of the User Guide.*

(continued)

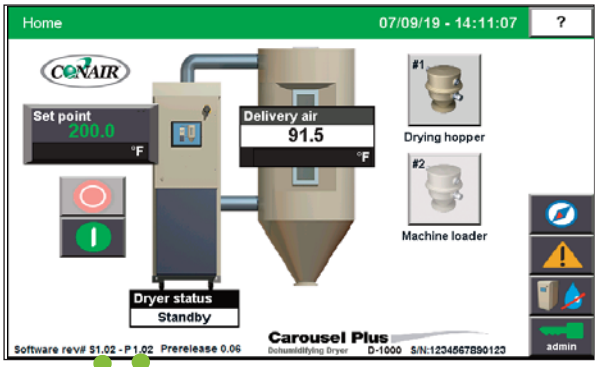
SECTION
4

Operation

Dryer System Control Panel

On power-up, the Carousel Plus Dryer control displays the initial system Home screen.

NOTE: The bottom of the Home screen displays valuable information, including the current date and time, the HMI software version, and the PLC software version. The software versions will be helpful for service and troubleshooting purposes.



HMI software version

PLC software version

At start-up, the system security level is "Default". Once the operator clicks the Login button and enters the user name and password, access is permitted to various areas of the control. The user, depending on security access level, can access the various system and setup screens for the entire Carousel Plus Dryer system.

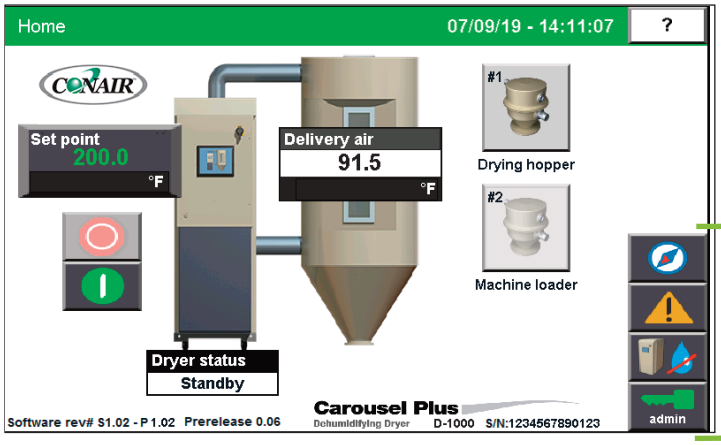
Stand alone dryer

Central or ResinWorks dryer

Your Carousel Plus Dryer Control has been configured at the factory based on the configuration you chose when placing the order. The DC-C can be configured for use with a ResinWorks dryer with multiple hoppers, a central dryer with separate heat source to multiple hoppers, or as a stand alone dryer with heater pack at a single hopper. Once this factory configuration is set (based upon your order) a customer can not change this configuration. The screens, the screen flow, and operation will differ greatly depending on which configuration you are using. The Operation section of this user guide covers each of the three configurations individually.

How to Navigate the Control Screens

Navigate through the DC-C control screens by touching any navigation "buttons".



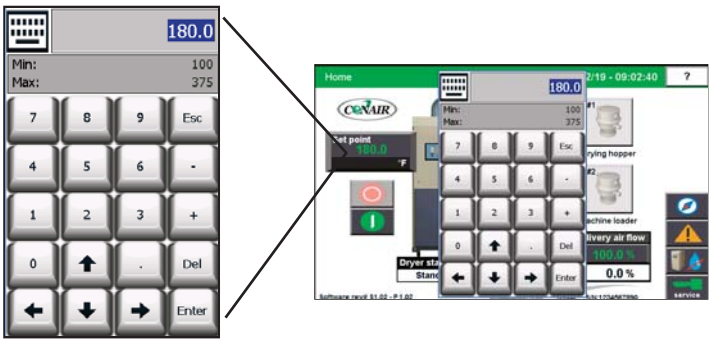
Navigation Buttons
Touching the navigation buttons will take the user to the control screen selected.

(continued)

How to Navigate the Control Screens

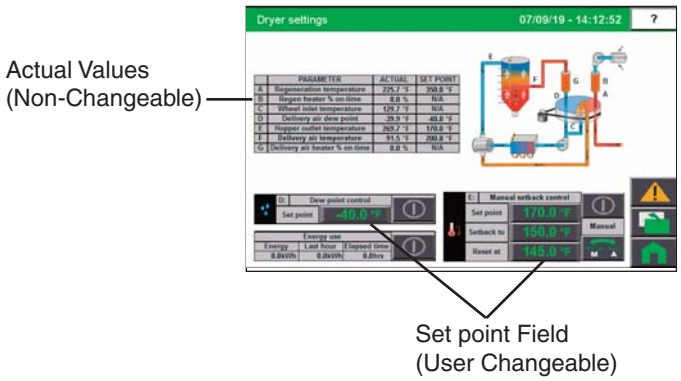
(continued)

The user name, password and other information can be entered using the pop-up keyboard window that appears when an appropriate field is touched. *See DC-C System Security Levels in the Operations Section of this manual for a list of user passwords..*



NOTE: Changing most parameters will require a user login at the proper security level. *See the Operation section of this User Guide entitled DC-C System Security Levels for more information about user login levels and access.*

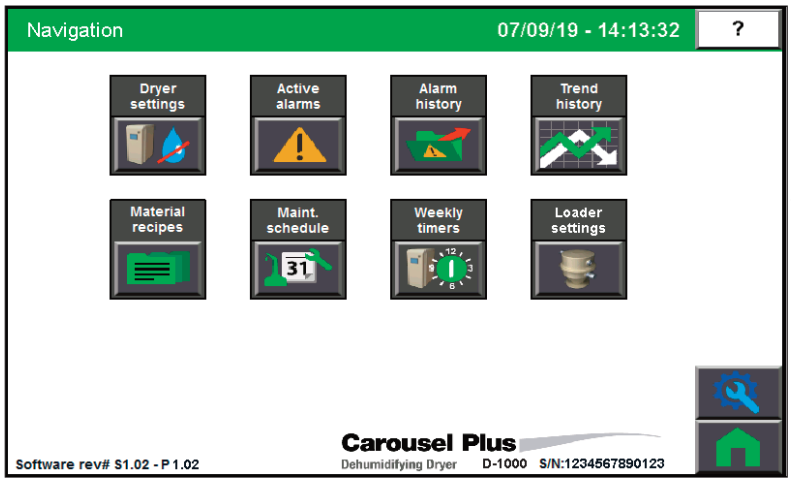
Set points can be entered within fields with raised beveled edges with green values. Values shown within flat rectangles are "actual" values and can not be changed.



(continued)

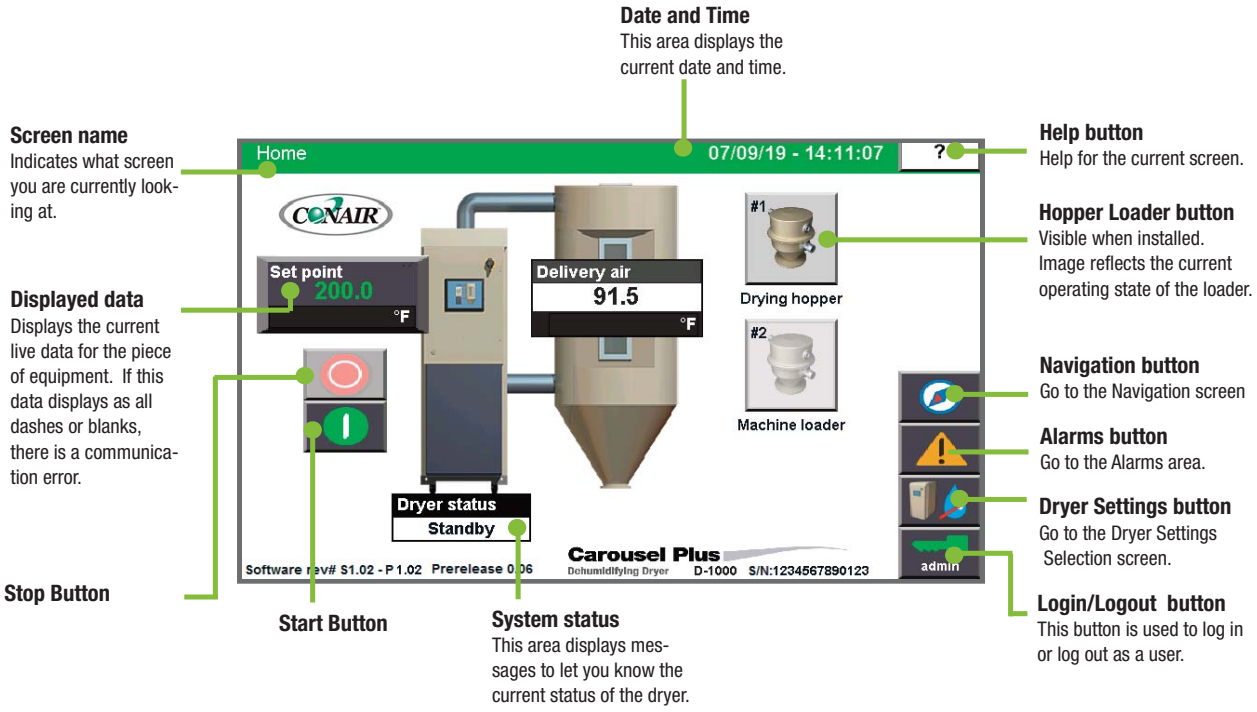
How to Navigate the Control Screens (continued)

All beveled grey buttons on the DC-C control screen are selectable and will direct you to another screen. At any point, pressing the Home button will return you to the home screen.



The DC-C Control Panel

Below is a screen from the DC-C while in operation. This screen is shown as a sample of functionality of a typical DC-C screen. See the functional descriptions below. The following pages are helpful in understanding how to use the DC-C Control.



Date and Time
This area displays the current date and time.

Screen name
Indicates what screen you are currently looking at.

Displayed data
Displays the current live data for the piece of equipment. If this data displays as all dashes or blanks, there is a communication error.

Stop Button

Start Button

System status
This area displays messages to let you know the current status of the dryer.

Help button
Help for the current screen.

Hopper Loader button
Visible when installed. Image reflects the current operating state of the loader.

Navigation button
Go to the Navigation screen

Alarms button
Go to the Alarms area.

Dryer Settings button
Go to the Dryer Settings Selection screen.

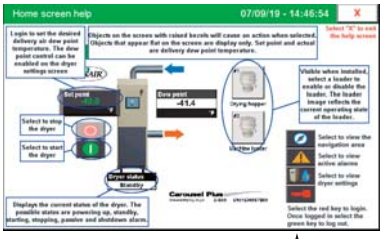
Login/Logout button
This button is used to log in or log out as a user.

Operation - ResinWorks Configuration

The following pages (screen flow charts, screen descriptions, and basic operation) describe the operation of the dryer when factory configured as a ResinWorks dryer attached to multiple hoppers, or as a central dryer attached to one or multiple hoppers with delivery air heat at each hopper.

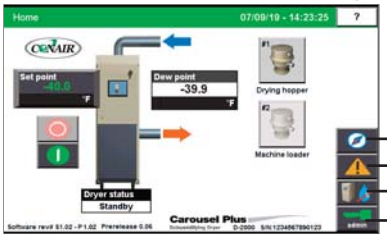
Control Function Flow Charts

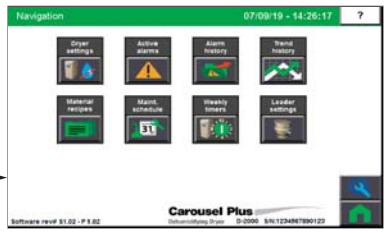
From the Home screen



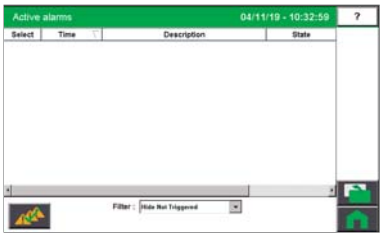
Help

Home

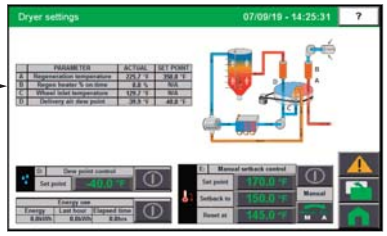




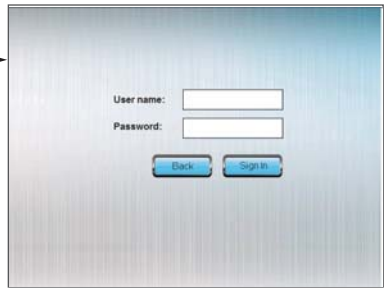
Navigation



Active Alarms



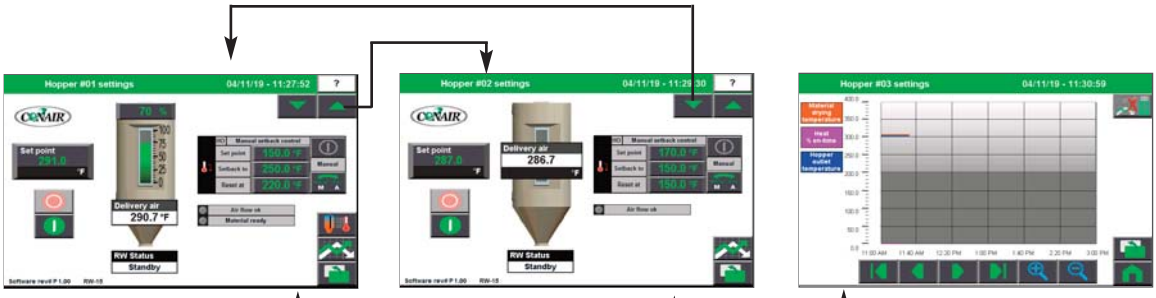
Dryer Settings



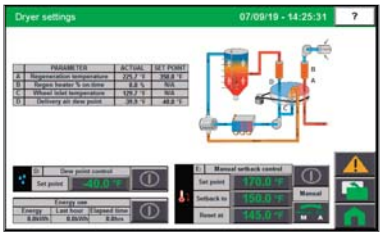
Login

Control Function Flow Charts

From the Navigation screen

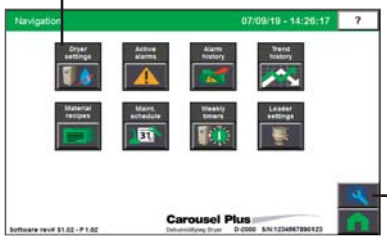


Dryer Settings

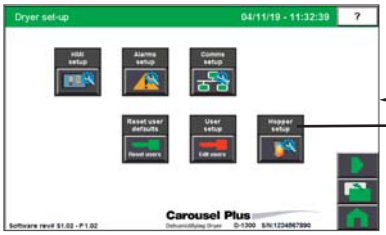


Hopper Selection

Navigation



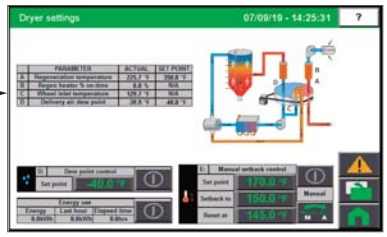
Dryer Setup



Control Function Flow Charts

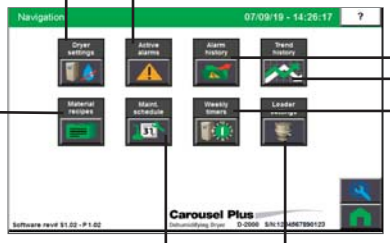
From the Navigation screen

Dryer Settings



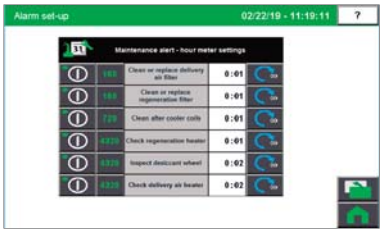
Active Alarms

Navigation

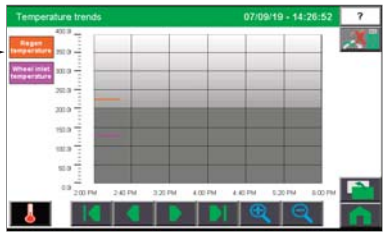


Alarm History

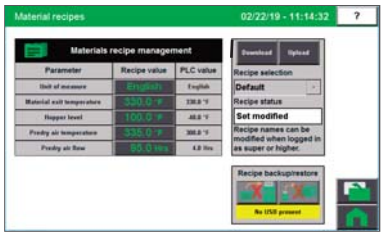
Maintenence Schedule



Trend Screen

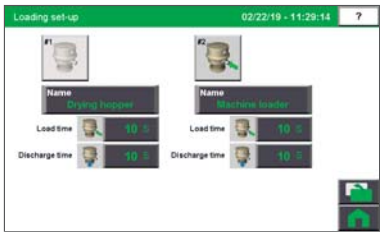


Material Recipes



Auto Start/Stop Settings

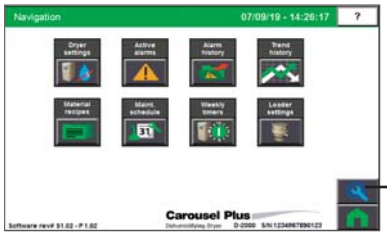
Loader Set-up Screen



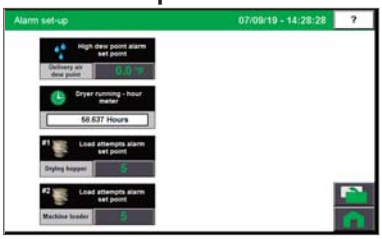
Control Function Flow Charts

From the Setup screen

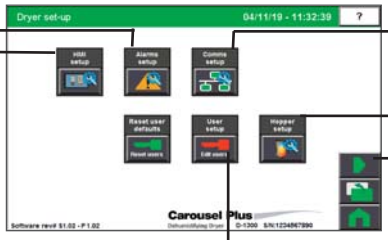
Navigation



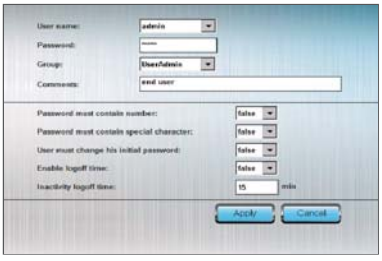
Alarm Set-up



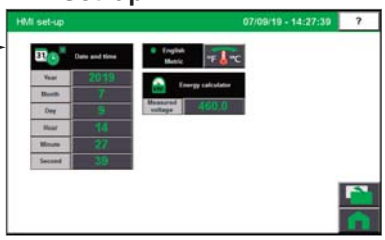
RW Dryer Setup
after pressing wrench

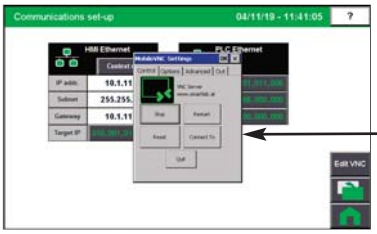


User Set-up

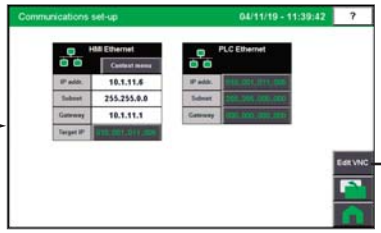


HMI Set-up



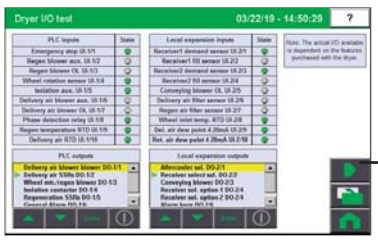


Pop up -
from edit
VNC button



Comm
Set-up

Hopper
Set-up



Dryer
I/O Test

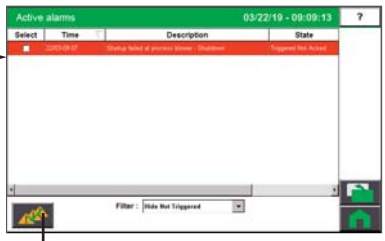
Dryer
I/O Test 2

(Continued)

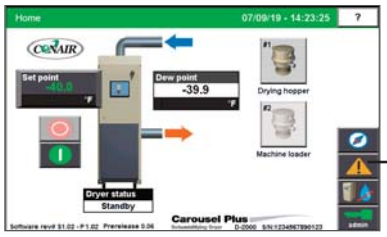
Control Function Flow Charts

From the Alarm screen

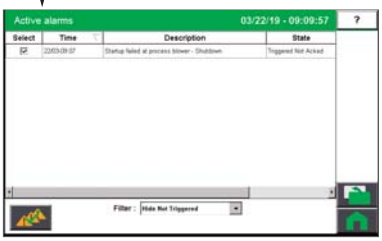
Alarms



Home



Acknowledge all Alarms



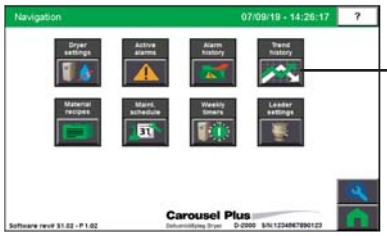
(Continued)

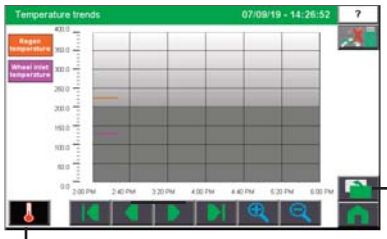
Control Function Flow Charts

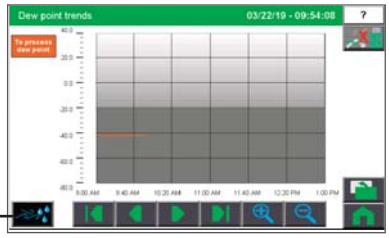
From the Trend Selection screen

Navigation

Temperature







Dewpoint

NOTE: You can view additional trend screens on the optional ResinWorks HMI screens at each hopper

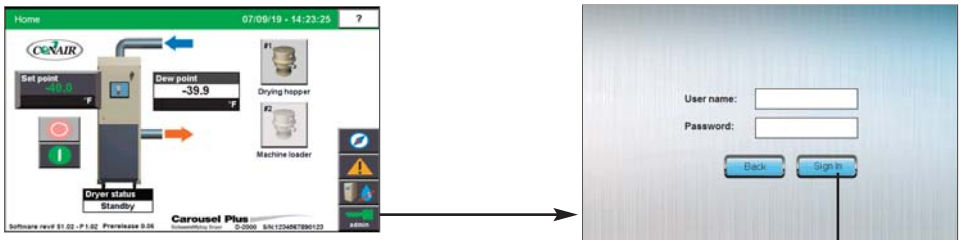
(continued)

Control Function Flow Charts

From the Login/Logout screen

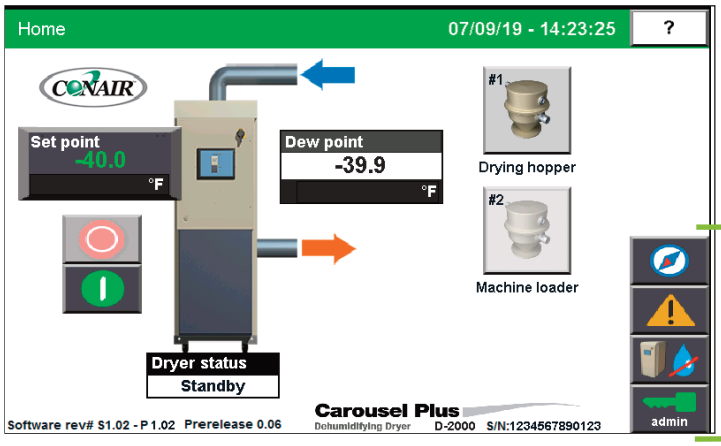
Home

Login Screen



Control Function Descriptions - RW Configuration

Home Screen



Navigation Buttons
Touching the navigation buttons will take the user to the control screen selected.

The Home screen provides the user with the current live information concerning the processes within the dehumidifying dryer including:

- Setpoint
- Dryer Status
- Dew point

It tells the user the current status of the dryer blower (powering up, standby, starting or stopping, passive and shutdown alarms).

If the user is logged-in at the proper security level, changes can be made to:

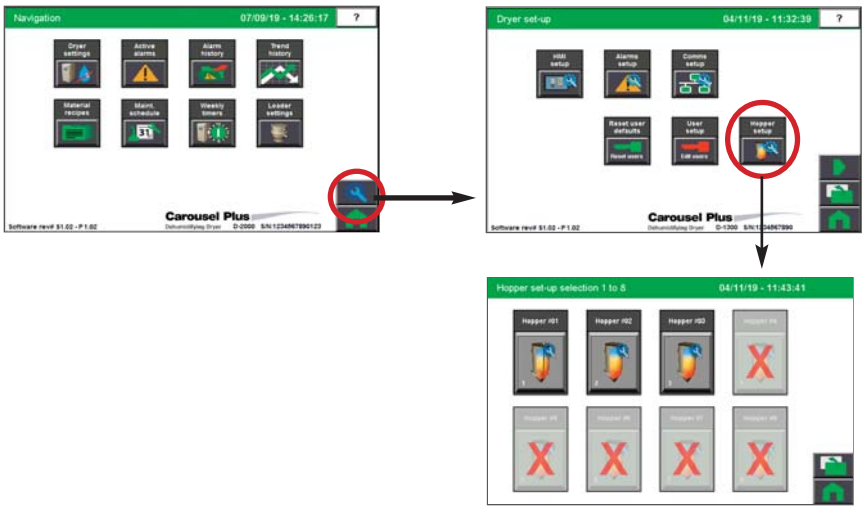
- Setpoint - When used as a central dryer the setpoint allows you to set the desired dewpoint level.

This screen also allows the user to start or stop the dryer. The user can also view the other system parameters on the Navigation screen, view alarms, view hopper settings, or log in by pressing the applicable buttons on the right of the screen.

NOTE: Live data is displayed as text inside a box. Set point boxes have beveled edge borders and green text. Set points can be changed, if the user has logged in at the proper security level, by pressing the set point boxes. This will launch a pop-up keypad window that can be used to change the set point. *See Operation section entitled, How to Navigate Control Screens.* After the new set point value has been entered, press the **"Enter"** key to lock in the new set point.

Control Function Descriptions - RW Configuration (continued)

Navigation Screen

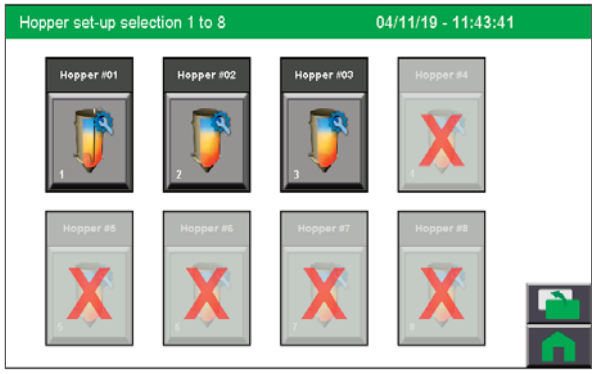


To access the Hopper Set-up Selection screen:

1 **Press the Wrench button on the Navigation screen** to get to the Dryer Set-up screen. Then press the Hopper Set-up button to get to the Hopper Set-up Selection screen.

The Hopper Setup Selection screen provides the user with the list of enabled hoppers. If the list is empty, or does not show the proper number of hoppers, Setup has not been completed yet. *See Operation section entitled: Hopper Setup.*

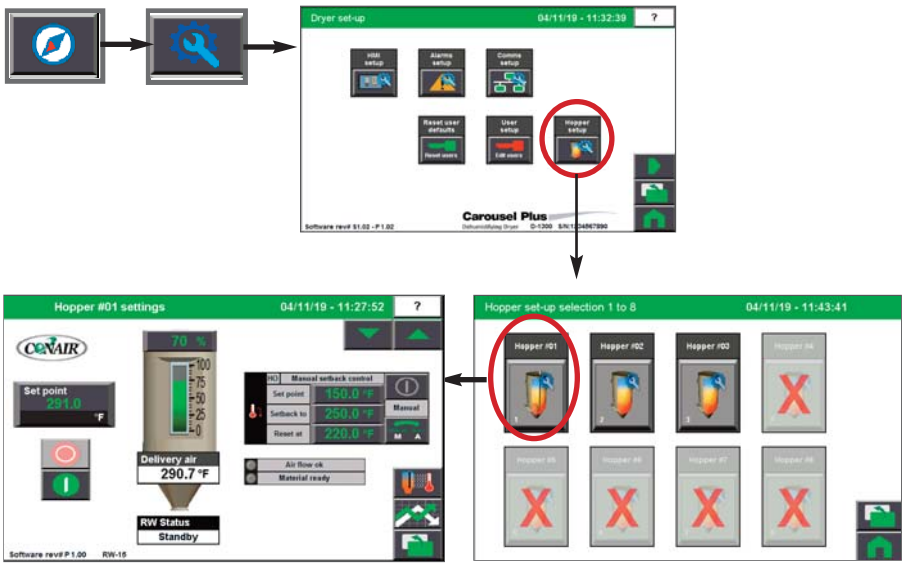
NOTE: Depending on which options your dryer has been configured with, and whether or not you have the Drying Monitor enabled, your screens and icons may appear different. For example, if your Resin-Works system is Drying Monitor™ equipped, your hoppers will display as Drying Monitor hoppers.



(continued)

Control Function Descriptions - RW Configuration (continued)

Hopper Set-up Screen



NOTE: Depending on which options your dryer has been configured with, whether or not you have the Drying Monitor enabled, and your user level, your screens and icons may be different from what is shown here. For example, if your ResinWorks system is Drying Monitor equipped, your hoppers will display as Drying Monitor hoppers (as shown in these graphics).

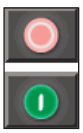
To access the Hopper Set-up screen:

1. **From the Home screen Press the Navigation button.**
2. **Press the Wrench (setup) button on the Navigation screen** to get to the Dryer Set-up screen.
3. **Press the Hopper Set-up button to go to the Hopper Set-up Selection screen.**

The Hopper Set-up screen provides the user with the list of enabled hoppers. Selecting the individual hopper takes you to a Hopper Settings screen where hopper parameters can be set and the hopper heater can be stopped or started using the red (stop) and green (start) buttons.

NOTE: *See the Appendix of this User Guide for more information about using the Drying Monitor.*

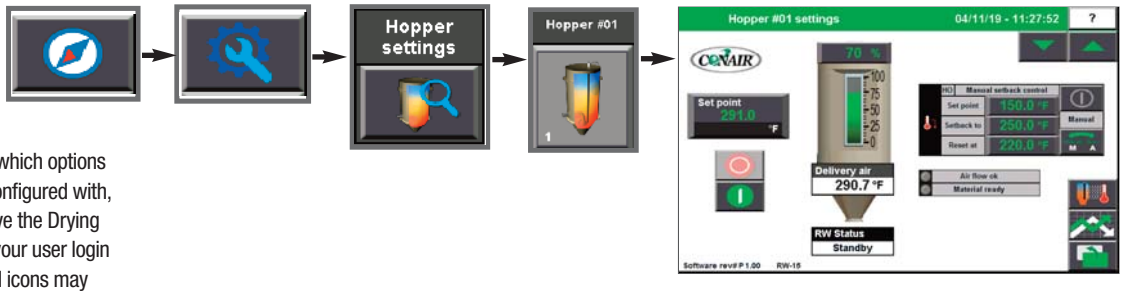
NOTE: In addition to starting and stopping the dryer, the Start and Stop buttons indicate whether the dryer can currently be started or stopped. A faded or not vibrant button indicates that the dryer is not ready/able to complete that function. For example, a faded Stop button indicates the dryer is not ready to stop.



(continued)

Control Function Descriptions - RW Configuration (continued)

Hopper Setpoint Settings screen



NOTE: Depending on which options your dryer has been configured with, whether or not you have the Drying Monitor enabled, and your user login level, your screens and icons may appear different. For example, if your ResinWorks system is Drying Monitor equipped, your hoppers will display as Drying Monitor hoppers.

To access the Hopper Setpoint Settings screen:

1 Press Navigation, Settings, Hopper Settings, Hopper Setup Selection.

The Hopper Settings Screen allows the user to establish the setpoints for the Delivery Air, the Setback, the Hopper Outlet Temperature, and to enable/disable the Setback feature. These setpoints can be adjusted for each hopper in your drying system (if equipped with setback).

NOTE: Setback must be installed and enabled at each HTC in a central drying system.

NOTE: Set points boxes are white with heavy black borders. Set points can be changed, if the user has logged in at the proper security level, by pressing the set point boxes. This will launch a pop-up keypad window that can be used to change the set point. *See Operation section entitled, How to Navigate the Control Screens.* After the new set point value has been entered, press the **"Enter"** key to lock in the new set point.

Temperature Setback explained:

The purpose of Temperature Setback is to save on delivery air heat (energy) and to minimize resin degradation due to overheating the material.

Temperature Setback works by monitoring the air temperature at the top of the hopper. The setback features drops the delivery air temperature if the air temperature at the top of the hopper gets too high. This saves energy and keeps the material from overheating.

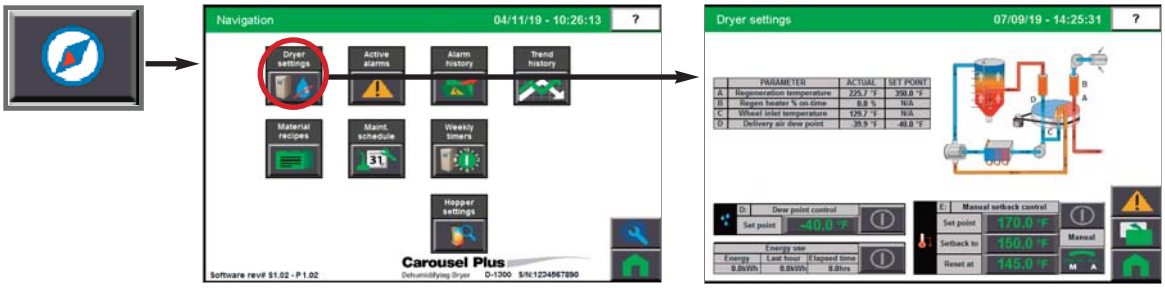
NOTE: *See the Appendix of this User Guide for more information about using the Drying Monitor.*

NOTE: High temperature at the top of the hopper could be the result of dried resin not leaving the hopper as it should, or fresh resin not entering the hopper as it should. Check the conveying system to make sure that material is entering and exiting the hopper when it should be.

(continued)

Control Function Descriptions - RW Configuration (continued)

Dryer Settings screen



To access the ResinWorks Dryer Settings screen:

1 **Press the Navigation button** from the Home screen.

2 **Press the ResinWorks Dryer Settings button**.

The ResinWorks Dryer Settings screen provides the user with the ability to enable or disable options.

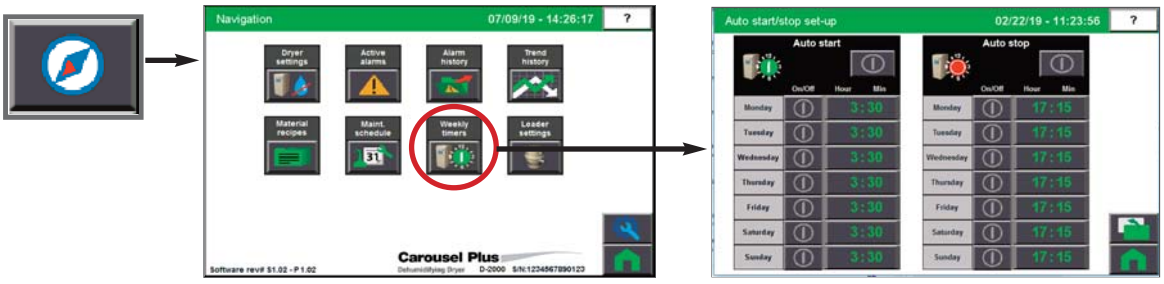
This screen allows you to change:
- Dewpoint Control
- Enable Energy use monitor.
- Utilize Setback control - manual or auto.

NOTE: Proper login is required to change these settings.

(continued)

Control Function Descriptions - RW Configuration (continued)

Autostart Setup screen



NOTE: Proper login is required to change these settings.

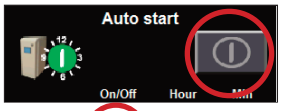
To access the Autostart screen:

1. **Press the Navigation button** from the Home screen.
2. **Press the Weekly Timers button**.

NOTE: Autostart timer uses 24 hour time format. 00:00 is midnight. Note that this is a seven (7) day repeating calendar, and not real time.

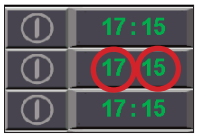
The Autostart Setup screen provides the user with the ability to enable or disable and set the start and stop time for dryer for each day of the week.

To setup Auto Start and Auto Stop:



1. **Press the Enable button to enable Dryer Auto Start**.

2. **Press the Enable button next to each day of the week you would like to set the Auto Start time**.

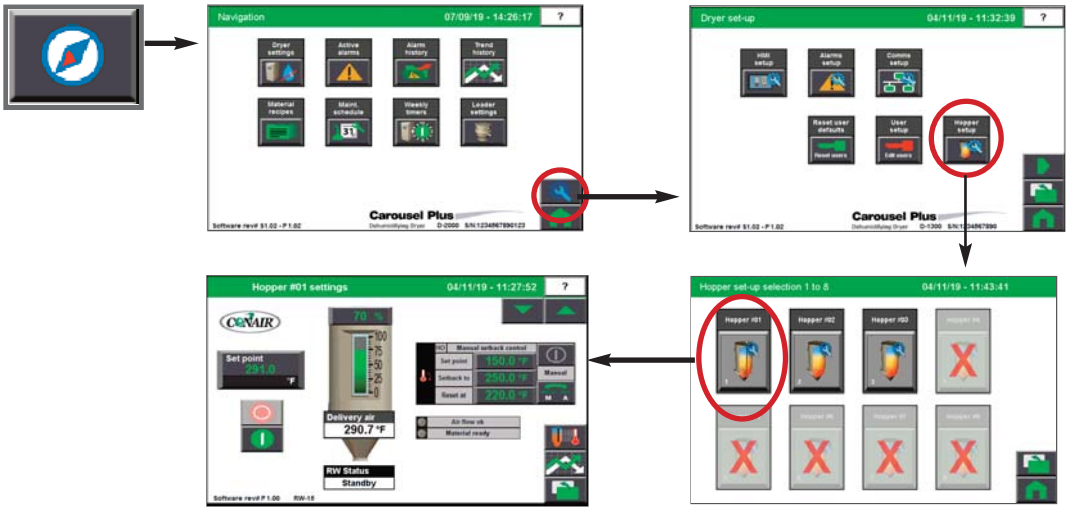


3. **Set the Auto Start time for each day you have enabled.**
4. **Press the Enable button next to each day of the week you would like to set the Auto Stop time**.
5. **Set the Auto Stop time for each day that you have enabled.**

(continued)

Control Function Descriptions - RW Configuration (continued)

ResinWorks Hopper Setup screen



To access the ResinWorks Hopper Setup screen:

1 **Press the Navigation button** from the Home screen.

2 **Press the Wrench button and then Press the Hopper Setup button to go to the Hopper Set-up Selection screen**.

3 **Press the individual Hopper Button to go to the Hopper Settings screen for that individual hopper.**

NOTE: *See the Appendix of this User Guide for more information about using the Drying Monitor.*

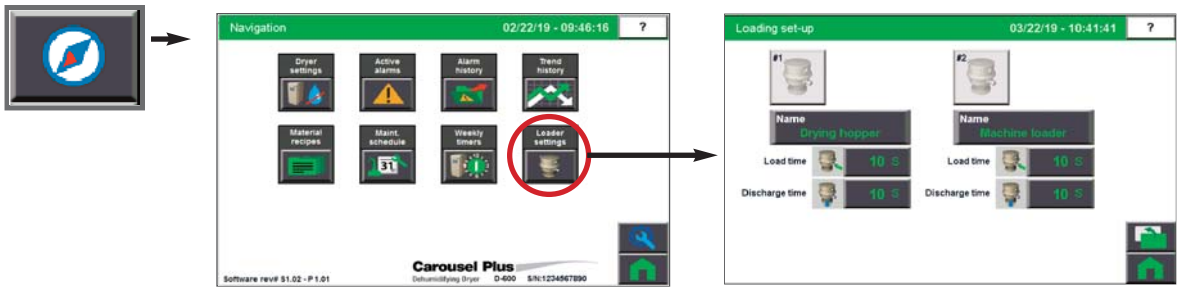
The Hopper Set-up screen provides the user with the list of enabled hoppers. Selecting the individual hopper takes you to a Hopper Settings screen where hopper parameters can be set and the dryer can be stopped or started using the red (stop) and green (start) buttons.

NOTE: Proper login is required to change these settings.

(continued)

Control Function Descriptions - RW Configuration (continued)

Hopper Names screen



NOTE: Proper login is required to change these settings.

To access the Hopper Names screen:

1. **Press the Navigation button** from the Home screen.
2. **Press the Loader Settings button**.
3. **Press the Name button**.

The Hopper Names screen provides the user with the ability to customize the name of any hopper in the system. This name will be displayed as the hopper name on all future screens.

NOTE: Changing the hopper display name does not change the order of the hoppers. This order is based on the hopper communications settings and can not be changed.

To customize a hopper name:

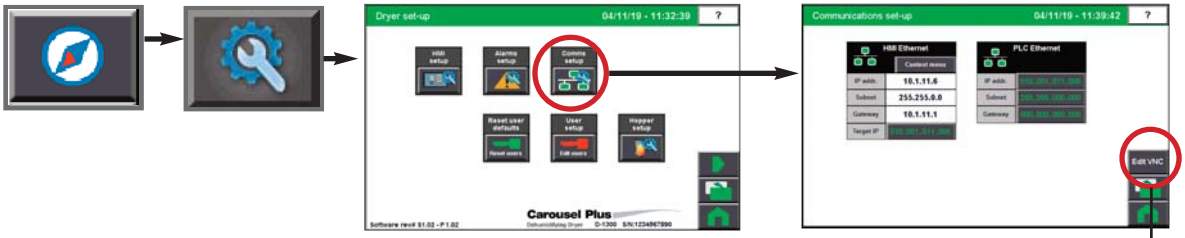
1. **Press the text inside the box of the hopper you would like to rename.** All hoppers are factory named. (This is simply a space holder for a user entered hopper name up to 16 characters.)
2. **Use the keypad to enter your new hopper name.** Hopper names can be up to 16 characters in total length.
3. **Press the enter button when complete.**
4. **Use steps 1 through 3 to change the name of each hopper you would like to customize.**

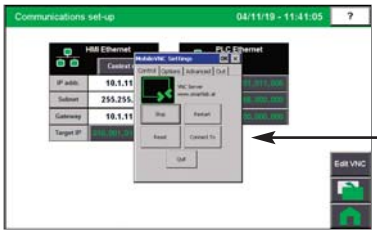
NOTE: Hopper names can be changed multiple times as necessary. Conair recommends naming the hopper using whatever system works for your application. Some users may choose to name hoppers by material type or color; others may choose to name hoppers based on physical characteristics, such as CH-54 Hopper.

(continued)

Control Function Descriptions - RW Configuration (continued)

Communications screen





Press the Edit VNC button, which is visible when logged in as admin, to access the VNC server settings pop-up window.

To access the Hopper Comms screen:

1. **Press the Navigation button** from the Home screen.
2. **Press the Setup button (Wrench)**.
3. **Press the Comms Set-up button**.

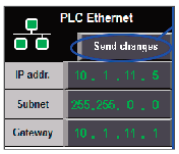
The Communications Setup screen provides the user with the ability to view current HMI Ethernet settings, or to change and apply new Ethernet settings.

NOTE: Proper login is required to change these settings.

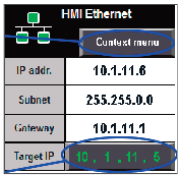
Changing Ethernet settings requires the Admin login. Only qualified personnel should attempt changes. Improper setting sequence or values will result in loss of communications. Always record your new settings before making any changes. Always set the PLC first!

To apply new Ethernet settings:

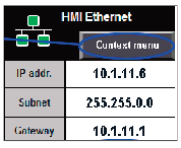
1. **Verify new PLC settings and Press the "Send changes" button which is visible when settings are different.**



2. **Set the target IP to the new PLC IP address**.



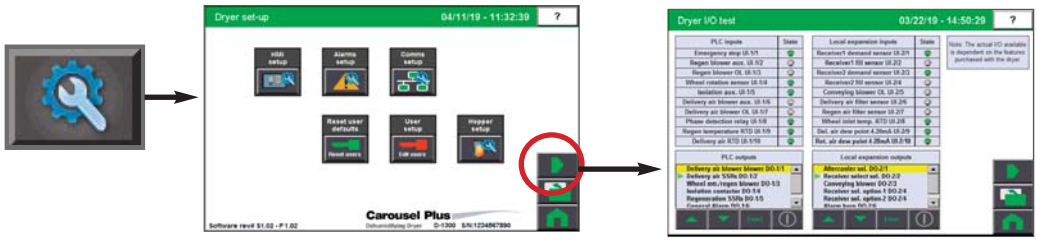
3. **Press the "Context Menu" button, then on the pop-up menu select "show system settings". Under network set the new HMI IP address.**



(continued)

Control Function Descriptions - RW Configuration (continued)

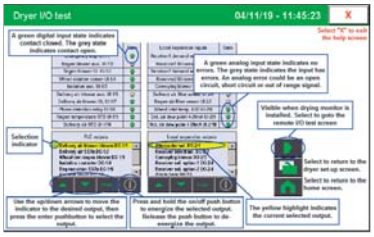
I/O Test screen



NOTE: Proper login is required to change these settings.

To access the I/O test screen:

1. **Press the Settings button** from the Navigation screen.
2. **Press the right arrow.**
3. **Follow the Help Screen Instructions.**

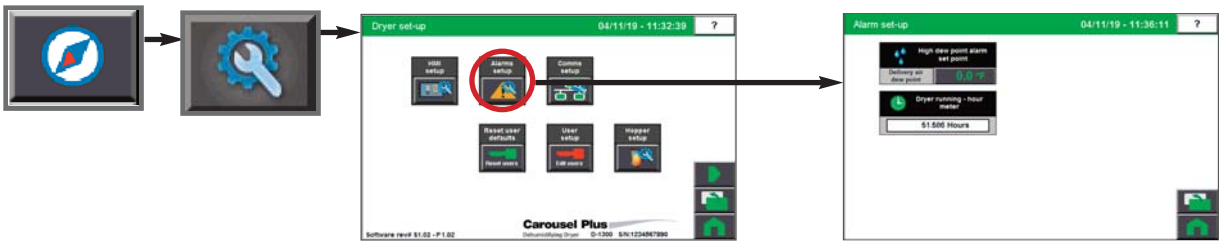


The Dryer I/O screen provides the user with the ability to test individual I/O.

(continued)

Control Function Descriptions - RW Configuration (continued)

Alarm Setup screen



NOTE: Proper login is required to change these settings.

To access the Alarm Setup screen:

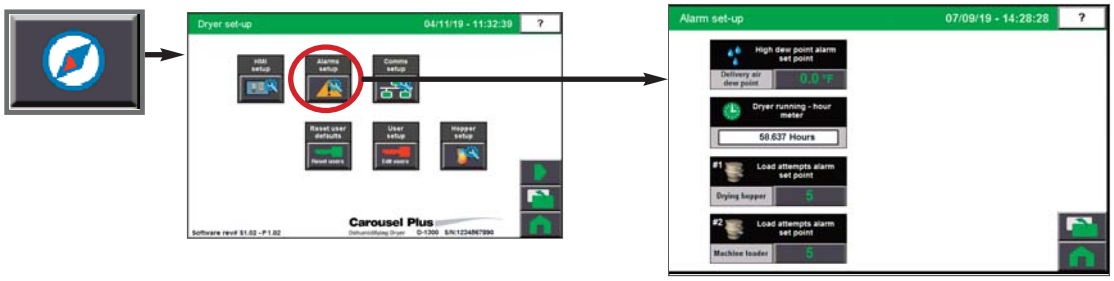
1. **Press the Navigation button** from the Home screen.
2. **Press the Set-up (wrench) button** to get to the Dryer Set-up screen.
3. **Press the Alarm Set-up button**.

The Alarm Setup screen provides the user with the ability to adjust setpoints for alarms in the ResinWorks system. Both passive and shutdown alarms can be modified from these screens. The number of alarms visible is dependent on the options installed.

(continued)

Control Function Descriptions - RW Configuration (continued)

Alarm Setup Screen with more options installed



To access the Alarm Setup screen:

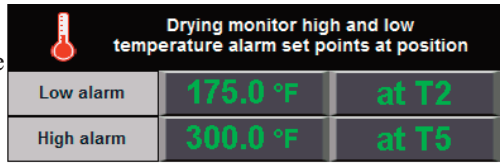
1. **Press the Navigation button** from the Home screen.
2. **Press the Set-up (wrench) button** to get to the Dryer Set-up screen.
3. **Press the Alarm Set-up Screen button**.
4. **Enter the desired setpoint and delay (if applicable) for each alarm.**

IMPORTANT: Factory default alarm setpoints should not be changed without first consulting with Conair.

Conair's Instant Access 24/7 Parts and Service number is 800-458-1960. Outside the U.S., dial 814-437-6861.

When conveying is installed, the Setup screen provides the user with the ability to enter the number of load cycles that will cause an alarm, if the demand is not satisfied in that number of cycles.

When drying monitor is installed, low and high temperature alarms is visible and can be set at the same or different points in the drying hopper.



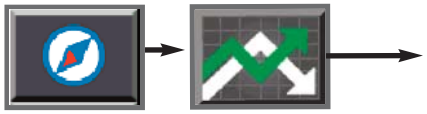
When continuous level is installed, the Hopper low level alarm setpoint is visible and the low alarm level can be entered.

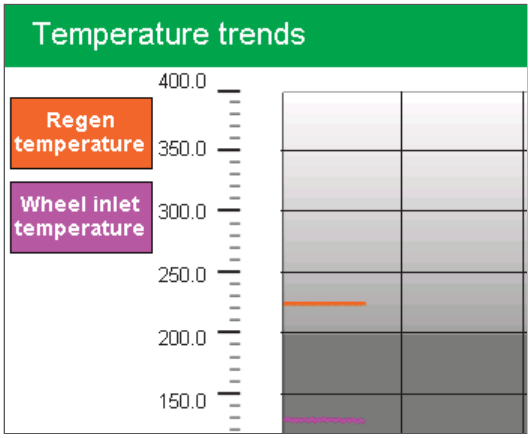
NOTE: Proper login is required to modify alarm settings. Depending on your dryer configuration, your alarm choices and screen configurations may vary from what is shown in this User Guide.

(continued)

Control Function Descriptions - RW Configuration (continued)

Trending **(Dryer Trends)**





To access the Dryer Trending screens:

1 **Press the Trending button** on the Navigation or hopper screen.

2 **Press the Trend button.**

The Trend Selection screen displays the various trends. Press the next tend button on the bottom left of each screen to advance to the next screen.

- Temperature Trends
- On-time Trends
- Dewpoint Trends
- Energy Use Trends

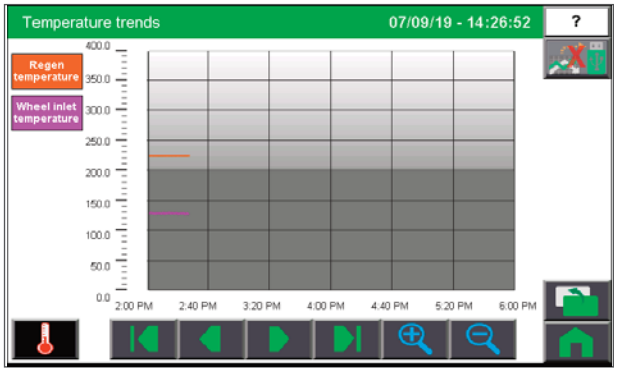
NOTE: Depending on your DC-C configuration, and system security, different users may not be able to access the trending screens. Additional trend screens are available on the optional ResinWorks HMI screen at each hopper.

NOTE: When there is more than one heat source, the drying monitor, setback and delivery air temperature are part of the hopper not the dryer. If it is a single heat source, internal electric, HTC or CGT, this is all part of the dryer.

TIP: A dashed line or a break in the trend line represents a time where power to the dryer was off (either due to shutdown or to power outage).

Trending Screen Navigation

Each trending screen will allow the user to scroll through data. When the screen first opens, it will display values sampled every 15 seconds. Each colored line represents a pen or variable being trended. Up to 14 days of data is recorded and available for review. The scroll buttons near the bottom of the screen allow the user to scroll back to an earlier time or forward to the present time, or jump immediately to live data. The user can also touch any point on the trend line and the display will show the data reading, date, and time for that spot in the trend.




Scroll to the beginning or end of the record.


Scroll back or forward one point at a time (30 seconds).


Move to the next trend screen.

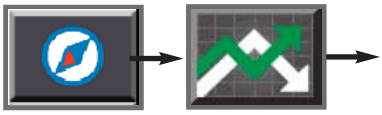

Zoom in (Instead of seeing 2 hours of trend in the window, you will see 1 hour, 30 minutes, 15 minutes, etc.)

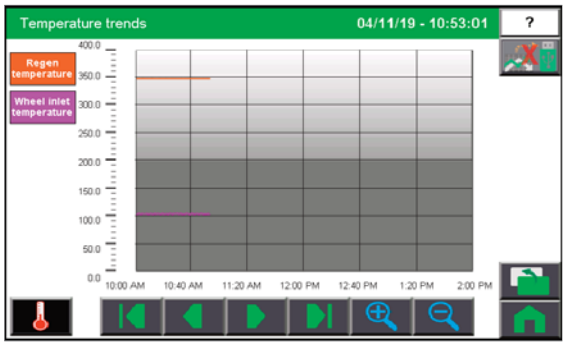

Zoom out (Instead of seeing 2 hours of trend in the window, you will see 3 hours, 4 hours, 5 hours, etc.)

(continued)

Control Function Descriptions - RW Configuration (continued)

Dry Air Temperature Trend





To access the Dry Air Temperature Trend screen:

1. **Press the Trending button** on the hopper screen.

2. **Press the Dryer Air Temperature Trend button**.

The Dryer Air Temperature Trending screen allows the user to view the air temperature trend vs. time at several locations in the Carousel Plus Dryer. The air temperature reading locations are denoted by various colors. The colors associated with the locations are:

Orange: Regeneration Temperature (within the dryer)
Pink: Wheel Inlet Temperature

The Dry Air Temperature Trending screen shows values sampled every 15 seconds. Each colored line represents a pen or variable being trended. Up to 14 days of data is recorded and available for review. The scroll buttons near the bottom of the screen allow the user to scroll back to an earlier time or forward to the present time.

NOTE: Using the scroll backward and scroll foward arrows will zoom in/out on the displayed time period and scrolling time periods. Each zoom+ is time period divided by 2 and each zoom- is time period times 2.

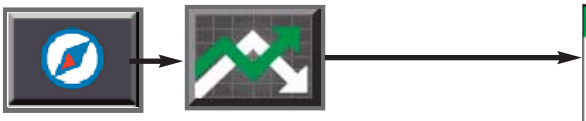
NOTE: *See Trending Screen Navigation (Operation Section: Control Function Descriptions- RW Configuration: Trending) for more information on how use the navigation buttons to navigate through individual trending screens.*

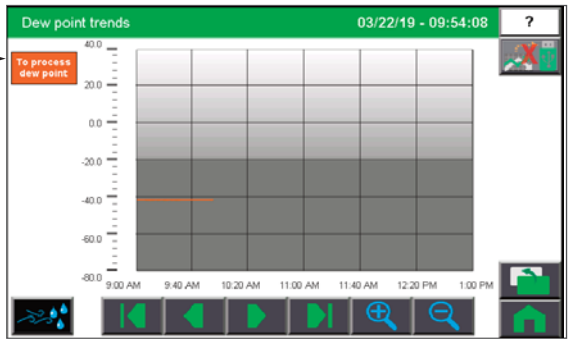
(continued)

Control Function Descriptions - RW Configuration (continued)

NOTE: Using the scroll backward and scroll foward arrows will move the line 30 seconds at a time.

Dryer Dewpoint Trend





To access the Dryer Dewpoint Trend screen:

1 **Press the Trending button** on the hopper screen.

2 **Press the Dryer Dewpoint Trend button**.

The Dewpoint Trending screen allows the user to view the dewpoint trend vs. time in the Carousel Plus Dryer.

The Dewpoint Trending screen shows values sampled every 15 seconds. Each colored line represents a pen or variable being trended. Up to 14 days of data is recorded and available for review. The scroll buttons near the bottom of the screen allow the user to scroll back to an earlier time or forward to the present time.

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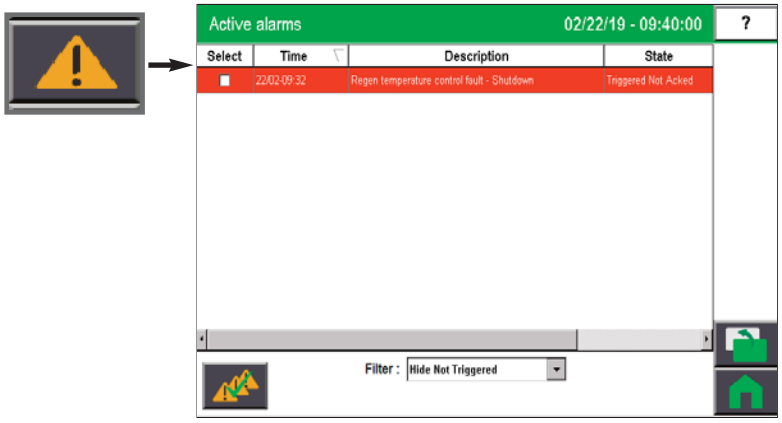
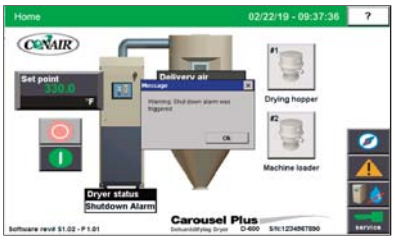
NOTE: *See Trending Screen Navigation (Operation Section: Control Function Descriptions- RW Configuration: Trending) for more information on how use the navigation buttons to navigate through individual trending screens.*

(continued)

Control Function Descriptions - RW Configuration (continued)

Alarms





When an alarm occurs, an audible sound will be triggered and the operator interface will display a flashing alarm message.

To view an alarm from any operator screen, press the Alarm button.

1 Press the Alarms button.

2 View the current alarms.

3 Decide if you want to Acknowledge Alarms, Silence and Acknowledge Alarms, Reset All Alarms or clear individual alarms.

If you select the alarm "check the box" or touch the word "select" to select all, the selected alarms will also be acknowledged. The filter can be changed to "show all" to acknowledge previous alarms that are no longer active.

The following buttons are available from the Alarms log screen:

Help Screen.


Alarm History- Pressing the Alarm History button will show a detailed list of the alarm history.

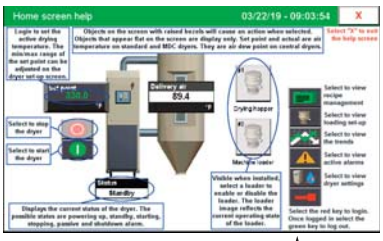

Acknowledge All - The acknowledge all button is used to acknowledge all the alarms on the list.

Operation - Stand Alone Dryer Configuration

The following pages (screen flow charts, screen descriptions, and basic operation) describe the operation of the dryer when factory configured as a stand alone dryer attached to a single hopper with a Conair Heater Pack.

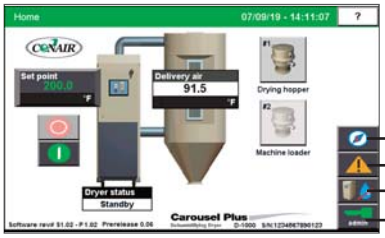
Control Function Flow Charts

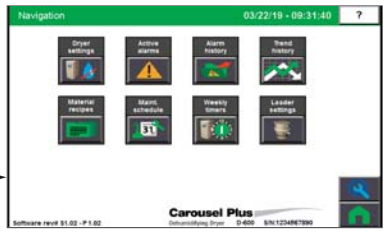
From the Home screen



Help

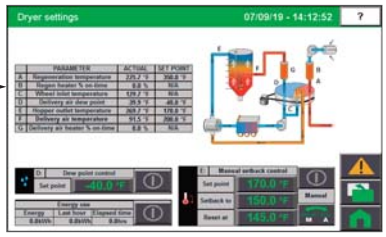
Home





Navigation

Active Alarms



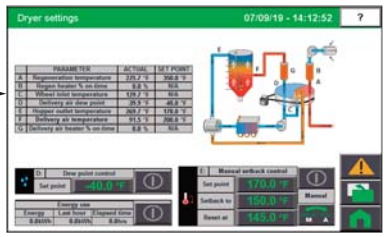
Dryer Settings

Login/ Logout

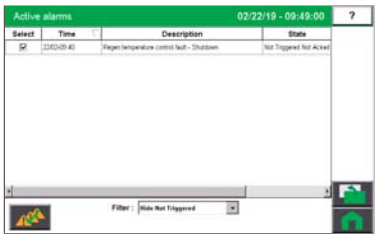
Control Function Flow Charts

From the Navigation screen

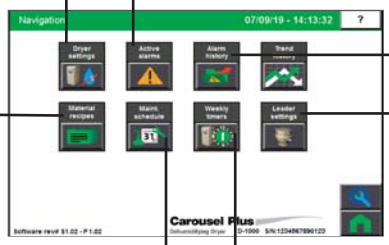
Dryer Settings



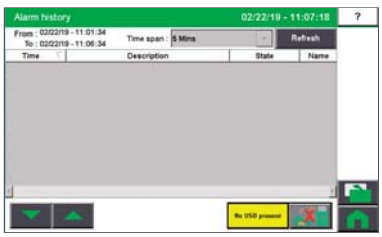
Active Alarms



Navigation



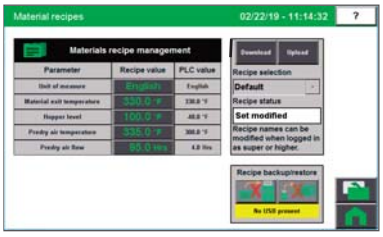
Alarm History



Maintenon Schedule

Loader Settings

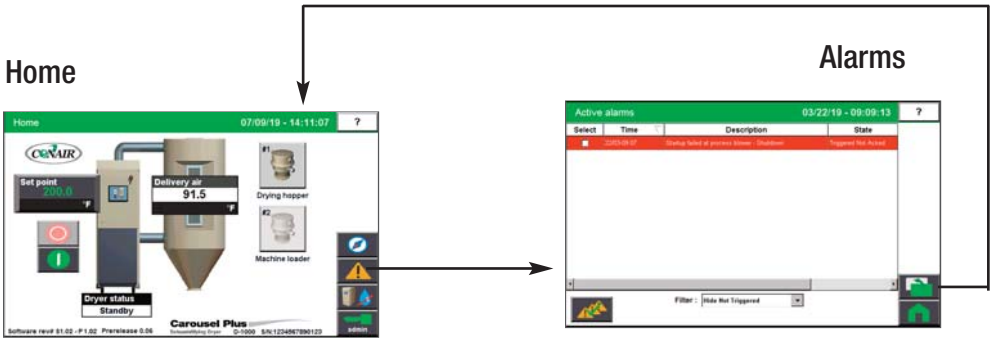
Material Recipes



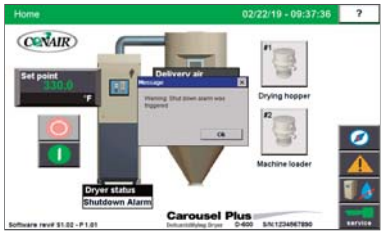
Auto Start/Stop Settings

Control Function Flow Charts

From the Alarm screen

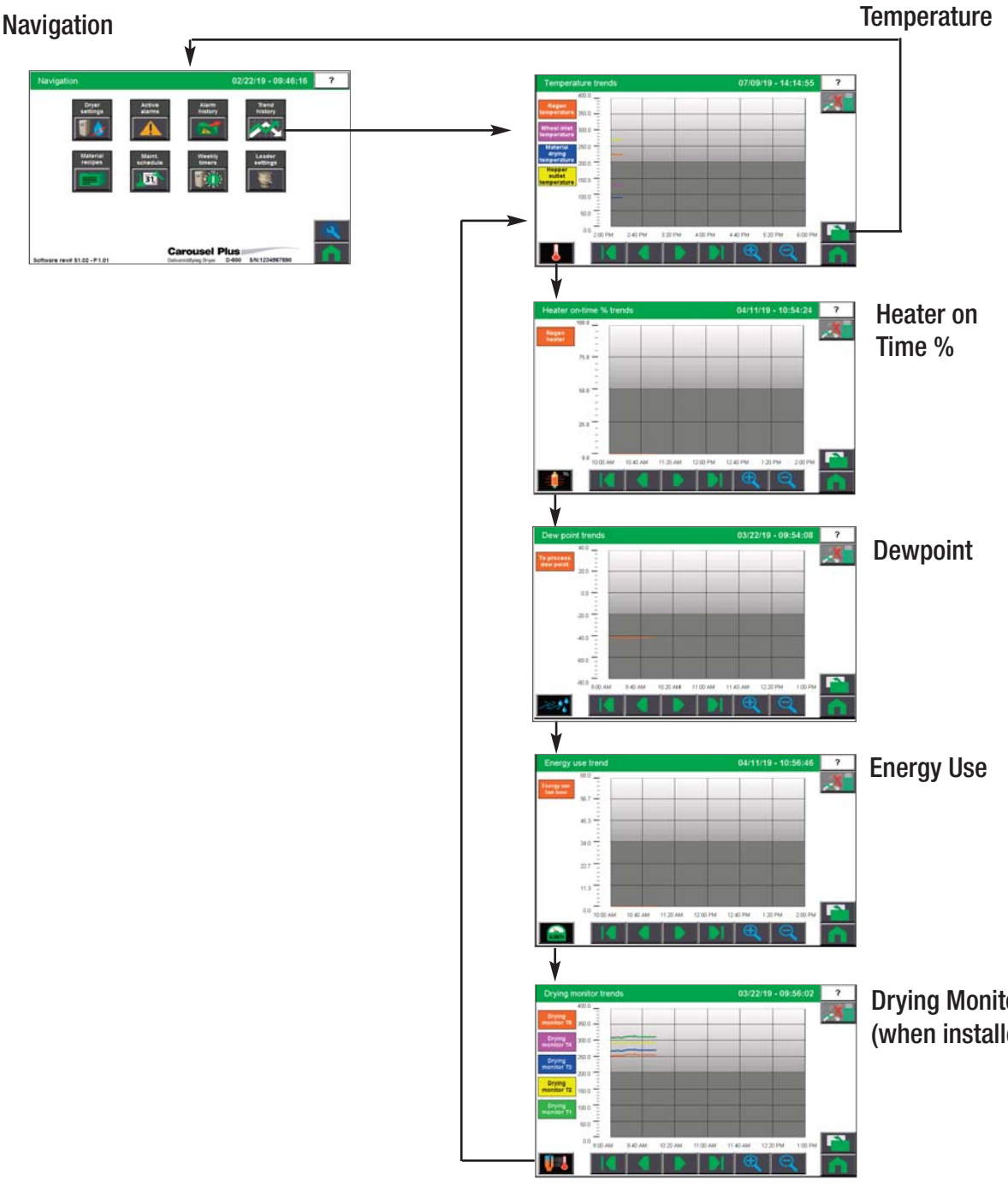


Alarm Message Pop-up



Control Function Flow Charts

From the Trend Selection screen

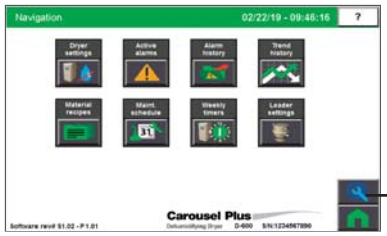


(Continued)

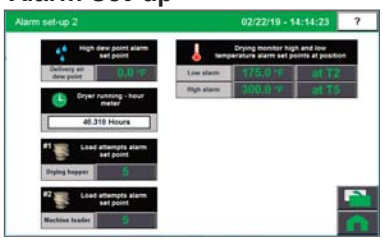
Control Function Flow Charts

From the Setup screen

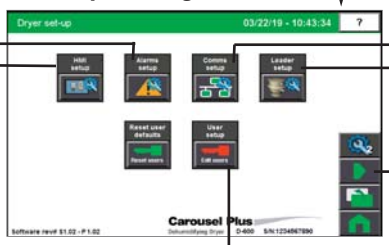
Navigation



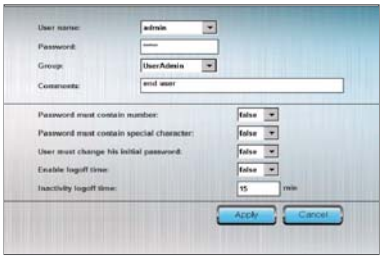
Alarm Set-up



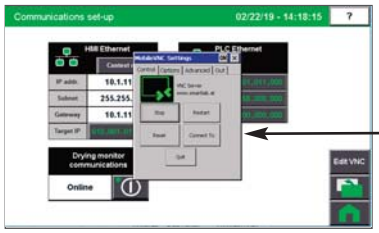
Dryer Setup
after pressing wrench



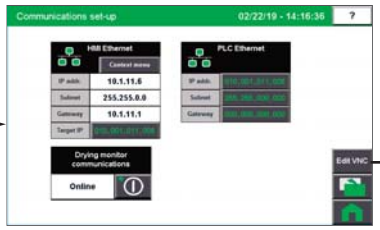
User Set-up



HMI Set-up

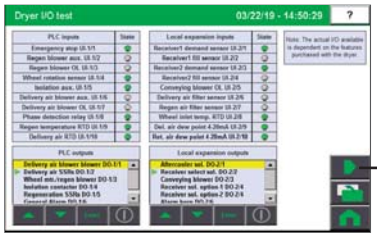


Pop up -
from edit
VNC button



Comm
Set-up

Loader
Set-up



Dryer
I/O Test

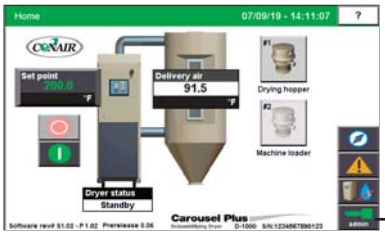
Dryer
I/O Test 2

(Continued)

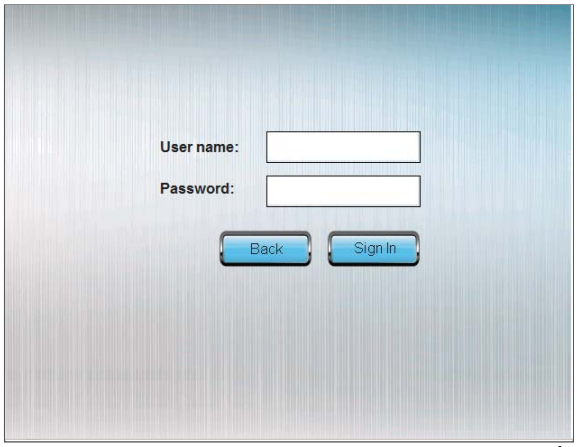
Control Function Flow Charts

From the Login/Logout screen

Home



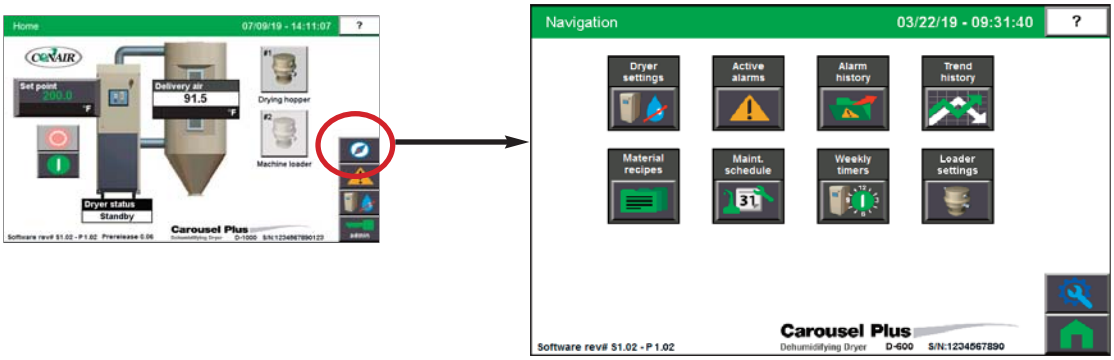
Log-in



(Continued)

Control Function Descriptions - Stand Alone Configuration

Dryer Navigation Screen



NOTE: On this Home screen, live data is displayed. Data is displayed as colored text inside a box. Set points boxes are beveled buttons. Set points can be changed, if the user has logged in.

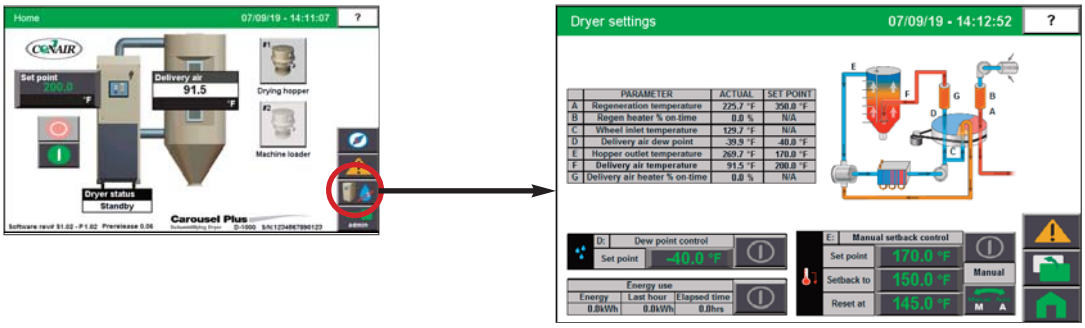
To access the Dryer Navigation Screen:

1 **Press the Dryer Navigation button** located on the home screen.

The Dryer Navigation screen provides the user with access to dryer set-up screens.

Control Function Descriptions - Stand Alone Configuration (continued)

Dryer Settings Screen



To access the Dryer Detail screen:

1 **Press the Dryer button** associated with the dryer on the Home screen.

The Dryer Settings screen provides the user with the current live information concerning the processes within the dehumidifying dryer including:

- Regeneration Temperature
- Regen Heater % on-time
- Wheel Inlet Temperature
- Hopper Outlet Temperature (if equipped with setback)
- Delivery Air Temperature
- Delivery Air Dewpoint
- Delivery Air Heater % On Time
- Drying Monitor Zone Temperatures (if equipped)

If the user is logged-in at the proper security level, setpoint changes can be made to:

- Manual Setback Control
- Dewpoint Control Setpoint

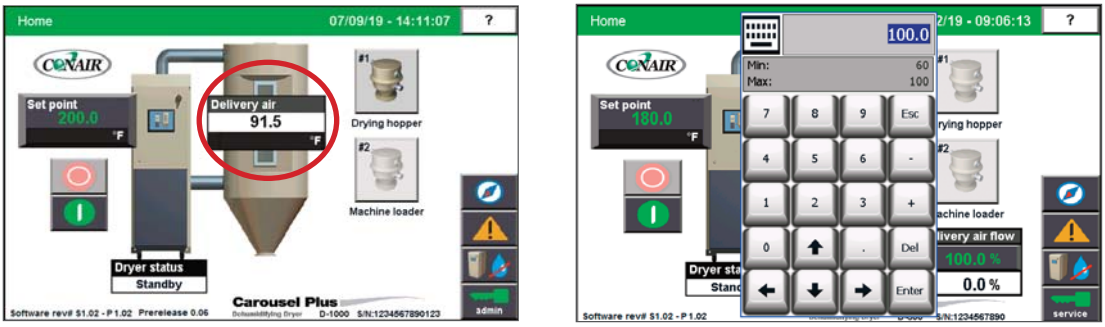
The user can also view the other system parameters, view alarms, or return to the Home screen by pressing the applicable buttons on the right of the screen.

NOTE: Live data is displayed as colored text inside a box. Set points boxes are beveled buttons Set points can be changed, if the user has logged in at the proper security level, by pressing the set point boxes. This will launch a pop-up keypad window that can be used to change the set point. *See Operation section entitled, How to Navigate Control Screens.* After the new set point value has been entered, press the **"Enter"** key to lock in the new set point.

Control Function Descriptions - Stand Alone Configuration (continued)

NOTE: Depending on which options your dryer has been configured with, and whether or not you have the Drying Monitor enabled, your screens and icons may appear different.

Delivery Air Heater Screen

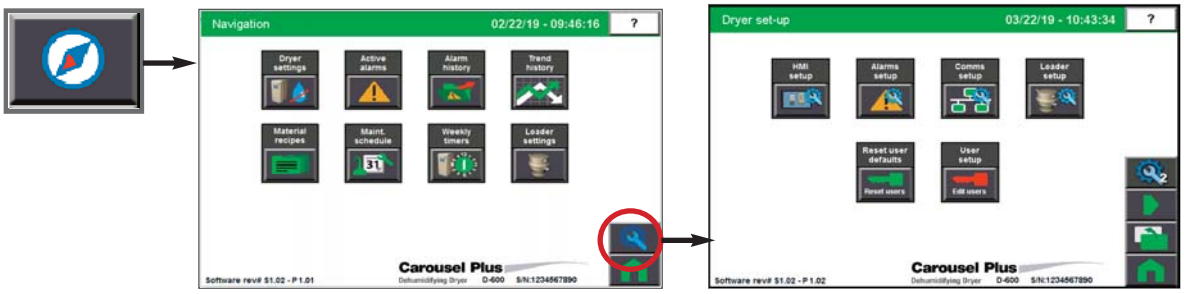


NOTE: Live data is displayed as colored text inside a box. Set points boxes are beveled buttons Set points can be changed, if the user has logged in at the proper security level, by pressing the set point boxes. This will launch a pop-up keypad window that can be used to change the set point. *See Operation section entitled, How to Navigate Control Screens.* After the new set point value has been entered, press the **"Enter"** key to lock in the new set point.

The Dryer Home screen provides the user with the current live information concerning the processes within the dehumidifying dryer including:

- Setpoint
- Delivery Air Temperature

Dryer System Setup screen



To access the Dryer System Setup screen:

1 **Press the Navigation button** from the Home screen.

2 **Press the Wrench button**.

NOTE: Your DC-C control should have been configured at the factory for your Dryer. These settings should not need changed unless your system changed, or the control was replaced. Proper login is required to change these settings.

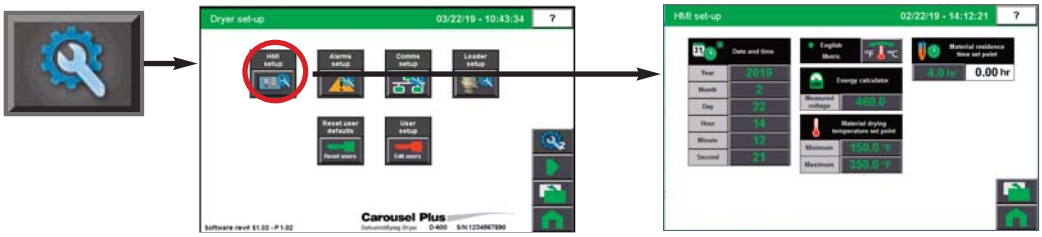
The Dryer System Setup screen provides the user with the ability to adjust settings for the HMI, Alarms, Communications, Loaders, and User Logins.

Output type selections become visible when the option is selected.

NOTE: *See the Drying Monitor User Guide for more information about using the Drying Monitor.*

Control Function Descriptions - Stand Alone Configuration (continued)

Dryer HMI screen



To access the Dryer Options screen:

1 **Press the Settings button** from the Home screen.

2 **Press the HMI Setup button**.

The HMI setup screen provides the user with the ability to enable or disable options.

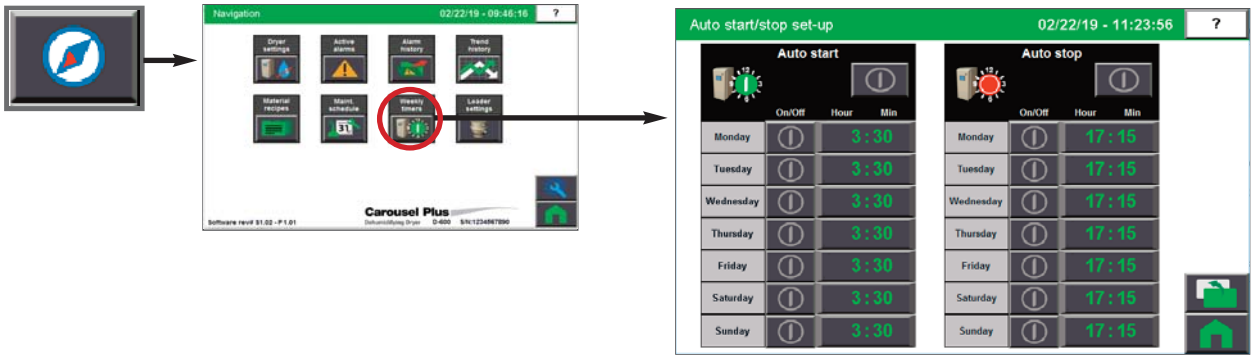
This screen allows you to change the status of:
- Date and Time
- English or Metric
- Measured Voltage
- Material Drying Temperature Setpoint
- Material Residence Time Setpoint

NOTE: Proper login is required to change these settings.

NOTE: Depending on the configuration of your dryer and your drying system, some of the options may not be available or visible on your screen. Your screen may appear different from what is shown here.

Control Function Descriptions - Stand Alone Configuration (continued)

Autostart Setup screen



NOTE: Proper login is required to change these settings.

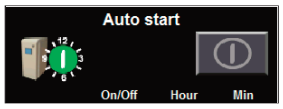
To access the Autostart screen:

1 **Press the Navigation button** from the Home screen.

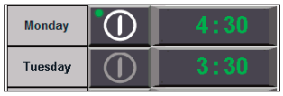
2 **Press the Weekly Timers button to open the Auto Start/Stop Set-up screen**.

The Autostart Setup screen provides the user with the ability to enable or disable and set the start and stop time for dryer for each day of the week.

To setup Auto Start and Auto Stop:



1 **Press the Enable button to enable Dryer Auto Start**.



2 **Press the Enable button next to each day of the week you would like to set the Auto Start time**.

NOTE: Autostart timer uses 24 hour time format. 00:00 is midnight. Note that this is a seven (7) day repeating calendar, and not real time.

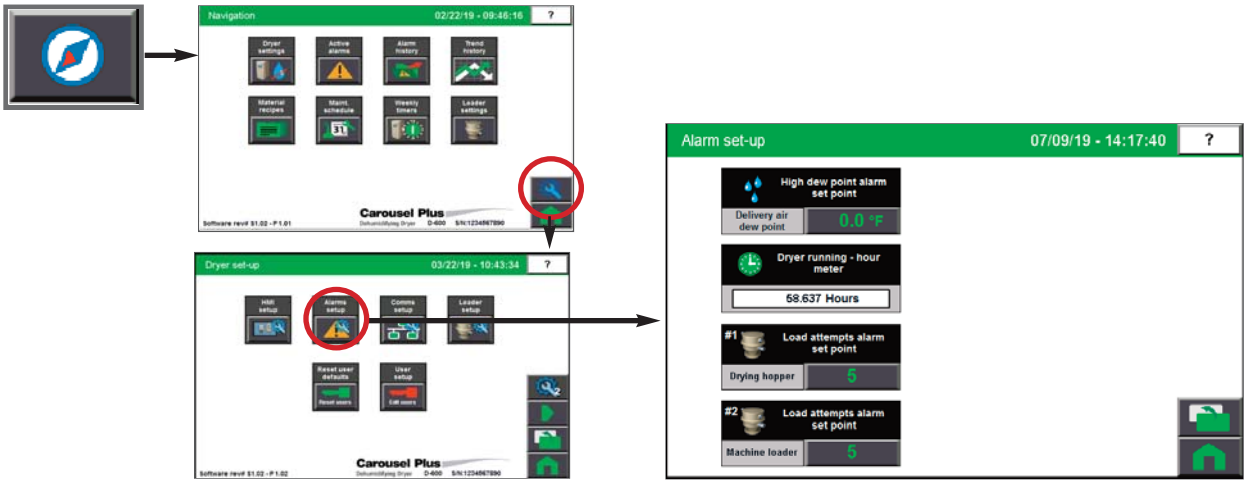
3 **Set the Auto Start time for each day you have enabled.**

4 **Press the Enable button next to each day of the week you would like to set the Auto Stop time**.

5 **Set the Auto Stop time for each day that you have enabled.**

Control Function Descriptions - Stand Alone Configuration (continued)

Alarm Setup screen



To access the Alarm Setup screen:

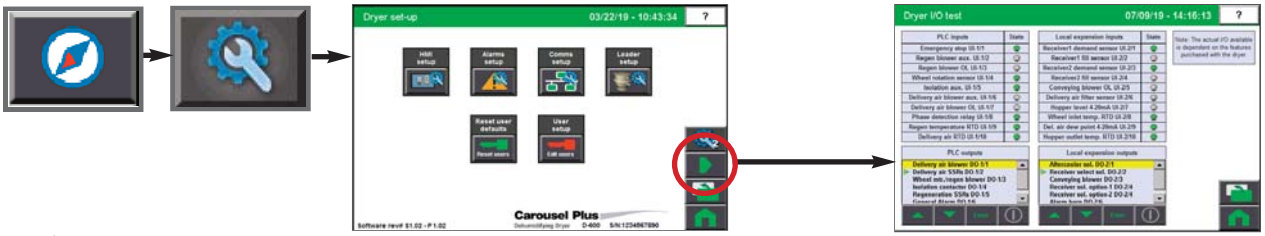
1. **Press the Navigation button** from the Home screen.
2. **Press the Wrench button to open the Dryer Set-up button.**
3. **Press the Alarm Set-up button to open the Alarm Set-up screen**.

The Alarm Setup screen provides the user with the ability to enable, disable and adjust set-points for alarms in the Drying system. Both passive and shutdown alarms can be modified from these screens.

NOTE: Proper login is required to change these settings.

Control Function Descriptions - Stand Alone Configuration (continued)

Digital Output Test screen



NOTE: Dryer must be stopped to perform test mode.

To access the Test screen:

1. **Press the Navigation button** from the Home screen.
2. **Press the wrench Setup button**.
3. **Press the Right Arrow button**.

NOTE: Proper login is required to test the outputs. Depending on the configuration of your dryer, some inputs or outputs may not be available.

The Dryer I/O Test screen allows for digital output tests of various outputs attached to the DC-C control. The actual I/O available is dependent on the features purchased with the dryer. Possible tests are:

- Delivery air blower
- Regen blower
- Regen heater (jog)
- Wheel motor
- Alarm horn/red light
- Heater isolation contactor
- Delivery air heater (jog)
- Alarm yellow light
- Alarm green light

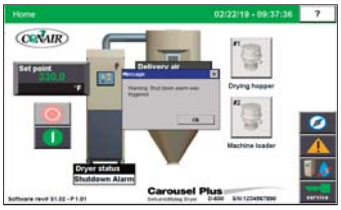
To test an output:

1. **Select the output you would like to test.** The yellow highlight indicates the current selected output.
2. **Press and hold the On/Off push button.** 
3. **Release the power button to stop the test.**

Control Function Descriptions - Stand Alone Configuration (continued)

Alarms

When an alarm occurs, an audible sound will be triggered and the operator interface will display a flashing alarm message.



To view an alarm from any operator screen, press the Alarm button.

1 Press the Alarms button.

2 View the current alarms.

3 Decide if you want to Acknowledge Alarms, Silence and Acknowledge Alarms, Reset All Alarms or clear individual alarms.

If you select the alarm "check the box" or touch the word "select" to select all, the selected alarms will also be acknowledged.

The following buttons are available from the Alarms log screen:

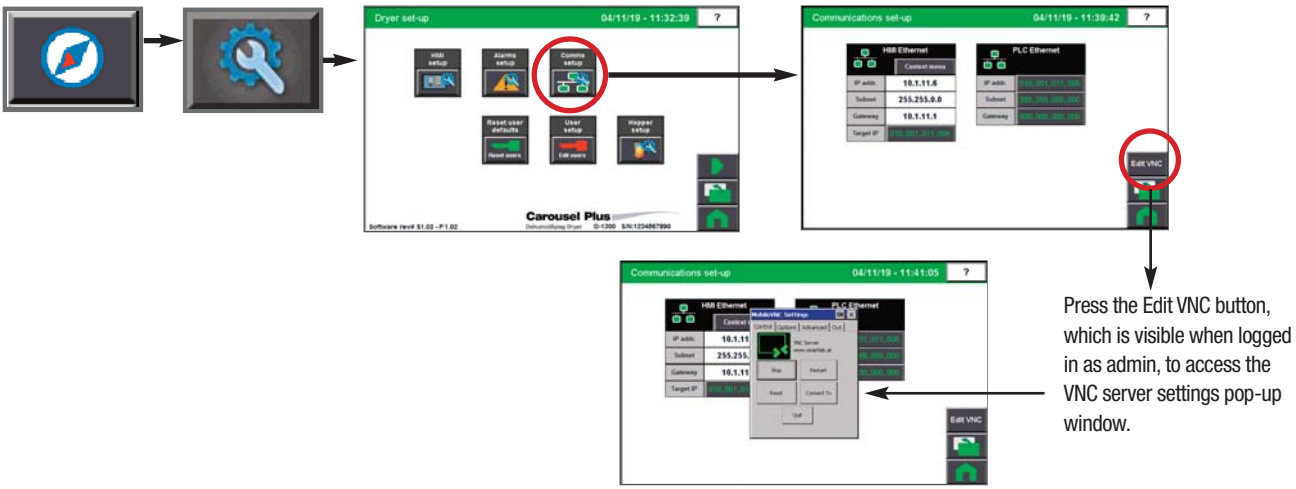
Help Screen.

Alarm History- Pressing the Alarm History button will show a detailed list of the alarm history.

Acknowledge All - The acknowledge all button is used to acknowledge all the alarms on the list.

Control Function Descriptions - RW Configuration (continued)

Communications screen



To access the Hopper Comms screen:

1 **Press the Navigation button** from the Home screen.

2 **Press the Setup button (Wrench)**.

3 **Press the Comms Set-up button**.

NOTE: Proper login is required to change these settings.

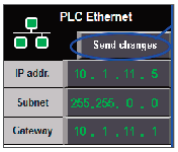
The Communications Setup screen provides the user with the ability to view current HMI Ethernet settings, or to change and apply new Ethernet settings.

Changing Ethernet settings requires the Admin login. Only qualified personnel should attempt changes. Improper setting sequence or values will result in loss of communications. Always record your new settings before making any changes. Always set the PLC first!

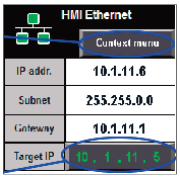
NOTE: Conair's default IP address setting for the DC-C control is 10.1.11.6 as shown in the graphic to the right.

To apply new Ethernet settings:

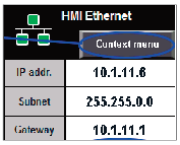
1 **Verify new PLC settings and Press the "Send changes" button which is visible when settings are different.**



2 **Set the target IP to the new PLC IP address**.

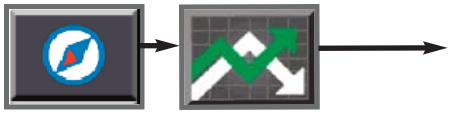


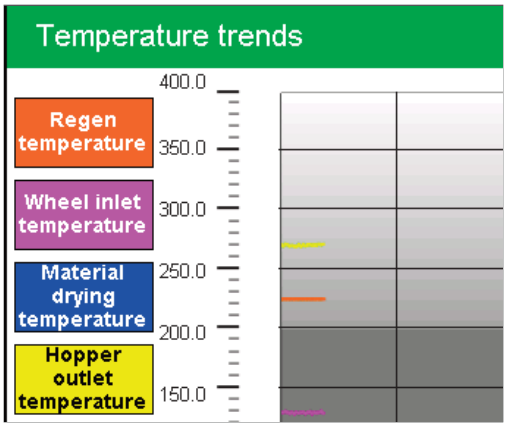
3 **Press the "Context Menu" button, then on the pop-up menu select "show system settings". Under network set the new HMI IP address.**



Control Function Descriptions - Stand Alone Configuration (continued)

Trending





To access the Trending screens:

1 **Press the Navigation button** from the Home screen.

2 **Press the Trend button.**

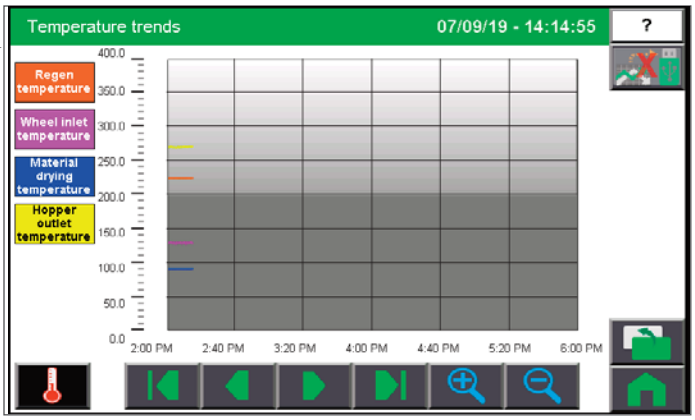
The Trend Selection screen displays the various trends. Press the next tend button on the bottom left of each screen to advance to the next screen.

- Temperature Trends
- On-time Trends
- Dewpoint Trends
- Energy Use Trends
- Drying Monitor Trends (if equipped)

NOTE: Depending on your DC-C configuration, and system security, different users may not be able to access the trending screens. Also, if you do not have Drying Monitor enabled, or the Drying Monitor equipment at your drying hoppers, you will not be able to view Drying Monitor Trends.

Trending Screen Navigation

Each trending screen will allow the user to scroll through data. When the screen first opens, it will be displaying values sampled every 15 seconds for the last 14 day period. The scroll buttons near the bottom of the screen allow the user to scroll back to an earlier time or forward to the present time, or jump immediately to live data. The user can also touch any point on the trend line and the display will show the data reading, date, and time for that spot in the trend.



 Scroll to the beginning or end of the record.

 Scroll back or forward one point at a time (30 seconds).

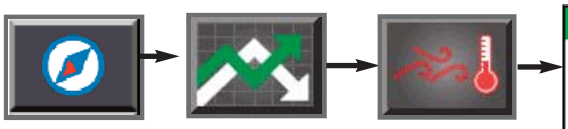
 Move to the next trend screen.

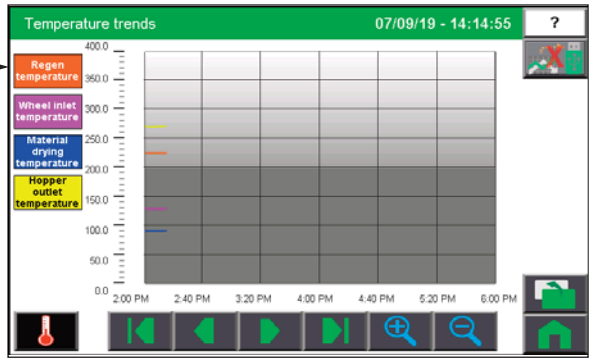
 Zoom in (Instead of seeing 2 hours of trend in the window, you will see 1 hour, 30 minutes, 15 minutes, etc.)

 Zoom out (Instead of seeing 2 hours of trend in the window, you will see 3 hours, 4 hours, 5 hours, etc.)

Control Function Descriptions - Stand Alone Configuration (continued)

Dry Air Temperature Trend





To access the Dry Air Temperature Trend screen:

1. **Press the Navigation button** from the Home screen.
2. **Press the Trending button.**
3. **Press the Dry Air Temperature Trend button**.

The Dry Air Temperature Trending screen allows the user to view the air temperature trend vs. time at several locations in the Carousel Plus Dryer. The air temperature reading locations are denoted by various colors. The colors associated with the locations are:

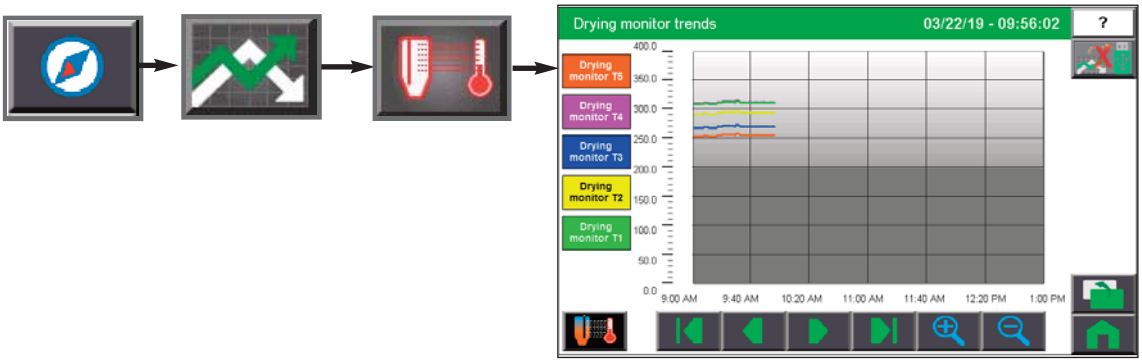
Orange: Regeneration Temperature (within the dryer)
Pink: Wheel Inlet Temperature
Blue: Material Drying Temperature
Yellow: Hopper Outlet Temperature

The Dry Air Temperature Trending screen shows values sampled every 15 seconds. Each colored line represents a pen or variable being trended. Up to 14 days of data is recorded and available for review. The scroll buttons near the bottom of the screen allow the user to scroll back to an earlier time or forward to the present time.

NOTE: *See Trending Screen Navigation (Operation Section: Control Function Descriptions- Stand Alone Configuration: Trending) for more information on how use the navigation buttons to navigate through individual trending screens.*

Control Function Descriptions - Stand Alone Configuration (continued)

Material Temperature Trends



To access the Material Temperature Trends screen:

1 **Press the Navigation button** from the Home screen.

2 **Press the Trending button**.

2 **Scroll to the Material Temperature Trend screen**.

The Hopper Drying Monitor Trending screen allows the user to view the temperatures at each of the six (6) temperature zones of the Drying Monitor probe.

The Drying Monitor Trending screen shows values sampled every 15 seconds. Each colored line represents a pen or variable being trended. Up to 14 days of data is recorded and available for review. The scroll buttons near the bottom of the screen allow the user to scroll back to an earlier time or forward to the present time.

NOTE: *See the Drying Monitor User Guide for more information about using the Drying Monitor.*

NOTE: *See Trending Screen Navigation (Operation Section: Control Function Descriptions- Stand Alone Configuration: Trending) for more information on how use the navigation buttons to navigate through individual trending screens.*

General Operation - Stand Alone and ResinWorks Dryer Configuration

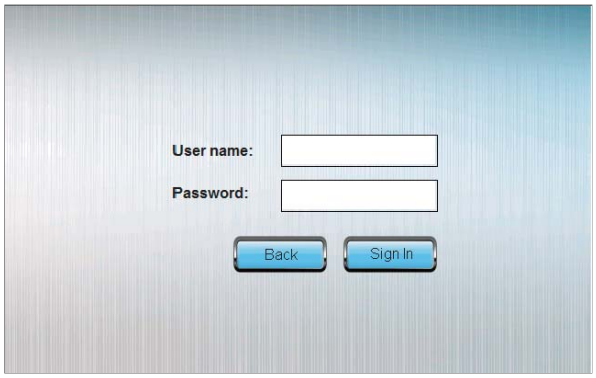
DC-C System Security Levels

There are seven (7) customer security levels within the DC-C control. The DC-C is shipped with the password security level set at guest.

To log in at a different user level:

1 **Press the Security/Login button** from the Home screen. A Log-in screen pop up window will appear.

2 **Enter your username and password.** Finish by pressing the Sign In button.



NOTE: Proper login may be required to view certain screens or make changes to various settlings. Conair recommends that the administrator logs in first and changes the admin password.

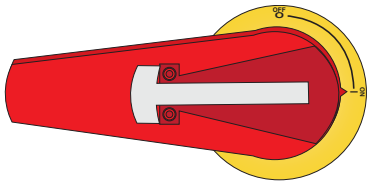
The green key at the bottom of the home page will have a number in it, representing your current security level. Pressing the Login button again will log the user out of the system. Also, inactivity for 10 minutes will log you out of the control. The control will return to security level guest.

Basic user level information:

User	Real name	Password	Change password
oper1	Oper1	oper1	No
oper2	Oper2	oper2	Yes
oper3	Oper3	oper3	Yes
maint1	Maint1	maint1	Yes
maint2	Maint2	maint2	Yes0
maint3	Maint3	maint3	Yes
admin	Admin	admin	Yes

Starting the Dryer

To start the dryer:

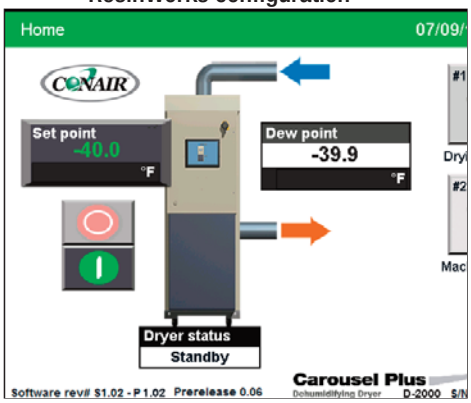


1 Turn on the main power to the dryer and system components. Check to make sure that all disconnect dials are in the "ON" position.

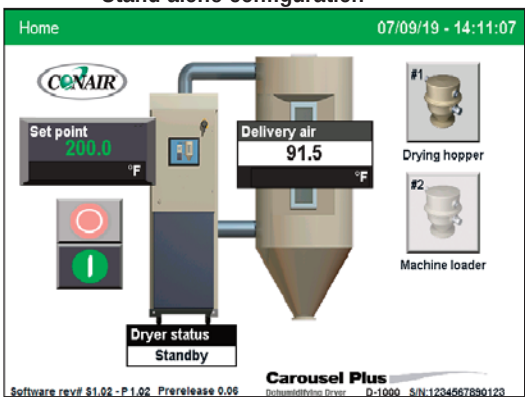
2 Fill the drying hopper with material.

3 Enter setpoints as necessary

ResinWorks configuration



Stand alone configuration



5 Press the green start button beside the dryer graphic to start the dryer system.

NOTE: The Start and Stop buttons will appear as grey when that function is not available, and bright when it is available. The grayed buttons mean that the dryer can not be stopped or started at this time. For example, when the dryer is running, the green button is grayed. The dryer can not be started because it is already running. Similar conditions may occur during cool down or start up.

Adjusting the Temperature or Dewpoint Setpoint

Any changes to the setpoint temperature once the dryer is operating will affect the on time value. To minimize energy usage, Conair recommends using the lowest setpoint temperature that is required to dry your material and maintain the required material throat temperature. In situations where the incoming material moisture content is low (1000 ppm or less - in the winter) you will be able to run lower setpoint temperatures.

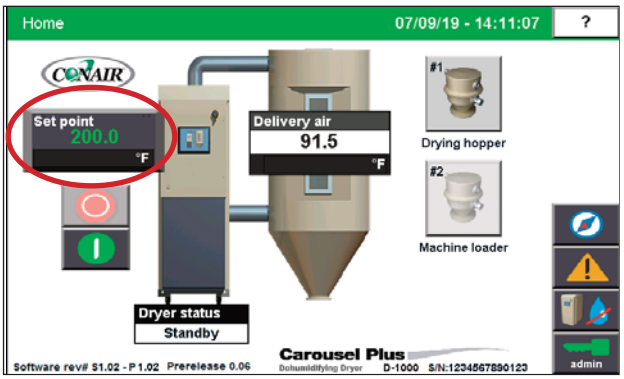
NOTE: Making too large of a change in the setpoint will change the material throat temperature too fast for the processing machine to react. This may cause changes to barrel temperatures, back pressures, and injection pressures.

Changes to material temperatures will affect the material temperature profile and the hopper outlet temperature.

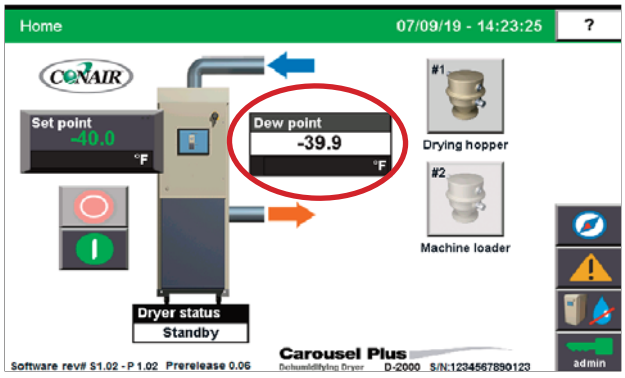
Increasing the hopper outlet temperature will increase the pressure drop in filters due to the velocity of the air increasing. Increasing air temperature decreases its density (air expands as it is heated). This decrease in density causes an increase in the velocity of the air. Increased velocity increases the pressure drop.

IMPORTANT: Always consult with the material manufacturer for correct processing temperatures.

Stand alone configuration - Temperature setpoint



ResinWorks configuration - Dewpoint setpoint



Stopping the Dryer

The DC-C Dryer control is programmed to follow a procedure for proper stopping the dryer. Once the stop button has been pressed (or the Autostop time is reached), the heaters will be turned off (RW hopper heaters, heater pack, or other hopper heater) and the dryer blower will continue to run until the regen temperature reaches the factory set cooldown setpoint.

To stop the dryer:

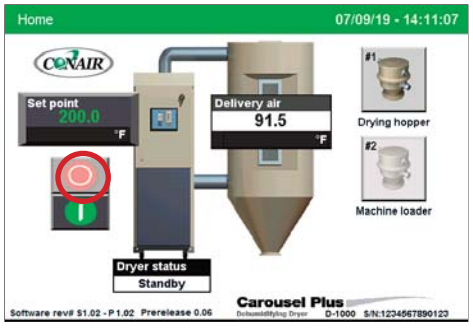
1 **Press the stop button on the dryer control.** The hopper heaters will turn off immediately and the blower will continue to run until the dryer reaches the cooldown setpoint.

2 **Observe the dryer status changing to "Stopping" or "Shut-down".**

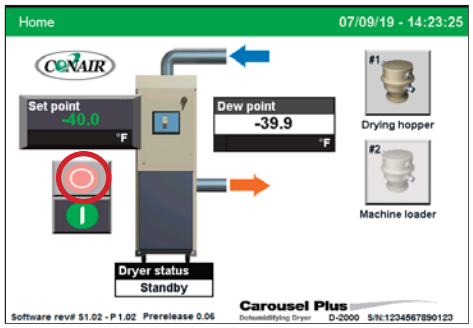
3 **Wait until the dryer status changes to "Standby" which will alert you that the cooldown setpoint has been reached.** Depending on your process temperature, this cooldown time could only take a few seconds, or could take longer.

4 **If you would like to shut down the dryer at this time, turn the rotary disconnect switch to the OFF position.**

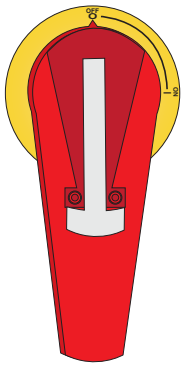
Stand alone configuration

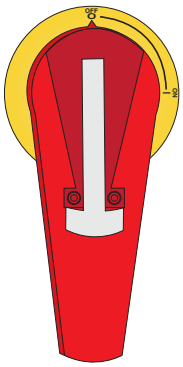


ResinWorks configuration



⚠ **IMPORTANT:** Except in an emergency, aways wait until the dryer control displays "Standby" in the status display before turning the rotary disconnect to the OFF position. Failure to do so will not allow the dryer to progress through the cool-down procedure and could result in damage to your equipment.





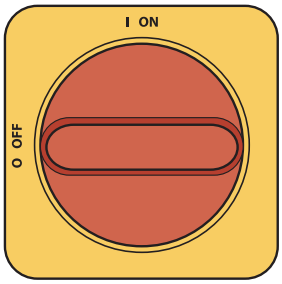
⚠ **IMPORTANT:** Except in an emergency, aways wait until the dryer control displays “Standby” in the status display before turning the rotary disconnect to the OFF position. Failure to do so will not allow the dryer to progress through the cooldown procedure and could result in damage to your equipment.

Stopping the Dryer in an emergency

To stop the dryer in an emergency:

1 **Rotate the rotary disconnect to the OFF position.** Power will be immediately disconnected from the control and the dryer.

2 **If using your dryer as part of a ResinWorks system, use the disconnect on each hopper on the RW sled to disconnect the hopper heaters from power.**



After shutting down for an emergency, an thorough inspection of the dryer and drying system should be performed prior to using the dryer, checking for damage to components due to the dryer not properly shutting down.

SECTION

5

Maintenance

Preventative Maintenance Checklist

Routine maintenance will ensure optimum operation and performance of the D Series Carousel Plus Dryer. We recommend the following maintenance schedule and tasks.

• Whenever you change materials

❒ **Drain and clean the hopper.** *See Maintenance section entitled, Cleaning the Hopper.*

• Weekly, or as often as needed

❒ **Clean or replace the process and regeneration filters.**
You may need to clean filters more often than weekly. Frequency depends on how much material you process and how dusty or full of fines it is
See Maintenance sections entitled, Cleaning the Process Filter and Cleaning the Regeneration Filter.

❒ **Inspect hoses and hose connections.**
Check for damage, kinks, or loose hose clamps. Replace any hoses that show signs of damage or wear. Reposition and tighten loose hose clamps.
See Maintenance section entitled, Inspecting Hoses and Gaskets.

❒ **If equipped - Open volatile drain valve to remove volatiles and residue that may have accumulated.** Place a bucket or pail below the drain for the volatiles to drain into. Depending on your application, draining may need to be done more or less frequently. *See Maintenance section entitled, Draining Volatiles.*

• Monthly

❒ **Clean the aftercooler and/or optional precooler coils and the volatile trap.** You may need to clean the coils more often than monthly. Frequency will depend on the type and volume of material you process. *See Maintenance sections entitled, Cleaning the Aftercooler Coils, Cleaning the Precooler Coils and Cleaning the Volatile Trap.*

• Every six months

❒ **Inspect gaskets for damage or wear.**
Damaged gaskets can allow moisture to seep into the closed-loop drying system. Replace any gasket that is torn or cracked. *See Maintenance section entitled, Inspecting Hoses and Gaskets.*

(continued)

Preventative Maintenance Checklist

(continued)

- **Every six months** **(continued)**

  ❒ **Verify dewpoint readout and performance with calibrated portable instrument.** *See Maintenance section entitled, Checking the Dewpoint.*

  ❒ **Measure current draw on all three (3) legs of heater wires for the delivery air and regen heater.** This is to ensure that the heater is working properly. *See the user guide for the delivery air heater for more information.*

Checking the Dewpoint

It is a good idea to monitor the dewpoint performance of your dryer periodically with a calibrated portable dewpoint monitor, to ensure it is performing at maximum capacity. Even if your dryer has a dewpoint readout, comparing it to a portable instrument periodically will confirm that the dewpoint sensor and readout is performing properly.

To check dewpoint:

1. **Connect your portable dewpoint meter to the dewpoint check port on the rear panel of the dryer.**

2. **Turn on the portable instrument,** and ensure there is positive airflow through the sensor.

3. **Monitor the readout and allow ample time for it to stabilize before disconnecting the portable dewpoint monitor.** Some dewpoint monitors require a substantial amount of time for residual moisture to be purged from the sensor.

4. **In the event the dewpoint is not satisfactory,** *refer to the Troubleshooting section of this manual, under Delivery Air Dewpoint alarm.*

NOTE: The DC-C control is averaging the dewpoint over time. Allow the system to stabilize to ensure an accurate reading.

Cleaning the Hopper

CAUTION: Hot surfaces. Always protect yourself from hot surfaces inside and outside the dryer and drying hopper.

IMPORTANT: The area inside the hopper is a confined space. Follow any confined space procedures that apply in your company or location.

The hopper, spreader cone, and discharge assembly should be cleaned thoroughly between material changes to prevent resin contamination.

If equipped with an optional drain port:

1 **Place a container beneath the hopper's drain port** to catch the material.

2 **Open the drain port** and allow the material to drain.

3 **Open the hopper door and wipe out the inside** of the hopper.

CAUTION: Wear eye protection. If you use compressed air to clean the equipment, **you must wear eye protection** and observe all OSHA and other safety regulations pertaining to the use of compressed air.

If NOT equipped with an optional drain port:

1 **Drain all material from the hopper**. This can be done by conveying material out of the hopper, or by manually emptying material using a bucket or a vacuum.

2 **Open the hopper door and wipe out the inside** of the hopper.

CAUTION: Wear eye protection. If you use compressed air to clean the equipment, **you must wear eye protection** and observe all OSHA and other safety regulations pertaining to the use of compressed air.

Cleaning the Process Filter

Clogged filters reduce air flow and dryer efficiency. Cleaning frequency depends on how much material you process and how dusty or full of fines it is.

Carousel Plus D-series Dryers 600-5000

1 Loosen the cover cap latches and remove the process filter cover.

CAUTION: Hot surfaces. Always protect yourself from hot surfaces inside and outside the dryer and drying hopper.

2 Remove the wing nut and washer holding the filter in place, and pull the filter out.

NOTE: The filter can be cleaned by using an industrial vacuum for the outside and compressed air from the inside. Follow all company and local compressed air procedures.
If the filter has been used and cleaned several times, it probably needs to be replaced with a new filter for optimum efficiency.

IMPORTANT: Clogged filters and worn filters reduce airflow, may be ineffective, and will reduce dryer efficiency. Replace filters with a new filter when necessary.

Conair's Instant Access 24/7 Parts and Service number is 800-458-1960. Outside the U.S., dial 814-437-6861.

CAUTION: Wear eye protection. If you use compressed air to clean the equipment, **you must wear eye protection** and observe all OSHA and other safety regulations pertaining to the use of compressed air.

(continued)

Cleaning the Process Filter (continued)

Carousel Plus D-series Dryers 600-5000

3 Place the clean filter in the dryer, and use the wing nut and washer to hold the filter in place. Make sure the filter is completely seated against the back of the filter housing.

4 Place cover cap, and use the latches to attach the filter cover securely.

CAUTION: Hot surfaces. Always protect yourself from hot surfaces inside and outside the dryer and drying hopper.

TIP: If gasket on the process filter cap becomes loose or detached from the filter cap, secure with high temperature silicone adhesive.

Cleaning the Regeneration Filter

Clogged filters reduce air flow and dryer efficiency. Cleaning frequency depends on the condition of your dryer's ambient air.

NOTE: Dirty or clogged regeneration filters are the leading contributor of dryers not reaching desired dewpoints.

CAUTION: Hot surfaces. Always protect yourself from hot surfaces inside and outside the dryer and drying hopper.

NOTE: The filter can be cleaned by using an industrial vacuum for the outside and compressed air from the inside. Follow all company and local compressed air procedures.
If the filter has been used and cleaned several times, it probably needs to be replaced with a new filter for optimum efficiency.

IMPORTANT: Clogged filters and worn filters reduce airflow, may be ineffective, and will reduce dryer efficiency. Replace filters with a new filter when necessary.

Conair's Instant Access 24/7 Parts and Service number is 800-458-1960. Outside the U.S., dial 814-437-6861.

1 **Locate the regeneration filter** below the control enclosure on the front of the dryer.

2 **Remove the filter wing nut and washer,** then remove the filter.

3 **Remove outer filter** and clean it with soapy water. Let air dry.

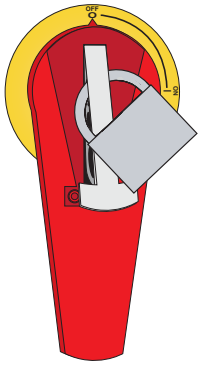
4 **Clean the filter by laying it on its side and gently tapping it on the floor.** Replace damaged, worn or clogged filters.

5 **Reverse the procedure to reinstall the regeneration filter. Make sure that the filter is completely seated in the filter housing.**

CAUTION: Wear eye protection. If you use compressed air to clean the equipment, **you must wear eye protection** and observe all OSHA and other safety regulations pertaining to the use of compressed air.

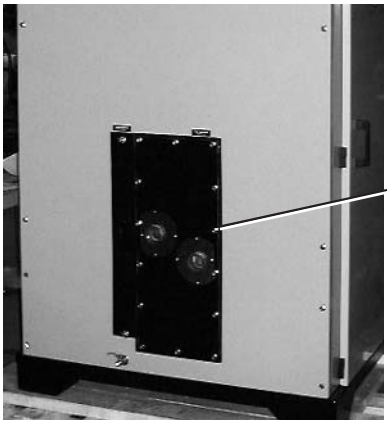
Cleaning the Aftercooler Coils

You need to clean the aftercooler coils to keep them working efficiently. Cleaning frequency depends on the type and amount of material you process.



1 **Stop the dryer and lockout the main power.**

2 **Turn off the water flow (close valves) to the water supply line and return line.** Disconnect supply and return lines.



D1300 - 5000 Models

D600 - 1000 Models

3 **Remove the bolts securing the aftercooler cover.** Remove the cover.

4 **Remove the aftercooler by pulling it out** of the aftercooler housing.

(continued)

Cleaning the Aftercooler Coils (continued)

5 **Clean the assembly using a mild soap and water.** Let the assembly dry thoroughly before installation.

✎ **NOTE:** In cases of heavy volatiles, steam cleaning, pressure washing or the use of solvents, such as acetone, may be necessary. Be sure to test a small area with the solvent you have selected to be sure there is no adverse reaction.

6 **Inspect the condition of the gasket.** If it is damaged, replace the gasket.

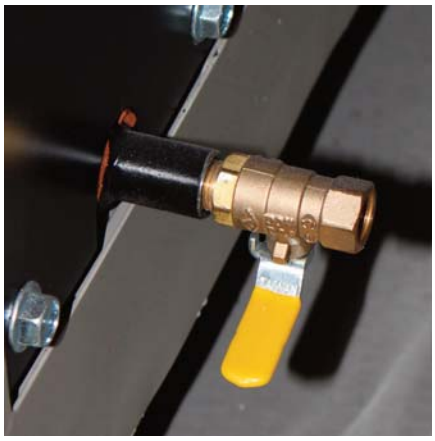
7 **Reassemble** by repeating the steps in reverse order.

8 **Connect the water supply line and return lines.**

9 **Open valves to return water to the system.**

Draining the Volatile Drain

The volatile drain (if equipped) is located at the back of the dryer.



1 **Place a bucket or container below the volatile drain valve at the back of the dryer.**

2 **Open the volatile drain valve.** Liquid should begin to drain.

3 **All the valve to completely drain.** This may take a few minutes.

4 **Close the drain valve.**

5 **Properly dispose of (in accordance with all regulations) the drained fluid.**

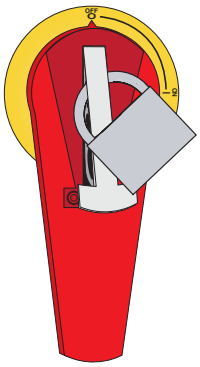
Inspecting Hoses and Gaskets

Loose or damaged hoses and gaskets can allow moisture to seep into the closed-loop drying system.

1 **Follow the hose routing of all the hoses within the dryer and inspect all hoses, clamps, fittings, and gaskets.**

2 **Tighten any loose hose clamps or fittings.**

3 **Replace worn or damaged hoses and gaskets.**



Cleaning the Precooler Coils

You need to clean the precooler coils to keep them working efficiently. Cleaning frequency depends on the type and amount of material you process.

1 **Stop the dryer and lockout the main power.**

2 **Turn off the water flow to the water supply and return lines.** Disconnect supply and return lines.

3 **Remove the bolts securing the precooler cover.** Remove the cover.

4 **Remove the precooler by pulling it out** of the precooler housing.

5 **Clean the assembly using a mild soap and water.** Let the assembly dry thoroughly before installation.

NOTE: In cases of heavy volatiles, steam cleaning, pressure washing or the use of solvents, such as acetone, may be necessary. Be sure to test a small area with the solvent you have selected to be sure there is no adverse reaction.

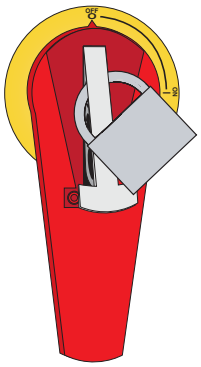
6 **Inspect the condition of the gasket.** If it is damaged, replace the gasket.

7 **Reassemble** by repeating the steps in reverse order.

8 **Connect the water supply line and return line.**

9 **Open the valve to return water to the system.**

Cleaning the Volatile Trap on the Demister (D600 - 1000)



1 **Stop the dryer and lockout the main power.**

2 **Remove the thumbscrews then remove the volatile demister cover.**

3 **Remove the demister by pulling it out from the housing.**

4 **Clean the assembly using a mild soap and water.** Let the assembly dry thoroughly before installation.

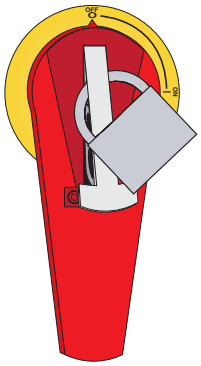
NOTE: In cases of heavy volatiles, steam cleaning, pressure washing or the use of solvents, such as acetone, may be necessary. Be sure to test a small area with the solvent you have selected to be sure there is no adverse reaction.

5 **Insert the demister carefully back into the housing, making sure to completely push it towards the back of its housing.**

6 **Inspect the condition of the gasket.** If it is damaged, replace the gasket.

7 **Secure the cover in place using the original thumbscrews.**

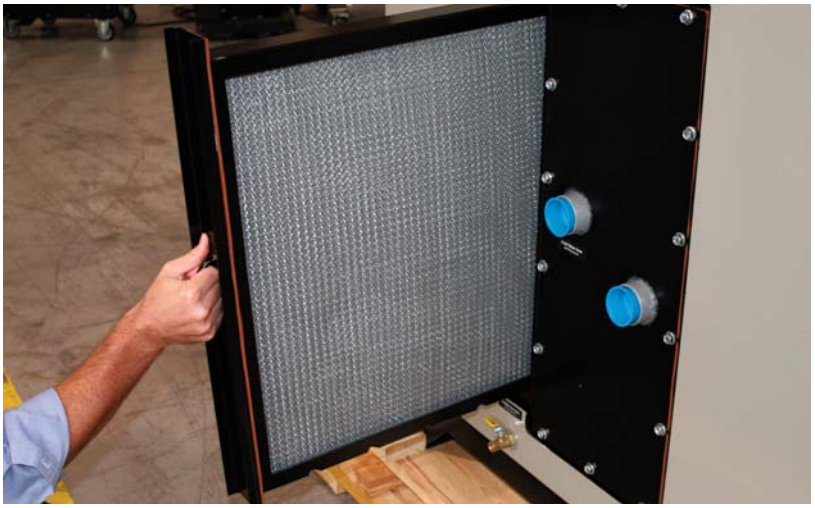
NOTE: Depending on the build date and configuration of your dryer, your demister may be on the right side of the after-cooler. Removal and cleaning procedures are the same.



Cleaning the Volatile Trap on the Demister (D1300 -5000)

1 **Stop the dryer and lockout the main power.**

2 **Remove the thumbscrews then remove the volatile demister carriage and demister from its housing.**



3 **Remove the demister screen from the demister carriage by pushing it out towards the right side of the carriage.**

4 **Clean the assembly using a mild soap and water.** Let the assembly dry thoroughly before installation.

NOTE: In cases of heavy volatiles, steam cleaning, pressure washing or the use of solvents, such as acetone, may be necessary. Be sure to test a small area with the solvent you have selected to be sure there is no adverse reaction.

5 **Insert the demister carefully back into the demister carriage and then replace the entire assembly back into the demister housing.**

6 **Inspect the condition of the gasket.** If it is damaged, replace the gasket.

7 **Secure the cover in place using the original thumbscrews.**

Cleaning the DC-D HMI Screen

Dirt, grease, or dust on the screen can make it difficult to see and use. Periodically clean the screen to keep dirt from accumulating on the screen.

1 **Turn the dryer off.**

2 **Using a clean, dry, soft cloth, wipe the screen gently to remove any dust or dirt.** If stubborn spots remain, a gentle cleaning agent designed for use with a touch screen control may be used. Touch screen cleaners may be purchased at most electronics or office supply stores.

SECTION
6

Troubleshooting

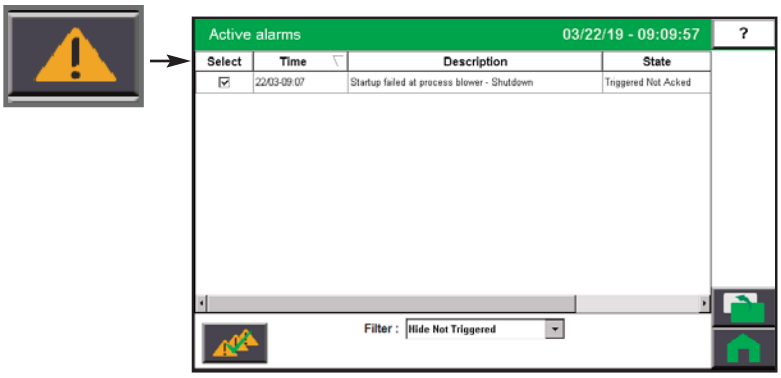
Before Beginning

You can avoid most problems by following the recommended installation and maintenance procedures outlined in this User Guide. If you do have a problem, this section will help you determine what caused it and how to fix it.

Before you remove the side panels of the dryer be sure to:

❑ **Diagnose causes from the control panel.**

1 **Navigate to the Alarm Log Screen.** The alarm log lists the alarms that have been registered as well as the date and time of the alarm.



2 **Address the alarm message and fix the problem.** (Refer to the alarm descriptions later in this section.)

3 **Press the Alarm History button to view a history of alarms, or press the Silence and Ack All Alarms button to acknowledge the alarms.** If the alarm reappears, the problem was not fixed.

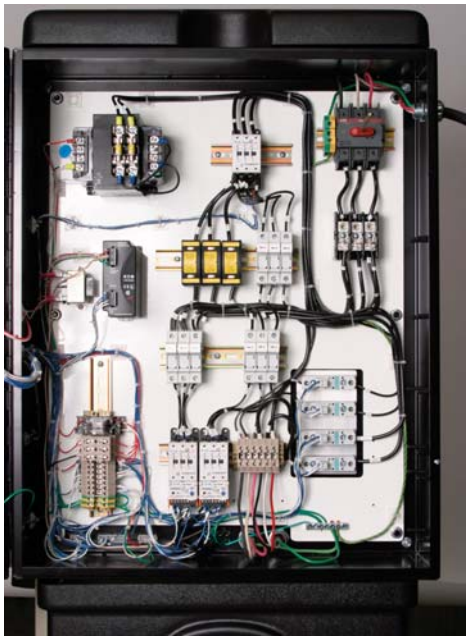
❑ Find the wiring and equipment diagrams that were shipped with your dryer. These diagrams are the best reference for correcting a problem. The diagrams also will note any custom features, such as special wiring or alarm capabilities, not covered in this User Guide.You can avoid most problems by following the recommended installation and maintenance procedures outlined in this User Guide. If you do have a problem, this section will help you determine what caused it and how to fix it.

Before Beginning (continued)

❑ **Find the wiring and equipment diagrams that were shipped with your dryer.** These diagrams are the best reference for correcting a problem. The diagrams also will note any custom features, such as special wiring or alarm capabilities, not covered in this User Guide.

✎ **NOTE:** Drawings and graphics shown in this user guide are examples only. They may not accurately represent your dryer with options and configurations for your application.

See warnings below. Open the electrical enclosure to check fuses and heater contactors.



A Few Words of Caution

The Carousel Plus Dryer with TouchView™ Technology is equipped with numerous safety devices. Do not remove or disable them. Improper corrective action can lead to hazardous conditions and should never be attempted to sustain production.

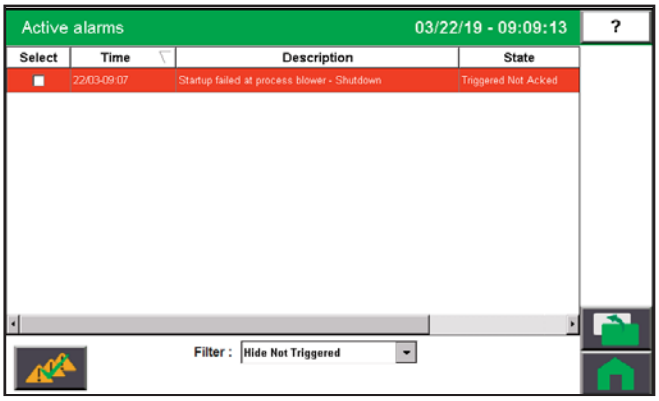
⚠ **WARNING: Only qualified service personnel should examine and correct problems that require opening the dryer's electrical enclosure or using electrical wires to diagnose the cause.**

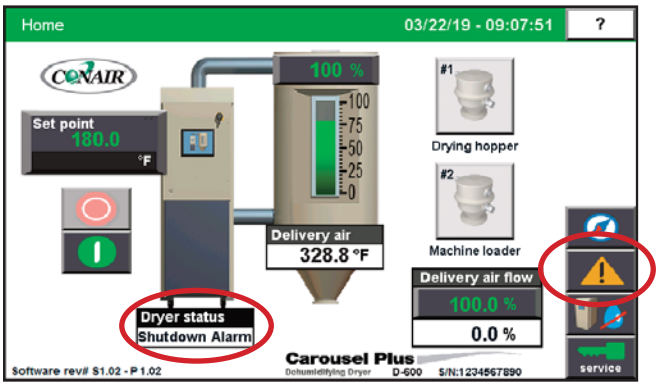
WARNING: High voltage. Always stop the dryer, disconnect and lock out the main power source before troubleshooting or performing repairs.

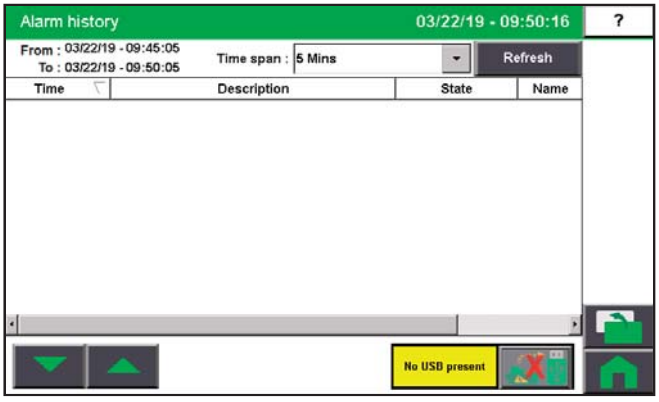
CAUTION: Hot surfaces. Always protect yourself from hot surfaces inside and outside of the dryer and hopper.

How to Identify the Cause of a Problem

Most dryer malfunctions are indicated in the pop up Alarm bar at the top of the control screen. Alarms can also be viewed by pressing the “Alarm Log” button on the Control Panel.







A malfunction within the dryer can trigger two types of alarms. Passive alarms for the Carousel Plus Dryer System or its components. Shutdown alarms for the components within the Carousel Plus Dryer System.

A problem can trigger two types of alarms:

- **Shutdown:** The dryer has automatically shut down because it has detected a serious problem that could damage your material or dryer.
- **Passive:** The dryer continues to operate, but warns of a problem that could prevent correct drying of your material. If ignored, this problem could lead to a condition that will shut down the dryer.

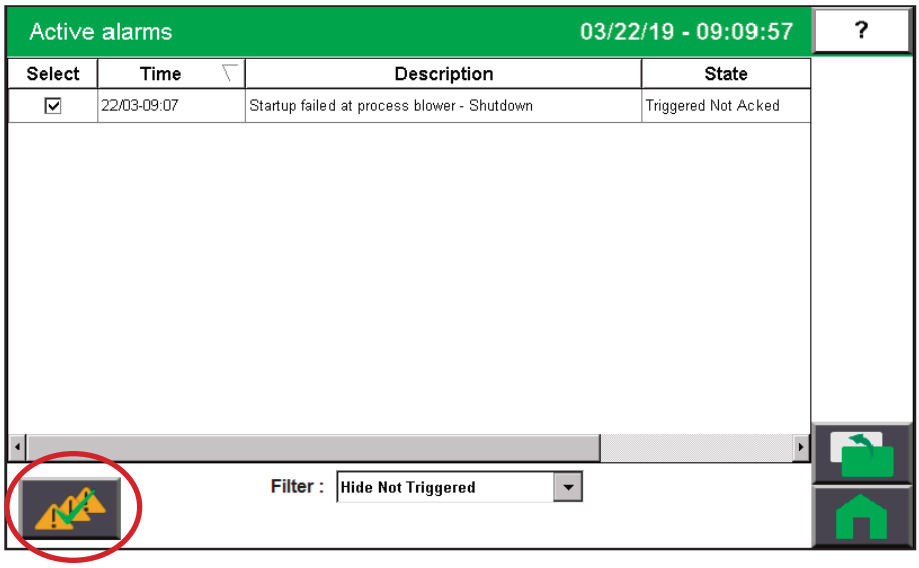
(continued)

How to Identify the Cause of a Problem

(continued)

When an alarm message is displayed:

1 **Press the "Acknowledge Alarm" button** when the alarm occurs.

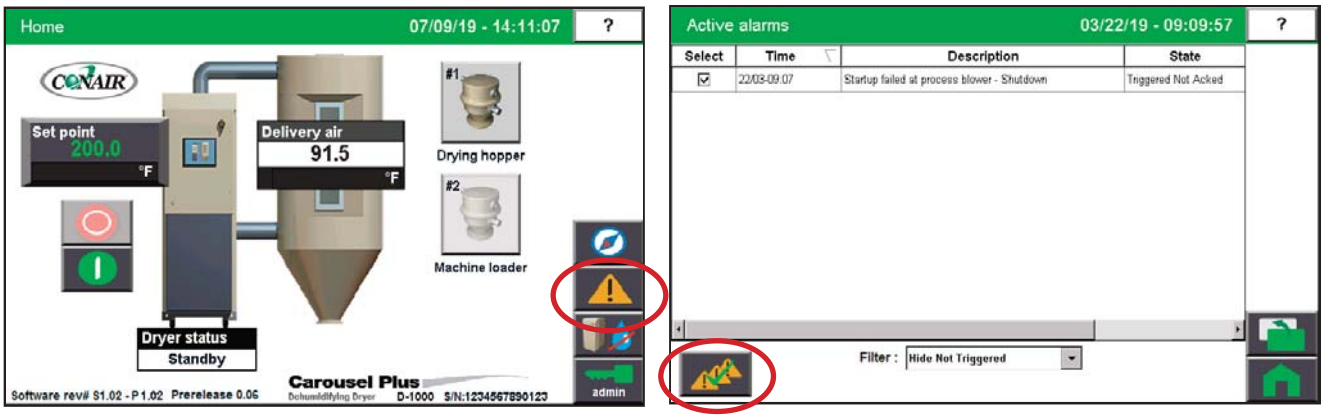


2 **Find the error message in the diagnostics table of the following troubleshooting section of this manual,** or the troubleshooting section of the applicable component user manual. Take any necessary steps, as directed, to resolve the problem.

(continued)

How to Identify the Cause of a Problem

(continued)



3 **Press the "Alarm Log" button from the main screen** to access the alarm history and note the newest alarm(s).

4 **Press the "Acknowledge All Alarms" button.**

5 **After correcting the problem, take note of the problem.** If the problem was not solved, the alarm will reactivate.

There may also be a second alarm condition that occurred as a result of the first alarm.

Shutdown Alarms

When an alarm condition appears on the control screen, it may be a shutdown or a passive alarm. If the alarm is a shutdown alarm, the dryer will shutdown automatically to prevent damage to the equipment or personnel. Note that the bottom of the control will display a green alarm LED until the condition is resolved.

✎ **NOTE:** Some alarms can be set for shutdown or passive. These alarms may be listed in both sections.

Problem	Possible cause	Solution
Regeneration Heater High Temperature – The snap switch in the regeneration heater tube activated due to excessive temperature.	The regeneration exhaust is blocked or the air hoses are loose.	Locate and remove any airflow restrictions. Tighten any loose hoses.
	The regeneration blower is not running or running in the wrong direction.	Correct the cause of the non-running blower (fuse, etc.) or reverse the rotation of the blower.
	The isolation contactor failed in the closed position.	Replace the isolation contactor.
	The heater solid state relays (SSRs) failed.	Replace the failed heater solid state relays (SSRs).
	The regeneration heater output on the board has failed.	Replace the board.
Return Air High Temperature – If the return air temperature at the inlet to the blower is greater than 180°F {82°C}, it shuts down the dryer. (The return air temperature on D1300-5000 dryers is measured at the inlet to the desiccant wheel.)	The hopper does not contain enough material.	Make sure your material supply system is working properly.
	You are drying at a high drying temperature above 180°F {82°C} or you are running at low throughputs.	Ensure water flow to the aftercooler.
	The aftercooler does not have enough water.	Turn on the water supply, or fix any leaks or blockages.
	The aftercooler coils are dirty.	Clean the aftercooler coils. *See Maintenance section entitled, Cleaning the aftercooler coils.*

Central

When supplied for central drying applications, these shutdown alarms are not available.

Shutdown Alarms

If an alarm occurs, a red dialog box is displayed on the dryer's touch screen control. The dryer will shut down automatically to prevent damage to the equipment or personnel. The dialog box will indicate whether the alarm is a shut down alarm or a passive alarm.

Problem	Possible cause	Solution
Delivery High Temperature – If the delivery air temperature exceeds the delivery air high temperature setpoint, it shuts down the dryer. Defaults are set to 385°F {196°C} for 20 seconds.	The delivery high temperature setpoint is not at least 10°F {6°C} above the drying setpoint.	Reset the delivery high temperature setpoint at least 10°F {6°C} above the drying setpoint.
	One of the delivery (process) solid state relays has failed.	Replace the solid state relay.
	The air lines are restricted or loose.	Straighten any crimps in the hoses. Tighten any loose hoses.
	The delivery setpoint is too low.	Set the delivery setpoint higher or install an optional precooler.
	The delivery heater output on the control board has failed.	Replace the control board.
Delivery Temperature Loop Break – If the delivery temperature is outside of the operator entered deviation, alarm band (see Delivery High Temperature Deviation passive alarm) and the delivery temperature is not moving towards the setpoint at a rate greater than specified. It shuts down the dryer. Defaults are set at 3°F {3°C} over 20 seconds.	Delivery RTD is loose or has fallen out.	Check the delivery RTD and tighten if needed.
	The delivery heater has failed.	Check the heater fuses, and resistance across each leg of the delivery heater.
	The air lines are restricted or loose.	Straighten any crimps in the hoses. Tighten any loose hoses.
	The delivery blower is not running or is running in the wrong direction.	Correct the cause of the non-running blower (blown fuse, etc.) or reverse the rotation of the blower.
	The delivery heater output on the board has failed or the output fuse has failed.	Replace the board or the fuse for the output.
	Delivery setpoint is too low.	Adjust the setpoint or add a precooler.
	Setback setpoint is too low.	Adjust the setpoint or add a precooler.

Central

Shutdown Alarms

When supplied for central drying applications, these shutdown alarms are not available.

If an alarm occurs, a red dialog box is displayed on the dryer's touch screen control. The dryer will shut down automatically to prevent damage to the equipment or personnel. The dialog box will indicate whether the alarm is a shut down alarm or a passive alarm.

Problem	Possible cause	Solution
Delivery Heater High Temperature – The snap switch in the delivery heater tube opens due to excessive temperature.	There is an airflow blockage or loose hoses.	Locate and remove any airflow restrictions.
		Tighten any loose hoses.
	The delivery blower is not running or running in the wrong direction.	Correct the cause of the non-running blower (blown fuse, etc.) or reverse the rotation of the blower.
	The isolation contactor failed in the closed position.	Replace the isolation contactor.
	The delivery heater output on the board has failed.	Replace the board.
	The heater solid state relays (SSRs) failed.	Replace the failed heater solid state relays (SSRs).
Delivery RTD Integrity – If the delivery RTD is faulty, it shuts down the dryer.	The delivery RTD connection to the control box is loose.	Check the connection to the receptacle and tighten if needed.
	The connection in the electrical enclosure for the delivery RTD is loose.	Check the RTD plug connection and tighten if needed.
	The connection of the RTD plug on the control board is loose.	Check the plug connection and tighten if needed.
	The delivery RTD has failed.	Replace the delivery RTD.
	The control board has failed.	Replace the control board.

Central

Shutdown Alarms

When supplied for central drying applications, these shutdown alarms are not available.

If an alarm occurs, a red dialog box is displayed on the dryer's touch screen control. The dryer will shut down automatically to prevent damage to the equipment or personnel. The dialog box will indicate whether the alarm is a shut down alarm or a passive alarm.

Problem	Possible cause	Solution
Process Protection High Temperature – If the process protection temperature exceeds the process protection high temperature setpoint, it shuts down the dryer. Defaults are set to 600°F {316°C} for 10 seconds.	The delivery RTD temperature probe is not installed correctly.	Make sure the RTD temperature probe tip is in the center of the hopper inlet tube.
	The delivery air blower is not running.	Correct the cause of the non-functioning blower.
	The air lines between the dryer and hopper are restricted or loose.	Straighten any crimps in the hoses. Tighten any loose hoses.
	The dryer is too far from the hopper.	Move the dryer closer to the hopper and shorten the hoses.
	The delivery air hose is not insulated.	Insulated hose is required for high drying temperatures.
Process Protection RTD Integrity – If the process protection RTD is faulty, it shuts down the dryer.	There is a loose connection in the wiring leading to the RTD.	Check the RTD plug connections and make any necessary repairs.
	The connection of the RTD plug on the control board is loose.	Check the plug connection and tighten if needed.
	The process protection RTD has failed.	Replace the process protection RTD.
	The control board has failed.	Replace the control board.

Shutdown Alarms

If an alarm occurs, a red dialog box is displayed on the dryer's touch screen control. The dryer will shut down automatically to prevent damage to the equipment or personnel. The dialog box will indicate whether the alarm is a shut down alarm or a passive alarm.

Problem	Possible cause	Solution
Process Protection Differential - If the difference between the delivery temperature exiting the delivery air heater and the temperature of the air entering the hopper is greater than 175°F {97°C} for longer than 180 seconds it shuts down the dryer.	The air lines between the dryer and hopper are restricted or loose.	Check for air flow blockages or loose hoses between the outlet of the dryer and the inlet of the hopper. Straighten any crimps in the hoses. Tighten any loose hoses.
	The dryer is located too far away from the hopper.	The dryer and the hopper should not be located more than 10 feet {3 m} apart.
	The delivery RTD is loose or has fallen out.	Check the delivery RTD and tighten if needed.
	The delivery air blower is not running.	Correct the cause of the non-functioning blower.
	The delivery air hose is not insulated.	Insulated hose is required for high drying temperatures.

Shutdown Alarms

If an alarm occurs, a red dialog box is displayed on the dryer's touch screen control. The dryer will shut down automatically to prevent damage to the equipment or personnel. The dialog box will indicate whether the alarm is a shut down alarm or a passive alarm.

Problem	Possible cause	Solution
Regeneration RTD Integrity – If the regeneration RTD is faulty, it shuts down the dryer.	There is a loose connection in the wiring leading to the RTD.	Check the RTD plug connection and make necessary repairs.
	The connection of the RTD plug on the control board is loose.	Check the plug connection and tighten if needed.
	The regeneration RTD has failed.	Replace the regeneration RTD.
	The control board has failed.	Replace the control board.
Control Communications Watchdog - The display board has lost communications with the control board.	Plugs on wire harness between the display and control boards are loose or not wired correctly.	Make sure plugs are tight on board connections and match the wiring diagram.
	Display board or communications boards have failed.	Replace the defective boards.
Phase Error (if equipped) - One of the three power wires is connected wrong or one or more phases of power is missing.	One of the three power wires are out of phase.	Switch the position of two of the incoming lead power wires at the dryer.
	A fuse has blown.	Check and replace the fuse.
	Phase detection board has failed.	Replace the phase detection board.
EEProm Write Error	Internal control board problem.	Replace the control board.

Shutdown Alarms

If an alarm occurs, a red dialog box is displayed on the dryer's touch screen control. The dryer will shut down automatically to prevent damage to the equipment or personnel. The dialog box will indicate whether the alarm is a shut down alarm or a passive alarm.

Problem	Possible cause	Solution
Delivery Air Blower overload - If the delivery air blower exceeds its full load amp rating or the overload has tripped due to a mechanical or electrical problem the dryer will shut down.	The delivery air blower current draw has exceeded the full load amps rating of the motor.	Press alarm acknowledge and allow the overload to reset then try to restart the dryer. If the alarm condition occurs again have a qualified electrician check the current draw to the motor.
	The delivery air blower has mechanically failed or is unable to rotate freely.	Disconnect and lock out main power. Check the delivery air blower for mechanical failure and free rotation. Replace if necessary. Allow the overload to reset then try to restart the dryer.
	The delivery air blower has failed electrically.	Disconnect and lock out main power. Check the delivery air blower for electrical shorts or open circuits. Replace if necessary. Allow the overload to reset then try to restart the dryer.
	Loss of phase of power to the motor starter.	Check for a blown fuse in the dryer or main power supply. Allow the overload to reset then try to restart the dryer.
	The overload is set incorrectly.	Disconnect and lock out main power. Check the overload settings and confirm that the settings match the full load amps listed on the delivery air blower motor. Allow the overload to reset then try to restart the dryer.
	The overload is defective.	Replace the overload.

Shutdown Alarms

If an alarm occurs, a red dialog box is displayed on the dryer's touch screen control. The dryer will shut down automatically to prevent damage to the equipment or personnel. The dialog box will indicate whether the alarm is a shut down alarm or a passive alarm.

Problem	Possible cause	Solution
Regeneration Blower overload - If the regeneration blower exceeds its full load amp rating or the overload has tripped due to a mechanical or electrical problem the dryer will shut down. The default setting for this alarm is passive but it can be changed to shutdown.	The regeneration blower current draw has exceeded the full load amps rating of the motor.	Press alarm acknowledge and allow the overload to reset then try to restart the dryer. If the alarm condition occurs again have a qualified electrician check the current draw to the motor.
	The regeneration blower has mechanically failed or is unable to rotate freely.	Disconnect and lock out main power. Check the regeneration blower for mechanical failure and free rotation. Replace if necessary. Allow the overload to reset then try to restart the dryer.
	The regeneration blower has failed electrically.	Disconnect and lock out main power. Check the regeneration blower for electrical shorts or open circuits. Replace if necessary. Allow the overload to reset then try to restart the dryer.
	Loss of phase of power to the motor starter.	Check for a blown fuse in the dryer or main power supply. Allow the overload to reset then try to restart the dryer.
	The overload is set incorrectly.	Disconnect and lock out main power. Check the overload settings and confirm that the settings match the full load amps listed on the blower motor. Allow the overload to reset then try to restart the dryer.
	The overload is defective.	Replace the overload.

NOTE: This alarm shuts down only the regeneration portion of the dryer. The delivery air blower will continue to run.

Shutdown Alarms

If an alarm occurs, a red dialog box is displayed on the dryer's touch screen control. The dryer will shut down automatically to prevent damage to the equipment or personnel. The dialog box will indicate whether the alarm is a shut down alarm or a passive alarm.

Problem	Possible cause	Solution
Regeneration High Temperature – If the regeneration temperature exceeds the high temperature limit for the specified time. Default values are 385°F {196°C} for 20 seconds.	One of the solid state relays (SSRs) failed in the closed position.	Replace the failed solid state relays (SSRs).
	The output on the board has failed.	Replace the board.
Regeneration Temperature Loop Break – The regeneration temperature is outside of the operator entered deviation alarm band (see Regeneration Temperature Deviation passive alarm) and the regeneration temperature is not moving towards the setpoint at a rate greater than specified. Default values are 2°F {1°C} over 40 seconds.	The regeneration heater has failed.	Check the heater fuses, and resistance across each leg of the process heater.
	The regeneration RTD is loose or has fallen out.	Check the regeneration RTD and tighten if needed.
	The regeneration blower is not running.	Check wiring or replace regeneration blower.
	The output on the control board has failed or the fuse is blown.	Replace the control board or fuse.

Central

When supplied for central drying applications, these shutdown alarms are not available.

Passive Alarms

If an alarm occurs, a red dialog box is displayed on the dryer's touch screen control. The dryer continue to operate, but this problem could prevent correct drying of your material. The dialog box will indicate whether the alarm is a shut down alarm or a passive alarm.

Problem	Possible cause	Solution
Regeneration Temperature Deviation – The regeneration temperature exceeds the deviation band for the specified time. Default values are 10°F {6°C} for 5 seconds. ✎ **NOTE:** This alarm is factory defaulted to OFF.	One of the solid state relays (SSRs) failed.	Replace the failed solid state relays (SSRs).
	The regeneration RTD is loose or has fallen out.	Check the regeneration RTD and tighten if needed.
	The air hose connections are loose.	Tighten all air hose connections.
	The output on the board has failed.	Replace the board.
	Defective regeneration heater.	Check the heater fuses and resistance across each leg of the regeneration heater.
Return Air Mid-High Temperature – If the return air temperature is between 150 and 180°F {66 and 82°C}. (The return air temperature on D Series Dryers is measured at the inlet to the desiccant wheel.)	The hopper does not contain enough material.	Make sure your material supply system is working properly.
	You are drying at a high drying temperature above 120°F {49°C} or running at low throughputs.	Ensure water flow to the aftercooler/ aftercooler.
	The aftercooler does not have enough water.	Turn on the water supply, or fix any leaks or blockages.
	The aftercooler coils are dirty.	Clean the aftercooler coils. *See Maintenance section entitled, Cleaning the aftercooler coils.*
Regeneration Low Temperature – The regeneration temperature is less than the low temperature setpoint for the specified time. Defaults are 200°F {93°C} for 20 seconds. ✎ **NOTE:** This alarm is factory defaulted to OFF.	The regeneration heater has failed.	Check the heater fuses, and resistance across each leg of the process heater.
	The output on the control board has failed or the fuse has blown.	Replace the control board or the fuse.
	The regeneration RTD is loose or has fallen out.	Check the regeneration RTD and tighten if needed.

Passive Alarms

If an alarm occurs, a red dialog box is displayed on the dryer's touch screen control. The dryer continues to operate, but this problem could prevent correct drying of your material. The dialog box will indicate whether the alarm is a shut down alarm or a passive alarm.

Problem	Possible cause	Solution
Delivery Air Dewpoint – The dewpoint has not fallen below the setpoint. If the dewpoint goes below the setpoint for 600 seconds the alarm should go away. ✎ **NOTE:** The alarm is not active for the first 5 minutes.	Defective dewpoint sensor.	Replace the sensor.
	The hose or wiring connections to the sensor block are loose or have fallen off.	Check wiring and hose connections to the sensor, secure if needed.
	Poor regeneration air flow.	Remove the air flow restrictions, dirty filters, etc.
	The desiccant wheel may be contaminated.	Check the desiccant for contamination, replace if needed. Install plasticizer / volatile trap for severe situations.
		Replace the desiccant wheel. *See Troubleshooting section entitled, Replacing the desiccant wheel.*
	Desiccant wheel not turning.	*See Troubleshooting section entitled, Passive alarms, Wheel rotation alarm.*
	Leaks in the process air stream.	Check for worn or loose hoses.
	Power Purge blower not running.	Check fuses, wiring or replace blower.

Passive Alarms

If an alarm occurs, a red dialog box is displayed on the dryer's touch screen control. The dryer continues to operate, but this problem could prevent correct drying of your material. The dialog box will indicate whether the alarm is a shut down alarm or a passive alarm.

Problem	Possible cause	Solution
Process Filter Clogged (Option) – The process filter differential pressure switch is tripped.	The process air filter is clogged.	Remove and clean or replace the process air filter.
Return Air Temperature RTD Integrity – The dryer continues to run with a passive alarm. (The return air temperature on D Series Dryers is measured at the inlet to the desiccant wheel.)	There is a loose connection in the wiring leading to the RTD.	Check the RTD plug connections and make any necessary repairs.
	The connection of the RTD plug on the control board is loose.	Check the plug connection and tighten if needed.
	The return air RTD has failed.	Replace the return air RTD.
	The control board has failed.	Replace the control board.
Wheel Rotation Failure - The regeneration temperature differential has been reached. The default differential is 20ºF / 10 seconds.	The wheel motor is not turning.	Check the motor, plugs, and fuses.
	The belt tensioner is loose or the belt is slipping.	Change the tensioner spring or replace the belt.
	The regeneration heater is not working.	Check the heater fuses and heater.

NOTE: This alarm is factory defaulted to OFF.

Central

When supplied for central drying applications, these passive alarms are not available.

Passive Alarms

If an alarm occurs, a red dialog box is displayed on the dryer's touch screen control. The dryer continues to operate, but this problem could prevent correct drying of your material. The dialog box will indicate whether the alarm is a shut down alarm or a passive alarm.

Problem	Possible cause	Solution
Delivery Air Temperature Deviation – The delivery air temperature exceeds the deviation band as entered for the specified time. Default values are 10°F {6°C} for 5 seconds. ✎ **NOTE:** This alarm is factory defaulted to OFF.	One of the solid state relays (SSRs) failed in the closed position.	Replace the failed solid state relays (SSRs).
	Defective delivery air heater.	Check the heater fuses and resistance across each leg of the delivery air heater.
	The output on the board has failed.	Replace the board.
	The process RTD is loose or has fallen out.	Check the process RTD and tighten if needed.
	The air hose connections are loose.	Tighten all air hose connections.
Delivery Air Low Temperature – The delivery air temperature is less than the low temperature setpoint for the specified time. Default values are 70°F {21°C} for 20 seconds. ✎ **NOTE:** This alarm is factory defaulted to OFF.	Precooler water is too cold, or the water flow rate is too high.	Check water temperature and flow settings. Adjust as necessary.
	The output on the board has failed.	Replace the board.
	Flow control solenoid is stuck open.	Replace the valve.
	The process RTD is loose or has fallen out.	Check the process RTD and tighten if needed.
	Delivery air heater has failed.	Check the heater fuses and resistance across each leg of the delivery air heater.

Passive Alarms

If an alarm occurs, a red dialog box is displayed on the dryer's touch screen control. The dryer continues to operate, but this problem could prevent correct drying of your material. The dialog box will indicate whether the alarm is a shut down alarm or a passive alarm.

Problem	Possible cause	Solution
Setback RTD Integrity - The control can not sense the setback RTD.	The connection in the electrical enclosure for the hopper RTD is loose.	Check the RTD plug connection and tighten if needed.
	The connection of the RTD plug on the control board is loose.	Check the plug connection and tighten if needed.
	The setback RTD has failed.	Replace the setback RTD.
	The control board has failed.	Replace the control board.

NOTE: This alarm is optional. For more information on updating your dryer to utilize this and other features, contact Conair.

Conair's Instant Access 24/7 Parts and Service number is 800-458-1960. Outside the U.S., dial 814-437-6861.

Passive Alarms

If an alarm occurs, a red dialog box is displayed on the dryer's touch screen control. The dryer continues to operate, but this problem could prevent correct drying of your material. The dialog box will indicate whether the alarm is a shut down alarm or a passive alarm.

Problem	Possible cause	Solution
Regeneration Outlet RTD Integrity - The control can not sense the regeneration outlet RTD.	There is a loose connection in the wiring leading to the RTD.	Check the RTD plug connection and make any necessary repairs.
	The connection of the RTD plug on the control board is loose.	Check the plug connection and tighten if needed.
	The regeneration outlet RTD has failed.	Replace the regeneration outlet RTD.
	The control board has failed.	Replace the control board.
Dewpoint Deviation High - Displayed when the actual dewpoint goes above the setpoint by a specified amount of time and degrees. Defaults are set for 5°F {3°C} for 60 seconds.	Desiccant wheel not turning.	*See Troubleshooting section entitled, Passive alarms, Wheel rotation alarm.*
	The hose or wiring connections to the sensor block are loose or have fallen off.	Check wiring and hose connections to the sensor, secure if needed.
	Poor regeneration air flow.	Remove the air flow restrictions, dirty filters, etc.
	The desiccant wheel may be contaminated.	Check the desiccant wheel for contamination, replace if needed. *See Troubleshooting section entitled, Replacing the desiccant wheel assembly.*
	Leaks in the process air stream.	Check for worn or loose hoses.
Dewpoint Deviation Low - Displayed when the actual dewpoint goes below the setpoint by a specified amount of time and degrees. Defaults are set for 5°F {3°C} for 60 seconds. ✎ **NOTE:** This alarm is factory defaulted to OFF.	The dewpoint can not control to the desired setpoint.	Install plasticizer/volatile trap for severe situations. Material and/or ambient condition may be too dry to increase the actual dewpoint. Please wait several hours to determine if the setpoint can be reached. Increase the dewpoint low deviation value.
	The dewpoint sensor has failed.	Replace the dewpoint sensor.

Additional Alarms

Along with the alarm indicators, you may encounter additional messages that indicate a problem within the control.

Problem	Possible cause	Solution
Control Not Ready, Please Check Alarm - Displayed when the **"Start"** button is pushed during any active alarm. (Passive or Shutdown)	The dryer will continue to run if there is a passive alarm, however it will not start if there is a active alarm.	Push the acknowledgement button to identify the alarm, and address it as necessary.
Lost Comm w/ Ctrl Bd - Indicates there is a problem in the communication between the control board and the display board.	Loose or improperly connected wire.	Check wiring between control board and display board.
	Improper dip switch setup on control board.	Check dip switch setup on control board.
	Defective display or control board.	Replace boards as a set.
Control displays **---------** where parameters should be seen.	A sensor is disconnected or malfunctioning.	Check and verify that all sensors are connected correctly.
Start / Stop buttons are not active.	The dryer is currently in a stage where stopping or starting the dryer is not available.	Wait for dryer to complete the process, and buttons will become active.
Alarm horn and light are active, but no alarm displays on the HMI.	Loose connection or wiring is not correct.	Verify that wiring is correct and that connections are good.
	Dryer board failure.	Cycle power to the dryer control board. Call Conair Service. Conair's Instant Access 24/7 Parts and Service number is 800-458-1960. Outside the U.S., dial 814-437-6861.
There is no software revision value at the bottom of the home screen.	Loose connection or wiring is not correct.	Verify that wiring is correct and that connections are good.
	Dryer board failure.	Cycle power to the dryer control board. Call Conair Service. Conair's Instant Access 24/7 Parts and Service number is 800-458-1960. Outside the U.S., dial 814-437-6861.

Additional Alarms

Along with the alarm indicators, you may encounter additional messages that indicate a problem within the control.

Problem	Possible cause	Solution
+BIG - There is a problem in the sensor connection (RTD, Dewpoint sensor, etc.) for the effected function.	Problem in the analog input section of the control.	Check that all jumpers are in their proper place. Check to see if the dewpoint sensor and other sensors are connected properly. Disconnect the ribbon cable connecting any analog option boards to the main control board. If the display returns to normal for all values except those that are generated through the analog options boards, replace the option board.
	Defect in the main control board.	Replace main control board. Conair's Instant Access 24/7 Parts and Service number is 800-458-1960. Outside the U.S., dial 814-437-6861.

Dewpoint Troubleshooting

Under normal operating conditions, the dryer will produce dewpoints in the range of -40 to -20° F {-40 to -29° C}. However, you may experience situations that produce undesirable results.

Problem	Possible cause	Solution
Dryer not producing desired dewpoint.	Low regeneration air flow.	Check regeneration filter and clean and/or replace as necessary.
	Return air temperature exceeds 125°F {52°C}.	Reduce the temperature of the cooling water or increase the flow. Connect water to the aftercooler if not already connected. Check for adequate water temperature. Water temperature should be approximately 85°F {29°C}.
	Regeneration temperature is below normal setting.	Check amperage of regeneration heaters. Replace heaters if necessary. ⚠ **WARNING:** Any electrical checks should be performed by a qualified electrician.
	Leaks in process lines.	Check all hoses, gaskets, doors, loaders or other potential areas where leakage may occur. Replace any defective hoses or gaskets.
	Contaminated desiccant due to off-gassing, too long of a residence time or drying temperature is too high for the grade of material being processed.	Verify proper drying temperatures and residence times. If off-gassing is a condition of the material being processed, contact Conair Parts at (800) 458 1960 for the addition of a volatile trap.
	Analog option board/sensor malfunction	Verify dryer dewpoint readings with a calibrated portable dewpoint meter. Replace analog option board or sensor.

Poor Material Drying Troubleshooting

Occasionally, processing problems that are suspected of being caused by poor drying are eventually determined to be the result of other issues in the process setup. The intent of the information provided here is to assist you in determining if your drying system is performing properly. However, the only way to know definitely if your material is properly dried is to perform moisture analysis of small samples as it leaves the bottom of the hopper, or just as it enters the process. Conair does not sell moisture-analyzing equipment, but there are many brands of this equipment available on the market.

NOTE: Concerns with drying temperature may require review of HTC or Resin-Works controls.

You should also be aware that some processing problems may actually be the result of over-drying material. Most materials will degrade to some extent if they are exposed to their specified drying temperature for a time significantly longer than the residence time specified by the supplier. If you want to maintain its dryness, it is recommended that you reduce the process air temperature. If your Conair dryer is equipped with the Setback feature, you should familiarize yourself with it, and make use of it. If not, you may want to contact Conair to determine if it can be added to your dryer.

A majority of customer questions to Conair are related to dewpoint. It is important to realize that dewpoint is one of **four** requirements that need to be satisfied.

There are four requirements, listed in order of importance, necessary to properly dry hygroscopic plastic resins:

1. **Drying temperature** of the air entering the hopper must be at the proper drying temperature for your material, as specified by your material supplier.
2. **Residence time** is the time, determined by your material supplier, that the material in use must be heated to achieve proper drying temperature.
3. **Airflow** during the process drying circuit must be adequate to carry and distribute the heat throughout the entire bed of material inside the hopper.
4. **Dewpoint** of the process air must be low so it can efficiently collect the moisture as it is released from the heated material and carry it to the dryer to be removed in the desiccant.

Poor Material Drying Troubleshooting (continued)

Once it is determined which of the four requirements that is not being satisfied, refer to the following list of possible causes and solutions.

NOTE: Concerns with drying temperature may require review of HTC or ResinWorks controls.

Temperature - The temperature of the air entering the hopper must be at the proper drying temperature for your material, as specified by your supplier.

Problem	Possible cause	Solution
The temperature of the air entering the hopper is not at proper drying temperature.	Incorrect setpoint	Refer to the drying specifications for your material and adjust the setpoint to the recommended setpoint. If your dryer has the Setback option, make sure it is not active unless you have specifically activated it. If necessary, refer to the Operation section of this manual for assistance in using the Setback function.
	Not able to achieve setpoint.	Replace any defective delivery air heater, contactors, fuses, etc. Ensure the selected drying temperature is within the design specifications of your dryer.
	Inaccurate delivery air temperature readout.	Ensure the delivery air RTD is properly positioned in the air stream. Determine if there is a problem in the temperature control circuit and repair or replace any defective components such as RTD, temperature control, circuit boards, etc.
	Heater Pack failure.	Verify that Heater Pack is connected properly and receiving power from the dryer. Refer to the Heater Pack User Guide for more information.

Poor Material Drying Troubleshooting (continued)

Residence Time - The time your material supplier has determined that the material in use must be heated to its drying temperature to achieve proper drying.

Problem	Possible cause	Solution
Material residence time is too long or short.	Material level in hopper is too low.	Make sure there is an adequate supply of material to feed the loader on top of the drying hopper. Correct any problems with the conveying system that may be preventing your loader from filling the hopper. If your hopper has a level sensor for maintaining a material level less than completely full, be sure this sensor is adjusted properly.
	Material throughput is too high.	Take any necessary steps, such as slowing down the process, to ensure the material usage is within design specifications of the dryer and hopper.
	Funnel flow/ preferential flow “Rat hole”	Replace dislodged diffuser inside the drying hopper.

Poor Material Drying Troubleshooting (continued)

Airflow - The airflow in the process drying circuit must be adequate to carry and distribute the heat throughout the entire bed of material inside the hopper. If the airflow is too low, the material in the center of the hopper may get heated fully to the drying temperature, but the material against the sidewalls will not. In most cases, the material 2/3 to 3/4 of the way toward the top of the hopper should be heated to the proper drying temperature.

Problem	Possible cause	Solution
Too much or too little airflow. ✎ **NOTE:** If there is too much airflow, the material may fluidize inside the hopper, resulting in inconsistent material flow through the hopper, which can negatively impact residence time.	Dirty process air filter.	Clean or replace the process filter.
	Collapsed hoses or holes/leaks in the hoses and hose connection.	Replace any worn or damaged hoses. Tighten all hose clamps to eliminate leaks.
	Airflow restrictions.	Remove any obstructions in the process air circuit.
	Process blower running backwards or performing poorly.	Verify the process blower is running in the correct direction. If backwards, reverse direction by switching any 2 legs of high voltage to the motor. ⚠ **WARNING:** Any electrical checks should be performed by a qualified electrician.
		Repair or replace motor.
	Material level in the hopper too low.	Other than running out of material to complete a job, the material level inside the hopper must be a minimum of 50% full. If the hopper is not at least half full, the material in the cone section will not get adequate airflow to dry properly.

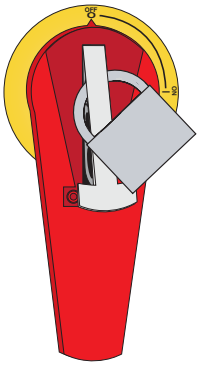
Poor Material Drying Troubleshooting (continued)

Replacement dewpoint monitors are available from Conair.

Contact Conair Parts
(800) 458 1960
From outside of the United States, call:
(814) 437 6861

Dewpoint - The process air must be at a low dewpoint so it can efficiently collect the moisture as it is released from the heated material and carry it to the dryer to be removed in the desiccant. In most cases, the dryer will dry your material satisfactory if the dewpoint of the air is -20 to -40° F {-29 to -40° C}. If your dryer does not have a dewpoint readout, you can check the dewpoint with a portable dewpoint instrument. Conair sells a variety of portable dewpoint meters. Contact Conair Parts.

Problem	Possible cause	Solution
Dryer dewpoint is not reaching proper setpoint.	Low regeneration temperature.	Replace or check defective heaters, fuses etc.
	Poor regeneration airflow.	Clean or replace the regeneration filter.
		Ensure the regeneration blower is operating properly and rotating in the correct direction. *See Installation section entitled, Checking for proper airflow.*
		Remove obstructions in the air stream, such as crimped hoses, etc.
	High dewpoint, ambient air leaking into the closed loop drying circuit.	Replace damaged hoses and seal any leaks in the process air circuit.
		If using a vacuum loader on the hopper, ensure that the loader shroud is installed in the hopper and that the hopper is completely filled with material.
		If partially filling your hopper, ensure that the hopper loader is sealed against ambient air.
		Install a gasket between the loader and the top of the hopper.
	Return air temperature to the dryer is too high. (The return air temperature on D1300-5000 dryers is measured at the inlet to the desiccant wheel. *D1300-5000 dryers designed prior to August 2007,* the return air temperature is measured at the inlet to the process blower.)	Clean the aftercooler coils. *See Maintenance section entitled, Cleaning the aftercooler coils.*
	Poor desiccant performance.	*See Troubleshooting section entitled, Replacing the desiccant wheel assembly.*



Replacing Fuses

1 **Disconnect and lockout the main power supply.**

2 **Open the electrical enclosure door.**

3 **Check the fuse with an ohmmeter.** If necessary, pull the fuse out and replace it with a fuse of the same type and rating.

IMPORTANT: Always refer to the wiring diagrams that came with your dryer to locate specific electrical components. Illustrations in the User Guide are intended to be representative only.

Fuse Blocks

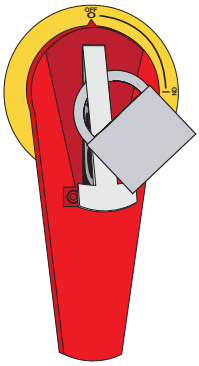
To locate the appropriate fuse and replacement part, refer to the wiring diagrams that came with your dryer.

Checking or Replacing Temperature Sensors

IMPORTANT: Always refer to the wiring diagrams that came with your dryer to locate specific electrical components. Illustrations in the User Guide are intended to be representative only.

The Carousel Plus D Series Dryer uses RTD sensors to monitor the temperatures of the return air, the regeneration outlet, and the regeneration inlet. Your dryer may have (optional) a sensor for delivery air, process protection, and/or setback.

To check or replace an RTD sensors:



1 **Disconnect and lockout the main power supply.**

2 **Remove dryer panels, as necessary.**

3 **Locate the RTD sensors.**

4 **Check the sensor positions and conditions.** Temperature readings will be incorrect if the sensors are touching the wall of an air hose or pipe or if the sensor or wiring is damaged. The tip of the sensor should be centered within the air hose or pipe. Sensor wires should be attached to the appropriate connection points on the dryer's electrical enclosure or microprocessor board.

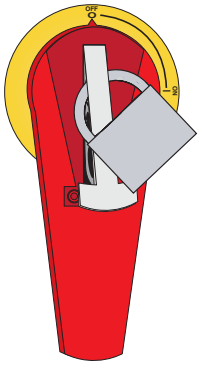
5 **To check with ohm meter,** measure the resistance across the RTDs. The resistance . should be approximately 1100 ohm at room temperature.

IMPORTANT: Use only a 209758 Series part # RTD from Conair. This dryer uses a 1000 ohm RTD, NOT a 100 ohm RTD. Verify you have the correct part.

6 **Replace the sensor, if necessary.**

Checking Heater Solid State Relays

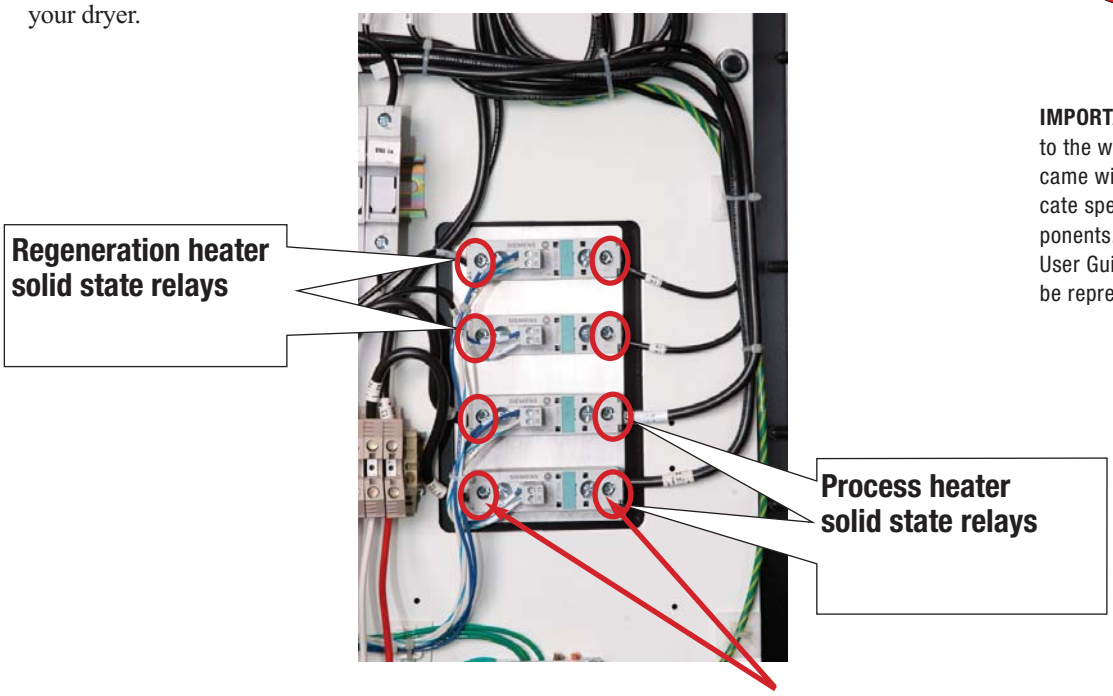
CAUTION: Always disconnect and lock out the main power sources before making electrical connections. Electrical connections should be made only by qualified personnel.



1 Disconnect and lockout the main power supply.

2 Open the electrical enclosure.

3 Locate the regeneration solid state relays. Refer to the wiring diagrams that came with your dryer.



IMPORTANT: Always refer to the wiring diagrams that came with your dryer to locate specific electrical components. Illustrations in the User Guide are intended to be representative only.

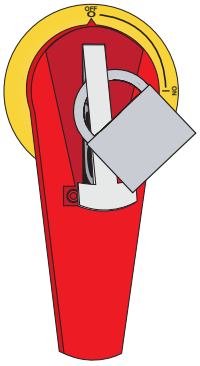
4 Turn power on to the machine.

5 Start the dryer.

6 Measure voltage across the high voltage connections using a voltmeter. When relay is energized, as indicated by the LED (green) voltage should be read 0 (zero). When relay is de-energized, LED off, full voltage should be measured across the relay. When relay is off, if voltage reads zero, relay is bad and needs replaced. Repeat this procedure for each relay.

NOTE: Measure voltage using a voltmeter across the two high voltage connections of each relay. (Shown here circled in red.)

IMPORTANT: Only qualified personnel should take measurements on energized equipment. Follow all local, regional, and company guidelines regarding safe electrical testing procedures.



Replacing the Regeneration Heater

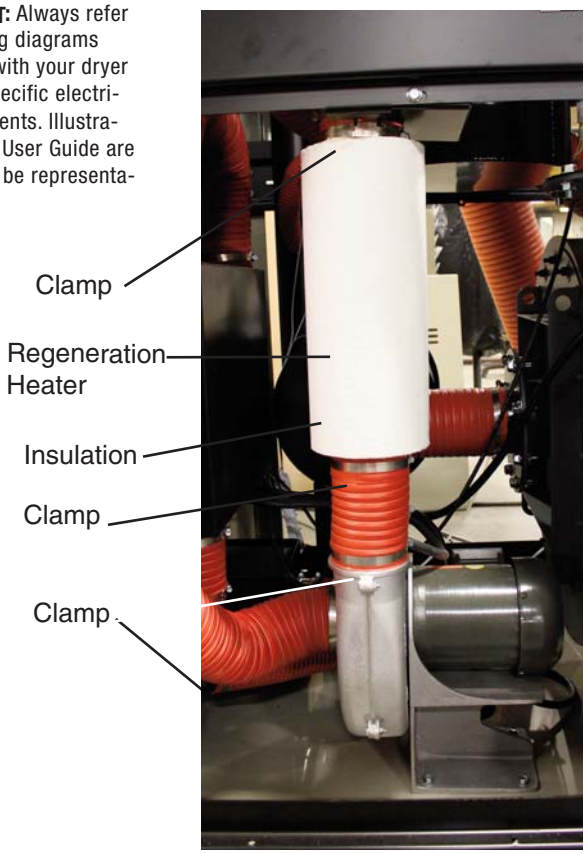
(D600 - 1000)

1 **Stop the dryer, disconnect the power, and follow proper lockout procedures.**

2 **Remove the right side panel(s) of the dryer**, as viewed from the front of the dryer, to gain access to the regeneration heater.

3 **Disconnect the regeneration heater power wires from the terminal block in the control cabinet.** Feed the regeneration power cable out of the control cabinet.

IMPORTANT: Always refer to the wiring diagrams that came with your dryer to locate specific electrical components. Illustrations in the User Guide are intended to be representative only.



4 **Unplug the quick disconnect for the high temperature switch cable** at the switch.

5 **Loosen the hose clamps then remove the hoses** from the top and bottom of the regeneration heater tube. Remove and check the bottom heater hose for loose debris or fragments, these fragments can damage the newly installed heater if not removed.

6 **While supporting the heater tube, loosen the hose clamp supporting the regeneration tube to the mounting bracket,** then remove the heater tube from the dryer.

7 **Slide the insulation off the heater tube,** or make a cut the entire length of the insulation sleeve to aid removal.

Replacing the Regeneration Heater

(W600 - 1000) (continued)

8 **Compare the markings on the outside of the regeneration heater tube** to ensure the new one has the same voltage and kW ratings as the original heater tube. This information is on the end nearest the wires.

9 **Slide the original insulation over the new heater** or, if the insulation was cut for removal, wrap the cut insulation sleeve around the new heater tube and secure it with duct tape.

10 **Make sure the cable end of the heater tube is to the bottom then secure the new heater tube to the mounting bracket with a hose clamp.**

11 **Connect the hoses to the top and bottom of the heater tube** and secure them with hose clamps.

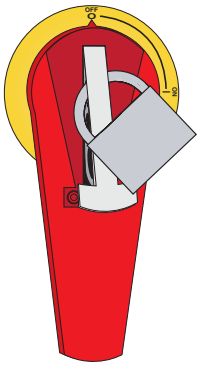
12 **Connect the high temperature switch wires** to the quick disconnects near the heater tube.

13 **Route the heater power cable into the control cabinet and connect the leads to the original locations on the terminal block.** Refer to the wiring diagram for specific connection information.

14 **Replace the side panel(s) of the dryer.**

15 **Measure the resistance from each leg of the heater tube to the others and from each leg to ground.** There should be +/- 5% resistance variation between all 3 legs, and high resistance from each leg to ground.

16 **Connect the dryer to power and turn it on.** Verify that the regeneration temperature achieves the setpoint.



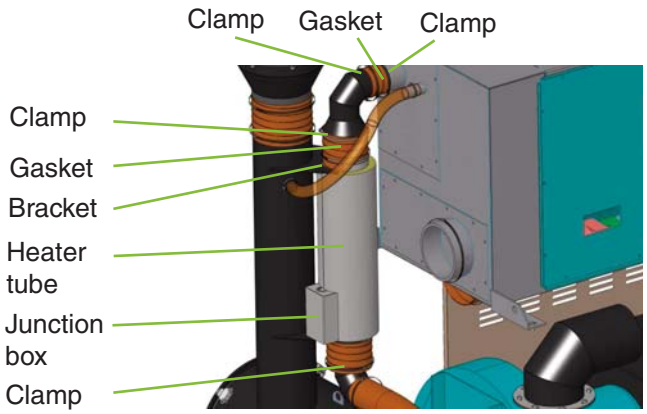
IMPORTANT: Always refer to the wiring diagrams that came with your dryer to locate specific electrical components. Illustrations in the User Guide are intended to be representative only.

Replacing the Regeneration Heater

(D1300 - 2400)

1 **Stop the dryer, disconnect and lockout the main power.**

2 **Locate the heater.** Open the side panels of the dryer locating the heater which is secured to the inlet of the desiccant wheel assembly by hard piping, brackets and clamps.



3 **Disconnect the main power leads at the junction box on the heater tube of the dryer.**

4 **Disconnect the high temperature switch cable at the quick disconnect.**

5 **To remove the defective regeneration heater tube, loosen the pressure clamps at the top and bottom of the heater tube connection and slide the clamp and its silicon gasket back away from the heater tube. D1600-2400 model dryers lower clamp is attached to a bracket that is mounted to the desiccant wheel assembly, loosen clamp to remove it from the bracket.** Remove and check the bottom heater hose for loose debris or fragments, these fragments can damage the newly installed heater if not removed.

6 **Slide the insulation off the heater tube, or make a cut down the entire length of the insulation sleeve to aid removal.**

7 **Compare the markings on the outside of the regeneration heater tube to ensure the new one has the same voltage and kW ratings as the original heater tube.** This information is on the end nearest the wires.

(continued)

Replacing the Regeneration Heater

(D1300 - 2400) (continued)

8 **Slide the original insulation over the new heater,** or if the insulation was cut for removal, wrap the cut insulation sleeve around the new heater tube and secure it with heat tape.

9 **Make sure the cable end of the new heater tube is to the bottom, then connect the hoses to the top and bottom of the heater tube** and resecure with pressure clamps and the lower heater tube bracket that was removed in Step 5.

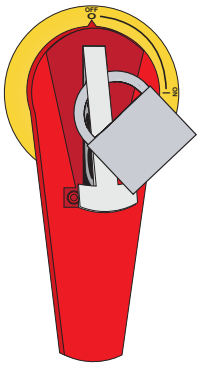
10 **Connect the high temperature switch cable to the quick disconnect.**

11 **Route the heater power wires into the junction box, and connect them to the supply leads from the control box.** Refer to the wiring diagram for specific connection information.

12 **To ensure all connections are correct, measure the resistance as in Step 3.** You should measure the readings as noted for a good heater.

13 **Close the side panel of the dryer.**

14 **Connect the dryer to power and turn it on.** Verify the regeneration temperature achieves the setpoint.

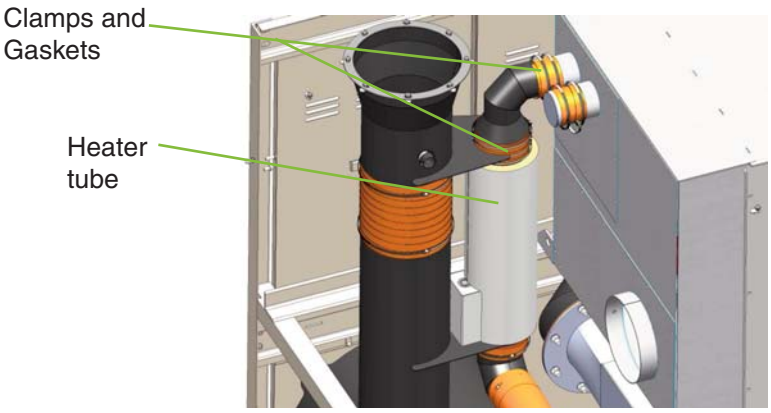


Replacing the Regeneration Heater

(D3200 - 5000)

1 **Stop the dryer, disconnect and lockout the main power.**

2 **Locate the heater.** Open the side panels of the dryer locating the heater which is secured to the inlet of the desiccant wheel assembly by brackets and clamps. .



IMPORTANT: Always refer to the wiring diagrams that came with your dryer to locate specific electrical components. Illustrations in the User Guide are intended to be representative only.

3 **Disconnect the main power leads at the junction box inside the frame of the dryer.** In units with two heaters (D3200 and D5000), it may be necessary to measure resistance across the power leads of the heater tube to determine if the heater needs to be replaced. In a good element, the resistance across all three legs should be +/- 5% resistance variation when measured leg-to-leg, and high resistance from each leg to ground. Readings other than this indicate a defective heater.

4 **Disconnect the high temperature switch cables at the quick disconnects.**

5 **Loosen the pressure clamps at the top and bottom of the heater tube connection and slide the clamp and its silicon gasket back and away from the heater tube to remove the defective regeneration heater tube. D3200-5000 model dryers heater clamp(s) are secured to the dryer with metal brackets, loosen the clamp that secures the heater tube to the bracket to remove it from the dryer.**

(continued)

Replacing the Regeneration Heater

(D3200 - 5000) (continued)

6 **Loosen the lower clamps that secure the tubing to the dryer bracket.** Remove the regeneration manifold and the tubing that is attached to the bottom. Then remove the tubing from the regeneration blower outlet and check for loose particles within the tubing, clean as necessary. Reverse this procedure to reinstall the tubing.

7 **Slide the insulation off the heater tube(s), or make a cut down the entire length of the insulation sleeve to aid removal.**

8 **Compare the markings on the outside of the regeneration heater tube to ensure the new one has the same voltage and kW ratings as the original heater tube.** This information is on the end nearest the wires.

9 **Slide the original insulation over the new heater,** or if the insulation was cut for removal, wrap the cut insulation sleeve around the new heater tube and secure it with heat tape.

10 **Make sure the cable end of the new heater tube is to the bottom, then reconnect the hoses to the top and bottom of the heater tube** and resecure with pressure clamps that were removed in Step 5.

11 **Connect the high temperature switch cable to the quick disconnect.**

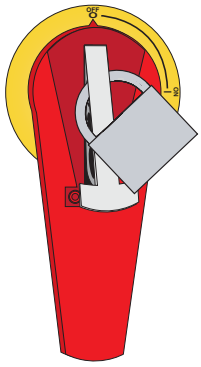
12 **Route the heater power wires into the junction box and connect them to the supply leads from the control box.** Refer to the wiring diagram for specific connection information.

13 **To ensure all connections are correct, measure the resistance as in Step 3.** You should measure the readings as noted for a good heater.

14 **Close the side panel of the dryer.**

15 **Connect the dryer to power and turn it on.** Verify the regeneration temperature achieves the setpoint.

Replacing the Desiccant Wheel Assembly (D600 - 1000)



When desiccant becomes clogged or contaminated, you should replace the desiccant wheel to ensure optimum performance.

1 **Stop the dryer, disconnect and lockout the main power.**

2 **Remove the upper and lower side panels from both sides of the dryer**.

NOTE: If your dryer is configured with a hard pipe kit, disconnect the hard piping from the top of the dryer at this time.

3 **Remove the top cover from the dryer** by removing the securing bolts.

4 **Note the position of all the hoses, RTDs, and wiring connections then remove or disconnect** these from the desiccant wheel assembly.

5 If the dryer aftercooler is being used, **turn off the water supply to the aftercooler and disconnect the water lines** from the aftercooler.

6 **Remove the four bolts securing the aftercooler assembly to the cabinet frame.**

7 **Using an overhead crane or similar appropriate lifting device, use the lifting points provided and carefully lift the aftercooler off of the frame and remove it from the dryer.**

8 **Remove the four bolts securing the desiccant wheel assembly to the dryer frame.**

9 Note the orientation of the desiccant wheel assembly. **Using an overhead crane or similar device, use the lifting rings provided and lift the desiccant wheel assembly out of the dryer.**

(continued)

Replacing the Desiccant Wheel Assembly (D600 - 1000) (continued)

10 **Lift the new desiccant wheel into the dryer frame, being sure it is oriented properly.** To verify the correct orientation, ensure that the regeneration air inlet is positioned closest to the regeneration heater tube. **DO NOT** bolt into place at this time.

11 Lift the aftercooler assembly into the dryer frame and bolt it to the frame using the four bolts you removed earlier.

12 **Verify position of the desiccant wheel assembly and bolt it in place.**

13 **If the aftercooler is being used, reconnect the water lines.**

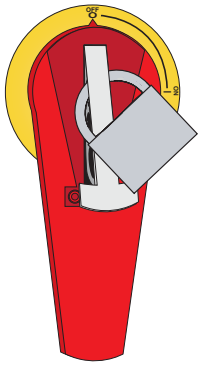
14 **Reconnect or reinstall all hoses, RTDs, and wiring connections.**

15 **Bolt the top cover in place.**

✎ **NOTE:** If your dryer is configured with a hard pipe kit, re-connect the hard piping to the top of the dryer at this time.

16 **Connect the power to the dryer and start it.** Ensure that the desiccant wheel assembly rotates in the correct direction.

17 **Replace all upper and lower side panels.**



Replacing the Desiccant Wheel Assembly (D1300 - 5000)

If you need to service the desiccant wheel assembly (wheel, motor, belts, etc.), use the following procedure to remove the entire assembly from the dryer.

1. **Stop the dryer, disconnect and lockout the main power.**

2. **Remove the upper and lower side panels from both sides of the dryer**.

NOTE: If your dryer is configured with a hard pipe kit, disconnect the hard piping from the top of the dryer at this time.

3. **Remove the top cover from the dryer** by removing the securing bolts.

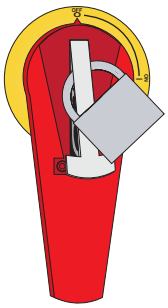
4. **Note the position of all the hoses, RTDs, and wiring connections then remove or disconnect** these from the desiccant wheel assembly.

5. **Remove the bolts securing the desiccant wheel assembly to the dryer frame.**

6. Note the orientation of the desiccant wheel assembly. **Using an overhead crane or similar device, use the lifting rings provided and lift the desiccant wheel assembly out of the dryer.**

To replace the wheel assembly, reverse the procedure above.

Replacing the Desiccant Wheel (D1300 - 5000)



When desiccant becomes clogged or contaminated, you should replace the desiccant wheel to ensure optimum performance.

1 **Stop the dryer, disconnect and lockout the main power.**

2 **Remove the upper side panels from both sides of the dryer**.

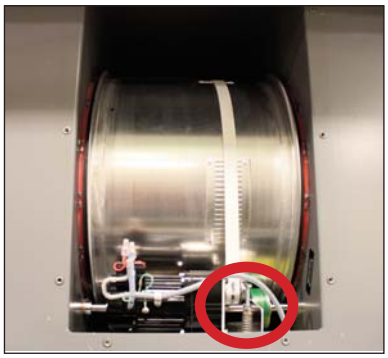
3 **Remove the side panels from both sides of the desiccant wheel assembly housing** by removing the securing bolts.

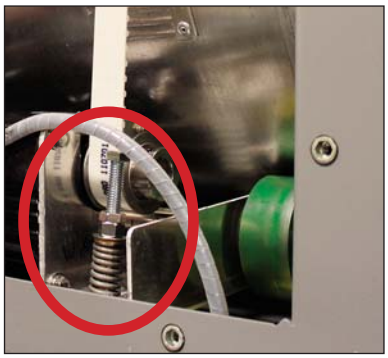
(continued)

Replacing the Desiccant Wheel

(D1300 - 5000) (continued)

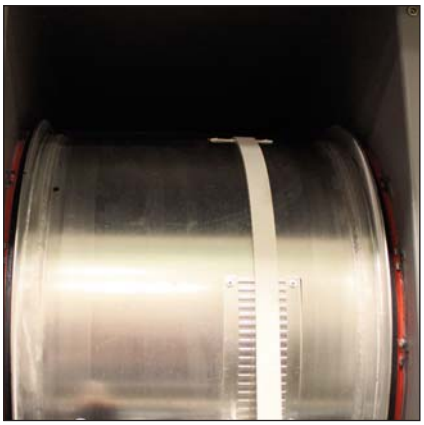
4 On the motor side of the wheel assembly, **while noting the number of turns, relieve the tension on the drive bolt by loosening the nut above the tension spring** until the belt can be slipped off the motor sprocket.





5 **Remove the belt from the motor sprocket.**

6 Move to the other side of the wheel assembly housing (the side without the motor). **Using the belt to pull, pull straight out on the wheel until it is free from the housing.**



(continued)

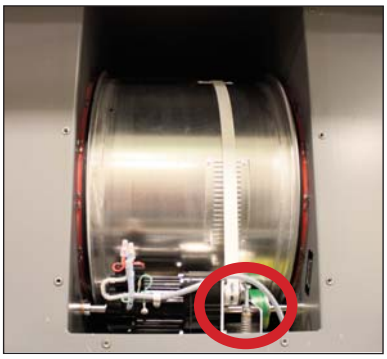
Replacing the Desiccant Wheel (D1300 - 5000) (continued)

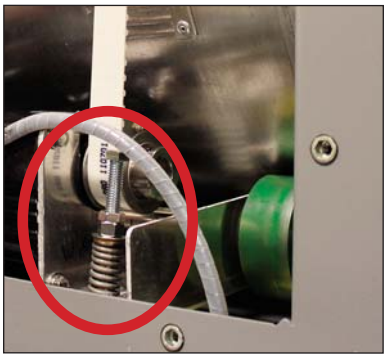
7 **Place the belt on your new wheel** unless you are replacing the belt at the same time, in which case you should put the new belt on the new wheel.

8 **Place a sheet of cardboard inside the housing on each side to protect the gaskets before you insert the new wheel.**

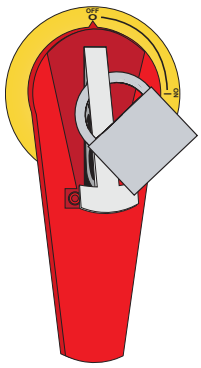
9 **Place the new wheel into the housing, and then pull the pieces of cardboard out from between the wheel and the gaskets.**

10 **Place the belt back around the motor, and adjust the tension as necessary.**





11 **Replace the wheel assembly housing sides, and the dryer side panels.**



Replacing the Desiccant Wheel Motor

(D600 - 1000)

1 **Stop the dryer, disconnect and lockout the main power.**

2 **Remove side panels.**

3 **Disconnect wiring to the motor.**

4 **Remove the pivot bolt securing the belt tensioner to the motor bracket.** Be sure to retain the flat washers located between the tensioner and bracket. Disconnect the spring and remove the tensioner.

5 **Remove the belt from the motor pulley,** then remove the pulley from the motor.

6 **Remove the screws securing the motor to the upper and lower bracket,** and remove the motor.

7 **Secure the new motor to the bracket.**

8 **Install the pulley on the new motor,** and position the belt on the pulley.

9 **Connect the spring to the tensioner, then secure the tensioner to the motor bracket.** Be sure to install flat washers between the motor bracket and the tensioner.

10 **Connect the wires to the motor.**

11 **Connect the power to the dryer.** Turn the dryer on and ensure that the desiccant wheel is rotating in the correct direction.

12 **Replace the side panels.**

Replacing the Desiccant Wheel Motor

(D 1300 - 5000)

1 **Stop the dryer, disconnect and lockout the main power.**

2 **Open the right side panel(s), as viewed from the front of the dryer.**

3 **Unbolt and remove the access panel on the side of the desiccant wheel assembly.**

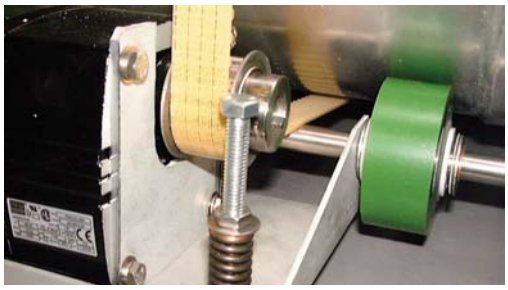
4 **Disconnect the wiring connection to the motor.**

5 **While noting the number of turns, relieve the tension on the drive bolt** by loosening the nut above the tension spring until the belt can be slipped off the motor sprocket.

6 **Unbolt the motor and remove it from its mounting bracket.**

7 **Remove the sprocket from the old motor, and install it onto the new motor.**

8 **Bolt the new motor in place.** Be sure to remove the plastic plug in the vent hole of the gearbox.



(continued)

Replacing the Desiccant Wheel Motor

D1300 - 5000) (continued)

9 **Slip the belt onto the sprocket,** and adjust the tension spring nut to its original position.

10 **Connect the wires to the new motor.**

11 **With the access panel still removed, connect the power to the dryer and start it. Ensure the wheel turns in the correct direction.** If the belt appears to be slipping, it may be necessary to increase the tension on the drive belt slightly. Do not increase this tension any more than necessary to allow the wheel to rotate without slipping.

12 **Bolt the access panel in place** and close the side panel(s) on the dryer.

We're Here to Help

Conair has made the largest investment in customer support in the plastics industry. Our service experts are available to help with any problem you might have installing and operating your equipment. Your Conair sales representative also can help analyze the nature of your problem, assuring that it did not result from misapplication or improper use.

Additional manuals and prints for your Conair equipment may be ordered through the Customer Service or Parts Department for a nominal fee. Most manuals can be downloaded free of charge from the product section of the Conair website.
wow.conairgroup.com

How to Contact Customer Service

To contact Customer Service personnel, call:

✎ **NOTE:** Normal operating hours are 8:00 am - 5:00 pm (EST). After hours emergency service is available at the same phone number.

From outside the United States, call: 814-437-6861
You can commission Conair service personnel to provide on-site service by contacting the Customer Service Department. Standard rates include an on-site hourly rate, with a one-day minimum plus expenses.

Before You Call...

If you do have a problem, please complete the following checklist before calling Conair:

- ❒ Make sure you have all model, control type from the serial tag, and parts list numbers for your particular equipment. Service personnel will need this information to assist you.
- ❒ Make sure power is supplied to the equipment.
- ❒ Make sure that all connectors and wires within and between control systems and related components have been installed correctly.
- ❒ Check the troubleshooting guide of this manual for a solution.
- ❒ Thoroughly examine the instruction manual(s) for associated equipment, especially controls. Each manual may have its own troubleshooting guide to help you.
- ❒ Check that the equipment has been operated as described in this manual.
- ❒ Check accompanying schematic drawings for information on special considerations.

Equipment Guarantee

Conair guarantees the machinery and equipment on this order, for a period as defined in the quotation from date of shipment, against defects in material and workmanship under the normal use and service for which it was recommended (except for parts that are typically replaced after normal usage, such as filters, liner plates, etc.). Conair's guarantee is limited to replacing, at our option, the part or parts determined by us to be defective after examination. The customer assumes the cost of transportation of the part or parts to and from the factory.

Performance Warranty

Conair warrants that this equipment will perform at or above the ratings stated in specific quotations covering the equipment or as detailed in engineering specifications, provided the equipment is applied, installed, operated and maintained in the recommended manner as outlined in our quotation or specifications.

Should performance not meet warranted levels, Conair at its discretion will exercise one of the following options:

- Inspect the equipment and perform alterations or adjustments to satisfy performance claims. (Charges for such inspections and corrections will be waived unless failure to meet warranty is due to misapplication, improper installation, poor maintenance practices or improper operation.)
- Replace the original equipment with other Conair equipment that will meet original performance claims at no extra cost to the customer.
- Refund the invoiced cost to the customer. Credit is subject to prior notice by the customer at which time a Return Goods Authorization Number (RGA) will be issued by Conair's Service Department. Returned equipment must be well crated and in proper operating condition, including all parts. Returns must be prepaid.

Purchaser must notify Conair in writing of any claim and provide a customer receipt and other evidence that a claim is being made.

Warranty Limitations

Except for the Equipment Guarantee and Performance Warranty stated above, Conair disclaims all other warranties with respect to the equipment, express or implied, arising by operation of law, course of dealing, usage of trade or otherwise, including but not limited to the implied warranties of merchantability and fitness for a particular purpose.

Electrical Cable and Conduit Sizing Chart for D Series Dryers with Process Heat

Dryer	Voltage	Size of AWG	Conduit Size	Conduit QTY
D600	400 VAC	6	1.5	1
D600	460 VAC	6	1.5	1
D600	575 VAC	8	1.5	1
D800	380 VAC	6	1.5	1
D800	400 VAC	6	1.5	1
D800	460 VAC	6	1.5	1
D800	575 VAC	8	1.5	1
D1000	380 VAC	4	1.5	1
D1000	400 VAC	4	1.5	1
D1000	460 VAC	6	1.5	1
D1000	575 VAC	8	1.5	1
D1300	380 VAC	4	1.5	1
D1300	400 VAC	4	1.5	1
D1300	460 VAC	6	1.5	1
D1300	574 VAC	8	1.5	1
D1600	380 VAC	4	1.5	1
D1600	400 VAC	4	1.5	1
D1600	460 VAC	6	1.5	1
D1600	575 VAC	8	1.5	1
D2000	380 VAC	6	1.5	2
D2000	400 VAC	6	1.5	2
D2000	460 VAC	6	1.5	2
D2000	575 VAC	8	1.5	2
D2400	380 VAC	6	1.5	2
D2400	400 VAC	6	1.5	2
D2400	460 VAC	6	1.5	2
D2400	575 VAC	8	1.5	2
D3200	380 VAC	4	1.5	2
D3200	400 VAC	4	1.5	2
D3200	460 VAC	6	1.5	2
D3200	575 VAC	8	1.5	2
D4000	380 VAC	4	1.5	2
D4000	400 VAC	4	1.5	2
D4000	460 VAC	6	1.5	2
D4000	575 VAC	8	1.5	2
D5000	380 VAC	4	1.5	2
D5000	400 VAC	4	1.5	2
D5000	460 VAC	6	1.5	2
D5000	575 VAC	8	1.5	2

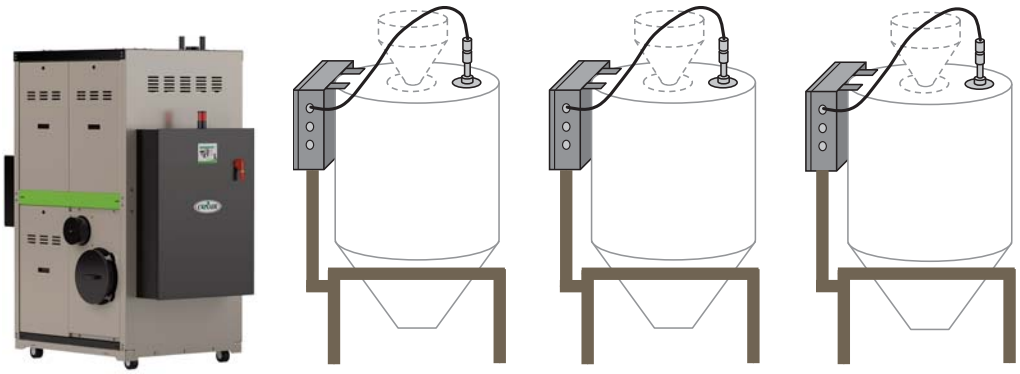
Electrical Requirements and Process Heater Information for D-Series Dryers with Process Heat

	Process Motor (HP)	Regen Motor (HP)	Process Heater (kW)	Regen Heater (kw)
Refer to drawing #188674				
D600	7.5	0.5	38	15
D800	7.5	0.5	38, 19	15
D1000	7.5	0.5	38, 19	15
D1300	10	0.5	38, 38	19
D1600	15	0.5	38, 38	19
D2000	20	0.5	38, 38, 19	19
D2400	20	0.5	38, 38, 38	19
D3200	25	1	38, 38, 38, 19	38
D4000	30	1	38, 38, 38, 38, 38	38
D5000	30	1	38, 38, 38, 38, 38	38

Appendix

Drying Monitor DM-4

For use with D Series Dryers with DC-C Control



Zero Mechanical State (ZMS)

⚠ **CAUTION:** Before performing maintenance or repairs on this product, you should disconnect and lockout electrical power sources to prevent injury from unexpected energizing or start-up.

During maintenance, it is essential that the system be put into a state which eliminates the possibility of components making an unexpected and dangerous movement. This procedure is typically referred to as lockout. After all energy sources have been neutralized, the system is in the zero mechanical state (ZMS). This provides maximum protection against unexpected mechanical movement.

The lockout procedure must include all energy sources:

- Electrical power supply
- Compressed air supply
- Hydraulic fluids under pressure
- Potential energy from suspended parts
- Energy in springs
- Any other source that might cause unexpected mechanical movement

The following is a recommended Zero Mechanical State procedure which must be followed prior to any inspection, or maintenance of the Dryer Monitor hopper probe(s).

1 **Turn off the loading device installed to the top of the drying hopper to assure that it does not attempt to load the hopper with material.**

2 **Perform the proper shutdown sequence to the connected dryer or drying system and allow all hopper components (internally and externally) to adequately cool.**

3 **Disconnect and lock out the primary electrical supply feeding the dryer.**

4 **Drain the drying hopper, at least to a level that fully exposes the probe; typically just below the air spreader cone in the hopper, as observed through a sight glass or viewing window.**

5 **Carefully open the drying hopper door and clarify that material level is below the probe and that the temperature of all hopper surfaces and the probe are adequately reduced to make touching and handling safe.**

6 **Use caution working in elevated areas and use approved fall prevention measures and carefully disconnect the drying monitor probe from its junction box on the top of the hopper.**

7 **The probe is now accessible for maintenance, replacement, adjustment or repairs.**

⚠ **WARNING:** Before removing lockout devices and returning switches to the ON position, make sure that all personnel are clear of the machine, tools have been removed, and all safety guards reinstalled.

What is the Drying Monitor™?

The Drying Monitor is the latest generation of technology created for analyzing drying performance from a multi-zone, resistance temperature detector (RTD) probe installed in the drying hopper. Embedded into the DC-C dryer control software, the Drying Monitor is designed to provide early detection of poor drying conditions and provide alarms for correcting problems. Up to 16 hoppers can be monitored.

Drying Monitor probes are supplied for any size or brand of drying hopper and are installed through the lid of the hopper (or from the bottom of the hopper up) and extend to the base of the air diffuser. Probe signals are then continuously fed back to the control where each hopper's temperature profile can be viewed, trended and used to determine if proper drying is taking place according to required drying parameters.

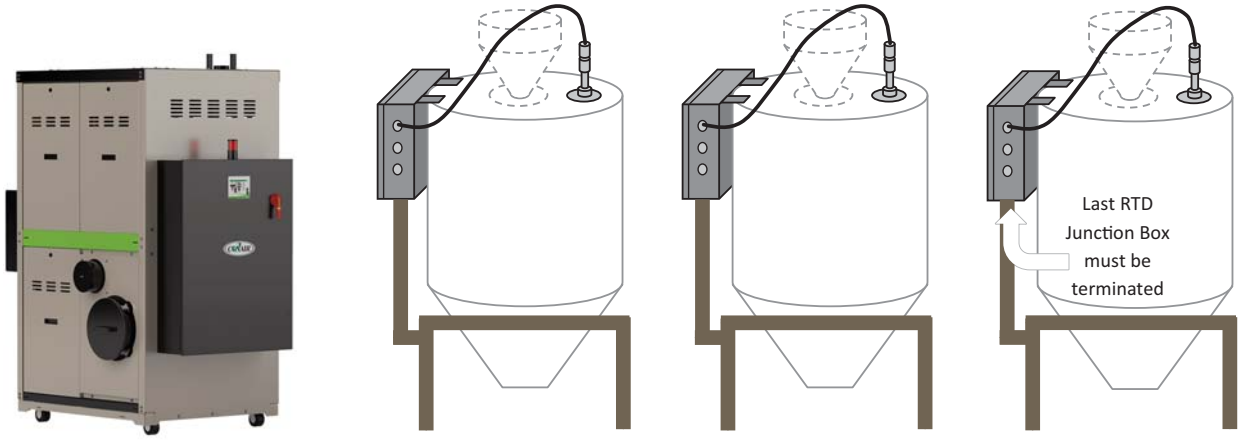
Typical Applications

The Drying Monitor is ideal for applications that require strict monitoring of the drying process to meet product quality specifications. The DM can also aid in the prevention of product rejects through early identification of potential drying problems.

The DM will alert the operator, through a passive alarm shown on the local hopper control monitor that one of these common drying problems may exist:

- A change in the temperature profile within the drying hopper.
- Loss of air flow through the drying hopper.
- A reduction or loss of drying time at the selected and programmed drying temperature.

Note: Drying Monitor is also provided as an independent control and probe set for dryers not equipped with DC-C. This independent version is called the DM4-i. On the DM4-i version of Drying Monitor, an independent TouchView control provides the operator interface. For more information on the DM4-i version of the Drying Monitor, contact Conair.



Multi-hopper Drying Monitor

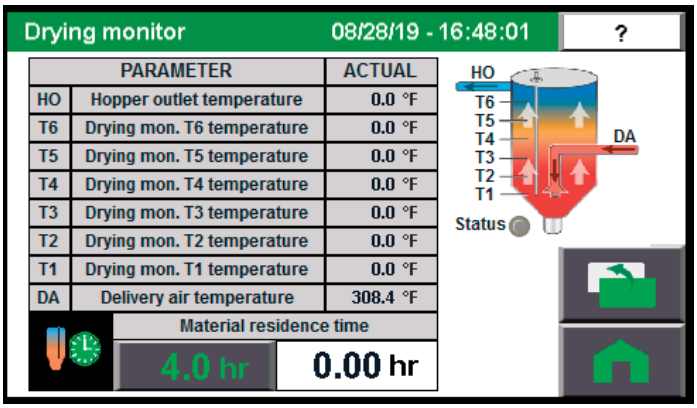
How the Drying Monitor Works

The Drying Monitor consists of stainless steel, 6-zone, temperature probes installed in drying hoppers that sense the specific temperature profile of the hoppers and compares their profiles to the requirements needed for proper drying in a specific hopper for a specific material.

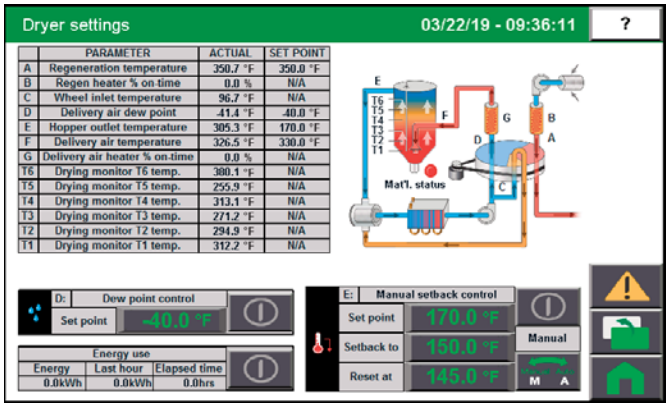
Interpretation of that temperature profile by the DM leads directly to predicting under or over dried material, inadequate air flow, clogged filters, heater failure, excess throughput for that hopper size, unresponsive loading, over capacity drying and many other conditions that are likely to produce scrap and waste time, energy and material.

The DM will store all temperature readings and organize the data into logical groups for review or downloading to a spreadsheet program for analysis. The DM has memory capacity to store seven days of data for each hopper in the system.

Alarms are displayed on the local hopper control and also stored for future reference. Pressing the Alarms button will take you to the alarm list.



Example of a remote heat source



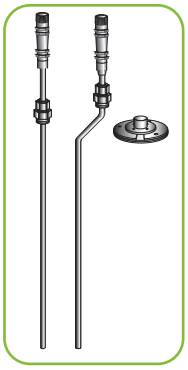
Example of a stand alone standard dryer

Drying Monitor System Components

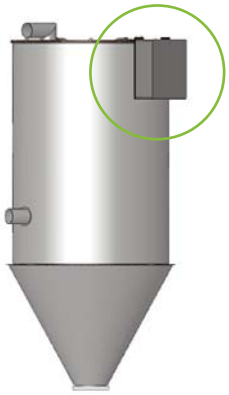
The Drying Monitor system consists of:

A Conair Carousel Plus dryer with DC-C control that connects to up to 16 probes via RTD junction boxes at each hopper.

Stainless steel, 6-zone, temperature probes are installed in each of the drying hoppers. These probes are sized specifically for the hoppers they will be installed into and hang from the lid of the hopper approximately halfway between the centerline and the inside wall of the hopper. Some hoppers (especially those fitted with loading equipment) often require probes with an offset to allow location in one position on the lid and another vertical position in the hopper. Conair hoppers are typically outfitted to readily receive a DM probe. Non-Conair or older Conair hoppers will require adaptation for probe installation according to instructions supplied in this manual.



RTD junction boxes link the cable from the hopper probe into the ModBus communications interface, and back to the local heat control (HTC, ResinWorks, Gastrac or standalone dryer). All remote heat controls are daisy chained back to the dryer.



Cable sets are custom ordered in lengths of 5 feet {1.5 meters}, 10 feet {3.0 meters}, 15 feet {4.6 meters}, 20 feet {6.1 meters}, 50 feet {15.2 meters, 75 feet {22.9 meters} and 100 feet {30.5 meters} long.

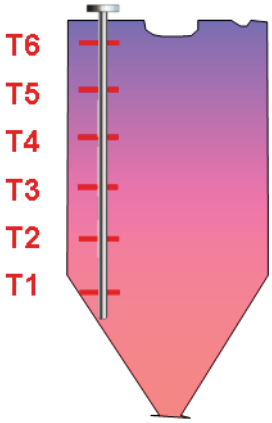
To order a cable set:

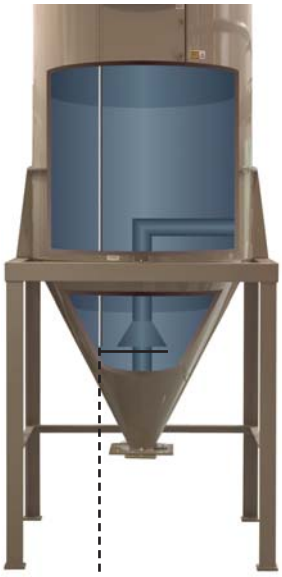
Contact Conair Parts
1 800 458 1960
From outside of the United States, call:
814 437 6861

5 ft {1.5 m}- 1886780405
10 ft {3.0 m}- 18886780410
15 ft {4.6 m}- 18886780415
20 ft {6.1 m}- 18886780420
50 ft {15.2 m}- 18886780450
75 ft {22.9 m}- 18886780475
100 ft {30.5 m}- 188867804100

✎ **Note**: Cables can be shortened in the field by a qualified technician. It is better to order a cable length that is too long and shorten it in the field than to have a cable that is too short.

RTD Sensor Positions in the Hopper



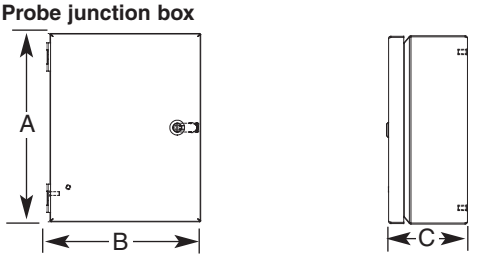


Probe lines up with the bottom of the diffuser cone section

RTD's will be referred to in this user guide and on your DM display as T1, T2, T3, T4, T5, and T6. T1 is the lower most temperature sensor within the DM temperature probe and is positioned at the bottom of the diffuser cone section. T6 is the upper most temperature sensor in the DM temperature probe and is located near the top of the hopper when installed. Position T6 is always located in the air void above the bed of material in the hopper.

Specifications

Probe junction box



Front view **Side view**

MODEL	DM
Control box type	**DM probe junction box**
Dimensions inches {mm}	
A- Height	10.0 {254}
B- Width	8.0 {203}
C- Depth	4.0 {101}
Weight lb {kg}	
Installed	29 {13}
Shipping	36 {16}

SPECIFICATION NOTES

Specifications may change without notice. Check with a Conair representative for the most current information.

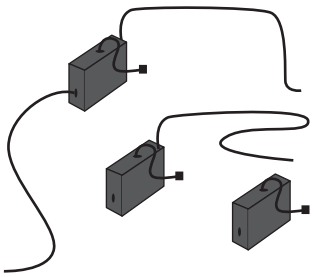
The DM is also available as a independent option, with its own TouchView control panel, to monitor up to 30 hoppers. Contact Conair for more information on the DM4-i.

Unpacking the Boxes

The DM software is included as part of your DC-C control. The necessary hardware (not included as part of the dryer - must be ordered separately) comes in two or more shipping containers, depending on the options ordered.

The DM consists of:

- One or more stainless steel probes
- An RTD junction box for each probe, including associated mounting hardware
- ModBus connecting cables and
- If ordered, installation hardware for each probe.



Packaging for the DM system can be varied depending upon what has been ordered, so carefully inventory all items.

NOTE: You must have local hopper control (HMI) to use DM4-i as part of a central drying system.

To order a hopper mount adapter kit, part #18169902:

Contact Conair Parts
1 800 458 1960
From outside of the United States, call:
814 437 6861

1 **Carefully remove all components** from their shipping containers.

2 **Remove all packing material, protective paper, tape, and plastic.** Do not discard installation notice tags.

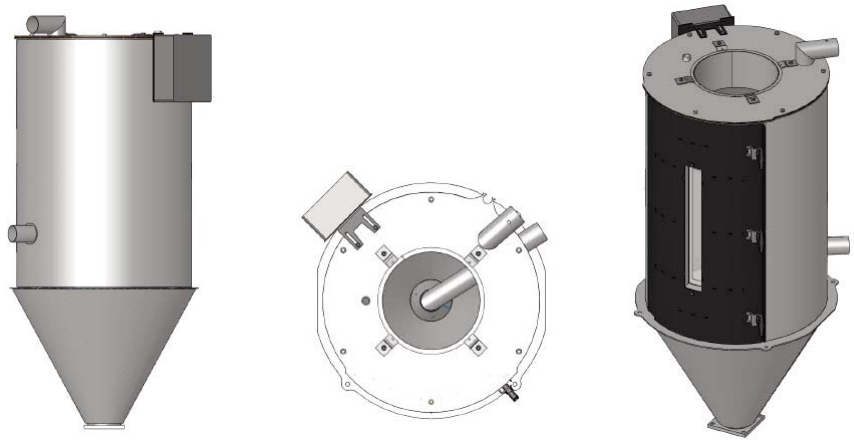
3 **Carefully inspect all components** to make sure no damage occurred during shipping, and that you have all the necessary hardware.

TIP: Inspect all of the equipment in the presence of the fright carrier's representative for damage during shipment. Note any damage on the delivery receipt before signing it. If damage is evident, file a claim immediately against the carrier as it is their responsibility to pay for any damage incurred during shipping. Make sure to include a detailed report of the damage along with photos. Note that RTD probes are delicate and may not operate properly if bent or otherwise damaged.

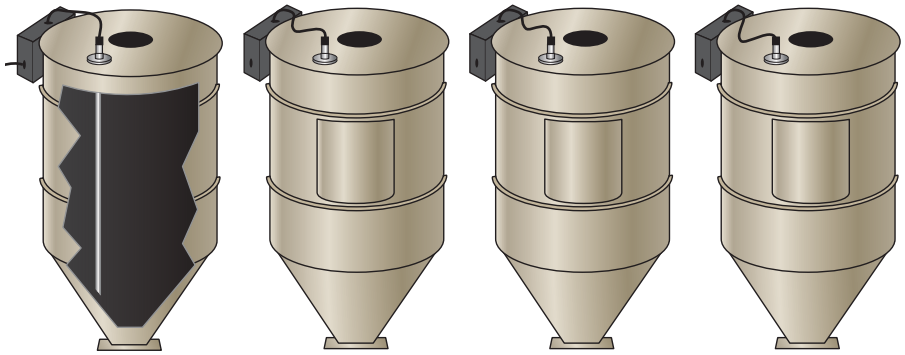
4 **Take a moment to record serial numbers.** Also record the drying hopper's model number and specifications. This information will be helpful if you ever need service or parts.

Preparing for Installation

In addition to mounting the probe into the hopper, each hopper will be equipped with an RTD Junction Box. This box provides the link from the probe to the ModBus interconnection cables that will connect each hopper to the heater control panel.



The RTD Junction Box should be mounted in a safe location, at the top of the hopper as near as possible to the hopper probe and if possible, not directly above the hopper, to minimize transmitted heat from the hopper to the junction box. Stay clear of loading equipment that may require service access and be sure to mount the box so that it is not likely to be used as step or hand-hold during service procedures.



⚠ **IMPORTANT:** The DC-C controlled dryer, and any junction boxes should not be installed in extreme temperature locations. Ambient air temperatures below 41°F {5°C} and above 104°F {40°C} should be avoided.

Installing the Probe

CAUTION: Hopper surfaces may be hot. Make sure the drying hopper is empty and has cooled to room temperature before installing the probe assembly. Failure to do so can lead to serious injury.

The DM probe is inserted through a hole in the top of the drying hopper and secured to a threaded coupling with a compression fitting. Mounting adapter plates may be necessary.

CAUTION: Always disconnect and lock out the main power supply before beginning the installation process.

There are three mounting methods for the probe:

- **Select Mounting Method 1** if you purchased a new Conair CH series drying hopper equipped with a factory-installed coupling for the probe.
- **Select Mounting Method 2** if you are installing the probe and coupling in a drying hopper that has enough overhead clearance to insert the probe from the top of the hopper.
- **Select Mounting Method 3** if you are installing the probe and adapter kit on a drying hopper that does not have enough overhead clearance to insert the probe from the top.

Mounting Method 1
(New Conair hopper with Factory Installed coupling)

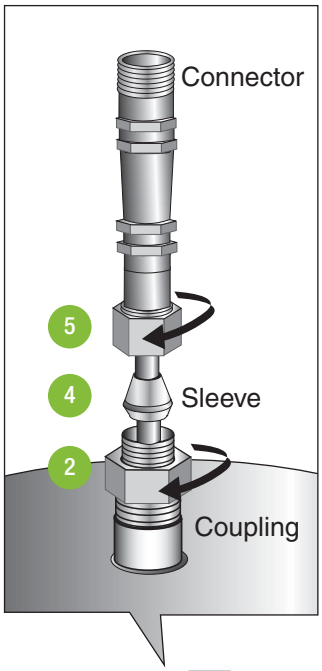
1 **Insert the probe through the coupling** in the top of the drying hopper.

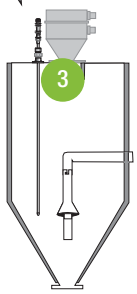
2 **Screw the fitting into the coupling.** Tighten with a wrench.

3 **Make sure the probe is the correct size.** The probe should extend from just above the top of the hopper into the hopper, with the tip approximately in-line with the bottom edge of the diffuser cone.

4 **Push the compression sleeve into the fitting.**

5 **Tighten the nut over the sleeve.** The compression sleeve will crimp the tube to hold the probe in place. Be sure to position the connector in such a way as to avoid interference of the cable with the loader, etc. Use a wrench to tighten the nut so that it covers the threads.





NOTE: The mounting adapter kit will only be included if the DM was ordered as a retrofit kit.

NOTE: If the angled probe is used, the bend (dog leg) in the probe must be oriented so that it is angled in toward the center of the hopper.

CAUTION: Always disconnect and lock out the main power supply before beginning the installation process.

CAUTION: Hopper surfaces may be hot. Make sure the drying hopper is empty and has cooled to room temperature before installing the probe assembly. Failure to do so can lead to serious injury.

Tools for Installation:

❒ 7/8-in. wrench

CAUTION: Always disconnect and lock out the main power supply before beginning the installation process.

CAUTION: Hopper surfaces may be hot. Make sure the drying hopper is empty and has cooled to room temperature before installing the probe assembly. Failure to do so can lead to serious injury.

IMPORTANT: Stretch cloth or plastic across the inside of the hopper to catch metal shavings from the hole you will drill in the top of the hopper.

NOTE: The mounting adapter kit will only be included if the DM was ordered as a retrofit kit. Remove the mounting adapter plates from the probe assembly, you will not need them. You will need the gasket.

Tools for Installation:

- ❒ Drill and 10-32 tap
- ❒ Knife
- ❒ Flathead screwdriver
- ❒ 7/8-in. wrench

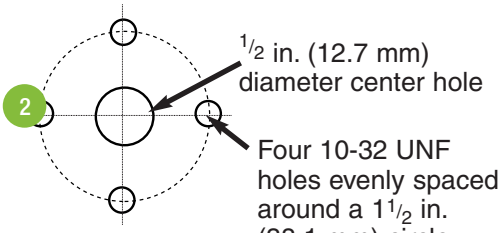
NOTE: If the angled probe is used, the bend (dog leg) in the probe must be oriented so that it is angled in toward the center of the hopper.

Mounting Method 2

(Drying hopper with enough overhead clearance to insert probe from the top of the hopper)

1 **Reference the drawings at the end of this user guide** and select the drawing that reflects your installation. Drill the appropriate hole in the top of the hopper.

2 **Drill and tap four 10-32 UNF holes** to match the hole pattern in the coupling.

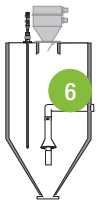


3 **Secure the gasket and coupling to the hopper** with the four 10-32 screws. Remove any excess gasket with a knife.

4 **Insert the probe through the coupling** in the top of the hopper.

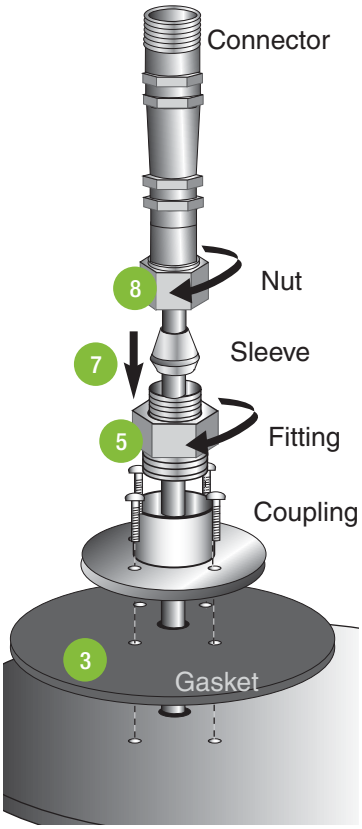
5 **Screw the fitting into the coupling.** Tighten with a wrench.

6 **Make sure the probe is the correct size.** The probe should extend from just above the top of the hopper into the hopper, with the tip approximately in-line with the bottom edge of the diffuser cone.



7 **Push the compression sleeve into the fitting.**

8 **Tighten the nut over the sleeve.** The compression sleeve will crimp the tube to hold the probe in place. Be sure to position the connector in such a way as to avoid interference of the cable with the loader, etc. Use a wrench to tighten the nut so that it covers the threads.



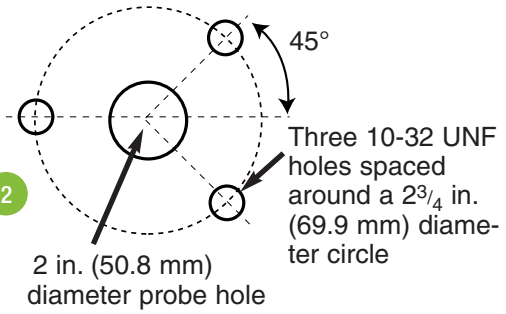
9 **Thoroughly clean the inside of the hopper** to remove any debris left from installation of the probe.

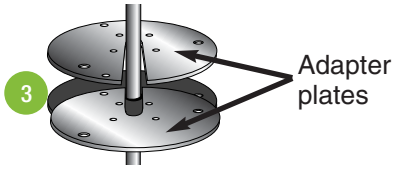
Mounting Method 3

(Not enough overhead clearance to insert the probe from the top of the hopper)

1 **Reference the drawings at the end of this user guide** and select the drawing that reflects your installation. Drill the appropriate hole in the top of the hopper.

2 **Drill and tap three 10-32 UNF holes** to match the screw pattern in the adapter plates and gasket. You can use the template in the appendix.

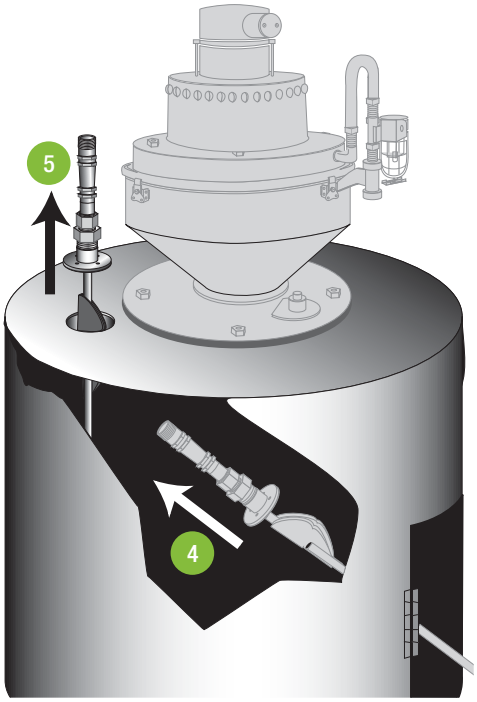




3 **Remove the two adapter plates from the probe mounting assembly.** Set the adapter plates aside for use in Step 7.

4 **Insert the probe and mounting assembly through the door of the hopper.**

5 **Pull the probe and mounting assembly through the hole in the top of the hopper.** Fold the gasket around the probe so that it will fit through the hole.



Tools for Installation:

- ❒ Drill and 10-32 tap
- ❒ Flathead screwdriver
- ❒ 7/8-in. wrench
- ❒ 2-in. hole saw

CAUTION: Always disconnect and lock out the main power supply before beginning the installation process.

CAUTION: Hopper surfaces may be hot. Make sure the drying hopper is empty and has cooled to room temperature before installing the probe assembly. Failure to do so can lead to serious injury.

IMPORTANT: Stretch cloth or plastic across the inside of the hopper to catch metal shavings from the hole you will drill in the top of the hopper.

NOTE: If the angled probe is used, the bend (dog leg) in the probe must be oriented so that it is angled in toward the center of the hopper.

(continued)

Mounting Method 3 (continued)

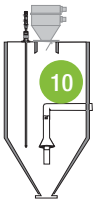
6 **Place the gasket over the probe hole.**

7 **Place the adapter plates over the gasket and secure** them to the hopper with three 10-32 UNF screws. Make sure the adapter plate with the threaded holes is on the bottom, and that the slots in the adapter plates are oriented in the opposite direction as shown. *See drawing to right, #7.*

8 **Secure the coupling to the adapter plates** with the four 10-32 UNF screws.

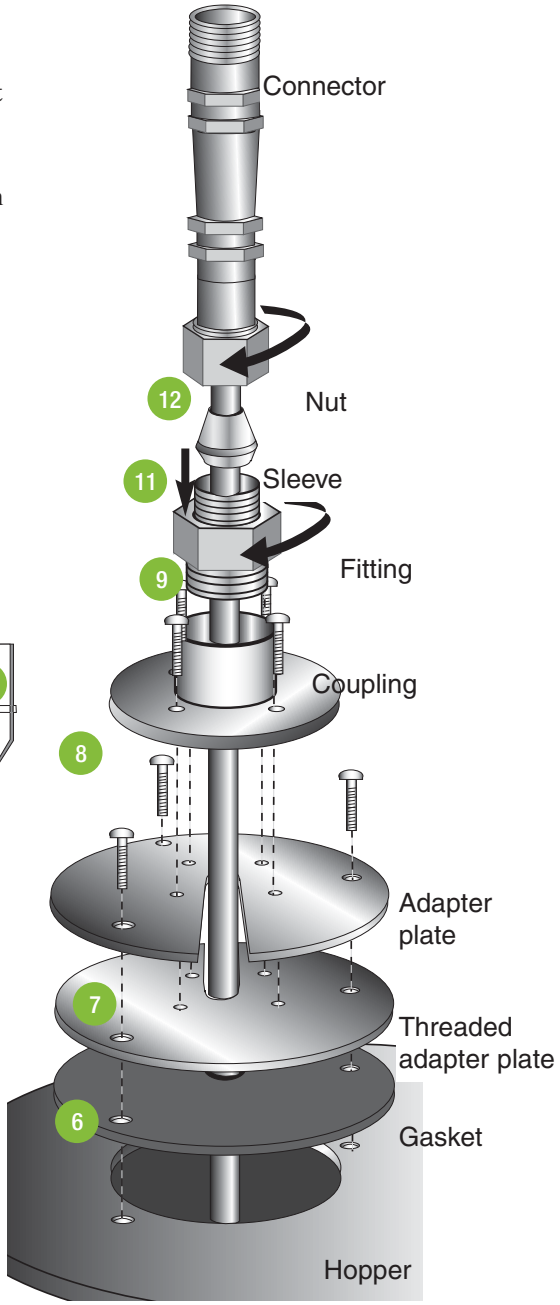
9 **Screw the fitting into the coupling.** Tighten with a wrench.

10 **Make sure the probe is the correct size.** The probe should extend from just above the top of the hopper into the hopper, with the tip approximately in-line with the bottom edge of the diffuser cone.



11 **Push the compression sleeve into the fitting.**

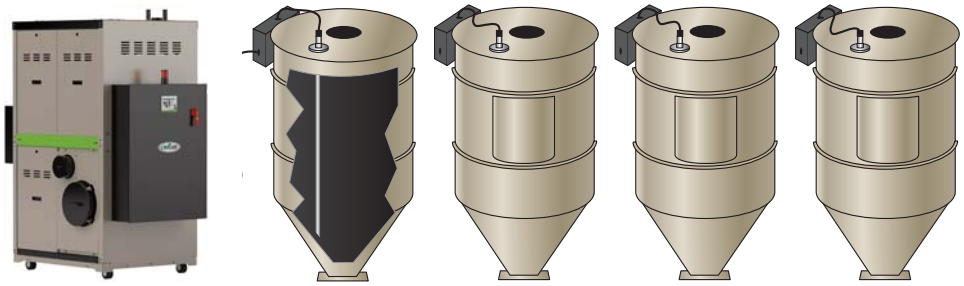
12 **Tighten the nut over the sleeve.** The compression sleeve will crimp the tube to hold the probe in place. Be sure to position the connector in such a way as to avoid interference of the cable with the loader, etc. Use a wrench to tighten the nut so that it covers the threads.



13 **Thoroughly clean the inside of the hopper** to remove any debris left from installation of the probe.

Preparing for Electrical Installation

1 Using the ModBus cables provided, connect the RTD box to the heat source being used (HTC, ResinWorks, Gastrac or standalone dryer) for each hopper. Repeat this for each hopper and heat source of the ModBus. Avoid parallel runs with your factory's power cables, and material conveying lines.



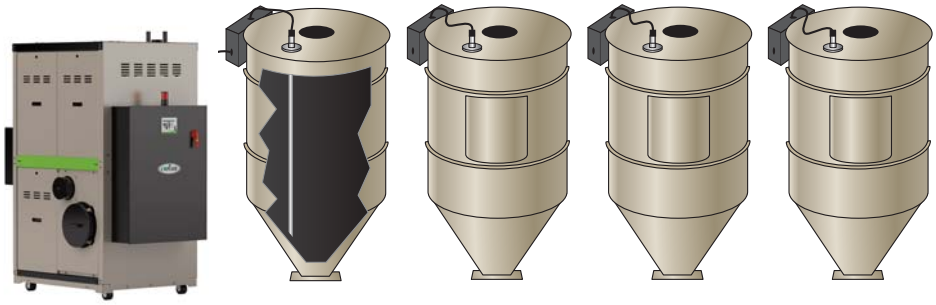
NOTE: RTD junction boxes connect via Modbus to the heater control and multiple heater controls are daisy chain wired Modbus connection back to the dryer control.

CAUTION: Always disconnect and lock out the main power supply before making electrical connections. Electrical connections should be made only by qualified personnel.

IMPORTANT: Always refer to the wiring diagrams that came with your dryer to locate specific electrical components. Illustrations in the User Guide are intended to be representative only.

Installing ModBus Cable Sets

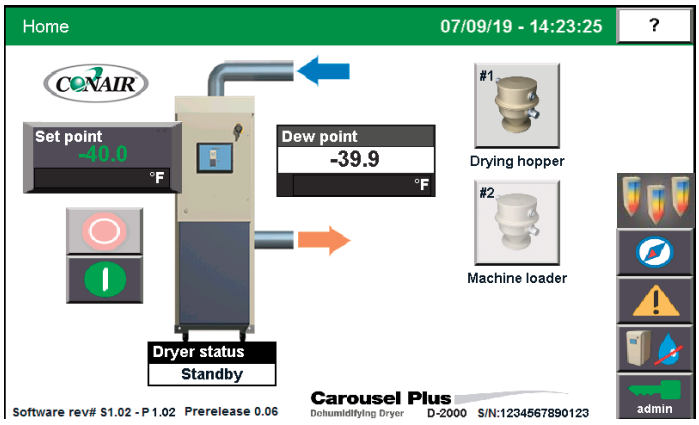
Cables are available in a wide variety of lengths and a cable assembly should be supplied with each probe/junction box set in the system. Plan your installation appropriately, determining which cable length has been selected for each hopper/junction box with consideration to neat cable routing. Cables should be routed away from heated surfaces, material conveying lines, or moving equipment and not run in parallel to three-phase power lines. Support each cable as needed to prevent strain on the connectors.



Carefully install each cable set from the remote heat source control to the hopper, firmly screwing the connectors into place on each panel.

Navigating the DC-C with Drying Monitor Enabled (ResinWorks Configuration)

The System Home screen on the dryer.



Navigation buttons for all DC-C functions are located on the right side of the screen and will appear in this location on all screens. The selection of buttons will change based on the specific screen. From the Overview page the buttons include:

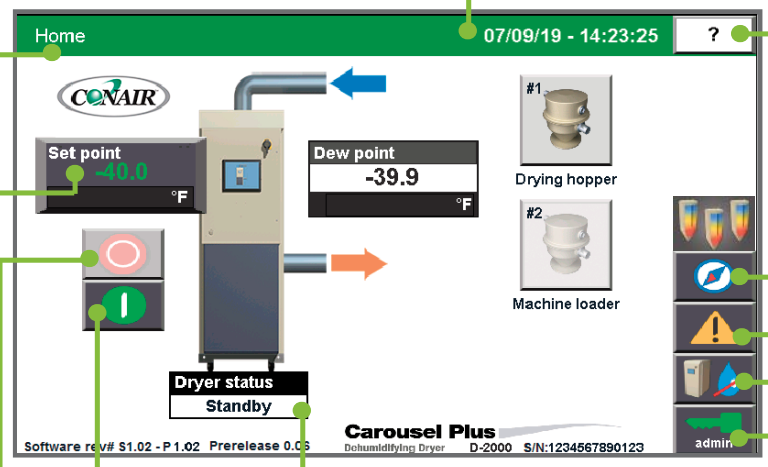
A **Hopper Selector Button** for viewing of all hoppers included in the system (up to 15).

An **Alarm Log Button** for viewing of not only active alarms, but also alarms that have appeared in the past.

A **Trend Selection Button** for viewing hoppers to show trends for each hopper.

The Home Button
On pages other than the Home page, a “Home” button will appear in the lower right corner, allowing the user to return to the home screen at any time.

The Drying Monitor Screens of the DC-C (RW Configuration)



Date and Time
This area displays the current date and time.

Screen name
Indicates what screen you are currently looking at.

Displayed data
Displays the current live data for the piece of equipment. If this data displays as all dashes or blanks, there is a communication error.

Stop Button

Start Button

System status
This area displays messages to let you know the current status of the dryer.

Help button
Help for the current screen.

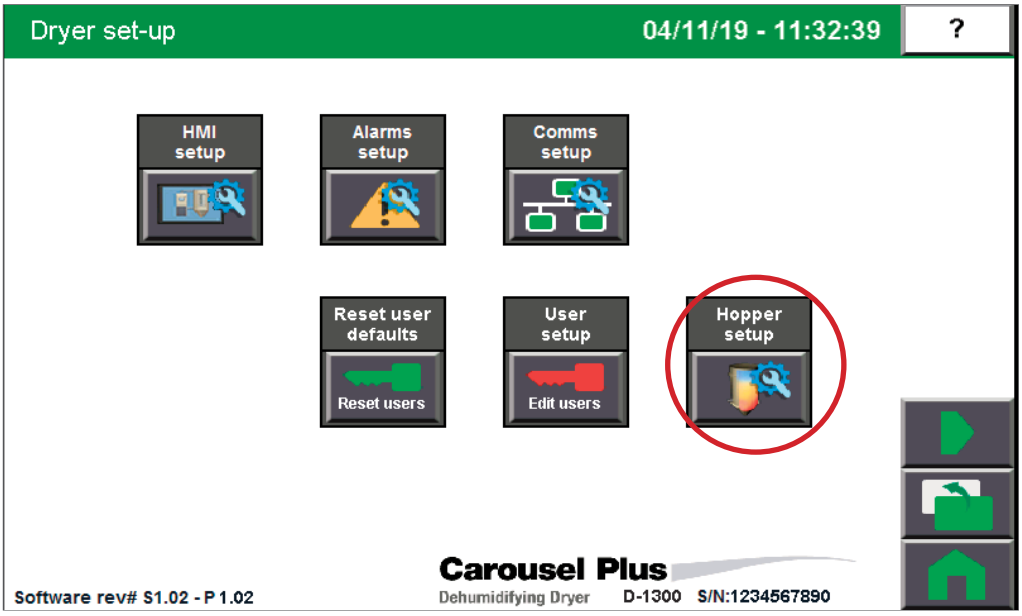
Navigation button
Go to the Navigation screen

Alarms button
Go to the Alarms area.

Dryer Settings button
Go to the Dryer Settings Selection screen.

Login/Logout button
This button is used to log in or log out as a user.

Configuring the DC-C for DM Operation

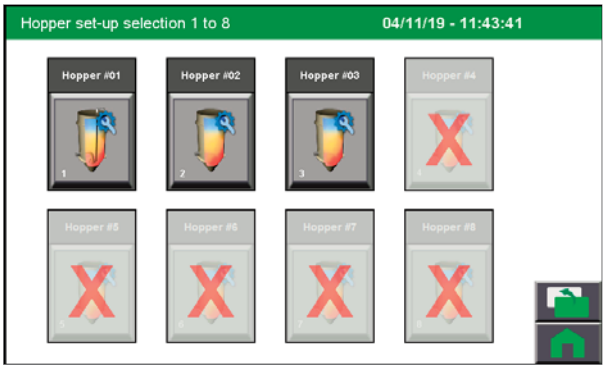


Before using the DM functionality of your DC-C dryer control, the DC-C must be set to communicate to your installed Drying Monitor hardware.

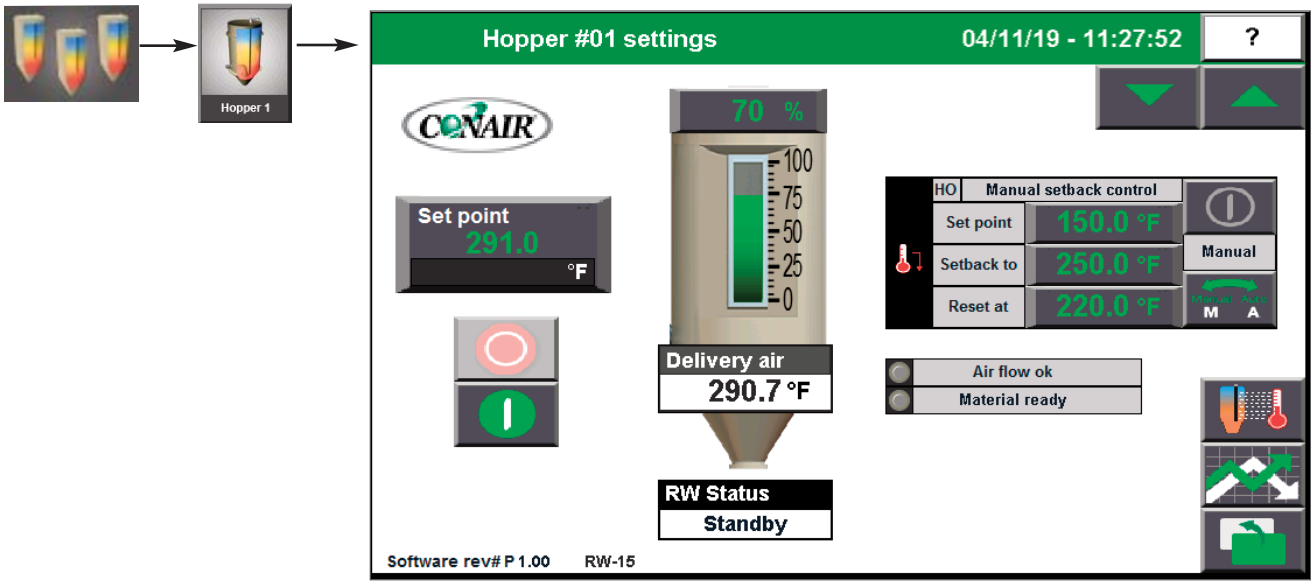
To set up the DC-C to use the DM:

1 Press the Dryer Seup button. The System Settings screen will open.

2 Press the Hopper Setup button. The Hopper Setup screen will open.



Navigating the DM Individual Hopper Screens



Detailed Hopper View

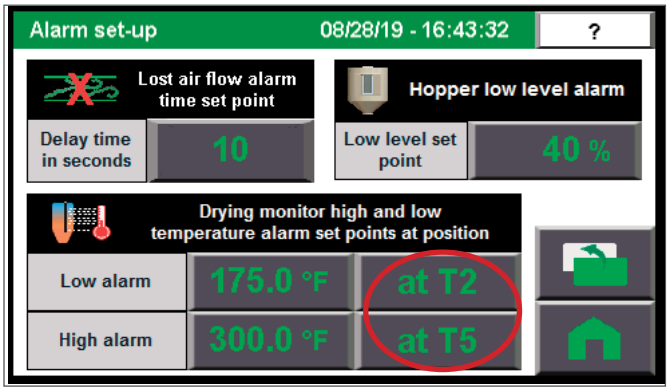
From the **Hopper Selection** screen, any hopper can be spotlighted by pressing its icon and a detailed view of that hopper will appear and its name will be shown in the green stripe.

From the detailed hopper view, you will see all the information about that hopper.

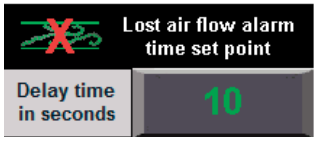
NOTE: Each hopper in your system will be displayed individually.

.

Navigating the DM Screens from the Hopper Temperature Control (GasTrac, ResinWorks, or HTC)

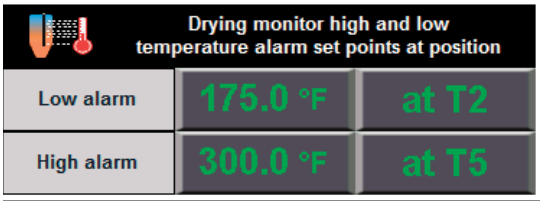


DM Settings



Alarm Time: Select to enter the amount of time in seconds that the system waits while running, before shutting down on a loss of air flow. Range 5-15 seconds.

✎ **NOTE:** Only visible when drying mnitor is installed.

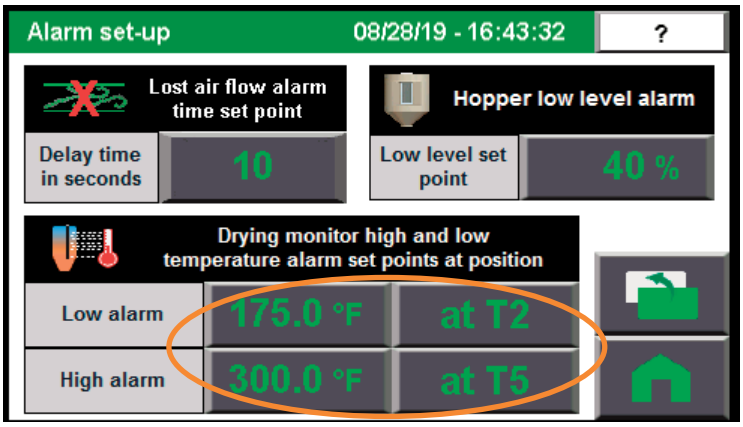


✎ **NOTE:** The Alarm Location can be set to T2, T3, T4, or T5.

Alarm Setpoint and Location: Low and high temperature alarms can be set at the same or different points in the drying hopper. Selecting the "at T" pushbutton changes the locatin the drying hopper each time it is released. The available positions are T2 lowest, through T5 the highest position in the hopper. The alarms are passive.

Setting Up Your DM: The Basics- Alarm Location (Simple)

The **Alarm Location** establishes the location in the drying hopper where the actual drying temperature is within a certain range of the process temperature. The user sets the point on the RTD probe to assure good drying with proper temperature delivery.



In drying, the material must be exposed to the process temperature for a set period of time (refer to your dryer manual for more information) to assure good drying. The DM's multiple temperature sensors allow you to select the specific point where the material will see that process temperature for 4 hours, or the remainder of its travel through the hopper on its way to processing. The 'drying zone" is between sensor T1 (the bottom sensor, located at the hot air entry point of the hopper)and the selected "Alarm Location" sensor T4.

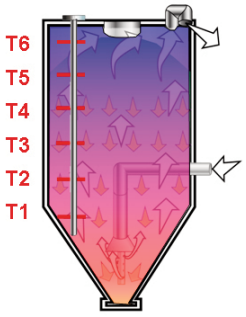
This critical position in the hopper, called the "Alarm Location" will monitor the temperature reading to assure that material will be within a certain range of the process temperature for the determined time, assuring good drying. Default value of the temperature range is within 10°F of the process temperature. This default value can be changed on the set-up screen in case tighter or looser tolerances are required by your application.

Setting Up Your DM: The Basics- Alarm Location (Advanced)

NOTE: You will need to know the bulk density of your material to calculate your drying hopper volume in cubic feet (ft^3). See *Operation: Understanding Bulk Density.*

NOTE: Nuisance alarms may trigger if the selected RTD position is too close to the alarm set point. In this case, the operator would either simply select a lower RTD or adjust the alarm set point lower within the alarm band.

Why would an operator want to use the Advanced method for selecting an RTD to use as the **Alarm Location**? The advanced Alarm Location selection may be desirable for processes where the operator wants to pick an RTD at a specific material residence time level at a given throughput. To select an RTD as a monitoring position for the alarm setpoint (advanced) the operator will need to consider the following drying parameters:



- hopper capacity (ft^3)
- throughput rate
- bulk density
- drying (residence) time

EXAMPLE calculation

1. lbs per hour throughput	**100**
2. drying time (residence time)	**4 hours**
3. material's bulk density (lbs/ft^3)	**35 lbs/ft^3**
4. drying hopper capacity (ft^3)	**15 lbs/ft^3**

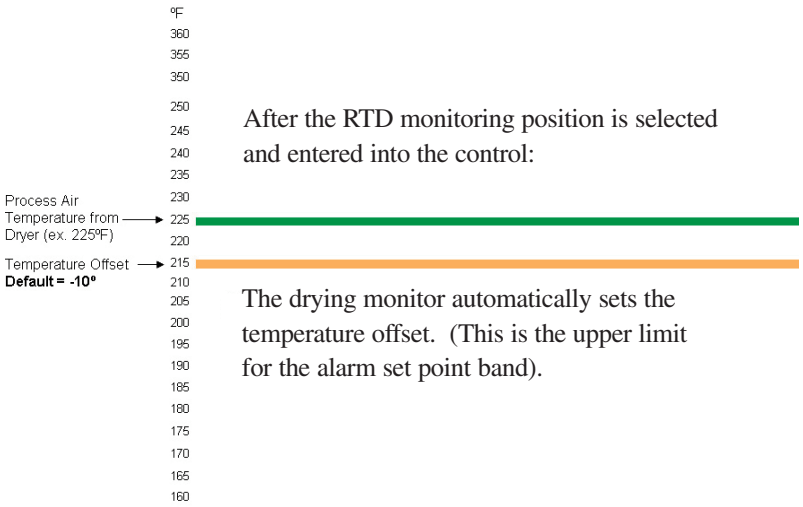
A 15 ft^3 hopper holds 525 lbs of material at 35 lbs/ft^3 (35 ft^3 x 15).
Use the chart in *Operation: Drying Hopper Volume by Model Number.*

- RTD T5 is likely at a 440 lb fill level (35 ft^3 x 12.6).
- RTD T4 is at the 320 lbs level (35 ft^3 x 9.15)

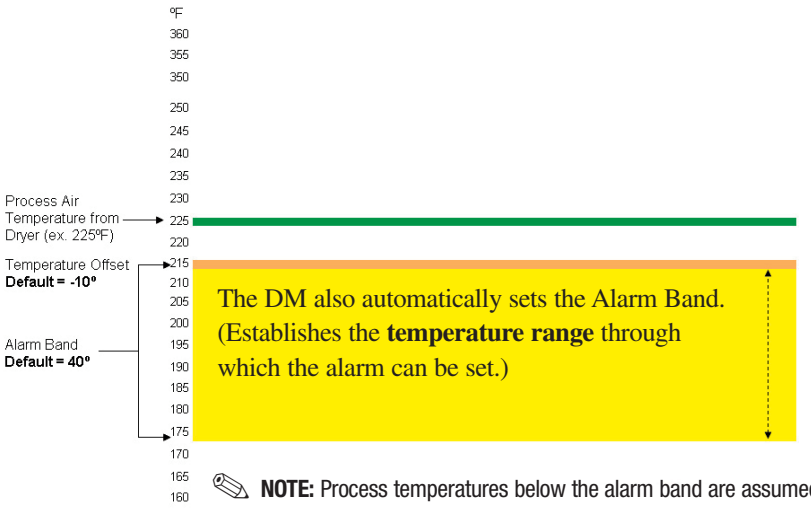
This position is at the 3/4 point of the material load.

RTD T5 is closest to the desired monitoring point of 400 lbs (100 lbs/hr x 4 hrs). Since T5 is closest to the desired monitoring point, select T5.

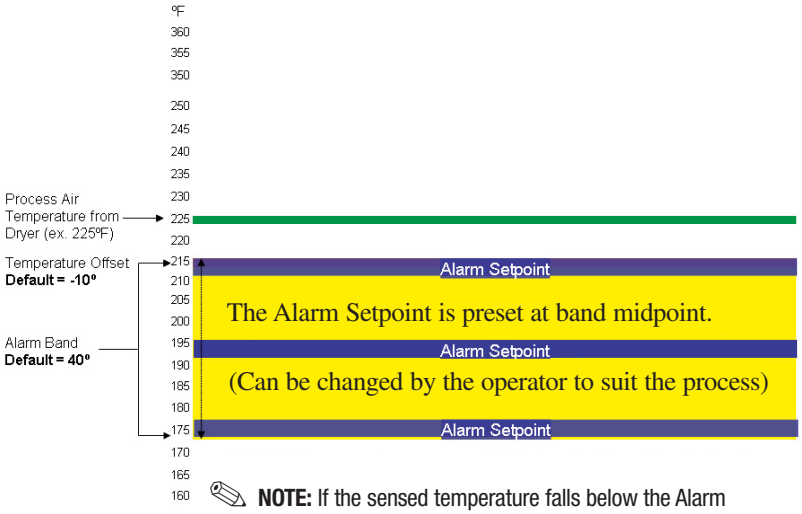
Check the temperature reading at T5 to confirm that the temperature is not at or below the alarm set point (default is 30 deg. below process). If necessary, adjust the alarm set point.



Setting Up Your DM: The Basics- Alarm Location (Advanced) (continued)



NOTE: Process temperatures below the alarm band are assumed to be insufficient to dry the material.



NOTE: If the sensed temperature falls below the Alarm Setpoint for a longer period than the Delay Time (default is five minutes), the alarm will trigger an alarm message on the control.

NOTE: From a cold start: If, after a preset time period, the temperature read at the selected alarm RTD does not reach the Alarm Setpoint, DM triggers “Temperature Not Met” alarm.

(continued)

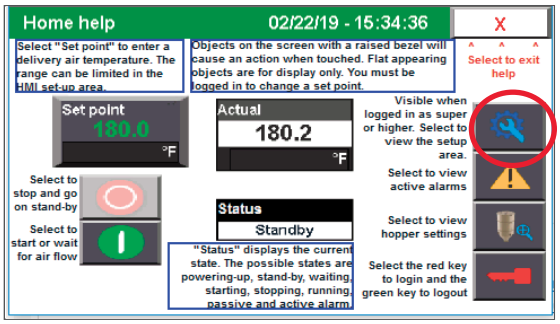
Setting Up Your DM: The Basics- Alarm Setpoint

Alarm Setpoint

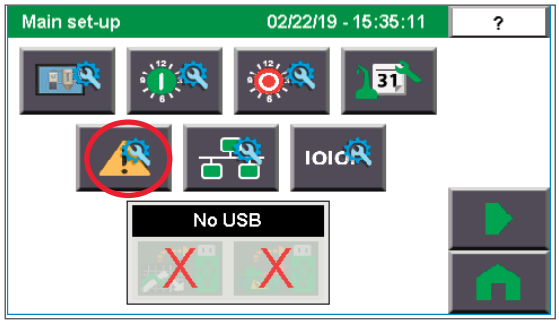
The alarm setpoint is automatically established on the "Hopper Settings" screen but can be adjusted on the set-up screen. This value acts as a default level of temperature performance. If the temperature reported on the alarm location falls below this level for longer than an adjustable time range (default, 5 minutes), the DM will alarm that the material is not being properly dried. The alarm setpoint relationship with the process setpoint (referred to as "band") as well as the time range before alarm notification can be adjusted on the Set up screen.

Remote Heat Source Procedure

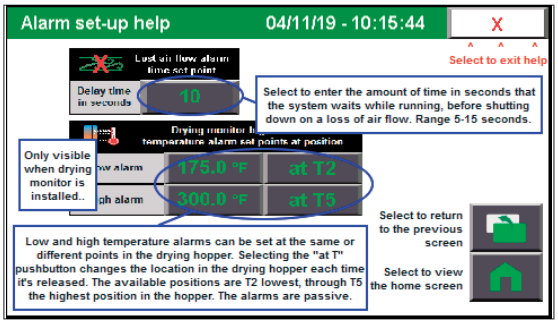
1 Press setup button from the home screen (logged in at appropriate level to see setup button),



2 Press Alarm setup button (triangle with wrench) from setup screen .



3 Set settings for probe postition temperatures that you would like to activate the alarm notifications from Alarm setup screen,



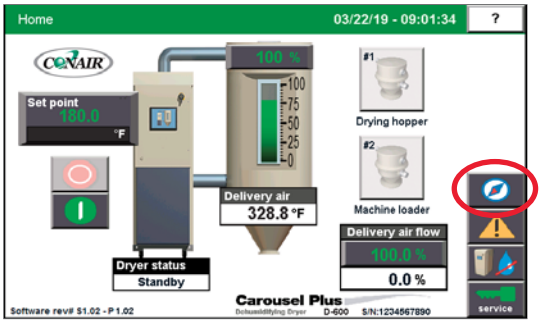
Once the process temperature and alarm location are established for the first hopper, the remaining hoppers in the system may be set up in an identical fashion.

Once hopper settings are made, only setting the Process Temp is required to align the DM functions with a particular drying application. But if necessary, further fine tuning of the process conditions can be made on the DM Set-up screen.

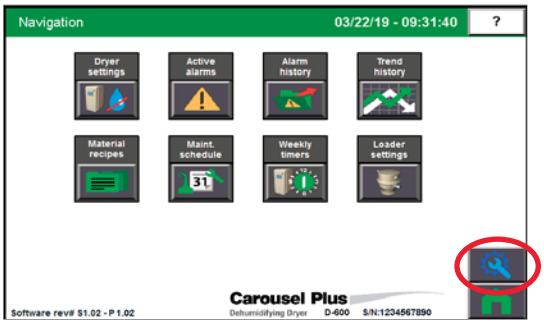
Setting Up Your DM: The Basics- Alarm Setpoint (continued)

From Stand Alone Dryer Screen Procedure

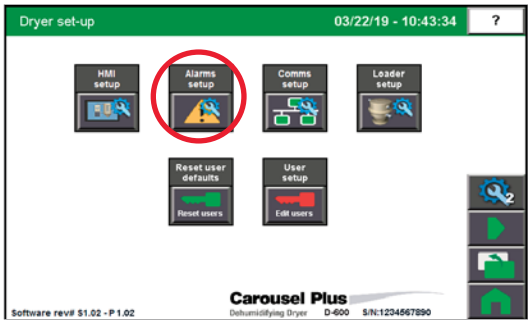
1 **Press the Navigation button.**



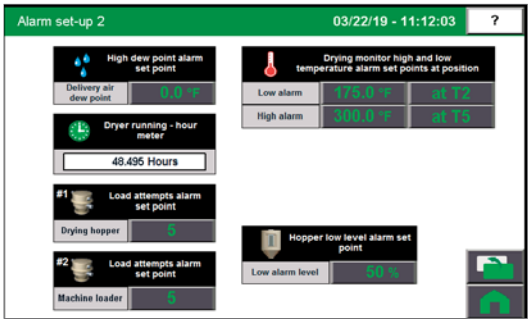
2 **Press the setup button (wrench).**



3 **Press the alarm setup button.**



4 **Set Drying Monitor high and low set points and positons.**



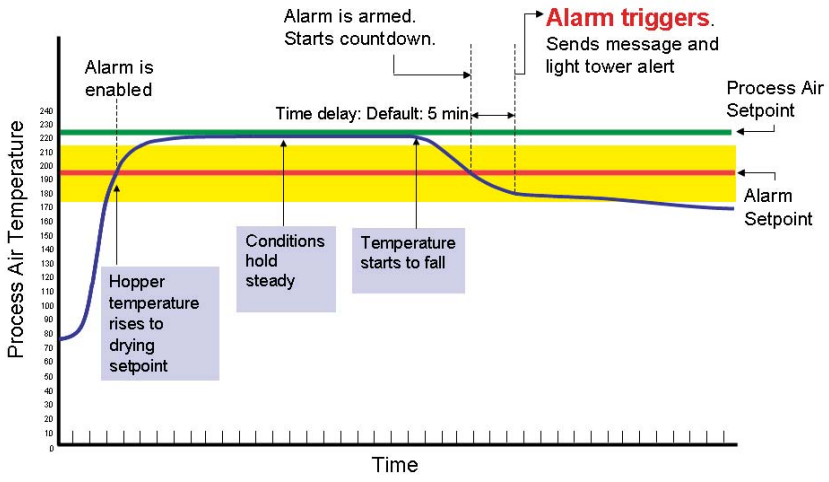
Drying Hopper Material Change

What happens when there is a drying hopper material change?

1 Change the process temperature. For example, let's say the process temperature is changed to 205°F from 225°F. If the DM is being used on a central drying with an HTC or Heater Pack, the process temperature on that hopper must be changed.

2 If material characteristics require a parameter adjustment, adjust that now. Otherwise, no further operator action is required.

This graph shows the time sequence of a DM alarm indicating low hopper air temperature, that could result in improperly dried material.



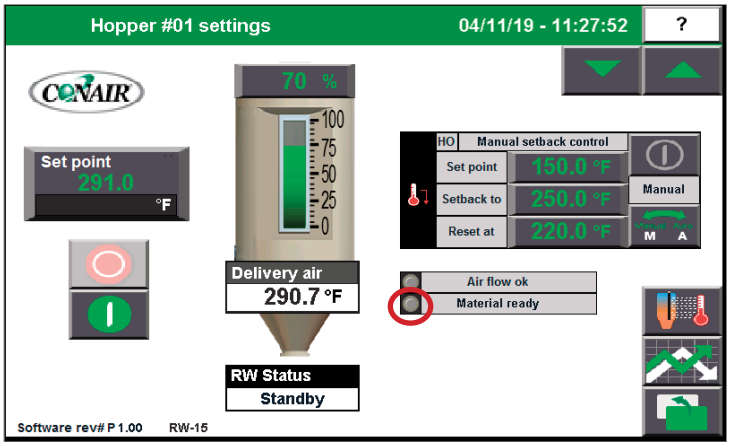
Material Ready Interlock Feature

The Drying Monitor option on your Carousel Plus dryer allows you to utilize Conair's Material Ready feature. This feature ensures that material is not conveyed to the machine until it has been dried at the proper temperature for the proper amount of time.

How does it work?

When T1, T2, or T3 locations of the Drying Monitor probe reach 95% of the setpoint for a user specified residence time, the interlock activates to allow material to convey to the molding machine or extruder. Until the material has dried for the proper amount of time at the proper temperature, the interlock will not allow material to be moved from the drying hopper. A material ready indicator is shown on the dryer control or the local hopper control (HTC, ResinWorks, or GasTrac control) indicating that material is ready.

If the temperature drops below 95% of setpoint, the residence timer stops until it returns to the setpoint range. It then continues counting up toward the desired residence time. For example - You have the residence time set at 4 hours. Your material reaches 95% of setpoint and dries for 2 hours within that range, but then drops to below 95% of setpoint for 10 minutes. After 10 minutes, your temperature returns to 95% of setpoint. The timer begins counting at 2 hours and continues until you reach the residence time of 4 hours. That 10 minutes did not count toward the residence time. But the time at temperature that was achieved was banked until the material reached the setpoint temperature again. (It did not restart the timer at 0 minutes - you got credit for time the material had already dried.)



This feature is designed to eliminate undried material making it to the molding machine, therefore eliminating the production of parts that are inferior due to moisture in the material.

Drying Hopper Volume by Model Number

Drying Hopper	Hopper Diameter	Volume (ft.³)	RTD Position	RTD Distance from the top	Volume up to RTD position (ft.³)
CH/RW 10-1	10	1	5	8.38	0.85
		1	4	12.88	0.65
		1	3	17.38	0.45
		1	2	21.88	0.28
		1	1	26.612	0.09
CH/RW 10-1.5	10	1.5	5	8.88	1.37
		1.5	4	16.13	1.04
		1.5	3	23.38	0.72
		1.5	2	30.63	0.46
		1.5	1	37.88	0.15
CH/RW 14-2	14	2	5	8.75221183	1.62
		2	4	13.75221183	1.18
		2	3	18.75221183	0.78
		2	2	23.75221183	0.35
		2	1	28.75221183	0.14
CH/RW 14-3	14	3	5	9.25	2.87
		3	4	17.25	2.17
		3	3	25.25	1.47
		3	2	33.25	0.80
		3	1	41.25	0.16
CH/RW 14-4	14	4	5	8.87	3.62
		4	4	19.12	2.72
		4	3	29.37	1.82
		4	2	39.62	0.95
		4	1	49.87	0.14
CH18-4	18	4	5	12.725	3.19
		4	4	18.225	2.38
		4	3	23.725	1.64
		4	2	29.225	0.84
		4	1	34.725	0.25
RW 18-5	18	5	5	10.41	4.36
		5	4	18.66	3.17
		5	3	26.91	1.97
		5	2	35.16	0.85
		5	1	43.41	0.25
CH/RW 18-6	18	6	5	10.12	5.87
		6	4	20.66	4.39
		6	3	30.91	2.92
		6	2	41.16	1.52
		6	1	51.41	0.25

(continued)

Drying Hopper Volume by Model Number

(continued)

Drying Hopper	Hopper Diameter	Volume ($ft.^3$)	RTD Position	RTD Distance from the top	Volume up to RTD position ($ft.^3$)
CH 24-8	24	8	5	13.23	7.38
		8	4	20.73	5.50
		8	3	28.23	3.56
		8	2	35.73	1.58
		8	1	43.23	0.39
RW 24-9	24	9	5	10.79	8.73
		9	4	19.54	6.48
		9	3	28.35	4.22
		9	2	37.04	2.09
		9	1	45.79	0.47
CH/RW 24-12	24	12	5	53.33	10.89
		12	4	42.58	8.14
		12	3	31.83	5.39
		12	2	21.08	2.72
		12	1	10.33	0.52
CH/RW 24-15	24	15	5	11.13	12.60
		15	4	24.63	9.14
		15	3	38.13	5.69
		15	2	51.63	2.32
		15	1	65.13	0.57
CH/RW 24-18	24	18	5	10.88	15.56
		18	4	27.38	11.35
		18	3	43.88	7.15
		18	2	60.38	2.94
		18	1	76.88	0.55
CH/RW 33-21	33	21	5	18.30	19.66
		21	4	29.80	13.96
		21	3	41.30	8.27
		21	2	52.80	2.95
		21	1	64.05	1.63
CH/RW 33-28	33	28	5	20.30	25.68
		28	4	34.80	18.52
		28	3	49.30	11.36
		28	2	63.80	4.19
		28	1	78.30	1.68
CH/RW 39-35	39	35	5	25.25	35.32
		35	4	38.75	25.98
		35	3	52.25	16.65
		35	2	65.75	7.83
		35	1	79.25	1.83

(continued)

Drying Hopper Volume by Model Number

(continued)

Drying Hopper	Hopper Diameter	Volume (ft.³)	RTD Position	RTD Distance from the top	Volume up to RTD position (ft.³)
CH/RW 39-42	39	42	5	25.25	42.38
		42	4	41.25	31.32
		42	3	57.25	20.26
		42	2	73.25	9.72
		42	1	89.25	1.90
CH/RW 44-58	44	58	5	27.00	59.24
		58	4	44.50	43.84
		58	3	62.00	28.45
		58	2	79.50	13.55
		58	1	97.00	2.73
CH 54-70	54	70	5	22.98	66.76
		70	4	33.48	52.85
		70	3	43.98	38.93
		70	2	54.48	25.01
		70	1	64.98	15.68
CH 54-85	54	85	5	23.98	80.12
		85	4	36.98	62.89
		85	3	49.98	45.67
		85	2	62.98	28.52
		85	1	75.98	15.17
CH 54-99	54	99	5	26.98	92.93
		99	4	42.73	73.05
		99	3	56.98	53.17
		99	2	71.98	33.40
		99	1	86.98	15.61
CH54-114	54	114	5	28.98	92.36
		114	4	47.23	69.17
		114	3	63.98	45.98
		114	2	81.48	22.78
		114	1	98.98	16.15
CH 54-129	54	129	5	29.98	116.87
		129	4	49.98	90.36
		129	3	69.98	63.85
		129	2	89.98	37.36
		129	1	109.98	16.15
CH 64-158	64	158	5	28.98	145.06
		158	4	46.98	111.55
		158	3	64.98	78.04
		158	2	82.98	44.98
		158	1	100.98	20.21

(continued)

Drying Hopper Volume by Model Number

(continued)

Drying Hopper	Hopper Diameter	Volume ($ft.^3$)	RTD Position	RTD Distance from the top	Volume up to RTD position ($ft.^3$)
CH 64-187	64	187	5	30.98	176.67
		187	4	52.23	137.11
		187	3	73.48	97.55
		187	2	94.73	58.15
		187	1	115.98	20.73
CH 64-215	64	215	5	33.98	198.55
		215	4	58.23	153.40
		215	3	82.48	108.25
		215	2	106.73	63.16
		215	1	130.98	20.73
CH 64-248	64	248	5	34.48	229.24
		248	4	62.48	177.12
		248	3	90.48	124.99
		248	2	118.48	72.86
		248	1	146.48	23.49
CH 74-245	74	245	5	30.98	180.95
		245	4	50.48	132.42
		245	3	69.98	40.15
		245	2	89.48	22.59
		245	1	108.98	5.62
CH 74-366	74	366	5	38.98	304.39
		366	4	68.48	230.97
		366	3	97.98	157.55
		366	2	127.48	29.68
		366	1	156.98	5.90
CH 74-487	74	487	5	47.98	369.86
		487	4	86.98	272.79
		487	3	125.98	175.72
		487	2	164.98	42.10
		487	1	203.98	6.78

Understanding Bulk Density

Bulk density is the weight of material in pellet form, where the material has a lot of free space between pellets. It is not a specification that material suppliers typically provide. You may need to calculate the bulk density. It is important not to confuse bulk density with material density, which is the weight of the plastic in solid form without any air gaps between pellets.

How to calculate the bulk density-

1. **You will need a container or bucket that you know the volume of to calculate the bulk density of your material.**

2. **Weigh the empty container and record the weight.**

3. **Fill the container with your material, level it off at the top with a straight edge.**

4. **Weigh the container with material in it.** Record this weight.

5. **Subtract the weight of the empty container from the weight of the container** with the material present. The result will be the weight of the material for the volume of the container.

6. **Convert the number you calculated in step 4, to lbs. per cubic foot. (lbs/ft^3)** For example, if your container had a volume of 0.5 ft^3 and the material weight was 20 lbs., divide 20 lbs by 0.5 ft^3. The result: The bulk density of the material is 40 lbs/ft^3.

Interpreting Drying Monitor Trend Curves

⚠ **IMPORTANT:** The descriptions and curve examples shown in this user guide are for general reference only and may not relate to the characteristics of your specific drying process. These guidelines are intended to make the user aware of common temperature patterns of common drying applications to allow correct identification of proper or improper drying through observation of the temperature patterns within the drying hopper as displayed by the DM.

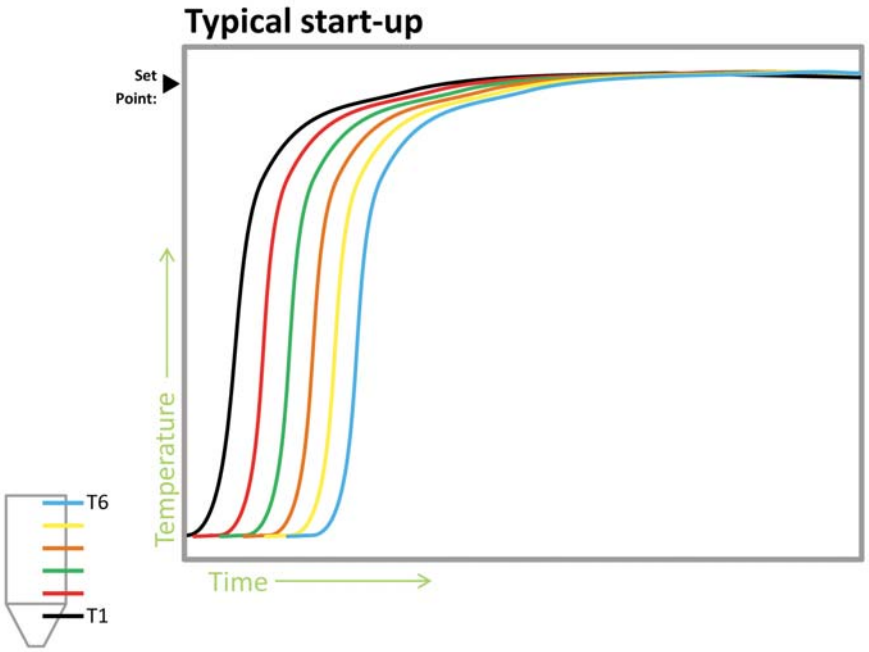
Any of these variables can effect how your drying system's particular trending curves and data will be displayed:

- hopper size and length/diameter relationship
- drying system and heat/air delivery capability
- bulk density of material being dried
- drying temperature
- condition of the drying equipment's heaters, filters and blowers and heat/air delivery system
- proper installation, condition and connection of the DM hopper probe
- type and regularity of the automated loading system being employed
- level of the material in the hopper
- temperature of incoming, new material
- specific location of probe sensors, once installed

✎ **NOTE:** Conair recommends that users familiarize themselves with these guidelines to develop an understanding of typical drying parameters and then apply those principles to monitor their own particular drying system.

Interpreting DM Trend Curves-
Typical Startup

Upon start-up with a full hopper of material, temperatures read by all DM probes will rise towards the drying set point temperature, starting with T1. If processing does not start (no material taken away from the hopper) eventually all the probes (with the possible exception of T6 if it is above the material level) will come very close to the process temperature.



All probes align with set point temperature: All temperature zones will align with the inlet temperature. The material is not yet moving, so temperatures become uniform.

Interpreting Drying Monitor Trend Curves- Normal Operation

✎ **NOTE:** If the alarm location sensor never reaches the drying temperature setpoint, there is a problem with the drying system and it should be examined for proper operation. Refer to the user guide for your dryer.

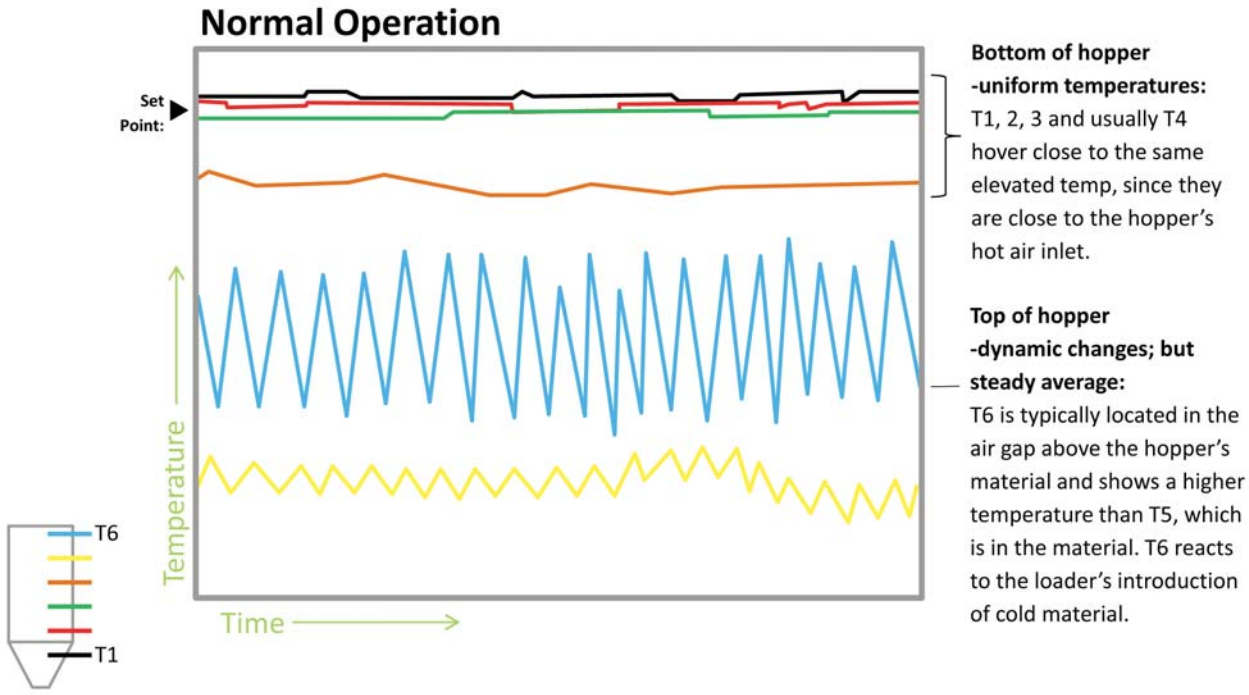
✎ **NOTE:** If equipped with material ready introduce drying temp must be at 95°F at setpoint for use selected residence time.

The DM can be used to determine when successful drying is underway and processing of material can begin, using the following guidelines:

- *See Operation:Setting Up Your DM: The Basics-Alarm Location* for establishing the "alarm location" sensor for your drying system (this is typically T3 or T4).
- The alarm location sensor can be used to determine when the hopper's material has been sufficiently exposed to proper drying temperature for the proper length of time (residence time) and processing of the material in the hopper can begin.
- Processing can begin when the alarm location sensor (typically T3 or T4) has stabilized at the drying temperature setpoint for approximately 50% of the required residence time.

  Example: If the material drying temperature is 250°F and the required residence time is 4 hours, once the alarm location sensor has displayed 250°F for 2 hours (50% of 4 hours), processing can begin.

In normal operation, T1 will read closest to the process air temperature.



(continued)

Interpreting Drying Monitor Trend Curves- Normal Operation (continued)

In normal operation with material flowing through to the process, readings from T1, T2 and T3 will typically be very close to the process air temperature. T4 and T5 (and T6 if it is located in material) will display temperatures descending in value from the process temperature.

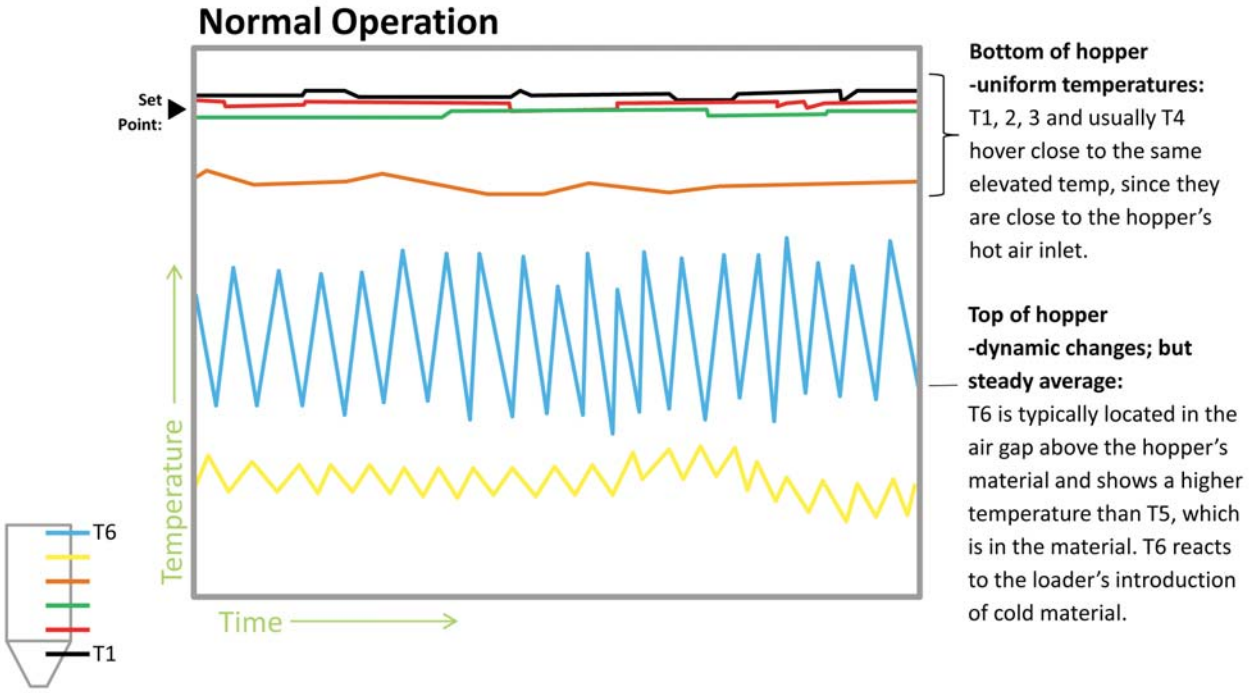
In normal operation with material flowing through to the process, if T6 is located in the air space at the top of the hopper (where there is no material), it will display a higher temperature than T5, which is typically located within the material. This is because a sensor in the open air is not in contact with heat-consuming resin. This is especially true at higher (275+°F) drying temperatures.

The hopper design, and how the material comes to rest in the hopper (the "angle of repose") and the loading system being used typically dictate the size of the "no-material" area at the top of the hopper depending upon:

- where the demand switch for loading more material is located
- how far into the hopper the discharge of the loader/receiver extends

NOTE: Hoppers being used at less than full capacity (hoppers using demand sensors on their viewing windows for loading, small drying jobs, hoppers that are larger than necessary for the drying task, etc) are likely to have more than one sensor exposed to air and not material, and this should be taken into consideration when analyzing DM data. This consideration is also important when selecting the " alarm location" sensor. *(See Operation: Setting Up Your DM: The Basics-Alarm Location.)*

The DM can show a reaction to successful automated material loading as a drop in the T5 temperature (from the loading of new, cold material), alternating with a rise of T5 (as the new material absorbs drying heat). This reaction can be seen as a saw-tooth up/down temperature pattern.



Interpreting Drying Monitor Trend Curves- Material Flow problems

If material flow through the drying hopper is slowed down (a decrease in material throughput), the difference in temperature readings between T1 and T5 will steadily decrease. T4 and T5 will gradually align towards the T1 temperature since the slower moving material will absorb more of the drying heat.

If material flow is stopped (no material is leaving the hopper) and prior to any energy saving functions in the dryer being engaged, the temperature readings from T4, T5 and T6 will begin to increase and align with the process temperature. The stopped material now has time to more fully absorb drying heat.

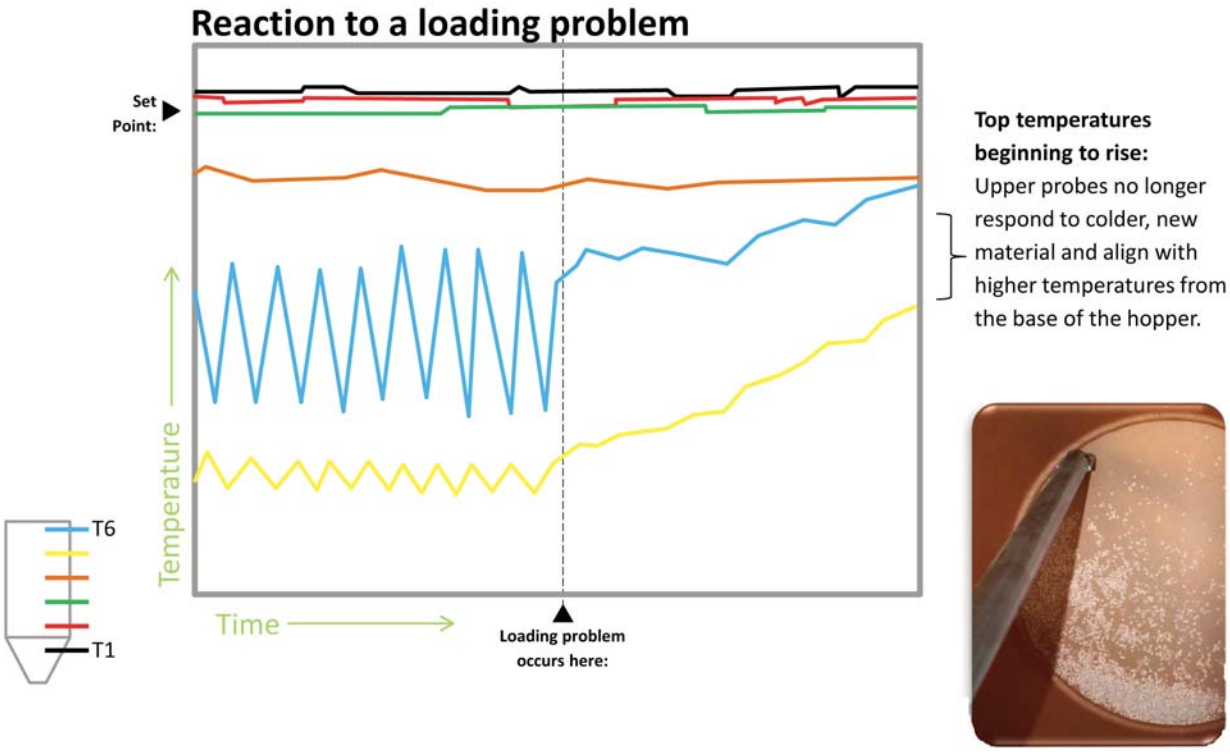
If material flow increases (an increase in throughput), the difference in temperature readings between T1 through T5 will steadily increase. The faster moving material now spends less time being heated so the difference in temperatures read at the bottom of the hopper compared to the top, will display a greater spread.

✎ **NOTE:** An increase in the difference between T1 through T5 (as described above) can also be the result of an increase in the quantity of reground material being dried in the hopper. Increasing the quantity of regrind decreases the bulk density of the material being dried and increases the flow of material.

Interpreting Drying Monitor Trend Curves- Loading problems

If the loading function stops (no new material being supplied to the hopper) while normal operation is underway, T5 and T6 will increase in temperature as the heat-consuming material level in the hopper decreases. T4 will eventually follow, especially if it also becomes exposed to air and not material.

✎ **NOTE:** Successful drying is in jeopardy if the material supply to the hopper is interrupted. Even if the problem is corrected and the hopper is refilled, the incoming material will not be exposed to the proper length of residence time for successful drying.

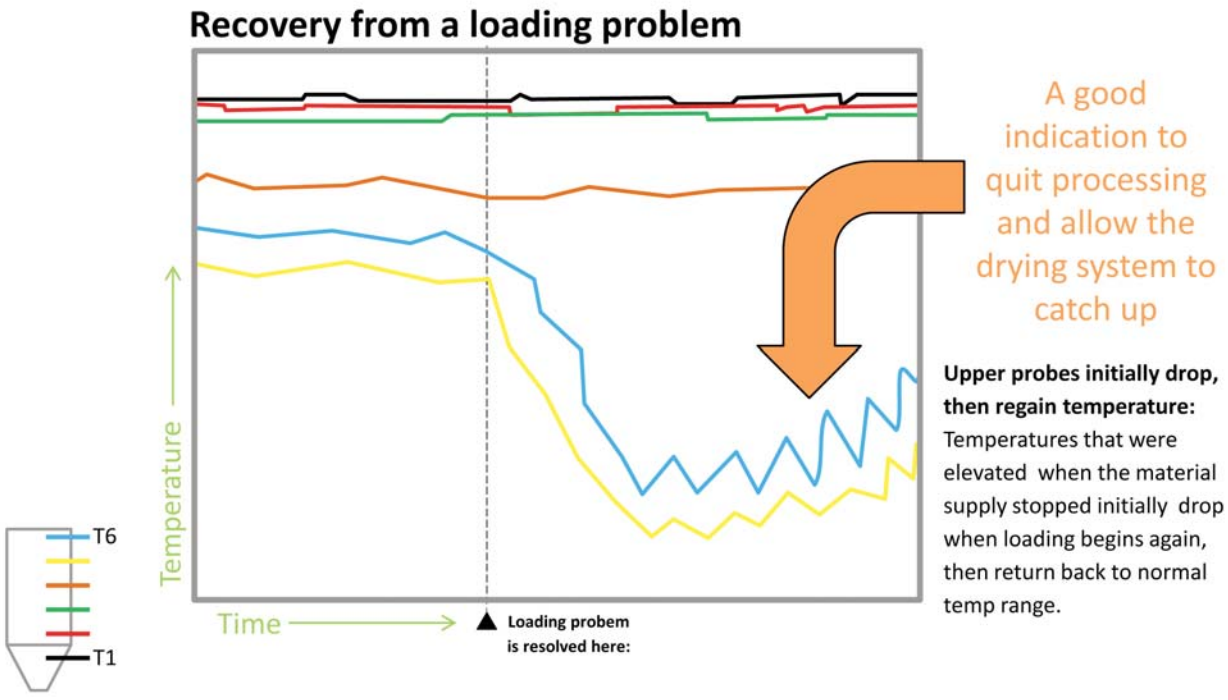


(continued)

Interpreting Drying Monitor Trend Curves- Loading problems (continued)

When automatic loading is restored, (new material is once again supplied to the hopper), T3 through T5 will initially drop in temperature from exposure to the new, colder material coming into the hopper, and then begin to rise and realign into a normal temperature profile for the hopper.

NOTE: The drop in temperature displayed by T3 through T5 is a reaction to a quantity of cold material being introduced into the hopper following a lapse of automatic loading. This drop can be compared to a 'cold front' of material moving down through the hopper that has not been exposed to drying in the hopper for a long enough residence time. Temporary halting of the process should be considered to allow the drying system to catch up and deliver proper residence time to this new material, to prevent production of insufficiently dried product. If the process is not stopped, this 'cold front' will eventually be seen to a lesser degree, on T2, then T1.



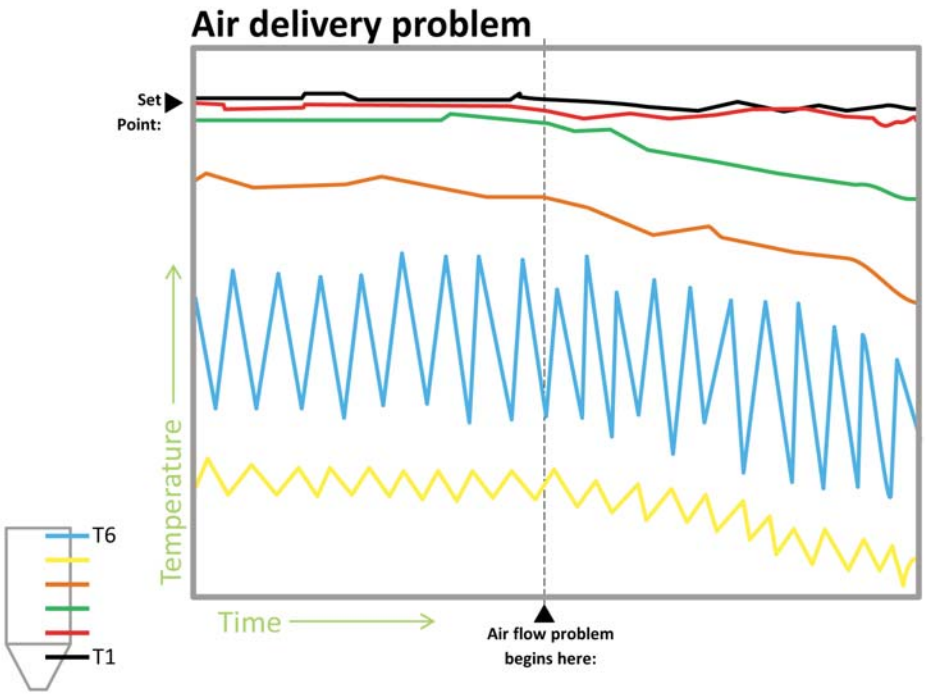
Interpreting Drying Monitor Trend Curves- Problems with Heat Supply

Problems with the heat supply (reduced temperature) to the drying hopper initially show up as a reduction in T1 and T2 temperature readings. Frequently, this reduction does not display immediately due to the residual heat of the material. The remaining probes will also sequentially decrease in temperature as the problem continues.

Interpreting Drying Monitor Trend Curves- Air Supply Problems

Problems with the air supply to the drying hopper (I.E: clogged filters or blocked drying air supply line) initially show up as a reduction in the T5, T4, and eventually T3 temperature readings since the air flow is no longer strong enough to carry the drying heat up through the hopper. The remaining probes will also decrease in temperature as the problem continues, even though T1 and T2 continue to display levels close to the process temperature. This can be a very gradual reaction to filters gradually becoming clogged.

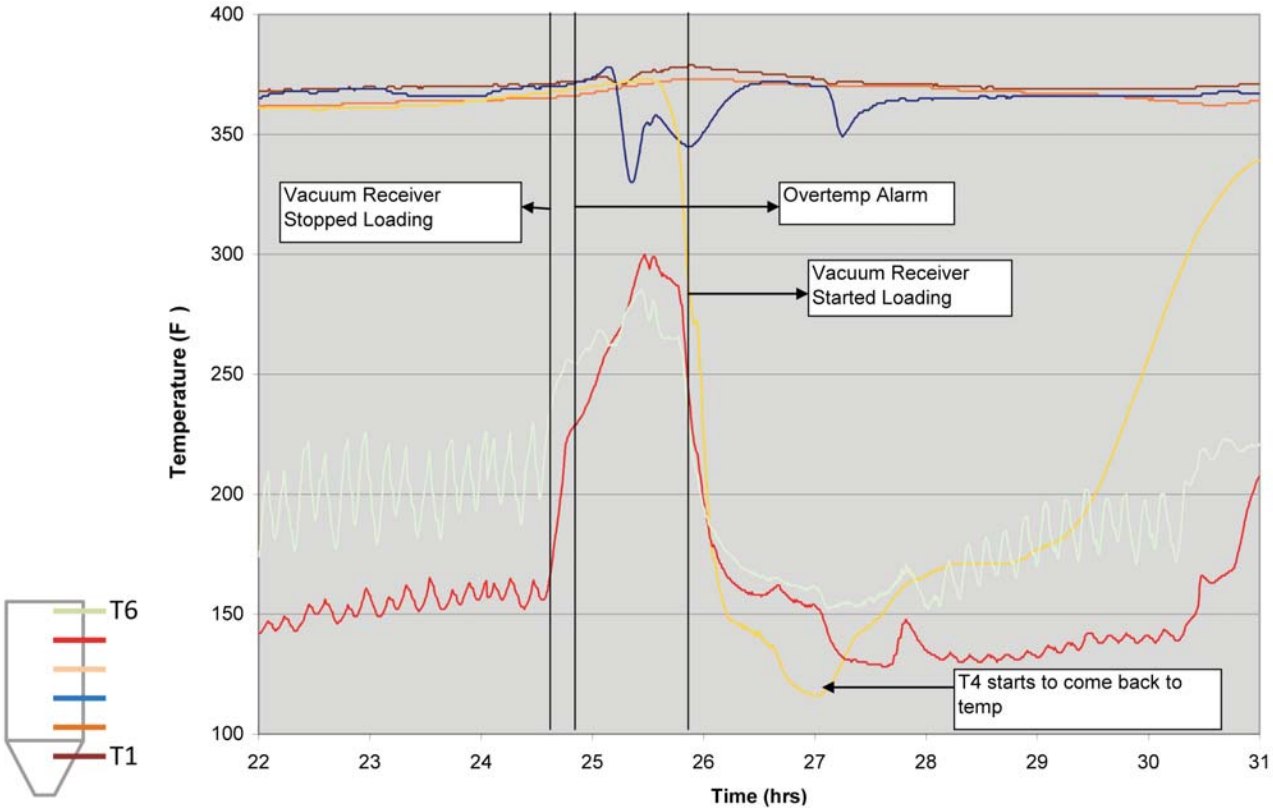
✎ **NOTE:** A decrease of T3 (as described above) can also be the result of an increase in throughput or an increase in the quantity of reground material being dried in the hopper. Increasing the quantity of regrind decreases the bulk density of the material being dried.



Mid temperatures react to reduced air flow.
T4 and T5 begin to drop since air flow is not strong enough to drive heat to them. T3 will eventually follow. But T1 and T2 often stay strong since they are still receiving the proper heat, in spite of reduced air flow.

Interpreting Drying Monitor Trend Curves- Actual DM Trend Analysis

Below is an actual trend analysis used by a PET bottle processor to find the cause of overnight process variations.



Preventative maintenance schedule

No specific maintenance schedule is required for the Drying Monitor since there are no moving parts. All components of the system are electrical in nature, but like any component in a factory, can be prone to unforeseen breakage.

In the event of breakage, replace the component(s). Do not attempt repair.

- **When material is changed.** Since a key component of the DM is the temperature probe(s) and they are exposed to your material and elevated temperatures, they should be checked whenever their host drying hopper is drained, cleaned, etc. No specific preventative maintenance is required beyond wiping down and examining for damage whenever the hopper is empty, cool and available for inspection. In the event of visible damage or non-operation, replace the probe. Do not attempt repair.

In addition, the coupling assembly that holds the probe in place should be closely examined from the top of the hopper and inside the hopper to be sure it is intact and has not been damaged or become loose as a result of use in the hopper.

- **Monthly, or as often as needed**
  - ❒ **Check that the cables and junction boxes associated with the DM.** Make sure all cables are intact, undamaged, out of harm's way, etc.
  - ❒ **Correct the mounting integrity of junction boxes as required and re-route the ModBus cables to avoid high amperage electrical lines and/or moving, hot or sharp objects.**

What the Drying Monitor Can Tell You

The DM monitors the temperature profile of the material in the hopper using six Resistance Temperature Device (RTD) sensors. These RTD sensors are located at evenly spaced positions in the drying hopper. Monitoring the six sensors creates an accurate profile of the hopper's temperature gradient. This simple gradient measuring system informs the user that major characteristics of good drying are present (or not).

Heat: Each probe precisely measures the heat being created by the dryers heating system and more importantly, the changes that heat goes through as it is combined with the flow of material through the hopper. Heated air is going up in the hopper and is constantly facing a refreshed supply of material while that material is flowing down and into the process, which creates a predictable heat profile for good drying inside the hopper. The DM keeps precise track of that profile and alerts you if something is not as it should be for good drying.

Air flow: Air is the medium that carries heat to the drying hopper and carries moisture away from the material. By keeping track of different heat zones in the drying hopper, the DM is also passively keeping track of the air flow through the hopper.

Time: The DM interprets the temperature findings from the drying hopper and knows how long material needs to be kept at the correct temperature for good drying. Once again, by measuring each of the six zones the DM can tell you if you are getting good drying performance or if something is not correct for success.

Understanding Alarms

The DM monitors each hopper and will give you an alarm if the temperature falls below your established alarm setpoint. See *Operation: Setting Up Your DM: The Basics- Alarm Setpoint* for more information about setting the alarm setpoint.

The DM uses the DC-C's alarm system to alert the user to an alarm condition. Refer to the User Guide that came with your dryer for more information on understanding alarms.

The information in the alarm notification box on your DC-C screen tells you which hopper has triggered the alarm, and at what time the alarm delay was met. For example, after being at temperature, Hopper 1 fell below the alarm setpoint for a period of time longer than the alarm delay. The DM triggered an alarm so that you can determine the problem and avoid downtime due to material not being properly dried.

Drying Monitor Problems

Symptom	Possible cause	Solution
Hopper data does not display	**Connection to RTD(s) in hopper(s) is incorrect or disconnected.**	❒ Check integrity of cable connections from drying monitor panel to RTD junction boxes to RTD.
	The last hopper in the ModBus string is not terminated.	❒ See section **Terminating the final RTD Junction Box** for properly terminating the last hopper
	Loose or damaged connectors in the ModBus cables.	❒ Check all connections and replace cable set(s) that are damaged
	Damaged connectors on the hopper probe.	❒ Replace the hopper probe.
	Defective temp sensor(s) within the probe.	❒ Replace the hopper probe.
Hopper alarm message appears on touch screen.	**A low temperature condition has been sensed by the drying monitor in the hopper listed in the alarm message**	❒ Press trend button on Drying Monitor, and select the alarm hopper to view the specific time the temperature dropped, to pinpoint possible problem. ❒ Review settings in the hopper set-up screen to assure the drying monitor settings are correct for the current drying task. ❒ Check drying system for insufficient air flow caused by blower malfunction or damaged or plugged air connection to hopper from dryer. ❒ Check if drying system material throughput has elevated due to process change or sharing of material with another process, beyond the capabilities of the drying system.

What is the Conair Hard Piping Kit?

Conair's Hard Piping Kit is for use with your Conair drying system. Conair recommends the hard pipe kit for line sizes of eight inches and larger. This kit is an upgrade over the standard flex hose.
Hard pipe kits are recommended because they:

- eliminate the possibility of sag or collapse, especially around corners where those are common issues with flex hose.
- eliminate the possibility of restricted air flow due to hose damage (collapse, puncture, leaking, moisture infiltration).
- minimize maintenance needs.
- create a more permanent finished appearance.
- reduce air flow drag due to the smooth interior surface.

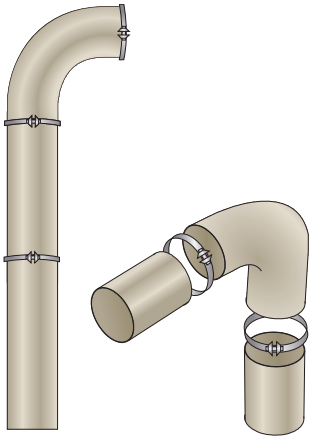
For more information about adding a Conair Hard Pipe Kit to your drying system, contact Conair.

Conair's sales number is 724-584-5500.

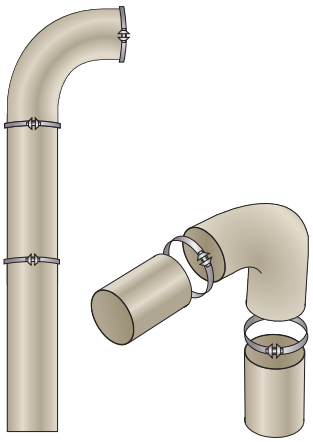
Conair's Instant Access
24/7 Parts and Service number is 800-458-1960.
Outside the U.S., dial 814-437-6861.

How Does it Work?

Conair's Hard Piping Kit is a complete modular system. Each component utilizes a flanged end that is precision engineered to a perfect 90° angle to produce an accurate seal every time. The system utilizes simple to use clamp rings to quickly connect the components. This extremely strong and reliable connection system has been tested and approved for up to three bar shock explosion resistance.



Unpacking the boxes



Your hard piping kit components will vary depending on which kit you ordered. Kits are often customized for each customer.

If your hard pipe kit was ordered as one of the standard kits, below is what you should expect to find when you unpack the boxes.

Conair Part #18090001: 8 inch Hard Pipe Basic Kit

❒ Seven (7) 8 inch 1D 90, 16 GA, coated CS (PN 2671310201)
❒ Two (2) welded tube, 8 inch x 78 inch, coated CS, 19 GA (PN 2671291001)
❒ Five (5) welded tube, 8 inch x 39 inch, coated CS, 19 GA (PN 2671290901)
❒ Five (5) welded tube, 8 inch x 20 inch, coated CS, 19 GA (PN 2671290801)
❒ Four (4) welded slip tube, 8 inch x 20 inch, coated CS, 19 GA (PN 2671330501)
❒ Two (2) welded slip tube, 8 inch x 8 inch, coated CS, 19 GA (PN 2671330401)
❒ Six (6) 8 inch slip tube ring seal (PN 26713202)
❒ Six (6) Conair flange adaptors (PN 18477901)
❒ Twenty-six (26) 8 inch bolted pull ring, galvanized (PN 2671350201)
❒ Twenty (20) 8 inch U-shaped gasket, 19 GA (PN 2671360201)
❒ Six (6) 8 inch Conair hard pipe gasket (PN 185107930)
❒ Six (6) 8 inch ceiling mount clamp, Galvanized, high-temp. (PN 2671390201)
❒ Forty-eight (48) 5/16-18NC x 1 inch hex head wiz lock cap screw (PN 21202504)
❒ Forty-eight (48) 516-18 hex head wiz lock nut (PN (22300804)
❒ Six (6) threaded rod, 3/8-16 x 10 feet long (60 feet total length) (PN 2190091004)
❒ Six (6) threaded rod adapter (PN 18598074)
❒ Six (6) hex head bolt, M10 x 1.5 x 15MM, plated (PN 21247302)
❒ Eighteen (18) washer, flat, 3/8 inch, plated (PN 22500302)

Conair Part #18090002: 12 inch Hard Pipe Basic Kit

❒ Two (2) 8 inch Conair hard pipe gasket (PN 185107930)
❒ Two (2) 8 inch hard pipe flange x 12 inch tubing adaptor (PN 18477910)
❒ Seven (7) 12 inch 1D 90, 16 GA, coated CS
❒ Three (3) welded tube, 12 inch x 78 inch, coated CS, 19 GA (PN 2671291501)
❒ Six (6) welded tube, 12 inch x 39 inch, coated CS, 19 GA (PN 2671291401)
❒ Six (6) welded tube, 12 inch x 20 inch, coated CS, 19 GA (PN 2671291301)
❒ Four (4) welded slip tube, 12 inch x 20 inch, coated CS, 19 GA (PN 2671330901)
❒ Two (2) welded slip tube, 12 inch x 8 inch, coated CS, 19 GA (PN 2561330701)
❒ Six (6) 12 inch slip tube ring seal (PN 26713203)
❒ Six (6) 12 inch Conair flange to 12 inch adapter (PN 18477902)
❒ Twenty-nine (29) 12 inch bolted pull ring, galvanized (PN 2671350301)
❒ Twenty-three (23) 12 inch U-shaped gasket, 19 GA (PN 2671360301)
❒ Six (6) 12 inch Conair hard pipe gasket (PN 185107916)
❒ Six (6) 12 inch ceiling mount clamp, galvanized, high-temp (PN 2671390301)
❒ Sixty-four (64) 5/16-18NC x 1 inch hex head wiz lock cap screw (PN 21202504)
❒ Sixty-four (64) 516-18 hex head wiz lock nut (PN (22300804)
❒ Six (6) threaded rod, 3/8-16 x 10 feet long (60 feet total length) (PN 2190091004)
❒ Six (6) threaded rod adapter (PN 18598074)
❒ Six (6) hex head bolt, M10 x 1.5 x 15MM, plated (PN 21247302)
❒ Eighteen (18) washer, flat, 3/8 inch, plated (PN 22500302)

(Continued)

Unpacking the boxes (continued)

Conair Part #18090003: 8 inch Hard Pipe GT Kit

❒ Two (2) 8 inch 1D 90, 16 GA, coated CS (PN 2671310201)
❒ One (1) welded tube, 8 inch x 78 inch, coated CS, 19 GA (PN 2671291001)
❒ One (1) welded tube, 8 inch x 39 inch, coated CS, 19 GA (PN 2671290901)
❒ One (1) welded tube, 8 inch x 20 inch, coated CS, 19 GA (PN 2671290801)
❒ One (1) welded slip tube, 8 inch x 39 inch, coated CS, 19 GA (PN 2671330601)
❒ One (1) welded slip tube, 8 inch x 20 inch, coated CS, 19 GA (PN 2671330501)
❒ One (1) welded slip tube, 8 inch x 8 inch, coated CS, 19 GA (PN 2671330401)
❒ Three (3) 8 inch slip tube ring seal (PN 26713202)
❒ One (1) Conair flange adaptors (PN 18477901)
❒ Nine (9) 8 inch bolted pull ring, galvanized (PN 2671350201)
❒ Six (6) 8 inch U-shaped gasket, 19 GA (PN 2671360201)
❒ Two (2) 8 inch hose, high temp (PN 2400071002)
❒ One (1) 8 inch Conair hard pipe gasket (PN 185107930)
❒ Four (4) 8 inch hose clamps (PN 24900124)
❒ Six (6) 8 inch insulation (PN 25902417)
❒ One (1) 8 inch 90° insulation (PN 18195701)
❒ Eight (8) 5/16-18NC x 1 inch hex head wiz lock cap screw (PN 21202504)
❒ Eight (8) 516-18 hex head wiz lock nut (PN (22300804)
❒ Twenty-five (25) feet of 3 inch ASJ SSL insullation tape (PN 25910404) (insulation)

For more information about adding a Conair Hard Pipe Kit to your drying system, contact Conair.

Conair's sales number is 724-584-5500.

Conair's Instant Access 24/7 Parts and Service number is 800-458-1960. Outside the U.S., dial 814-437-6861.

Conair Part #18090004: 12 inch Hard Pipe GT Kit

❒ Two (2) 8 inch hose connection, coated CS, 19 GA (PN 2671400201)
❒ Two (2) 8 inch hose, high temp (PN 2400071002)
❒ Two (2) 8 inch Conair hard pipe gasket (PN 185107930)
❒ Two (2) 8 inch hard pipe flange x 12 inch tubing adaptor (PN 18477910)
❒ Four (4) 8 inch hose clamps (PN 24900124)
❒ Two (2) 12 inch 1D 90, 16 GA, coated CS
❒ One (1) welded tube, 12 inch x 78 inch, coated CS, 19 GA (PN 2671291501)
❒ One (1) welded tube, 12 inch x 39 inch, coated CS, 19 GA (PN 2671291401)
❒ One (1) welded tube, 12 inch x 20 inch, coated CS, 19 GA (PN 2671291301)
❒ One (1) welded slip tube, 12 inch x 20 inch, coated CS, 19 GA (PN 2671330901)
❒ One (1) welded slip tube, 12 inch x 39 inch, Coated CS, 19 GA (PN 2671331001)
❒ One (1) welded slip tube, 12 inch x 8 inch, coated CS, 19 GA (PN 2561330701)
❒ Three (3) 12 inch slip tube ring seal (PN 26713203)
❒ One (1) 12 inch Conair flange to 12 inch adapter (PN 18477902)
❒ Nine (9) 12 inch bolted pull ring, galvanized (PN 2671350301)
❒ Six (6) 12 inch U-shaped gasket, 19 GA (PN 2671360301)
❒ Two (2) 12 inch hose connection, coated CS, 19 GA (PN 2671400301)
❒ One (1) 12 inch Conair hard pipe gasket (PN 185107916)
❒ Six (6) 12 inch insulation (PN 25902418)
❒ Two (2) 12 inch hose, high temp (PN 2400071102)
❒ Four (4) 12 inch hose clamps (PN 24900126)
❒ One (1) 12 inch 90° insulation (PN 18195702)
❒ Twenty-four (24) 5/16-18NC x 1 inch hex head wiz lock cap screw (PN 21202504)
❒ Twenty-four (24) 516-18 hex head wiz lock nut (PN 22300804)
❒ Twenty-five (25) feet of 3 inch ASJ SSL insulation tape (PN 25910404)
❒ One (1) 8 inch hard pipe flange x 12 inch tubing adapter (PN 1847791001)

Preparing for installation

Your plant layout and drying system component positioning will determine the organization of pieces necessary to complete the piping between the dryer and hopper. Each application will vary. Conair recommends that you take the following steps before starting installation.

For more information about adding a Conair Hard Pipe Kit to your drying system, contact Conair.

Conair's sales number is 724-584-5500.

Conair's Instant Access 24/7 Parts and Service number is 800-458-1960. Outside the U.S., dial 814-437-6861.

1 **Organize all like pieces.** Place all clamps together, all straight sections together, all elbows together, etc.

2 **Start by laying the pieces out between the dryer and the hopper.** If you ordered your hard pipe kit as part of a Conair system, a system drawing may have been included that will indicate pipe position and suggested layout.

3 **Visually inspect to make sure that the pieces you have will meet the needs of your system.** If it looks like you will need additional pieces to complete your system, contact Conair Parts and Service. You can order individual pieces as necessary to complete your system.

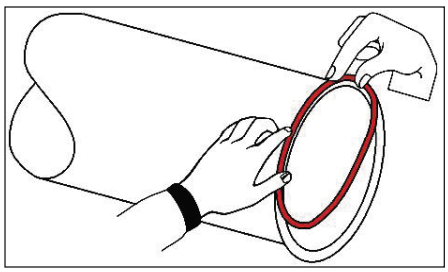
4 **If your drying system has been in use, wait until all components have cooled prior to attempting any installation steps.**

CAUTION: Hot surfaces. Always protect yourself from hot surfaces inside and outside the dryer and drying hopper.

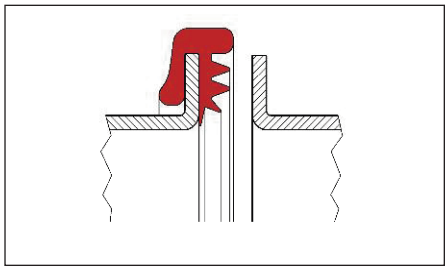
(Continued)

Using Pull Ring Connections

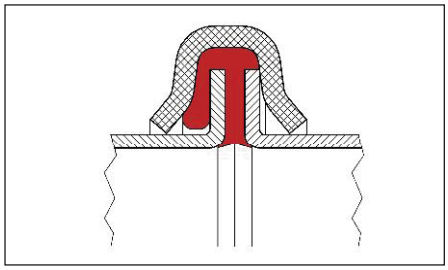
The following are general usage instructions for pull-ring connections with U-shaped seals. This is the primary style of connection used with Conair hard pipe kits.



1 Pull the U-shaped seal around one of the pipe flanges. The seal can be stretched to fit, but avoid overstretching.

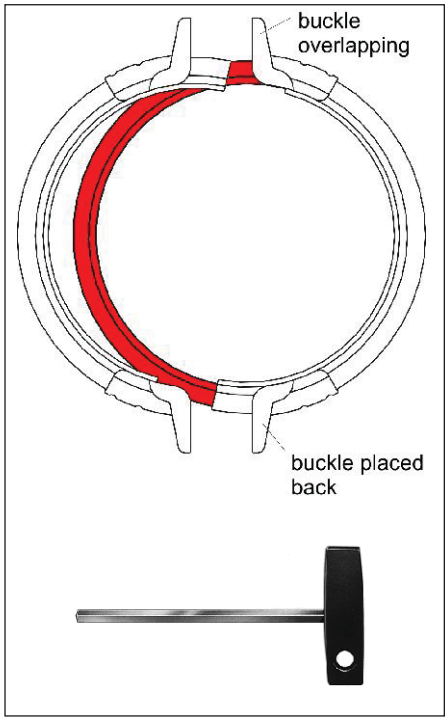


2 Make sure that the "tooth" side of the U-shaped seal will face the pipe section that will be connected to this one.



3 Place the next section (counter-pipe) into position and push one half of the clamping ring onto the pipe flange. Make sure that the pipes are aligned squarely and that the seals are not displaced.

4 Completely separate the two sections of the pull ring to be used.



5 Connect the two sections of the pull ring around the flange, loosely tighten using the bolts using your fingers. Make sure that the pull ring is alligned around the entire flange. Make sure that the u-shaped seal is aligned and not protruding from the pull ring in any location.

6 Tighten, alternating from one bolt to the other, the bolts to clamp the pull ring around the flange. Use a 6 mm hexagon screwdriver and tighten the bolt to a maximum torque of 25 Nm.

Using Slip Tubes

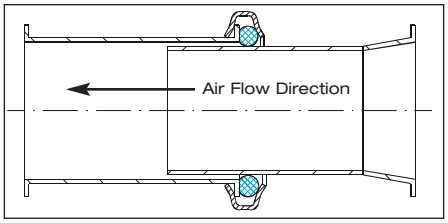
Slip tubes can be used to achieve specific lengths of pipe without having to cut, weld, or flange additional piping.

NOTE: Slip tube connections must be secured against displacement. For horizontally installed tubing, tubes must be supported in the area of the slip connection to prevent sagging. The weight of the vertical runs should also be supported at the first available horizontal location, to keep joints from displacing in vertical runs.

IMPORTANT: Slip tubes are not meant to be used as telescoping tubes. They are not designed to be adjusted during operation.

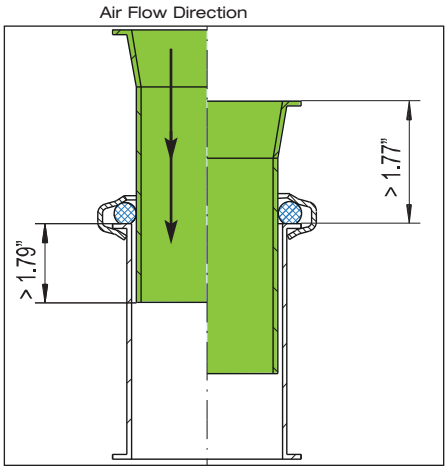
To order a slip tube or other parts for your hard pipe kit, Conair's Instant Access 24/7 Parts and Service number is 800-458-1960. Outside the U.S., dial 814-437-6861.

1 Roll the ring seal onto the slip tube.



2 Slide the standard tube into the slip tube to the desired length.

NOTE: The slip tube overlap must be at least 1.79 inches {45.5 mm} and at least 1.77 inches {45.0 mm) of the tube must be above the flange for proper operation. If ordering a slip tube to fit into your hard pipe kit, be sure to order a length that accommodates these allowances. For example: do not order an 8 inch slip tube for a 7 inch gap, because the overlap will not be great enough.



3 Roll the ring seal back to the flange and secure with a pull ring.

4 Tighten, alternating from one bolt (side) to the other, the bolts to clamp the pull ring around the flange. Use a 6 mm hexagon screwdriver and tighten the bolt to a maximum torque of 25 Nm.

Attaching flange to top of dryer

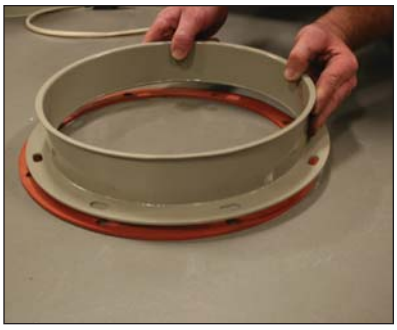
CAUTION: Hot surfaces. Always protect yourself from hot surfaces inside and outside the dryer and drying hopper.

NOTE: Depending on your dryer model and the hard pipe kit that you ordered, this flange may already have been attached to your dryer.

Your hard pipe kit a Conair flange adapter. This adapter must be attached to the dryer prior to assembling the rest of the hard pipe system.

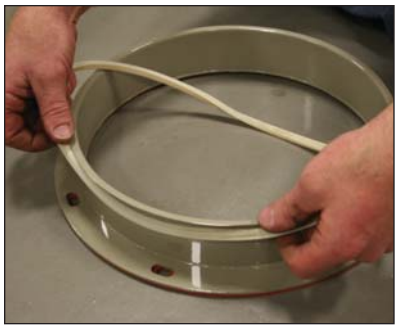
1 If adding the hard pipe kit to an existing drying system, **remove the flexible hose from the dryer inlet and outlet.** Make sure that the dryer inlet and outlet are clean and ready for installation of the flange adapter(s).

2 Locate the Conair flange adapter and hard pipe gasket.



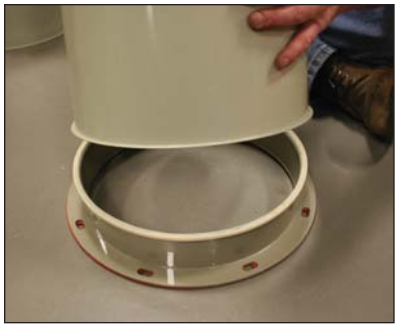
3 Using the included hardware, attach the Conair flange adapter to the dryer outlet.

4 Place the "U" seal on the top of the flange adapter.



5 Place the next pipe section on the top of the flange adapter.

6 Use the bolted pull ring to connect the pipe section to the flange adapter.



7 Tighten the bolted pull ring bolt to a maximum torque of 25 Nm.

Adding Turns/Bends

To order a slip tube or other parts for your hard pipe kit, Conair's Instant Access 24/7 Parts and Service number is 800-458-1960. Outside the U.S., dial 814-437-6861.

Once you have assembled your verticle section above the dryer, you will need to add the 90° bend to continue horizontally. A slip tube may need to be used as part of the last section before the turn to horizontal to fit your plant/system layout. *Refer to Using Slip Tubes earlier in these instructions* for more information about using slip tubes for more flexibility with your hard pipe kit.

1 **Verify that when you add your bend or turn, you will be at your desired height for the horizontal run of your hard piping.** It may be necessary to utilize a slip tube to complete your vertical pipe section at the correct height.




2 **Place the u-shaped gasket seal on the top of the pipe end.**


NOTE: Slip tube connections must be secured against displacement. For horizontally installed tubing, tubes must be supported in the area of the slip connection to prevent sagging.

IMPORTANT: Slip tubes are not meant to be used as telescoping tubes. They are not designed to be adjusted during operation.

3 **Place the bend on top of the pipe end.**

4 **Use the bolted ring to connect the bend to the pipe.**

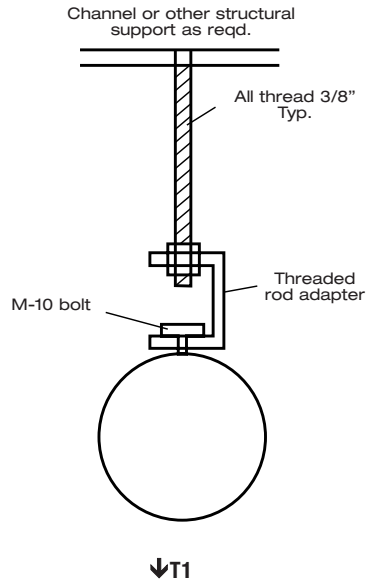
5 **Tighten the bolted pull ring bolt to a maximum torque of 25 Nm.** Be sure to alternate tightening bolts from one side to another so that the pull ring clamps securely and evenly around the pipe flange.

Optional VFD Velocity Meter tubing (required for VFD operation)

The velocity meter requires a special section of hard pipe, with a tapped fitting location for the velocity meter installation. The compression fitting allows the velocity sensor to be oriented such that the hole (noted by a mark on the sensor) can be positioned to face the airflow, and adjusted such that the depth of sensor hole is located in the center of the air flow in the piping.

The section of tubing with the velocity meter tap should be located about 10x the tube diameter (80 inches for 8-inch tubing) of straight pipe (after a bend) on the return line before the dryer. Due to velocity meter cable length and tubing runs, the best location is typically as close to the "Return air" inlet of the dryer on the return air tubing as possible. This typically gives the maximum straight run of tubing prior to the velocity meter location.

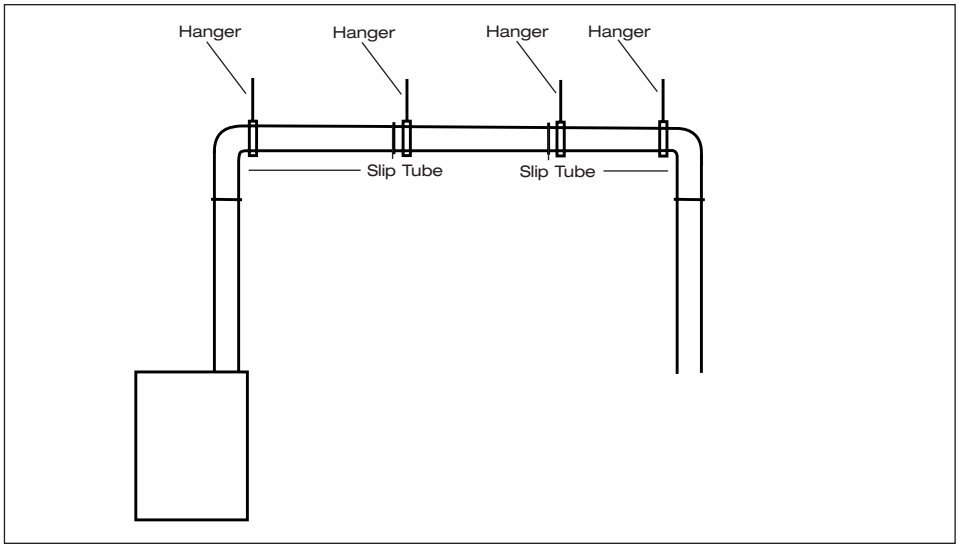
Proper Location and use of Hanger, Clamp, and All-thread



Your Conair Hard Pipe Kit comes with a quantity of tubing hangers (varies depending on which kit you order) for supporting the weight of the horizontal and vertical spans, specifically spans that use slip tube sections. A hanger should be placed on either side of any location where a slip tube was used. This includes supporting a vertical section where a slip tube was used by utilizing a hanger at the closest horizontal location to support the vertical section.

Proper hanging method uses:

- Ceiling mount clamp with rubber insert
- Threaded rod adapter
- M-10 bolt
- Proper length of all-thread - 3/8" tip and proper connection to approved load carrying structure



NOTE: T1 ≃ 440 lbs. {195.58 kg} at 0.2 in. {5.08 mm} deflection.

NOTE: Always follow all local and regional building codes when installing.

NOTE: Conair recommends the use of hangers at 10 ft. {3.05 m} intervals at minimum for appropriate support.

DC-C Premium HMI/Remote tag list

User_DC-C_Premium_Tags

DC-C Premium HMI/Remote tag list
Rev. 2.00.01, 01/08/2020
Modbus TCP/IP protocol
PLC default IP address 10.1.11.5
HMI default IP address 10.1.11.6

Modbus address type
OUTP = Coil
INP = Discrete input
IREG = Input register
HREG = Holding register

Data type size
boolean = 1bit
byte = 8bit
short = 16bit
int = 32bit
float = 32bit

Access
RW = Read Write
RO = Read Only

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Tag name	MB Type	MB Address	Data Type	UoM	Access	Notes
Gx_User_Control		000001 - 000032		N/A	RW	User control bools
Gx_User_Control_Start	OUTP	000001	boolean	N/A	RW	Dryer start PB
Gx_User_Control_Stop	OUTP	000002	boolean	N/A	RW	Dryer stop PB
Gx_User_Control_Spare01	OUTP	000003	boolean	N/A	RW	A place holder for pre-mapped Modbus addresses
Gx_User_Control_Spare02	OUTP	000004	boolean	N/A	RW	A place holder for pre-mapped Modbus addresses
Gx_User_Control_Spare03	OUTP	000005	boolean	N/A	RW	A place holder for pre-mapped Modbus addresses
Gx_User_Control_OptmzdRcp	OUTP	000006	boolean	N/A	RW	Optimized recipe; (false=no true=yes)
Gx_User_Control_EngUnit	OUTP	000007	boolean	E/M	RW	Engineering units PB (False=english; True=Metric)
Gx_User_Control_Spare05	OUTP	000008	boolean	N/A	RW	A place holder for pre-mapped Modbus addresses
Gx_User_Control_CoolDnEn	OUTP	000009	boolean	N/A	RW	Hopper cool down enable; false=disable; true=enable
Gx_User_Control_CoolDnMode	OUTP	000010	boolean	N/A	RW	Hopper cool down mode; false=manual; true=auto
Gx_User_Control_CoolDnType	OUTP	000011	boolean	N/A	RW	Cooldown type; false=time; true=temperature)
Gx_User_Control_AckAlarm	OUTP	000012	boolean	N/A	RW	Acknowledge alarm PB
Gx_User_Control_EnergyMeterEn	OUTP	000013	boolean	N/A	RW	Energy meter enable PB
Gx_User_Control_DewPntCtrlEn	OUTP	000014	boolean	N/A	RW	Dew point control enable PB
Gx_User_Control_OptmzrEn	OUTP	000015	boolean	N/A	RW	Optimizer control enable PB
Gx_User_Control_AutoStartEn	OUTP	000016	boolean	N/A	RW	Main auto start enable PB
Gx_User_Control_AutoStopEn	OUTP	000017	boolean	N/A	RW	Main auto stop enable PB
Gx_User_Control_Spare08	OUTP	000018	boolean	N/A	RW	A place holder for pre-mapped Modbus addresses
Gx_User_Control_AfterCoolCtrlEn	OUTP	000019	boolean	N/A	RW	After cooler temperature control enable PB
Gx_User_Control_SetBkCtrlEn	OUTP	000020	boolean	N/A	RW	Setback temperature control enable PB
Gx_User_Control_SetBkMode	OUTP	000021	boolean	N/A	RW	Setback setpoints mode (False=Man; True=Auto)
Gx_User_Control_NetChgEn	OUTP	000022	boolean	N/A	RW	Network communications change enable
Gx_User_Control_RemCommsEn	OUTP	000023	boolean	N/A	RW	Remote expantion I/O communications enable
Gx_User_Control_SaveRegnDflt	OUTP	000024	boolean	N/A	RW	Save regen PID gains as default
Gx_User_Control_LoadDfltRegn	OUTP	000025	boolean	N/A	RW	Load the default regen PID gains
Gx_User_Control_VfdCommsEn	OUTP	000026	boolean	N/A	RW	Delivery air VFD communications enable
Gx_User_Control_Spare09	OUTP	000027	boolean	N/A	RW	A place holder for pre-mapped Modbus addresses
Gx_User_Control_SaveDelAirDflt	OUTP	000028	boolean	N/A	RW	Save delivery air PID gains as default
Gx_User_Control_LoadDfltDelAir	OUTP	000029	boolean	N/A	RW	Load the default delivery air PID gains
Gx_User_Control_TestOutput	OUTP	000030	boolean	N/A	RW	Test mode; test output PB
Gx_User_Control_Recvr1En	OUTP	000031	boolean	N/A	RW	Reciever 1 enable PB
Gx_User_Control_Recvr2En	OUTP	000032	boolean	N/A	RW	Reciever 2 enable PB
Gb_User_AutoStartEn[1..7]		000065 - 000071		N/A	RW	Auto start enable bools
Gb_User_AutoStartEn[1]	OUTP	000065	boolean	N/A	RW	Auto start enable; true=enable
Gb_User_AutoStartEn[2]	OUTP	000066	boolean	N/A	RW	Auto start enable; true=enable
Gb_User_AutoStartEn[3]	OUTP	000067	boolean	N/A	RW	Auto start enable; true=enable
Gb_User_AutoStartEn[4]	OUTP	000068	boolean	N/A	RW	Auto start enable; true=enable
Gb_User_AutoStartEn[5]	OUTP	000069	boolean	N/A	RW	Auto start enable; true=enable
Gb_User_AutoStartEn[6]	OUTP	000070	boolean	N/A	RW	Auto start enable; true=enable
Gb_User_AutoStartEn[7]	OUTP	000071	boolean	N/A	RW	Auto start enable; true=enable
Gb_User_AutoStopEn[1..7]		000072 - 000078		N/A	RW	Auto stop enable bools
Gb_User_AutoStopEn[1]	OUTP	000072	boolean	N/A	RW	Auto stop enable; true=enable

DC-C Premium HMI/Remote tag list (Continued)

User_DC-C_Premium_Tags

Tag name	MB Type	MB Address	Data Type	UoM	Access	Notes
Gb_User_AutoStopEn[2]	OUTP	000073	boolean	N/A	RW	Auto stop enable; true=enable
Gb_User_AutoStopEn[3]	OUTP	000074	boolean	N/A	RW	Auto stop enable; true=enable
Gb_User_AutoStopEn[4]	OUTP	000075	boolean	N/A	RW	Auto stop enable; true=enable
Gb_User_AutoStopEn[5]	OUTP	000076	boolean	N/A	RW	Auto stop enable; true=enable
Gb_User_AutoStopEn[6]	OUTP	000077	boolean	N/A	RW	Auto stop enable; true=enable
Gb_User_AutoStopEn[7]	OUTP	000078	boolean	N/A	RW	Auto stop enable; true=enable
Gx_MaintAlert[1..6]_Enable		000301 - 000306		N/A	RW	Maintenance alert enable bools
Gx_MaintAlert[1]_Enable	OUTP	000301	boolean	N/A	RW	Maintenance alert 1; enable (True=Enabled) "Proc. Filter"
Gx_MaintAlert[2]_Enable	OUTP	000302	boolean	N/A	RW	Maintenance alert 2; enable (True=Enabled) "Regen Filter"
Gx_MaintAlert[3]_Enable	OUTP	000303	boolean	N/A	RW	Maintenance alert 3; enable (True=Enabled) "After Cooler"
Gx_MaintAlert[4]_Enable	OUTP	000304	boolean	N/A	RW	Maintenance alert 4; enable (True=Enabled) "Process Heater"
Gx_MaintAlert[5]_Enable	OUTP	000305	boolean	N/A	RW	Maintenance alert 5; enable (True=Enabled) "Regen Heater"
Gx_MaintAlert[6]_Enable	OUTP	000306	boolean	N/A	RW	Maintenance alert 6; enable (True=Enabled) "Wheel"
Gx_MaintAlert[1..6]_Reset		000351 - 000356		N/A	RW	Maintenance alert reset bools
Gx_MaintAlert[1]_Reset	OUTP	000351	boolean	N/A	RW	Maintenance alert 1; reset time (True=Yes) "Proc. Filter"
Gx_MaintAlert[2]_Reset	OUTP	000352	boolean	N/A	RW	Maintenance alert 2; reset time (True=Yes) "Regen Filter"
Gx_MaintAlert[3]_Reset	OUTP	000353	boolean	N/A	RW	Maintenance alert 3; reset time (True=Yes) "After Cooler"
Gx_MaintAlert[4]_Reset	OUTP	000354	boolean	N/A	RW	Maintenance alert 4; reset time (True=Yes) "Process Heater"
Gx_MaintAlert[5]_Reset	OUTP	000355	boolean	N/A	RW	Maintenance alert 5; reset time (True=Yes) "Regen Heater"
Gx_MaintAlert[6]_Reset	OUTP	000356	boolean	N/A	RW	Maintenance alert 6; reset time (True=Yes) "Wheel"
Gx_User_Status		100001 - 100032		N/A	RO	User status bools
Gx_User_Status_DryerOn	INP	100001	boolean	N/A	RO	Dryer status; True=On; False=Off
Gx_User_Status_RemCommsOk	INP	100002	boolean	N/A	RO	Remote drying monitor communicating without errors
Gx_User_Status_VfdCommsOk	INP	100003	boolean	N/A	RO	Variable speed drive communicating without errors
Gx_User_Status_AutoStartEnabled	INP	100004	boolean	N/A	RO	Main auto start enabled when true
Gx_User_Status_AutoStopEnabled	INP	100005	boolean	N/A	RO	Main auto stop enabled when true
Gx_User_Status_SetBkEnabled	INP	100006	boolean	N/A	RO	Setback control enabled when true
Gx_User_Status_SetBkActive	INP	100007	boolean	N/A	RO	Setback control active when true
Gx_User_Status_DewPntCtrlActive	INP	100008	boolean	N/A	RO	Dew point control active when true
Gx_User_Status_WhlCleanActive	INP	100009	boolean	N/A	RO	Wheel clean mode active when true
Gx_User_Status_UI1_1	INP	100010	boolean	N/A	RO	Test mode, universal input 1/1 state (True=On or Ok)
Gx_User_Status_UI1_2	INP	100011	boolean	N/A	RO	Test mode, universal input 1/2 state (True=On or Ok)
Gx_User_Status_UI1_3	INP	100012	boolean	N/A	RO	Test mode, universal input 1/3 state (True=On or Ok)
Gx_User_Status_UI1_4	INP	100013	boolean	N/A	RO	Test mode, universal input 1/4 state (True=On or Ok)
Gx_User_Status_UI1_5	INP	100014	boolean	N/A	RO	Test mode, universal input 1/5 state (True=On or Ok)
Gx_User_Status_UI1_6	INP	100015	boolean	N/A	RO	Test mode, universal input 1/6 state (True=On or Ok)
Gx_User_Status_UI1_7	INP	100016	boolean	N/A	RO	Test mode, universal input 1/7 state (True=On or Ok)
Gx_User_Status_UI1_8	INP	100017	boolean	N/A	RO	Test mode, universal input 1/8 state (True=On or Ok)
Gx_User_Status_UI1_9	INP	100018	boolean	N/A	RO	Test mode, universal input 1/9 state (True=On or Ok)
Gx_User_Status_UI1_10	INP	100019	boolean	N/A	RO	Test mode, universal input 1/10 state (True=On or Ok)
Gx_User_Status_OptmzrEnabled	INP	100020	boolean	N/A	RO	Optimizer control enabled when true
Gx_User_Status_OptmzrActive	INP	100021	boolean	N/A	RO	Optimizer control active when true
Gx_User_Status_NetChgActive	INP	100022	boolean	N/A	RO	Network settings have changed (True=Yes)
Gx_User_Status_RemCommsActive	INP	100023	boolean	N/A	RO	Remote expansion I/O communications (True=Active)
Gx_User_Status_CoolDnEnabled	INP	100024	boolean	N/A	RO	Cool down control enabled
Gx_User_Status_CoolDnActive	INP	100025	boolean	N/A	RO	Cool down cycle active
Gx_User_Status_VfdCommsActive	INP	100026	boolean	N/A	RO	Delivery air VFD communications active
Gx_User_Status_VfdRemoteActive	INP	100027	boolean	N/A	RO	Delivery air VFD local/remote; (True = remote active)
Gx_User_Status_HopperLowLevel	INP	100028	boolean	N/A	RO	Drying hopper low level; (True = low)
Gx_User_Status_MaterialRdy	INP	100029	boolean	N/A	RO	Material ready; attemperature for time

DC-C Premium HMI/Remote tag list (Continued)

User_DC-C_Premium_Tags

Tag name	MB Type	MB Address	Data Type	UoM	Access	Notes
Gx_User_Status_MachRunActive	INP	100030	boolean	N/A	RO	Downstream machine is running
Gx_User_Status_Recvr1Enabled	INP	100031	boolean	N/A	RO	Reviever 1 enabled when true
Gx_User_Status_Recvr2Enabled	INP	100032	boolean	N/A	RO	Reviever 2 enabled when true
Gb_UserAutoStartStatus[1..7]		100065 - 100071		N/A	RO	Auto start enabled status events 1 through 7
Gb_UserAutoStartStatus[1]	INP	100065	boolean	N/A	RO	Auto start enable status; true=enabled
Gb_UserAutoStartStatus[2]	INP	100066	boolean	N/A	RO	Auto start enable status; true=enabled
Gb_UserAutoStartStatus[3]	INP	100067	boolean	N/A	RO	Auto start enable status; true=enabled
Gb_UserAutoStartStatus[4]	INP	100068	boolean	N/A	RO	Auto start enable status; true=enabled
Gb_UserAutoStartStatus[5]	INP	100069	boolean	N/A	RO	Auto start enable status; true=enabled
Gb_UserAutoStartStatus[6]	INP	100070	boolean	N/A	RO	Auto start enable status; true=enabled
Gb_UserAutoStartStatus[7]	INP	100071	boolean	N/A	RO	Auto start enable status; true=enabled
Gb_UserAutoStopStatus[1..7]		100072 - 100078		N/A	RO	Auto stop enabled status events 1 through 7
Gb_UserAutoStopStatus[1]	INP	100072	boolean	N/A	RO	Auto stop enable status; true=enabled
Gb_UserAutoStopStatus[2]	INP	100073	boolean	N/A	RO	Auto stop enable status; true=enabled
Gb_UserAutoStopStatus[3]	INP	100074	boolean	N/A	RO	Auto stop enable status; true=enabled
Gb_UserAutoStopStatus[4]	INP	100075	boolean	N/A	RO	Auto stop enable status; true=enabled
Gb_UserAutoStopStatus[5]	INP	100076	boolean	N/A	RO	Auto stop enable status; true=enabled
Gb_UserAutoStopStatus[6]	INP	100077	boolean	N/A	RO	Auto stop enable status; true=enabled
Gb_UserAutoStopStatus[7]	INP	100078	boolean	N/A	RO	Auto stop enable status; true=enabled
Gb_Alarms_Shutdown[1..32]		100101-100132		N/A	RO	Dryer shutdown alarm bools
Gb_Alarms_Shutdown[1]	INP	100101	boolean	N/A	RO	E-stop pressed - Shutdown
Gb_Alarms_Shutdown[2]	INP	100102	boolean	N/A	RO	E-stop or high temp - Shutdown (Plus only)
Gb_Alarms_Shutdown[3]	INP	100103	boolean	N/A	RO	Process or regen heater safety switch - Shutdown
Gb_Alarms_Shutdown[4]	INP	100104	boolean	N/A	RO	Process temperature control fault- Shutdown
Gb_Alarms_Shutdown[5]	INP	100105	boolean	N/A	RO	Process RTD fault- Shutdown
Gb_Alarms_Shutdown[6]	INP	100106	boolean	N/A	RO	Process blower overload- Shutdown
Gb_Alarms_Shutdown[7]	INP	100107	boolean	N/A	RO	Process blower drive fault- Shutdown
Gb_Alarms_Shutdown[8]	INP	100108	boolean	N/A	RO	3 phase power supply error - Shutdown
Gb_Alarms_Shutdown[9]	INP	100109	boolean	N/A	RO	High return air temperature - Shutdown
Gb_Alarms_Shutdown[10]	INP	100110	boolean	N/A	RO	Motor overload - Shutdown (Plus only)
Gb_Alarms_Shutdown[11]	INP	100111	boolean	N/A	RO	Motor overload or phase error - Shutdown (Plus only)
Gb_Alarms_Shutdown[12]	INP	100112	boolean	N/A	RO	Regen heater safety switch open - Shutdown
Gb_Alarms_Shutdown[13]	INP	100113	boolean	N/A	RO	Regen temperature control fault - Shutdown
Gb_Alarms_Shutdown[14]	INP	100114	boolean	N/A	RO	Regen RTD fault- Shutdown
Gb_Alarms_Shutdown[15]	INP	100115	boolean	N/A	RO	Regen blower overload - Shutdown
Gb_Alarms_Shutdown[16]	INP	100116	boolean	N/A	RO	PLC error detected - Shutdown
Gb_Alarms_Shutdown[17]	INP	100117	boolean	N/A	RO	Desiccant wheel not rotating - Shutdown
Gb_Alarms_Shutdown[18]	INP	100118	boolean	N/A	RO	Startup failed at process blower - Shutdown
Gb_Alarms_Shutdown[19]	INP	100119	boolean	N/A	RO	Startup failed at regen blower - Shutdown
Gb_Alarms_Shutdown[20]	INP	100120	boolean	N/A	RO	Startup failed at isolation contactor - Shutdown
Gb_Alarms_Shutdown[21]	INP	100121	boolean	N/A	RO	Startup failed at SSRs - Shutdown
Gb_Alarms_Shutdown[22]	INP	100122	boolean	N/A	RO	Process protection high temperature - Shutdown
Gb_Alarms_Shutdown[23]	INP	100123	boolean	N/A	RO	Process differential temperature - Shutdown
Gb_Alarms_Shutdown[24]	INP	100124	boolean	N/A	RO	Local I/O communications fault - Shutdown
Gb_Alarms_Shutdown[25]	INP	100125	boolean	N/A	RO	Remote I/O communications fault - Shutdown
Gb_Alarms_Shutdown[26]	INP	100126	boolean	N/A	RO	Delivery air VFD communications fault - Shutdown
Gb_Alarms_Shutdown[27]	INP	100127	boolean	N/A	RO	Process protection RTD fault - Shutdown
Gb_Alarms_Shutdown[28]	INP	100128	boolean	N/A	RO	Regen high temperature - Shutdown
Gb_Alarms_Shutdown[29]	INP	100129	boolean	N/A	RO	Process high temperature - Shutdown
Gb_Alarms_Shutdown[30]	INP	100130	boolean	N/A	RO	Spare - Shutdown

DC-C Premium HMI/Remote tag list (Continued)

User_DC-C_Premium_Tags

Tag name	MB Type	MB Address	Data Type	UoM	Access	Notes
Gb_Alarms_Shutdown[31]	INP	100131	boolean	N/A	RO	Spare - Shutdown
Gb_Alarms_Shutdown[32]	INP	100132	boolean	N/A	RO	Spare - Shutdown
Gb_Alarms_Passive[1..32]		100201-100232		N/A	RO	Dryer passive alarm bools
Gb_Alarms_Passive[1]	INP	100201	boolean	N/A	RO	Drying monitor low temperature - Passive
Gb_Alarms_Passive[2]	INP	100202	boolean	N/A	RO	Drying monitor high temperature - Passive
Gb_Alarms_Passive[3]	INP	100203	boolean	N/A	RO	Clean or replace regen filter - Passive
Gb_Alarms_Passive[4]	INP	100204	boolean	N/A	RO	Dewpoint high - Passive
Gb_Alarms_Passive[5]	INP	100205	boolean	N/A	RO	Clean or replace process filter - Passive
Gb_Alarms_Passive[6]	INP	100206	boolean	N/A	RO	Drying hopper low level - Passive
Gb_Alarms_Passive[7]	INP	100207	boolean	N/A	RO	Warning, the material has been drying longer than necessa
Gb_Alarms_Passive[8]	INP	100208	boolean	N/A	RO	Hopper predry settings are too low - Passive
Gb_Alarms_Passive[9]	INP	100209	boolean	N/A	RO	Clean or replace filter - Passive (Plus only)
Gb_Alarms_Passive[10]	INP	100210	boolean	N/A	RO	Material is ready to use - Passive
Gb_Alarms_Passive[11]	INP	100211	boolean	N/A	RO	Return air dew point sensor fault - Passive
Gb_Alarms_Passive[12]	INP	100212	boolean	N/A	RO	Dew point sensor fault - Passive
Gb_Alarms_Passive[13]	INP	100213	boolean	N/A	RO	Return air RTD fault - Passive
Gb_Alarms_Passive[14]	INP	100214	boolean	N/A	RO	Hopper outlet RTD fault - Passive
Gb_Alarms_Passive[15]	INP	100215	boolean	N/A	RO	Drying monitor T1 RTD fault - Passive
Gb_Alarms_Passive[16]	INP	100216	boolean	N/A	RO	Drying monitor T2 RTD fault - Passive
Gb_Alarms_Passive[17]	INP	100217	boolean	N/A	RO	Drying monitor T3 RTD fault - Passive
Gb_Alarms_Passive[18]	INP	100218	boolean	N/A	RO	Drying monitor T4 RTD fault - Passive
Gb_Alarms_Passive[19]	INP	100219	boolean	N/A	RO	Drying monitor T5 RTD fault - Passive
Gb_Alarms_Passive[20]	INP	100220	boolean	N/A	RO	Drying monitor T6 RTD fault - Passive
Gb_Alarms_Passive[21]	INP	100221	boolean	N/A	RO	#1 Resin loading fault - Passive
Gb_Alarms_Passive[22]	INP	100222	boolean	N/A	RO	#1 loader fill sensor fault - Passive
Gb_Alarms_Passive[23]	INP	100223	boolean	N/A	RO	#1 loader fill time exceeded - Passive
Gb_Alarms_Passive[24]	INP	100224	boolean	N/A	RO	Optimized - Record set points and make a optimized recip
Gb_Alarms_Passive[25]	INP	100225	boolean	N/A	RO	#2 Resin loading fault - Passive
Gb_Alarms_Passive[26]	INP	100226	boolean	N/A	RO	#2 loader fill sensor fault - Passive
Gb_Alarms_Passive[27]	INP	100227	boolean	N/A	RO	#2 loader fill time exceeded - Passive
Gb_Alarms_Passive[28]	INP	100228	boolean	N/A	RO	Delivery air flow sensor fault - Passive
Gb_Alarms_Passive[29]	INP	100229	boolean	N/A	RO	Hopper level sensor fault - Passive
Gb_Alarms_Passive[30]	INP	100230	boolean	N/A	RO	Conveying/pump overload - Passive
Gb_Alarms_Passive[31]	INP	100231	boolean	N/A	RO	Hopper temp profile is in the band. Predry set points are n
Gb_Alarms_Passive[32]	INP	100232	boolean	N/A	RO	Material exit temperature RTD fault - Passive
Gx_MaintAlert[1..6]_State		100301 - 100306		N/A	RO	Maintenance alert state, active when true
Gx_MaintAlert[1]_State	INP	100301	boolean	N/A	RO	Clean or replace delivery air filter - Maint. Alert
Gx_MaintAlert[2]_State	INP	100302	boolean	N/A	RO	Clean or replace regeneration air filter - Maint. Alert
Gx_MaintAlert[3]_State	INP	100303	boolean	N/A	RO	Clean after cooler coils - Maint. Alert
Gx_MaintAlert[4]_State	INP	100304	boolean	N/A	RO	Check delivery air heater - Maint. Alert
Gx_MaintAlert[5]_State	INP	100305	boolean	N/A	RO	Check regeneration heater - Maint. Alert
Gx_MaintAlert[6]_State	INP	100306	boolean	N/A	RO	Inspect desiccant wheel - Maint. Alert
Gb_RemHtSrcCommsOk[1..16]		100401 - 100416		N/A	RO	Remote heat source communications status bools
Gb_RemHtSrcCommsOk[1]	INP	100401	boolean	N/A	RO	Remote heat source 1 is online without errors when true
Gb_RemHtSrcCommsOk[2]	INP	100402	boolean	N/A	RO	Remote heat source 2 is online without errors when true
Gb_RemHtSrcCommsOk[3]	INP	100403	boolean	N/A	RO	Remote heat source 3 is online without errors when true
Gb_RemHtSrcCommsOk[4]	INP	100404	boolean	N/A	RO	Remote heat source 4 is online without errors when true
Gb_RemHtSrcCommsOk[5]	INP	100405	boolean	N/A	RO	Remote heat source 5 is online without errors when true
Gb_RemHtSrcCommsOk[6]	INP	100406	boolean	N/A	RO	Remote heat source 6 is online without errors when true
Gb_RemHtSrcCommsOk[7]	INP	100407	boolean	N/A	RO	Remote heat source 7 is online without errors when true

DC-C Premium HMI/Remote tag list (Continued)

User_DC-C_Premium_Tags

Tag name	MB Type	MB Address	Data Type	UoM	Access	Notes
Gb_RemHtSrcCommsOk[8]	INP	100408	boolean	N/A	RO	Remote heat source 8 is online without errors when true
Gb_RemHtSrcCommsOk[9]	INP	100409	boolean	N/A	RO	Remote heat source 9 is online without errors when true
Gb_RemHtSrcCommsOk[10]	INP	100410	boolean	N/A	RO	Remote heat source 10 is online without errors when true
Gb_RemHtSrcCommsOk[11]	INP	100411	boolean	N/A	RO	Remote heat source 11 is online without errors when true
Gb_RemHtSrcCommsOk[12]	INP	100412	boolean	N/A	RO	Remote heat source 12 is online without errors when true
Gb_RemHtSrcCommsOk[13]	INP	100413	boolean	N/A	RO	Remote heat source 13 is online without errors when true
Gb_RemHtSrcCommsOk[14]	INP	100414	boolean	N/A	RO	Remote heat source 14 is online without errors when true
Gb_RemHtSrcCommsOk[15]	INP	100415	boolean	N/A	RO	Remote heat source 15 is online without errors when true
Gb_RemHtSrcCommsOk[16]	INP	100416	boolean	N/A	RO	Remote heat source 16 is online without errors when true
Gx_UserOptmzrStatus		100800 - 100817		N/A	RO	User optimizer status bools
Gx_UserOptmzrStatus_PreDryActv	INP	100800	boolean	N/A	RO	Optimizer control status - Predry active
Gx_UserOptmzrStatus_RampActv	INP	100801	boolean	N/A	RO	Optimizer control status - Ramp active
Gx_UserOptmzrStatus_RampFlowActv	INP	100802	boolean	N/A	RO	Optimizer control status - Ramp flow active
Gx_UserOptmzrStatus_RampTempActv	INP	100803	boolean	N/A	RO	Optimizer control status - Ramp temperature active
Gx_UserOptmzrStatus_DynDelyActv	INP	100804	boolean	N/A	RO	Optimizer control status - Dynamic delay active
Gx_UserOptmzrStatus_TuneActv	INP	100805	boolean	N/A	RO	Optimizer control status - Tune active
Gx_UserOptmzrStatus_TuneUpActv	INP	100806	boolean	N/A	RO	Optimizer control status - Tune up active
Gx_UserOptmzrStatus_TuneUpFlowActv	INP	100807	boolean	N/A	RO	Optimizer control status - Tune up flow active
Gx_UserOptmzrStatus_TuneUpTempActv	INP	100808	boolean	N/A	RO	Optimizer control status - Tune up temperature active
Gx_UserOptmzrStatus_TuneDnActv	INP	100809	boolean	N/A	RO	Optimizer control status - Tune down active
Gx_UserOptmzrStatus_TuneDnFlowActv	INP	100810	boolean	N/A	RO	Optimizer control status - Tune down flow active
Gx_UserOptmzrStatus_TuneDnTempActv	INP	100811	boolean	N/A	RO	Optimizer control status - Tune down temperature active
Gx_UserOptmzrStatus_FineTuneActv	INP	100812	boolean	N/A	RO	Optimizer control status - Fine tune active
Gx_UserOptmzrStatus_FineTuneFlowActv	INP	100813	boolean	N/A	RO	Optimizer control status - Fine tune flow active
Gx_UserOptmzrStatus_FineTuneTempActv	INP	100814	boolean	N/A	RO	Optimizer control status - Fine tune temperature active
Gx_UserOptmzrStatus_QuickUpActv	INP	100815	boolean	N/A	RO	Optimizer control status - Quick up active
Gx_UserOptmzrStatus_QuickUpFlowActv	INP	100816	boolean	N/A	RO	Optimizer control status - Quick up flow active
Gx_UserOptmzrStatus_QuickUpTempActv	INP	100817	boolean	N/A	RO	Optimizer control status - Quick up temperature active
Gx_MaintAlert[1..6]_TimeSetPoint		400301 - 400306		HRS	RW	Maintenance alerts 1 through 6 running hours set points
Gx_MaintAlert[1]_TimeSetPoint	HREG	400301	unsignedShort	HRS	RW	Maintenance alert 1 hours set point "Proc. Filter" time (Range 8 - 720hrs)
Gx_MaintAlert[2]_TimeSetPoint	HREG	400302	unsignedShort	HRS	RW	Maintenance alert 2 hours set point "Regen Filter" time (Range 8 - 720hrs)
Gx_MaintAlert[3]_TimeSetPoint	HREG	400303	unsignedShort	HRS	RW	Maintenance alert 3 hours set point "After Cooler" time (Range 168 - 4320hrs)
Gx_MaintAlert[4]_TimeSetPoint	HREG	400304	unsignedShort	HRS	RW	Maintenance alert 4 hours set point "Process Heater" time (Range 720 - 8760hrs)
Gx_MaintAlert[5]_TimeSetPoint	HREG	400305	unsignedShort	HRS	RW	Maintenance alert 5 hours set point "Regen Heater" time (Range 720 - 8760hrs)
Gx_MaintAlert[6]_TimeSetPoint	HREG	400306	unsignedShort	HRS	RW	Maintenance alert 6 hours set point "Wheel" time (Range 720 - 8760hrs)
User dryer set points		400530 - 400572		MULTI	RW	User dryer set points
Gr_User_DeliveryAir_Temp_SP	HREG	400530	float	F/C	RW	Del. air temperature set point, range (DeliveryAirSP_Min - DeliveryAirSP_Max)
Gr_User_SB_Setback_SP	HREG	400532	float	F/C	RW	Setback to this set point
Gr_User_SB_ReturnAir_SP	HREG	400534	float	F/C	RW	Setback activation set point
Gr_User_SB_Reset_SP	HREG	400536	float	F/C	RW	Setback resets at this set point
Gr_User_DeliveryAir_Dewpoint_SP	HREG	400538	float	F/C	RW	Delivery air dew point set point, range (-40F to +40F)
Gr_User_DeliveryAirSP_Max	HREG	400540	float	F/C	RW	Delivery air temperature set point maximum limit, range (Min to 375F)
Gr_User_DeliveryAirSP_Min	HREG	400542	float	F/C	RW	Delivery air temperature set point minimum limit, range (100F to Max)
Gi_UserSpare01	HREG	400544	short	N/A	RW	A place holder for pre-mapped Modbus addresses
Gi_UserSpare02	HREG	400545	short	N/A	RW	A place holder for pre-mapped Modbus addresses
Gi_UserSpare03	HREG	400546	short	N/A	RW	A place holder for pre-mapped Modbus addresses
Gr_User_Dewpoint_High_Alm	HREG	400547	float	F/C	RW	Delivery air dew point high alarm set point, range (Delivery set point to +40F)
Gu_User_DM_High_Alarm_Pos	HREG	400549	unsignedShort	N/A	RW	Drying monitor high temperature alarm position, range (0 to 3) 0 = T2 1 = T3

DC-C Premium HMI/Remote tag list (Continued)

User_DC-C_Premium_Tags

Tag name	MB Type	MB Address	Data Type	UoM	Access	Notes
						2 = T4
						3 = T5
Gr_User_DM_High_Alarm_SP	HREG	400550	float	F/C	RW	Drying monitor high temperature alarm set point, range (Low SP to Del. SP)
Gu_User_DM_Low_Alarm_Pos	HREG	400552	unsignedShort	N/A	RW	Drying monitor low temperature alarm position, range (0 to 3)
						0 = T2
						1 = T3
						2 = T4
						3 = T5
Gr_User_DM_Low_Alarm_SP	HREG	400553	float	F/C	RW	Drying monitor low temperature alarm set point, range (Min SP to HighSP)
Gx_User_Loader[1]_I_Load_SP	HREG	400555	unsignedByte	SEC	RW	Load time in seconds; range (1 to 120)
Gx_User_Loader[1]_I_Dischrg_SP	HREG	400556	unsignedByte	SEC	RW	Discharge time in seconds; range (1 to 120)
Gx_User_Loader[1]_I_Purge_SP	HREG	400557	unsignedByte	SEC	RW	Purge/Pocket time in seconds; range (1 to 120)
Gx_User_Loader[1]_I_B4_Alarm_SP	HREG	400558	unsignedByte	N/A	RW	Number of load attempts before alarm; range (0 to 50, zero=Off)
Gx_User_Loader[1]_I_Ratio_SP	HREG	400559	unsignedByte	%	RW	Ratio; percentage of regrind; range (zero=off, 5 to 100%)
Gx_User_Loader[2]_I_Load_SP	HREG	400562	unsignedByte	SEC	RW	Load time in seconds; range (1 to 120)
Gx_User_Loader[2]_I_Dischrg_SP	HREG	400563	unsignedByte	SEC	RW	Discharge time in seconds; range (1 to 120)
Gx_User_Loader[2]_I_Purge_SP	HREG	400564	unsignedByte	SEC	RW	Purge/Pocket time in seconds; range (1 to 120)
Gx_User_Loader[2]_I_B4_Alarm_SP	HREG	400565	unsignedByte	N/A	RW	Number of load attempts before alarm; range (0 to 50, zero=Off)
Gx_User_Loader[2]_I_Ratio_SP	HREG	400566	unsignedByte	%	RW	Ratio; percentage of regrind; range (zero=off, 5 to 100%)
Gi_User_RemHeatSrcCnt	HREG	400572	short	N/A	RW	Number of remote heat sources attached to the dryer, range (0 to 16)
Gx_HMI_Time		400573 - 400585		MULTI		HMI real time clock settings
Gx_HMI_Time_Second	HREG	400573	int	SEC	RW	HMI real time clock, seconds
Gx_HMI_Time_Minute	HREG	400575	int	MIN	RW	HMI real time clock, minutes
Gx_HMI_Time_Hour	HREG	400577	int	HR	RW	HMI real time clock, hour
Gx_HMI_Time_Day	HREG	400579	int	N/A	RW	HMI real time clock, day
Gx_HMI_Time_Month	HREG	400581	int	N/A	RW	HMI real time clock, month
Gx_HMI_Time_Year	HREG	400583	int	N/A	RW	HMI real time clock, year
Gx_HMI_Time_Weekday	HREG	400585	int	N/A	RW	HMI real time clock, day of the week (0=Sunday...6=Saturday)
Gx_User_Loader[1]_I_Name[1..16]		400600-400615		N/A		Loader 1 name, up to 16 UTF-8 charactors
Gx_User_Loader[1]_I_Name[1]	HREG	400600	short	N/A	RW	Loader 1 name 16 charactors, UTF-8 character 1
Gx_User_Loader[1]_I_Name[2]	HREG	400601	short	N/A	RW	Loader 1 name 16 charactors, UTF-8 charactor 2
Gx_User_Loader[1]_I_Name[3]	HREG	400602	short	N/A	RW	Loader 1 name 16 charactors, UTF-8 charactor 3
Gx_User_Loader[1]_I_Name[4]	HREG	400603	short	N/A	RW	Loader 1 name 16 charactors, UTF-8 charactor 4
Gx_User_Loader[1]_I_Name[5]	HREG	400604	short	N/A	RW	Loader 1 name 16 charactors, UTF-8 charactor5
Gx_User_Loader[1]_I_Name[6]	HREG	400605	short	N/A	RW	Loader 1 name 16 charactors, UTF-8 charactor 6
Gx_User_Loader[1]_I_Name[7]	HREG	400606	short	N/A	RW	Loader 1 name 16 charactors, UTF-8 charactor 7
Gx_User_Loader[1]_I_Name[8]	HREG	400607	short	N/A	RW	Loader 1 name 16 charactors, UTF-8 charactor 8
Gx_User_Loader[1]_I_Name[9]	HREG	400608	short	N/A	RW	Loader 1 name 16 charactors, UTF-8 charactor 9
Gx_User_Loader[1]_I_Name[10]	HREG	400609	short	N/A	RW	Loader 1 name 16 charactors, UTF-8 charactor 10
Gx_User_Loader[1]_I_Name[11]	HREG	400610	short	N/A	RW	Loader 1 name 16 charactors, UTF-8 charactor 11
Gx_User_Loader[1]_I_Name[12]	HREG	400611	short	N/A	RW	Loader 1 name 16 charactors, UTF-8 charactor 12
Gx_User_Loader[1]_I_Name[13]	HREG	400612	short	N/A	RW	Loader 1 name 16 charactors, UTF-8 charactor 13
Gx_User_Loader[1]_I_Name[14]	HREG	400613	short	N/A	RW	Loader 1 name 16 charactors, UTF-8 charactor 14
Gx_User_Loader[1]_I_Name[15]	HREG	400614	short	N/A	RW	Loader 1 name 16 charactors, UTF-8 charactor 15
Gx_User_Loader[1]_I_Name[16]	HREG	400615	short	N/A	RW	Loader 1 name 16 charactors, UTF-8 charactor 16
Gx_User_Loader[2]_I_Name[1..16]		400616-400631		N/A		Loader 2 name, up to 16 UTF-8 charactors
Gx_User_Loader[2]_I_Name[1]	HREG	400616	short	N/A	RW	Loader 2 name 16 charactors, UTF-8 character 1
Gx_User_Loader[2]_I_Name[2]	HREG	400617	short	N/A	RW	Loader 2 name 16 charactors, UTF-8 charactor 2
Gx_User_Loader[2]_I_Name[3]	HREG	400618	short	N/A	RW	Loader 2 name 16 charactors, UTF-8 charactor 3
Gx_User_Loader[2]_I_Name[4]	HREG	400619	short	N/A	RW	Loader 2 name 16 charactors, UTF-8 charactor 4

DC-C Premium HMI/Remote tag list (Continued)

User_DC-C_Premium_Tags

Tag name	MB Type	MB Address	Data Type	UoM	Access	Notes
Gx_User_Loader[2]_I_Name[5]	HREG	400620	short	N/A	RW	Loader 2 name 16 charactors, UTF-8 charactor5
Gx_User_Loader[2]_I_Name[6]	HREG	400621	short	N/A	RW	Loader 2 name 16 charactors, UTF-8 charactor 6
Gx_User_Loader[2]_I_Name[7]	HREG	400622	short	N/A	RW	Loader 2 name 16 charactors, UTF-8 charactor 7
Gx_User_Loader[2]_I_Name[8]	HREG	400623	short	N/A	RW	Loader 2 name 16 charactors, UTF-8 charactor 8
Gx_User_Loader[2]_I_Name[9]	HREG	400624	short	N/A	RW	Loader 2 name 16 charactors, UTF-8 charactor 9
Gx_User_Loader[2]_I_Name[10]	HREG	400625	short	N/A	RW	Loader 2 name 16 charactors, UTF-8 charactor 10
Gx_User_Loader[2]_I_Name[11]	HREG	400626	short	N/A	RW	Loader 2 name 16 charactors, UTF-8 charactor 11
Gx_User_Loader[2]_I_Name[12]	HREG	400627	short	N/A	RW	Loader 2 name 16 charactors, UTF-8 charactor 12
Gx_User_Loader[2]_I_Name[13]	HREG	400628	short	N/A	RW	Loader 2 name 16 charactors, UTF-8 charactor 13
Gx_User_Loader[2]_I_Name[14]	HREG	400629	short	N/A	RW	Loader 2 name 16 charactors, UTF-8 charactor 14
Gx_User_Loader[2]_I_Name[15]	HREG	400630	short	N/A	RW	Loader 2 name 16 charactors, UTF-8 charactor 15
Gx_User_Loader[2]_I_Name[16]	HREG	400631	short	N/A	RW	Loader 2 name 16 charactors, UTF-8 charactor 16
Gx_UserAutoStartSP[1..7]		400633 = 400659		N/A	RW	Auto start set points
Gx_UserAutoStartSP[1]_Weekday	HREG	400633	unsignedShort	N/A	RW	Auto start set points; day and time - Day of the week; 1=Monday...7=Sunday
Gx_UserAutoStartSP[1]_Hour	HREG	400634	unsignedShort	N/A	RW	Auto start set points; day and time - Hour of the day; range 0-23
Gx_UserAutoStartSP[1]_Minute	HREG	400635	unsignedShort	N/A	RW	Auto start set points; day and time - Minute of the hour; range 0-59
Gx_UserAutoStartSP[2]_Weekday	HREG	400637	unsignedShort	N/A	RW	Auto start set points; day and time - Day of the week; 1=Monday...7=Sunday
Gx_UserAutoStartSP[2]_Hour	HREG	400638	unsignedShort	N/A	RW	Auto start set points; day and time - Hour of the day; range 0-23
Gx_UserAutoStartSP[2]_Minute	HREG	400639	unsignedShort	N/A	RW	Auto start set points; day and time - Minute of the hour; range 0-59
Gx_UserAutoStartSP[3]_Weekday	HREG	400641	unsignedShort	N/A	RW	Auto start set points; day and time - Day of the week; 1=Monday...7=Sunday
Gx_UserAutoStartSP[3]_Hour	HREG	400642	unsignedShort	N/A	RW	Auto start set points; day and time - Hour of the day; range 0-23
Gx_UserAutoStartSP[3]_Minute	HREG	400643	unsignedShort	N/A	RW	Auto start set points; day and time - Minute of the hour; range 0-59
Gx_UserAutoStartSP[4]_Weekday	HREG	400645	unsignedShort	N/A	RW	Auto start set points; day and time - Day of the week; 1=Monday...7=Sunday
Gx_UserAutoStartSP[4]_Hour	HREG	400646	unsignedShort	N/A	RW	Auto start set points; day and time - Hour of the day; range 0-23
Gx_UserAutoStartSP[4]_Minute	HREG	400647	unsignedShort	N/A	RW	Auto start set points; day and time - Minute of the hour; range 0-59
Gx_UserAutoStartSP[5]_Weekday	HREG	400649	unsignedShort	N/A	RW	Auto start set points; day and time - Day of the week; 1=Monday...7=Sunday
Gx_UserAutoStartSP[5]_Hour	HREG	400650	unsignedShort	N/A	RW	Auto start set points; day and time - Hour of the day; range 0-23
Gx_UserAutoStartSP[5]_Minute	HREG	400651	unsignedShort	N/A	RW	Auto start set points; day and time - Minute of the hour; range 0-59
Gx_UserAutoStartSP[6]_Weekday	HREG	400653	unsignedShort	N/A	RW	Auto start set points; day and time - Day of the week; 1=Monday...7=Sunday
Gx_UserAutoStartSP[6]_Hour	HREG	400654	unsignedShort	N/A	RW	Auto start set points; day and time - Hour of the day; range 0-23
Gx_UserAutoStartSP[6]_Minute	HREG	400655	unsignedShort	N/A	RW	Auto start set points; day and time - Minute of the hour; range 0-59
Gx_UserAutoStartSP[7]_Weekday	HREG	400657	unsignedShort	N/A	RW	Auto start set points; day and time - Day of the week; 1=Monday...7=Sunday
Gx_UserAutoStartSP[7]_Hour	HREG	400658	unsignedShort	N/A	RW	Auto start set points; day and time - Hour of the day; range 0-23
Gx_UserAutoStartSP[7]_Minute	HREG	400659	unsignedShort	N/A	RW	Auto start set points; day and time - Minute of the hour; range 0-59
Gx_UserAutoStopSp[1..7]		400661 - 400687		N/A	RW	Auto stop set points
Gx_UserAutoStopSp[1]_Weekday	HREG	400661	unsignedShort	N/A	RW	Auto stop set points; day and time - Day of the week; 1=Monday...7=Sunday
Gx_UserAutoStopSp[1]_Hour	HREG	400662	unsignedShort	N/A	RW	Auto stop set points; day and time - Hour of the day; range 0-23
Gx_UserAutoStopSp[1]_Minute	HREG	400663	unsignedShort	N/A	RW	Auto stop set points; day and time - Minute of the hour; range 0-59
Gx_UserAutoStopSp[2]_Weekday	HREG	400665	unsignedShort	N/A	RW	Auto stop set points; day and time - Day of the week; 1=Monday...7=Sunday
Gx_UserAutoStopSp[2]_Hour	HREG	400666	unsignedShort	N/A	RW	Auto stop set points; day and time - Hour of the day; range 0-23
Gx_UserAutoStopSp[2]_Minute	HREG	400667	unsignedShort	N/A	RW	Auto stop set points; day and time - Minute of the hour; range 0-59
Gx_UserAutoStopSp[3]_Weekday	HREG	400669	unsignedShort	N/A	RW	Auto stop set points; day and time - Day of the week; 1=Monday...7=Sunday
Gx_UserAutoStopSp[3]_Hour	HREG	400670	unsignedShort	N/A	RW	Auto stop set points; day and time - Hour of the day; range 0-23
Gx_UserAutoStopSp[3]_Minute	HREG	400671	unsignedShort	N/A	RW	Auto stop set points; day and time - Minute of the hour; range 0-59
Gx_UserAutoStopSp[4]_Weekday	HREG	400673	unsignedShort	N/A	RW	Auto stop set points; day and time - Day of the week; 1=Monday...7=Sunday
Gx_UserAutoStopSp[4]_Hour	HREG	400674	unsignedShort	N/A	RW	Auto stop set points; day and time - Hour of the day; range 0-23
Gx_UserAutoStopSp[4]_Minute	HREG	400675	unsignedShort	N/A	RW	Auto stop set points; day and time - Minute of the hour; range 0-59
Gx_UserAutoStopSp[5]_Weekday	HREG	400677	unsignedShort	N/A	RW	Auto stop set points; day and time - Day of the week; 1=Monday...7=Sunday
Gx_UserAutoStopSp[5]_Hour	HREG	400678	unsignedShort	N/A	RW	Auto stop set points; day and time - Hour of the day; range 0-23
Gx_UserAutoStopSp[5]_Minute	HREG	400679	unsignedShort	N/A	RW	Auto stop set points; day and time - Minute of the hour; range 0-59
Gx_UserAutoStopSp[6]_Weekday	HREG	400681	unsignedShort	N/A	RW	Auto stop set points; day and time - Day of the week; 1=Monday...7=Sunday

DC-C Premium HMI/Remote tag list (Continued)

User_DC-C_Premium_Tags

Tag name	MB Type	MB Address	Data Type	UoM	Access	Notes
Gx_UserAutoStopSp[6]_Hour	HREG	400682	unsignedShort	N/A	RW	Auto stop set points; day and time - Hour of the day; range 0-23
Gx_UserAutoStopSp[6]_Minute	HREG	400683	unsignedShort	N/A	RW	Auto stop set points; day and time - Minute of the hour; range 0-59
Gx_UserAutoStopSp[7]_Weekday	HREG	400685	unsignedShort	N/A	RW	Auto stop set points; day and time - Day of the week; 1=Monday...7=Sunday
Gx_UserAutoStopSp[7]_Hour	HREG	400686	unsignedShort	N/A	RW	Auto stop set points; day and time - Hour of the day; range 0-23
Gx_UserAutoStopSp[7]_Minute	HREG	400687	unsignedShort	N/A	RW	Auto stop set points; day and time - Minute of the hour; range 0-59
User optimizer set points		400798 - 400828		MULTI	RW	Optimizer related set points
Gr_User_RsdncTime_SP	HREG	400798	float	HRS	RW	Material residence time set point, range (1.0 to 10.0hrs)
Gr_User_Matl_Exit_Temp_SP	HREG	400800	float	F/C	RW	Exit material tempature set point
Gr_User_HopperLvl_SP	HREG	400802	float	%	RW	Hopper level set point, range (50 to 100%)
Gr_User_HopperLowLvl_SP	HREG	400804	float	%	RW	Hopper low level alarm set point (0 to 100%)
Gr_User_DelAirFlow_SP	HREG	400806	float	%	RW	Delivery air flow set point 50-100%
Gr_User_PreDryAirTemp_SP	HREG	400808	float	F/C	RW	Predry delivery air temperature set point
Gr_User_PreDryAirFlow_SP	HREG	400810	float	%	RW	Predry delivery air flow set point 50-100%
Gr_User_DynAirTemp_SP	HREG	400812	float	F/C	RW	Dynamic delivery air temperature set point
Gr_User_DynAirFlow_SP	HREG	400814	float	%	RW	Dynamic delivery air flow set point 50-100%
Gr_User_Throughput_SP	HREG	400816	float	lb/h-kg/h	RW	Material throughput set point
Gr_User_BulkDensity_SP	HREG	400818	float	Lb/F3-Kg/M3	RW	Material bulk density set point
Gr_User_CoolDnTemp_SP	HREG	400820	float	F/C	RW	Cool down to this material temperature (Cool down type = temp)
Gr_User_CoolDnTime_SP	HREG	400822	float	HRS	RW	Cool down for this many hours (Cool down type = time)
Gn_User_CoolDnPos_SP	HREG	400824	int	N/A	RW	Cool down position, range (1 to 6, T1 thru T6)
Gr_User_CoolDnAlmHrs_SP	HREG	400826	float	HRS	RW	Alarm after this many hours of running with no throughput
Gr_User_CoolDnAfterHrs_SP	HREG	400828	float	HRS	RW	Cool down after this many hours of running (auto cool=on)
Gx_MaintAlert[1..6]		300301 - 300356		HRS	RO	Maintenance alerts 1 through 6 actual elapsed hours
Gx_MaintAlert[1]_ActualHours	IREG	300301	unsignedShort	HRS	RO	Maintenance alert 1; actual (Hours) "Proc. Filter"
Gx_MaintAlert[2]_ActualHours	IREG	300302	unsignedShort	HRS	RO	Maintenance alert 2; actual (Hours) "Regen Filter"
Gx_MaintAlert[3]_ActualHours	IREG	300303	unsignedShort	HRS	RO	Maintenance alert 3; actual (Hours) "After Cooler"
Gx_MaintAlert[4]_ActualHours	IREG	300304	unsignedShort	HRS	RO	Maintenance alert 4; actual (Hours) "Process Heater"
Gx_MaintAlert[5]_ActualHours	IREG	300305	unsignedShort	HRS	RO	Maintenance alert 5; actual (Hours) "Regen Heater"
Gx_MaintAlert[6]_ActualHours	IREG	300306	unsignedShort	HRS	RO	Maintenance alert 6; actual (Hours) "Wheel"
Gx_MaintAlert[1]_ActualMinutes	IREG	300351	unsignedShort	MIN	RO	Maintenance alert 1; actual (Minutes) "Proc. Filter"
Gx_MaintAlert[2]_ActualMinutes	IREG	300352	unsignedShort	MIN	RO	Maintenance alert 2; actual (Minutes) "Regen Filter"
Gx_MaintAlert[3]_ActualMinutes	IREG	300353	unsignedShort	MIN	RO	Maintenance alert 3; actual (Minutes) "After Cooler"
Gx_MaintAlert[4]_ActualMinutes	IREG	300354	unsignedShort	MIN	RO	Maintenance alert 4; actual (Minutes) "Process Heater"
Gx_MaintAlert[5]_ActualMinutes	IREG	300355	unsignedShort	MIN	RO	Maintenance alert 5; actual (Minutes) "Regen Heater"
Gx_MaintAlert[6]_ActualMinutes	IREG	300356	unsignedShort	MIN	RO	Maintenance alert 6; actual (Minutes) "Wheel"
User dryer actuals		300500 - 300798		MULTI	RO	User dryer actual values
Gi_User_Dryer_Type_Act	IREG	300500	short	N/A	RO	Dryer type range, (1 to 3) 1=Central 2=Standard 3=MDC
Gi_User_Dryer_State_Act	IREG	300501	short	N/A	RO	Dryer states range, (0 to 8) 0 = Powering up 1 = Standby 2 = Starting 3 = Stoping 4 = Running 5 = Passive alarm 6 = Shutdown alarm 7 = Comms loss

DC-C Premium HMI/Remote tag list (Continued)

User_DC-C_Premium_Tags

Tag name	MB Type	MB Address	Data Type	UoM	Access	Notes 8 = Cool down 9 =Test mode 10 = Tuning
Gr_User_DeliveryAir_Temp_Act	IREG	300502	float	F/C	RO	Delivery air temperature actual
Gr_User_RA_Temp_At_Hopper_Act	IREG	300504	float	F/C	RO	Return air temperature at the hopper actual
Gr_User_Regen_Temp_Act	IREG	300506	float	F/C	RO	Regeneration air temperature actual
Gr_User_DeliveryAir_Dewpoint_Act	IREG	300508	float	F/C	RO	Delivery air dew point actual
Gr_User_RA_Temp_At_Wheel_Act	IREG	300510	float	F/C	RO	Return air temperature at the wheel actual
Gr_User_Process_OnTime	IREG	300512	float	%	RO	Delivery air heaters percent on-time actual
Gr_User_Regen_OnTime	IREG	300514	float	%	RO	Regeneration air heaters percent on-time actual
Gr_User_Energy_Hours	IREG	300516	float	HRS	RO	Total measurment hours
Gr_User_Energy_Last_Hour	IREG	300518	float	KWH	RO	Energy consumtion in the last hour, includes attached remote heat sources
Gr_User_Energy_Total_kWh	IREG	300520	float	KWH	RO	Total dryer kWh, includes attached remote heat sources
Gr_User_DryingMon_T1	IREG	300522	float	F/C	RO	Optional, drying monitor T1 temperature, bottom of the hopper
Gr_User_DryingMon_T2	IREG	300524	float	F/C	RO	Optional, drying monitor T2 temperature
Gr_User_DryingMon_T3	IREG	300526	float	F/C	RO	Optional, drying monitor T3 temperature
Gr_User_DryingMon_T4	IREG	300528	float	F/C	RO	Optional, drying monitor T4 temperature
Gr_User_DryingMon_T5	IREG	300530	float	F/C	RO	Optional, drying monitor T5 temperature
Gr_User_DryingMon_T6	IREG	300532	float	F/C	RO	Optional, drying monitor T6 temperature, top of the hopper
Gr_User_ProcProt_Act	IREG	300534	float	F/C	RO	Actual process protection temperature, D15-D400 only
Gr_User_RA_Dewpoint_Act	IREG	300536	float	F/C	RO	Return air dew point actual
Gi_User_PLC_Major_Rev	IREG	300538	short	N/A	RO	PLC major software revision, (102 = 1.02.XX)
Gr_User_Regen_TempSP_Act	IREG	300539	float	F/C	RO	Regeneration air temperature set point actual

DC-C Premium HMI/Remote tag list (Continued)

User_DC-C_Premium_Tags

Tag name	MB Type	MB Address	Data Type	UoM	Access	Notes
Gi_User_Loader1_Status	IREG	300541	short	N/A	RO	Loader 1 status, (0 to 5) 0 = Disabled 1 = Enabled 2 = In demand 3 = Loading 4 = Discharging 5 = Alarm
Gi_User_Loader2_Status	IREG	300542	short	N/A	RO	Loader 2 status, (0 to 5) 0 = Disabled 1 = Enabled 2 = In demand 3 = Loading 4 = Discharging 5 = Alarm
Gr_User_SB_Reset_AutoSP	IREG	300543	float	F/C	RO	Auto calculated set back reset set point
Gr_User_SB_Setback_AutoSP	IREG	300545	float	F/C	RO	Auto calculated set back to set point
Gr_User_TotalRunHrs	IREG	300547	float	HRS	RO	Total running hours of the dryer; not resetable
Gi_User_PLC_Minor_Rev	IREG	300549	short	N/A	RO	PLC minor software revision, (2 = X.XX.02)
Gr_User_StoppedHrs_Act	IREG	300794	float	HRS	RO	Hours stoped or powered off, subtracted from hours running at temperature
Gr_User_RsdnsTime_Act	IREG	300796	float	HRS	RO	Hopper material residence time actual, up to 110% of set point max
Gr_User_RunningAtTempHrs_Act	IREG	300798	float	HRS	RO	Hours running at temperature, (T1, T2 or T3 >= 95% of delivery air set point)
User optimizer actuals		300800 - 300822		MULTI	RO	User optimizer related actual values
Gr_User_Matl_Exit_Temp_Act	IREG	300800	float	F/C	RO	Material exiting the hopper temperature actual
Gr_User_HopperLvl_Act	IREG	300802	float	%	RO	Hopper material level actual, (0 - 100%)
Gr_User_DynHopperLvl_SP	IREG	300804	float	%	RO	Dynamic hopper level set point actual (optimizer enabled)
Gr_User_DelAirFlow_Act	IREG	300806	float	cfm/M3H	RO	Delivery air flow in CFM/MÂ³h from function
Gi_User_OptimizerStatus	IREG	300808	short	N/A	RO	Optimizer status; 0-21 0 = Standby 1 = Stopping 2 = Starting 3 = Dryer only 4 = Running 5 = Pre-drying 6 = Dynamic delay 7 = Quick up temp. 8 = Quick up flow 9 = Tune down flow 10 = Tune down temp. 11 = Tune up temp. 12 = Tune up flow 13 = Ramp down flow 14 = Ramp down temp. 15 = Fine tune temp. 16 = Fine tune flow 17 = Hold changes 18 = Optimized 19 = Cool down 20 = Auto start 21 = Shutdown alarm

DC-C Premium HMI/Remote tag list (Continued)

User_DC-C_Premium_Tags

Tag name	MB Type	MB Address	Data Type	UoM	Access	Notes
Gr_User_PredryingHrs_Act	IREG	300810	float	HRS	RO	Time drying without material exiting the hopper, (typ pre-production drying)
Gr_User_Throughput_Act	IREG	300816	float	lb/h-kg/h	RO	Requires TrueRate option
Gr_User_BulkDensity_Act	IREG	300818	float	Lb/F3-Kg/M3	RO	Requires TrueRate option
Gr_User_CoolDnTemp_Act	IREG	300820	float	F/C	RO	The remaining degrees when in temperature mode or the temperature in time mode
Gr_User_CoolDnTime_Act	IREG	300822	float	HRS	RO	The remaining time when in time mode or the elapsed time in temperature mode
Gx_RemHtrSrcTags[1..16]		3001 - 4599				Each heat source is offset by 100 registers starting with heat source #1
Remote heat source #1 register addresses		3001 - 3099				
Gx_RemHtrSrcTags[1]_Control		003001 - 003008		N/A	RW	Remote heat source #1, control bools
Gx_RemHtrSrcTags[1]_Control_Start	OUTP	003001	boolean	N/A	RW	Start command, True=start, resets to false
Gx_RemHtrSrcTags[1]_Control_Stop	OUTP	003002	boolean	N/A	RW	Stop command, True=stop, resets to false
Gx_RemHtrSrcTags[1]_Control_EngUnit	OUTP	003003	boolean	N/A	RW	Engineering units, False=english, True=Metric (Dryer over rides when online)
Gx_RemHtrSrcTags[1]_Control_AckAlarm	OUTP	003004	boolean	N/A	RW	Acknowledge alarm PB
Gx_RemHtrSrcTags[1]_Control_EnergyEn	OUTP	003005	boolean	N/A	RW	Energy meter enable PB
Gx_RemHtrSrcTags[1]_Control_AutoStartEn	OUTP	003006	boolean	N/A	RW	Main auto start enable PB
Gx_RemHtrSrcTags[1]_Control_AutoStopEn	OUTP	003007	boolean	N/A	RW	Main auto stop enable PB
Gx_RemHtrSrcTags[1]_Control_SetBkCntrlEn	OUTP	003008	boolean	N/A	RW	Setback temperature control enable PB
Gx_RemHtrSrcTags[1]_Status		103001 - 103007		N/A	RO	Remote heat source #1, status bools
Gx_RemHtrSrcTags[1]_Status_HtSrcStatus	INP	103001	boolean	N/A	RO	HTC status, True=On, False=Off
Gx_RemHtrSrcTags[1]_Status_SetBkEnabled	INP	103002	boolean	N/A	RO	Setback control enabled when true
Gx_RemHtrSrcTags[1]_Status_SetBkActv	INP	103003	boolean	N/A	RO	Setback control active when true
Gx_RemHtrSrcTags[1]_Status_AutoStartEnabled	INP	103004	boolean	N/A	RO	Main auto start enabled when true
Gx_RemHtrSrcTags[1]_Status_AutoStopEnabled	INP	103005	boolean	N/A	RO	Main auto stop enabled when true
Gx_RemHtrSrcTags[1]_Status_HopperLowLevel	INP	103006	boolean	N/A	RO	Drying hopper low level, (True = low)
Gx_RemHtrSrcTags[1]_Status_MarerialReady	INP	103007	boolean	N/A	RO	Marerial ready to use when true
Gx_RemHtrSrcTags[1]_AlarmShutdn		103026 - 103044		N/A	RO	Remote heat source #1, shutdown alarm bools
Gx_RemHtrSrcTags[1]_AlarmShutdn_Estop	INP	103026	boolean	N/A	RO	E-stop pressed - Shutdown
Gx_RemHtrSrcTags[1]_AlarmShutdn_ProcLpBrk	INP	103027	boolean	N/A	RO	Process temperature control fault- Shutdown
Gx_RemHtrSrcTags[1]_AlarmShutdn_ProcHtrSw	INP	103028	boolean	N/A	RO	Process heater safety switch - Shutdown
Gx_RemHtrSrcTags[1]_AlarmShutdn_AirFlowSw	INP	103029	boolean	N/A	RO	Air flow switch loss - Shutdown
Gx_RemHtrSrcTags[1]_AlarmShutdn_ProcRTD	INP	103030	boolean	N/A	RO	Process RTD fault- Shutdown
Gx_RemHtrSrcTags[1]_AlarmShutdn_PlcErr	INP	103031	boolean	N/A	RO	PLC error detected - Shutdown
Gx_RemHtrSrcTags[1]_AlarmShutdn_ProcBlwrOL	INP	103032	boolean	N/A	RO	Process blower overload- Shutdown (HAD only)
Gx_RemHtrSrcTags[1]_AlarmShutdn_VfdFault	INP	103033	boolean	N/A	RO	Variable speed drive fault - Shutdown (HAD only)
Gx_RemHtrSrcTags[1]_AlarmShutdn_StartupFailedBlwr	INP	103034	boolean	N/A	RO	Startup failed at process blower - Shutdown (HAD only)
Gx_RemHtrSrcTags[1]_AlarmShutdn_StartupFailedIso	INP	103035	boolean	N/A	RO	Startup failed at isolation contactor - Shutdown
Gx_RemHtrSrcTags[1]_AlarmShutdn_StartupFailedPID	INP	103036	boolean	N/A	RO	Startup failed at PID enable - Shutdown
Gx_RemHtrSrcTags[1]_AlarmShutdn_StartupFailedIntrLks	INP	103037	boolean	N/A	RO	Startup failed at interlocks - Shutdown (CGT only)
Gx_RemHtrSrcTags[1]_AlarmShutdn_StartupFailedPurge	INP	103038	boolean	N/A	RO	Startup failed at purge - Shutdown (CGT only)
Gx_RemHtrSrcTags[1]_AlarmShutdn_StartupFailedPltIgn	INP	103039	boolean	N/A	RO	Startup failed at pilot ignition - Shutdown (CGT only)
Gx_RemHtrSrcTags[1]_AlarmShutdn_StartupFailedMainIgn	INP	103040	boolean	N/A	RO	Startup failed at main ignition - Shutdown (CGT only)
Gx_RemHtrSrcTags[1]_AlarmShutdn_DelAirCommFlt	INP	103041	boolean	N/A	RO	Delivery air VFD communications fault - Shutdown (HAD only)
Gx_RemHtrSrcTags[1]_AlarmShutdn_CombAirCommFlt	INP	103042	boolean	N/A	RO	Combustion air VFD communications fault - Shutdown (CGT only)
Gx_RemHtrSrcTags[1]_AlarmShutdn_BurnerCommFlt	INP	103043	boolean	N/A	RO	Burner control communications fault - Shutdown (CGT only)
Gx_RemHtrSrcTags[1]_AlarmShutdn_BurnerLockout	INP	103044	boolean	N/A	RO	Burner control lockout - Shutdown (CGT only)
Gx_RemHtrSrcTags[1]_AlarmPassive		103050 - 103070		N/A	RO	Remote heat source #1, passive alarm bools
Gx_RemHtrSrcTags[1]_AlarmPassive_DryMonLoTemp	INP	103050	boolean	N/A	RO	Drying monitor low temperature - Passive (Requires drying monitor option)
Gx_RemHtrSrcTags[1]_AlarmPassive_DryMonHiTemp	INP	103051	boolean	N/A	RO	Drying monitor high temperature - Passive (Requires drying monitor option)
Gx_RemHtrSrcTags[1]_AlarmPassive_DewPntHi	INP	103052	boolean	N/A	RO	Dewpoint high - Passive (Future dew point option)
Gx_RemHtrSrcTags[1]_AlarmPassive_HprLoLvl	INP	103053	boolean	N/A	RO	Drying hopper low level - Passive (Requires hopper level option)

DC-C Premium HMI/Remote tag list (Continued)

User_DC-C_Premium_Tags

Tag name	MB Type	MB Address	Data Type	UoM	Access	Notes
Gx_RemHtrSrcTags[1]_AlarmPassive_MatlRdy	INP	103054	boolean	N/A	RO	Material is ready to use - Passive (Requires drying monitor option)
Gx_RemHtrSrcTags[1]_AlarmPassive_DewPntFlt	INP	103055	boolean	N/A	RO	Dew point sensor fault - Passive (Future dew point option)
Gx_RemHtrSrcTags[1]_AlarmPassive_HprOutletRtdFlt	INP	103056	boolean	N/A	RO	Hopper outlet RTD fault - Passive (Requires set back option)
Gx_RemHtrSrcTags[1]_AlarmPassive_DryMonT1Flt	INP	103057	boolean	N/A	RO	Drying monitor T1 RTD fault - Passive (Requires drying monitor option)
Gx_RemHtrSrcTags[1]_AlarmPassive_DryMonT2Flt	INP	103058	boolean	N/A	RO	Drying monitor T2 RTD fault - Passive (Requires drying monitor option)
Gx_RemHtrSrcTags[1]_AlarmPassive_DryMonT3Flt	INP	103059	boolean	N/A	RO	Drying monitor T3 RTD fault - Passive (Requires drying monitor option)
Gx_RemHtrSrcTags[1]_AlarmPassive_DryMonT4Flt	INP	103060	boolean	N/A	RO	Drying monitor T4 RTD fault - Passive (Requires drying monitor option)
Gx_RemHtrSrcTags[1]_AlarmPassive_DryMonT5Flt	INP	103061	boolean	N/A	RO	Drying monitor T5 RTD fault - Passive (Requires drying monitor option)
Gx_RemHtrSrcTags[1]_AlarmPassive_DryMonT6Flt	INP	103062	boolean	N/A	RO	Drying monitor T6 RTD fault - Passive (Requires drying monitor option)
Gx_RemHtrSrcTags[1]_AlarmPassive_DryMonCommFlt	INP	103063	boolean	N/A	RO	Remote I/O communications fault - Passive (Requires drying monitor option)
Gx_RemHtrSrcTags[1]_AlarmPassive_TrueRateCommFlt	INP	103064	boolean	N/A	RO	TrueRate communications fault - Passive (Requires TrueRate option)
Gx_RemHtrSrcTags[1]_AlarmPassive_BurnInitFail	INP	103065	boolean	N/A	RO	Burner control initialization failed - Passive (CGT only)
Gx_RemHtrSrcTags[1]_AlarmPassive_LevelSensorFlt	INP	103066	boolean	N/A	RO	Continuous level sensor fault - Passive
Gx_RemHtrSrcTags[1]_AlarmPassive_SparePA_01	INP	103067	boolean	Y		Spare - Passive
Gx_RemHtrSrcTags[1]_AlarmPassive_SparePA_02	INP	103068	boolean	Y		Spare - Passive
Gx_RemHtrSrcTags[1]_AlarmPassive_SparePA_03	INP	103069	boolean	Y		Spare - Passive
Gx_RemHtrSrcTags[1]_AlarmPassive_SparePA_04	INP	103070	boolean	Y		Spare - Passive
Gx_RemHtrSrcTags[1]_MaintAlert		103071 - 103078		N/A	RO	Remote heat source #1, maintenance alert bools
Gx_RemHtrSrcTags[1]_MaintAlert_ProcHtrAlrt_01	INP	103071	boolean	N/A	RO	Check process heater - Maint. Alert (HTC, RW or HAD)
Gx_RemHtrSrcTags[1]_MaintAlert_CmbBrnrAlrt_02	INP	103072	boolean	N/A	RO	Check combustion burner - Maint. Alert (CGT only)
Gx_RemHtrSrcTags[1]_MaintAlert_InOutHosesAlrt_03	INP	103073	boolean	N/A	RO	Check inlet/outlet hoses - Maint. Alert (All)
Gx_RemHtrSrcTags[1]_MaintAlert_BlwrFltrAlrt_04	INP	103074	boolean	N/A	RO	Clean or replace blower filter - Maint. Alert (HAD only)
Gx_RemHtrSrcTags[1]_MaintAlert_CmbFltrAlrt_05	INP	103075	boolean	N/A	RO	Clean or replace combustion air filter - Maint. Alert (CGT only)
Gx_RemHtrSrcTags[1]_MaintAlert_FlameLensAlrt_06	INP	103076	boolean	N/A	RO	Clean flame detector lens - Maint. Alert (CGT only)
Gx_RemHtrSrcTags[1]_MaintAlert_SparkIgnAlrt_07	INP	103077	boolean	N/A	RO	Clean or replace spark igniter - Maint. Alert (CGT only)
Gx_RemHtrSrcTags[1]_MaintAlert_SpareAlrt_08	INP	103078	boolean	N/A	RO	Spare - Maint. Alert
Gx_RemHtrSrcTags[1]_Setpoints		403009 - 403023		MULTI	RW	Remote heat source #1, set point values
Gx_RemHtrSrcTags[1]_Setpoints_DelAirTempSp	HREG	403009	float	F/C	RW	Delivery air temperature set point, min to max
Gx_RemHtrSrcTags[1]_Setpoints_SetBkToTempSp	HREG	403011	float	F/C	RW	Setback function, setback to temperature set point (ProcMin-ProcSp)
Gx_RemHtrSrcTags[1]_Setpoints_SetBkActvtnSp	HREG	403013	float	F/C	RW	Setback function, activation hopper outlet temperature set point (ProcMin-ProcSp)
Gx_RemHtrSrcTags[1]_Setpoints_SetBkRstAtSp	HREG	403015	float	F/C	RW	Setback function, reset at temperature set point (ProcMin-SetBkToSp)
Gx_RemHtrSrcTags[1]_Setpoints_DelAirDewPntSp	HREG	403017	float	F/C	RW	Delivery air dew point set point (Future dew point option)
Gx_RemHtrSrcTags[1]_Setpoints_DelAirTempMaxSp	HREG	403019	float	F/C	RW	Delivery air temperature set point max limit, (min to 375F)
Gx_RemHtrSrcTags[1]_Setpoints_DelAirTempMinSp	HREG	403021	float	F/C	RW	Delivery air temperature set point min limit, (100F to max)
Gx_RemHtrSrcTags[1]_Setpoints_HprLevelSp	HREG	403023	float	%	RW	Hopper level set point, (60 - 100%)
Gx_RemHtrSrcTags[1]_Actuals		303024 - 303060		MULTI	RO	Remote heat source #1, actual values
Gx_RemHtrSrcTags[1]_Actuals_HtSrcStateAct	IREG	303024	short	N/A	RO	Heat source control state actual, (0 to 9) 0=Powering up 1=Standby 2=Waiting (on air flow) 3=Starting 4=Stopping 5=Running 6= Passive Alarm 7=Shutdown Alarm 8=Comms Loss 9=Test mode
Gx_RemHtrSrcTags[1]_Actuals_DelAirTempAct	IREG	303030	float	F/C	RO	Delivery air temperature actual
Gx_RemHtrSrcTags[1]_Actuals_HprOutletTempAct	IREG	303034	float	F/C	RO	Hopper outlet temperature actual
Gx_RemHtrSrcTags[1]_Actuals_ProcOnTimeAct	IREG	303040	float	%	RO	Delivery air heater on-time actual, (0 to 100%)

DC-C Premium HMI/Remote tag list (Continued)

User_DC-C_Premium_Tags

Tag name	MB Type	MB Address	Data Type	UoM	Access	Notes
Gx_RemHtrSrcTags[1]_Actuals_DryMonT1Act	IREG	303050	float	F/C	RO	Drying monitor, position T1 temperature actual
Gx_RemHtrSrcTags[1]_Actuals_DryMonT2Act	IREG	303052	float	F/C	RO	Drying monitor, position T2 temperature actual
Gx_RemHtrSrcTags[1]_Actuals_DryMonT3Act	IREG	303054	float	F/C	RO	Drying monitor, position T3 temperature actual
Gx_RemHtrSrcTags[1]_Actuals_DryMonT4Act	IREG	303056	float	F/C	RO	Drying monitor, position T4 temperature actual
Gx_RemHtrSrcTags[1]_Actuals_DryMonT5Act	IREG	303058	float	F/C	RO	Drying monitor, position T5 temperature actual
Gx_RemHtrSrcTags[1]_Actuals_DryMonT6Act	IREG	303060	float	F/C	RO	Drying monitor, position T6 temperature actual

Remote heat source #2 register addresses	3101 - 3199
Remote heat source #3 register addresses	3201 - 3299
Remote heat source #4 register addresses	3301 - 3399
Remote heat source #5 register addresses	3401 - 3499
Remote heat source #6 register addresses	3501 - 3599
Remote heat source#7 register addresses	3601 - 3699
Remote heat source #8 register addresses	3701 - 3799
Remote heat source #9 register addresses	3801 - 3899
Remote heat source #10 register addresses	3901 - 3999
Remote heat source #11 register addresses	4001 - 4099
Remote heat source #12 register addresses	4101 - 4199
Remote heat source #13 register addresses	4201 - 4299
Remote heat source #14 register addresses	4301 - 4399
Remote heat source #15 register addresses	4401 - 4499
Remote heat source #16 register addresses	4501 - 4599