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USER GUIDE

UGD051-0414

Carousel Plus Dryer

W Series Models 150, 200, 300 and 400 with DC-T Controls

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

It's a good idea to record 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: UGD051-0414

Serial Number(s):

Model Number(s):

*Display firmware Version:

*Display Menu Version:

* Control Firmware Version:

✎ **NOTE:** Displayed upon initialization, during power up, or on a data tag inside the door.

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Introduction

Purpose of the User Guide

This User Guide describes the Conair Carousel Plus W Series Dryers and explains step-by-step how to install and 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 W Series as a Central Dryer

This manual incorporates the information necessary to use the Conair Carousel Plus W Series dryer as a central dryer. Throughout this manual, information particular to central dyer application of the W Series dryer is called out by the following treatment.

Central

This box will contain information or highlight system differences particular to the application of the W series dryer as a central dryer.

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 on this machine 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 technical personnel who are familiar with the construction, operation, and potential hazards of this type of machine.

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 machine serial tag and data plate.

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.

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 on this machine 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 moisture exhaust outlet.

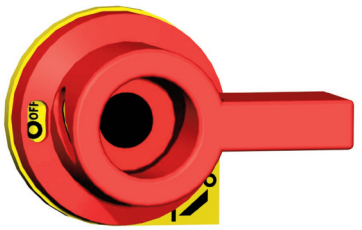
WARNING: Do not place aerosol, compressed gas or flammable materials on or near this equipment.

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 below. 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 to the dryer, 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 W Series Dryer?

The Carousel Plus W Series dehumidifying dryer produces hot, low-dewpoint air that removes moisture from hygroscopic plastics. The dryer pulls warm, moist air from a drying hopper and circulates it through a dehumidifying desiccant wheel. The dryer then heats the air to the drying temperature you selected and circulates it through the material in the hopper.

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

Typical Applications

1 Dryer on the floor; hopper on the throat.

2 Hopper on a floor stand; the dryer next to it.

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

Central

When supplied for central drying applications, the W series dryer is not equipped with a process heater. Therefore, as a central dryer, the W dryer will only supply dry air to the hoppers.

(Continued)

Typical Applications (continued)

The W Series Dryer can be used successfully in applications that require:

- A contamination-free drying environment.
- Drying temperatures within the ranges shown in the following table:

Model	Drying Temperature Range
Low temperature (with precooler)*	100° - 150°F {38° - 66°C}
Standard	150° - 240°F {66° - 116°C}
High heat (with aftercooler)*	150° - 375°F {66° - 191°C}
Low-high (with aftercooler & precooler)*	100° - 375°F {38° - 191°C}

* See page 3-13 and Appendix B and C.

- Throughput rates of 150 to 400 lbs {68.1 to 149.2 kg} per hour (some materials can be - run at a higher rate).
- Dewpoints of -40°F {-40°C}.

Use the aftercooler when:

- You are drying at temperatures over 240°F {116°C}.
- Throughput rates are less than 50% of the dryer's rated capacity.
- You are pre-drying material at temperatures over 150°F {66°C}

Standard Dryer Features

- Dewpoint monitor / dewpoint control
- Audible and visual alarm
- Temperature setback

How It Works

The W dryer achieves continuous, closed loop drying by passing air simultaneously through two heaters and a continuously rotating desiccant wheel.

The Process (Drying) Cycle

The process blower pulls moist air from the top of the drying hopper. The air passes through the process filter and aftercooler into the desiccant wheel, where moisture is removed. The now dry air moves through the optional precooler (if installed) and process heater, where it is heated to the drying temperature selected by the operator. The hot, dry air is delivered to the hopper where a spreader cone evenly distributes the air through the material.


Central

The Process (Drying) Cycle

The process blower pulls moist air from the top of the drying hopper. The air passes through the process filter and aftercooler, then into the desiccant wheel, where moisture is removed. The dry air is delivered to the hopper (after it passes through the optional precooler, if installed) where a spreader cone evenly distributes the air through the material.

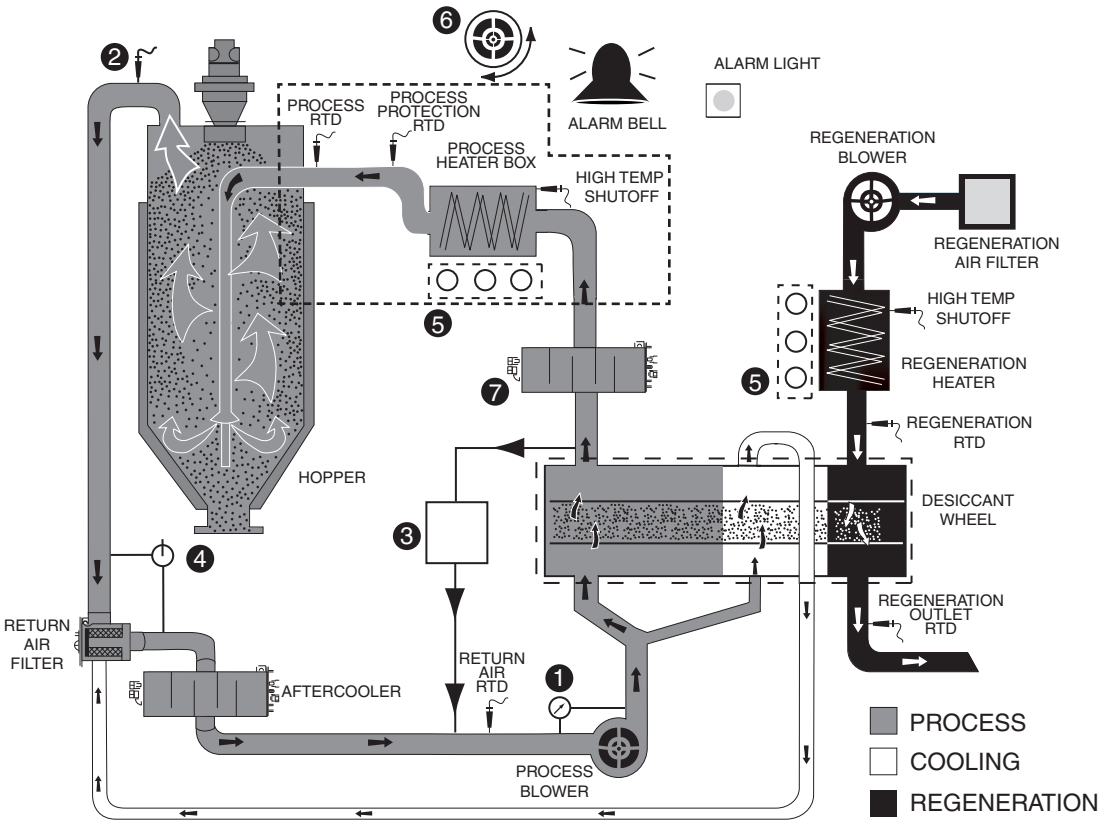
The Regeneration Cycle

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 wheel. The hot air purges moisture from the desiccant. The moist air is blown out the exhaust at the back of the dryer.

The Cooling Cycle

Regenerated desiccant must be cooled before it rotates back into the process cycle. The process blower pushes a small amount of air through the cooling section of the desiccant wheel. The cooling air then passes through the aftercooler and repeats the circuit.

How It Works (continued)



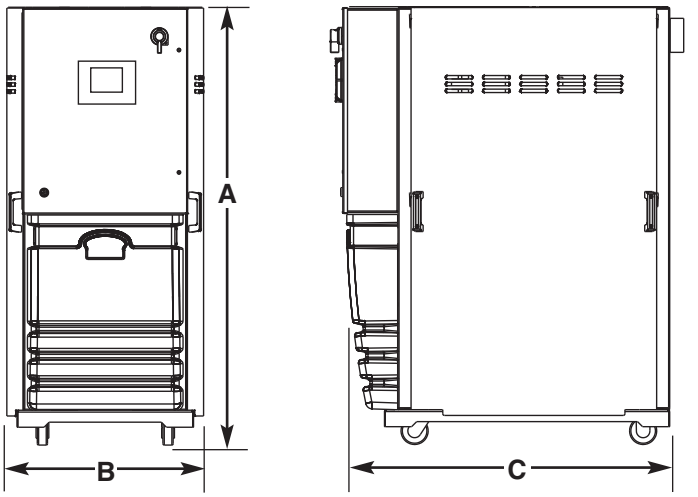
DRYER OPTIONS

1 PROCESS CFM MONITOR
2 SETBACK TEMPERATURE
3 DEWPOINT MONITOR / CONTROL
4 PROCESS FILTER STATUS
5 CURRENT METER
6 PHASE ROTATION PROTECTION
7 PRECOOLER

Central

The components identified by this type of box in the drawing are not supplied with the W series dryer when it is configured as a central dryer.

Specifications: Carousel Plus W Series Dryers



MODEL	W150	W200	W300	W400
Performance characteristics (with full hopper)				
Drying temperature†	All models 100° - 375°F {38° - 191°C} with options			
Dew point	All models -40°F {-40°C}			
Dimensions inches {cm}				
A - Height	64.3 {163.3}			
B - Overall width	29 {73.7}			
C - Depth	51.5 {130.8}			
Outlet/inlet tube size OD	2.5 {63.5}	5.0 {127.0}	5.0 {127.0}	5.0 {127.0}
Weight lbs {kg}				
Standard dryer installed	600 {272}	660 {300}	710 {322}	760 {345}
Voltage - Full load amps Standard/Central drying				
230 V/3 phase/60 Hz	47.1 / 16.7	57.6 / 19.9	67.7 / 30.0	N/A
400 V/3 phase/50 Hz*	23.4 / 8.9	32.1 / 10.4	37.9 / 16.2	64.5 / 21.1
460 V/3 phase/60 Hz	21.0 / 8.4	28.9 / 10.0	34.0 / 15.1	56.3 / 18.6
575 V/3 phase/60 Hz	16.8 / 6.7	23.7 / 8.6	27.3 / 12.2	43.2 / 13.0
Water requirements	{for aftercooler or optional precooler}†			
Recommended temperature‡	45° - 85°F			
Water flow gal./min. {liters/min.}	3 {11.4}			
Water connections NPT	3/4 inch NPT			

SPECIFICATION NOTES:

* 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.

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

APPLICATION NOTES:

All dryers are supplied with an aftercooler as standard. The aftercooler reduces the temperature of the return air from the drying hopper, improving the efficiency of the desiccant. The aftercooler must be connected with the proper water flow rate and temperature to attain the rated 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 Heater Pack mounted on the hopper and controlled from the dryer.

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.

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Carousel Plus W Series Dryer Options

- **Volatile trap** (only in conjunction with aftercooler) - The volatile trap is recommended if drying materials that produce volatile that condense into a waxy or oily residue and/or if the material contains excessive fines.

- **Precooler** - The precooler reduces the temperature of air flow after the desiccant wheel and before the process heater.

- **Filter check** - The Filter check sensor will activate a passive alarm when the process filter is clogged or needs to be replaced.

- **Heater current monitor** - The heater current monitor measures the total amperage across both the process and regeneration heaters and the pre-determined power consumption values for the blowers and the control.

- **CFM monitor** - The CFM monitor measures the cubic feet per minute of airflow across the inlet/outlet of the process blower.

- **DeviceNet or SPI communications** - Allows the dryer to be networked to industrial control systems. DeviceNet communications are standard. Alternate communications are available.

(Continued)

SECTION
3

Installation

Unpacking the Boxes

The Carousel Plus W series dryer comes in one to four boxes, depending on the model and options ordered. The boxes could include (depending on the options selected):

- Carousel Plus W series dryer
- Delivery air hose - 10 ft {3.05 m} - Insulated with High Heat option.
- Return air hose - 10 ft {3.05 m}
- Process RTD
- Setback RTD
- User manual

1 **Carefully remove the dryer and components** from their shipping containers. Note that the dryer is secured to its shipping container with straps that pass through the bottom of the dryer frame.

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

3 **Open the side panel and remove the cable tie securing the desiccant wheel.** *See Installation section entitled, Removing the cable tie from the desiccant wheel.*

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

5 **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.

6 **You are now ready to begin installation.**
Follow the preparation steps on the next page, then choose one of the four mounting options:
- Dryer on the floor; hopper on a floor stand (see page 3-5).
- Dryer on the floor; hopper machine mounted
- Central dryer, with ResinWorks system.

Preparing for Installation

The Carousel Plus W 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 for the correct amps, voltage, phase, and cycles. Field wiring should be completed by qualified personnel to the planned location for the dryer. All electrical wiring should comply with your region's electrical codes.

❒ **A source of water, if you have an aftercooler and/or optional precooler.** The W dryer's aftercooler and optional precooler require 3 gals./min. {11.4 liters/min.} tower, city, or chiller water at temperatures of 45° to 85°F {7° to 29°C}. Pipe should be run 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.** You should maintain 24 in. {61 cm} clearance on all sides of the dryer.

➨ Material and conveying lines installed. If you plan to use vacuum or compressed air loaders to fill the hopper, install conveying lines to the drying hopper location.

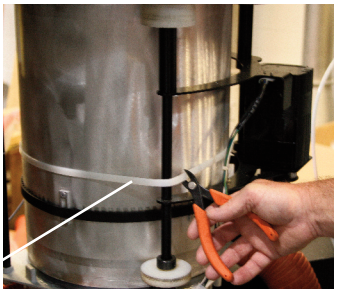
Positioning the Dryer on the Floor

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

2 Position the dryer on the floor near the processing machine. Make sure the location allows for the connection of all hoses.

Removing the Cable Tie from the Desiccant Wheel

1 Open the dryer side panels and remove the cable tie securing the desiccant wheel, if it was not done while unpacking the dryer.

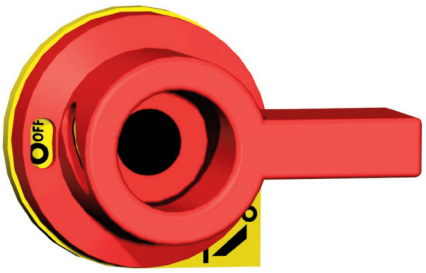


Desiccant cable tie

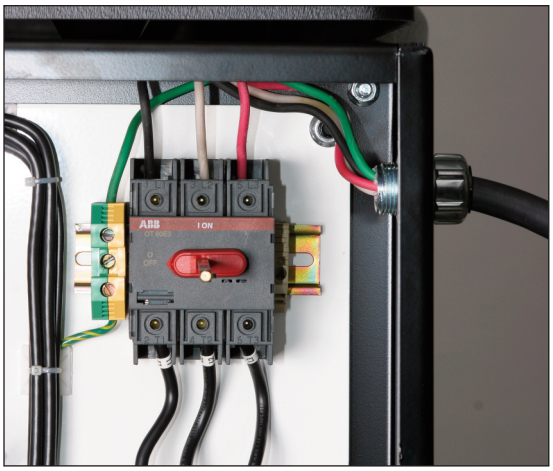
Connecting the Main Power

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 Page 1-6 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 or the rear of the dryer. (The dryer's electrical wire connection location was a factory option and may be connected through the front or the rear of the dryer.) Secure the wire with an appropriate strain relief.



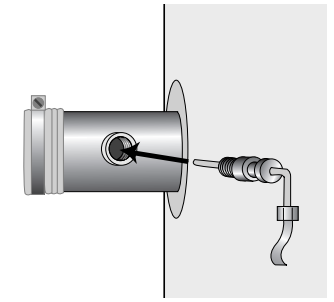
IMPORTANT: Always refer to the wiring diagrams that came with your dryer before making electrical connections.

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

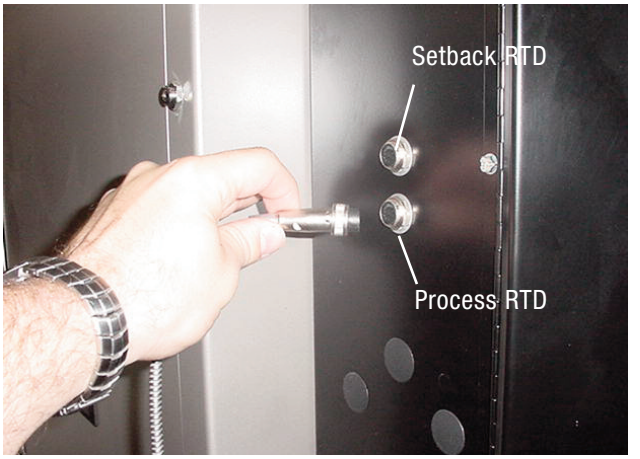
4 **Connect the ground wire** to the ground lug as shown in the photo.

Connecting the Process RTD Probe

The process 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 fitting 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

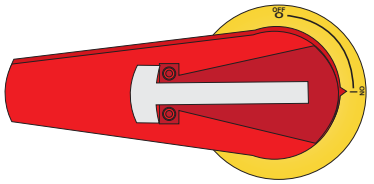
When configured as a central dryer, monitoring the drying air temperature is not necessary since there is no process heater in the system. Therefore, installation and connection of the RTD probe and/or setback probe is not applicable.

Connecting the Setback RTD

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 fitting 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.

Checking for Proper Air Flow

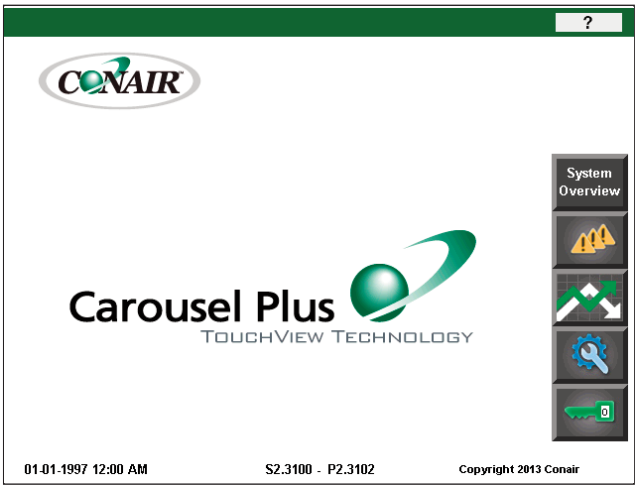


IMPORTANT: This procedure must be performed before loading material into the hopper.

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.

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



Central

When configured as a central dryer, the drying temperature can not be set since there is no process heater in the system.

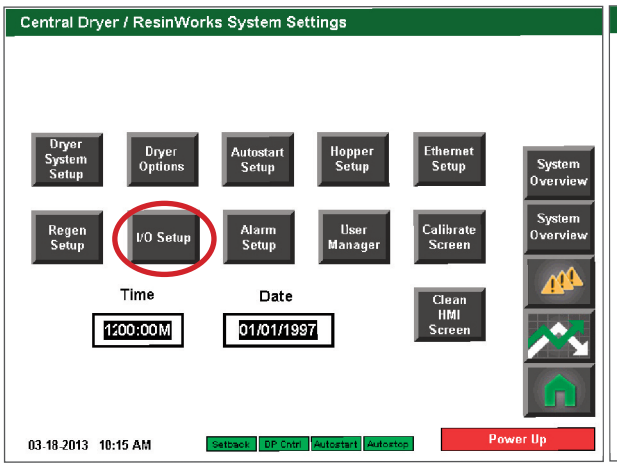
2 **From the Home Screen , press the "Setup" button.**

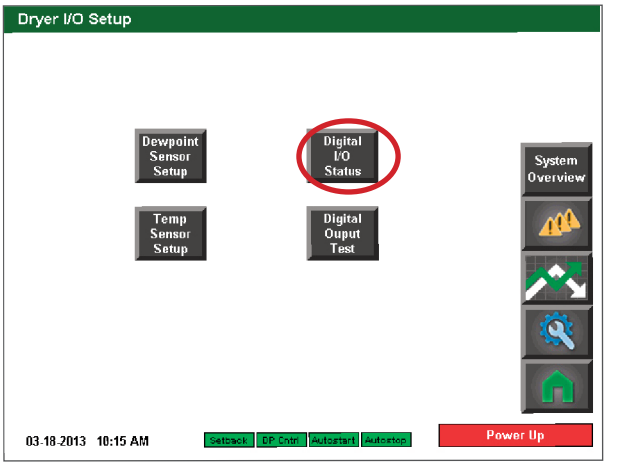
WARNING: All wiring, disconnects, and fuses should be installed by qualified electrical technicians in accordance with electrical codes in your region. Always maintain a safe ground. Do not operate the equipment at power levels other than what is specified on the machine serial tag and data plate.

Checking for Proper Air Flow (continued)

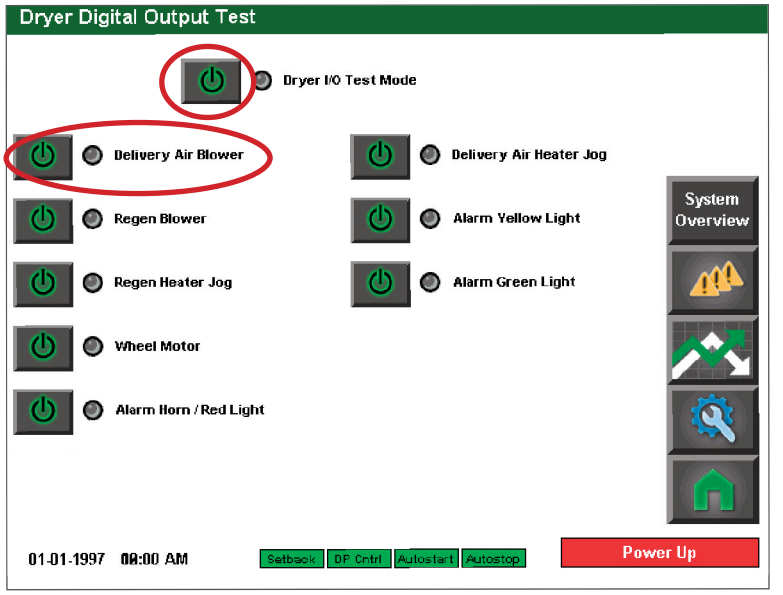
3 **Press the "I/O Setup" button and then the "I/O Test" button.**

4 **Press the power button beside "Dryer I/O Test Mode" to enable test mode.**





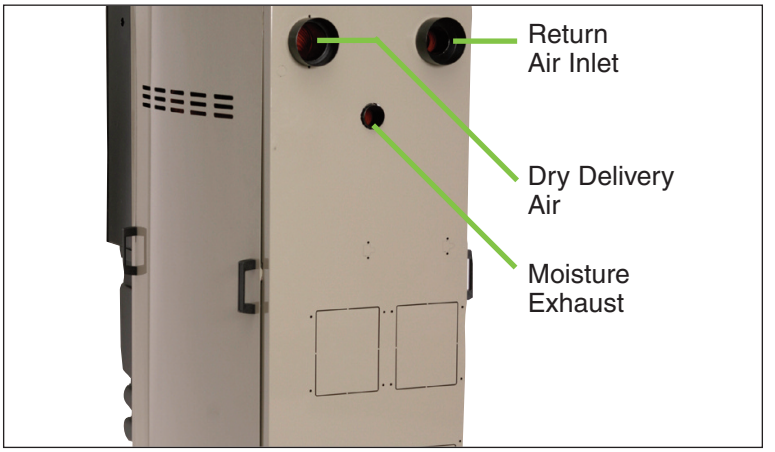
5 **Press the "Delivery Air Blower" power button to start the blower. Press the button again after about one second to stop the blower.**



NOTE: On initial test (first time in Dryer I/O Test Mode) the process blower will automatically start. Press the button beside "Delivery Air Blower" to stop the blower.

6 **Hold your hand near the delivery air outlet.** You should feel air blowing out of the outlet.

CAUTION: Hot surface Do not place your hand directly on the delivery air outlet. The outlet and the air can get hot enough to burn your hand.



7 If air flow is incorrect disconnect power, follow proper lockout procedures and swap any 2 of the 3 main power wires.

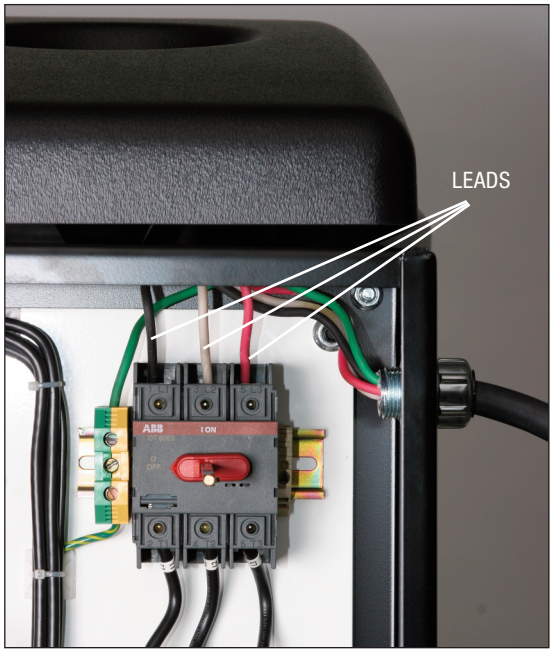
(Continued)

Checking for Proper Air Flow (continued)

INSTALLATION NOTE: Models 150, 200, 300, and 400

These models use a three-phase process blower. If the dryer shuts down and a Process Loop Break shutdown alarm is indicated within the first few minutes of operation, check for proper air flow or check the Process RTD for proper installation.

If the air flow is reversed, the process 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.



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.

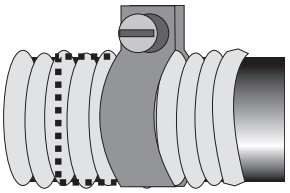
Connecting the Air Hoses

Using the two flexible hoses provided, connect the inlets and outlets of the drying hopper to the dryer. If you have positioned the dryer on the floor or mounted it to an optional floor stand, make sure the dryer is located as close as possible to the hopper to reduce heat loss. (10 ft {3.05 m} of hose supplied)

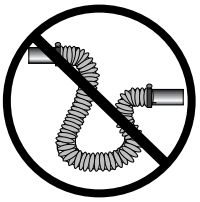
NOTE: If you have ordered an insulated hose, it should be installed between the dryer outlet and the hopper inlet, see step 2.

1 **Attach one hose** from the return air inlet of the dryer to the return air outlet from the top of the hopper.

2 **Attach one hose** from the delivery air outlet of the dryer to the delivery air inlet of the hopper.



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

NOTE: Water to cooler should be turned off when the dryer is not running to prevent condensation.

Connecting the Dryer to the Hopper

W 150 has a 2 1/2 inch {63.5 mm} inlet and outlet hose connections.
W 200, W 300 and W 400 have a 5 inch {127 mm} inlet and outlet hose connections.

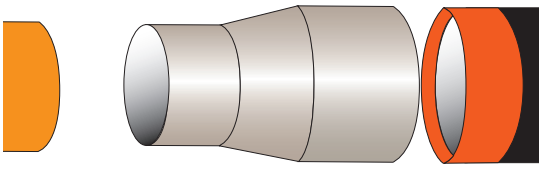
If your dryer hose connection and your hopper hose connection are not the same size, you will need a hose adapter. Contact Conair Parts 1-800-458-1960.

Connecting Air Hose Adapters

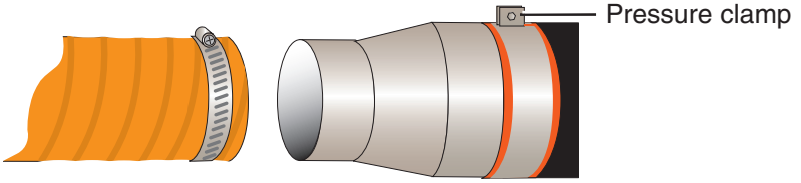
Depending on the hopper you purchased you may need to install an air hose adapter to connect the hopper to your dryer.

To connect the air hose adapter:

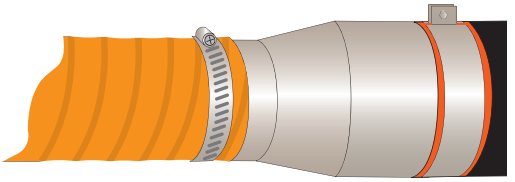
1 **Place high temperature gasket half way down over the dryer outlet to the hopper.**



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.**



(Continued)

Connecting the Aftercooler (Optional)

The aftercooler and 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}. But the water flow should be at least 3 gal/min {11.4 liters/min}. See Appendix B for installation and water connection instructions for the optional precooler.

1 **Secure the aftercooler assembly in the aftercooler housing** using the six screws.

2 **Connect the water supply line to the aftercooler inlet.** If a manual shut off valve is used, it should be mounted on the inlet line.

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

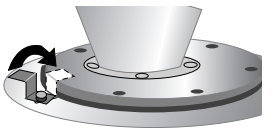
TIP: Make the water supply and discharge / return connections with flexible hoses at least 24 in. {61 cm} long. This allows you to easily remove the aftercooler assembly for cleaning.

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.

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

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 receiver or loader for detailed installation instructions.



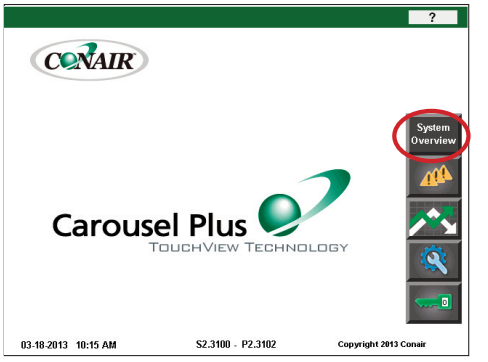
Testing the Installation

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

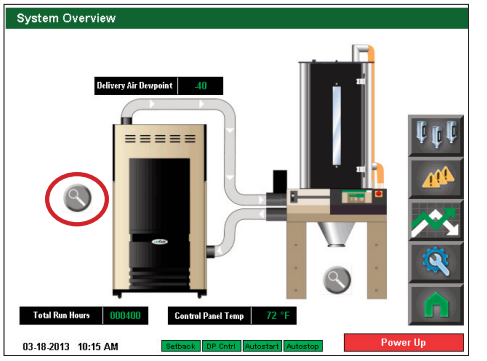
1 **Make sure there is no material in the hopper.** If you have mounted a loader or vacuum receiver on the hopper, disconnect the material inlet hose at the source or turn the loader off.

2 **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 lights will illuminate.

3 **From the Home Screen, press the "System Overview" button.**



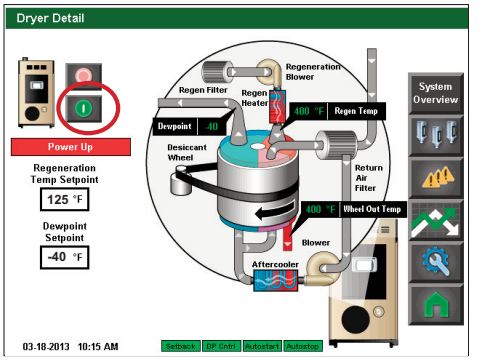
4 **From the Overview Screen, press the magnifying glass button beside the dryer. (Also referred to as the "Dryer Zoom" button.)**



Central

When configured as a central dryer, the drying temperature can not be set since there is no process heater in the system.

5 **From the Dryer Screen, verify that set-points are correct, and press the dryer start button.**



(Continued)

Testing the Installation (continued)

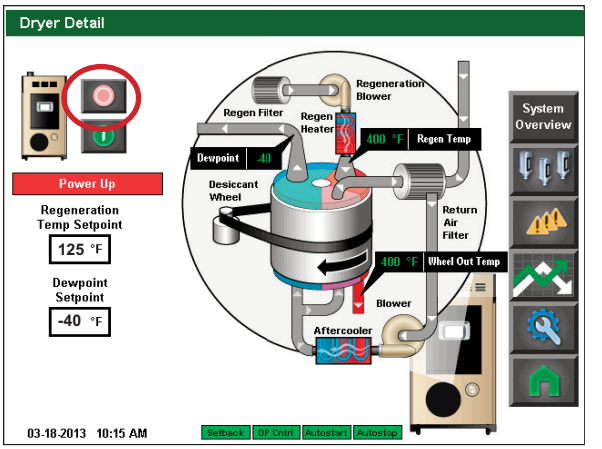
If everything is installed correctly:

- 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

IMPORTANT: Be sure the cable tie has been removed from the desiccant wheel.

6 **From the Dryer Detail screen, press the dryer stop button.**
If everything is installed correctly:

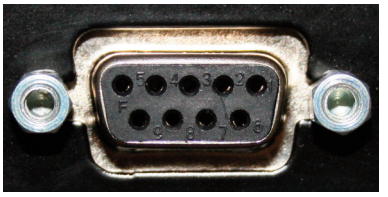
- The blowers will continue running as needed to cool the heaters. (Until regeneration heaters are less than 150°F {66°C}.)



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.*

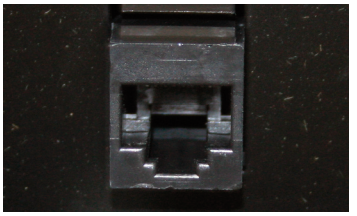
Using Communications (Optional)

To use the optional Modbus, Ethernet, SPI or standard DeviceNet communications, see the Addendum for hardware installation and configuration.



SPI connection

DeviceNet connection



Ethernet connection

NOTE: These communications can be left disconnected, if not in use.

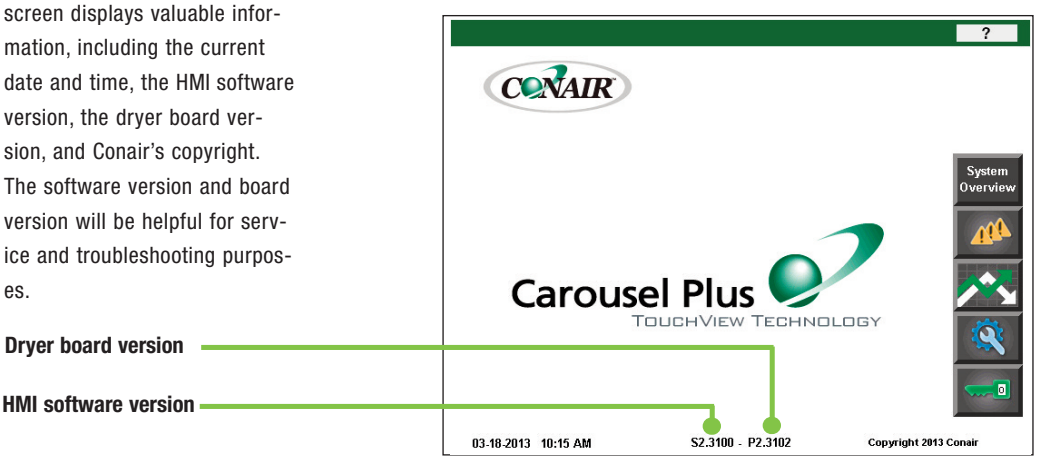
SECTION
4

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, the dryer board version, and Conair's copyright. The software version and board version will be helpful for service and troubleshooting purposes.



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.

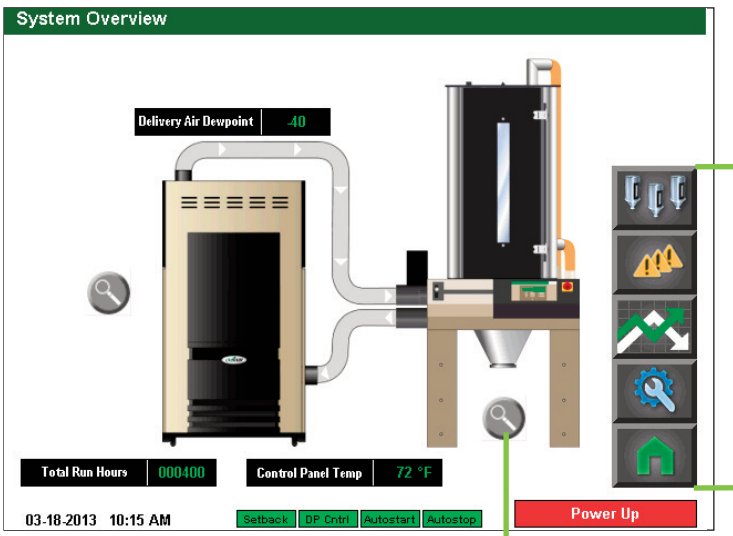
Stand alone dryer

Central or ResinWorks dryer

Your DC-T Carousel Plus Dryer Control has been configured at the factory based on the configuration you chose when placing the order. The DC-T 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 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-T control screens by touching any navigation "buttons" and/or magnifying glass icons.



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

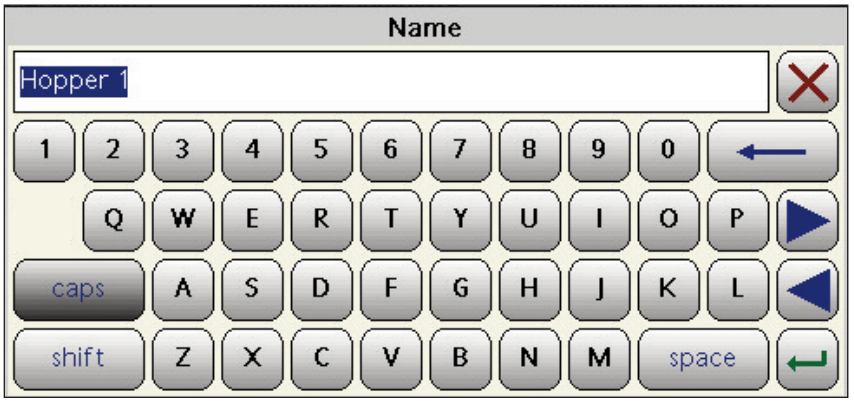
Magnifying Glass Icons
Touching the magnifying glass icons will take the user to screens that contain detailed information about the system component selected.

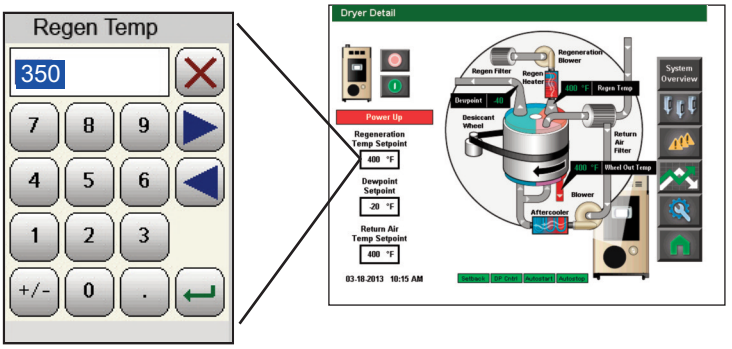
(continued)

How to Navigate the Control Screens

(continued)

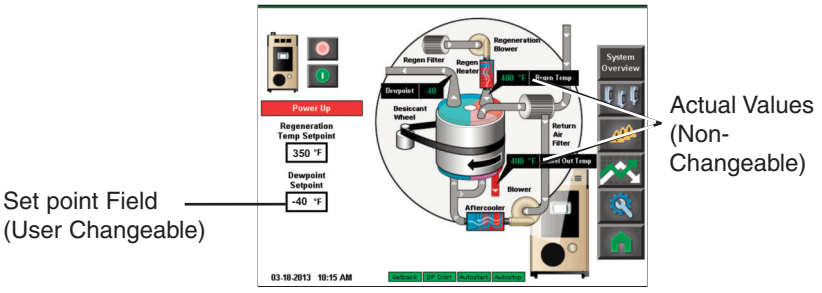
The user name, password and other information can be entered using the pop-up keyboard window that appears when an appropriate field is touched.





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

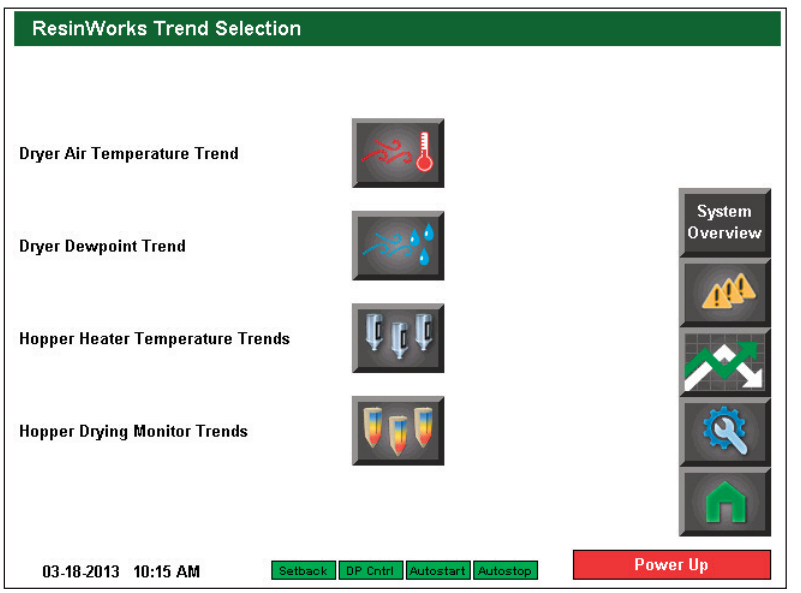
Set points can be entered within fields with a heavy black boundaries. Values shown within colored boxes are "actual" values and can not be changed.



(continued)

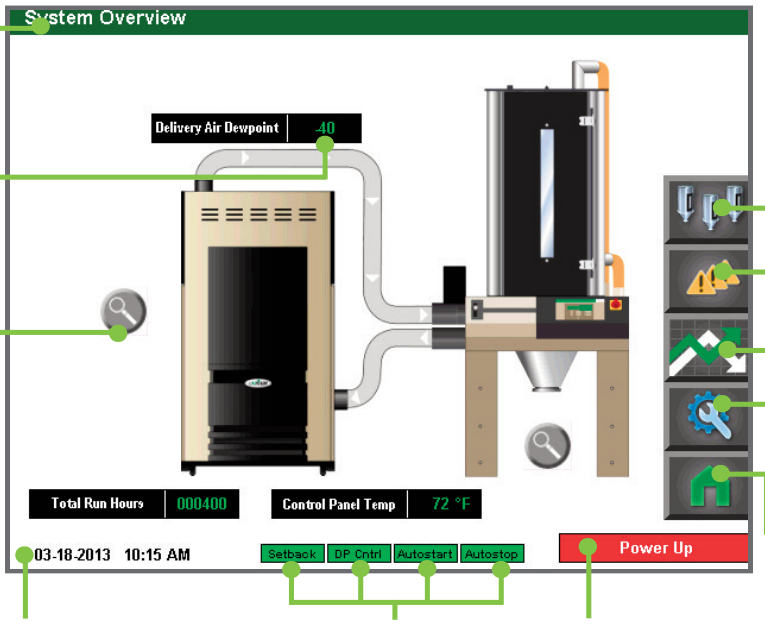
How to Navigate the Control Screens (continued)

All beveled grey buttons on the DC-T 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-T Control Panel

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



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.

Magnifying glass / "Zoom button"
Use these buttons to zoom to more information about the equipment. In this example, this Dryer Zoom button takes you to the ResinWorks Dryer screen.

Hopper Selection button
Go to the Hopper Selection screen.

Alarms button
Go to the Alarms area.

Trending buttons
Go to the Trend Selection screen.

Setup button
Go to the Setup screen.

Home button
Go to the Home screen.

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

Enabled Options
This area displays icons to let you see what options are currently being used. For example, this dryer is using the Temperature Setback feature, the Dewpoint Control, and Autostart and Autostop.

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

NOTE: Depending upon which options were ordered or are enabled, different icons may appear as available or unavailable.

Help Overview button
Help for the current screen.

Previous button
Returns to the previous list of items.

Next button
Moves to the next list of items.

System Overview button
Go to the System Overview screen.

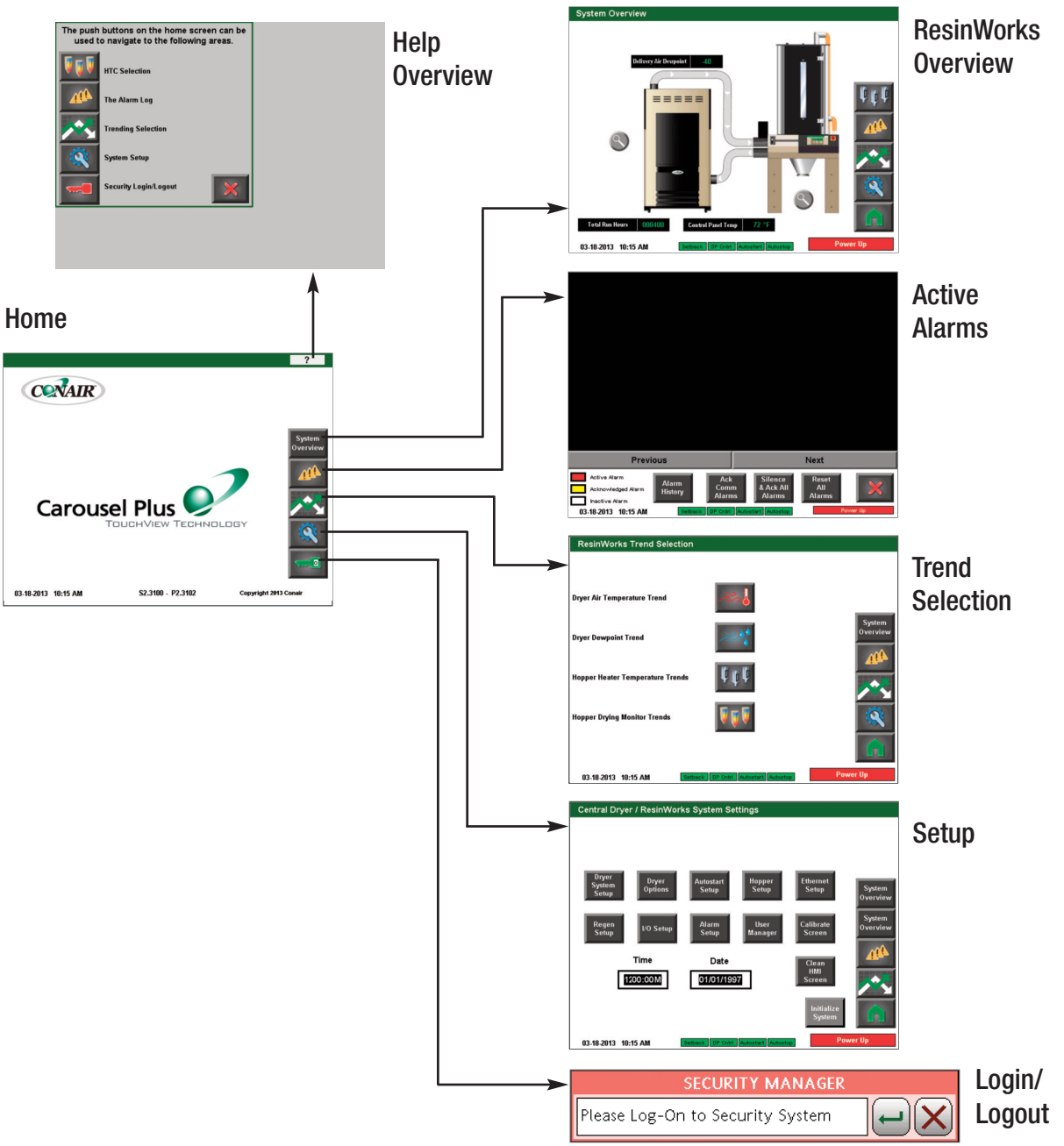
Login/Logout button
This button is used to login or log out as a user.

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

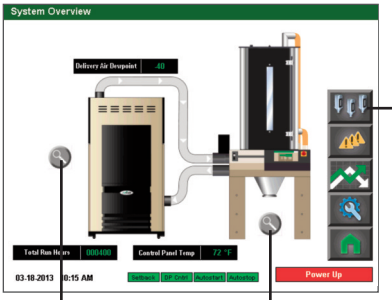
From the Home screen



Control Function Flow Charts

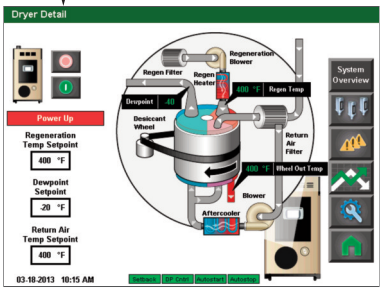
From the Overview screen

System Overview

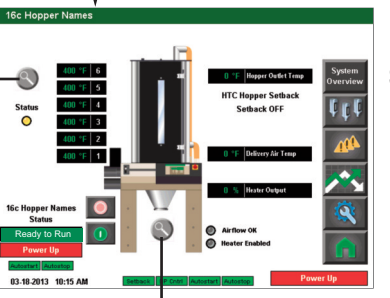


Hopper Selection

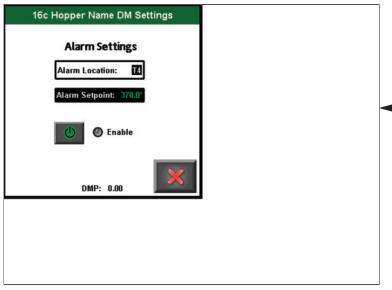
Dryer Detail



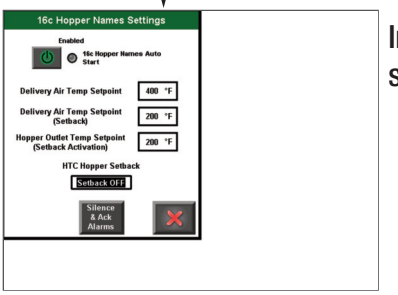
Individual hopper screen



Individual hopper DM3-e (if equipped) settings screen

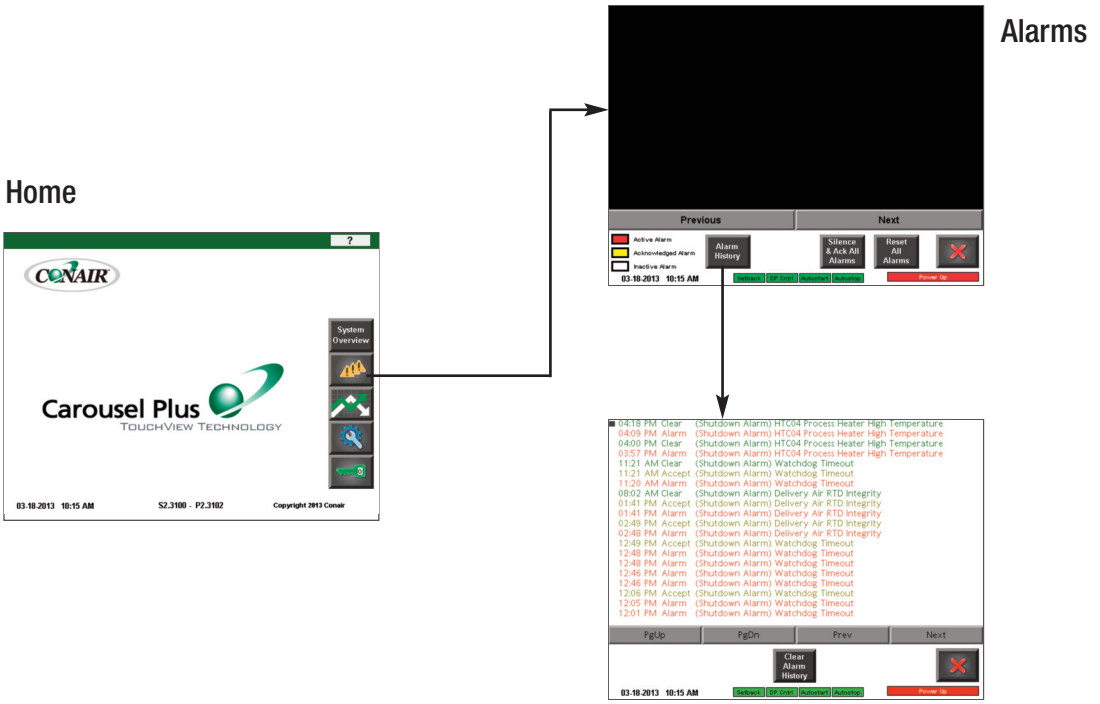


Individual hopper settings screen



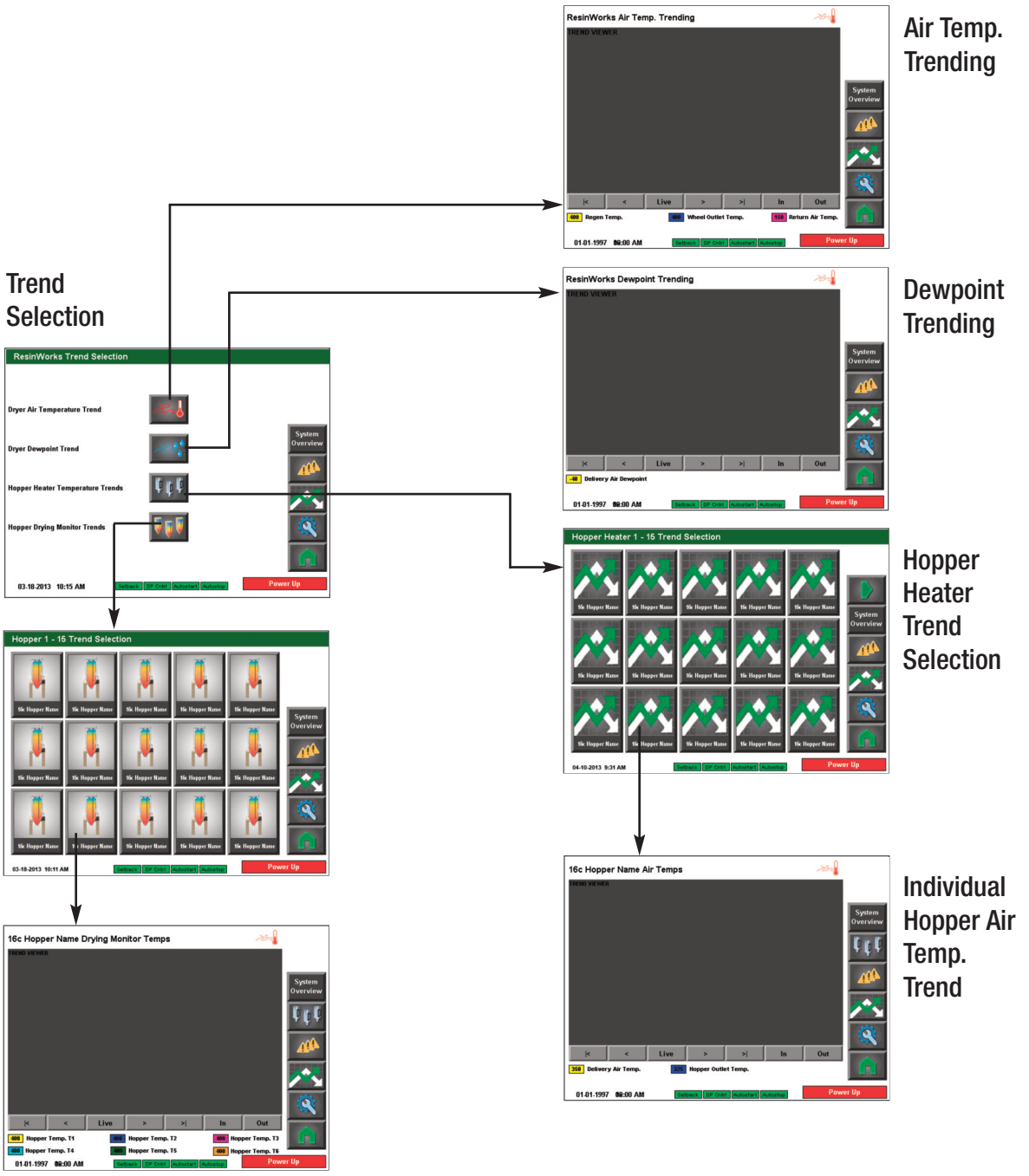
Control Function Flow Charts

From the Alarm screen



Control Function Flow Charts

From the Trend Selection screen



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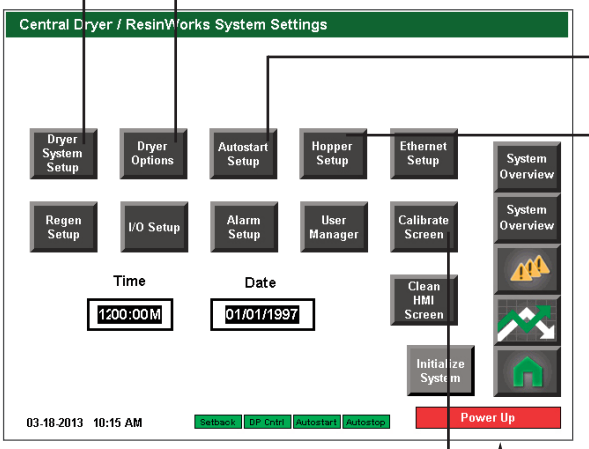
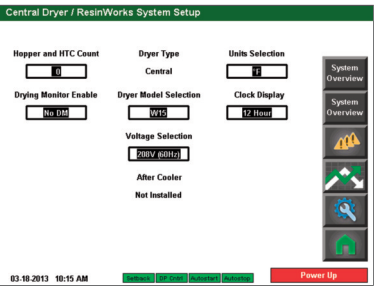
Control Function Flow Charts

From the Setup screen

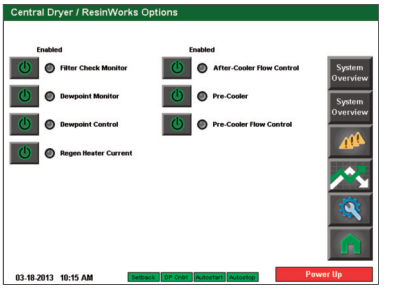
Setup



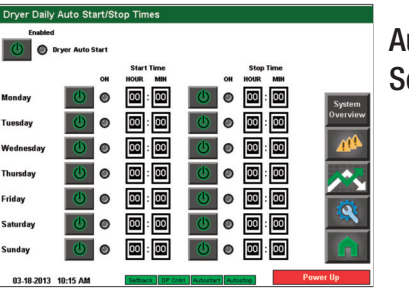
ResinWorks Setup

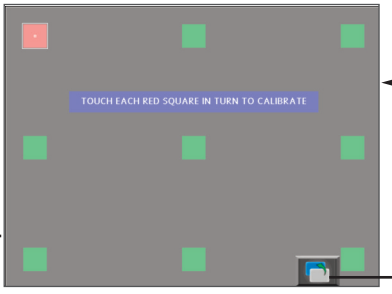


RW Dryer Options

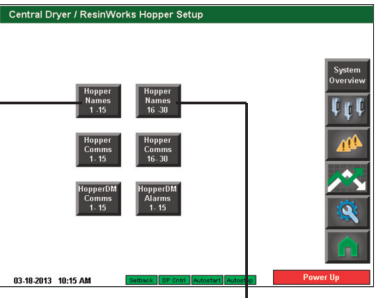


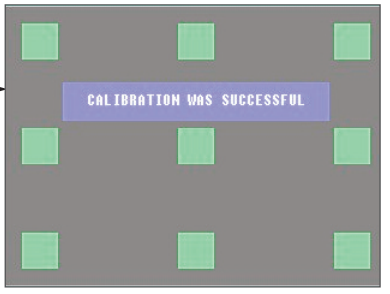
Autostart Setup



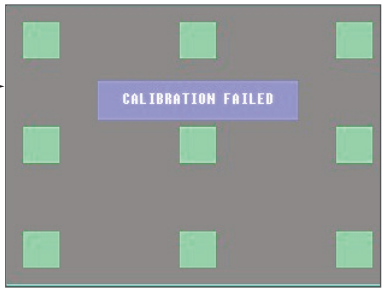


Hopper Setup



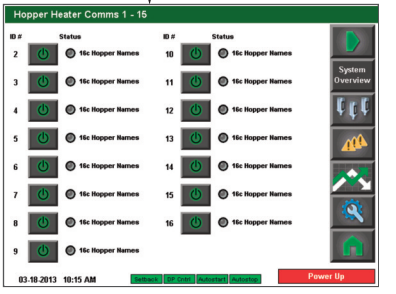


or



Hopper Names

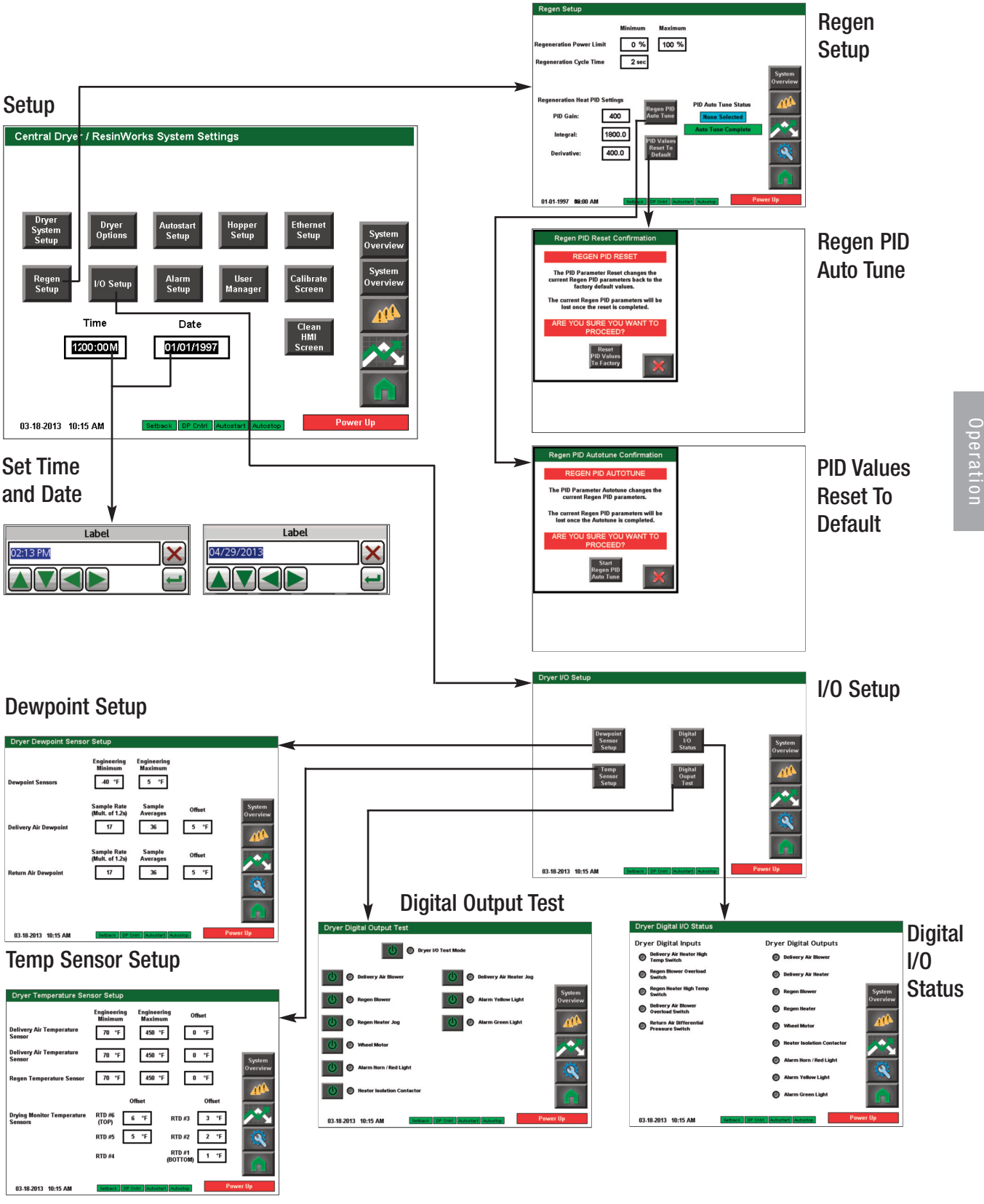
Hopper Comms



(Continued)

Control Function Flow Charts

From the Setup screen (continued)



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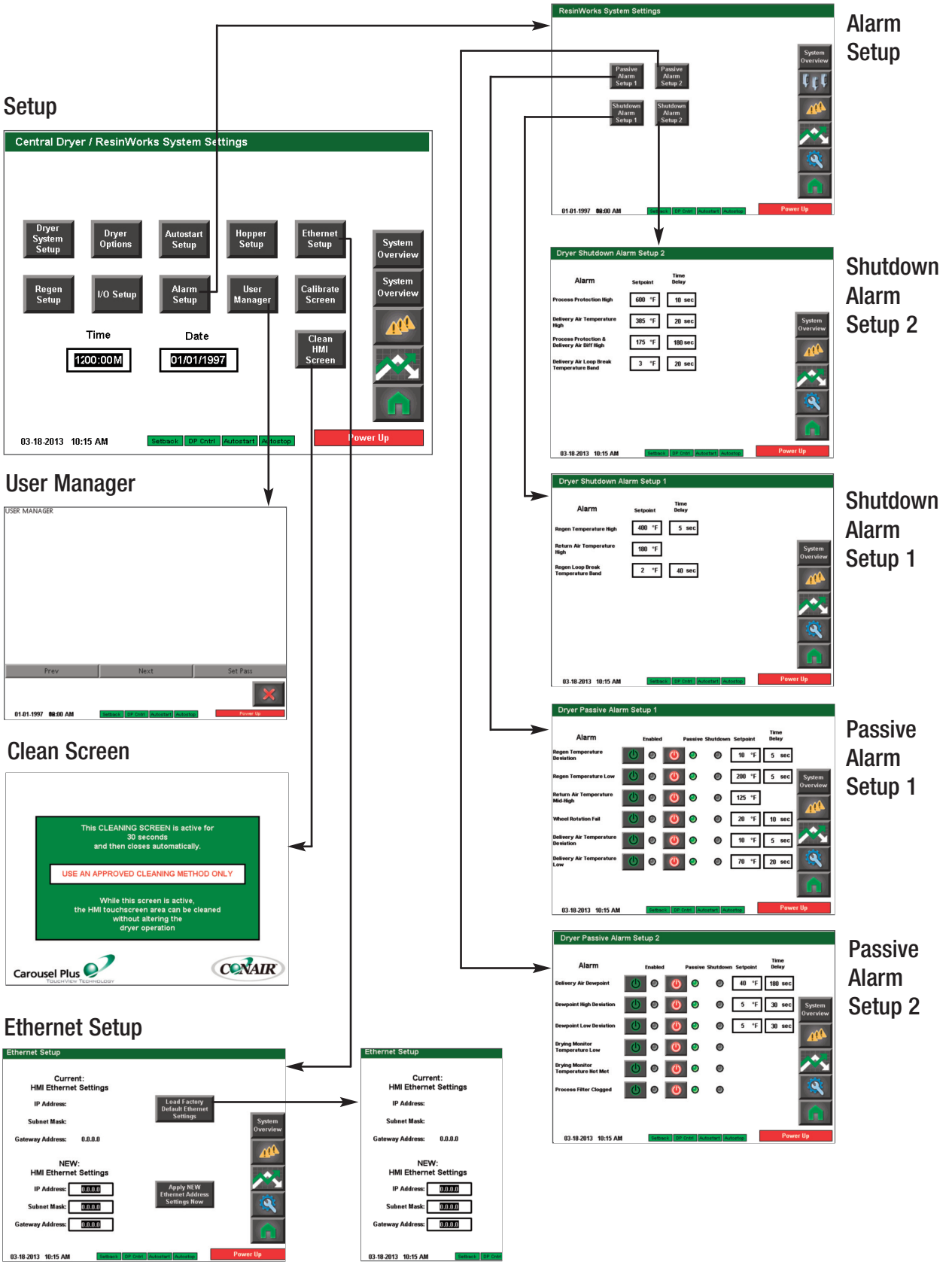
Control Function Flow Charts

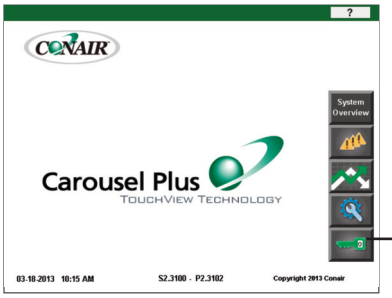
From the Setup screen (continued)



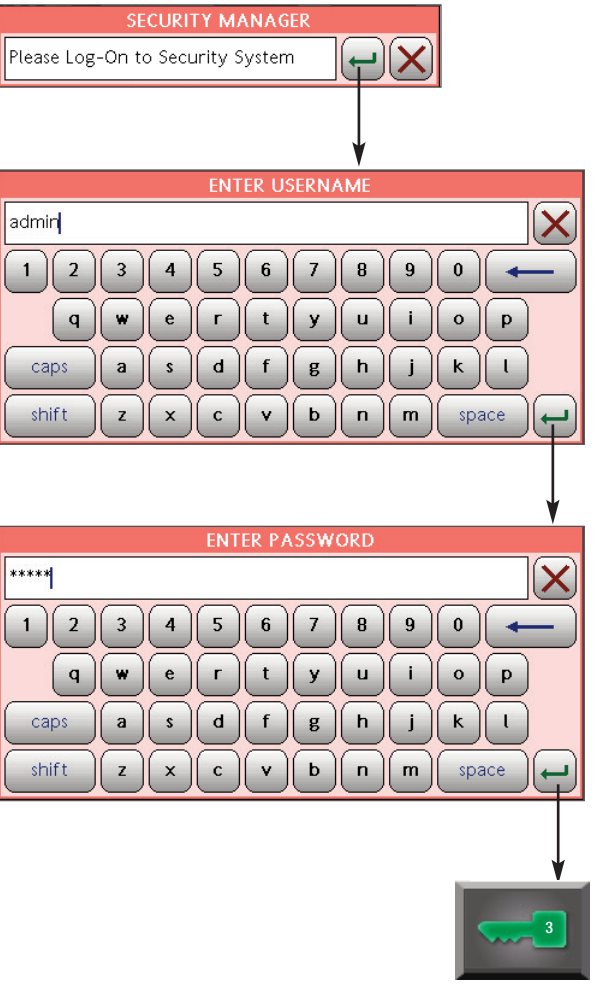
Control Function Flow Charts

From the Login/Logout screen

Home

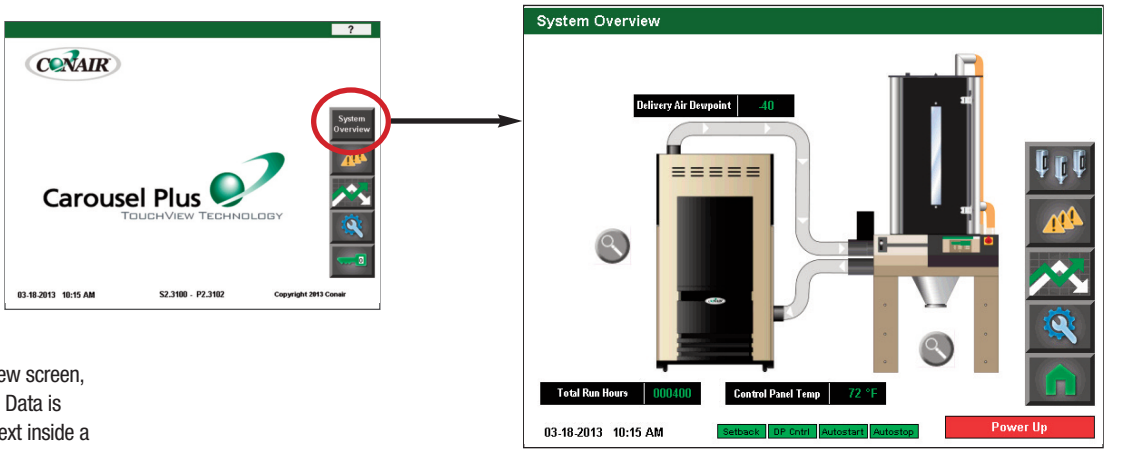


Security Manager



Control Function Descriptions - RW Configuration

System Overview Screen



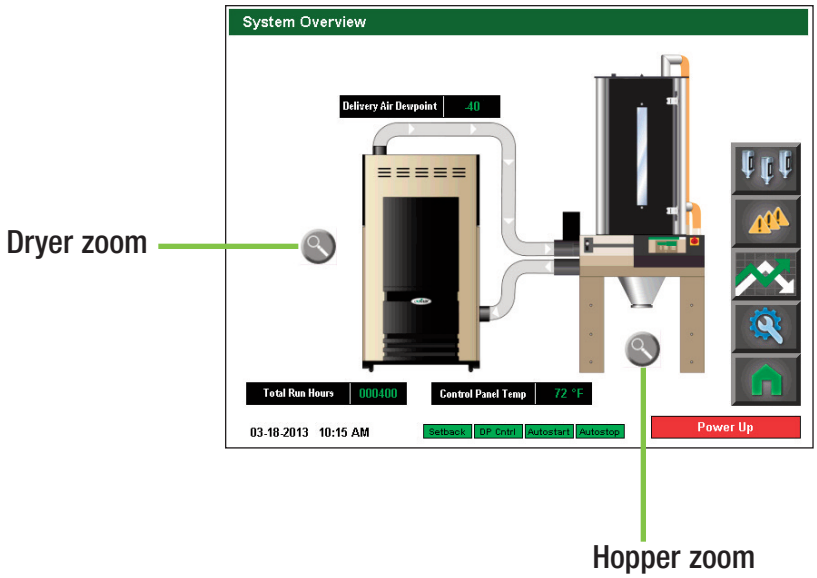
NOTE: On this Overview screen, live data is displayed. Data is displayed as colored text inside a solid black box. Set points boxes are white with heavy black borders. Set points can be changed, if the user has logged in at the proper security level, by pressing the set point boxes. This will launch 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.

To access the System Overview Screen:

1 Press the System Overview button located on the home screen.

The System Overview screen provides the user with the current live information concerning the delivery air dewpoint, the total run hours, and the control panel temperature.

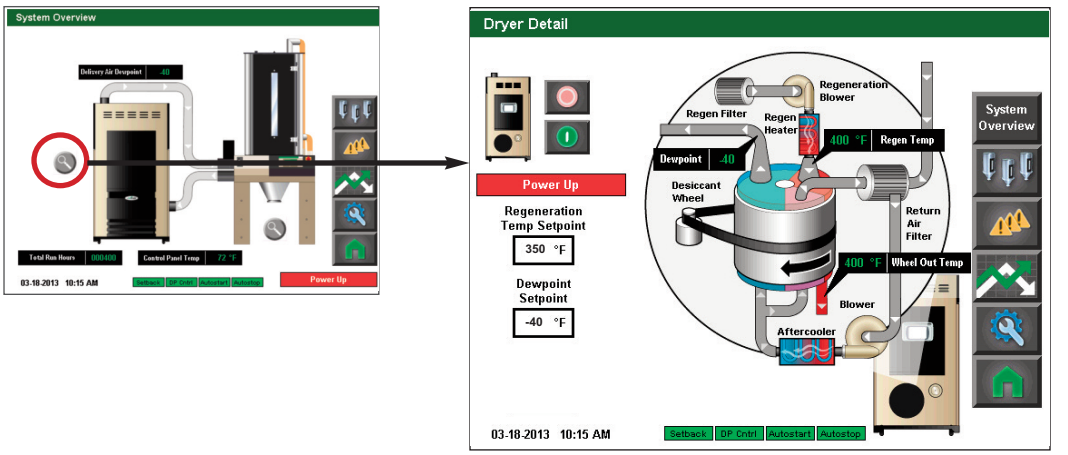
This screen also allows the user to use the zoom buttons and select the dryer detail information or the hopper(s) detail information.



(continued)

Control Function Descriptions - RW Configuration (continued)

System Overview Screen



To access the System Overview screen:

1 **Press the Magnifying Glass (zoom) button** associated with the dryer on the System Overview screen.

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

- Regeneration Temperature (Regen. Temp)
- Return Air Temperature (Temp)
- Dewpoint
- Wheel Out Temperature (Temp)

It also tells the user the current status of the dryer blower (running or idle), as well as which features (Autostart, Autostop, Setback, Dewpoint Control) are enabled.

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

- Regeneration Temperature Setpoint - Conair recommends not changing this setting.
- Dewpoint Setpoint (optional)

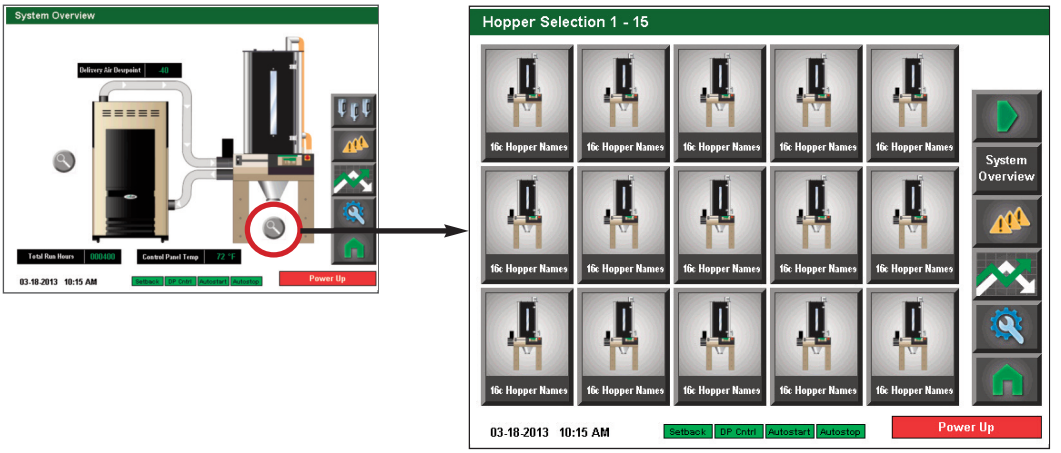
This screen also allows the user to start or stop the dryer. The user can also view the other system parameters, view alarms, view trending, view hopper settings, return to the System Overview screen, or return to the Home screen by pressing the applicable buttons on the right of the screen.

NOTE: Live data is displayed as colored text inside a solid black box. 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 Control Screens.* After the new set point value has been entered, press the **"Enter"** key to lock in the new set point.

(continued)

Control Function Descriptions - RW Configuration (continued)

Hopper Selection Screen

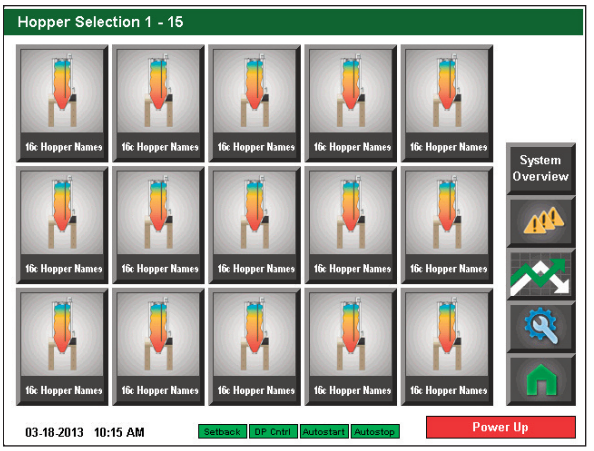


To access the Hopper Selection screen:

1 **Press the Magnifying Glass (zoom) button** associated with the hopper on the System Overview screen.

The Hopper 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.*

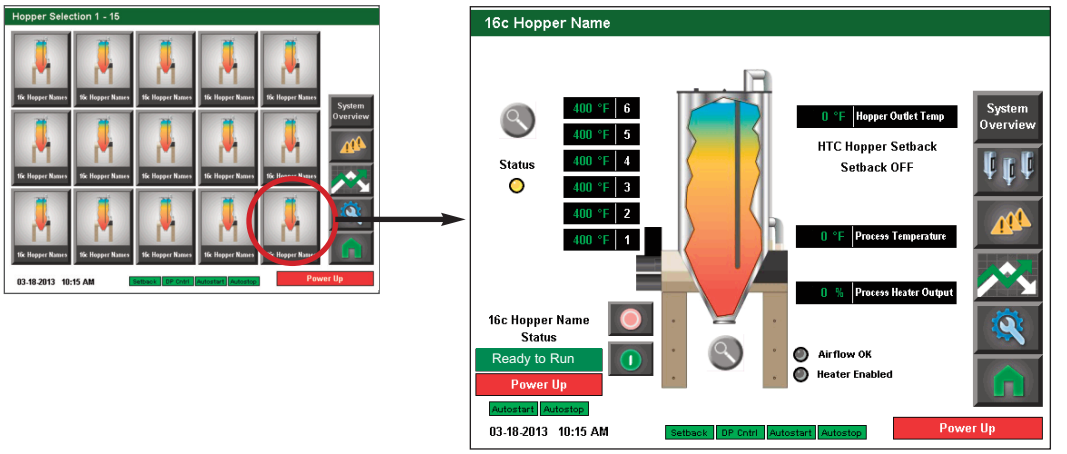
NOTE: Depending on which options your dryer has been configured with, and whether or not you have the DM3-e Drying Monitor enabled, your screens and icons may appear different. For example, if your ResinWorks system is DM3-e equipped, your hoppers will display as Drying Monitor hoppers.



(continued)

Control Function Descriptions - RW Configuration (continued)

Individual Hopper Screen



NOTE: Depending on which options your dryer has been configured with, and whether or not you have the DM3-e Drying Monitor enabled, your screens and icons may be different from what is shown here. For example, if your ResinWorks system is DM3-e equipped, your hoppers will display as Drying Monitor hoppers (as shown in these graphics).

To access the Individual Hopper screen:

1 Press the hopper button of the hopper you would like to view.

The Individual Hopper screen provides the user with the current live information concerning the processes within the hopper including:

- Current temperature in each of the six DM3-e sensor zones (if equipped).
- DM3-e status (if equipped).
- Hopper process heater status (if equipped).
- Hopper Outlet Temperature (Temp)
- Setback status (if equipped)
- Process Temperature
- Process Heater Output %
- Dryer Status
- Dryer features active (Setback, Dewpoint Control, Autostart, Autostop)

NOTE: *See the Appendix of this User Guide for more information about using the DM3-e Drying Monitor.*

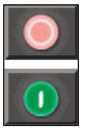
This screen allows the user to start or stop the hopper heater.

It also tells the user the current status of the dryer (running or idle), as well as which features (Autostart, Autostop, Setback, Dewpoint Control) are active.

If the user is logged-in at the proper security level, they can use the Magnifying Glass (zoom) button near the tempeature zones to access DM3-e Settings, and the Magnifying Glass (zoom) button near the bottom of the hopper to access the hopper setpoint settings.

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

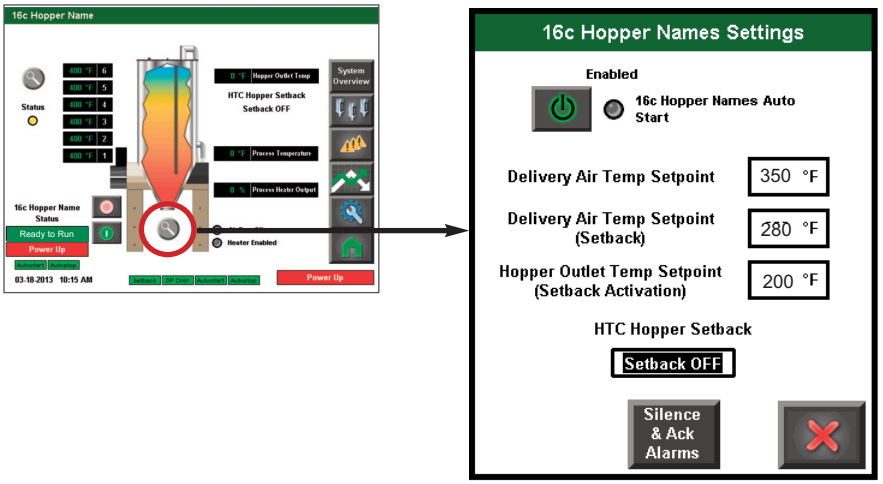
NOTE: In addition to starting and stopping the dryer, the Start and Stop buttons indicate whether the dryer can currently be started or stopped. A faded or not vibrant button indicates that the dryer is not ready/able to complete that function. For example, a faded Stop button indicates the dryer is 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, and whether or not you have the DM3-e Drying Monitor enabled, your screens and icons may appear different. For example, if your ResinWorks system is DM3-e equipped, your hoppers will display as Drying Monitor hoppers.

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.

To access the Hopper Setpoint Settings screen:

1 **Press the Magnifying Glass (zoom) button** associated with the hopper on the Individual Hopper screen.

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 inistalled and enabled at each HTC in a central drying system.

NOTE: *See the Appendix of this User Guide for more information about using the DM3-e Drying Monitor.*

Temperature Setback explained:

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

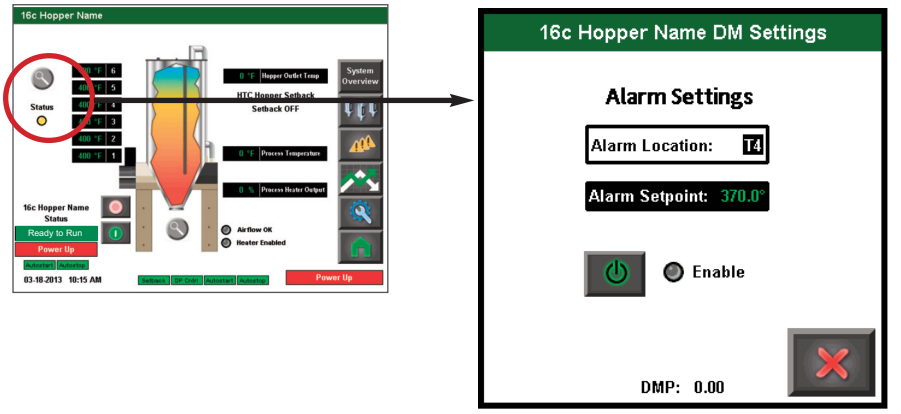
Temperature Setback works by monitoring the air temperature at the top of the hopper. The setback features drops the delivery air temperature if the air temperature at the top of the hopper gets too high. This saves energy and keeps the material from overheating.

NOTE: 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)

DM3-e Hopper Settings Screen (if equipped)



NOTE: *See the Appendix of this User Guide for more information about using the DM3-e Drying Monitor.*

NOTE: The Drying Monitor board version number is listed on the bottom of this p op up window. This information is helpful for service and troubleshooting.

To access the DM3-e Hopper Settings screen:

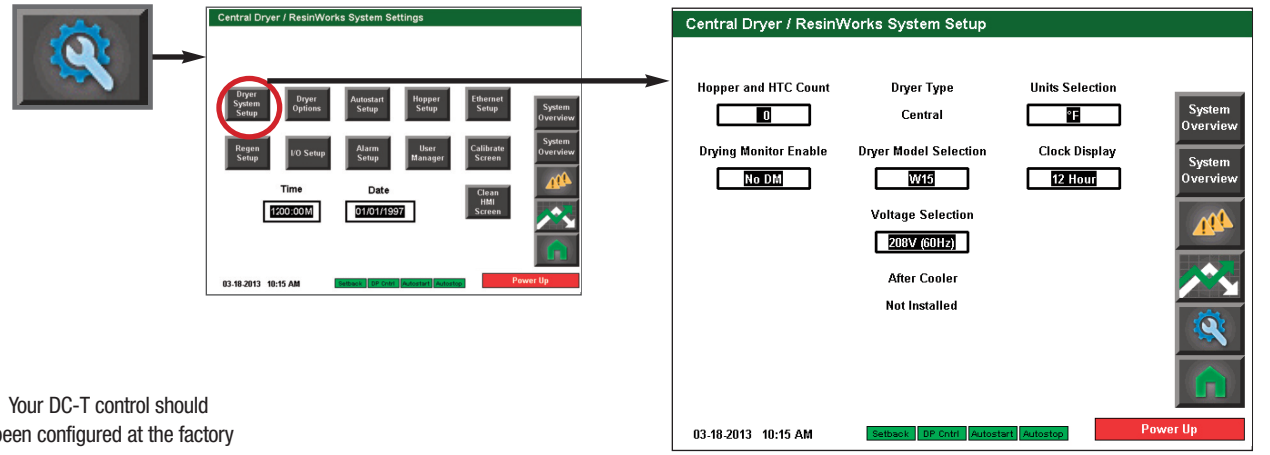
1 **Press the Magnifying Glass (zoom) button** associated with the Drying Monitor (beside the temperature zones).

The DM3-e Hopper Settings Screen provides the user with the current alarm location zone, and the Alarm Setpoint, as well as a button to enable or disable DM3-e for this hopper. These settings can be adjusted for each hopper in your DM3-e system.

(continued)

Control Function Descriptions - RW Configuration (continued)

ResinWorks System Setup screen



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

To access the ResinWorks Setup screen:

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

2 **Press the ResinWorks Setup button**.

The ResinWorks System Setup screen provides the user with the ability to change the system settings of this ResinWorks system.

This screen allows you to change:

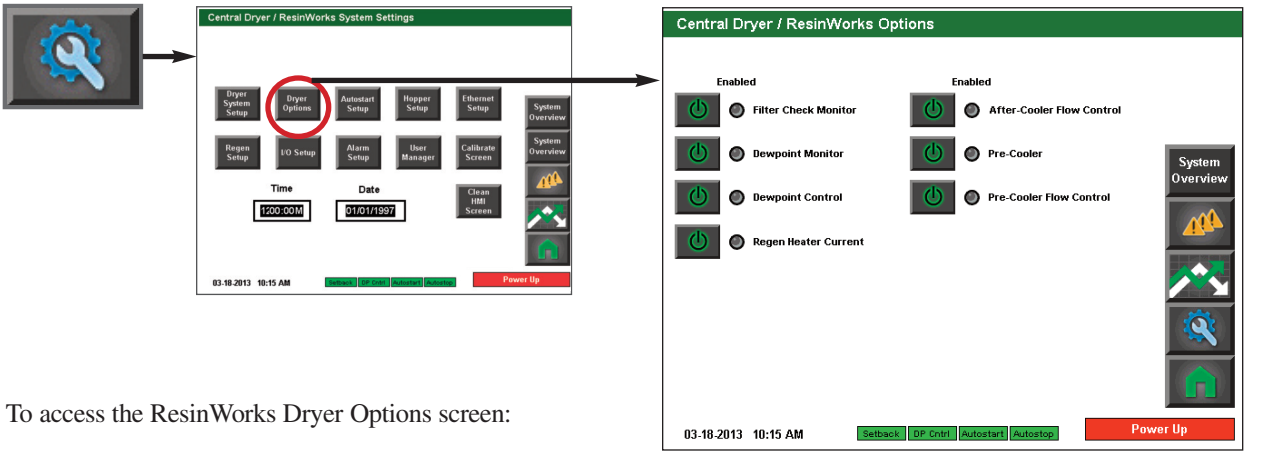
- Hopper and hopper heater count
- Units selection (Fahrenheit and Celsius)
- Drying Monitor (DM3-e) enabling
- Dryer model
- Clock display (12 hour and 24 hour)
- Voltage selection

NOTE: *See the Appendix of this User Guide for more information about using the DM3-e Drying Monitor.*

(continued)

Control Function Descriptions - RW Configuration (continued)

ResinWorks Dryer Options screen



To access the ResinWorks Dryer Options screen:

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

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

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

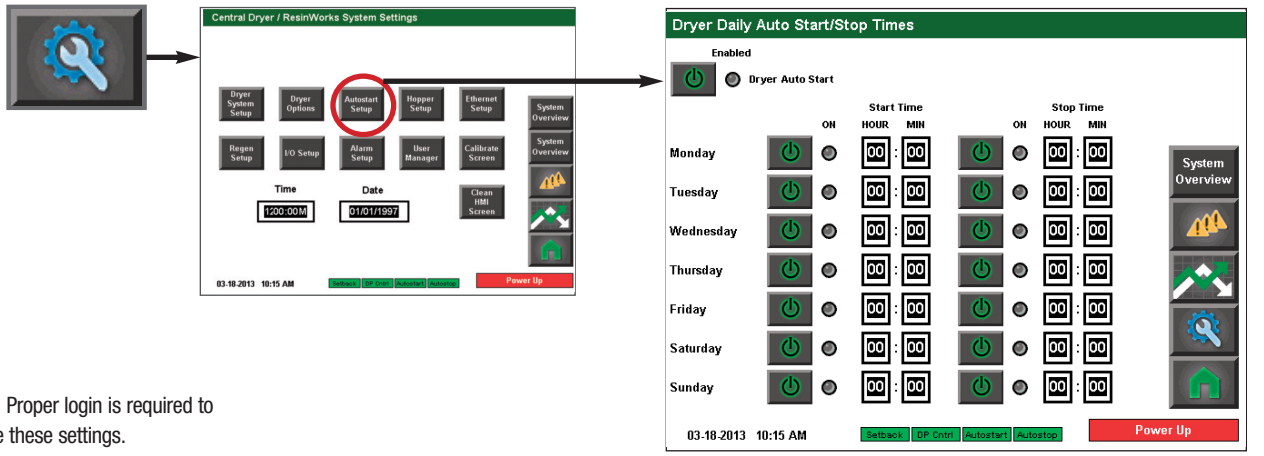
This screen allows you to change:
- Filter Check Monitor
- Dewpoint Monitor
- Dewpoint Control
- Regen Heater Current

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 ResinWorks Autostart screen:

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

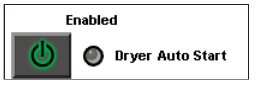
2 **Press the Autostart Setup button**.

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

The ResinWorks 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.

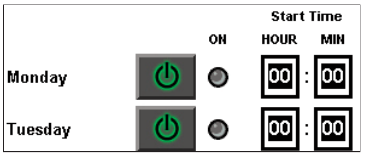
To setup Auto Start and Auto Stop:

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



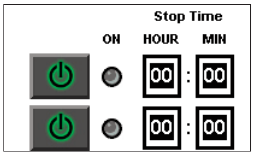
2 **Press the Enable button next to each day of the week you would like to set the Auto Start time**.

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**.

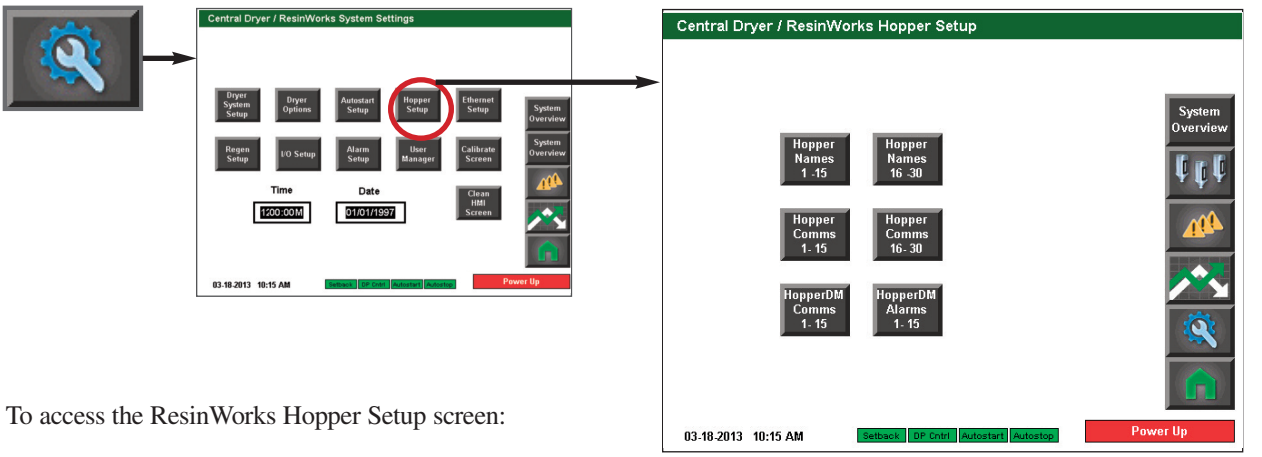
5 **Set the Auto Stop time for each day that you have enabled.**



(continued)

Control Function Descriptions - RW Configuration (continued)

ResinWorks Hopper Setup screen



To access the ResinWorks Hopper Setup screen:

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

2 **Press the Hopper Setup button**.

The ResinWorks Hopper Setup screen provides the user with the ability to move to a screen where you can:

- Customize hopper names
- Enable hopper heater communication
- Enable DM3-e communication (if equipped)
- Enable DM3-e alarms (if equipped)

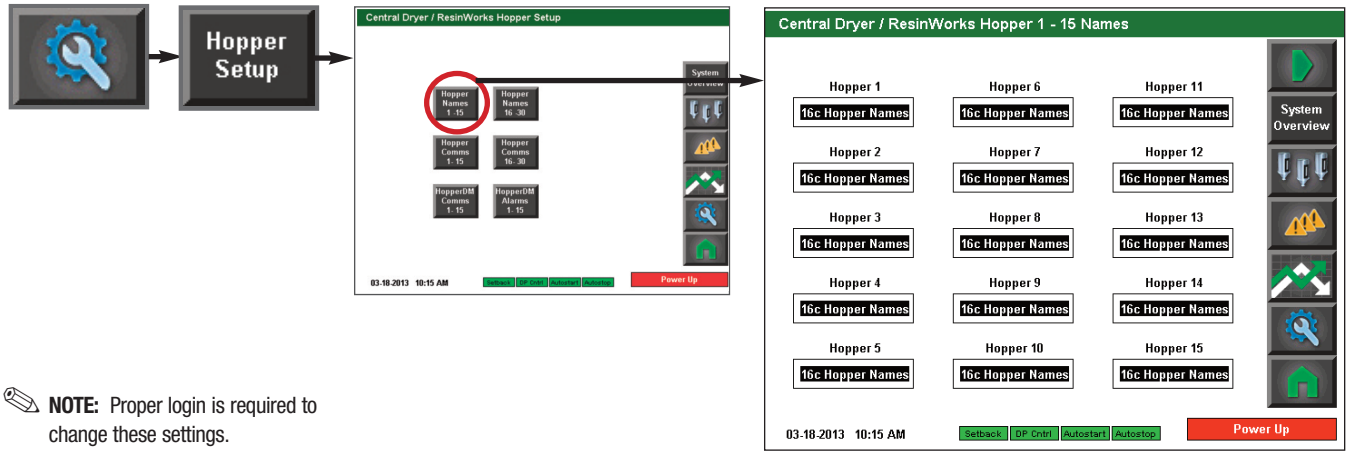
✎ **NOTE:** Proper login is required to change these settings.

✎ **NOTE:** *See the Appendix of this User Guide for more information about using the DM3-e Drying Monitor.*

(continued)

Control Function Descriptions - RW Configuration (continued)

Hopper Names screen

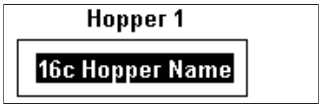


✎ **NOTE:** Proper login is required to change these settings.

To access the Hopper Names screen:

1. **Press the Settings button** from the Home screen.
2. **Press the Hopper Setup button**.
3. **Press the Hopper Names 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:

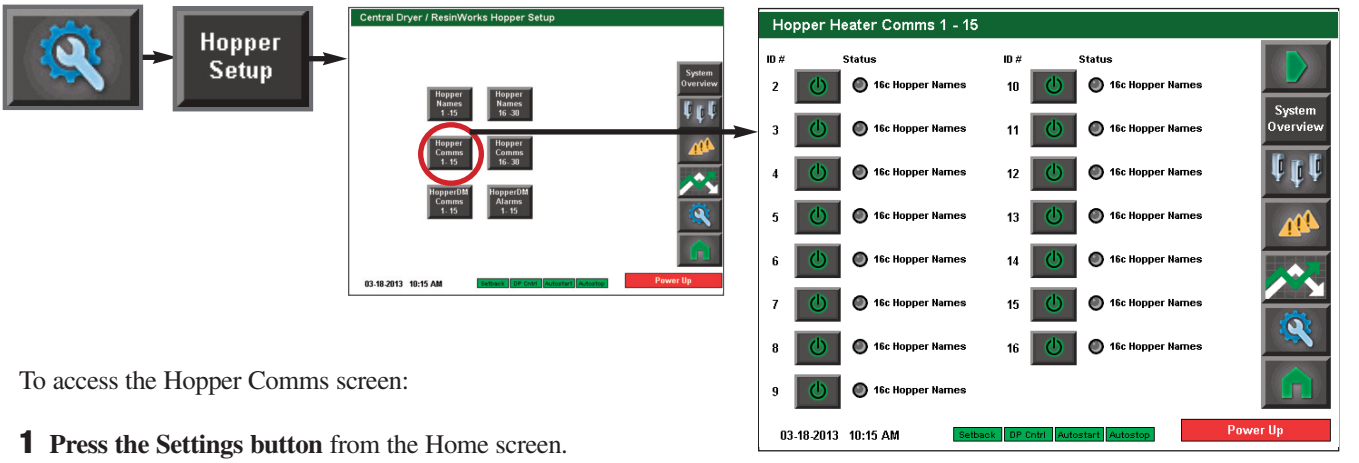
1. **Press the text inside the box of the hopper you would like to rename.** All hoppers are factory named "16c Hopper Name". (This is simply a space holder for a user entered hopper name up to 16 characters.)
2. **Use the keypad to enter your new hopper name.** Hopper names can be up to 16 characters 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 multipe 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)

Hopper Comms (Communications) screen



To access the Hopper Comms screen:

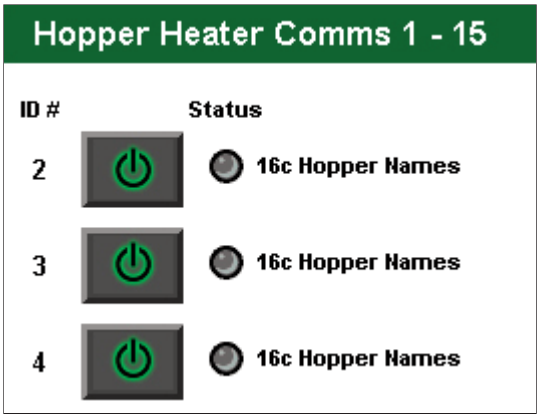
1. **Press the Settings button** from the Home screen.
2. **Press the Hopper Setup button**.
3. **Press the Hopper Comms button**.

NOTE: Proper login is required to change these settings.

The Hopper Comms screen provides the user with the ability to enable or disable communications to the hopper heater(s).

To enable communications to a hopper heater:

1. **Press the Enable button beside the hopper heater you would like to enable.** The button will illuminate green. If communications are successful, the LED beside the button will change from grey to green.
2. **Enable communications to any other hopper heaters you would like to enable.**

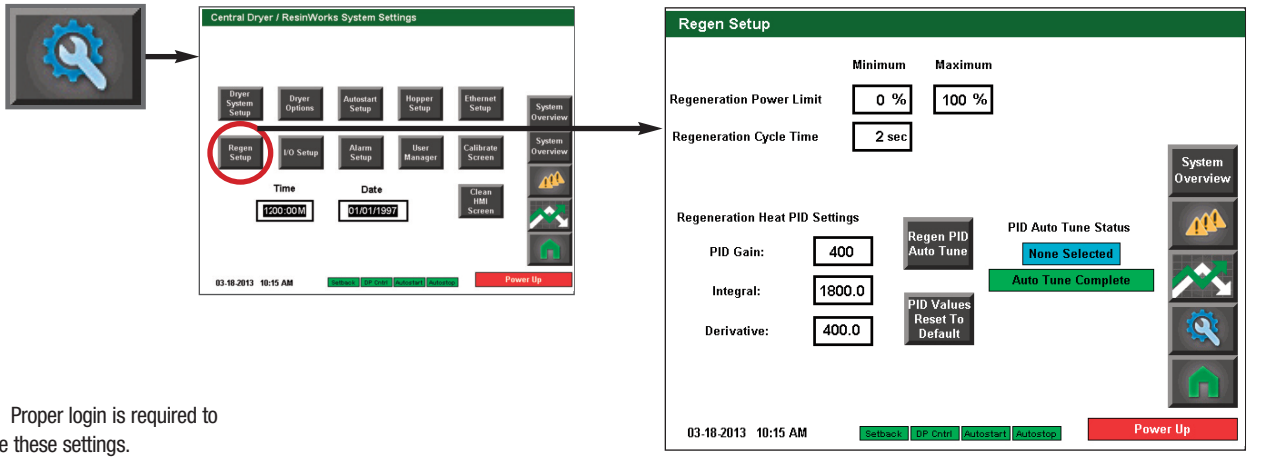


NOTE: The ID # refers to the RS-485 Modbus ID address. This number will never change. The text "16c Hopper Names" will change to whatever name you change it to in the hopper name screen. *See Operation: Control Function Descriptions - RW Configuration, Hopper Names screen.*

(continued)

Control Function Descriptions - RW Configuration (continued)

Regen Setup screen



NOTE: Proper login is required to change these settings.

To access the Regen Setup screen:

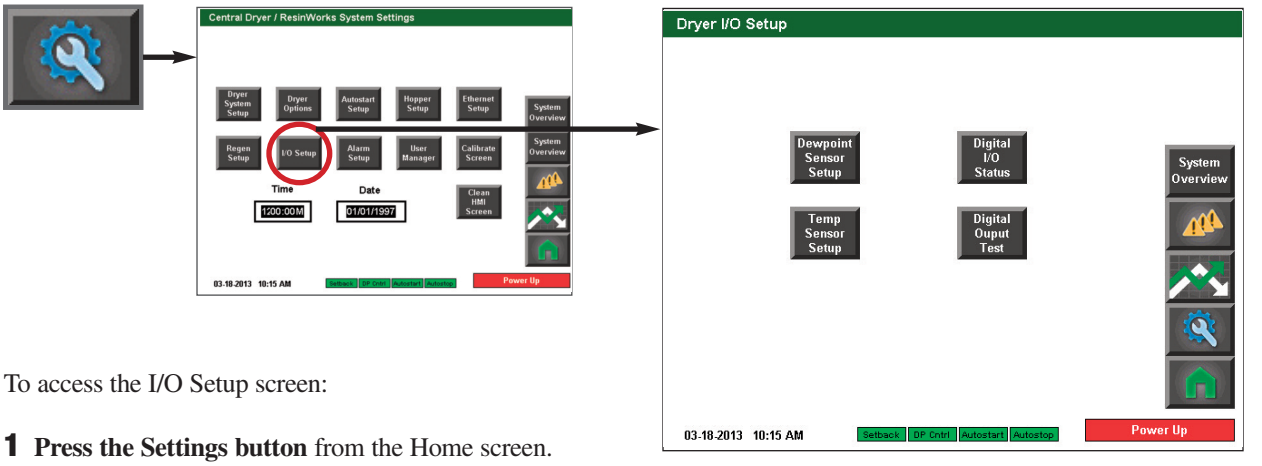
1. **Press the Settings button** from the Home screen.
2. **Press the Regen Setup button**.

NOTE: It is not typically necessary to use the Regen PID Auto Tune or the Reset PID Values to Factory button. Contact the Conair Service department if you have questions about these items. Conair's Instant Access 24/7 Parts and Service number is 800-458-1960. Outside the U.S., dial 814-437-6861.

(continued)

Control Function Descriptions - RW Configuration (continued)

I/O Setup screen



To access the I/O Setup screen:

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

2 **Press the I/O Setup button**.

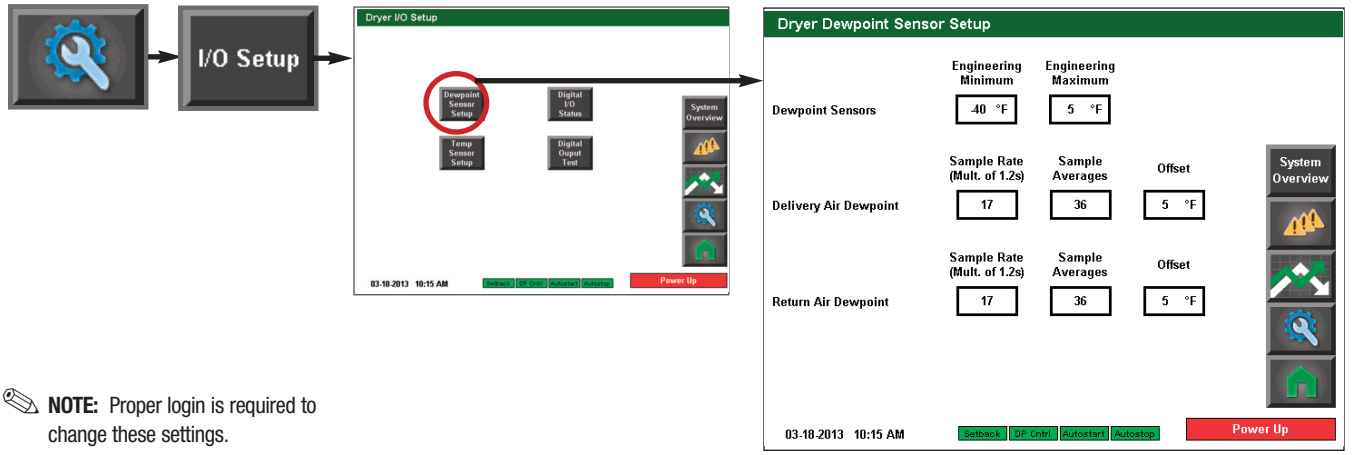
The Dryer I/O Setup screen provides the user with the ability to open the Dewpoint Sensor Setup, the Temp Sensor Setup, the Digital I/O Status or the Digital Output Test screen.

NOTE: Proper login is required to change these settings.

(continued)

Control Function Descriptions - RW Configuration (continued)

Dewpoint Setup screen



NOTE: Proper login is required to change these settings.

To access the Dryer Dewpoint Sensor Setup screen:

1 Press the Settings button from the Home screen.

2 Press the I/O Setup button.

3 Press the Dewpoint Setup button.

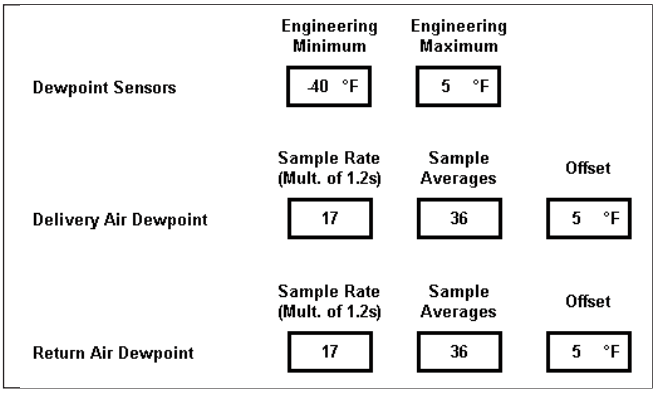
NOTE: These are factory settings and should not need changed. Consult with Conair before making any changes to these settings. Conair's Instant Access 24/7 Parts and Service number is 800-458-1960. Outside the U.S., dial 814-437-6861.

The Dryer Dewpoint Sensor Setup screen provides the user with the ability to adjust the settings for the Dewpoint sensors. This screen allows for adjustment of:

- Sensor minimum and maximum
- Delivery air dewpoint sample rate, sample averages, and offset
- Return air dewpoint sample rate, sample averages, and offset

To change a setpoint:

1 Press the text inside white box with thick black outline of the setting you would like to change.



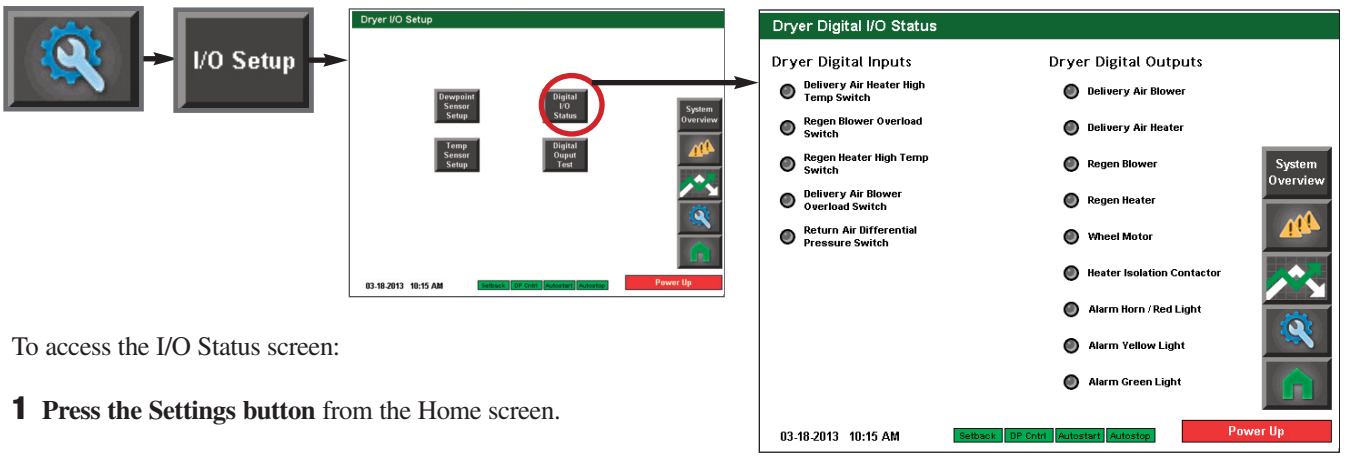
2 Use the keypad to enter the new setting. Setting range will be displayed at the bottom of the pop up keypad.

3 Press the enter key.

(continued)

Control Function Descriptions - RW Configuration (continued)

Digital I/O Status screen



To access the I/O Status screen:

1. **Press the Settings button** from the Home screen.
2. **Press the I/O Setupbutton**.
3. **Press the I/O Status button**.

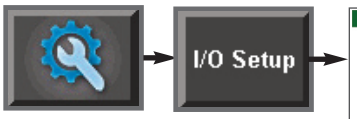
The I/O Status screen allows for a visual display of active outputs attached to the DC-T control. Inputs or outputs that are active will turn green. Inactive inputs and outputs will appear grey.

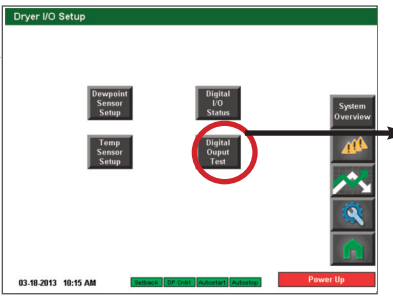
NOTE: Proper login is required to test the outputs. Depending on the configuration of your dryer, some inputs and outputs may not be available.

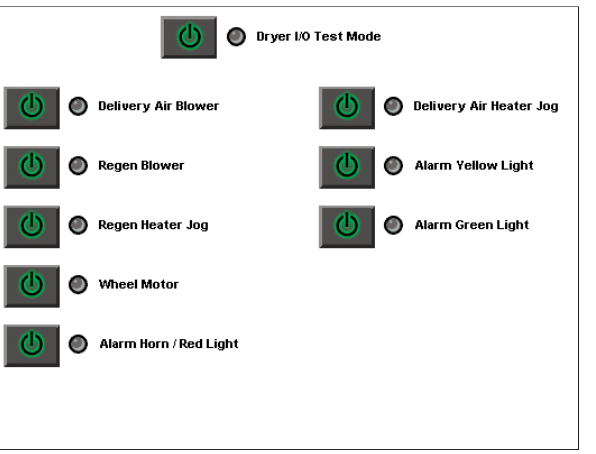
(continued)

Control Function Descriptions - RW Configuration (continued)

Digital Output Test screen







NOTE: The dryer must be stopped in order to perform the test mode.

To access the Test screen:

1. **Press the Settings button** from the Home screen.
2. **Press the I/O Setup button**.
3. **Press the Digital Output Test button**.

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

The test screen allows for digital output tests of various outputs attached to the DC-T control. This screen allows for testing of:

- 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

NOTE: On intial test, the delivery air blower will start automatically. This is not unusual and should be expected.

To test an output:

1. **Press the power button to enable the Dryer I/O Test Mode.** The button should illuminate and the LED beside the button should change from grey to green indicating that test mode is enabled.

2. **Press the power button beside the output you would like to test.** The button should illuminate and the LED beside the button should change from grey to green indicating power has been sent to the output.

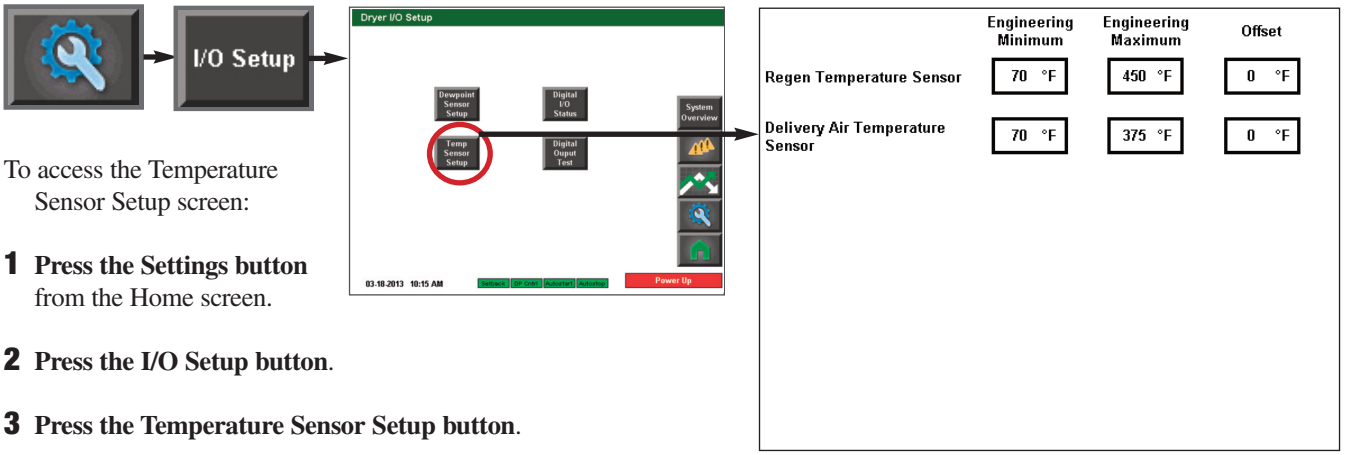
3. **Press the power button beside the output again to stop the test.** Note that some tests are a jog test and will not require pressing the button again to stop. Jog tests are programmed to run for three (3) seconds.

4. **Press the power button beside the Dryer I/O Test Mode text to disable test mode.**

(continued)

Control Function Descriptions - RW Configuration (continued)

Temperature Sensor Setup screen



To access the Temperature Sensor Setup screen:

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

2 **Press the I/O Setup button**.

3 **Press the Temperature Sensor Setup button**.

The test screen allows the user to set the setpoints for the Temperature Sensors:

- Regen Temperature Sensor

To change a setting:

1 **Press the white outlined setpoint box.** A pop up number pad will appear.

2 **Enter the desired setting.** Press enter after you have entered the numbers.

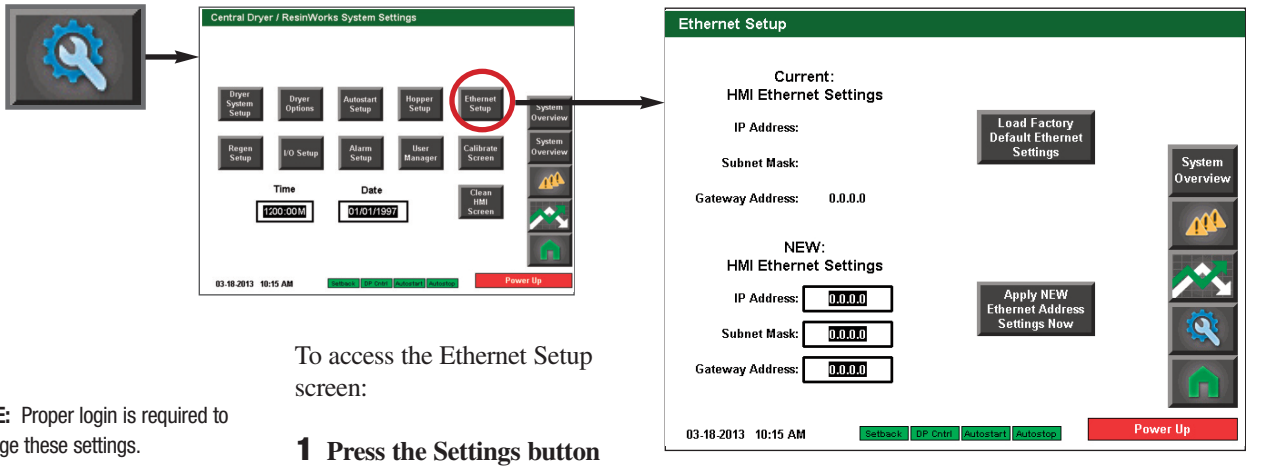
3 **Repeat steps 1 and 2 for all settings you would like to adjust.** Note that depending on your dryer configuration and your enabled options, your screen may appear different than what is shown here.

NOTE: Proper login is required to change these settings.

(continued)

Control Function Descriptions - RW Configuration (continued)

Ethernet Setup screen



To access the Ethernet Setup screen:

1 Press the Settings button from the Home screen.

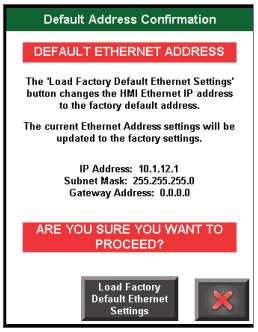
2 Press the Ethernet Setup button.

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

To load the factory default Ethernet settings:

1 Press the Load Factory Default Ethernet Settings button.

2 Press the button to confirm that you want to load the factory default settings. Press the X button if you want to exit without loading the default factory settings.



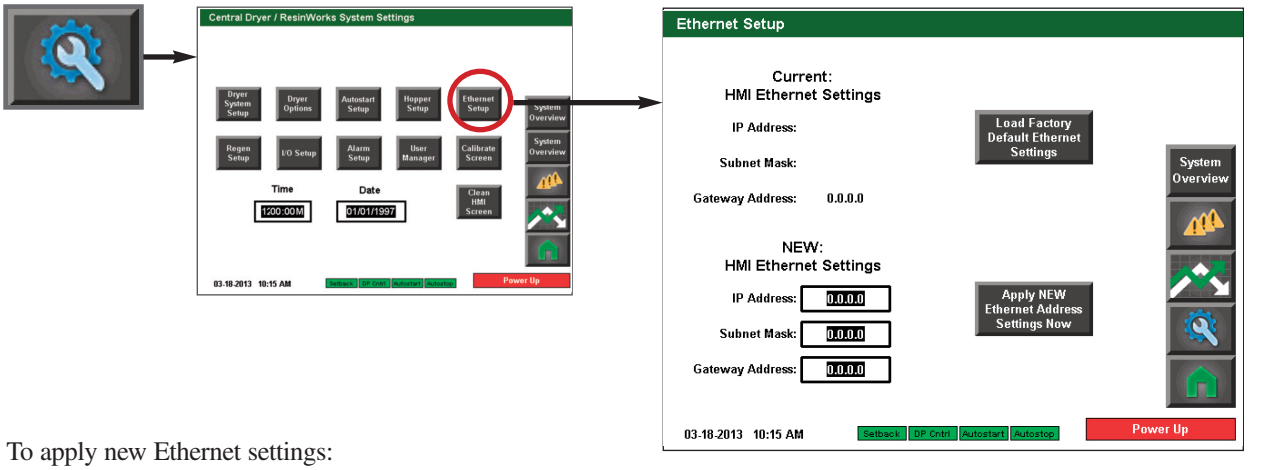
NOTE: Proper login is required to change these settings.

NOTE: The default IP address established by Conair is 10.1.12.1

(continued)

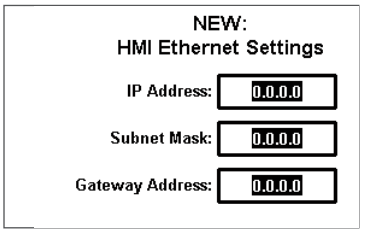
Control Function Descriptions - RW Configuration (continued)

Ethernet Setup screen



To apply new Ethernet settings:

1 Enter the new settings in the white boxes with thick black borders. When you touch the setting inside the box, a pop up number pad will appear.

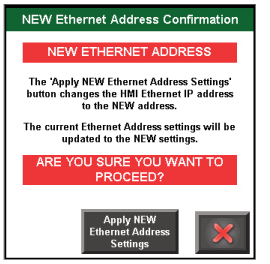


2 Use the number pad to enter the new setting. Press the enter button on the number pad to enter the new setting.

3 Repeat steps 1 and 2 for each address setting.

4 Press the Apply NEW Ethernet Address Settings Now button.

5 Press the button to confirm that you want to apply the new settings. Press the X button if you want to exit without applying the new settings.

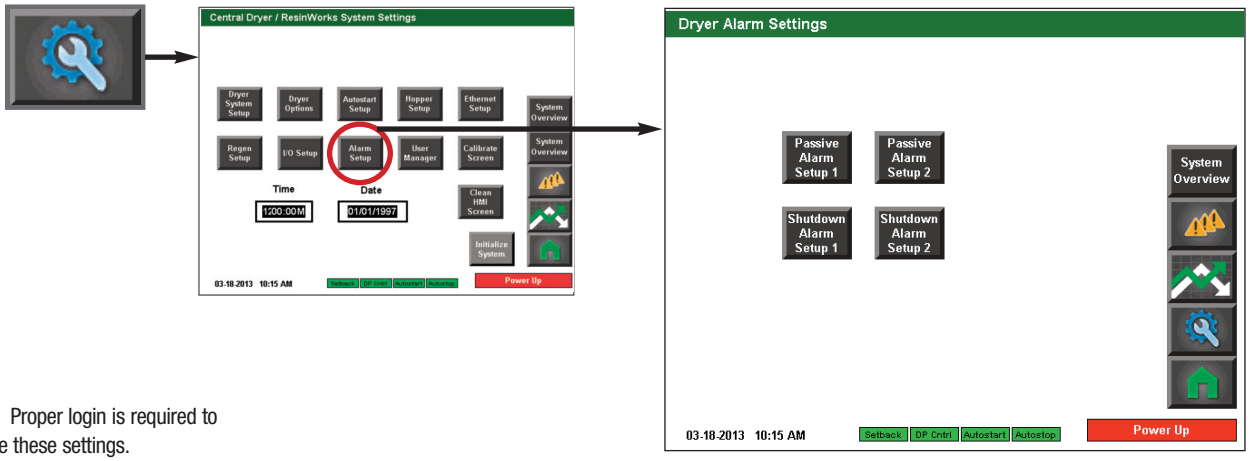


NOTE: Proper login is required to change these settings.

(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:

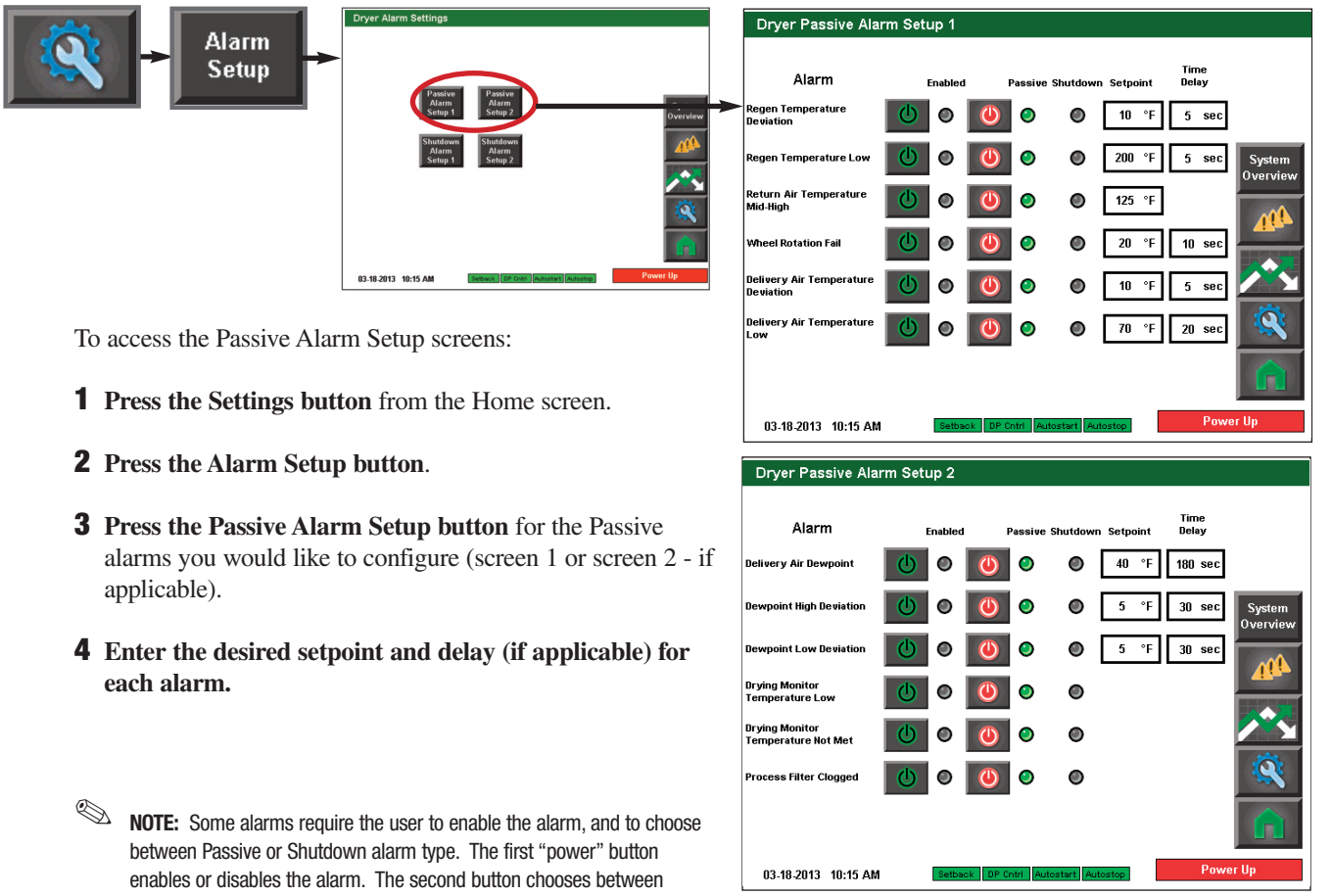
1. **Press the Settings button** from the Home screen.
2. **Press the Alarm Setup button**.

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

(continued)

Control Function Descriptions - RW Configuration (continued)

Passive Alarm Setup (1 & 2)



To access the Passive Alarm Setup screens:

1. **Press the Settings button** from the Home screen.
2. **Press the Alarm Setup button**.
3. **Press the Passive Alarm Setup button** for the Passive alarms you would like to configure (screen 1 or screen 2 - if applicable).
4. **Enter the desired setpoint and delay (if applicable) for each alarm.**

NOTE: Some alarms require the user to enable the alarm, and to choose between Passive or Shutdown alarm type. The first "power" button enables or disables the alarm. The second button chooses between Passive or Shutdown alarm.

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.

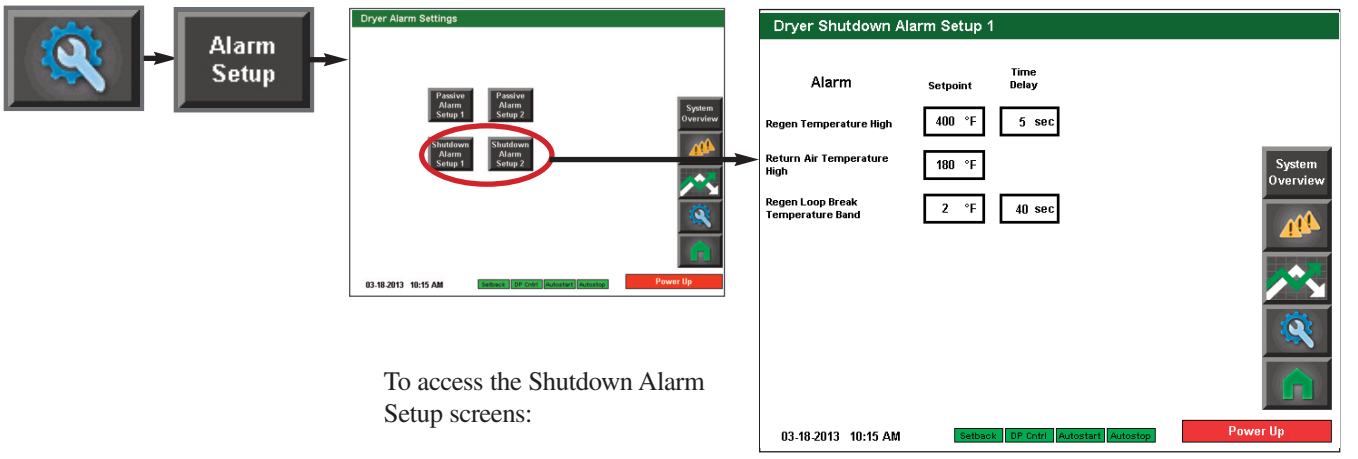
IMPORTANT: Factory default alarm setpoints should not be changed without first consulting with Conair.

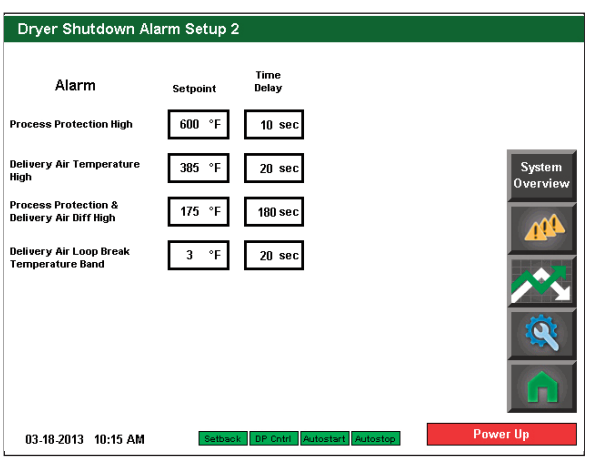
Conair's Instant Access 24/7 Parts and Service number is 800-458-1960. Outside the U.S., dial 814-437-6861.

(continued)

Control Function Descriptions - RW Configuration (continued)

Shutdown Alarm Setup (1 & 2)





To access the Shutdown Alarm Setup screens:

1. **Press the Settings button** from the Home screen.
2. **Press the Alarm Setup button.**
3. **Press the Shutdown Alarm Setup button** for the Shutdown alarms you would like to configure (screen 1 or screen 2 - if applicable).
4. **Enter the desired setpoint and delay for each shutdown alarm.**

NOTE: Proper login is required to modify alarm settings.

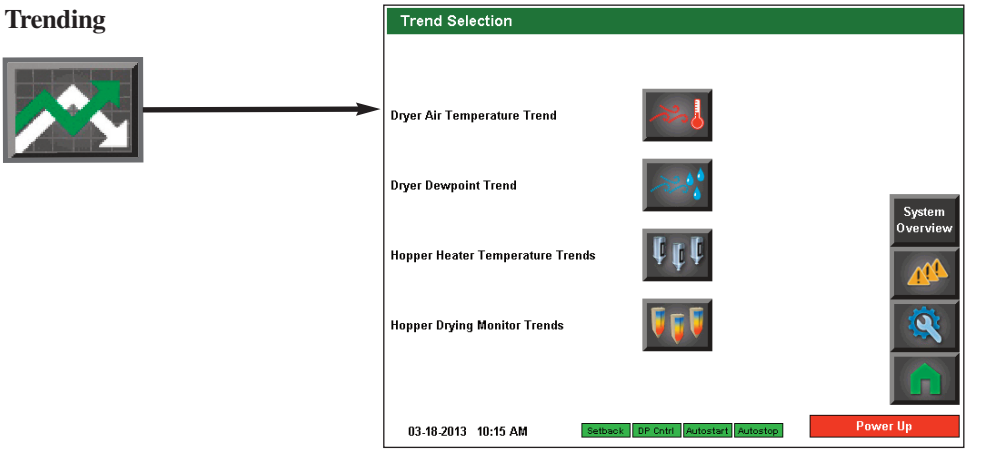
IMPORTANT: Factory default alarm setpoints should not be changed without first consulting with Conair.

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

(continued)

Control Function Descriptions - RW Configuration (continued)

Trending



NOTE: Depending on your DC-T configuration, and system security, different users may not be able to access the trending screens. Also, if you do not have DM3-e enabled, or the Drying Monitor equipment at your drying hoppers, you will not be able to view Drying Monitor Trends.

To access the Trending screens:

1 Press the Trending button from the Home screen.

The Trend Selection screen allows you to choose which trending screens you would like to view. From this screen, you can choose to view:

- Dryer Air Temperature Trend
- Dryer Dewpoint Trend
- Hopper Heater Temperature Trends
- Hopper Drying Monitor Trends (if equipped)

Trending Screen Navigation

Each trending screen will allow the user to scroll through data. When the screen first opens, it will be displaying a two (2) hour window, and will have saved the data for the last seven (7) 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.

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

|< >| Scroll to the beginning or end of the record.

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

Live Move to live data.

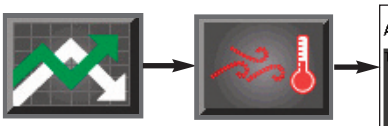
In Zoom in (Instead of seeing 2 hours of trend in the window, you will see 1 hour, 30 minutes, 15 minutes, etc.)

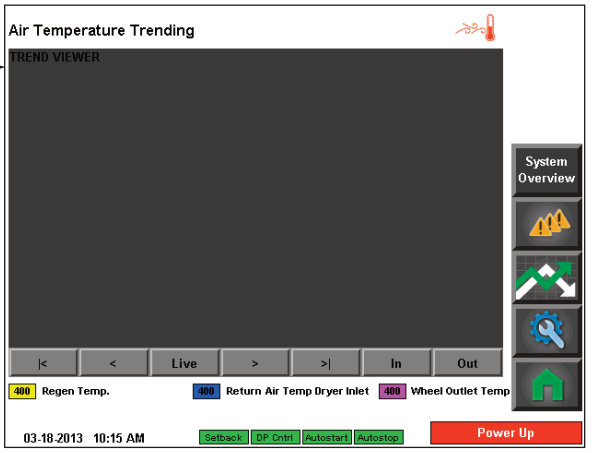
Out Zoom out (Instead of seeing 2 hours of trend in the window, you will see 3 hours, 4 hours, 5 hours, etc.)

(continued)

Control Function Descriptions - RW Configuration (continued)

Dry Air Temperature Trend





To access the Dry Air Temperature Trend screen:

1. **Press the Trending button** from the Home 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:

Yellow: Regeneration Temperature (within the dryer)
Blue: Return Air Dryer Inlet Temperature
Purple: Wheel Outlet Temperature

The Dryer Air Temperature Trending screen shows a snap shot of the last two (2) hours of operation and records and saves trending data for the last seven (7) 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, plus jump to the present (Live) time from any time within the trending record.

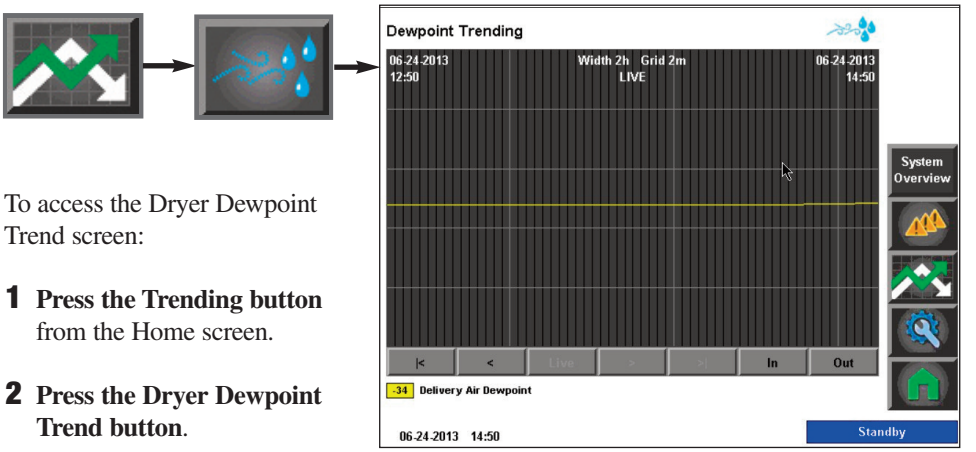
NOTE: Using the scroll backward and scroll foward arrows will move the line 30 seconds at a time.

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)

Dryer Dewpoint Trend



To access the Dryer Dewpoint Trend screen:

1. **Press the Trending button** from the Home 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 a snap shot of the last two (2) hours of operation and records and saves trending data for the last seven (7) 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, plus jump to the present (Live) time from any time within the trending record.

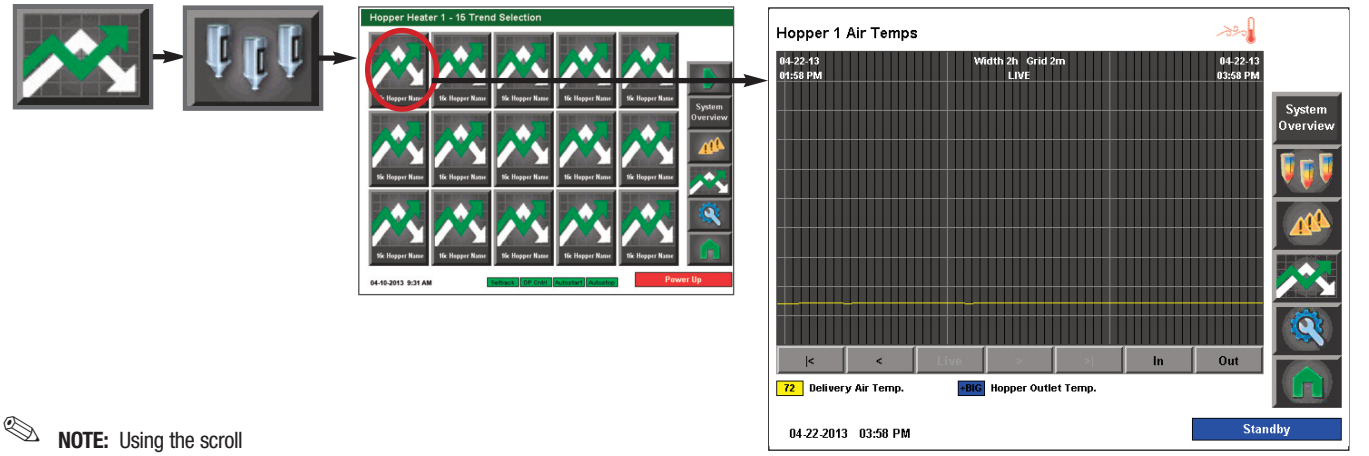
NOTE: Using the scroll backward and scroll foward arrows will move the line 30 seconds at a time.

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)

Hopper Heater Temperature Trends



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

To access the Hopper Heater Temperature Trends screen:

1. **Press the Trending button** from the Home screen.
2. **Press the Hopper Heater Temperature Trend button**.
3. **Press the Hopper trend you would like to view**.

The Hopper Heater Temperature Trending screen allows the user to view the air temperature trend vs. time in two locations related to the hopper. The temperature reading locations are denoted by various colors. The colors associated with the locations are:

Yellow: Hopper Delivery Air Temperature
Blue: Hopper Outlet Temperature (if equipped with setback)

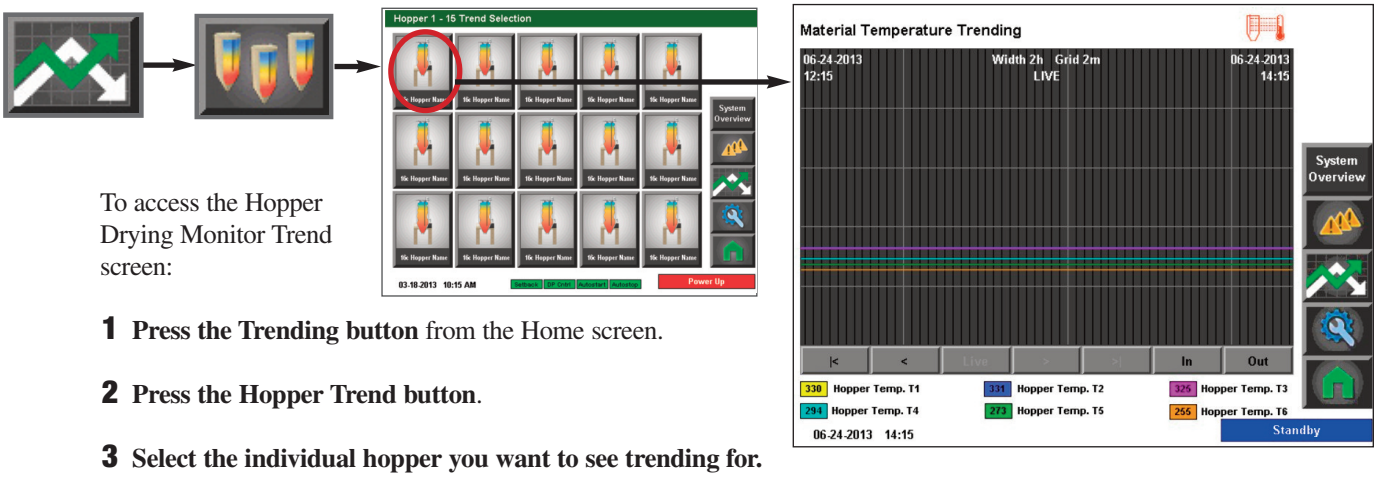
The Hopper Heater Temperature Trending screen shows a snap shot of the last two (2) hours of operation and records and saves trending data for the last seven (7) day period. The scroll buttons near the bottom of the screen allow the user to scroll back to an earlier time or forward to the present time, plus jump to the present (Live) time from any time within the trending record.

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)

Hopper Drying Monitor Trends (if equipped)



To access the Hopper Drying Monitor Trend screen:

1. **Press the Trending button** from the Home screen.
2. **Press the Hopper Trend button**.
3. **Select the individual hopper you want to see trending for.**

The Hopper Drying Monitor Trending screen allows the user to view the temperatures at each of the six (6) temperature zones of the DM3-e probe.

The DM3-e Trending screen shows a snap shot of the last two (2) hours of operation and records and saves trending data for the last seven (7) 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, plus jump to the present (Live) time from any time within the trending record.

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

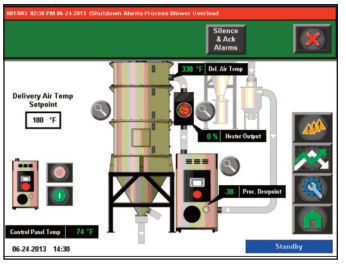
NOTE: *See the DM3-e User Guide for more information about using the DM3-e Drying Monitor.*

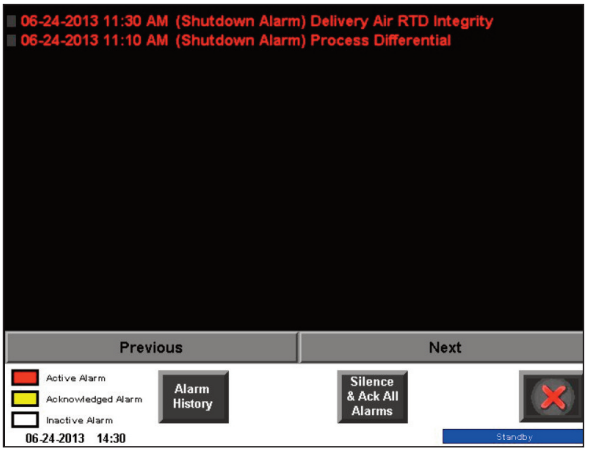
NOTE: *See Trending Screen Navigation (Operation Section: Control Function Descriptions- RW Configuration: Trending) for more information on how use the navigation buttons to navigate through individual trending screens.*

(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.

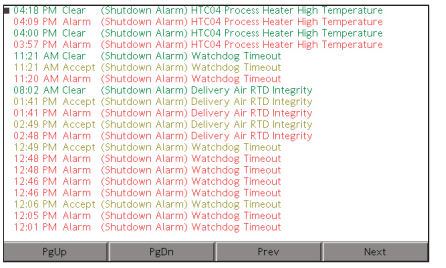
2 View the current alarms.

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

The following buttons are available from the Alarms log screen:

Previous Previous - The previous button is used to select the previous alarm when multiple alarms are displayed.

Next Next - The next button is used to select the next alarm when multiple alarms are displayed.



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

Silence & Ack All Alarms Acknowledge All - The acknowledge all button is used to acknowledge all the alarms on the list.

Reset All Alarms Reset All Alarms - The Reset button is used to clear all alarms on the list. If the condition has not been remedied, the alarm will reappear.

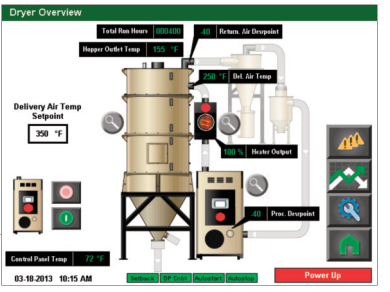
Operation - Stand Alone Dryer Configuration

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 (providing internal delivery air heat) attached to a single hopper

Control Function Flow Charts

From the Home screen

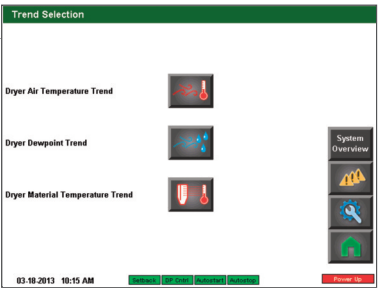
Help Overview



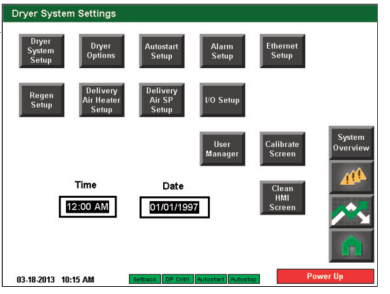
Dryer Overview

Home

Alarms



Trend Selection



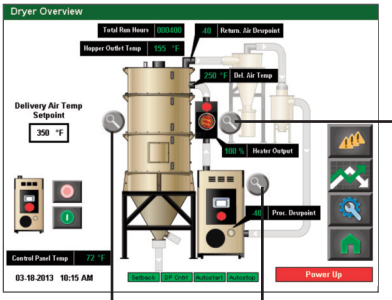
Setup

Login/ Logout

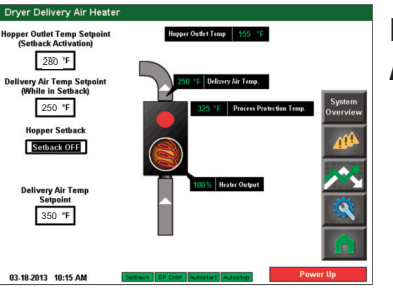
Control Function Flow Charts

From the Overview screen

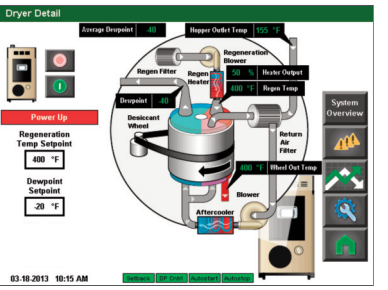
Dryer Overview



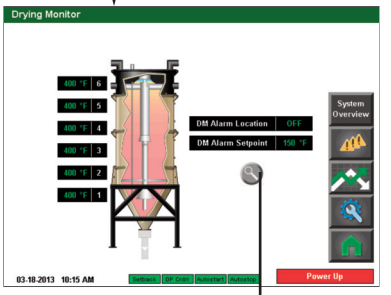
Dryer Delivery Air Heater



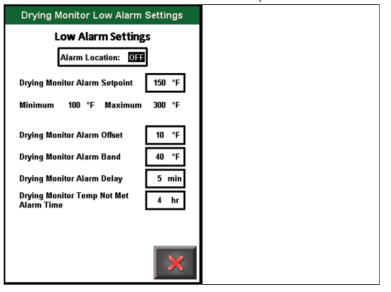
Dryer Detail



Dryer DM-II Drying Monitor



DM-II Low Alarm Settings

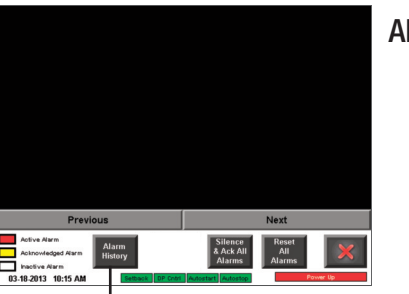


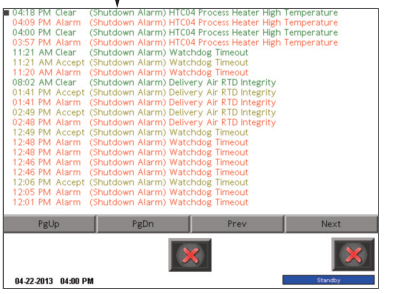
Control Function Flow Charts

From the Alarm screen

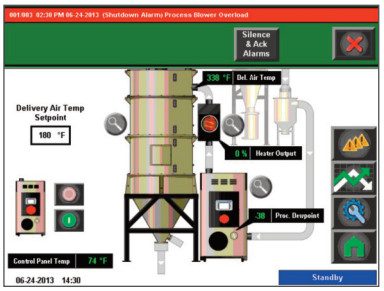
Alarms

Home



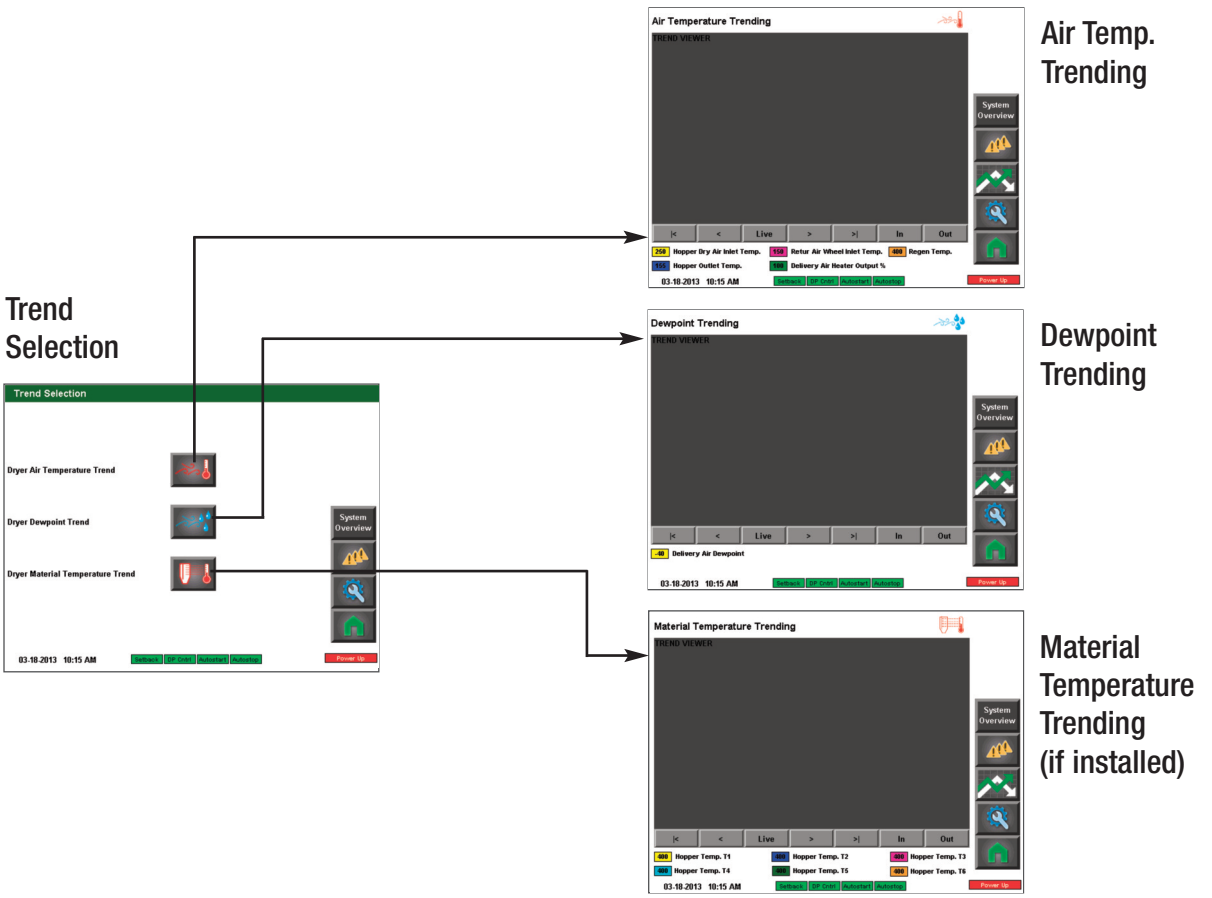


Alarm Banner Pop-up



Control Function Flow Charts

From the Trend Selection screen



Air Temp. Trending

Dewpoint Trending

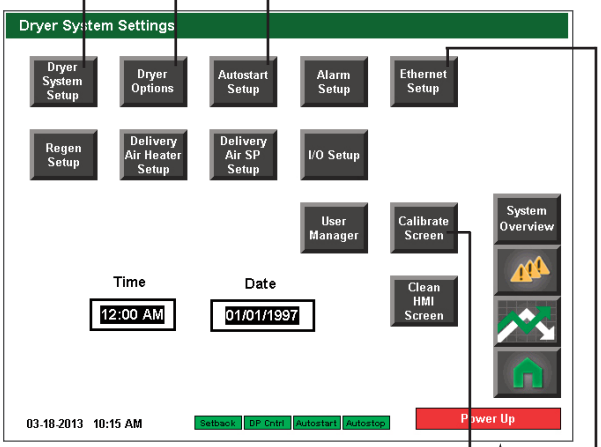
Material Temperature Trending (if installed)

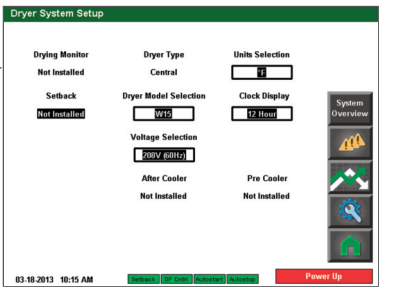
(Continued)

Control Function Flow Charts

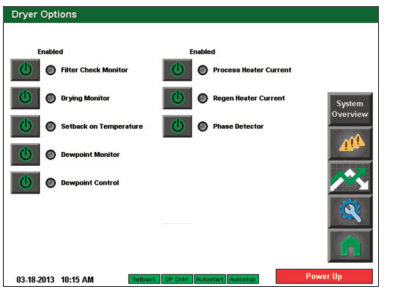
From the Setup screen

Setup

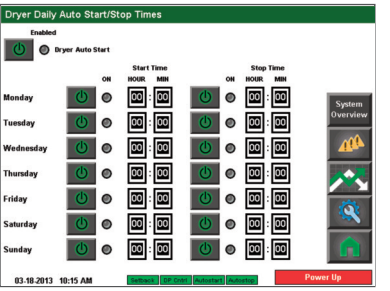




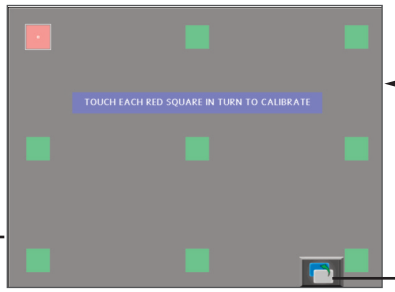
Dryer System Setup

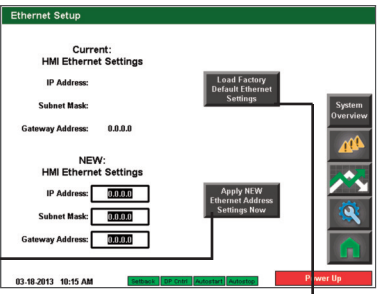


Dryer Options

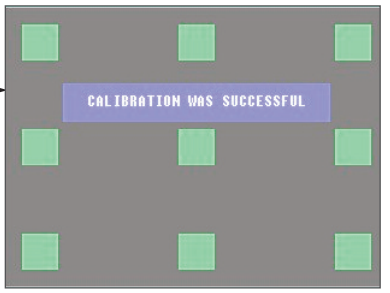


Autostart Setup

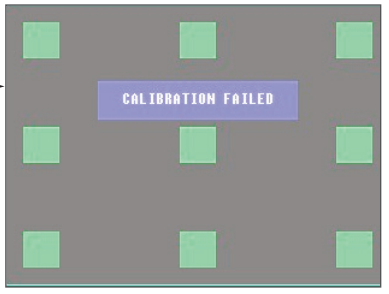




Ethernet Setup

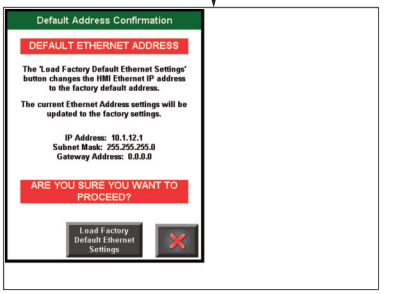


or



Apply Settings

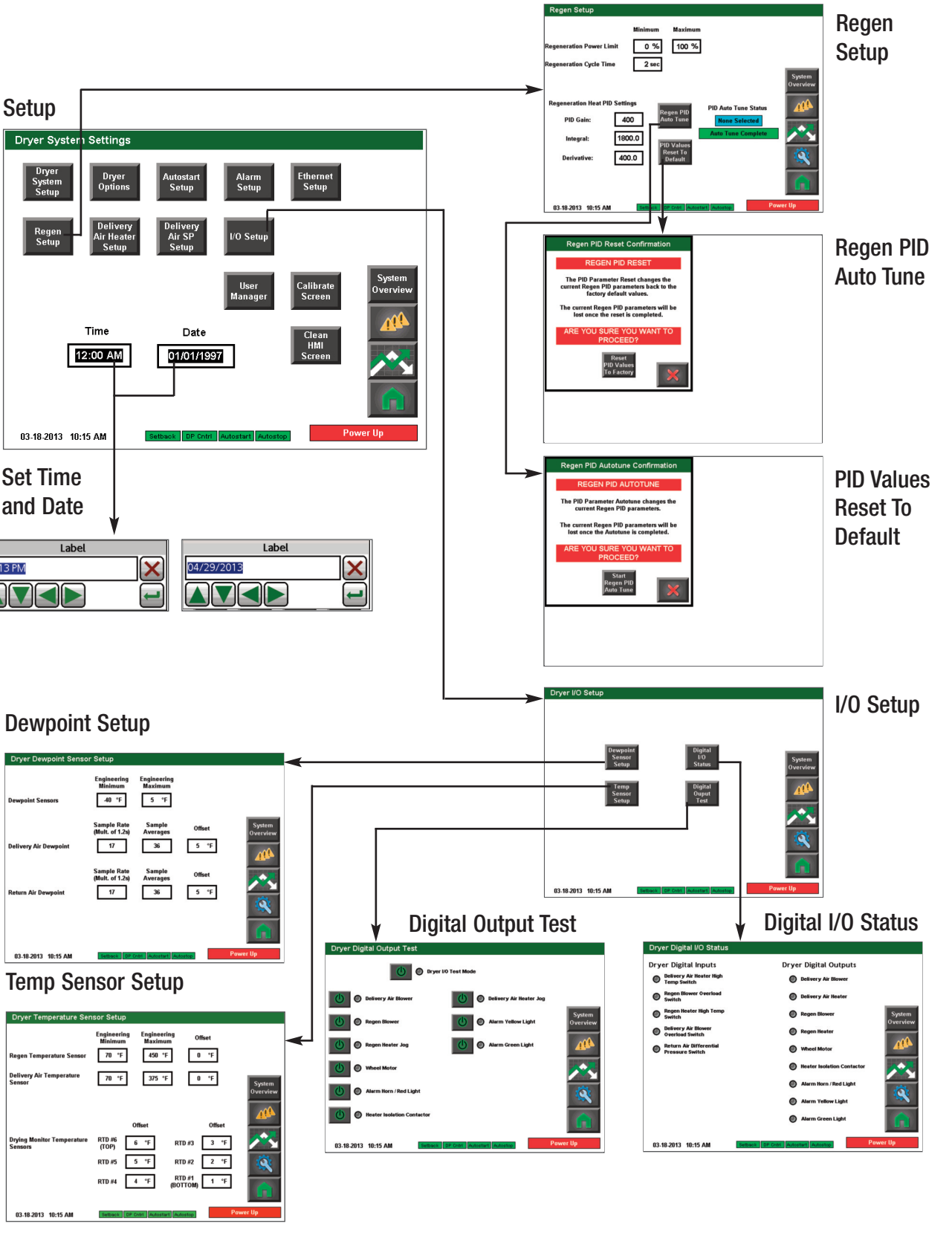
Default Settings



(Continued)

Control Function Flow Charts

From the Setup screen (continued)



Regen Setup

Regen PID Auto Tune

PID Values Reset To Default

Set Time and Date

I/O Setup

Dewpoint Setup

Digital Output Test

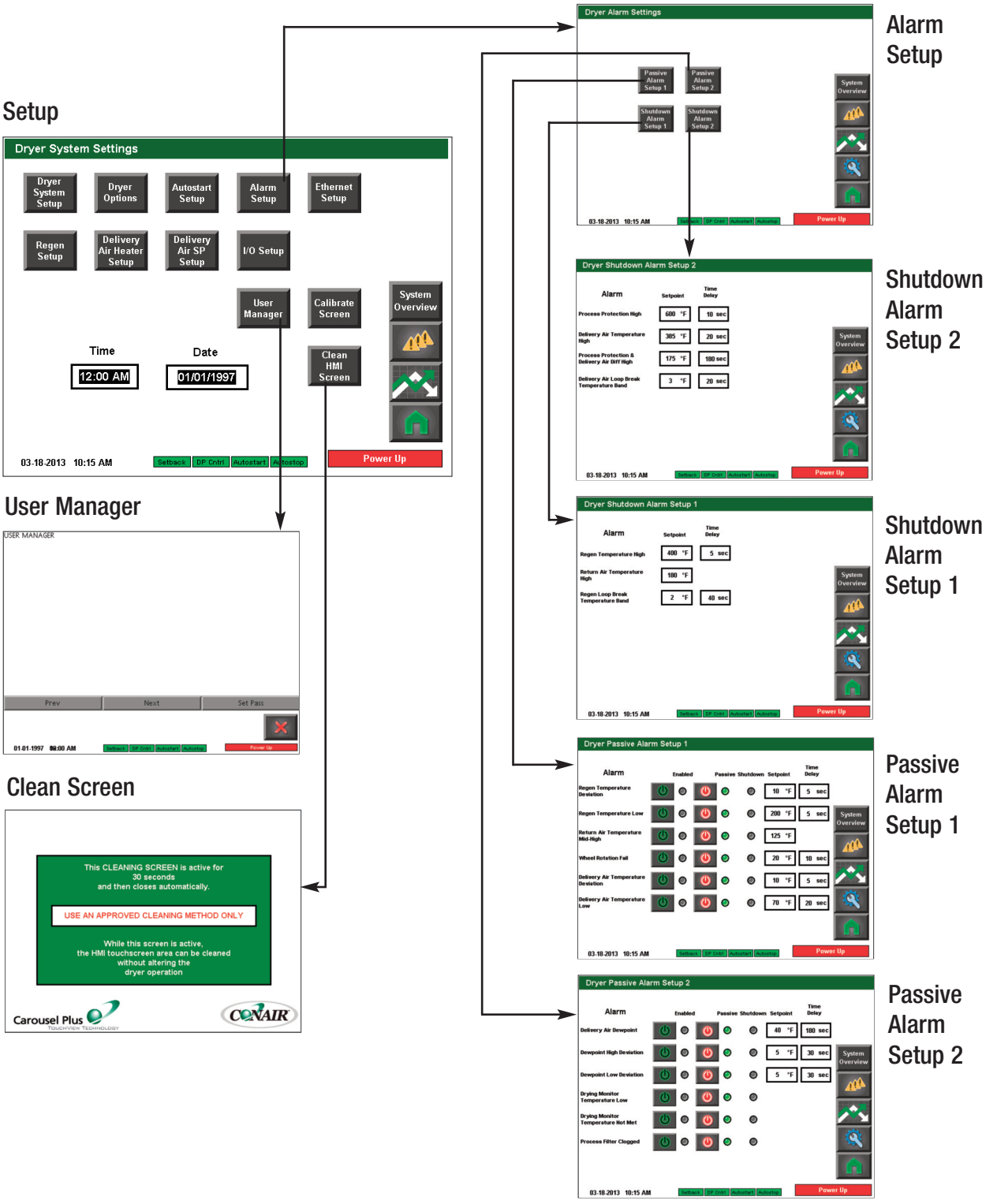
Digital I/O Status

Temp Sensor Setup

(Continued)

Control Function Flow Charts

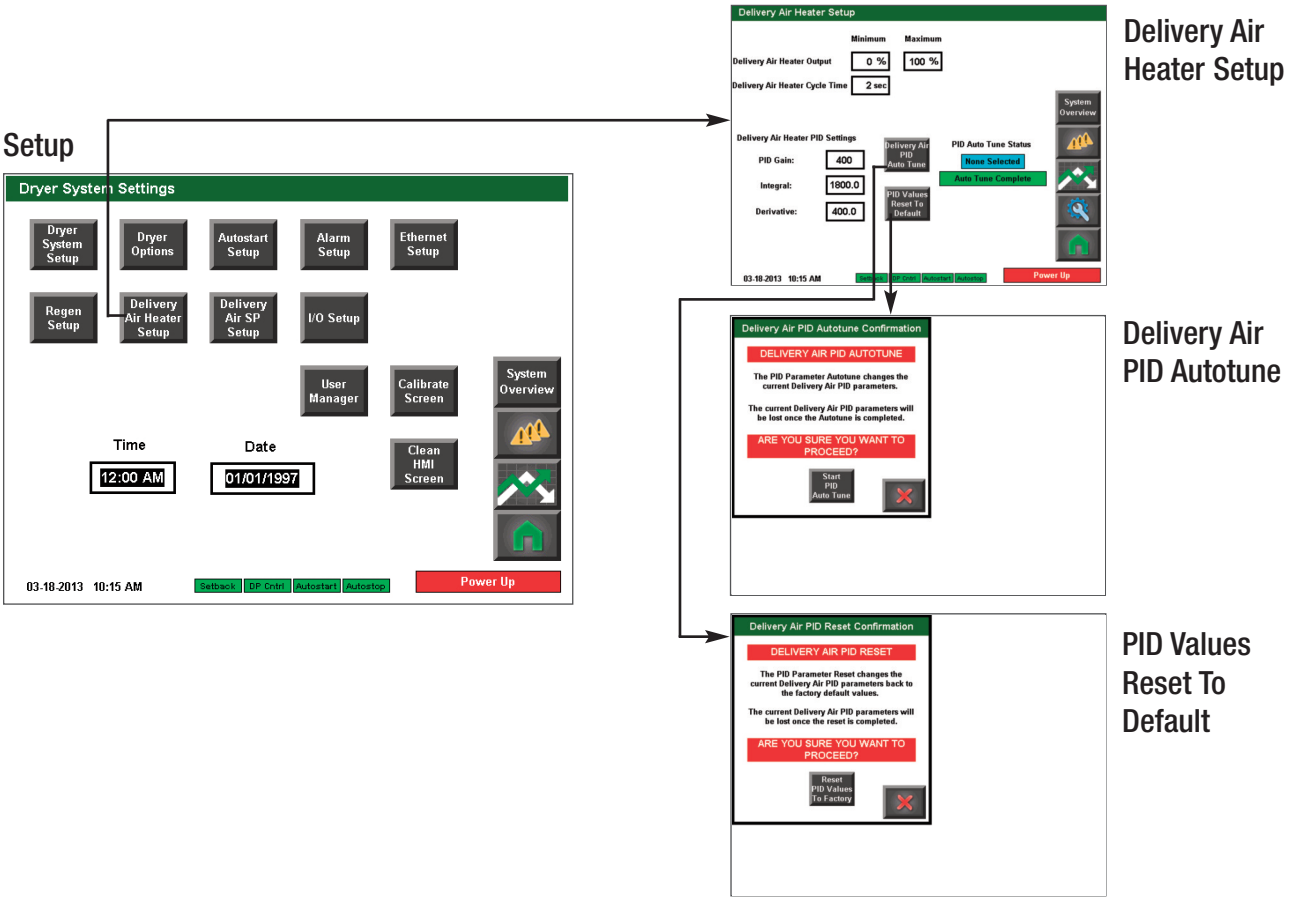
From the Setup screen (continued)



(Continued)

Control Function Flow Charts

From the Setup screen (continued)



Delivery Air Heater Setup

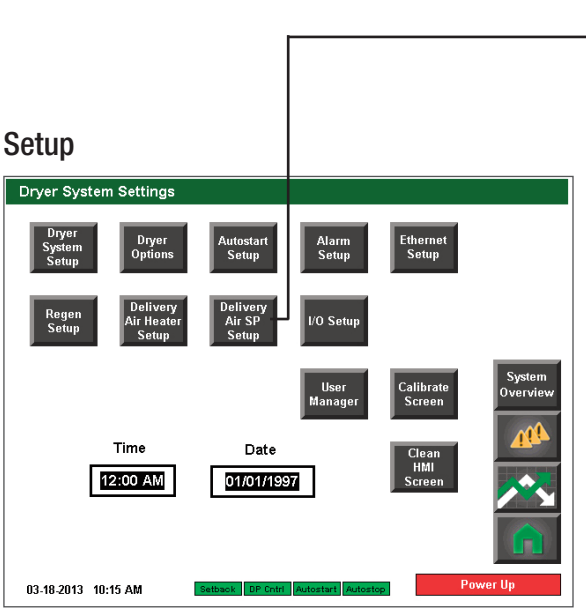
Delivery Air PID Autotune

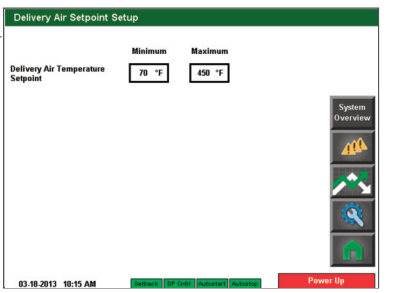
PID Values Reset To Default

(Continued)

Control Function Flow Charts

From the Setup screen (continued)





Delivery Air SP Setup

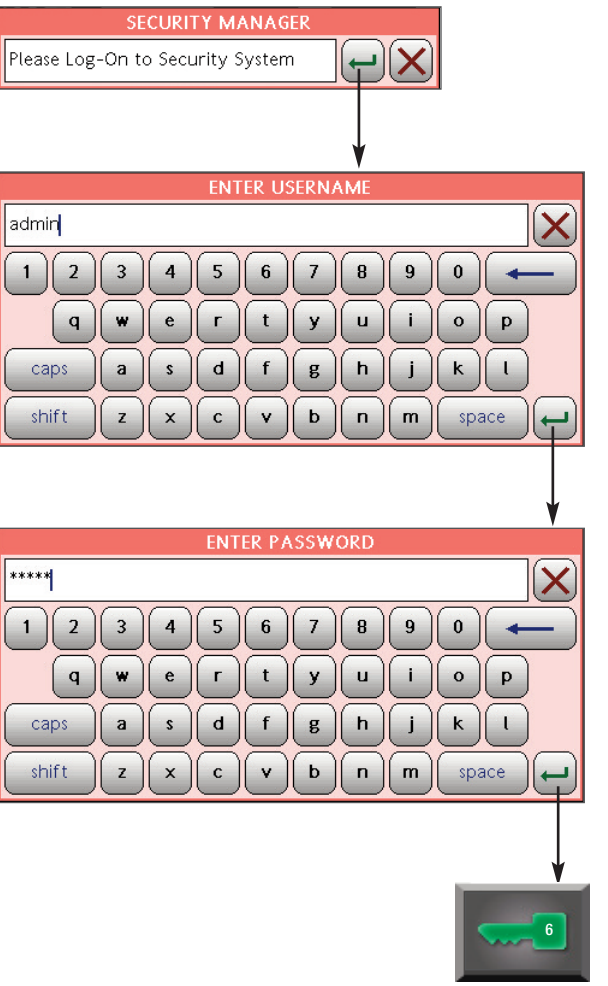
(continued)

Control Function Flow Charts

From the Login/Logout screen

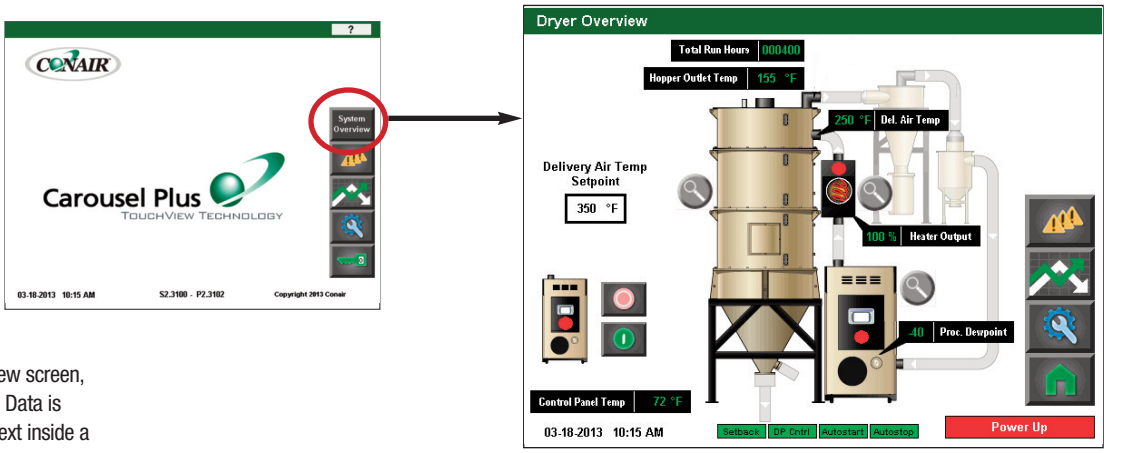
Home

Security Manager



Control Function Descriptions - Stand Alone Configuration

Dryer Overview Screen



NOTE: On this Overview screen, live data is displayed. Data is displayed as colored text inside a solid black box. 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.

To access the Dryer Overview Screen:

1 Press the Dryer Overview button located on the home screen.

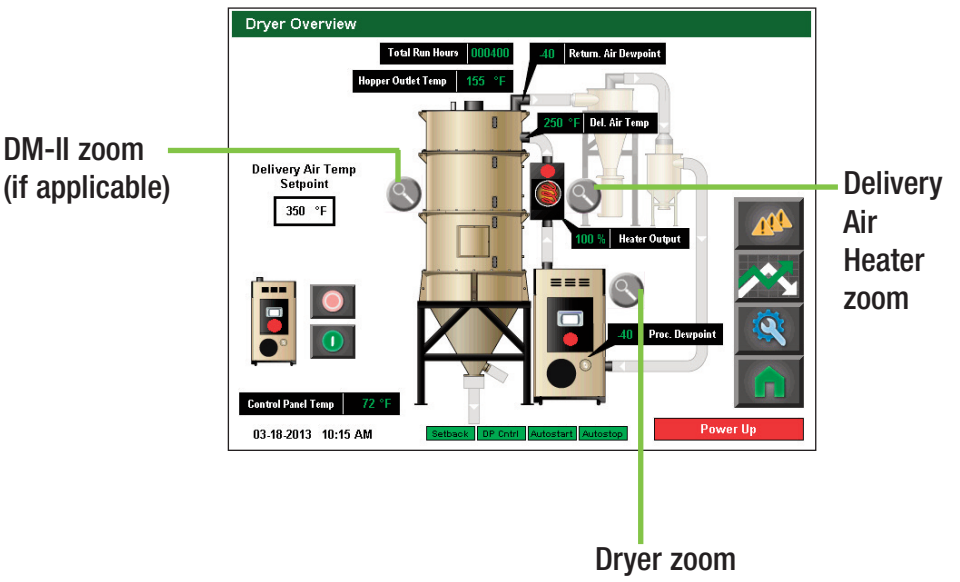
The Dryer Overview screen provides the user with the current live information concerning the delivery air temperature, the process dewpoint, the total run hours, and the ambient temperature.

This screen also allows the user to use the zoom buttons and select the dryer detail information or the hopper(s) detail information.

NOTE: The dots on the Heater Pack and dryer (shown as red on the screen to the right) indicate current operating status.
Red=stopped
Green=on/running

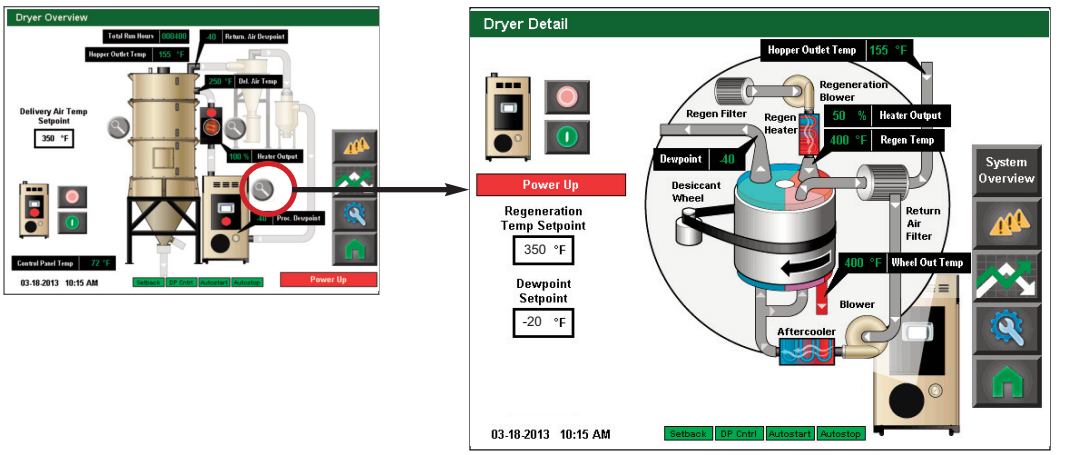
During the shut down process, the dot on the dryer stays green until has cooled down.

Cycling between red and green on the heater pack is normal. This indicates that the heater is turning on and off as necessary.



Control Function Descriptions - Stand Alone Configuration (continued)

Dryer Detail Screen



To access the Dryer Detail screen:

1 **Press the Magnifying Glass (zoom) button** associated with the dryer on the Dryer Overview screen.

This screen allows the user to start or stop the dryer.

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

- Hopper Outlet Temperature (if equipped with setback)
- Heater Output
- Regeneration Temperature (Regen. Temp)
- Dewpoint
- Wheel Out Temperature (Temp)

It also tells the user the current status of the aftercooler and precooler (if applicable), as well as which features (Autostart, Autostop, Setback, Dewpoint Control) are enabled.

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

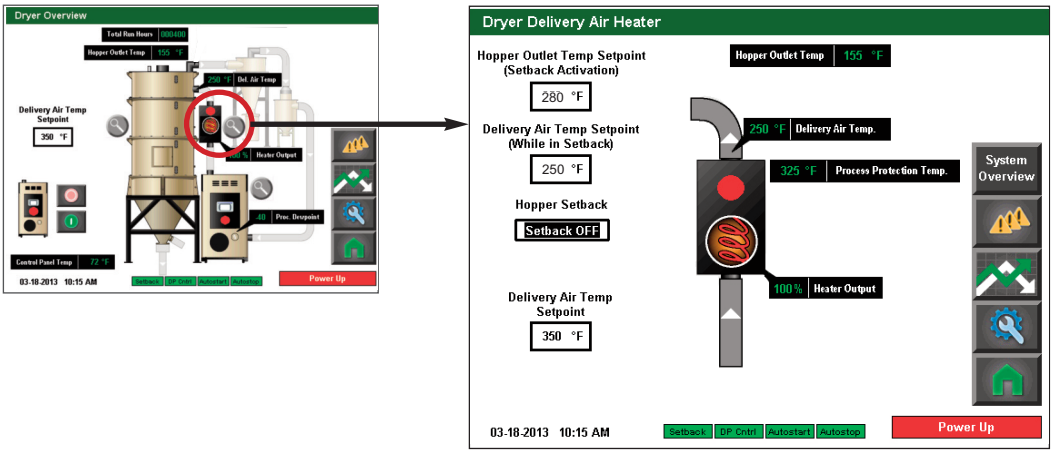
- Regeneration Temperature Setpoint
- Dewpoint Setpoint

The user can also view the other system parameters, view alarms, view trending, return to the Dryer Overview screen, 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 solid black box. 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 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)

Delivery Air Heater Screen



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

To access the Delivery Air Heater screen:

1 **Press the Magnifying Glass (zoom) button** associated with the heater on the Dryer Overview screen.

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

- Heater Output
- Process Protection Temperature
- Delivery Air Temperature

It also tells the user the current status of the heater, as well as which features of the dryer (Autostart, Autostop, Setback -if equipped, Dewpoint Control) are enabled.

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

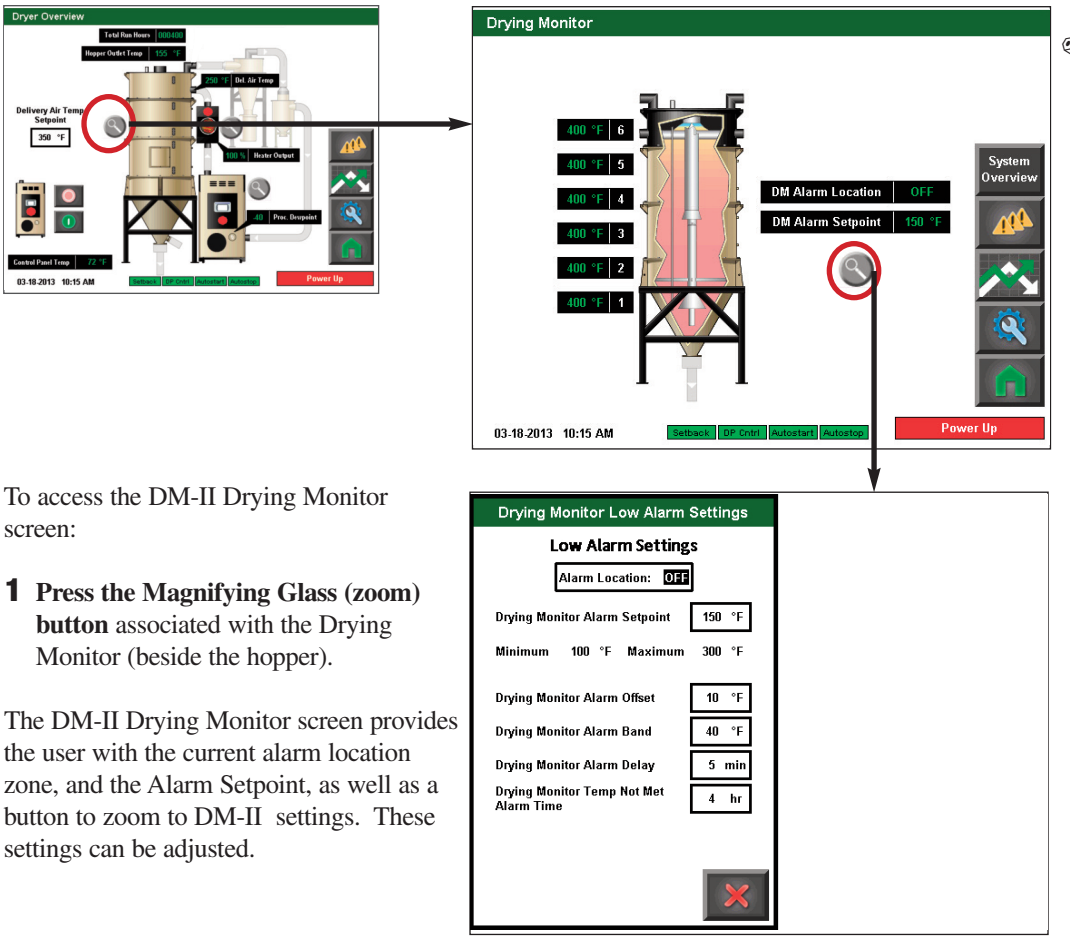
- Hopper Outlet Temperature Setpoint
- Delivery Air Temperature Setpoint
- Delivery Air Temperature Setpoint (for setback - if equipped)
- Hopper Setback activation

This screen also allows the user to view the other system parameters, view alarms, view trending, return to the Dryer Overview screen, or return to the Home screen by pressing the applicable buttons on the right of the screen.

NOTE: On this screen, live data is displayed as well as setpoints which can be changed. Data is displayed as colored text inside a solid black box. Setpoints boxes are white with heavy black borders. Setpoints 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 setpoint. *See Operation section entitled, How to Navigate the Control Screens.* After the new setpoint value has been entered, press the **"Enter"** key to lock in the new set point.

Control Function Descriptions - Stand Alone Configuration (continued)

DM-II Drying Monitor Screen (if equipped)



NOTE: Depending on which options your dryer has been configured with, and whether or not you have the DM-II Drying Monitor enabled, your screens and icons may be different from what is shown here.

To access the DM-II Drying Monitor screen:

1 **Press the Magnifying Glass (zoom) button** associated with the Drying Monitor (beside the hopper).

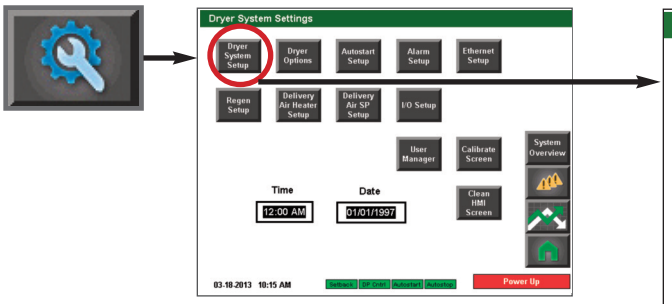
The DM-II Drying Monitor screen provides the user with the current alarm location zone, and the Alarm Setpoint, as well as a button to zoom to DM-II settings. These settings can be adjusted.

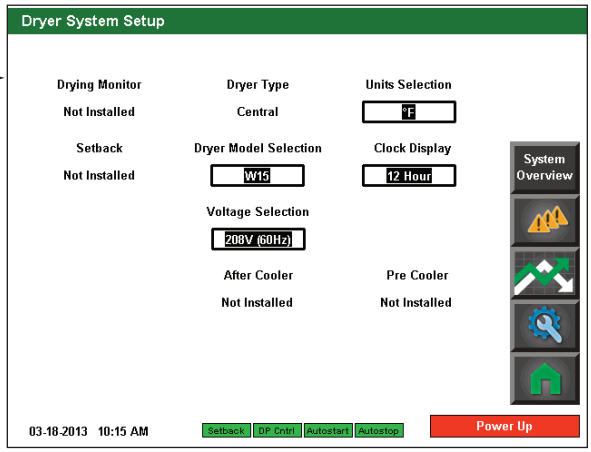
NOTE: On these screens, live data is displayed as well as setpoints which can be changed. Data is displayed as colored text inside a solid black box. Setpoints boxes are white with heavy black borders. Setpoints can be changed, if the user has logged in at the proper security level, by pressing the set point boxes. This will launch a pop-up keypad window that can be used to change the setpoint. *See Operation section entitled, How to Navigate the Control Screens.* After the new setpoint value has been entered, press the **"Enter"** key to lock in the new set point.

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

Control Function Descriptions - Stand Alone Configuration (continued)

Dryer System Setup screen





NOTE: Your DC-T 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.

To access the Dryer System Setup screen:

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

2 **Press the Dryer System Setup button**.

The Dryer System Setup screen provides the user with the ability to change the system settings of this Dryer.

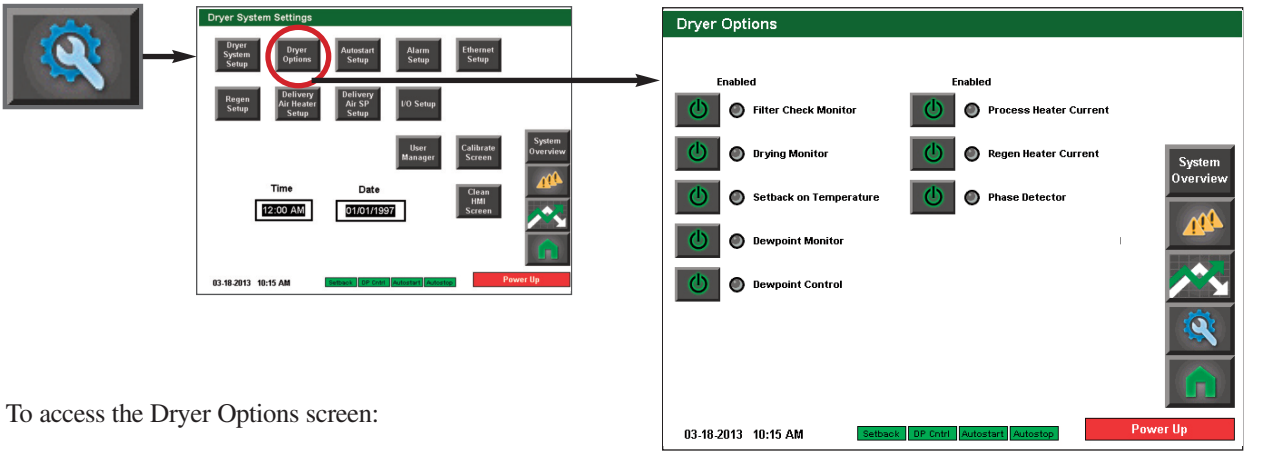
This screen allows you to change:

- Units selection (Fahrenheit and Celsius)
- Dryer model
- Clock display (12 hour and 24 hour)
- Voltage selection

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

Control Function Descriptions - Stand Alone Configuration (continued)

Dryer Options screen



To access the Dryer Options screen:

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

2 **Press the Dryer Options button**.

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

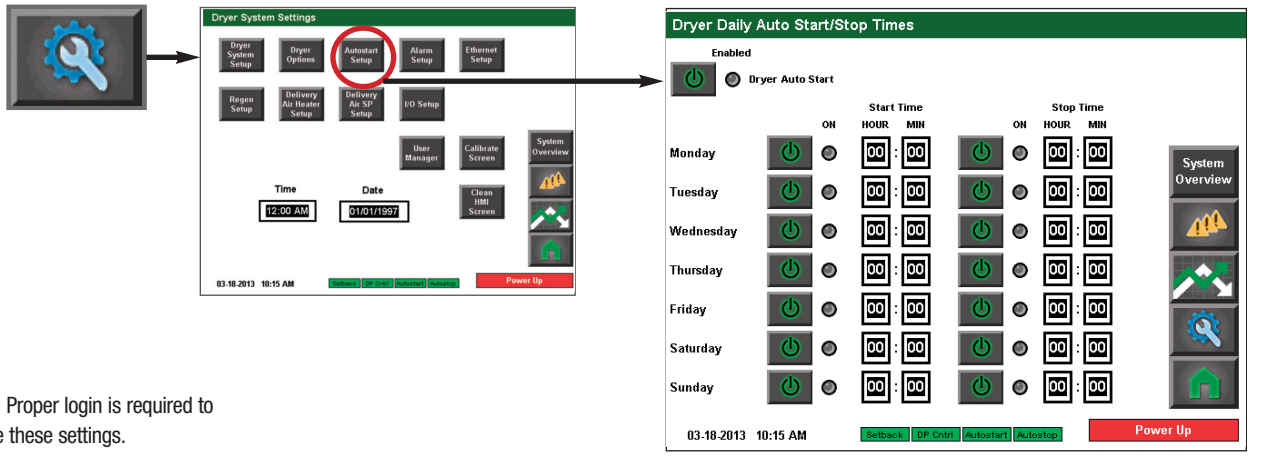
This screen allows you to change the status of:
- Filter Check Monitor
- Drying Monitor
- Setback
- Dewpoint Monitor
- Dewpoint Control
- Process Heater Current
- Regen Heater Current
- Phase Detector

✎ **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.

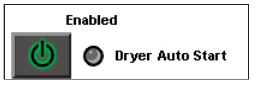
To access the Autostart screen:

1. **Press the Settings button** from the Home screen.
2. **Press the Autostart Setup button**.

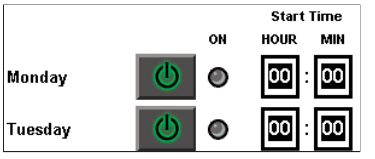
The Autostart Setup screen provides the user with the ability to enable or disable and set the start and stop time for dryer for each day of the week.

To setup Auto Start and Auto Stop:

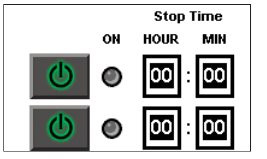
1. **Press the Enable button to enable Dryer Auto Start**.



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.**



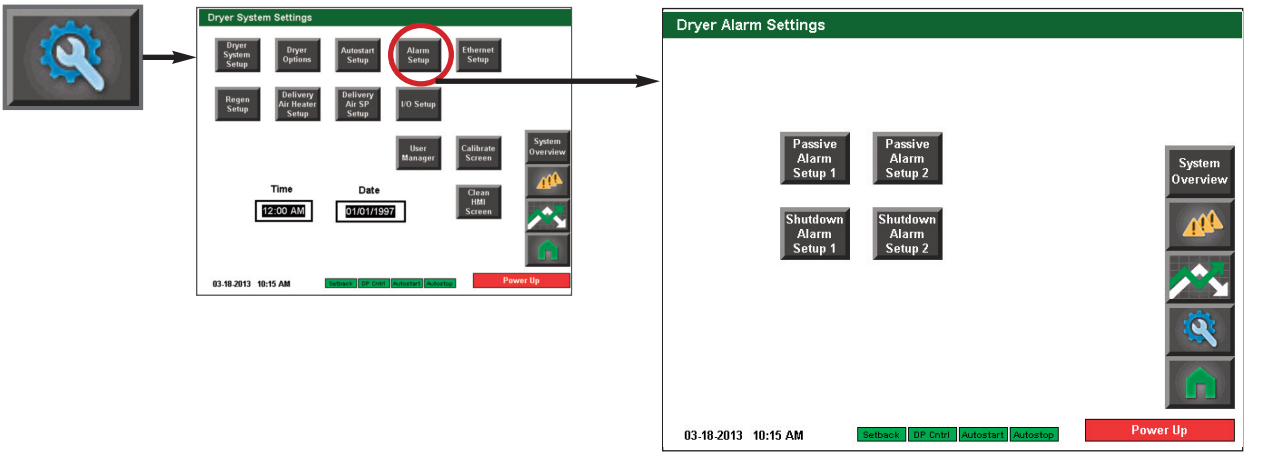
4. **Press the Enable button next to each day of the week you would like to set the Auto Stop time**.
5. **Set the Auto Stop time for each day that you have enabled.**



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

Control Function Descriptions - Stand Alone Configuration (continued)

Alarm Setup screen



To access the Alarm Setup screen:

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

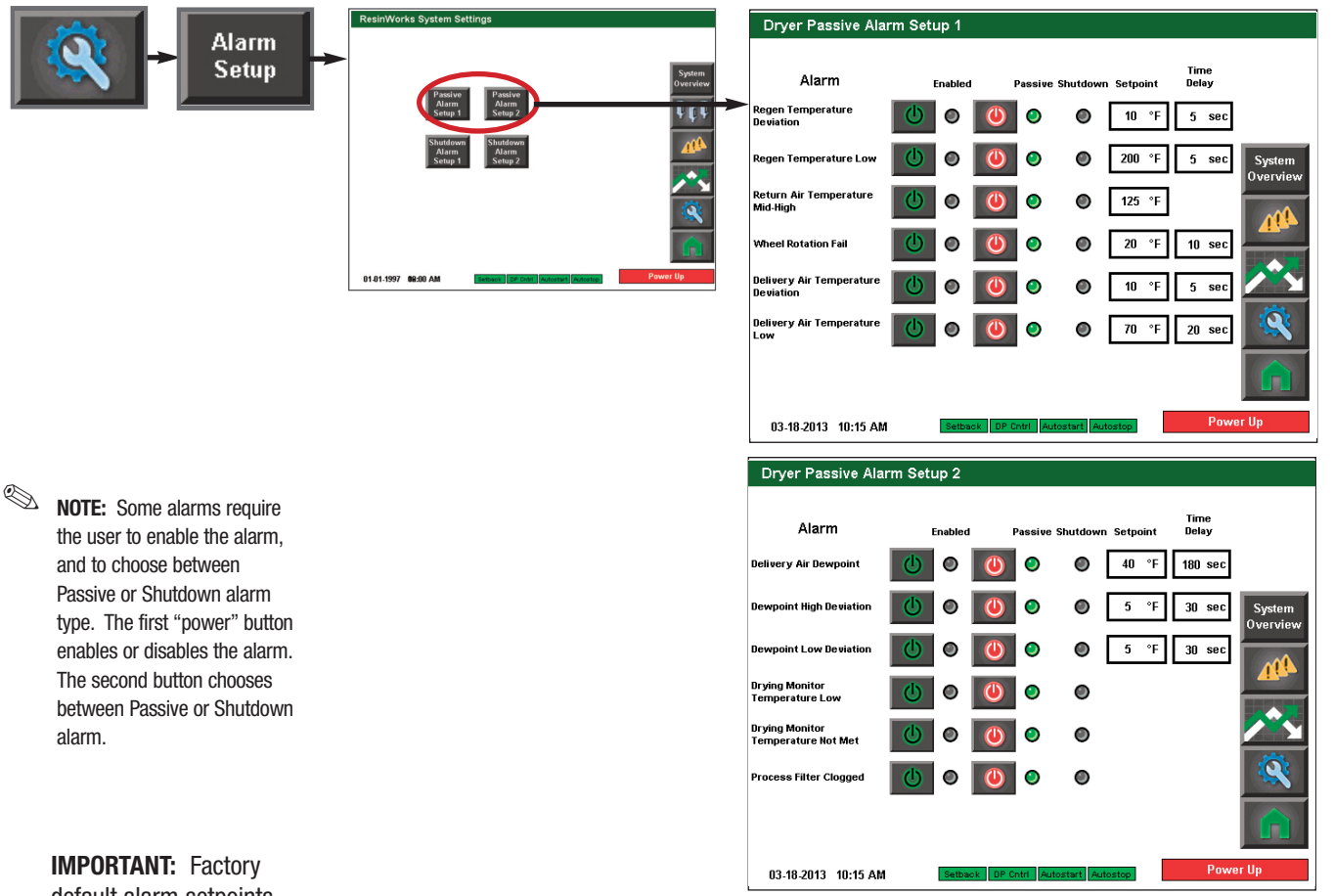
2 **Press the Alarm Setup button**.

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)

Passive Alarm Setup (1 & 2)



NOTE: Some alarms require the user to enable the alarm, and to choose between Passive or Shutdown alarm type. The first "power" button enables or disables the alarm. The second button chooses between Passive or Shutdown 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.

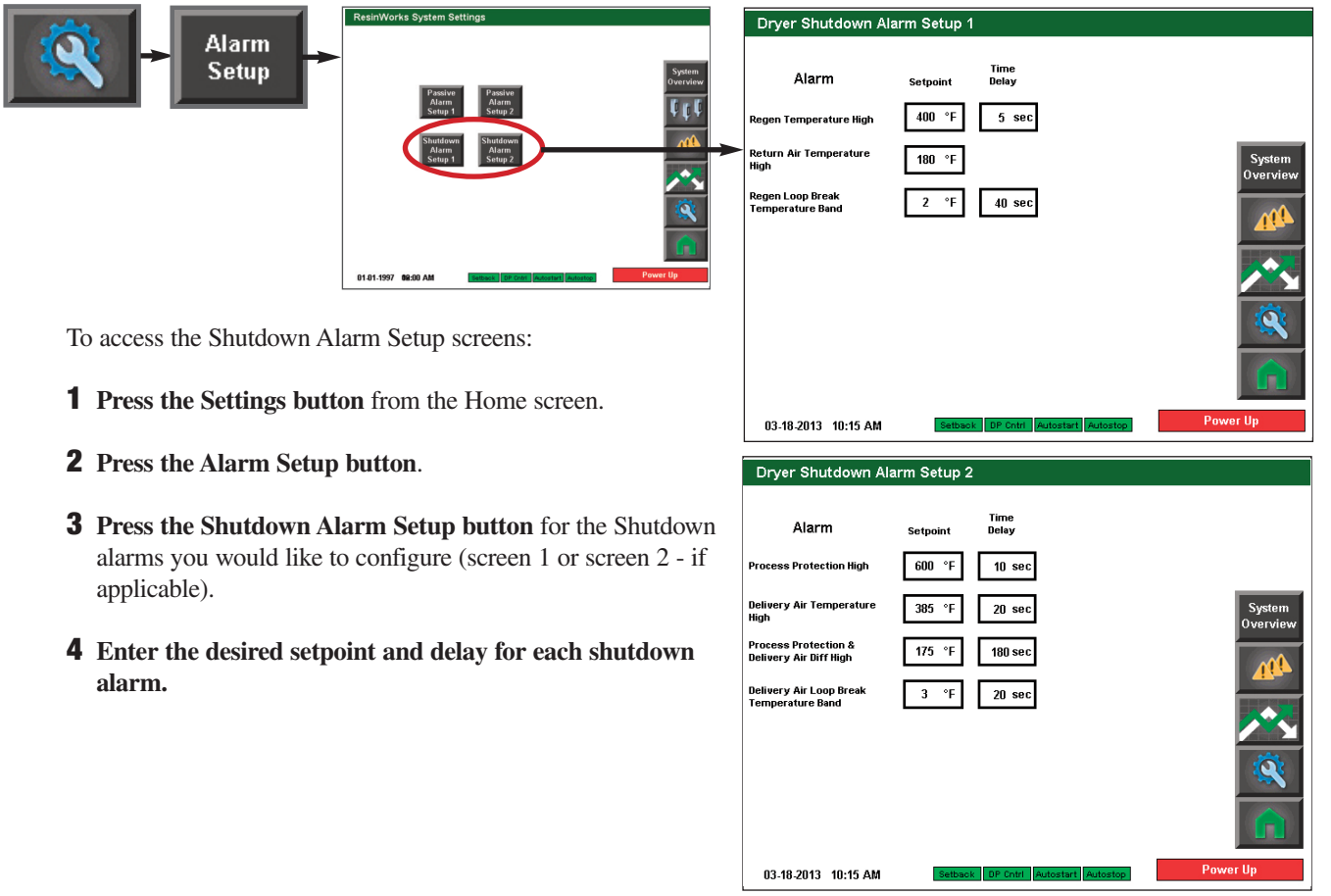
To access the Passive Alarm Setup screens:

1. **Press the Settings button** from the Home screen.
2. **Press the Alarm Setup button**.
3. **Press the Passive Alarm Setup button** for the Passive alarms you would like to configure (screen 1 or screen 2- if applicable).
4. **Enter the desired setpoint and delay (if applicable) for each alarm.**

NOTE: Proper login is required to modify alarm settings. Depending on your dryer configuration, you may have different alarm settings or different screen configurations.

Control Function Descriptions - Stand Alone Configuration (continued)

Shutdown Alarm Setup (1 & 2)



To access the Shutdown Alarm Setup screens:

1. **Press the Settings button** from the Home screen.
2. **Press the Alarm Setup button**.
3. **Press the Shutdown Alarm Setup button** for the Shutdown alarms you would like to configure (screen 1 or screen 2 - if applicable).
4. **Enter the desired setpoint and delay for each shutdown alarm.**

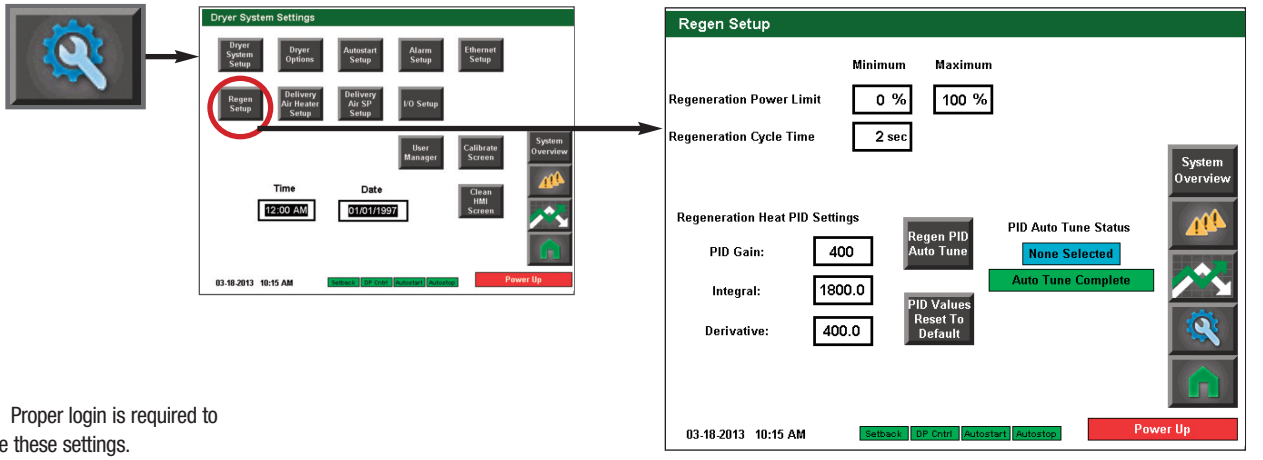
NOTE: Proper login is required to modify alarm settings.

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.

Control Function Descriptions - Stand Alone Configuration (continued)

Regen Setup screen



NOTE: Proper login is required to change these settings.

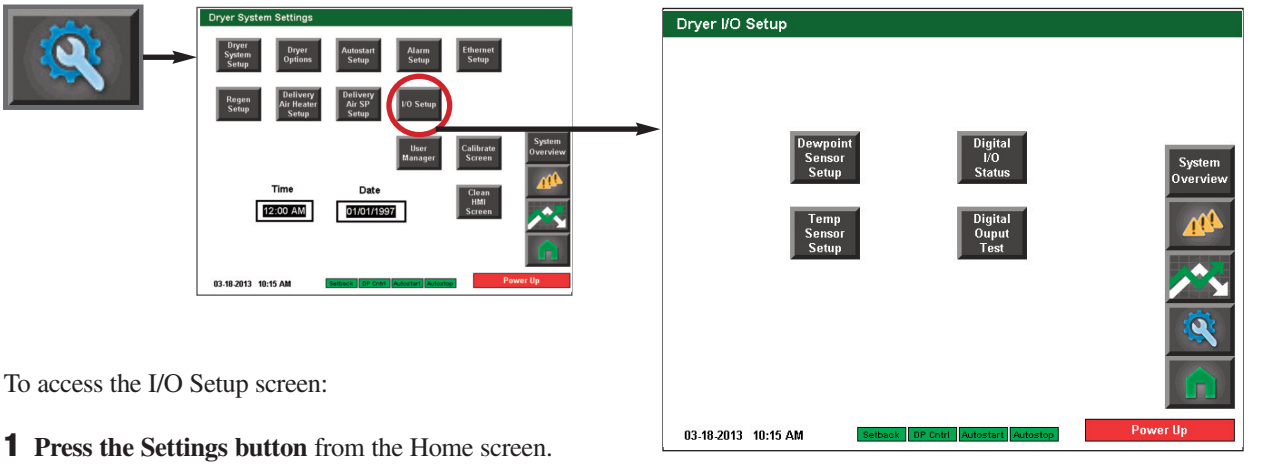
To access the Regen Setup screen:

1. **Press the Settings button** from the Home screen.
2. **Press the Regen Setup button**.

NOTE: It is not typically necessary to use the Regen PID Auto Tune or the Reset PID Values to Factory button. Contact the Conair Service department if you h ave questions about these items. Conair's Instant Access 24/7 Parts and Service number is 800-458-1960. Outside the U.S., dial 814-437-6861.

Control Function Descriptions - Stand Alone Configuration (continued)

I/O Setup screen



To access the I/O Setup screen:

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

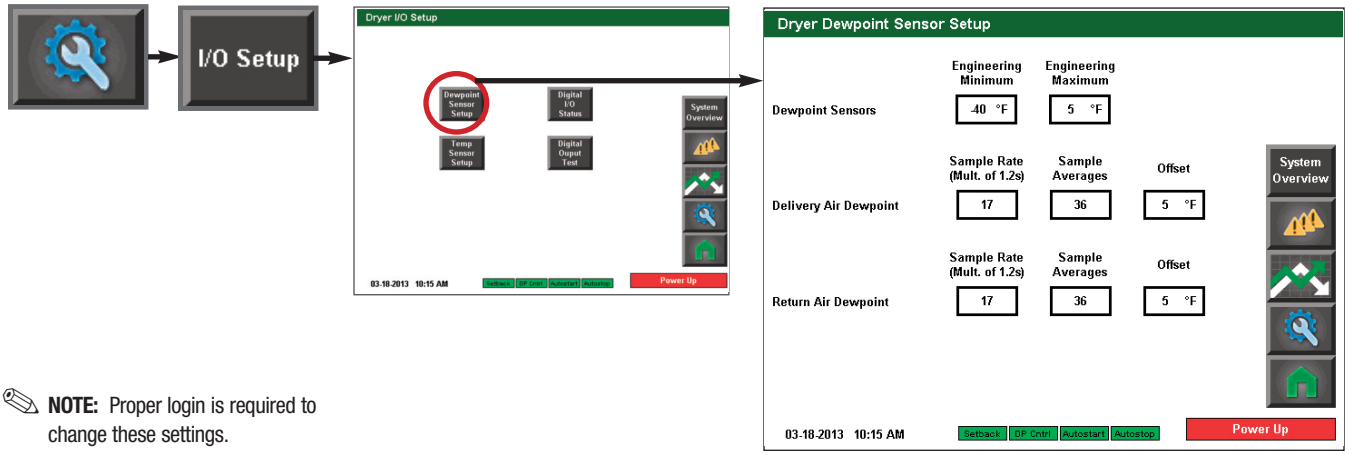
2 **Press the I/O Setup button**.

The Dryer I/O Setup screen provides the user with the ability open to the Dewpoint Setup or the I/O Test screen.

NOTE: Proper login is required to change these settings.

Control Function Descriptions - Stand Alone Configuration (continued)

Dewpoint Setup screen



NOTE: Proper login is required to change these settings.

To access the Dryer Dewpoint Sensor Setup screen:

1. **Press the Settings button** from the Home screen.
2. **Press the I/O Setup button**.
3. **Press the Dewpoint Setup button**.

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

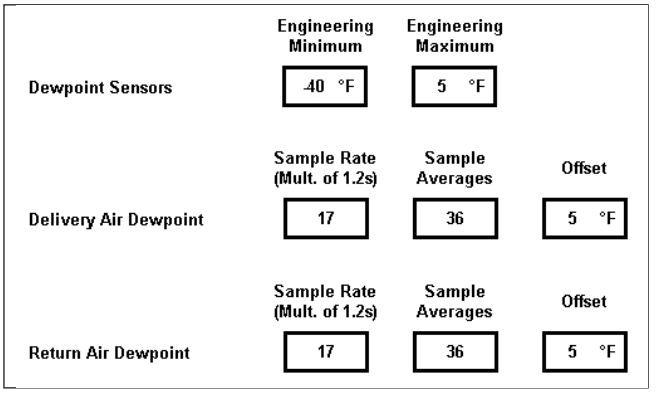
Conair's Instant Access 24/7 Parts and Service number is 800-458-1960. Outside the U.S., dial 814-437-6861.

The Dryer Dewpoint Sensor Setup screen provides the user with the ability to adjust the settings for the Dewpoint sensors. This screen allows for adjustment of:

- Sensor minimum and maximum
- Delivery air dewpoint sample rate, sample averages, and offset
- Return air dewpoint sample rate, sample averages, and offset

To change a setpoint:

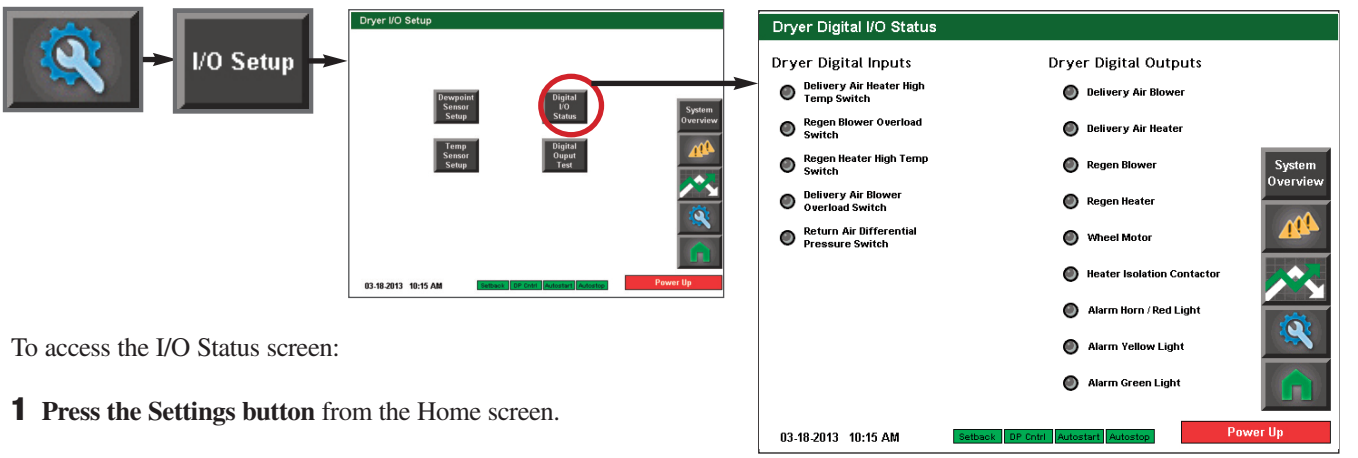
1. **Press the text inside white box with thick black outline of the setting you would like to change.**



2. **Use the keypad to enter the new setting.** Setting range will be displayed at the bottom of the pop up keypad.

Control Function Descriptions - Stand Alone Configuration (continued)

Digital I/O Status screen



To access the I/O Status screen:

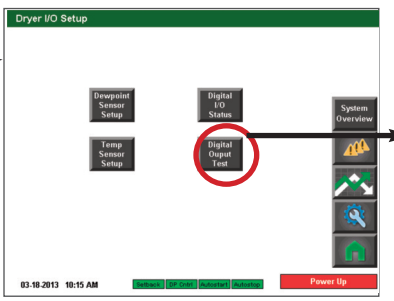
1. **Press the Settings button** from the Home screen.
2. **Press the I/O Setupbutton**.
3. **Press the I/O Status button**.

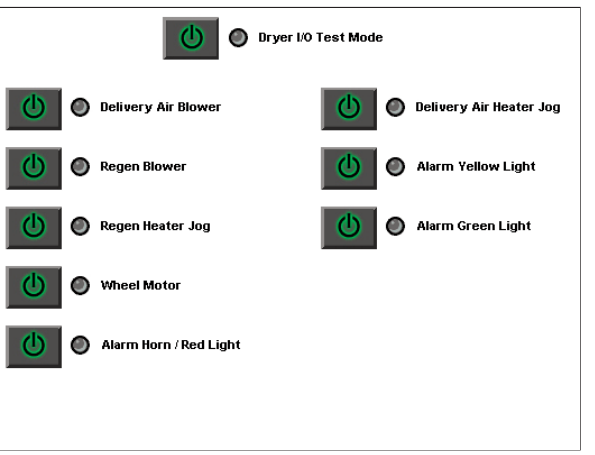
The I/O Status screen allows for a visual display of active outputs attached to the DC-T control. Inputs or outputs that are active will turn green. Inactive inputs and outputs will appear grey.

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

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 Settings button** from the Home screen.
2. **Press the I/O Setup button**.
3. **Press the Digital Output Test 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.

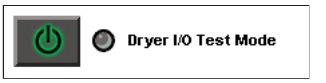
The test screen allows for digital output tests of various outputs attached to the DC-T control. This screen allows for testing of:

- 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:

NOTE: Upon initial test mode, the delivery air blower will start automatically. This only occurs the first time test mode is activated. This is not unusual and should be expected.

1. **Press the power button to enable the Dryer I/O Test Mode.** The button should illuminate and the LED beside the button should change from grey to green indicating that test mode is enabled.



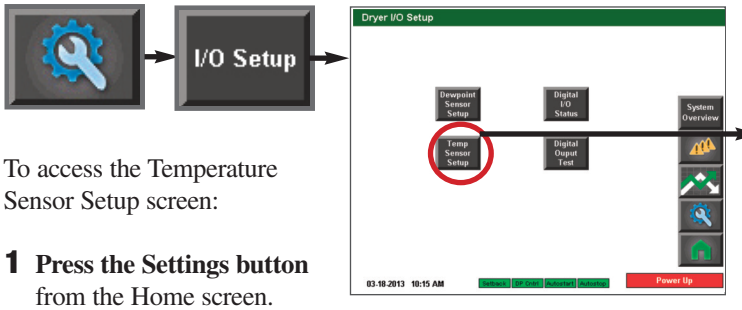
2. **Press the power button beside the output you would like to test.** The button should illuminate and the LED beside the button should change from grey to green indicating power has been sent to the output.

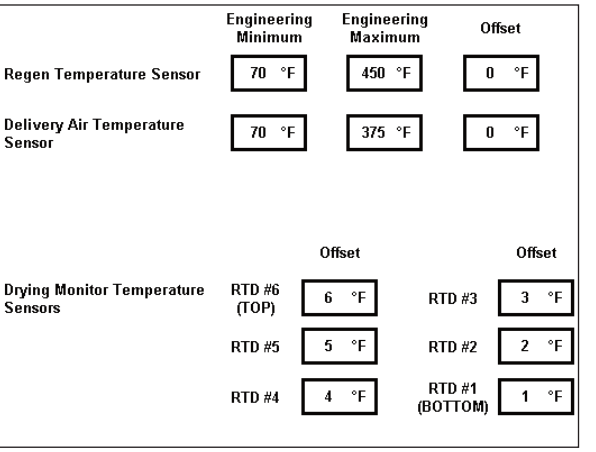
3. **Press the power button beside the output again to stop the test.** Note that some tests are a jog test and will not require pressing the button again to stop. Jog tests are programmed to run for three (3) seconds.

4. **Press the power button beside the Dryer I/O Test Mode text to disable test mode.**

Control Function Descriptions - Stand Alone Configuration (continued)

Temperature Sensor Setup screen





To access the Temperature Sensor Setup screen:

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

2 **Press the I/O Setup button**.

3 **Press the Temperature Sensor Setup button**.

The test screen allows the user to set the setpoints for the Temperature Sensors:

- Delivery Air Temperature Sensor
- Regen Temperature Sensor
- Drying Monitor Temperature Sensors (if equipped)

NOTE: Proper login is required to change these settings.

To change a setting:

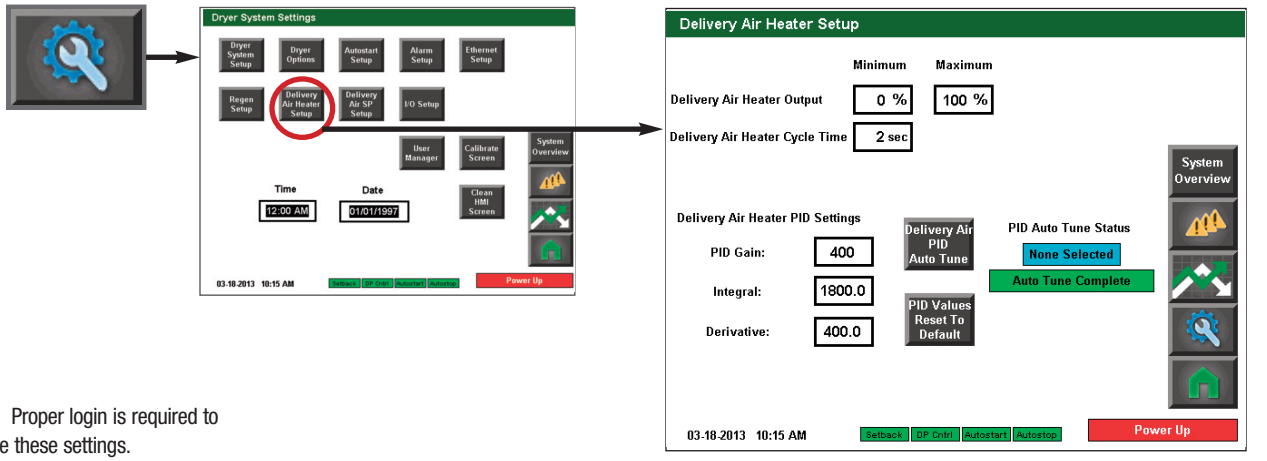
1 **Press the white outlined setpoint box.** A pop up number pad will appear.

2 **Enter the desired setting.** Press enter after you have entered the numbers.

3 **Repeat steps 1 and 2 for all settings you would like to adjust.** Note that depending on your dryer configuration and your enabled options, your screen may appear different than what is shown here.

Control Function Descriptions - Stand Alone Configuration (continued)

Delivery Air Heater Setup screen



NOTE: Proper login is required to change these settings.

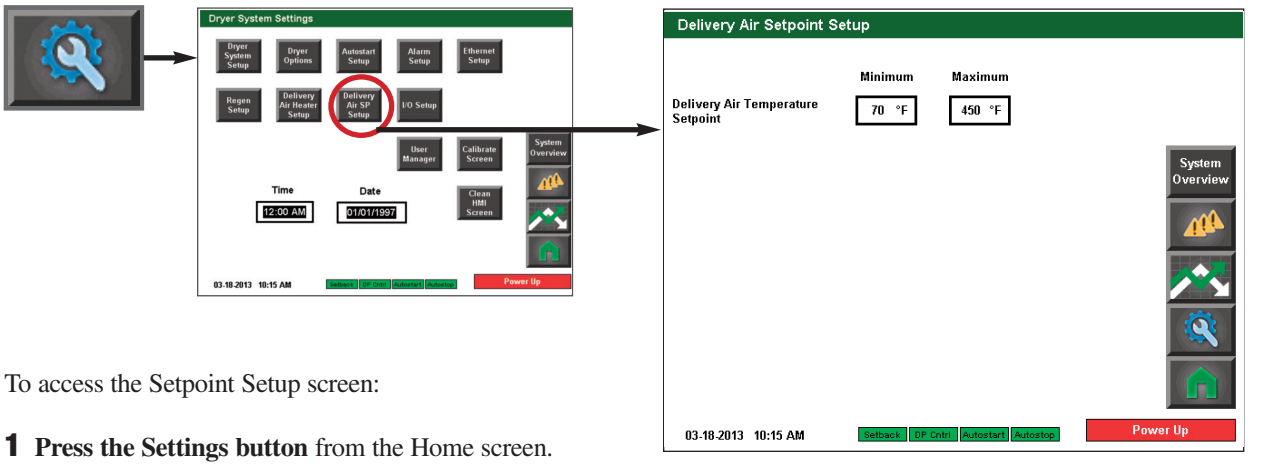
To access the Delivery Air heater Setup screen:

1. **Press the Settings button** from the Home screen.
2. **Press the Delivery Air Heater Setup button**.

NOTE: It is not typically necessary to use the PID Auto Tune or the Reset PID Values to Factory button. Contact the Conair Service department if you h ave questions about these items. Conair's Instant Access 24/7 Parts and Service number is 800-458-1960. Outside the U.S., dial 814-437-6861.

Control Function Descriptions - Stand Alone Configuration (continued)

Delivery Air Setpoint Setup screen



To access the Setpoint Setup screen:

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

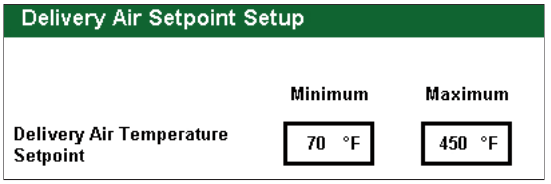
2 **Press the Delivery Air Setpoint Setup button**.

NOTE: Proper login is required to change these settings.

The Delivery Air Setpoint Setup screen provides the user with the ability change the set-point for the Hopper Heater (or other delivery air heat device).

To change the setpoint:

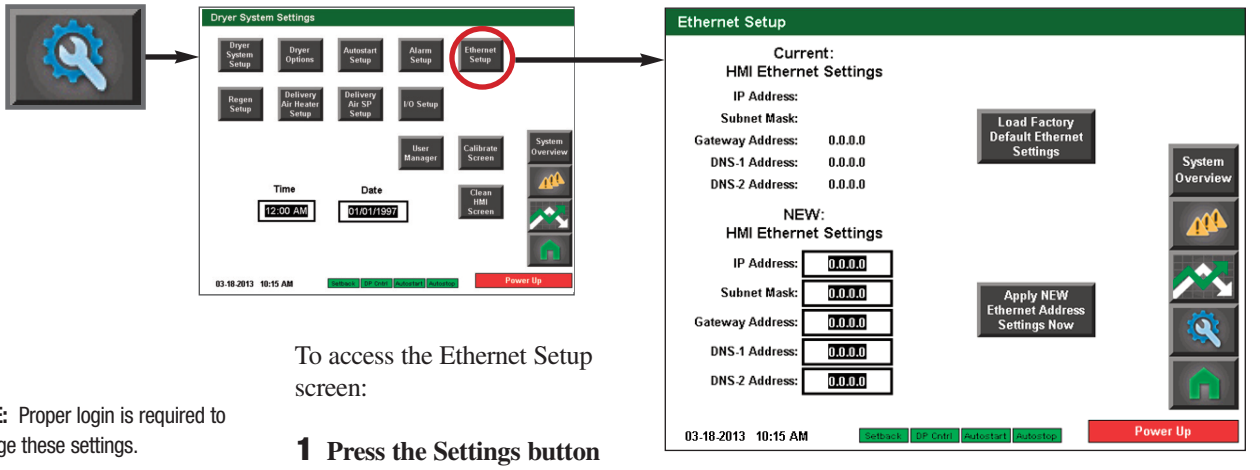
1 **Press the text inside white box with thick black outline of the setting you would like to change.**



2 **Use the keypad to enter the new setting.** Setting range will be displayed at the bottom of the pop up keypad.

Control Function Descriptions - Stand Alone Configuration (continued)

Ethernet Setup screen



To access the Ethernet Setup screen:

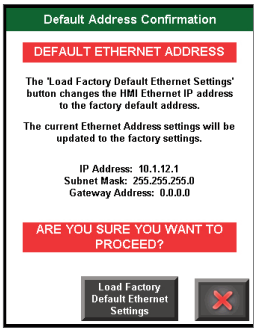
1 Press the Settings button from the Home screen.

2 Press the Ethernet Setup button.

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

NOTE: Proper login is required to change these settings.

To load the factory default Ethernet settings:

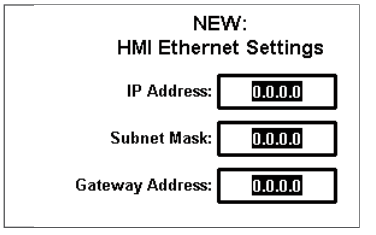


1 Press the Load Factory Default Ethernet Settings button.

2 Press the button to confirm that you want to load the factory default settings. Press the X button if you want to exit without loading the default factory settings.

NOTE: Conair's default IP address setting for the DC-T control is 10.1.12.1 as shown in the graphic to the right.

To apply new Ethernet settings:



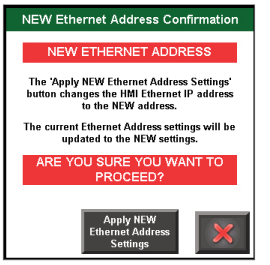
1 Enter the new settings in the white boxes with thick black borders. When you touch the setting inside the box, a pop up number pad will appear.

2 Use the number pad to enter the new setting. Press the enter button on the number pad to enter the new setting.

3 Repeat steps 1 and 2 for each address setting.

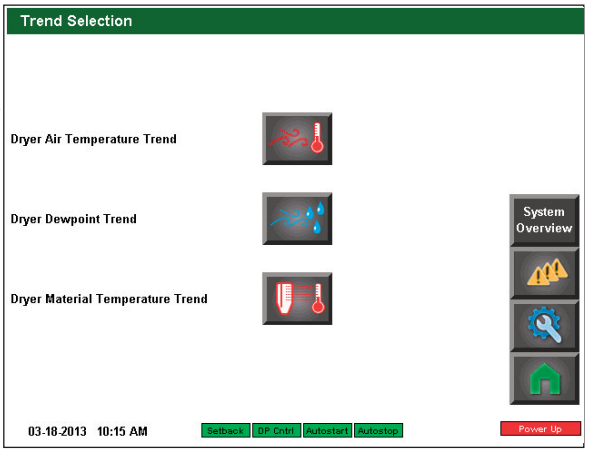
4 Press the Apply NEW Ethernet Address Settings Now button.

5 Press the button to confirm that you want to apply the new settings. Press the X button if you want to exit without applying the new settings.



Control Function Descriptions - Stand Alone Configuration (continued)

Trending



To access the Trending screens:

1 Press the Trending button from the Home screen.

The Trend Selection screen allows you to choose which trending screens you would like to view. From this screen, you can choose to view:

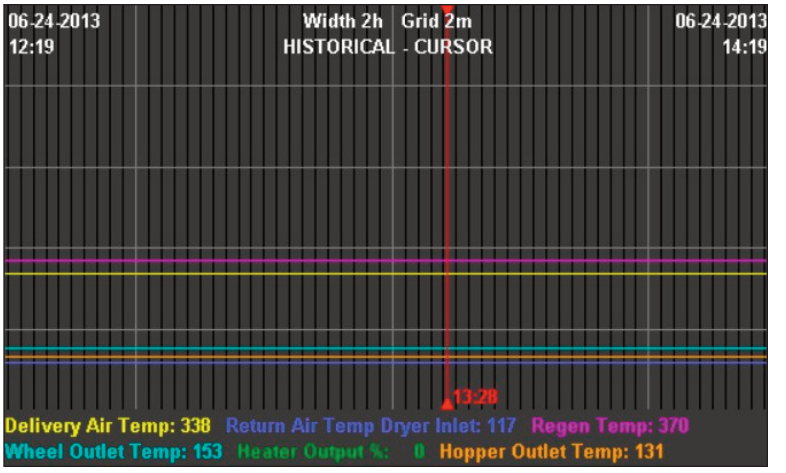
- Dryer Air Temperature Trend
- Dryer Dewpoint Trend
- Dryer Material Temperature Trends

NOTE: Depending on your DC-T 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.

4 Operation

Trending Screen Navigation

Each trending screen will allow the user to scroll through data. When the screen first opens, it will be displaying a two (2) hour window, and will have saved the data for the last seven (7) 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).

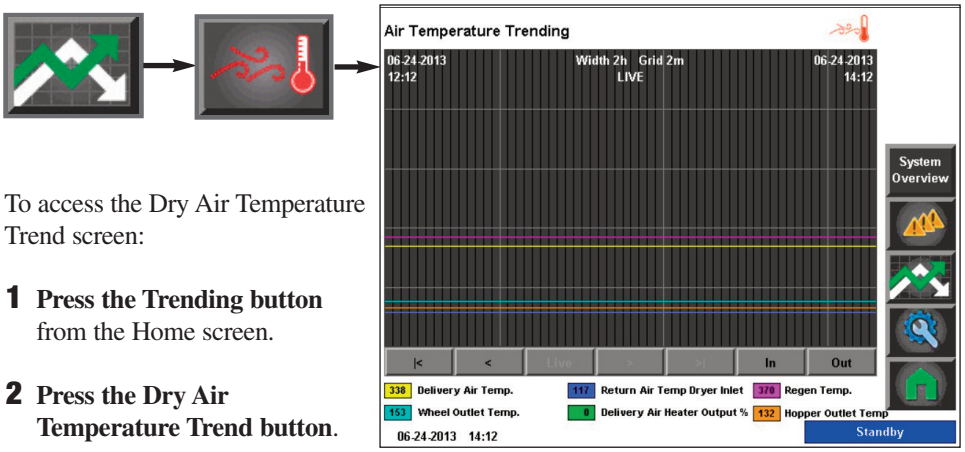
Live Move to live data.

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

Out 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 Trending button** from the Home screen.
2. **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:

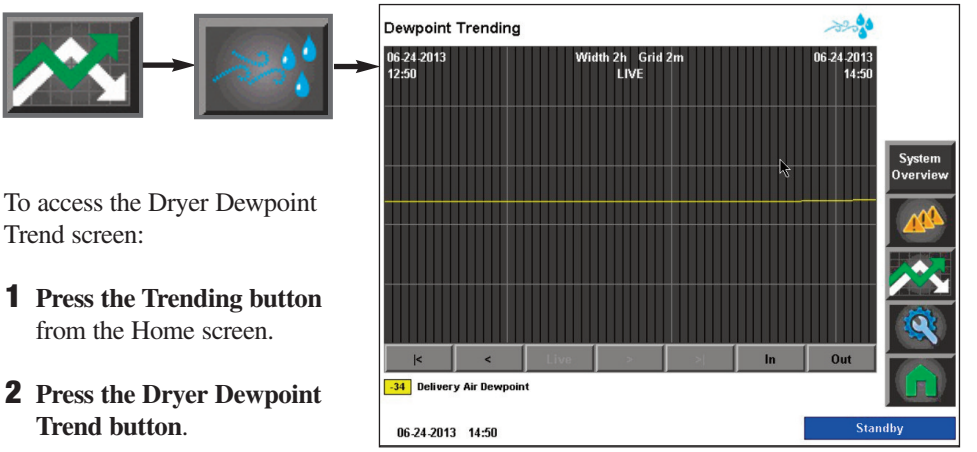
Yellow: Delivery Air Temperature
Blue: Return Air Temp Dryer Inlet
Pink: Regeneration Temperature (within the dryer)
Light Blue: Wheel Outlet Temperature
Green: Delivery Air Heater Output Percentage
Orange: Hopper Outlet Temperature

The Dry Air Temperature Trending screen shows a snap shot of the last two (2) hours of operation and records and saves trending data for the last seven (7) 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, plus jump to the present (Live) time from any time within the trending record.

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)

Dryer Dewpoint Trend



To access the Dryer Dewpoint Trend screen:

1. **Press the Trending button** from the Home screen.
2. **Press the Dryer Dewpoint Trend button**.

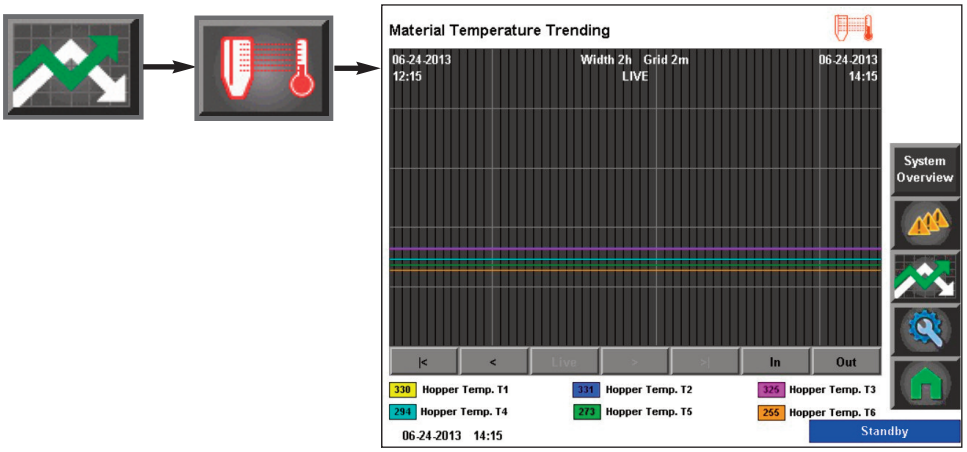
The Dewpoint Trending screen allows the user to view the dewpoint trend vs. time in the Carousel Plus Dryer.

The Dewpoint Trending screen shows a snap shot of the last two (2) hours of operation and records and saves trending data for the last seven (7) 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, plus jump to the present (Live) time from any time within the trending record.

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 Trending button** from the Home screen.

2 **Press the Material Temperature Trend button**.

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.

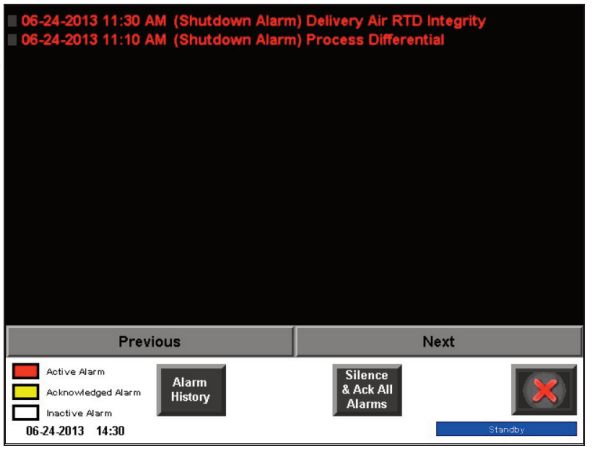
The Drying Monitor Trending screen shows a snap shot of the last two (2) hours of operation and records and saves trending data for the last seven (7) day period. The scroll buttons near the bottom of the screen allow the user to scroll back to an earlier time or forward to the present time, plus jump to the present (Live) time from any time within the trending record.

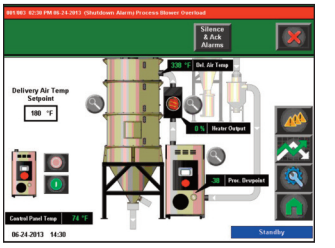
✎ **NOTE:** *See the Drying Monitor User Guide for more information about using the Drying Monitor.*

✎ **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.*

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.

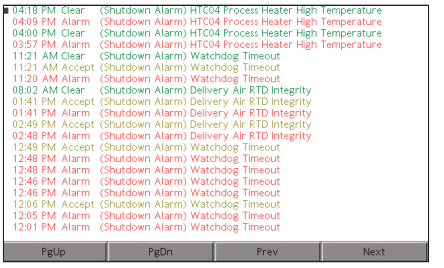
2 View the current alarms.

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

The following buttons are available from the Alarms log screen:

Previous Previous - The previous button is used to select the previous alarm when multiple alarms are displayed.

Next Next - The next button is used to select the next alarm when multiple alarms are displayed.



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

Silence & Ack All Alarms Acknowledge All - The acknowledge all button is used to acknowledge all the alarms on the list.

Reset All Alarms Reset All Alarms - The Reset button is used to clear all alarms on the list. If the condition has not been remedied, the alarm will reappear.

General Operation - Stand Alone and ResinWorks Dryer Configuration

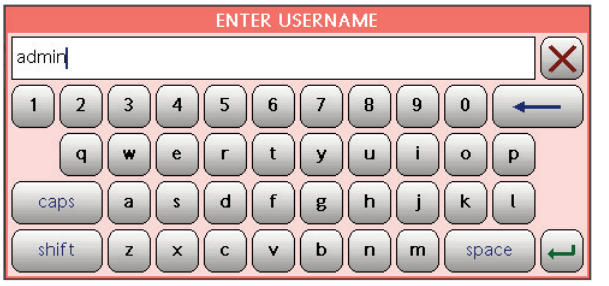
DC-T System Security Levels

There are five (5) customer security levels within the DC-T control. The DC-T is shipped with the password security level set at guest.

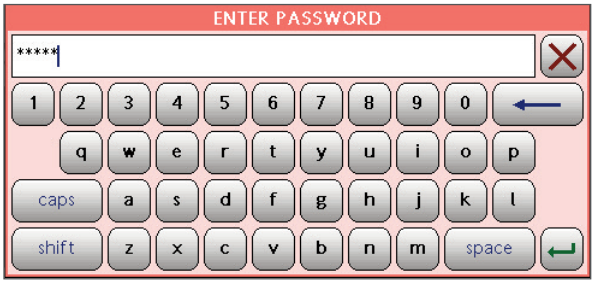
To log in at a different user level:

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

2 **Press the green arrow.** A pop up window will appear with a keypad.



3 **Using the keypad, enter your username.** Finish by pressing the green enter arrow.



4 **Using the keypad, enter your password.** Finish by pressing the green enter arrow.

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, innactivity for 10 minutes will log you out of the control. The control will return to security level guest.

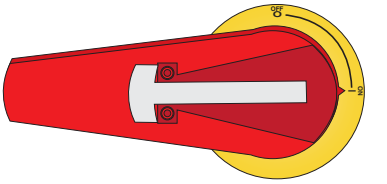
Basic user level information:

User	Real name	Password	Change password	Security Level
oper1	Oper1	oper1	No	0, 1
oper2	Oper2	oper2	Yes	0, 1
oper3	Oper3	oper3	Yes	0, 1, 2
maint1	Maint1	maint1	Yes	0, 1, 2, 3
maint2	Maint2	maint2	Yes	0, 1, 2, 3, 4
maint3	Maint3	maint3	Yes	0, 1, 2, 3, 4, 5
admin	Admin	admin	Yes	0, 1, 2, 3, 4, 5, 6

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

Starting the Dryer

To start the dryer:

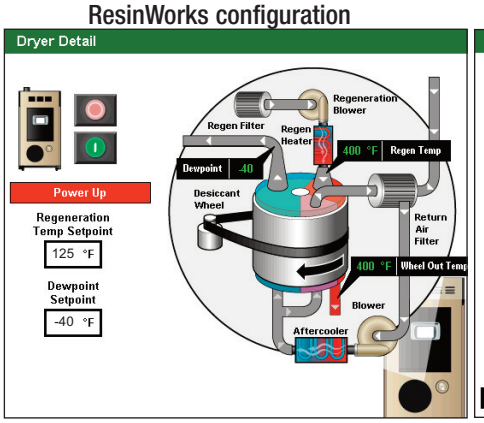


1 Turn on the main power to the dryer and system components. Check to make sure that all disconnect dials are in the "ON" position.

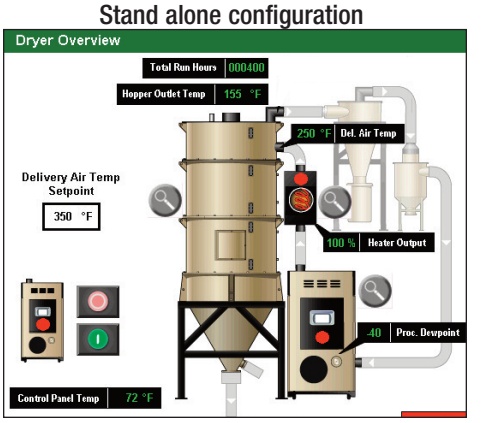
2 Fill the drying hopper with material.

3 Navigate to the Dryer Detail screen.

ResinWorks configuration



Stand alone configuration



4 Enter setpoints as necessary on this page. (Depending on your dryer configuration, you may need to make settings to the hopper heater by pressing the zoom button beside the hopper heater.)

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 greyed 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 greyed. The dryer can not be started because it is already running. Similar conditions may occur during cool down or start up.

Adjusting the Temperature Setpoint

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

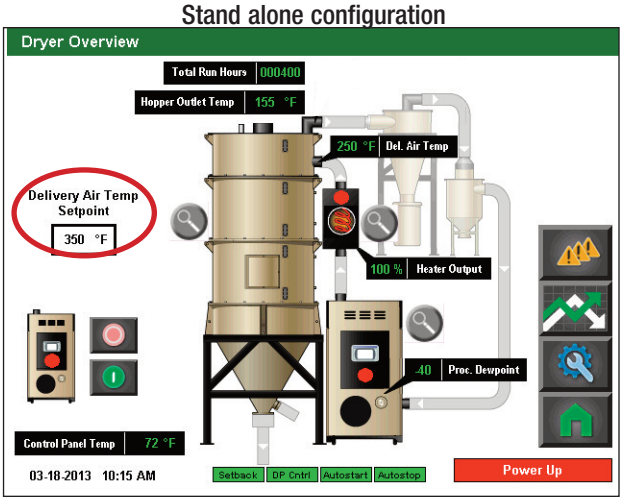
Changes to material temperatures will affect the material temperature profile and the hopper outlet temperature.

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.

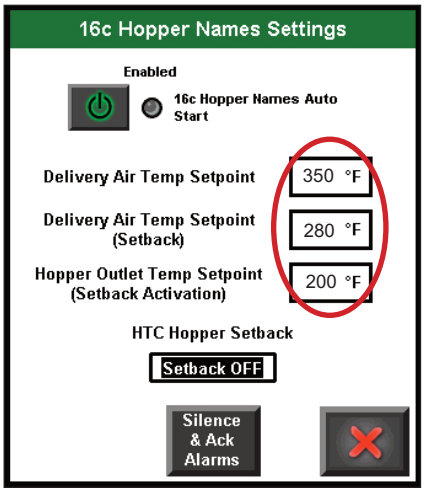
IMPORTANT: Always consult with the material manufacturer for correct processing temperatures.

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.

Stand alone configuration



ResinWorks configuration



Stopping the Dryer

The DC-T 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.

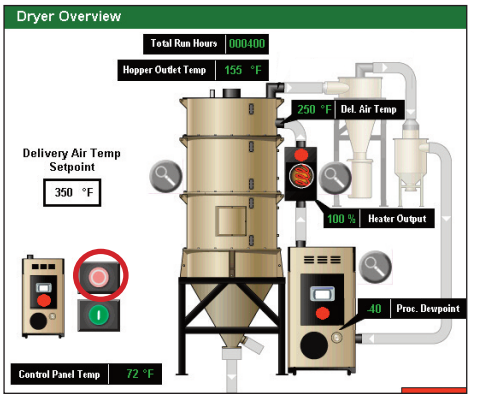
2 **Observe the dryer status changing to "Stopping" or "Shutdown".**

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.

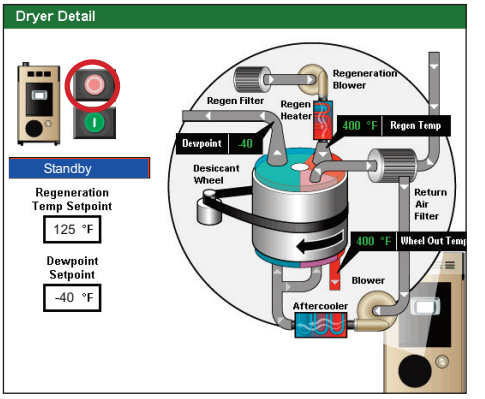
4 **If you would like to shut down the dryer at this time, turn the rotary disconnect switch to the OFF position.**

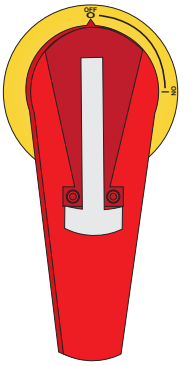
⚠ **IMPORTANT:** Except in an emergency, aways wait until the dryer control displays "Standby" in the status display before turning the rotary disconnect to the OFF position. Failure to do so will not allow the dryer to progress through the cooldown procedure and could result in damage to your equipment.

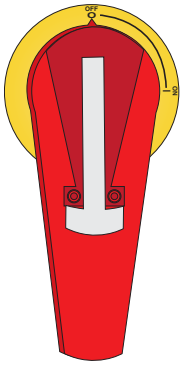
Stand alone configuration



ResinWorks configuration





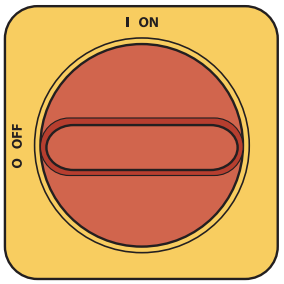


Stopping the Dryer in an emergency

To stop the dryer in an emergency:

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

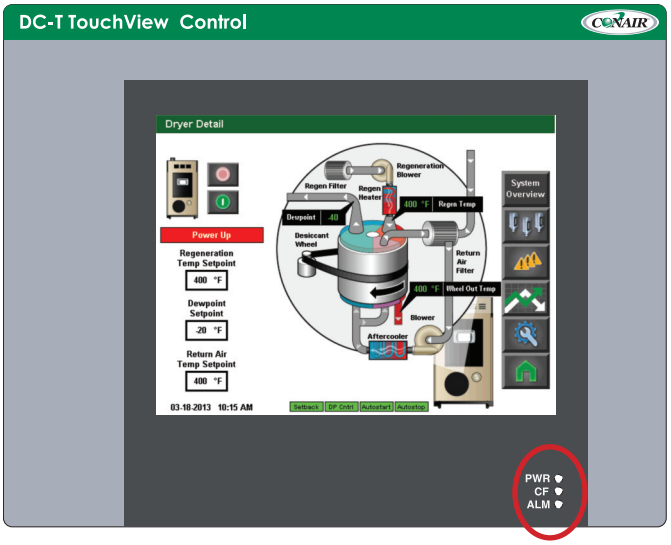
2 **If using your dryer as part of a ResinWorks system, use the disconnect on each hopper on the RW sled to disconnect the hopper heaters from power.**



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.

⚠ **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.

Understanding the Control LED Lights



Your DC-T control has three LED lights that give the user information about the current state of the HMI.

The PWR LED light indicates that there is power to the display. This light should be on whenever the machine is on. At times, the touch screen will go into a "sleep" mode, the PWR indicator will remain lit to so that the user knows the display is still on.

The CF LED indicates that the HMI has a valid Compact Flash card inserted. Conair recommends that a valid Compact Flash card be in the system at all times. The Compact Flash is used to save trending data and other valuable information.

The ALM LED is an alarm indicator. A solid green light indicates that there are currently no active alarms. A flashing green light indicates that there are active alarms.

Alarm Email and Text Notification

The DC-T can send out Alarm messages as emails or text messages when this option is purchased. The option requires activation by Conair service personal. It also requires a fixed IP address for the DC-T HMI and access to a DNS server to connect to the Internet. This function resides in the HMI so the HMI must be on for this feature to work. This also means that multiple HMIs could be setup to email different addresses based on different types of alarms.

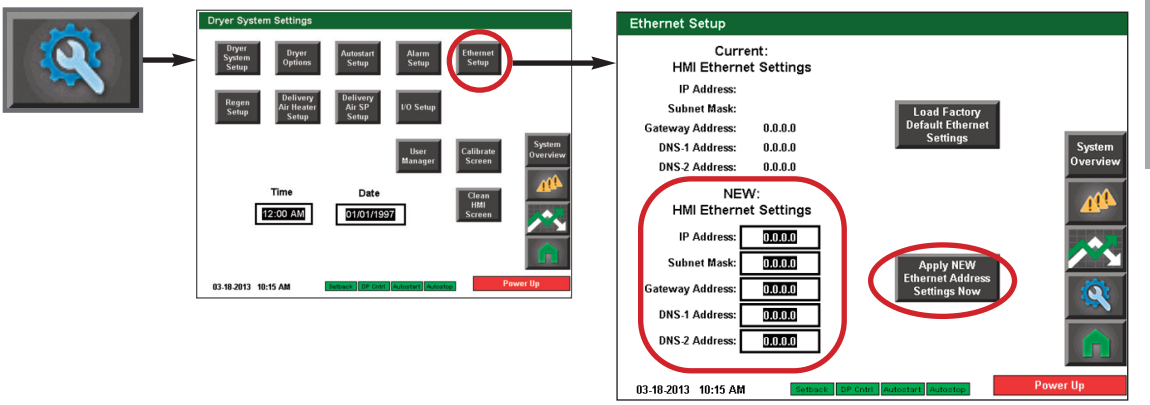
Ethernet TCP/IP Address Setup to Enable Email/Text Notification.

NOTE: Proper login is required to change these settings.

The DC-T can send out Alarm messages as emails or text messages when this option is purchased. The option requires activation by Conair service personal. It also requires a fixed IP address for the DC-T HMI and access to a DNS server to connect to the Internet. This function resides in the HMI so the HMI must be on for this feature to work. This also means that multiple HMIs could be setup to email different addresses based on different types of alarms.

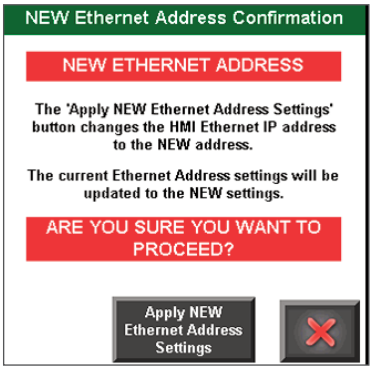
After activation of the Email option and Ethernet connection to the DNS server, navigate to the Ethernet Setup screen.

1 From the main screen, press the Settings button, followed by the Ethernet Setup button. The Ethernet Setup screen will appear.



2 Enter the IP, Submat Mask, Gateway, and at least 1 DNS server IP address. The IP address and other related information will need to be provided by the network administrator.

3 Press the "Apply NEW Ethernet Settings now" button. A pop-up confirmation window will appear to verify that you want to make the changes.



When the "Apply NEW Ethernet Address Settings" button is pressed, the HMI will reset. Conair recommends that the dryer not be running during these changes. However, HMI reset function will not affect the operation of the dryer.

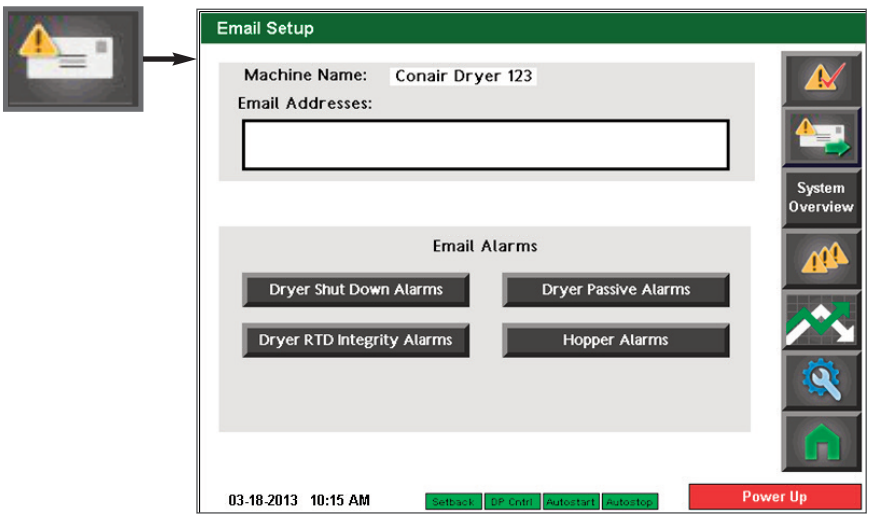
(Continued)

Email Alarm Activation and Address Setup

Once the email option has been activated, the email configuration button is visible on the System Settings screen.

✎ **NOTE:** Proper login is required to change these settings.

1 Press the Email Configuration button to open the Email Setup screen. The Email Setup screen is the central screen for setting up and testing the email and text alarm notifications.



The main part of the screen is broken down into several parts listed below:

Machine Name: The name that has been assigned to this particular dryer system. The dryer name is set on the Dryer System Setup screen and appears in the subject line on the alarm messages.

Email Addresses: This section lists all the email addresses and text addresses that the alarm notifications are sent to. When the black box area is pressed, the Email List Setup screen is opened.

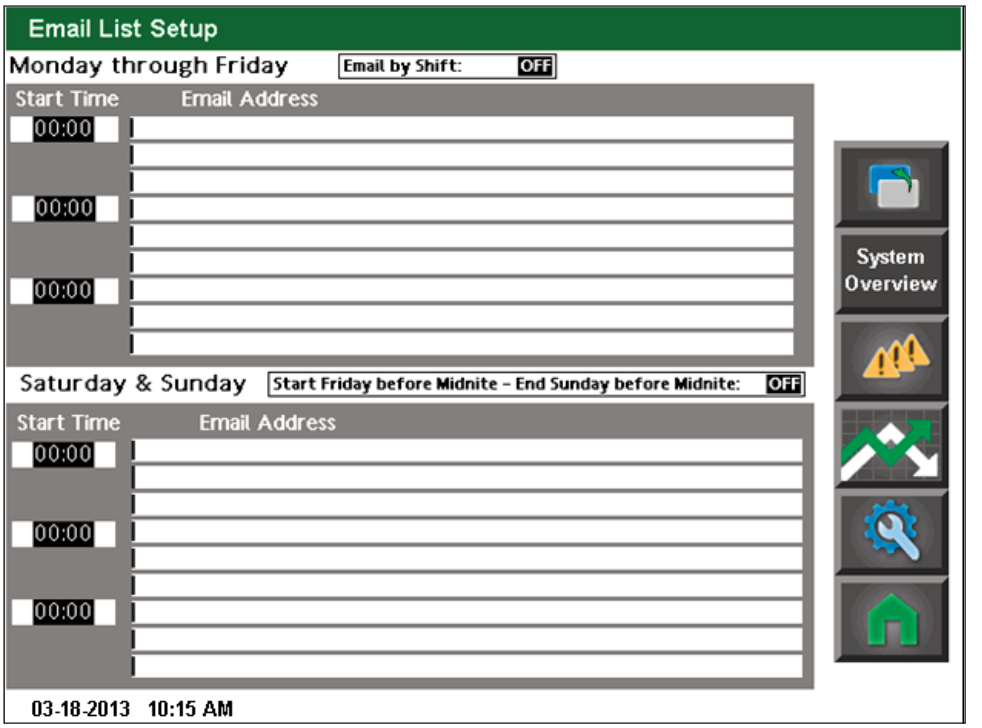
Email Alarms: This section contains the navigation buttons to the screens that have the enable/disable buttons for each individual alarm.

Test Email button: This button sends a test email/text alert to the configured addresses.

Test Email button ACK: This button acknowledges the test email/text alert.

(Continued)

Configuring the Email and Text Addresses



Email List Setup screen

Email by Shift: This box will enable/disable the shift emails. When the shift is enabled, three different email/text addresses can be added for each configured shift. One, two, or three shifts can be configured per day by entering different start times.

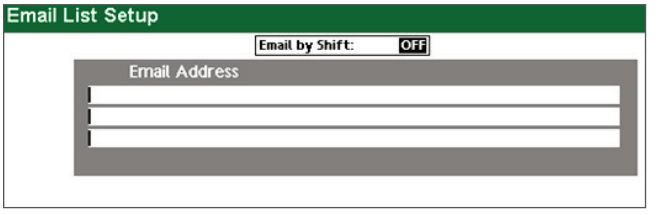
Saturday and Sunday: This enables/disables the weekend shift. If a different set of email/text addresses are required for the weekend, set this to ON and enter the addresses and set up the desired shift times. Up to three shifts can be configured on the weekends.

Each email and text address is entered on each line for up to three different addresses per shift.

If no addresses are listed for a specific shift (including the weekend shifts), the email addresses from the previous shift will be used for notification messaging.

Once the email/text addresses and shifts have been configured, pressing the previous screen button will return to the Email Setup screen.

When "Email by Shift" setting is turned off, up to three email or text adresses can be entered. When the Email by Shift is disabled, the alarm notifications are sent to the same email and/or text addresses 24 hours a day, 7 days a week.



✎ **NOTE:** Turning the Email by Shift feature on and off will not delete the list of email/text addresses that had been previously entered into the different daily or weekend shifts. However, when the feature is turned ON, the current active email addresses will be copied into the new email list for the 24/7 messaging.

(Continued)

Text Messaging Addressing

In order to set up the correct address for text messages, the phone number and carrier of the number is used. First enter the area code and phone number (without punctuation), then enter the appropriate @ address. The @ address for the most popular cellular carriers are listed below.

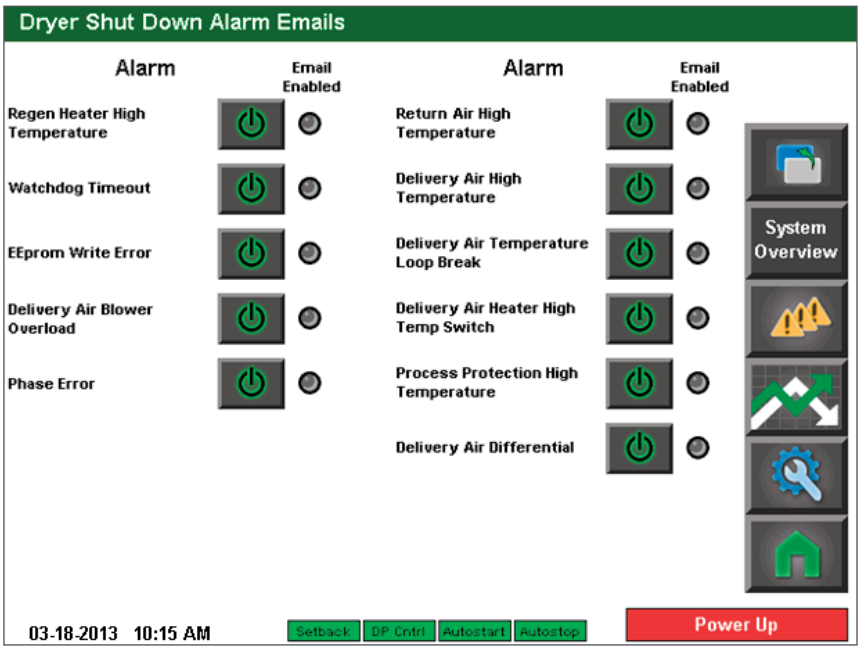
Alltel	@message.alltel.com
Nextel	@messaging.nextel.com
Sprint	@messaging.sprintpcs.com
T-Mobile	@tmomail.net
Voice Stream	@voicestream.net
Verizon	@vtext.com

For any carrier not listed above, @teleflip.com can be used.

Enabling and Disabling Notification for Individual Alarms

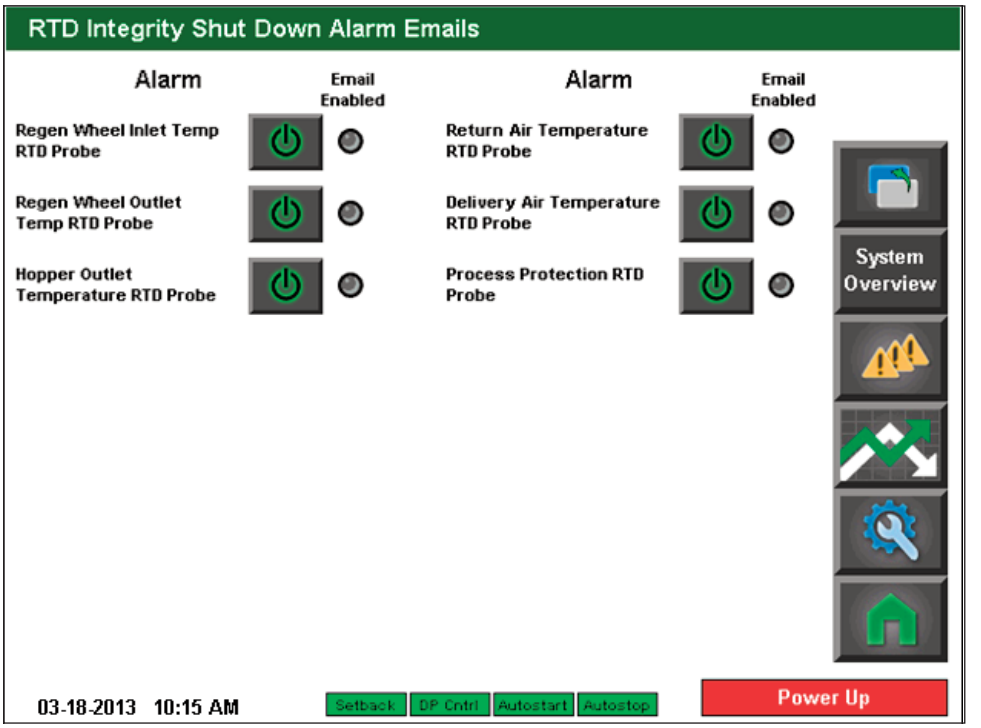
Email and text notification for each individual alarm can be enabled or disabled in the DC-T control. Using the Email Setup screen, the following configuration screens can be opened. On each screen, the individual alarms are listed followed by the enable/disable button and then the Email Enabled indicator light. When the light is on (green), the email/text notification is enabled for that alarm. During normal operation, when an alarm is activated that has been selected for email/text notification, the alarm notification will be sent via email/text and a separate alarm will be displayed on the Alarm Screen. This new alarm has the word 'Email' at the end of the description to show that an alarm notification has been sent for this alarm.

Dryer Shut Down Alarm Emails screen
This screen shows the enable/disable buttons for all of the possible dryer shut down alarms. Depending on the dryer configuration, some of these alarms may be hidden. This screen is available on every DC-T system with the Email Notification option.



(Continued)

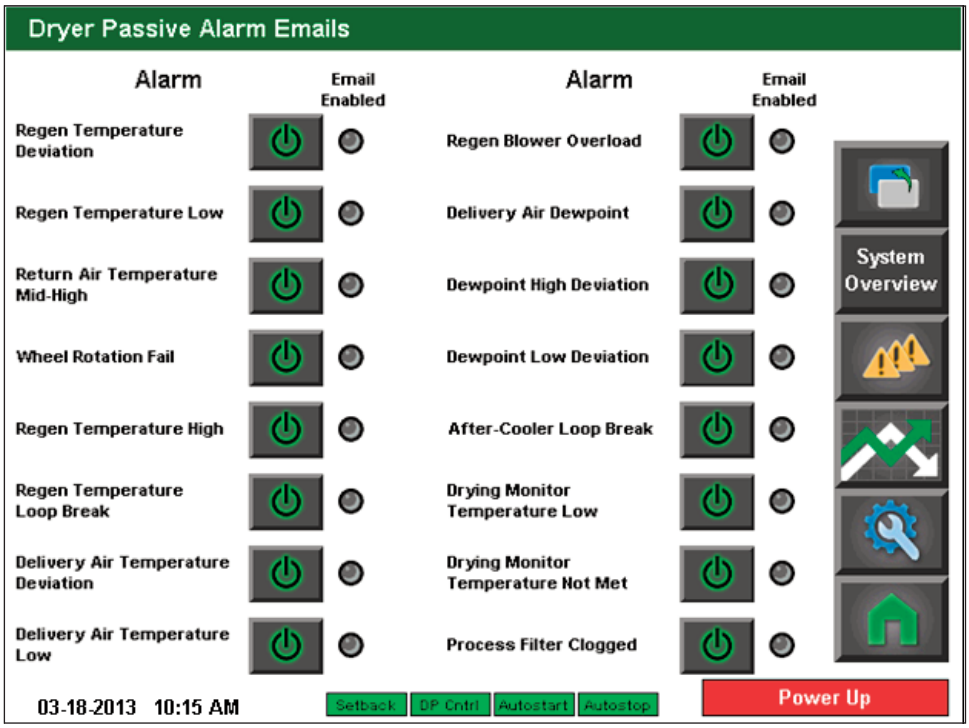
Dryer RTD Integrity Shut Down Alarm Emails



RTD Integrity Shut Down Alarm Emails screen

This screen shows the enable/disable buttons for all of the possible RTD integrity dryer shut down alarms. Depending on the dryer configuration, some of these alarms may be hidden. This screen is available on every DC-T system with the Email Notification option.

Dryer Passive Alarm Emails

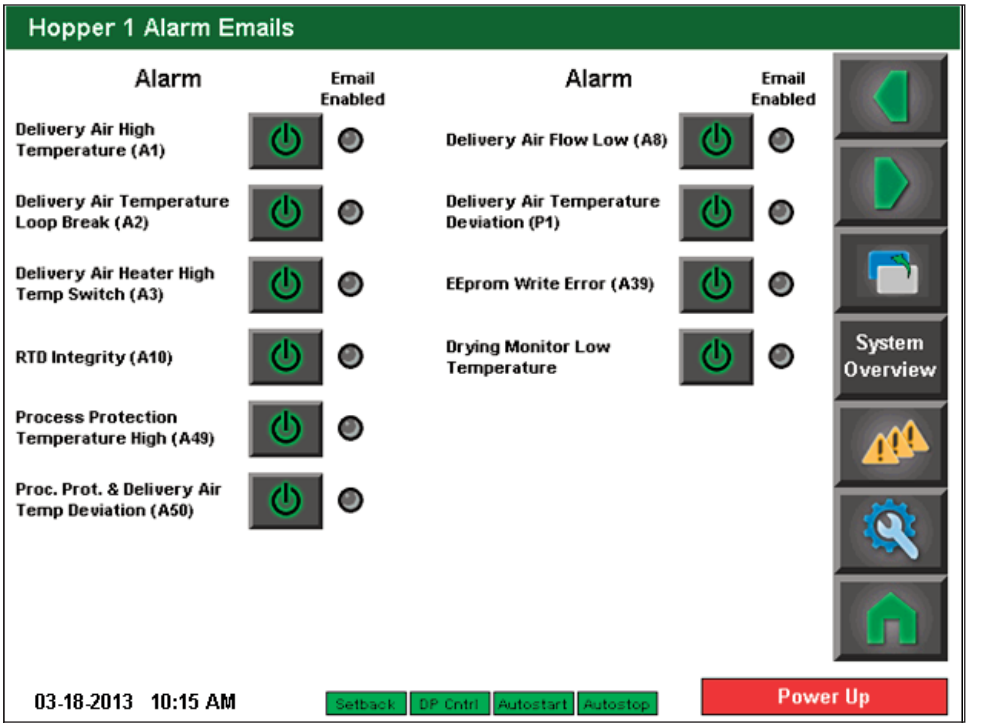


Dryer Passive Alarm Emails screen

This screen shows the enable/disable buttons for all of the possible Dryer Passive alarms. Depending on the dryer configuration, some of these alarms may be hidden. This screen is available on every DC-T system with the Email Notification option.

✎ **NOTE:** Proper login is required to change these settings.

Hopper Alarm Emails

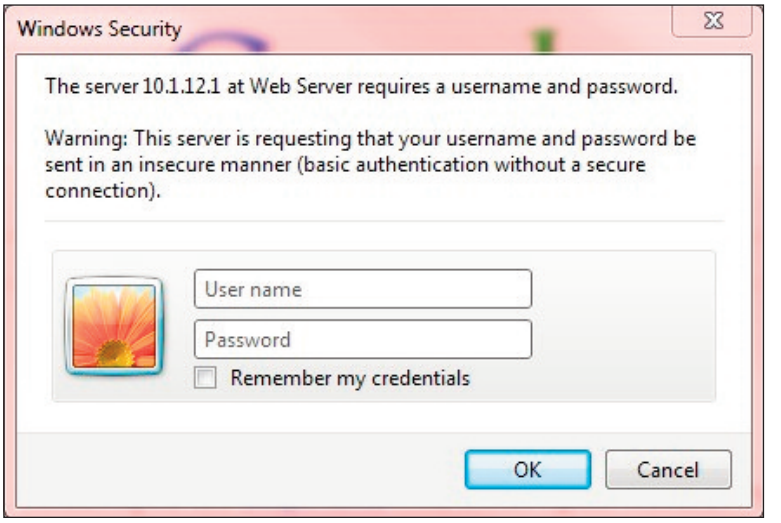


Hopper Alarm Emails screen

This screen shows the enable/disable buttons for all of the possible Hopper alarms. This set of screens will only be available for DC-T systems in a Central Dryer or Resinworks configuration with one or more hoppers. Depending on the hopper configurations, some of these alarms may be hidden. The arrows at the top of the navigation bar allow the operator to scroll through the configured hopper screens. There will be one alarm screen for each configured hopper in the system. This screen is available on every Central Dryer and Resinworks DC-T system with the Email Notification option and one or more configured hoppers.

NOTE: Proper login is required to change these settings.

DC-T Web Access Logon and Security



A Web Access logon was added to the DC-T for enhanced security in the Web Server. The logon prompt is activated once a user tries to use a web browser (internet explorer) to connect to the DC-T. This logon only allows the user to view the DC-T screens. If the user wants to make any changes, the correct logon will still need to be provided for the DC-T screens.

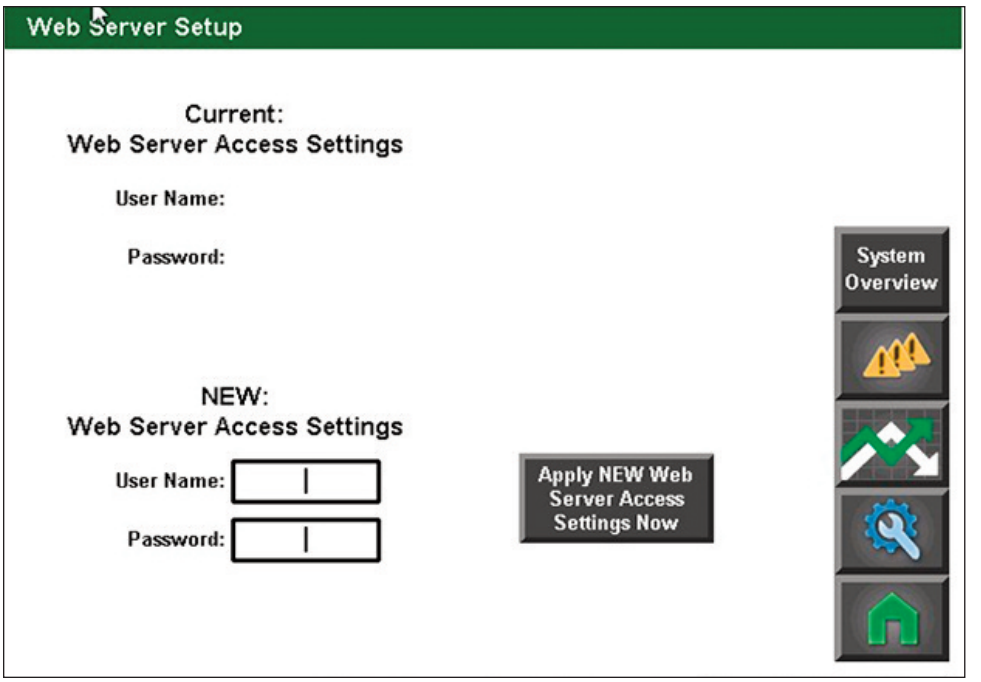
✎ **NOTE:** Proper login is required to change these settings.

The default settings for the Web Server logon are:
User Name: conair (case sensitive)
Password: Web Server (case sensitive -- Capitals and space for extra security)

A button (Web Server Setup) was added to the Central/ResinWorks and Stand Alone dryer settings screens.

The Web Server Setup Screen is shown on the next page.

Web Server Setup Screen



NOTE: Proper login is required to change these settings.

Administrative security level (level 6) is required to access this screen. The Current User Name and Password will be shown on this screen in the "Current:" section. Any new User Name and Passwords that are entered will be shown in the "NEW:" section. On every power cycle or reset of the HMI, the New settings boxes will be set to match the current settings. The allowable length of the User Name or Password is 16 characters. That includes spaces, numbers, and special characters. If more than 16 characters are entered into the "NEW:" fields, once the changes are applied, the string will be reduced to the first 16 characters entered.

When the "Apply NEW Web Server Access Settings Now" button is pressed, a confirmation popup will appear. The user can then apply the changes with the Apply button or cancel with the X button and go back to the setup screen.

NOTE: Remember that both the user name and password are case sensitive, and limited to 16 characters.

SECTION
5

Maintenance

Preventative Maintenance Checklist

Routine maintenance will ensure optimum operation and performance of the W Dryer. We recommend the following maintenance schedule and tasks.

• Whenever you change materials

❒ **Drain and clean 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.

❒ **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.

• Monthly

❒ **Clean the optional aftercooler and precooler coils.**
You may need to clean the coils more often than monthly. Frequency will depend on the type and volume of material you process.

• 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.

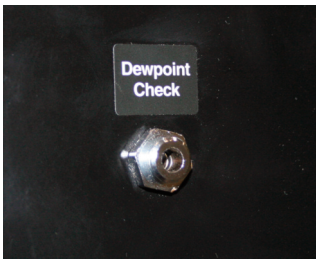
❒ **Verify dewpoint readout and performance** with a calibrated portable dewpoint instrument.

❒ **Measure current draw on all 3 legs of heater wires.** This is to ensure the heater is working properly.

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 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 it.** Some dewpoint monitors require a substantial amount of time for residual moisture to be purged from the sensor.
4. **In the event the dewpoint in not satisfactory,** refer to the *Troubleshooting section* of the manual.

Alternate Procedure: (for dryers with no dewpoint check port)

1. **Stop dryer and allow it to cool.**
2. **Open the right side panel of the dryer,** and locate the process heater tube.
3. **At the bottom end (cool air inlet) of the process heater tube, remove 1/8 inch NPT pipe plug and connect your portable dewpoint monitor at this location.** If there are existing connections for the dryer's dewpoint sensor, locate a 2nd 1/8 inch NPT port, or connect your dewpoint sensor in series with the dryer sensor. Do not install a tee to split the air between the dryer's sensor and your portable instrument. This may cause one of them to be starved for adequate sample air.
4. **Turn on the dryer.**
5. **Turn on the portable instrument,** and ensure there is positive airflow through the sensor.
6. **Monitor the readout and allow ample time for it to stabilize before disconnecting the portable instrument.** Some dewpoint monitors require a substantial amount of time for residual moisture to be purged from the sensor.
7. **In the event the dewpoint is not satisfactory,** refer to the *Troubleshooting section* of the manual.
8. **Stop the dryer, and allow it to cool down.** Then disconnect your portable instrument and replace any pipe plugs that may have been removed.
9. **Close side panels and start the dryer.**

NOTE: Portable dewpoint monitors purchased from Conair are provided with a male connector that plugs into the Dewpoint Check port. If you purchased your portable instrument elsewhere, the male connector is available through the Conair parts department.

NOTE: The dewpoint check port was not included on early dryers. It can be added easily. Contact the Conair parts department or follow the alternate procedure.

Replacement dewpoint monitors, male connectors and dewpoint check ports are available from Conair.

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

Cleaning the Hopper (150 - 200)

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

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

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

2 **Remove the spreader cone.** Open the hopper door. Reach into the hopper. Grasp the spreader cone tube, lift up slightly, twist and then push down to release it. Tilt the cone assembly and pull it out through the hopper door.

3 **Clean the spreader cone and the inside of the hopper.** Make sure you also clean the return air screen at the return air outlet of the hopper.

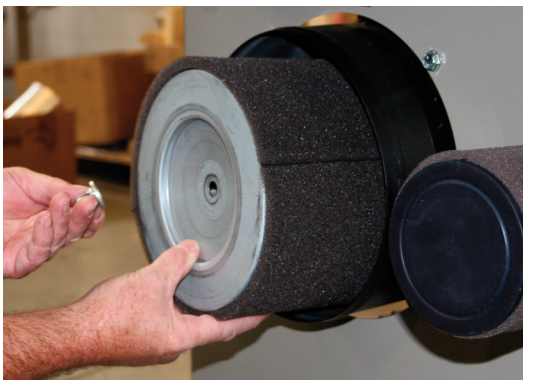
4 **Repeat the steps in reverse order** to reassemble the hopper before adding material.

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.

1 **Push in on the sides** to release the tabs on the front cover. Remove the cover.

2 **Remove the cover wing nut,** then pull the cap off.

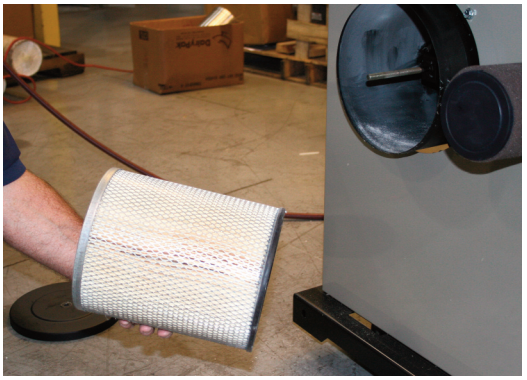


3 **Remove the filter wing nut,** then remove the filter.

(Continued)

Cleaning the Process Filter (continued)

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



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

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.

6 **Reverse the procedure to reinstall the process filter.** Ensure that the gasket on filter cap is in place and in good condition.

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

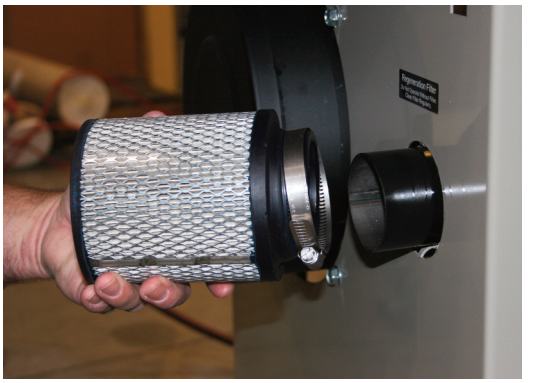
Cleaning the Regeneration Filter

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.

1 **Push in on the sides** to release the tabs on the front cover. Remove the cover.

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

3 **Loosen the hose clamp holding the regeneration filter onto the regeneration inlet and remove the filter.**



4 **Clean dust, fines, and dirt from the filter, or replace it with a new filter.** Clean the filter by laying it on its side and gently tapping it on the floor. Replace damaged, worn, or clogged filters.

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.

5 **Reverse the procedure to reinstall the regeneration filter.**

Cleaning the Aftercooler Coils

The aftercooler coils will need to be kept clean to keep the aftercooler working efficiently. Cleaning frequency depends on the type and amount of material you process.

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

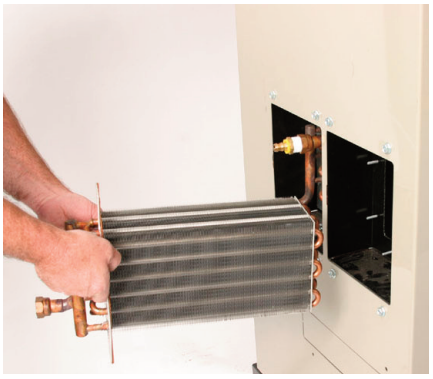
2 **Turn off the water flow to the water supply line.** Disconnect supply and return lines.

NOTE: If an optional flow control was added with the aftercooler, remove the compression fitting from the aftercooler inlet. Loosen the fitting on the flow control, then swing the copper water supply tube out and away from the aftercooler inlet.

3 **Remove the screws securing the aftercooler** in the aftercooler housing.

TIP: If the aftercooler (without a flow control) was installed using the recommended 24 inch {61 cm} of flexible hoses, there is no need to disconnect the hoses from the aftercooler inlet and outlet.

4 **Remove the aftercooler assembly** from the aftercooler housing.



5 **Clean the assembly using a mild soap and water.** Let the assembly dry thoroughly before installation. In severe situations, steam cleaning or use of solvents maybe necessary.

CAUTION: During the cleaning process, **DO NOT** cut or remove the stainless steel wire that holds the assembly together.

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 to the inlet.** If a manual shut off valve is used, it should be mounted on the inlet line as well.

9 **Connect the outlet of the aftercooler to the inlet of the flow control valve** using the pre-shaped copper tubing and compression fittings provided.

Cleaning the Precooler Coils

If you have the optional precooler, you need to clean the coils to keep it working efficiently. Cleaning frequency depends on the type and amount of material you process.

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

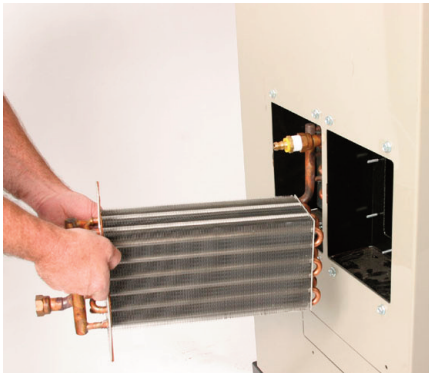
2 **Turn off the water flow to the water supply line.** Disconnect supply and return lines.

NOTE: If an optional flow control was added with the precooler, remove the compression fitting from the precooler inlet. Loosen the fitting on the flow control, then swing the copper water supply tube out and away from the precooler inlet.

3 **Remove the screws securing the precooler** in the housing.

TIP: If the precooler (without a flow control) was installed using the recommended 24 inch (61 cm) of flexible hoses, there is no need to disconnect the hoses from the precooler inlet and outlet.

4 **Remove the precooler assembly** from the precooler housing.



5 **Clean the assembly using a mild soap and water.** Let the assembly dry thoroughly before installation. In severe situations, steam cleaning or use of solvents maybe necessary.

CAUTION: During the cleaning process, **DO NOT** cut or remove the stainless steel wire that holds the assembly together.

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 to the inlet.** If a manual shut off valve is used, it should be mounted on the inlet line as well.

9 **Connect the outlet of the aftercooler to the inlet of the flow control valve** using the pre-shaped copper tubing and compression fittings provided.

Cleaning the Volatile Trap on the Demister

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 volitales, steam cleaning 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.**

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

7 **Secure the cover in place using the original thumbscrews.** Make sure the cable is not pinched between the housing and the cover.

Inspecting hoses and gaskets

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

1 **Stop the dryer and lockout the main power.** Allow the dryer to cool before touching any possible hot surfaces. 

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

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

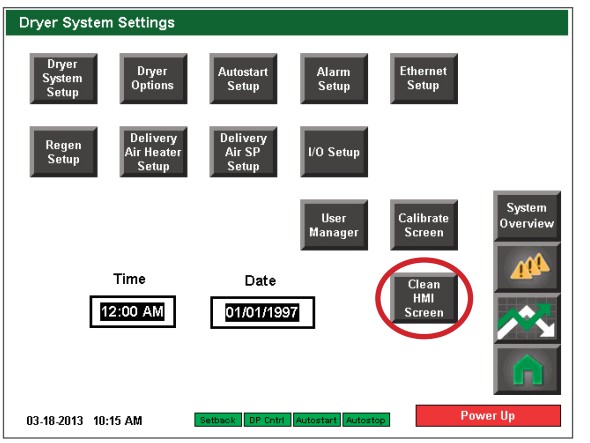
4 **Replace worn or damaged hoses and gaskets.**

Cleaning the DC-T HMI Screen

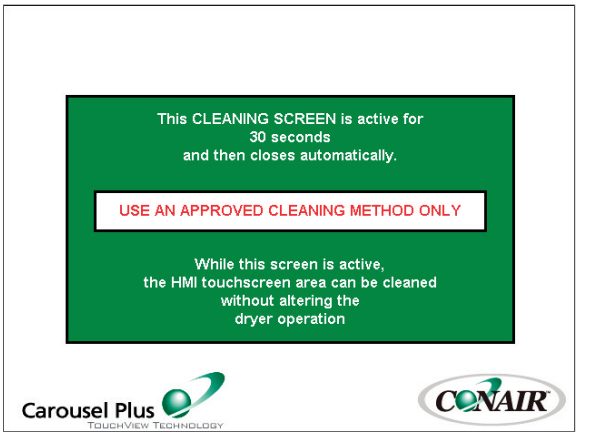
Dirt, grease, or dust on the screen can make it difficult to see and use. Periodically clean the screen to keep dirt from accumulating on the screen.

1 **Press the Setup button.**

2 **From the Settings screen, press the Clean HMI Screen button.** The touch functionality of the screen will be disabled for 30 seconds, allowing for cleaning of the screen without accidently changing settings or pushing buttons.



3 **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

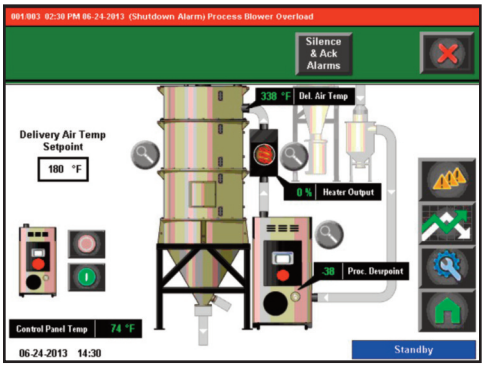
Troubleshooting

Before Beginning

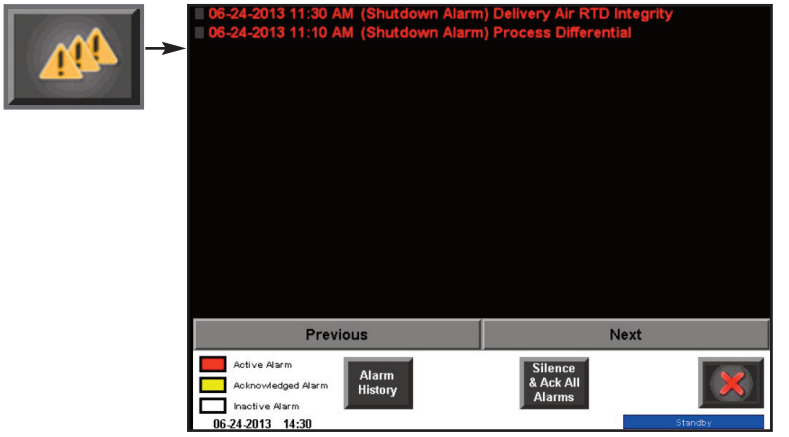
You can avoid most problems by following the recommended installation and maintenance procedures outlined in this User Guide. If you do have a problem, this section will help you determine what caused it and how to fix it.

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.

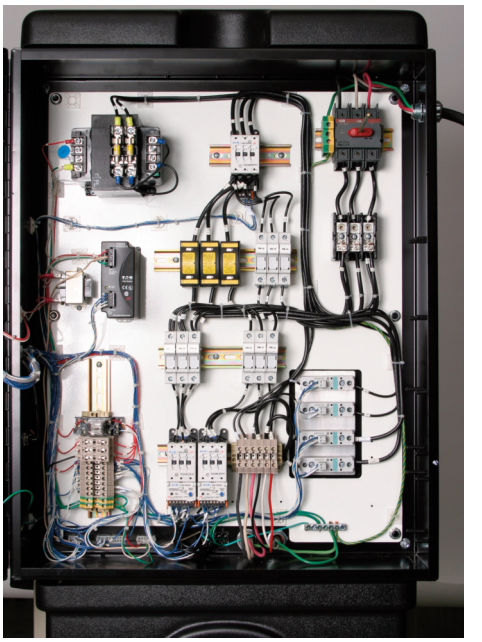
❏ Find the wiring and equipment diagrams that were shipped with your dryer. These diagrams are the best reference for correcting a problem. The diagrams also will note any custom features, such as special wiring or alarm capabilities, not covered in this User Guide.You can avoid most problems by following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

(Continued)

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.

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



A Few Words of Caution

The Carousel Plus W Series dryer 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.

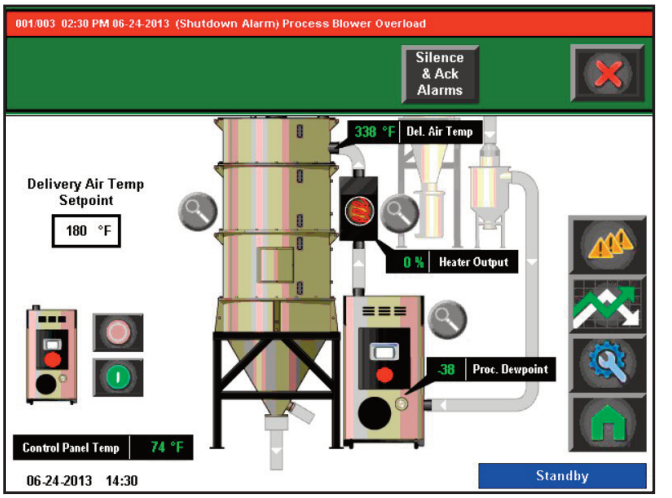
WARNING: Only qualified service personnel should examine and correct problems that require opening the dryer's electrical enclosure or using electrical wires to diagnose the cause.

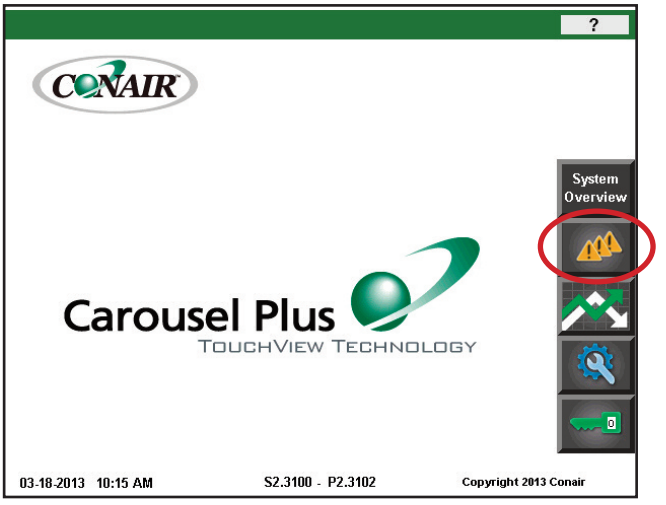
WARNING: High voltage. Always stop the Carousel Plus dryer, disconnect and lock out the main power source before troubleshooting or performing repairs.

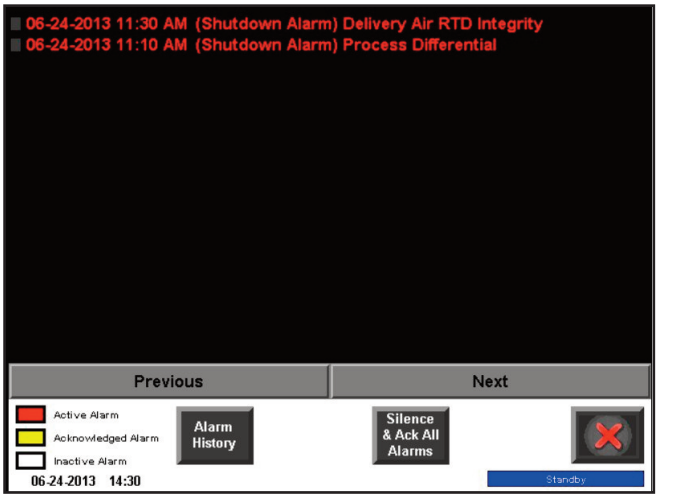
CAUTION: Hot surfaces. Always protect yourself from hot surfaces inside and outside of the dryer and hopper.

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.

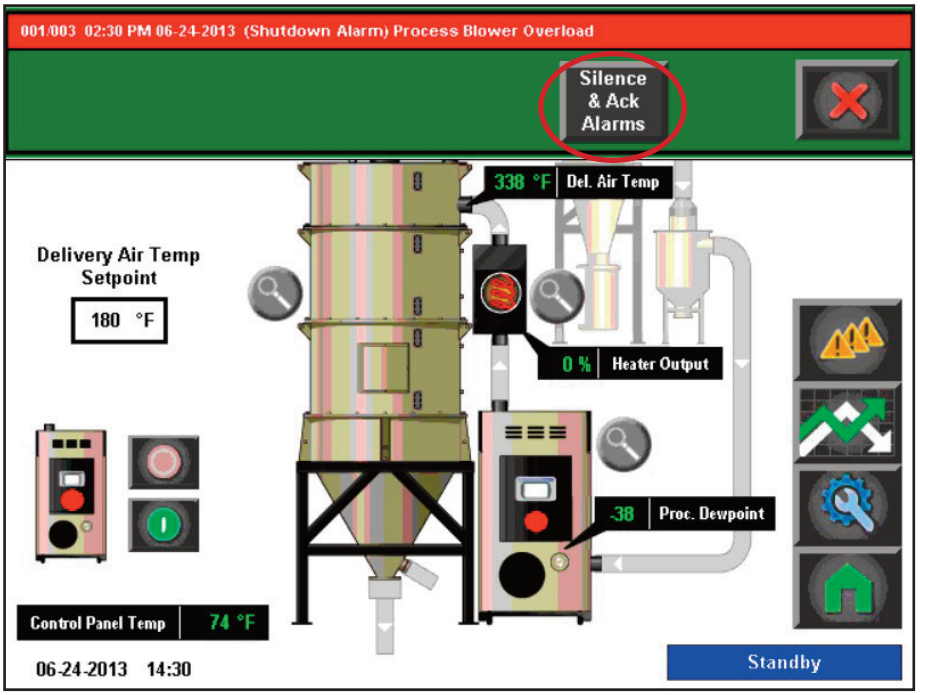
(continued)

How to Identify the Cause of a Problem

(continued)

When an alarm message is displayed:

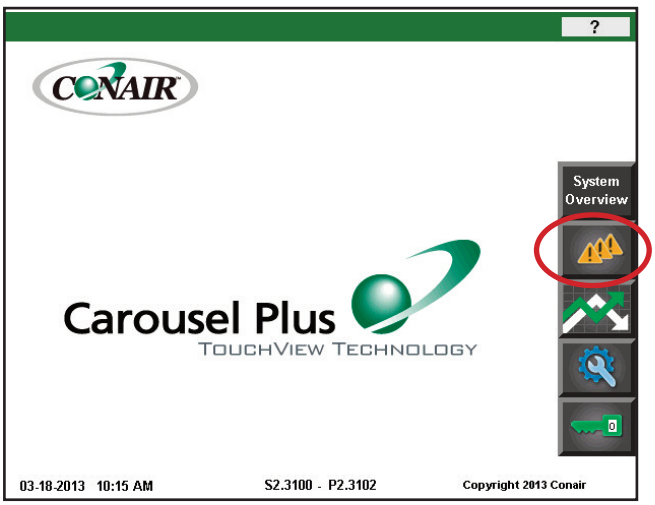
1 **Press the "Silence and Ack Alarms" button** when the alarm banner appears at the top of the screen.

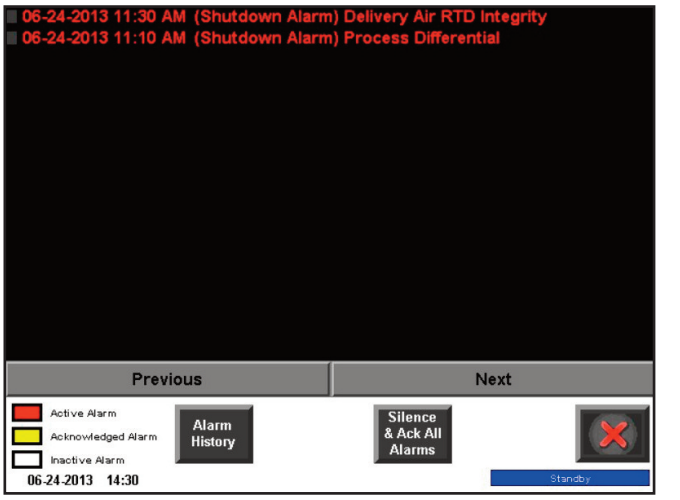


2 **Find the error message in the diagnostics table of the following troubleshooting section of this manual,** or the troubleshooting section of the applicable component user manual. Take any necessary steps, as directed, to resolve the problem.

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 "Silence & Ack 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.

(Continued)

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 W1300-5000 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.*

6 Troubleshooting

(Continued)

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

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 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

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

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 W 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, resecure 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 W 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, resecure 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 correcly.
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 ResinWorks 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 W1300-5000 dryers is measured at the inlet to the desiccant wheel. *W1300-5000 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.**

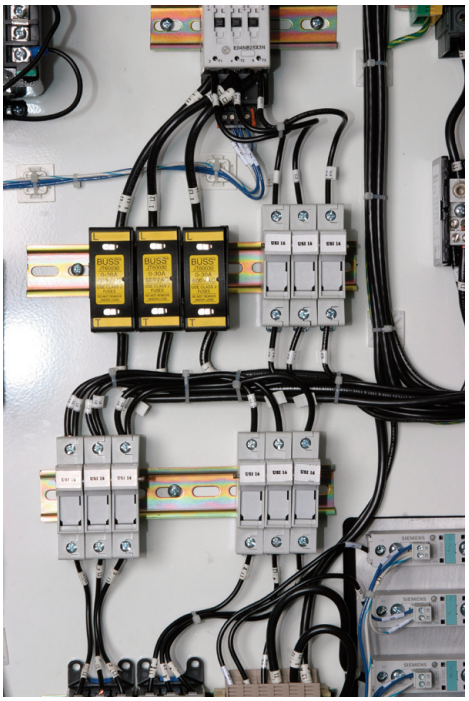
2 **Open the electrical enclosure door.**

3 **Check the fuse.** 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.



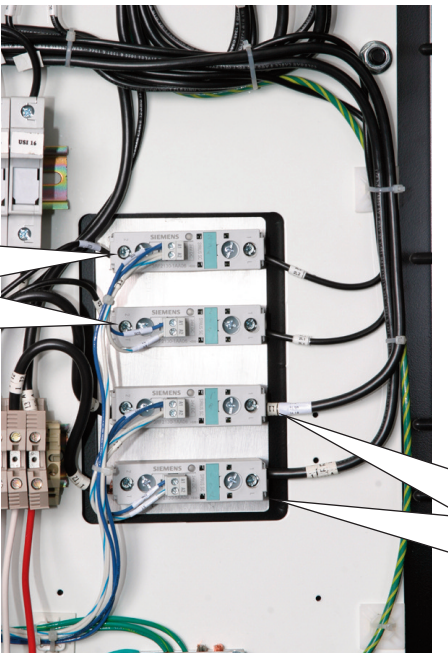
Checking Heater Solid State Relays

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

2 **Open the electrical enclosure.**

3 **Locate the process or regeneration relays.** Refer to the wiring diagrams that came with your dryer.

4 **Check continuity using an ohmmeter.**



Regeneration heater solid state relays
If ohms equal zero or infinity, replace the relays.

Process heater solid state relays
If ohms equal zero or infinity, replace the relays.

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.

Checking or Replacing Temperature Sensors

The Carousel Plus W series dryer uses RTD sensors to monitor the temperatures of the drying air, the return air, the regeneration outlet, the regeneration inlet process protection and setback at the outlet of the hopper.

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.

Location of the Process RTD at the Hopper inlet.

To check or replace 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 approx. 110 ohm at room temperature.

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

Replacing the Heaters

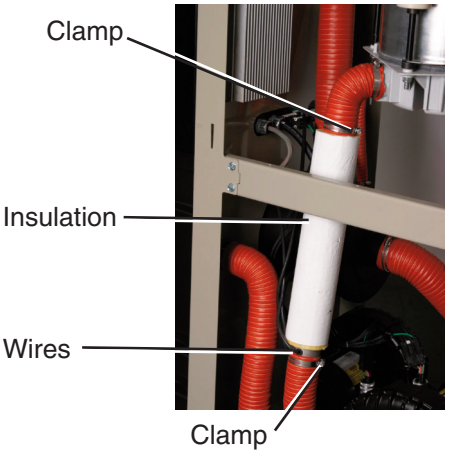
Regeneration Heater Tube

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

2 **Open or remove the right side panel of the dryer**, as viewed from the control panel, to gain access to the regeneration heater.

3 **Disconnect the regeneration heater wires and high temperature switch wires** at the quick disconnects near the heater tube.

4 **Remove the insulation from the regeneration heater tube** by cutting the insulation in a straight line from top to bottom.



5 **Remove the hose and clamp** at the bottom of the heater tube.

6 While supporting the heater tube, **disconnect the hose clamp and hose from the top of heater tube**, and remove the heater tube from the dryer.

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.

8 **Connect the hose from the reactivation inlet to the top of the new regeneration heater tube** with a clamp. The heater tube wires should be at the bottom of the heater tube when installed into the dryer.

9 **Connect the hose and clamp to the bottom of the new regeneration heater tube.**

10 **Put the original insulation back on the regeneration heater tube.** Apply duct tape to the seam that was cut during removal.

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

12 **Replace the side panel of the dryer.**

13 **Make sure the regeneration heater fuses are not blown before applying power to the new heater.**

Replacing the Heaters

Process Heater Tube

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

2 **Open or remove the right side panel of the dryer**, as viewed from the control panel, to gain access to the process heater.

Central

When configured as a central dryer, there is no process heater in the system. Therefore, replacing the process heater is not applicable.

Process Heater

3 ***W-200 - 400 models*** - **Open the electrical enclosure.** Refer to the wiring diagram of the dryer to identify the process heater wires and/or trace the wires from the process heater tube into the control box. Disconnect the wires from the terminal strip and solid state relays. Once disconnected, pull the wires out of the control cabinet and separate them from the wiring harness along the dryer frame. The high temperature switch wires can be disconnected at the quick disconnect near the heater tube.

W-150 models - **Disconnect the heater wires and high temperature switch wires** at the quick disconnects near the heater tube.

Wires: W-200 - 400

4 **Remove the insulation from the process heater tube** by cutting the insulation in a straight line from top to bottom.

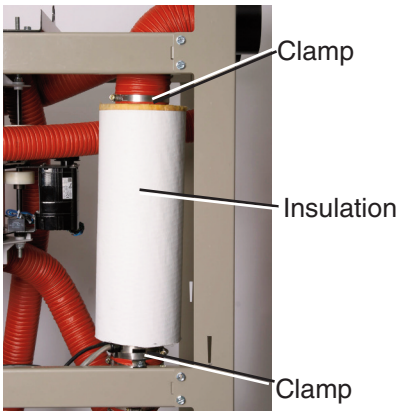
5 **Remove the hose and clamp** at the bottom of the heater tube.

(continued)

Replacing the Heaters

Process Heater Tube (continued)

6 While supporting the heater tube, **remove the hose and clamp at the top of the heater tube.**



7 **Loosen the clamp holding the bottom of the heater tube** to the support bracket, and remove the heater tube from the dryer.

8 **Compare the markings on the outside of the 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 **Secure the new heater tube to the support bracket** with the clamp, with the wires of the heater tube to the bottom.

10 **Connect the hose and clamp at the top of the heater tube.**

11 **Connect the hose and clamp at the bottom of the heater tube.**

12 **Put the original insulation back on the heater tube.** Apply duct tape to the seam that was cut during removal.

13 ***W-200 - 400 models*** - **Route the heater wires with the existing harness to the control box.** Put petroleum jelly on the tips of the cable, and push it through the holes in the control box. Reference the wiring diagram, and connect the heater wires to the solid state relays. Connect the high temperature switch wires to the quick disconnect near the heater tube.

W-150 models - **Connect the heater wires and high temperature switch wires to the quick disconnects** near the heater tube.

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

15 **Make sure the process heater fuses are not blown** before applying power to the new heater.

When configured as a central dryer, there is no process heater in the system. Therefore, replacing the process heater is not applicable.

Replacing the Desiccant Wheel

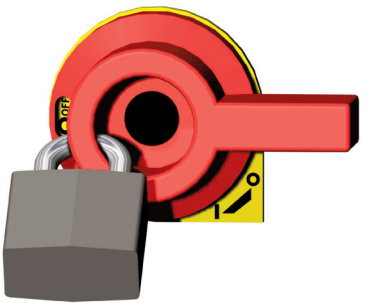
When desiccant becomes clogged or contaminated, you should replace the desiccant wheel to ensure optimum performance.

1. **Stop the dryer, disconnect the power, and follow proper lockout procedures.**
2. **Remove the side panels of the dryer**.
3. **Note the position of all the hoses and RTDs.** Disconnect the hoses and RTDs from both manifolds and the wires from wheel assembly motor.

4. **Remove the plastic roof panel from the dryer.**
5. **Remove 4 bolts securing the wheel assembly support bracket to the dryer frame.** Using a crane or forklift, lift the entire wheel assembly out of the dryer frame.
6. **Remove the wheel support bracket from the wheel assembly**, then lift the wheel assembly out of the dryer.
7. **Lift the new wheel assembly into place in the dryer frame**, with the motor toward the rear of the dryer, and bolt it into place.
8. **Replace the plastic roof panel.**

9. **Reconnect the hoses and RTDs** to the manifolds and the wiring to the wheel assembly motor.
10. **Connect the power and start the dryer.** Verify the wheel rotates smoothly and in the correct direction.
11. **Replace side panels.**

Replacing the Desiccant Wheel Motor



1. **Stop the dryer, disconnect and lockout the main power.**
2. **Open both side panels.**
3. **Disconnect wiring to the motor.**
4. **Loosen the belt tensioner and remove the pivot bolt securing the belt tensioner to the motor bracket.** Be sure to retain the flat washers located under the tensioner. 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.**

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. www.conairgroup.com

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.

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.

Installing a Precooler (Optional)

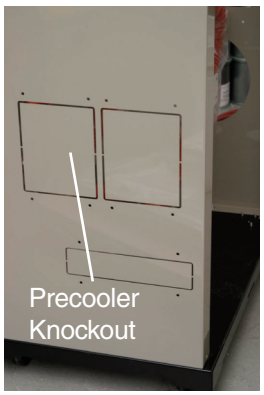
Precoolers are available from Conair.

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

You can add a precooler to the Carousel Plus W series dryer by ordering the optional precooler assembly. Installation is easy.

The optional precooler requires a source of city, tower, or chiller water and a discharge or return line. You can use water at temperatures up to 85°F {30°C}. But the water flow should be at least 3 gal/min {11.4 liters/min} for W dryer models 150 - 400.

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



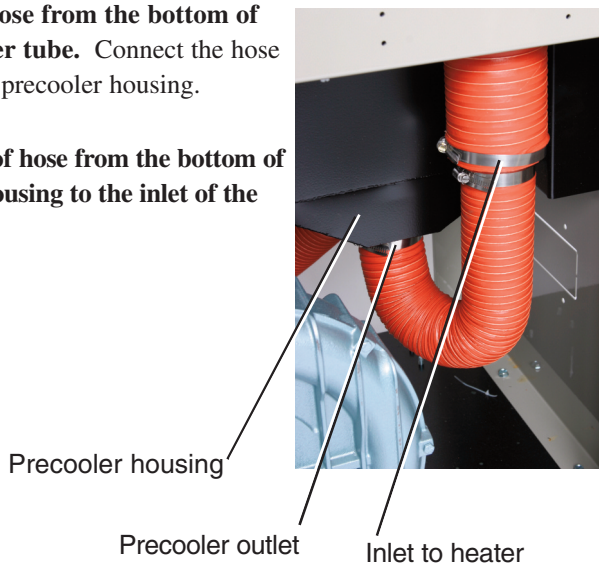
2 **Remove the side panels.**

3 **Remove the knockout for the precooler housing on the dryer.**

4 **Install the precooler housing.** Bolt the precooler housing in place with the hose connection to the bottom.

5 **Disconnect the hose from the bottom of the process heater tube.** Connect the hose to the inlet of the precooler housing.

6 **Connect a piece of hose from the bottom of the aftercooler housing to the inlet of the process heater.**

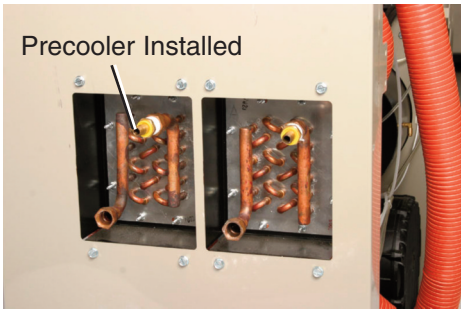


(Continued)

Installing a Precooler (Optional) (continued)

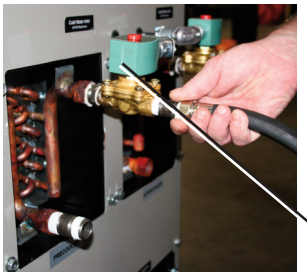
7 **Prepare the precooler for installation.** Make sure the gasket is put in place. Apply the gasket material to the inside of the precooler flange.

8 **Install the coils in the housing.** Make sure the staggered holes in the precooler mounting plate align with the holes in the precooler housing.



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

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



9 **Connect the water supply line to the precooler cooler inlet.** If a manual shut off valve is used. it should be mounted on the inlet line.

10 **Connect the water discharge or return line with the pressure relief valve to the precooler outlet.** Use the bracket supplied to secure the pressure relief valve to the back of the dryer.

NOTE: Your dryer may not be equipped with optional water solenoids.

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

www.conairgroup.com

SECTION C

C TCP/IP Data

Addendum
DC-T Modbus TCP/IP
Read Only Data

V02 2/3/2014

DC-T Modbus TCP/IP Read Only Data

V02 02/3/2014

Device	Modbus Start	Modbus End		Ranges are in English Units when not labeled	
Dryer Stand Alone	40100	40199			
Address Data	Description	Type	Access	Range Max	Range Min
40100 Delivery Air Dewpoint		Real	Read Only	-40	40
40102 Regen Temp Active Setpoint		Real	Read Only	70	450
40104 Regen Temp Wheel Inlet		Real	Read Only		
40106 Regen Temp Wheel Outlet		Real	Read Only		
40108 Return Air Temp Dryer Inlet		Real	Read Only		
40110 Control Panel Temp		Real	Read Only		
40112 Dryer Total Run Hours		Real	Read Only		
40114 Delivery Air Temp Setpoint		Real	Read Only		
40116 Delivery Air Temp		Real	Read Only		
40118 Delivery Air Heater On %		Real	Read Only	0	100
40120 Hopper Outlet Temp		Real	Read Only		
40122 Delivery Air Temp Setpoint (In Setback)		Real	Read Only		
40124 Hopper Outlet Temp Setpoint (Setback Activation)		Real	Read Only		
40126 Process Protection Temp		Real	Read Only		
40140 Passive Alarm Status 1		Integer	Read Only		
Bit 0 Delivery Air Temperature Deviation		Bit	Read Only		
Bit 1 Dryer Process Low Temperature		Bit	Read Only		
Bit 2 Dryer Regen Temperature Deviation		Bit	Read Only		
Bit 3 Dryer Regen Temperature Low		Bit	Read Only		
Bit 4 Dryer Regen Temperature High		Bit	Read Only		
Bit 5 Dryer Regen Temperature Loop Break		Bit	Read Only		
Bit 6 Dryer Return Air Mid-High Temperature		Bit	Read Only		
Bit 7 Dryer After Cooler Loop Break		Bit	Read Only		
Bit 8 Dryer Delivery Air Dewpoint Alarm		Bit	Read Only		
Bit 9 Dryer Process Filter Clogged		Bit	Read Only		
Bit 12 Drying Monitor Low Temperature		Bit	Read Only		
Bit 13 Drying Monitor Temperature Not Met		Bit	Read Only		
40141 Passive Alarm Status 2		Integer	Read Only		
Bit 4 Dryer Regen Blower Overload (Shutdown Alarm)		Bit	Read Only		
Bit 5 Dryer Wheel Rotation Fail		Bit	Read Only		
Bit 6 Dryer Dewpoint High Deviation		Bit	Read Only		
Bit 7 Dryer Dewpoint Low Deviation		Bit	Read Only		
Bit 10 Dryer Drying Monitor High		Bit	Read Only		

40142	Shutdown Alarm Status	Integer	Read Only
Bit 0	Process High Temperature	Bit	Read Only
Bit 1	Process Temperature Loop Break	Bit	Read Only
Bit 2	Process Heater High Temperature	Bit	Read Only
Bit 3	Process Protection High	Bit	Read Only
Bit 4	Process Differential	Bit	Read Only
Bit 5	Regen Heater High Temperature	Bit	Read Only
Bit 8	Return Air High Temperature	Bit	Read Only
Bit 11	Watchdog Timeout	Bit	Read Only
Bit 14	Eeprom Write Error	Bit	Read Only
Bit 15	Process Blower Overload	Bit	Read Only
40143	Dryer Operating Mode	Integer	Read Only
0	Power Up	Register Actual Value	Read Only
1	Standby	Register Actual Value	Read Only
2	Starting	Register Actual Value	Read Only
3	Stopping	Register Actual Value	Read Only
4	Autotuning	Register Actual Value	Read Only
5	Calibrating	Register Actual Value	Read Only
6	Running	Register Actual Value	Read Only
10	Test Mode	Register Actual Value	Read Only
40144	Dryer Running Status	Integer	Read Only
Bit 0	Ready to Run	Bit	Read Only
Bit 1	Hopper Setback Active	Bit	Read Only
Bit 4	Alarm Silenced	Bit	Read Only
Bit 5	Shutdown Alarm Active	Bit	Read Only
Bit 6	Passive Alarm Active	Bit	Read Only
Bit 9	Process Is Ramping	Bit	Read Only
Bit 10	Regen Is Ramping	Bit	Read Only
Bit 11	Dewpoint Control Active	Bit	Read Only
Bit 12	Reserved	Bit	Read Only
40145	Dryer Digital Input Status 1	Integer	Read Only
Bit 1	Process High Temperature Switch	Bit	Read Only
Bit 2	Regen Blower Overload	Bit	Read Only
Bit 3	Regen High Temperature Switch	Bit	Read Only
Bit 6	Delivery Air Blower Overload Switch	Bit	Read Only
40146	Dryer Digital Input Status 2	Integer	Read Only
Bit 3	Return Air Differential Pressure Switch	Bit	Read Only
40147	Dryer Digital Output Status 1	Integer	Read Only
Bit 0	Delivery Air Blower	Bit	Read Only
Bit 1	Delivery Air Heater	Bit	Read Only
Bit 2	Regen Blower	Bit	Read Only
Bit 3	Regen Heater	Bit	Read Only

Bit 4	Wheel Motor		Bit	Read Only		
Bit 6	Heater Contact		Bit	Read Only		
Bit 7	Alarm Horn and Light		Bit	Read Only		
40148	Dryer Digital Output Status 2		Integer	Read Only		
Bit 6	Yellow Alarm Light		Bit	Read Only		
Bit 7	Green Alarm Light		Bit	Read Only		

Drying Monitor (DM2)

		40200	40299			
Address	Data	Description	Type	Access	Range Max	Range Min
40200	Drying Monitor 1 Temp (Bottom)		Real	Read Only		
40202	Drying Monitor 2 Temp		Real	Read Only		
40204	Drying Monitor 3 Temp		Real	Read Only		
40206	Drying Monitor 4 Temp		Real	Read Only		
40208	Drying Monitor 5 Temp		Real	Read Only		
40210	Drying Monitor 6 Temp (Top)		Real	Read Only		

Dryer Central / Resinworks

		40300	40399			
Address	Data	Description	Type	Access	Range Max	Range Min
40300	Delivery Air Dewpoint		Real	Read Only	-40	40
40302	Regen Temp Active Setpoint		Real	Read Only	70	450
40304	Regen Temp Wheel Inlet		Real	Read Only		
40306	Regen Temp Wheel Outlet		Real	Read Only		
40308	Return Air Temp Dryer Inlet		Real	Read Only		
40310	Control Panel Temp		Real	Read Only		
40312	Dryer Total Run Hours		Real	Read Only		
40340	Passive Alarm Status 1		Integer	Read Only		
Bit 2	Dryer Regen Temperature Deviation		Bit	Read Only		
Bit 3	Dryer Regen Temperature Low		Bit	Read Only		
Bit 4	Dryer Regen Temperature High		Bit	Read Only		
Bit 5	Dryer Regen Temperature Loop Break		Bit	Read Only		
Bit 6	Dryer Return Air Mid-High Temperature		Bit	Read Only		
Bit 9	Dryer Process Filter Clogged		Bit	Read Only		
40341	Passive Alarm Status 2		Integer	Read Only		
Bit 4	Dryer Regen Blower Overload (Shutdown Alarm)		Bit	Read Only		
Bit 5	Dryer Wheel Rotation Fail		Bit	Read Only		
Bit 6	Dryer Dewpoint High Deviation		Bit	Read Only		
Bit 7	Dryer Dewpoint Low Deviation		Bit	Read Only		
40342	Shutdown Alarm Status		Integer	Read Only		
Bit 5	Regen Heater High Temperature		Bit	Read Only		
Bit 8	Return Air High Temperature		Bit	Read Only		
Bit 11	Watchdog Timeout		Bit	Read Only		

Bit 14	Eeprom Write Error	Bit	Read Only	
Bit 15	Process Blower Overload	Bit	Read Only	
40343	Dryer Operating Mode	Integer	Read Only	
0	Power Up	Register Actual Value	Read Only	
1	Standby	Register Actual Value	Read Only	
2	Starting	Register Actual Value	Read Only	
3	Stopping	Register Actual Value	Read Only	
4	Autotuning	Register Actual Value	Read Only	
5	Calibrating	Register Actual Value	Read Only	
6	Running	Register Actual Value	Read Only	
10	Test Mode	Register Actual Value	Read Only	
40344	Dryer Running Status	Integer	Read Only	
Bit 0	Ready to Run	Bit	Read Only	
Bit 4	Alarm Silenced	Bit	Read Only	
Bit 5	Shutdown Alarm Active	Bit	Read Only	
Bit 6	Passive Alarm Active	Bit	Read Only	
Bit 10	Regen Is Ramping	Bit	Read Only	
Bit 11	Dewpoint Control Active	Bit	Read Only	
40345	Dryer Digital Input Status 1	Integer	Read Only	
Bit 2	Regen Blower Overload	Bit	Read Only	
Bit 3	Regen High Temperature Switch	Bit	Read Only	
Bit 6	Delivery Air Blower Overload Switch	Bit	Read Only	
40346	Dryer Digital Input Status 2	Integer	Read Only	
Bit 3	Return Air Differential Pressure Switch	Bit	Read Only	
40347	Dryer Digital Output Status 1	Integer	Read Only	
Bit 0	Delivery Air Blower	Bit	Read Only	
Bit 2	Regen Blower	Bit	Read Only	
Bit 3	Regen Heater	Bit	Read Only	
Bit 4	Wheel Motor	Bit	Read Only	
Bit 7	Alarm Horn and Light	Bit	Read Only	
40348	Dryer Digital Output Status 2	Integer	Read Only	
Bit 6	Yellow Alarm Light	Bit	Read Only	
Bit 7	Green Alarm Light	Bit	Read Only	

Hopper 1 Heater

40400 40499

Address	Data	Description	Type	Access	Range Max	Range Min
40400	Delivery Air Temp		Real	Read Only	-40	40
40402	Hopper Outlet Temp		Real	Read Only	70	450
40404	Delivery Air Temp Setpoint		Real	Read Only		
40406	Delivery Air Temp Setpoint (In Setback)		Real	Read Only		
40408	Hopper Outlet Temp Setpoint (Setback Activation)		Real	Read Only		
40410	Hopper Process Protection Temperature		Real	Read Only		

40420	Heater Operating Mode	Integer	Read Only		
0	Power Up	Register Actual Value	Read Only		
1	Standby	Register Actual Value	Read Only		
2	Starting	Register Actual Value	Read Only		
3	Stopping	Register Actual Value	Read Only		
4	Autotuning	Register Actual Value	Read Only		
5	Calibrating	Register Actual Value	Read Only		
6	Running	Register Actual Value	Read Only		
10	Test Mode	Register Actual Value	Read Only		
40421	Heater Running Status	Integer	Read Only		
1	Ready	Register Actual Value	Read Only		
2	Setback Active	Register Actual Value	Read Only		
3	Alarm Active	Register Actual Value	Read Only		
40422	Heater Alarms	Integer	Read Only		
Bit 0	Process High Temperature	Bit	Read Only		
Bit 1	Process Temperature Loop Break	Bit	Read Only		
Bit 2	Process Heater High Temperature	Bit	Read Only		
Bit 8	RTD Integrity	Bit	Read Only		
Bit 9	Eeprom Error	Bit	Read Only		
Bit 10	Process Protection High Temperature	Bit	Read Only		
Bit 13	Air Flow Low Alarm	Bit	Read Only		
Bit 15	Process Temperature Deviation (Passive Alarm)	Bit	Read Only		
40423	Heater Digital Input Status 1	Integer	Read Only		
Bit 1	Heater Enable Switch	Bit	Read Only		
Bit 3	Airflow Switch	Bit	Read Only		
40424	Heater Setback Status	Integer	Read Only	0 = Disabled	1 = Enabled
40425	Process Protection Installed Status	Integer	Read Only	0 = Not Installed	1 = Installed
40426	Hopper RTD Integrity Status Bits	Integer	Read Only		
Bit 0	Delivery Air RTD Integrity	Bit	Read Only		
Bit 1	Hopper Outlet RTD Integrity	Bit	Read Only		
Bit 2	Hopper Process Protection RTD Integrity	Bit	Read Only		

Hopper 2 Heater	40500	40599
Hopper 3 Heater	40600	40699
Hopper 4 Heater	40700	40799
Hopper 5 Heater	40800	40899
Hopper 6 Heater	40900	40999
Hopper 7 Heater	41000	41099
Hopper 8 Heater	41100	41199

Hopper 9 Heater	41200	41299
Hopper 10 Heater	41300	41399
Hopper 11 Heater	41400	41499
Hopper 12 Heater	41500	41599
Hopper 13 Heater	41600	41699
Hopper 14 Heater	41700	41799
Hopper 15 Heater	41800	41899

Drying Monitor 1 (DM3e)		43400	43499			
Address	Data	Description	Type	Access	Range Max	Range Min
43400	Drying Monitor 1 Temp (Bottom)		Real	Read Only		
43402	Drying Monitor 2 Temp		Real	Read Only		
43404	Drying Monitor 3 Temp		Real	Read Only		
43406	Drying Monitor 4 Temp		Real	Read Only		
43408	Drying Monitor 5 Temp		Real	Read Only		
43410	Drying Monitor 6 Temp (Top)		Real	Read Only		

Drying Monitor 2 (DM3e)	43500	43599
Drying Monitor 3 (DM3e)	43600	43699
Drying Monitor 4 (DM3e)	43700	43799
Drying Monitor 5 (DM3e)	43800	43899
Drying Monitor 6 (DM3e)	43900	43999
Drying Monitor 7 (DM3e)	44000	44099
Drying Monitor 8 (DM3e)	44100	44199
Drying Monitor 9 (DM3e)	44200	44299
Drying Monitor 10 (DM3e)	44300	44399
Drying Monitor 11 (DM3e)	44400	44499
Drying Monitor 12 (DM3e)	44500	44599
Drying Monitor 13 (DM3e)	44600	44699
Drying Monitor 14 (DM3e)	44700	44799
Drying Monitor 15 (DM3e)	44800	44899

Current Monitoring		44900	44999			
Address	Data	Description	Type	Access	Range Max	Range Min
44900	Regen Heater Current L1		Real	Read Only		
44902	Regen Heater Current L2		Real	Read Only		
44904	Regen Heater Current L3		Real	Read Only		

Hopper 9 Heater	41200	41299
Hopper 10 Heater	41300	41399
Hopper 11 Heater	41400	41499
Hopper 12 Heater	41500	41599
Hopper 13 Heater	41600	41699
Hopper 14 Heater	41700	41799
Hopper 15 Heater	41800	41899

Drying Monitor 1 (DM3e)		43400	43499			
Address	Data	Description	Type	Access	Range Max	Range Min
43400	Drying Monitor 1 Temp (Bottom)		Real	Read Only		
43402	Drying Monitor 2 Temp		Real	Read Only		
43404	Drying Monitor 3 Temp		Real	Read Only		
43406	Drying Monitor 4 Temp		Real	Read Only		
43408	Drying Monitor 5 Temp		Real	Read Only		
43410	Drying Monitor 6 Temp (Top)		Real	Read Only		

Drying Monitor 2 (DM3e)	43500	43599
Drying Monitor 3 (DM3e)	43600	43699
Drying Monitor 4 (DM3e)	43700	43799
Drying Monitor 5 (DM3e)	43800	43899
Drying Monitor 6 (DM3e)	43900	43999
Drying Monitor 7 (DM3e)	44000	44099
Drying Monitor 8 (DM3e)	44100	44199
Drying Monitor 9 (DM3e)	44200	44299
Drying Monitor 10 (DM3e)	44300	44399
Drying Monitor 11 (DM3e)	44400	44499
Drying Monitor 12 (DM3e)	44500	44599
Drying Monitor 13 (DM3e)	44600	44699
Drying Monitor 14 (DM3e)	44700	44799
Drying Monitor 15 (DM3e)	44800	44899

Current Monitoring		44900	44999			
Address	Data	Description	Type	Access	Range Max	Range Min
44900	Regen Heater Current L1		Real	Read Only		
44902	Regen Heater Current L2		Real	Read Only		
44904	Regen Heater Current L3		Real	Read Only		

44906	Regen Heater KWH	Real	Read Only
44908	Delivery Air Heater Current L1	Real	Read Only
44910	Delivery Air Heater Current L2	Real	Read Only
44912	Delivery Air Heater Current L3	Real	Read Only
44914	Total Dryer KWH (Calculated)	Real	Read Only