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USER GUIDE

UGD085-1222

GasTrac™

Process Air Heater with DC-B Control

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: UGD085-1222

Serial Number(s):

Model Number(s):

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

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SECTION
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Introduction

Purpose of the User Guide

This User Guide describes the GasTrac process air heater and explains step-by-step how to install, operate, maintain and repair this equipment.

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

How the Guide is Organized

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

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

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

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

❒ 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.

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 view 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: Follow instructions carefully.**

Incorrect installation, operation or maintenance of this product can result in a fire, explosion or other hazards causing property damage, severe personal injury or loss of life.

Only licensed electrical/mechanical contractors, or individuals experienced with the installation of natural gas piping, process air ducting, thermal insulation, exhaust ducting and regional codes for industrial gas appliances, should install the GasTrac.

The GasTrac should be maintained and repaired by qualified technicians who are equipped with the correct tools and are experienced in the maintenance and repair of industrial gas appliances.

Inspection and testing of gas supply piping, exhaust ducting and the GasTrac gas controls and safety features should be performed periodically to ensure safe operation.

⚠ **WARNING: If gas odor is detected...**

- ❒ **Open doors and/or windows to vent the gas.**
- ❒ **Do not touch electrical switches.**
- ❒ **Extinguish all open flames.**
- ❒ **Immediately have qualified personnel determine the source of the gas leak and repair it.**

⚠ **WARNING: Do not store or 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 or stored near the GasTrac to explode.

(Continued)

ATTENTION:
Read This So No One Gets Hurt (Cont'd)

WARNING: Hot surfaces.

Temperatures inside the GasTrac can reach more than 800° F. Always shut down the GasTrac and host dryer and wait for them to cool before servicing. Do not remove the safety guard covering the GasTrac burner and heat exchanger.

WARNING: Disconnect and lock out main power before servicing.

The GasTrac is connected to high voltage. Always disconnect and lock out the main power source to the GasTrac before servicing. Also disconnect and lock out main power to the host dryer before servicing the GasTrac. Failure to disconnect and lock out this voltage source could result in severe personal injury.

WARNING: Shut off main gas supply and purge heat exchanger and gas lines before servicing.

If the fuel train, burner, ultraviolet sensor, sight glass or ignition are to be serviced, it is important that the GasTrac heat exchanger and gas lines are purged of natural gas. Failure to eliminate this potential source of a gas leak could result in severe damage, personal injury or loss of life.

WARNING: Do not operate the GasTrac with safety features disabled or removed.

The GasTrac has been equipped with numerous guards, controls and devices to ensure safe operation. Never remove or disable these devices to sustain production. Operating without these devices could lead to hazardous conditions that can damage the facility or cause severe injury or loss of life.

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 may be provided to isolate this product from potentially hazardous electricity.

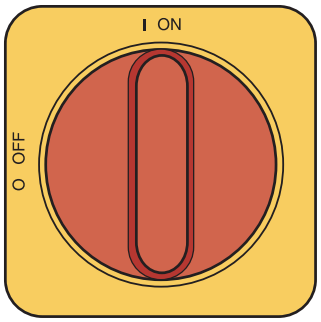
WARNING:

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.

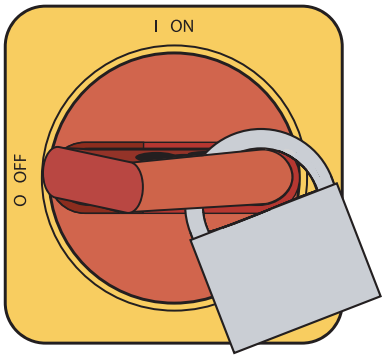
NOTE: Your disconnect may appear slightly different than the one shown here.

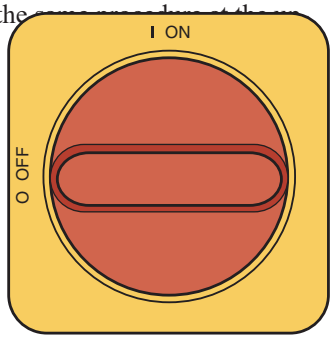
Lockout is the preferred method of isolating machines or equipment from energy sources. Your Conair product may be equipped with the lockout device pictured below. To use the lockout device:

1. **Stop or turn off the equipment.**
2. **Isolate the equipment from the electric power.**
3. **Turn the rotary disconnect switch to the OFF, or "O" position**
4. **Secure the device** with an assigned lock or tag.
5. The equipment is now **locked out**.



If the equipment has no included lockout device, perform the same procedure at the upstream device as part of premises electrical system.





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SECTION
2

Description

What is the GasTrac?

The GasTrac Process Air Heater is a stand-alone, gas-fired heater designed to replace the electric process air heater in an existing dehumidifying dryer or crystalizer. The GasTrac allows plastics processors to convert existing electric equipment to a less-expensive gas source.

The GasTrac contains a metal-ceramic burner, heat exchanger, combustion system and temperature controller to set and maintain the temperature of the air entering a drying hopper. The host dryer's desiccant beds dry the air. The host dryer's process blower circulates air through the GasTrac heat exchanger and the hopper.

Typical Applications

The GasTrac can be used successfully in applications that require:

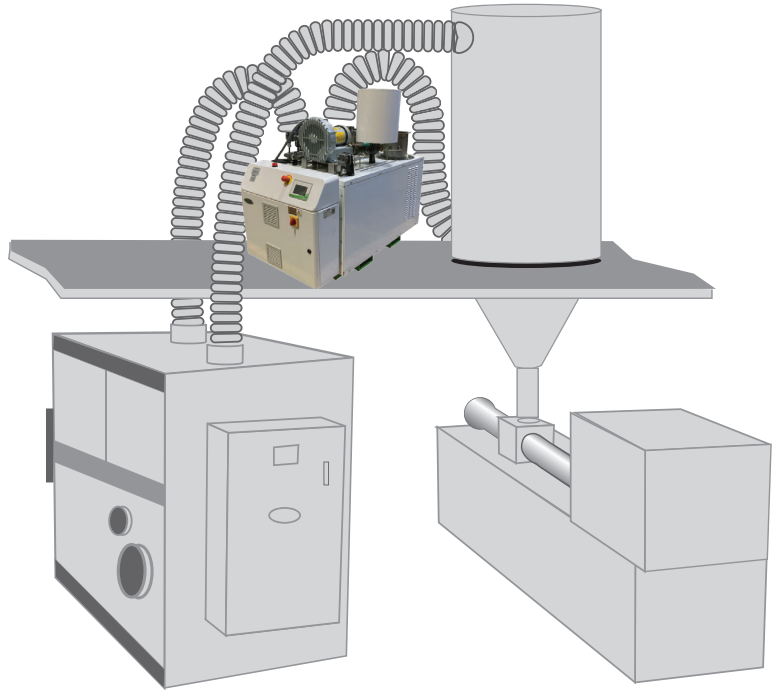
- Drying of hygroscopic plastics at temperatures ranging from 250° F to 350° F.
- Hot air drying of non-hygroscopic plastics.
- Process, or drying, air flow of 600 to 1800 cfm. Higher or lower air flow ranges may be achieved, depending on the model of the host dryer and the GasTrac selected.
- Central drying, using an existing electric dryer with a single GasTrac or multiple GasTrac units.

The GasTrac has been designed and configured at the factory for use with natural gas only. If you want to use a different gas fuel source, such as propane, you must contact Conair.

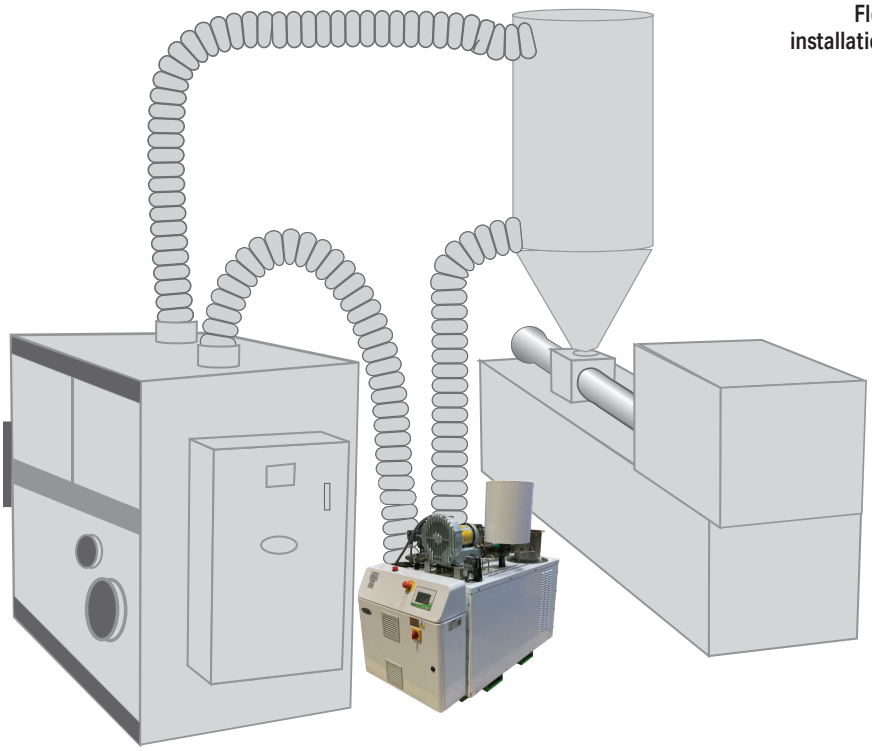
Typical Applications (Cont'd)

The GasTrac may be installed on a mezzanine or on the floor between the host dryer and the drying hopper. You can use flexible hose or pipe to deliver air between the host dryer, the GasTrac and the drying hopper

Mezzanine installation Sample



Floor installation Sample

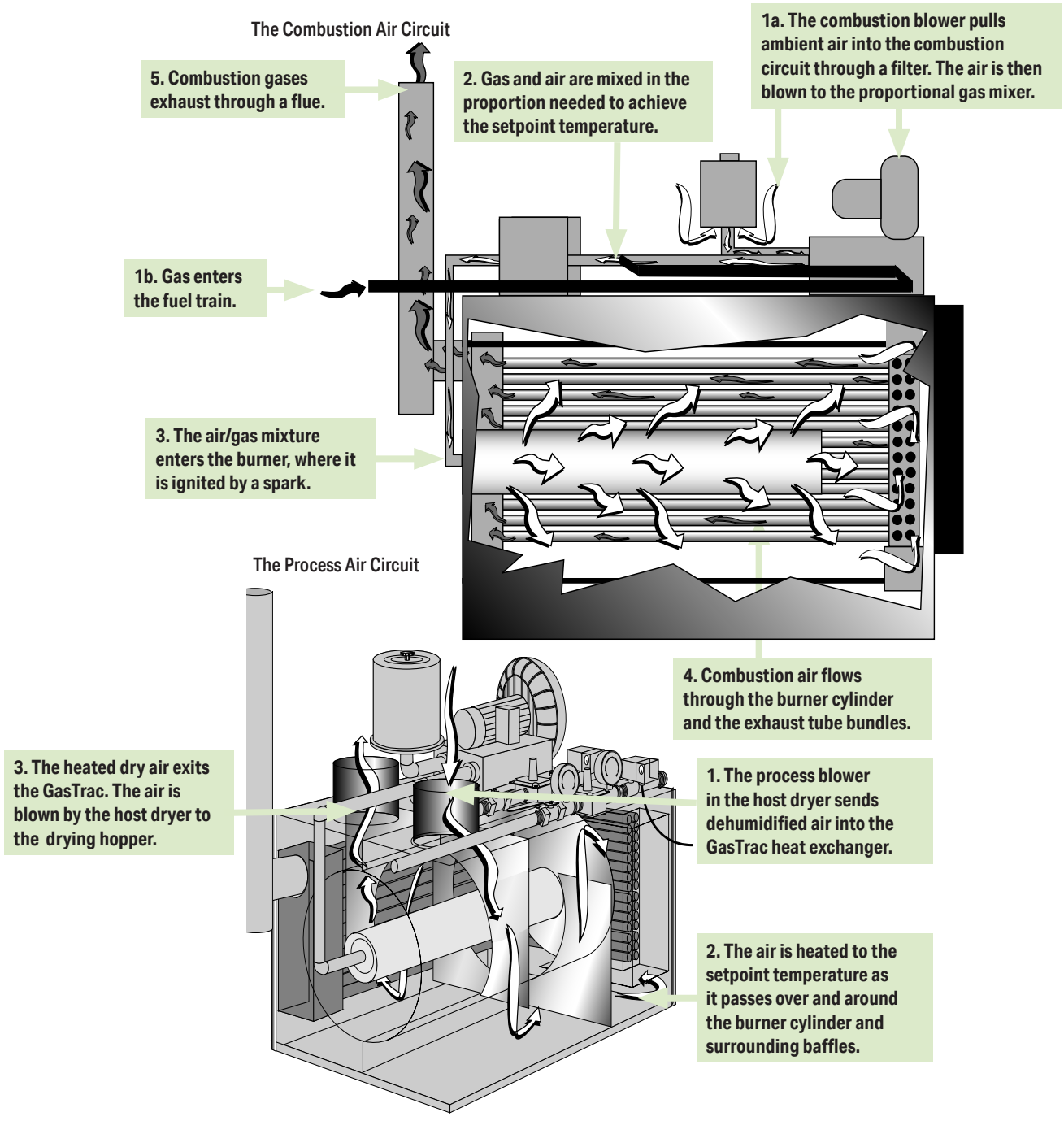


How It Works

The GasTrac has multiple interfaced controls that:

- Ignite the metal-ceramic burner and monitor the GasTrac combustion circuit.
- Heat the dry air to the setpoint temperature.
- Monitor the air temperature as it enters the drying hopper.
- Automatically adjust the mixture of combustion air and gas to maintain the set-point temperature.

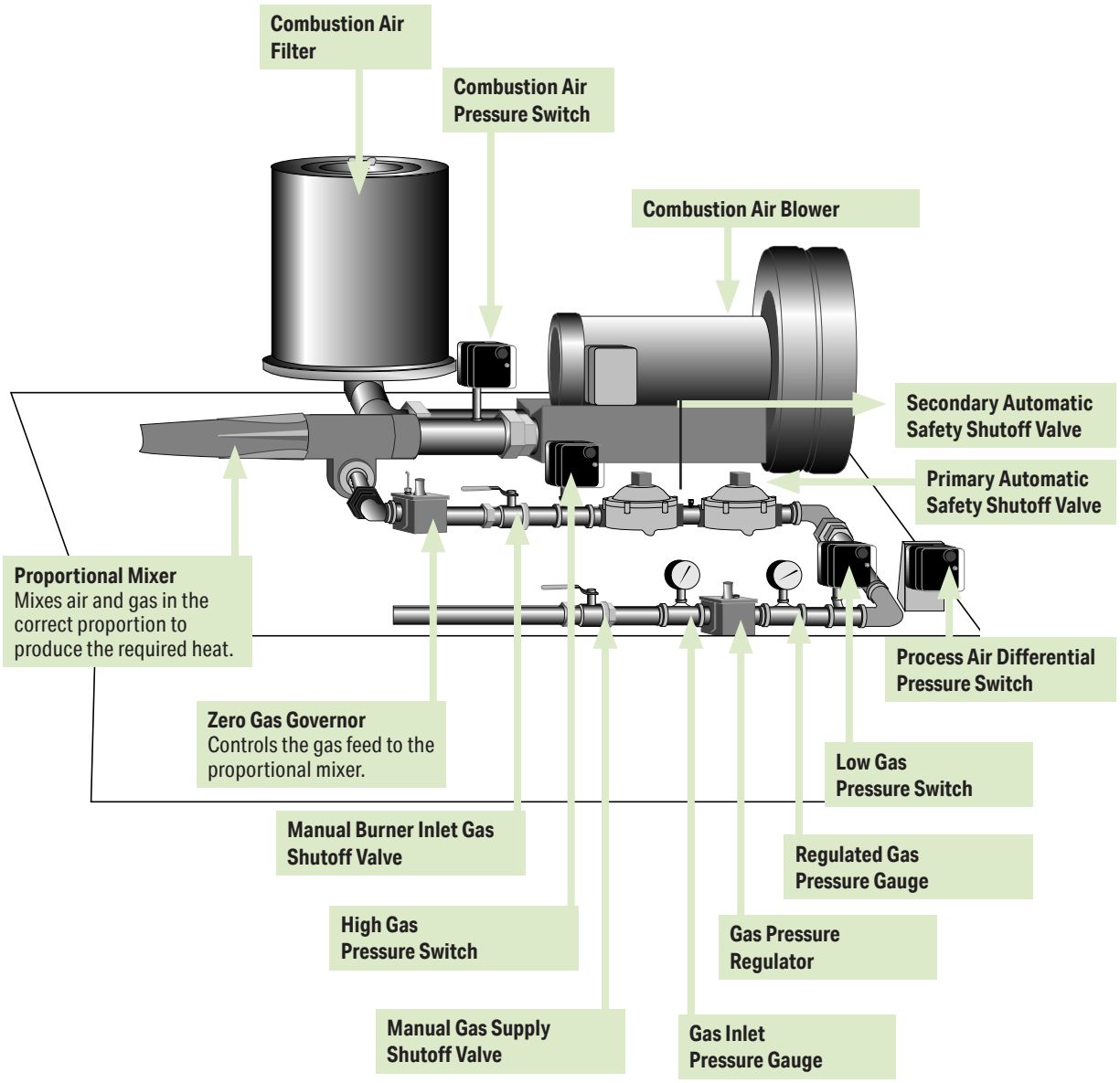
The GasTrac has two separate air circuits: the combustion air circuit and the process air circuit.



Fuel Train Features and Controls

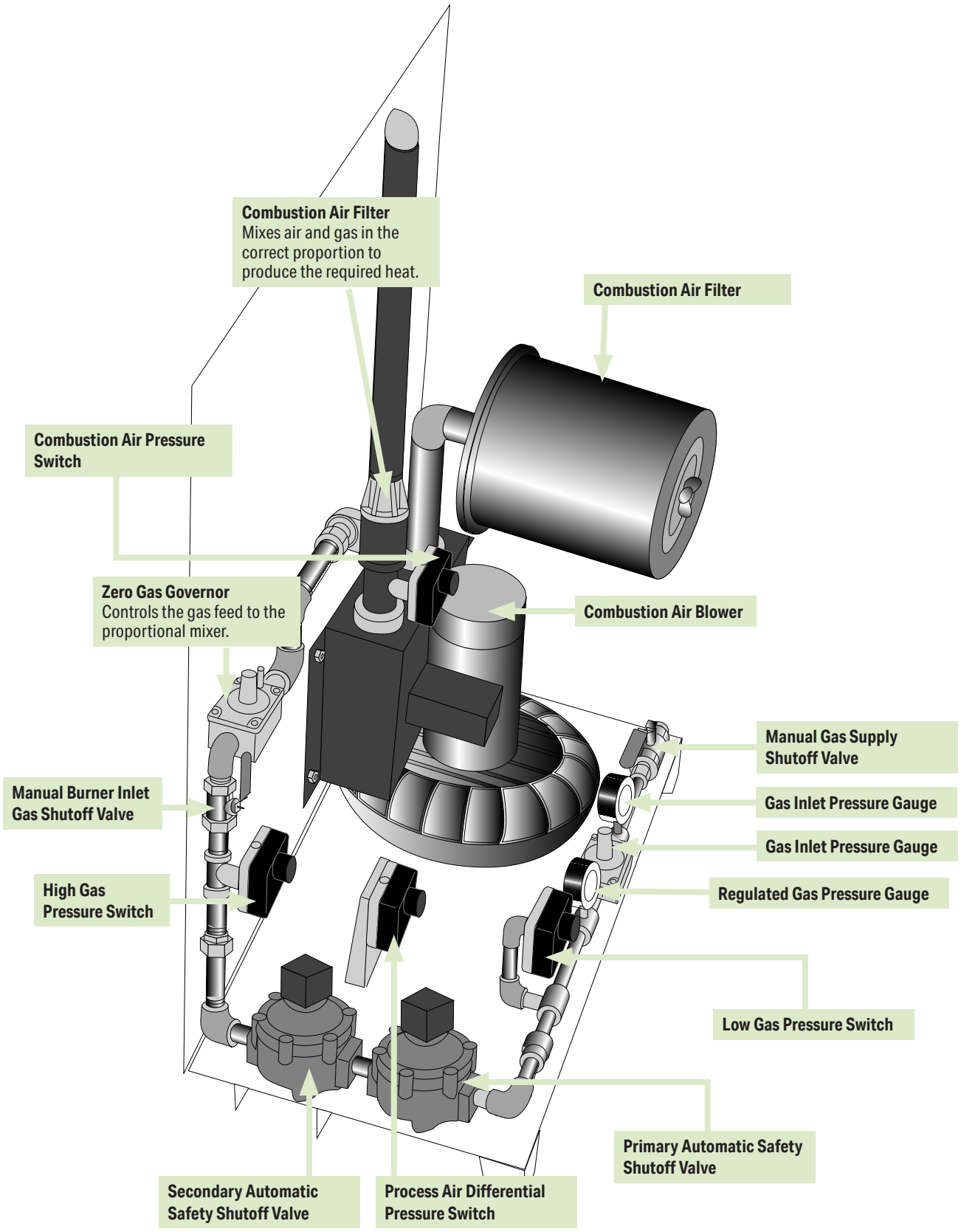
The fuel train includes two automatic and manual safety gas shutoff valves, four pressure switches, and a gas regulator and governor to assure safe feeding of gas to the combustion burner. The four pressure switches monitor gas pressure and process air flow. The GasTrac will automatically shut down if a pressure switch senses an unsafe condition

The Process Air Circuit.



Fuel Train Features and Controls (Continued)

GasTrac Upright Models



Specifications: GasTrac

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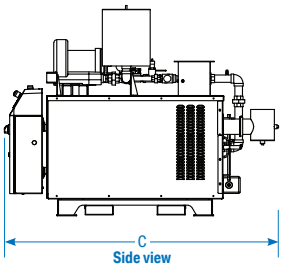
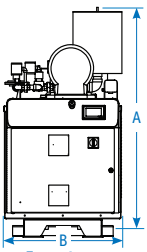


Side view



Front view

Emissions	
Primary excess air	10 - 30%
Oxygen (O2) (ideal 3 - 4%)	2 - 5%
Carbon Dioxide (CO2)	9 - 10.5%
Carbon Monoxide (CO)	<10 ppm corrected to 3% O2
NOX	<20 ppm corrected to 3% O2
Unburned hydrocarbons	<10 ppm corrected to 3% O2

All GasTrac components meet:

UL372, UL795, FM, CGA, AGA, NFPA 54, NFPA 79, NFPA 86 and IAS

Models	CGT150	CGT250	CGT350	CGT500	CGT700
Performance characteristics					
Temperature range °F {°C}	250 - 350 {122 - 177}				
Maximum flue temperature °F {°C}	750 {399}				
Combustion blower	0.5 Hp peripheral		1 Hp peripheral		
Ignition source	Spark igniter, interrupted				
Burner type	Metal-ceramic				
Minimum burner capacity BTU/hr	40,000	75,000	90,000	125,000	150,000
Maximum burner capacity BTU/hr	150,000	225,000	350,000	500,000	700,000
Gas consumption *					
CFH @250°F {121°C} L/hour	50 {1416}	90 {2549}	105 {2973}	150 {4248}	230 {6513}
CFH @350°F {177°C} L/hour	140 {3964}	215 {6088}	325 {9203}	465 {13167}	675 {19114}
Gas pressure to regulator In. H_2O {kPa}	10 - 20 {2.49 - 4.98}				
Gas pressure from regulator In. H_2O {kPa}	4 - 7 {0.99 - 1.74}				
Gas heating rate BTU/ft^3	1000				
Dimensions inches {mm}					
A - Height	54 {1372}	61{1549}			
B - Width	29 {737}	37 {940}			
C - Depth	66 {1676}	64 {1626}	74 {1880}		
Air inlet/outlet, OD	8 {203}				12 {300}
Gas inlet size (NPT) inches	3/4				1
Exhaust flue, OD	6 {152}				
Approximate weight lb {kg}					
Installed	600 {272}				
Shipping	700 {317}				600 {272}
Voltage Full load amps †					
400 V/3 phase/50 Hz	5.4				
230 V/3 phase/60 Hz	9.6				
460 V/3 phase/60 Hz	5.1				

Specification Notes

* Designed for natural gas. For alternate fuel, contact your Conair representative.

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

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

Specifications: Exhaust Flue

The Conair GasTrac is classified under the National Fuel Gas Code [ANSI Z233.1] as a Category III gas appliance. An exhaust flue is required to vent the combustion gases produced by this appliance. The purchaser is responsible for installing an exhaust flue that meets all local, regional and national codes in the installation area. For you safety, Conair recommends that you consult a licensed mechanical contractor who is familiar with gas flue and ducting codes in your area.

GasTrac Operating Characteristics

Maximum flue temperature	750° F / 399° C
Minimum vent size (single unit installation)	CGT350: 4 in. / 10.2 cm
	CGT500: 6 in. / 15 cm
	CGT700: 6 in. / 15 cm
Vent pressure at flue collar	1 to 2 in. water column

Installation Recommendations

- ❒ Provide each GasTrac with a dedicated, vertical stack that exits the building vertically through a rain-protected roof penetration. Limit any horizontal ducting runs to 4 feet.
- ❒ Use a stainless steel, fabricated chimney flue.
- ❒ Vent size should be 6 inches {15 cm.} in diameter. If you connect multiple GasTrac units to a stack manifold, adjust the stack size accordingly.
- ❒ Static pressure at the flue collar **must not exceed 1 to 2 inches water column.**
- ❒ Install an induced draft fan between the GasTrac exhaust outlet and stack ducting, if you have more than 1 to 2 inches water column pressure at the flue collar while the GasTrac is operating.

Specifications: Main Power Supply Wire

The main power wire must be:

- Grounded and secured with a strain relief.
- Correctly sized for the current drawn.

✎ **NOTE:** Local or regional electrical guidelines may have specifications that differ from the above national codes. You should comply with the codes for your area.

Allowable Ampacities of Copper Conductors					
	USA	Canada		European Community	
	75° C Insulation 30° C Ambient Air	90° C Insulation 40° C Ambient Air		70° C Insulation: 40° C Ambient Air	
Conductor Size AWG	Maximum Full Load Amps		Ground Wire Size AWG	Conductor Size mm2	Maximum Full Load Amps
14	15	13	14	2.5	16
12	20	17	12	4	23
10	30	27	10	6	29
8	43	47	10	10	40

SECTION
3

Installation

Unpacking the Boxes

The GasTrac Process Air Heater arrives assembled. The RTD temperature probe is packaged inside the electrical enclosure. Depending on the model and options ordered, you also should receive boxes containing V clamps and piping to attach the GasTrac exhaust to a customer-installed flue.

1. **Carefully remove the GasTrac and components** from their shipping containers.
2. **Remove all packing material,** protective paper, tape and plastic. Be sure to examine packing material before discarding. What looks like filler may contain parts, hardware or instructional materials.
3. **Carefully inspect all components.** Make sure you have the correct model and all necessary hardware. Check for any damage that may have occurred during shipping. If you do find freight damage, you should immediately file a damage claim against the delivering carrier.
4. **Take a moment to record serial numbers,** electrical power and gas specifications in the blanks provided on the back of the User Guide title page. This information will be helpful if you ever need service or parts.
5. **You are now ready to begin installation.** Follow all preparation steps beginning on the next page.

Preparing for Installation

⚠ **WARNING: Follow instructions carefully.**

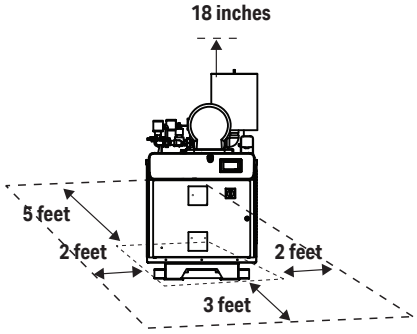
Incorrect installation of this product can result in a fire, explosion or other hazards causing property damage, severe personal injury or loss of life. Only licensed electrical/mechanical contractors, or individuals experienced with the installation of natural gas piping, process air ducting, thermal insulation and exhaust ducting, should install the GasTrac.

1 Select a location for the GasTrac. The location:

❒ **Should be between the host dryer and the hopper.** For minimal heat loss, the GasTrac should be no more than 10 feet from the drying hopper. The GasTrac control must be within 10 feet of the drying hopper inlet, unless optional cable extensions for the RTD temperature probe have been purchased.

❒ **Must allow for installation of an exhaust flue** that meets all local, regional and national codes. Ideally, each GasTrac should have a dedicated vertical stack that exits the building through a rain-protected roof penetration.

❒ **Must provide minimum clearance for safe operation and maintenance.** For efficient combustion, you must not obstruct air flow around the unit.



2 Install electrical power to the selected location.
The GasTrac requires a grounded, three-phase power source. Check the GasTrac's serial tag for the correct amps, voltage and cycles for your model. All electrical wiring should be completed by qualified personnel and should comply with government codes in your region.

3 Install gas piping to the selected location.
Gas delivery piping should be sized to provide the rated gas flow to the GasTrac at a delivery pressure of about 12 inches water column (about 1/2 psig). All gas piping should be completed by qualified personnel and should comply with government codes in your region.

✎ **NOTE:** For reliable long-term performance, the gas supply line should include:

❒ A water trap to collect water condensing in the gas line.

❒ An in-line, basket-type filter to collect rust, pipe scale or welding slag.

Installing the GasTrac

⚠ **WARNING: You are responsible for the structural integrity of this installation.**

If you are installing the GasTrac on a mezzanine, the host dryer or another device, be sure that the mounting surface can support the weight of the GasTrac. See the specification tables for weights.

⚠ **CAUTION: Use a suitable lifting device to move the GasTrac.**

The GasTrac models weigh up to 1,400 pounds {635 kg}. Always use a forklift or other suitable lifting device to move the unit. The GasTrac has been equipped with forklift rails.

1 **Move the GasTrac to the selected location.**
Be sure to position the GasTrac so that you can easily:

- ❒ Connect the gas and main power supplies.
- ❒ Install the flue stack.
- ❒ Connect process air hoses or lines between the host dryer, GasTrac and drying hopper.

2 **Secure the GasTrac to the mounting surface.** We have provided 1 3/8-inch diameter holes in the base of the GasTrac for bolting the unit to a mounting surface.

Disconnecting the Dryer's Process Air Heater

You must disconnect the host dryer's process heater because the GasTrac replaces it. You will need the wiring diagrams and instruction manuals for your host dryer to determine which wires to disconnect and which air lines to remove or reroute.

1 **Disconnect and lock out power to the host dryer.** If the dryer has been operating recently, wait for the dryer too cool down before continuing to Step 2.

2 **Disconnect the electrical wires** between the host dryer control and the process heating elements.

3 **Disconnect and reroute the process air lines.** The host dryer's process air outlet must be connected to the GasTrac instead of the drying hopper. To reduce the pressure drop in the process air circuit, you may need to remove the process heater or reroute process air lines within the dryer to bypass the process heater. Refer to the manuals and diagrams that came with your dryer.

Installing the Exhaust Flue

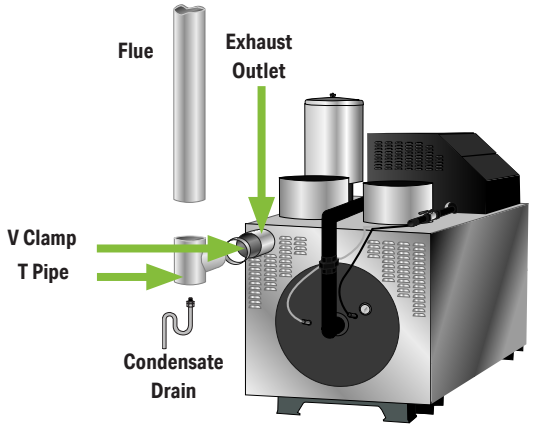
WARNING: Do not operate the GasTrac without a properly installed exhaust flue.

You must install an exhaust flue to vent the combustion gases produced by the GasTrac. The installation should comply with government codes in your area and be done by a qualified mechanical contractor familiar with industrial flue and ducting systems.

The GasTrac is a forced draft system, using a variable speed combustion blower and a sealed combustion chamber. The temperature of combustion gases in the flue can reach 800° F {427° C}.

1 **Install the exhaust ducting and flue.** Consult government codes and a qualified mechanical contractor for detailed installation instructions and assistance. *See the Specifications pages of this User Guide for GasTrac operating characteristics and general recommendations.*

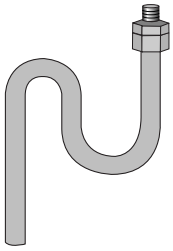
2 **Connect the flue to the GasTrac's exhaust outlet.** Attach the T pipe to the GasTrac's exhaust outlet using the V clamp provided. Connect the T pipe to the exhaust flue.



3 **Insulate the flue and exhaust T assembly.**
Exhaust flue and T temperatures can reach 800° F {427° C}.

4 **Install a condensate trap and drain.**
Condensate occurs where flue gases cool below their dew point. This condensate can be highly corrosive. Draining and disposal should be done in compliance with applicable safety and environmental codes in your area.

TIP: A condensate trap and drain can be made by bending a piece of stainless steel tubing. Secure the drain to the T pipe using the appropriate compression fitting.

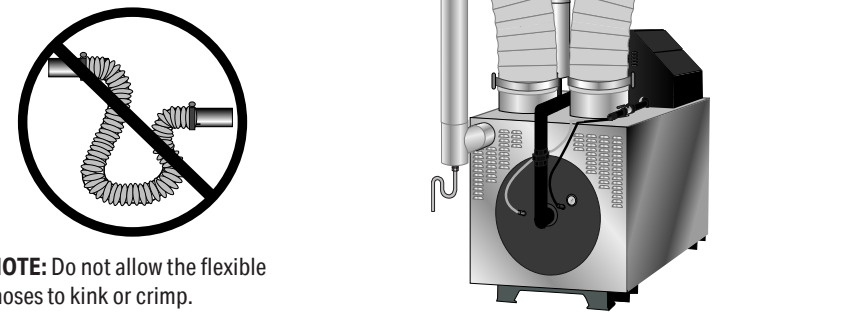


Connecting Process Air Lines

The process air lines carry dehumidified air from the host dryer to the GasTrac, and from the GasTrac to the drying hopper. These air lines can be flexible hose or pipe. The air line between the GasTrac and host dryer can be uninsulated. We recommend an insulated air line between the GasTrac and the drying hopper to minimize heat loss.

1 **Connect the GasTrac process air inlet to the host dryer's process air outlet.** Secure the air lines with hose or pipe clamps.

2 **Connect the GasTrac process air outlet to the drying hopper air inlet.** Secure the air lines with hose or pipe clamps.



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

Connecting the Gas Supply

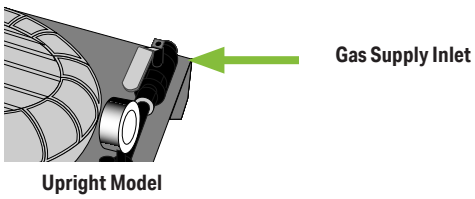
⚠ **WARNING: For your safety, we recommend that these steps be completed by a qualified mechanical contractor in compliance with all applicable natural gas codes in your region.**

1 **Check all gas lines for leaks.** Use a gas detecting device or apply soapy water around pipe and fittings.

2 **Purge the gas lines after pipe and fittings are known to be free of leaks.** The lines must be free of air, rust, scale, pipe dope and welding slag.

3 **Connect the gas supply line to the inlet** on the GasTrac fuel train. Make sure that a water trap and inline basket filter has been installed on the supply line.

Gas Inlet Fitting Sizes	
Model	**NPT Size**
CGT350	3/4 in.
CGT500	3/4 in.
CGT700	1 in.

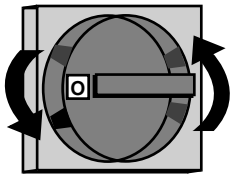


Upright Model

Connecting Main Power

CAUTION: Electrical hazard.

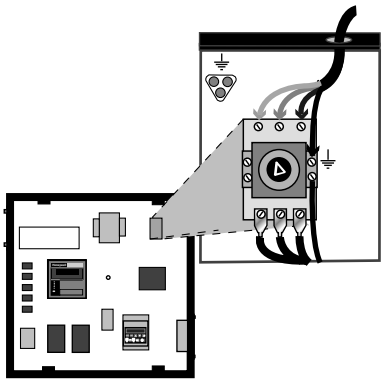
Always disconnect and lock out the main power sources before making electrical connections. Electrical connections should be made only by qualified personnel.



1 **Open the GasTrac electrical enclosure.**
Turn the disconnect dial on the GasTrac's door to the Off position. Turn the captive screw, and swing the door open.

2 **Insert the main power wire** through the knockout in the electrical enclosure. Secure the wire with a rubber compression fitting or strain relief.

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



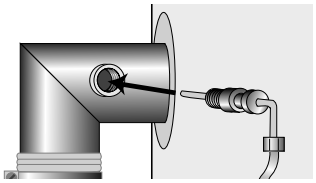
IMPORTANT: Always refer to the wiring diagrams that came with the GasTrac for the most accurate information about electrical components and connections.

4 **Connect the ground wire** to either grounding point shown in the diagram.

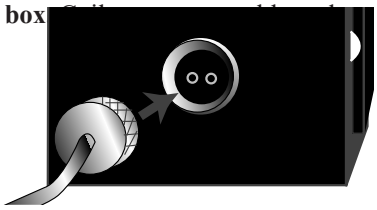
Installing the RTD Probe

The 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 in the delivery air inlet** of the hopper. The end of the probe must not touch the walls of the inlet pipe. Most hoppers provide a hole that is compatible with the probe's 1/8-inch NPT compression fitting.



2 **Plug the probe's cable into the GasTrac control box** secure with a wire tie.



Gas and Electrical System Checks

You have completed the installation. Now its time to make sure everything works. Qualified electrical and mechanical personnel should be available during the systems check and the installation test.

1 Check all electrical connections.

- ❒ Shut off power to the unit and verify that the GasTrac and its burner controller are adequately grounded. Inadequate grounding can cause controller error messages and nuisance alarms.
- ❒ With power off to the GasTrac and the host dryer, verify that all terminal connections are tight and all new wiring has adequate strain relief.

2 Check gas piping and ducting.

- ❒ Verify that the gas delivery piping is rigidly supported.
- ❒ Verify that exhaust gas ducting is secured, adequately insulated and free of leaks.

3 Check the GasTrac fuel train for leaks.
Turn on the gas supply to the GasTrac. Open the primary gas shutoff valve. Use a gas leak detection device or a squirt bottle of soapy water to detect leaks around gas pipe and fitting joints. Open the secondary gas shutoff valve, and continue checking for leaks using the same procedure.

⚠ **WARNING: Be sure lines are free of leaks.**

To prevent accident or injury, all gas lines, including the GasTrac's factory-mounted gas train, should be checked for leaks before firing the burner.

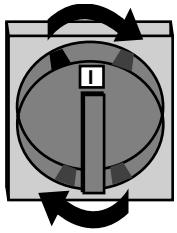
Testing the Installation

1 Start the host dryer.
Monitor the dryer during the first few minutes of operation to verify that the start-up operating sequences are correct.

2 Turn on the gas supply to the GasTrac.
All manual shut-off valves in the gas supply line and the GasTrac fuel train must be in the open position. Before proceeding, use a detection device or soapy water to check for gas leaks in the GasTrac fuel train.

3 Turn on main power to the GasTrac.
Turn the main disconnect dial to the I or ON position.
If everything is installed correctly:

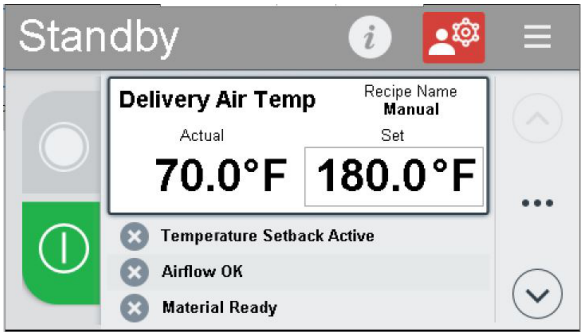
- The variable speed control's display will illuminate.



Testing the Installation (Cont'd)

4 Press the Power switch to ON.

- The temperature controller begins a 3-second self-test. The display will flash between standby and the setpoint temperature.
- The Burner Controller begins a 10-second initiation, which ends when the display indicates STANDBY.



5 Set the drying temperature.

- The combustion blower will start and run for 90 seconds to purge any residual gas from the burner.
- After the 90-second purge, the burner will ignite on low fire (low blower speed) for about 15 seconds. The burner will alternate between high and low fire as required to maintain the setpoint temperature.

6 Verify the combustion blower is rotating in the correct direction.
The combustion blower uses three-phase blower. Hold a strip of paper or piece of string near the blower inlet filter. If the paper or string blows away from the filter, the blower is rotating in the wrong direction. Stop the GasTrac. Disconnect and lock out the main power source. Reverse any two incoming electrical leads on the blower and repeat the test procedure.

7 Allow the actual temperature to reach setpoint.

8 Press the STOP button.

- The gas inlet valves should close.
- The combustion blower should stop.
- The burner and temperature controllers should display STANDBY.

✎ **NOTE:** If the burner fails to ignite and the red alarm light illuminates, there may still be air in the gas lines. Check the burner controller display. If the alarm LED is illuminated, press the reset button on the front of the electrical enclosure. If not, refer to the Troubleshooting section of the User Guide and the burner controller manual.

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SECTION
4

Operation

The GasTrac Process Air Heater Control

Dryer Status/Mode
Displays the current status of the dryer: Standby, Starting, Running, or Stopping.

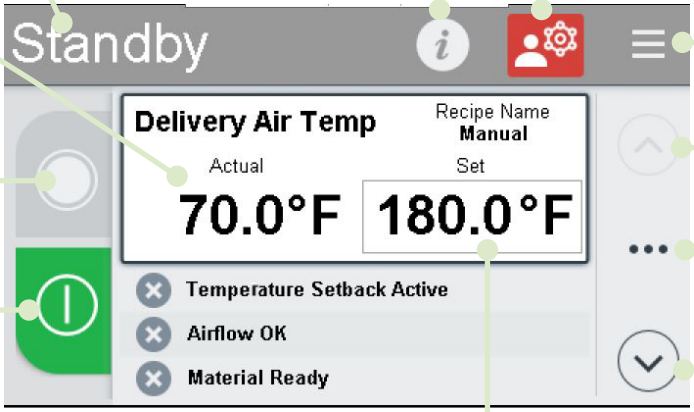
Actual Air Temperature
Displays the current process temperature of the hopper in real time.

Dryer Operation
Press to stop.

Dryer Operation
Ready to start.
Dimmed state indicates machine is on/running.

More Info Contextual Help Mode
Displays detailed explanations of items on the current screen.

Login/User Info
Displays the current status of the user. Allows login when pressed.



Main Menu
Base settings can be set.

Scroll Up
Dimmed if not applicable.

More Menu
Press to navigate through additional functions.

Scroll Down
Dimmed if not applicable.

Drying Setpoint Temperature
Press to display numeric keypad to enter data. **Note**: A dark background with white text in this area indicates you do not have permission to edit this number.

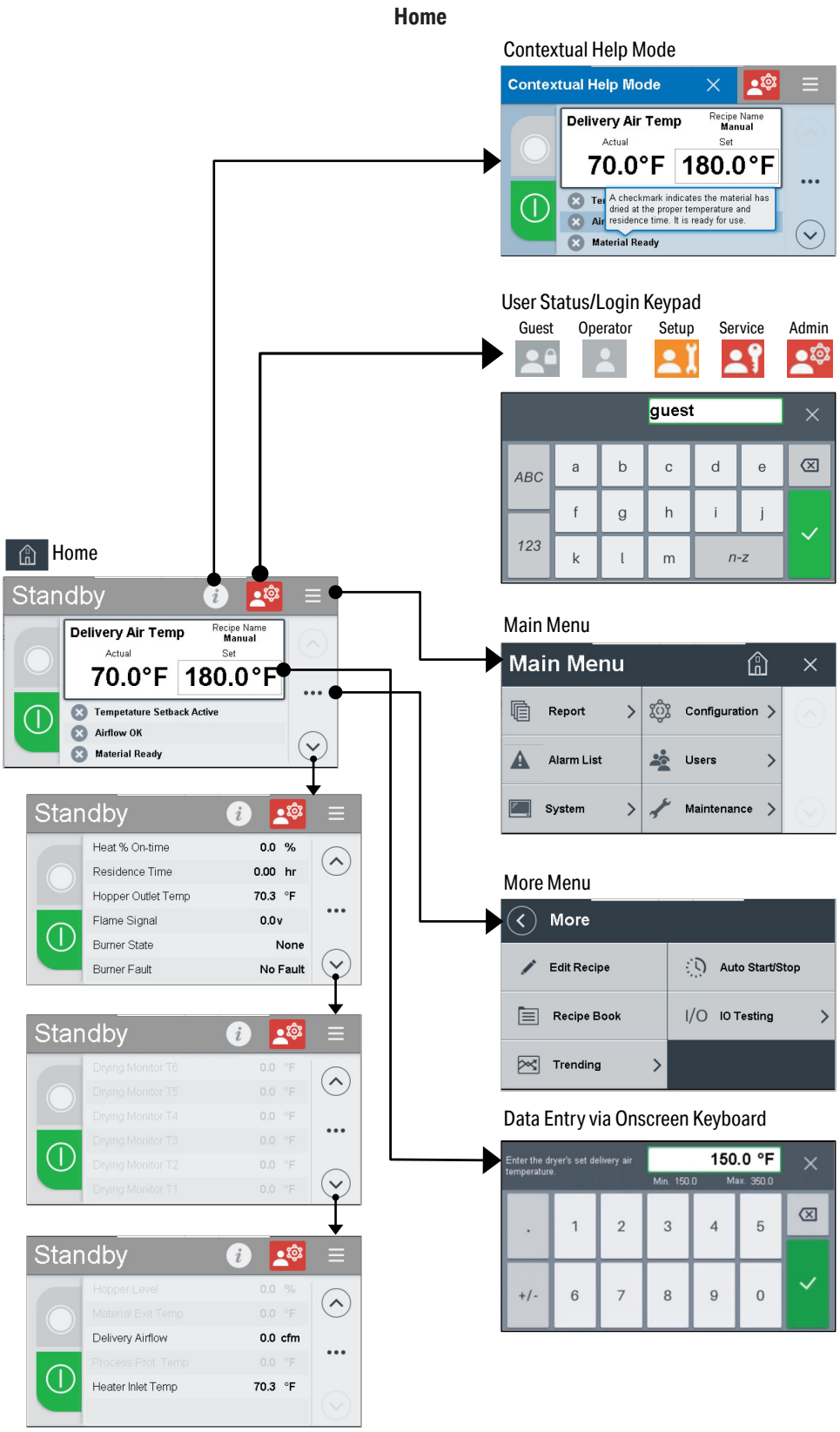
How to Navigate the Control Screens

Navigate through the control screens by touching any navigation icon.

	Scroll Up/Scroll Down on Current Screen
	Scroll Backward/Forward on Current Screen
	Close Current Screen
	Return to Home Screen
	Return to Previous Screen
	Advance to Additional Options for the Selected Item
	Open Main Menu
	Open More Menu

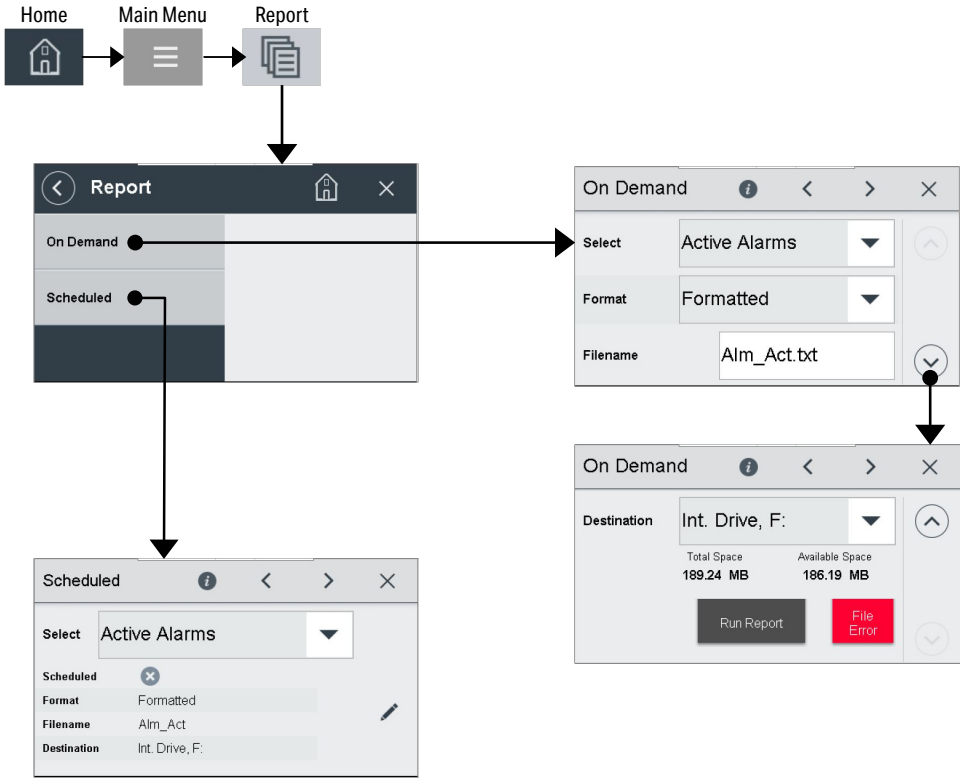
Control Function Flow Charts

The following flow charts provide a quick summary of the control functions. For an explanation of each control function, *see Operation section entitled, Control Function Descriptions starting on page 4-16*.

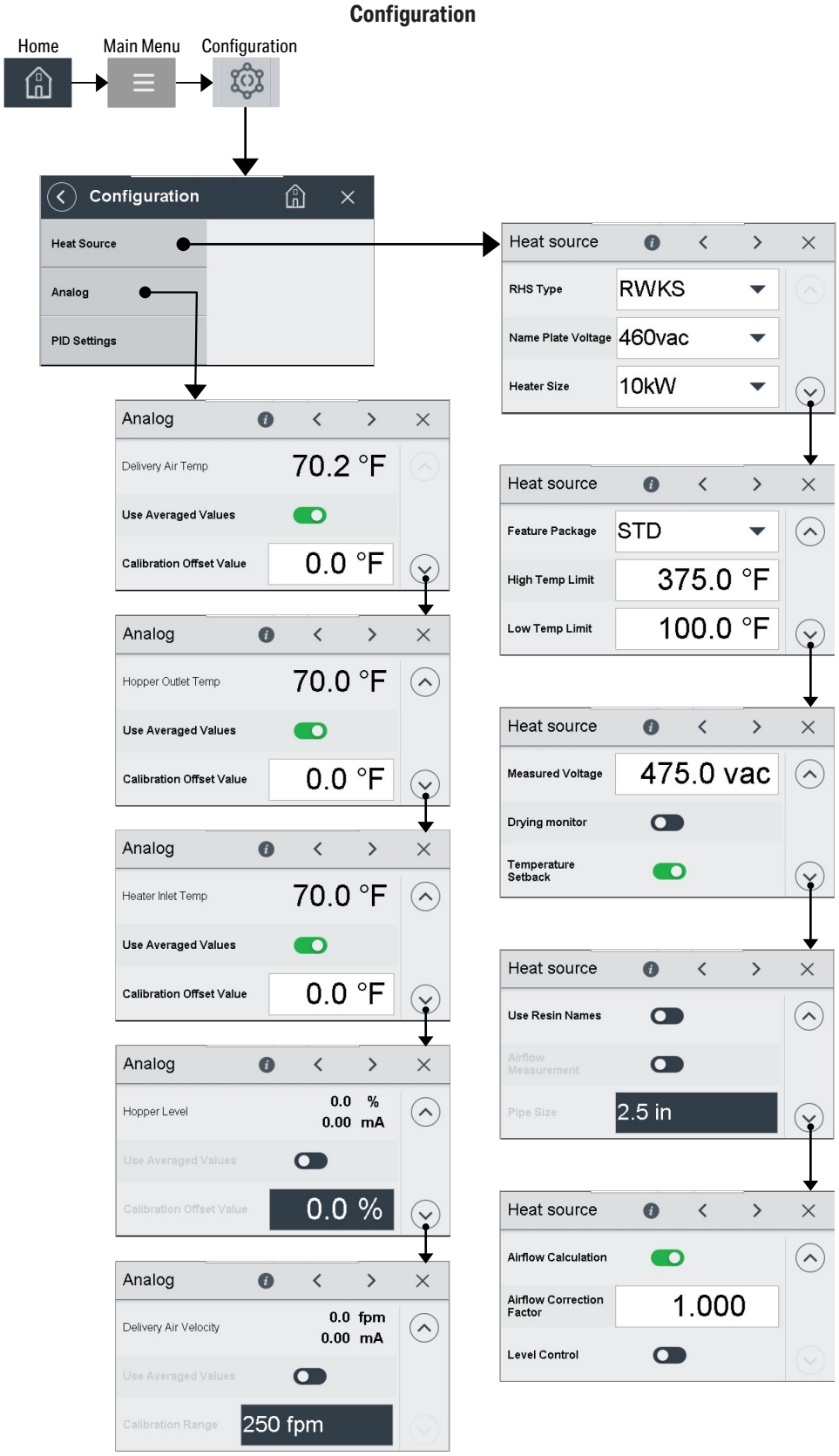


Control Function Flow Charts (Cont'd)

Report

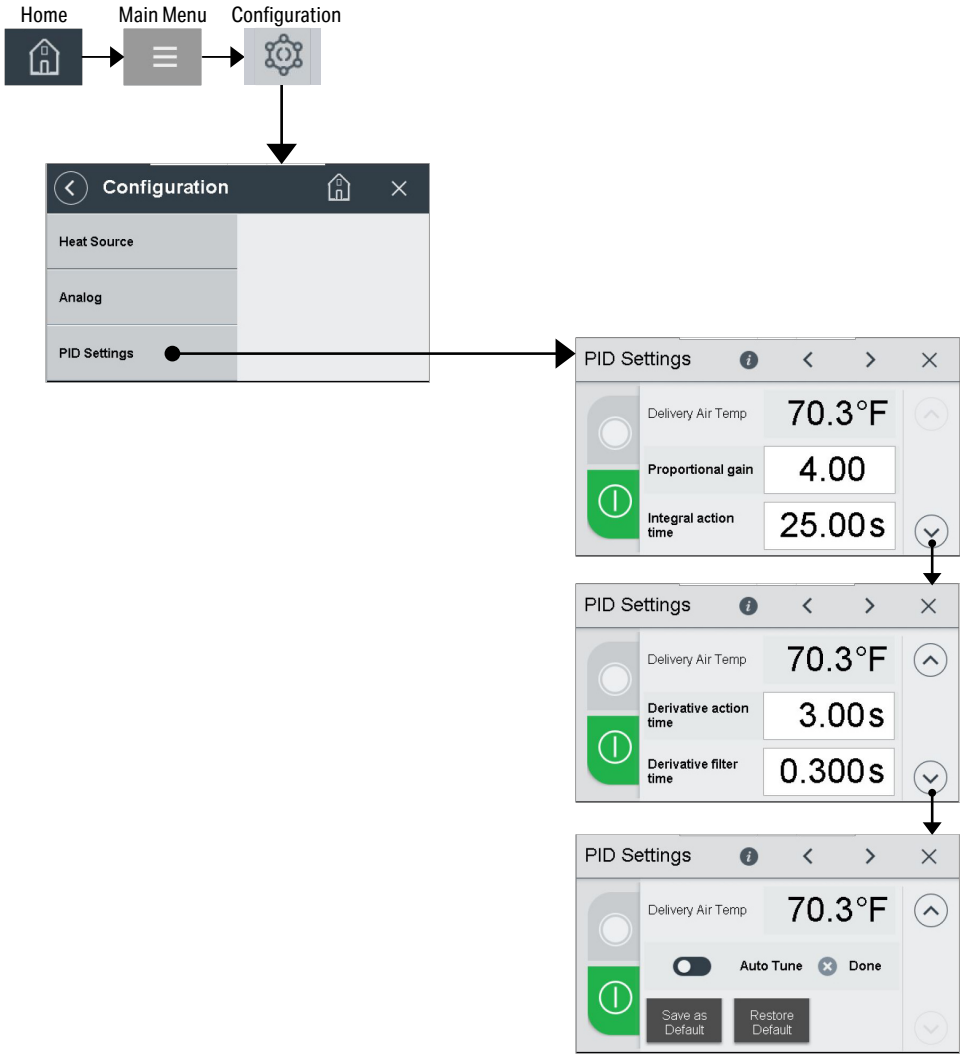


Control Function Flow Charts (Cont'd)



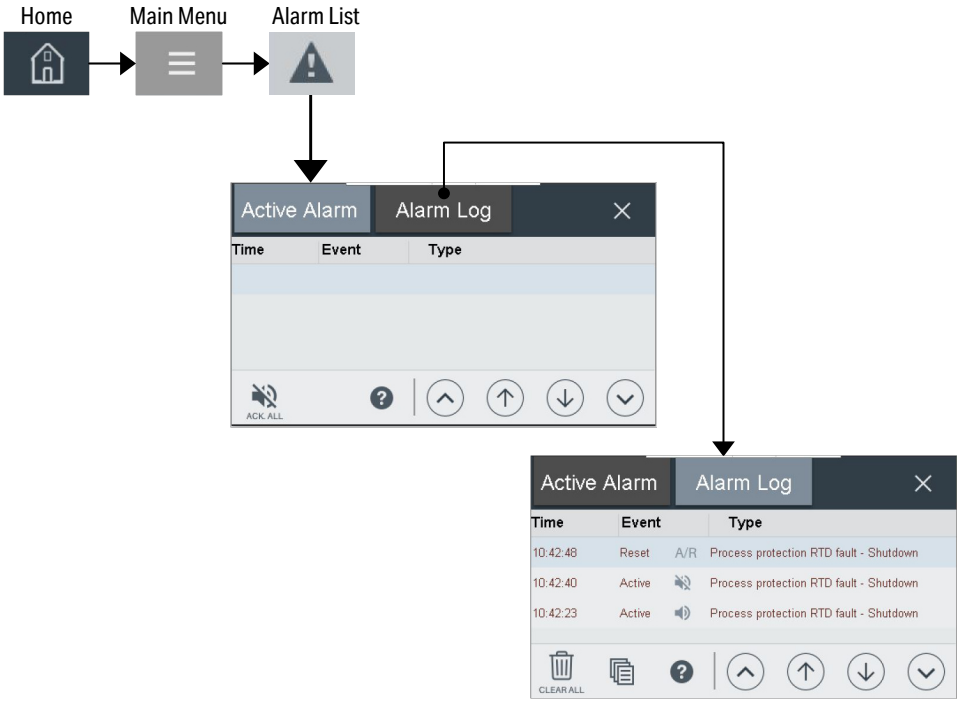
Control Function Flow Charts (Cont'd)

Configuration (Cont'd)



Control Function Flow Charts (Cont'd)

Alarm List



Control Function Flow Charts (Cont'd)

Users

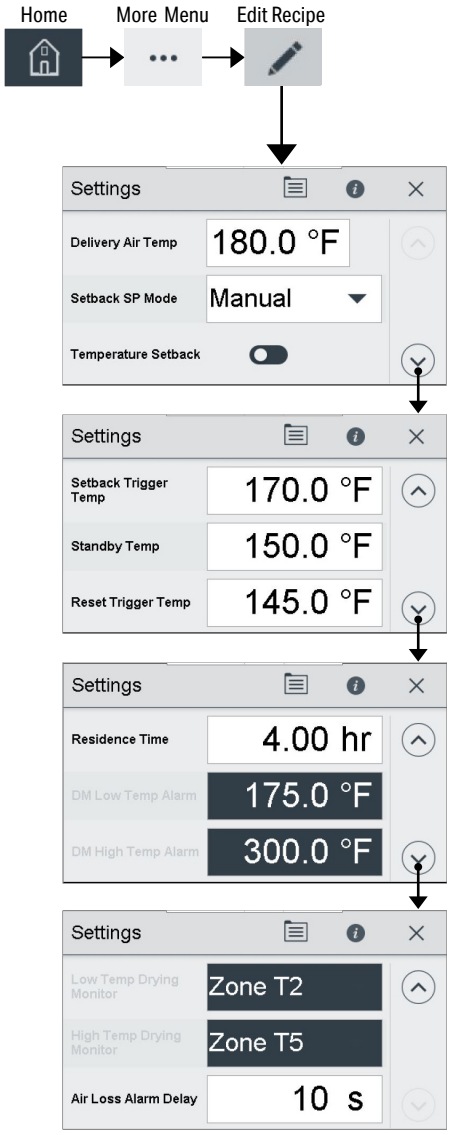
Control Function Flow Charts (Cont'd)

System

Control Function Flow Charts (Cont'd)

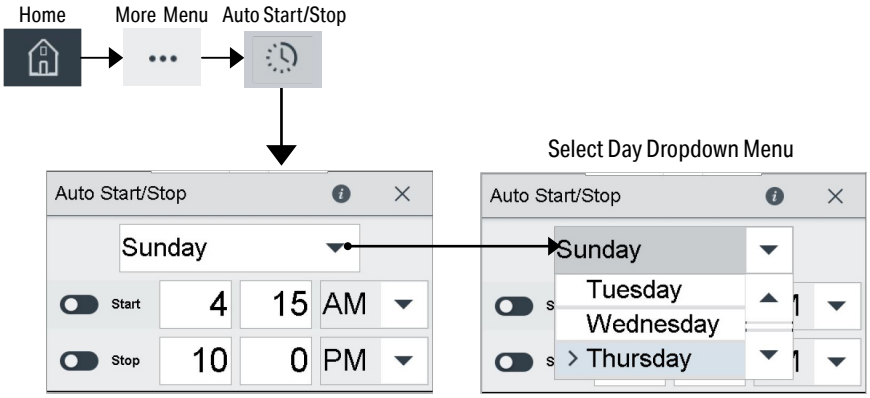
Control Function Flow Charts (Cont'd)

Edit Recipe



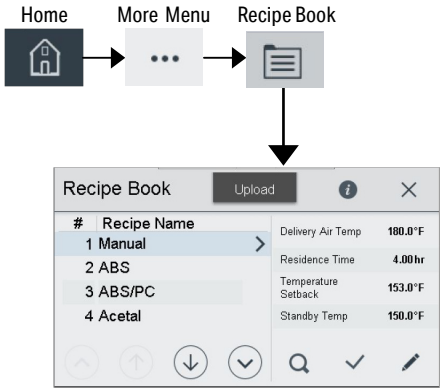
Control Function Flow Charts (Cont'd)

Auto Start/Stop



Control Function Flow Charts (Cont'd)

Recipe Book

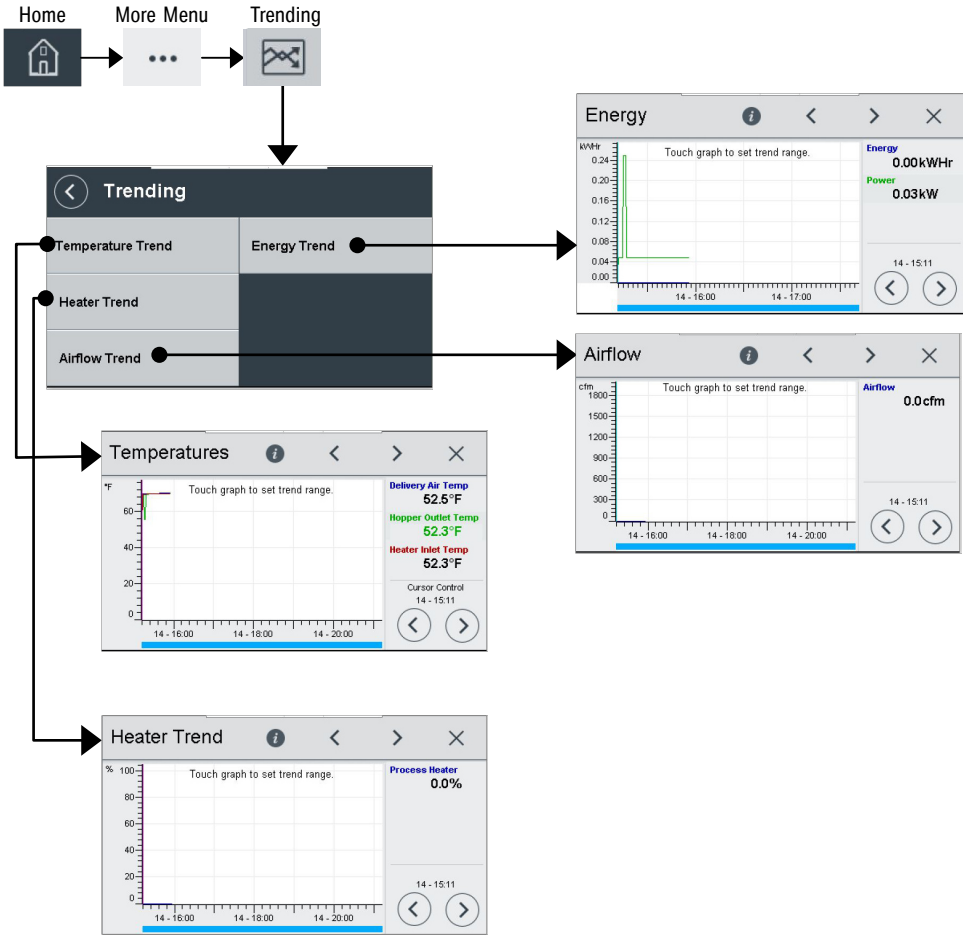


Control Function Flow Charts (Cont'd)

I/O Testing

Control Function Flow Charts (Cont'd)

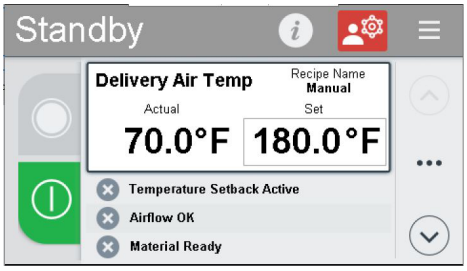
Trending



Control Function Descriptions

Screens Accessible from the Home Screen

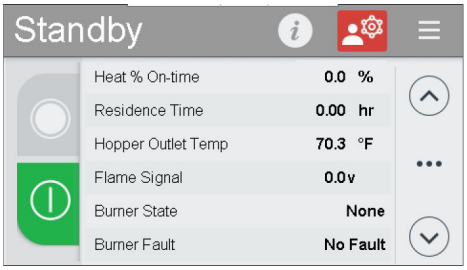
Home



The Home screen displays the current actual delivery air temperature. From the Home screen, an operator with appropriate permissions can start and stop the machine, enter the setpoint value, and review the status of Temperature Setback, Airflow, and Material Ready functions.

The Status bar indicates if the machine is in Standby (Ready to Start), Running, Stopped or if an Alarm has been triggered. Status is indicated by text and a different colored background for each status type (gray, green, orange and red).

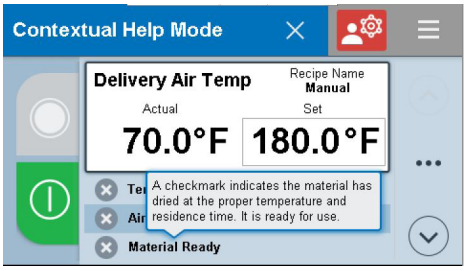
The icons on the Status bar allow for navigation to contextual help, user security/access, and settings (Main Menu/Hamburger menu).



Press the **Scroll Down** icon on Home to view tech info including Heater % on-time, residence time, hopper outlet temp, etc.

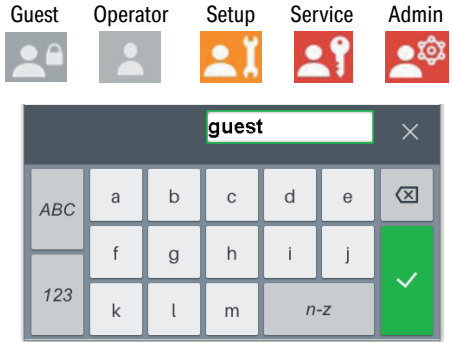
Press the **More** icon on the right side of the Home screen to display the More menu which allows for navigation to other functions including recipe edit, recipe book, auto start/stop, I/O testing and trending information.

More Info/Contextual Help



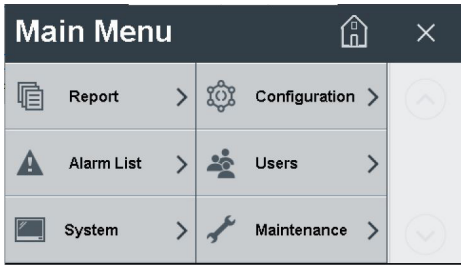
Press the **More Info/Contextual Help** icon to display helpful information about items on the Home screen. A blue overlay appears while in Contextual Help mode. Pressing a feature on the screen displays additional information about that feature without changing any information. Click the **Close** icon (x) to turn off contextual help.

User Status/Login



Press the **User Status/Security** icon to log in to the system. Each security level has its own easily identifiable icon. Enter your password with the keypad. Click the **OK** icon (check mark) to complete the login process. The login prompt and keyboard also display if you press a text box with a value that you do not have permission to change.

Main Menu

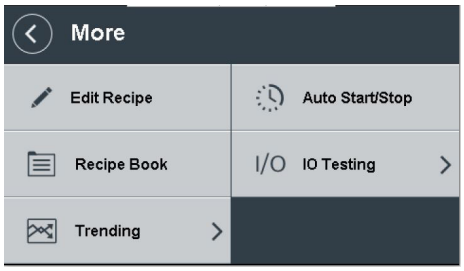


Press the **Main Menu** icon ☰ to navigate to additional settings such as reports, alarm lists, system and user configurations, and maintenance functions.

Press the **Advance** icon › to view additional options for the selected item.

Press the **Close** icon (x) or **Home** icon to return to the Home screen.

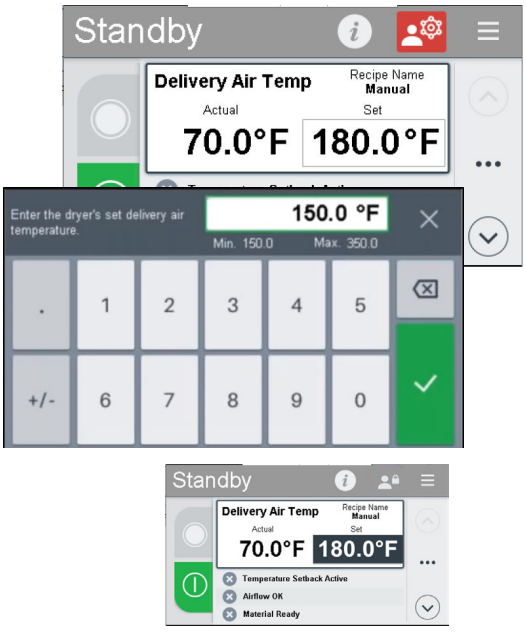
More Menu



Press the **More** icon (three dots on the right on the Home screen) to navigate to additional functions and features such as recipe information, auto start/stop setup, I/O testing and Trending reports.
Press the **Advance** icon › to view additional options for the selected item.

Click the **Back** icon ‹ to return to the Home screen.

Setpoint Value

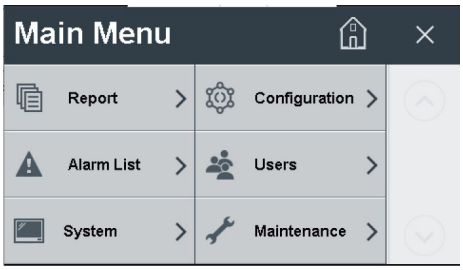


Adjust the setpoint value by clicking anywhere in the outlined **Set** area on the Home screen. Enter the new value using the numeric keypad, then click the **OK** icon (check mark). The keyboard displays a description of what value is being adjusted as well as an acceptable range that may be entered.

If the value box has a dark background with white text, you do not have the appropriate permission level to edit the value.

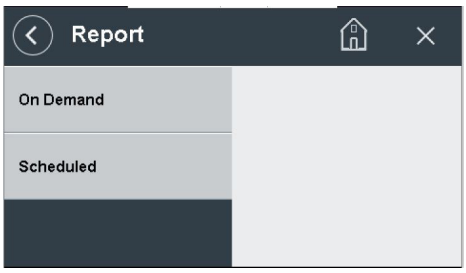
Screens Accessible from the Main Menu

Main Menu



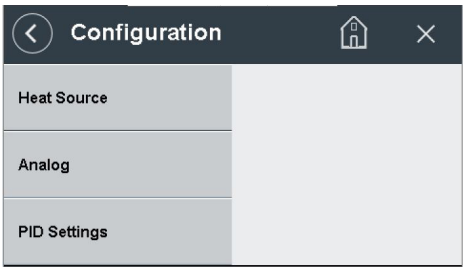
The Main Menu is accessible from the top of the Home screen.

Main Menu > Report



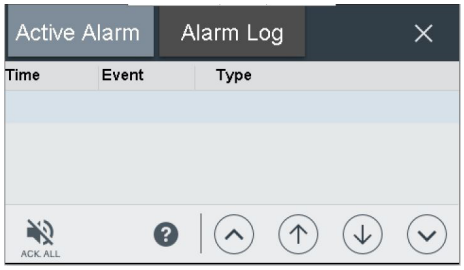
The Report screen allows you to access and download information from the controller, schedule recurring reports, and retrieve current data such as the Alarm log, to send to Conair for review. *See additional screens on page 4-4.*

Main Menu > Configuration



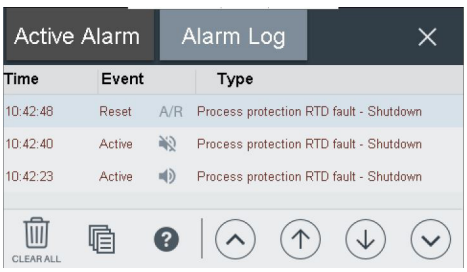
The Configuration screen contains links to the screens with the initial settings installed at the factory for your particular set up. To change the settings, press one of the items listed on the Configuration screen to access the corresponding detail screen. *See additional screens on page 4-5 and page 4-6*.

Main Menu > Alarm List > Active Alarm



The Active Alarm list screen displays the current active Alarms. You can navigate through the alarm list for more details, acknowledge all alarms, and change alarm settings.

Main Menu > Alarm List > Alarm Log

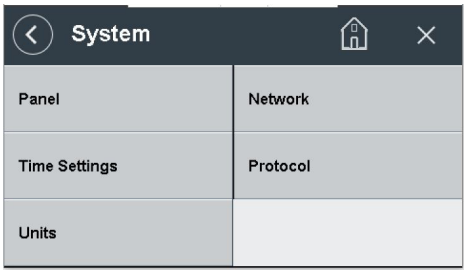


The Alarm Log list screen displays the most recent alarms. You can navigate through the alarm list for more details, acknowledge alarms, clear all alarms and export alarm data for review.

Main Menu > Users

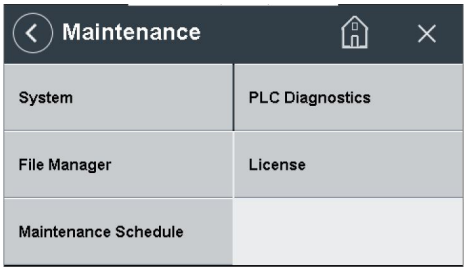
The Users screen displays the link to the security features of the system to set up user names and roles, session time out parameters, and authorization methods (i.e., passcode only). *See additional screens on page 4-8.*

Main Menu > System



The System screen displays links to change the parameters of your system. These parameters include selection of the language displayed, the length of time before the screen saver is activated, time settings, and network IP information. *See additional screens on page 4-9.*

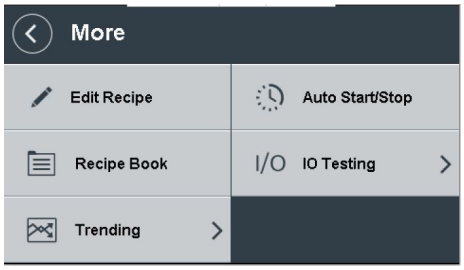
Main Menu > Maintenance



The Maintenance screen displays links to system functions and information including screen calibration, licensing information, file manager, PLC diagnostics, and maintenance schedule setup. *See additional screens on page 4-10.*

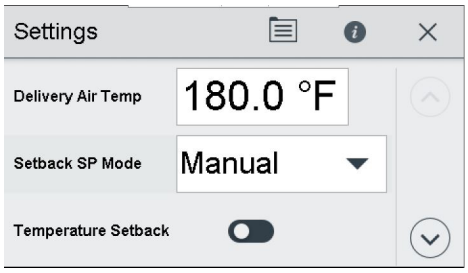
Screens Accessible from the More Menu

··· More Menu



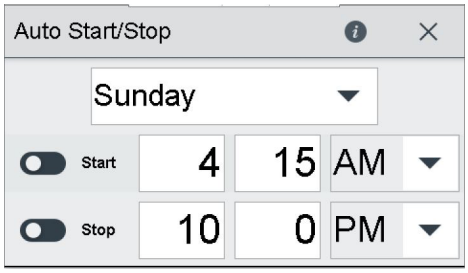
The More menu is accessible from the right side of the Home screen.

··· More Menu > Edit Recipe



The Edit Recipe screen shows the settings saved with the selected recipe. Use the arrow icons to scroll down/up through the settings saved with the recipe including: temperatures, setback mode, and alarm settings. *See additional screens on page 4-11.*

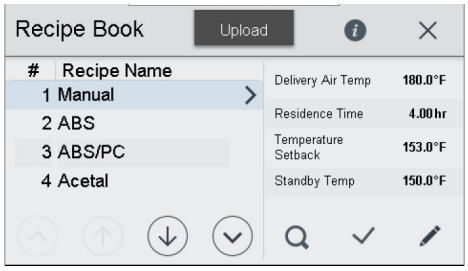
··· More Menu > Auto Start/Stop



The Auto Start/Stop (also referred to as the seven day timer) screen allows you to create a weekly schedule to start and stop the machine. Schedules can include different start and stop times for each day of the week. *See additional screens on page 4-12.*

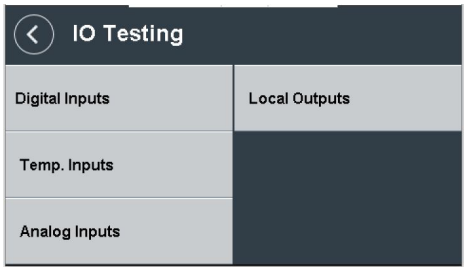
✎ **NOTE:** You must have a security level of Maintenance or Admin to set weekly timer functions.

··· More Menu > Recipe Book



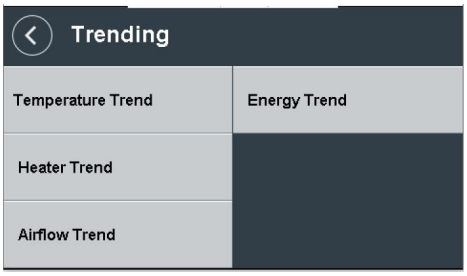
The Recipe Book screen shows all recipes stored in the system. You can manually create your own recipes or upload recipes. Creating your own recipes ensure that all operators utilize the same machine settings. Recipes can include times, temperatures and alarm settings.

··· More Menu > IO Testing



The IO Testing screen displays access to the screens that display the current active status of the inputs and outputs on the system. Administrators have additional capabilities with the output settings. *See additional screens on page 4-14.*

··· More Menu > IO Testing



The Trending screen displays links specific types of trend data. Reviewing historical data assists in pinpointing any problems in operation cycle. *See additional screens on page 4-15.*

Initial Operation

Carousel Plus Dryer (GasTrac)

1 **Hopper material:** Fill the hopper with the material to be heated.

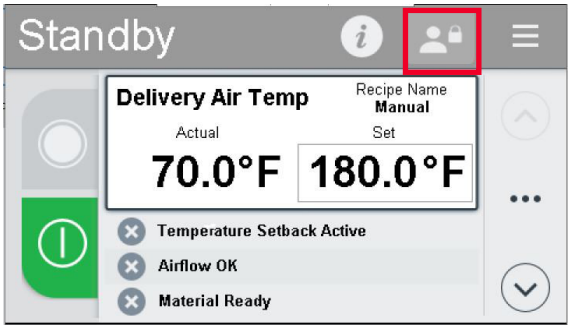
⚠ **WARNING: Fire potential**

The electric heating elements are exposed to the air going into the hopper. It is important that there is no debris in this air stream. Under no circumstances should the GasTrac be ran in a dirty air stream as material passing through the heater could ignite embers and shoot sparks into the hopper, which could catch fire.

2 **Hopper residence time:** The material throughput rate must be determined by the size of the hopper, the drying time required and the extent of drying desired for the product

How to Log In

1 **Select the Security Log icon located in the top of the Home page.** Pressing this icon will allow you to input your user-level password on a pop-up keyboard so more features can be unlocked based on your security level.



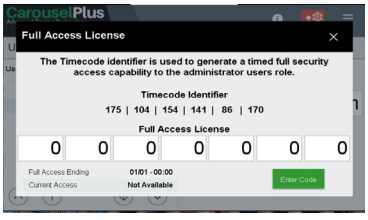
There are five levels or 'Roles' of security in the system (Guest, Operator, Setup, Service, Admin). In order to distinguish which security level is currently active, the graphic icon will change to represent the current level. The table shown below exemplifies each graphic and the role it represents.

Username	Password (factory set)	Icon Displayed	Description
Guest (default user)	None		This user icon indicates the current user has a security role of 'Guest'. This is the most secure level. Navigation is permitted to some operational areas, but the user is not allowed to change any data values or perform actions on devices.
Operator	**3333**		This user icon indicates the current user has a security role of 'Operator'. This will allow for basic navigation and the control of basic operational parameters.
Setup	**2222**		This user icon indicates the current user has a security role of 'Setup'. This will allow the user greater access to the setup and configuration of the system. Additional monitored data that may be useful for an individual at this level is shown. **Conair Use Only.**
Service	**Conair Use Only**		This user icon indicates the current user has a security role of 'Service'. This level grants access to all areas of the system except for the administration of user access. **Conair Use Only.**
Admin	**admin**		This user icon indicates the current user has a security role of 'Administrator'. This role will grant access to all areas of the system including user setup and security rights.

2 **Log in as Administrator to manage security roles.**

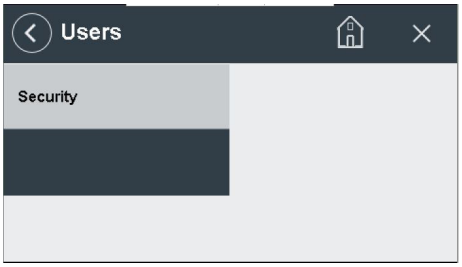
✎ **NOTE:** After login is completed, the user-level will be displayed on the Security Log icon Login name and password are the same when factory set at Conair.

✎ **NOTE:** For rare occasions, Conair can provide a one-time, 24 hour password for factory access.

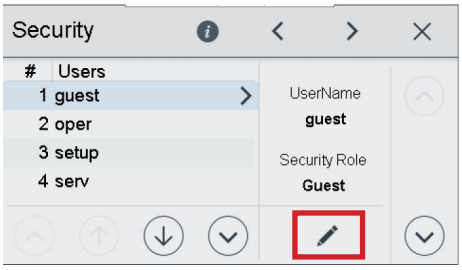


How to Log In (Cont'd)

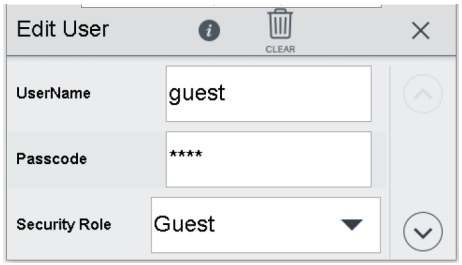
3 **Press ☰ Main Menu > Users > Security.**



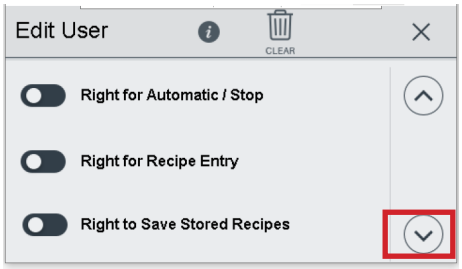
4 Users are listed on the left of the Main Security screen. The screen displays five standard roles numbered 1 through 4 with Admin assigned to number 30.
Select Edit ✎ to set up a new user or edit an existing user.



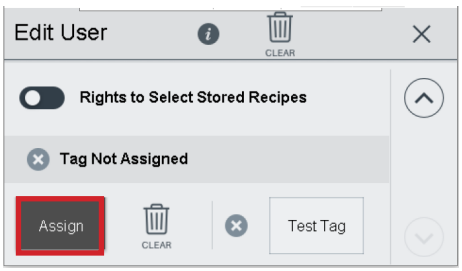
5 **Enter a username and password. Assign a basic access level to the user.**



6 **Press the down arrow to view and assign additional functions for this user.**



7 **When finished, press Assign.**



Normal Operation to Start Heating

1 **Determine what the GasTrac's setpoint must be for your process and material.**

2 **Check to ensure there is material in the hopper.**

3 **Start the dryer or process blower to begin air flow.** Set the proper flow on the blower if equipped.

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

5 **Set the drying temperature.**

6 **Press Start**  **.**

How to Stop Heating

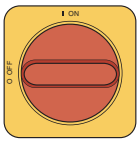
1 **Press Stop**  **.**

⚠ **IMPORTANT**: Always turn off the GasTrac BEFORE the dryer or process blower.

The GasTrac turns off heat immediately. Wait for temperature to cool to below 150°F {65.5°C} before turning off the dryer or blower. If the GasTrac is not stopped first, an airflow loss shutdown alarm will occur.

The GasTrac will turn off the blower or dryer.

2 **Be sure to disconnect and lockout the main power** if you have stopped the GasTrac to perform maintenance or repair.



⚠ **CAUTION**: Improper shut down can cause damage to your heater.

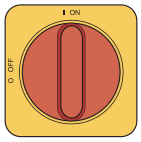
How to Use Auto Start-Stop

Initial GasTrac Autostart (Carousel Plus Dryers Only)

✎ **NOTE:** Reference your particular dryer manual for steps to activate Autostart.

You can configure the GasTrac to start drying automatically in conjunction with your dryer's Autostart function using the Auto Start-Stop function.

To configure the GasTrac to start automatically:



1. **Determine what the GasTrac's setpoint must be for your process and material.**
2. **Check to ensure there is material in the hopper.**
3. **Turn on the main power to the GasTrac.** Make sure the GasTrac's disconnect dial is in the ON position. This powers up the control and the display lights will illuminate.
4. **Set the drying temperature.**
5. **Press Start** ⏻**.** The control will wait at this state until it detects airflow from the dryer. Once airflow is detected, the GasTrac's heaters will be enabled and your material will start to dry.

Operational GasTrac Autostart (Carousel Plus Dryers Only)

✎ **NOTE:** Reference your particular dryer manual for steps to activate Autostart.

The GasTrac and dryer must be shut down properly in order for the GasTrac to automatically start again using the dryer's autostart function.

To shut down the GasTrac:

1. **Press Stop** ⏺**.**

⚠ **IMPORTANT**: Always turn off the GasTrac BEFORE the dryer.

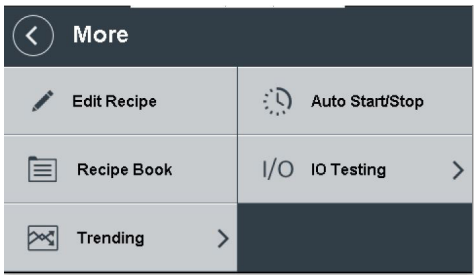
2. **Allow the dryer to run long enough to cool the heaters to below 150°F {65.5°C}.**

⚠ **CAUTION**: Improper shut down can cause damage to your heater.

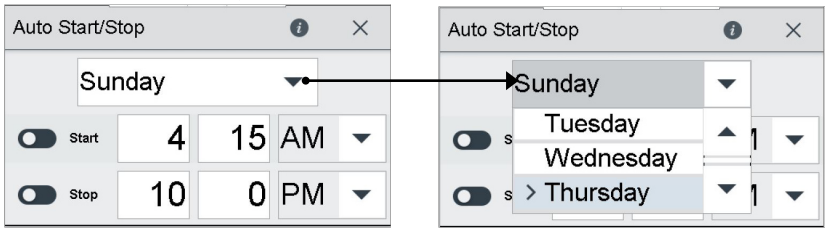
Programming Auto Start-Stop (7 Day Timer)

The security levels necessary to use this function are Maintenance and Admin.

1 On the Home screen, press ··· More Menu then the Auto Start/Stop option.



2 Set the start and stop times for each day.



3 To activate a timer, set the hours, minutes, and time of day you wish to start and stop the machine. Toggle the switch next to the event. If the toggle is off, the timer will be ignored. The timer stays active until the switch is off.

The date and time is based on the real time clock of the dryer.

Once the Auto Start-Stop has been programmed, the dryer will automatically start and stop at the set time. The weekly timer resets when the dryer is shut off.

✎ **NOTE:** If the day and time options have dark backgrounds with white text you need a higher level of security to make changes.

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SECTION
5

Maintenance

Maintenance Features

The GasTrac needs regular, scheduled maintenance for peak performance.

Warnings and Cautions

To maintain the best performance of the GasTrac it must be cleaned and inspected regularly. Maintenance includes a monthly and annual (every 6 months) schedule.

Use this maintenance schedule as a guide. You may need to shorten the time of the maintenance schedule, depending on how often you use the GasTrac, and the types of material flowing through it. Follow all precautions and warnings when working on the equipment.

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 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.

Preventative Maintenance Schedule

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

Weekly, or as often as needed

- ❒ **Clean the GasTrac combustion air filter.**
  You may need to clean the filter more often than weekly. Frequency depends on the amount of dust in your facility's air.

- ❒ **Clean the GasTrac electrical enclosure filters.**
  You may need to clean the filters more often than weekly. Frequency depends on the amount of dust in your facility's air.

Monthly

- ❒ **Inspect air 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.

- ❒ **Inspect and test safety controls.**
  Fuel safety shutoff valves, combustion safeguards and temperature and pressure switches should be inspected and tested by trained personnel.

- ❒ **Inspect the burner sight glass.**
  Clean the sight glass, if needed. Replace the sight glass if you see cracks or any other defect.

Every six months

- ❒ **Inspect the GasTrac metal-ceramic burner.**
  While the unit is fired, look through the sight glass at the burner. The burner surface should be glowing orange with an even flame. Blue flames, flames projecting from the burner surface, or cracks or dark spots on the burner surface indicate damage. You may need to replace the burner.

- ❒ **Inspect piping, wiring and electrical connections.**
  Check for leaks, corrosion and loose connections. Replace any component that shows signs of damage or wear. Tighten loose connections.

Annually

- ❒ **Replace the spark igniter.**
  To assure optimum performance, you should replace the spark igniter once a year.

- ❒ **Clean the ultraviolet flame detector lens.**
  Use alcohol and a soft cloth.

WARNING: Electrical hazard

Before performing maintenance or repairs on this product, disconnect and lock out 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.

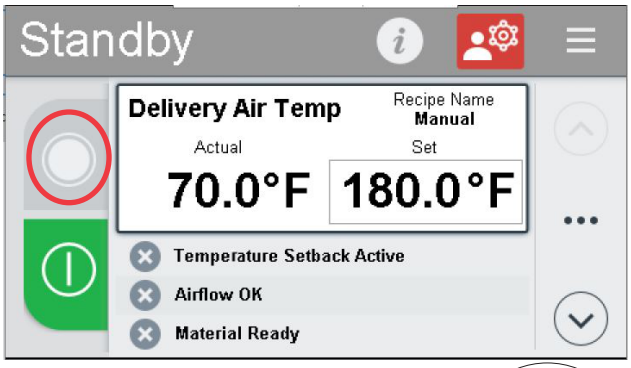
Cleaning the Combustion Filter

You must clean the combustion air intake filter periodically. A clogged filter reduces air flow through the combustion circuit, which reduces burner efficiency and heat output

WARNING: Hot surfaces

After stopping the GasTrac, allow the unit to cool down properly before performing any maintenance.

1 **Stop the GasTrac.** Press the STOP button.



✎ **NOTE:** Replace any filter that has cracked end gaskets or is torn, worn or clogged with so much dirt that it cannot be cleaned.

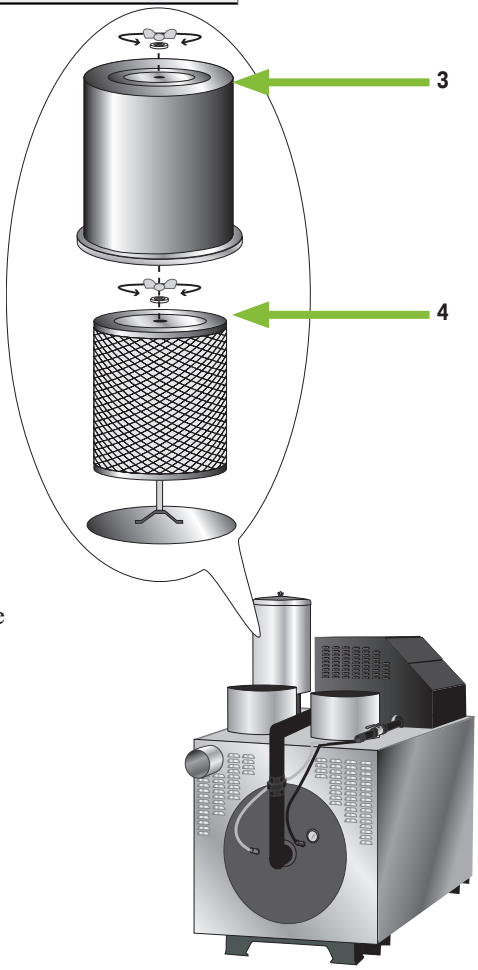
2 **Disconnect and lock out main power.**

3 **Remove the filter shroud.**
Remove the wing nut and washer that holds the shroud in place. Lift the shroud up and off.

4 **Remove the filter.**
Remove the wing nut and washer that holds the filter in place. Lift the filter up and off.

5 **Clean the filter.**
Vacuum or blow dirt and debris from the filter using vacuum or low-pressure compressed air. When using compressed air, blow from inside the filter toward the outside.

6 **Reassemble.**
Repeat steps 3 and 4 in reverse order to replace the filter.



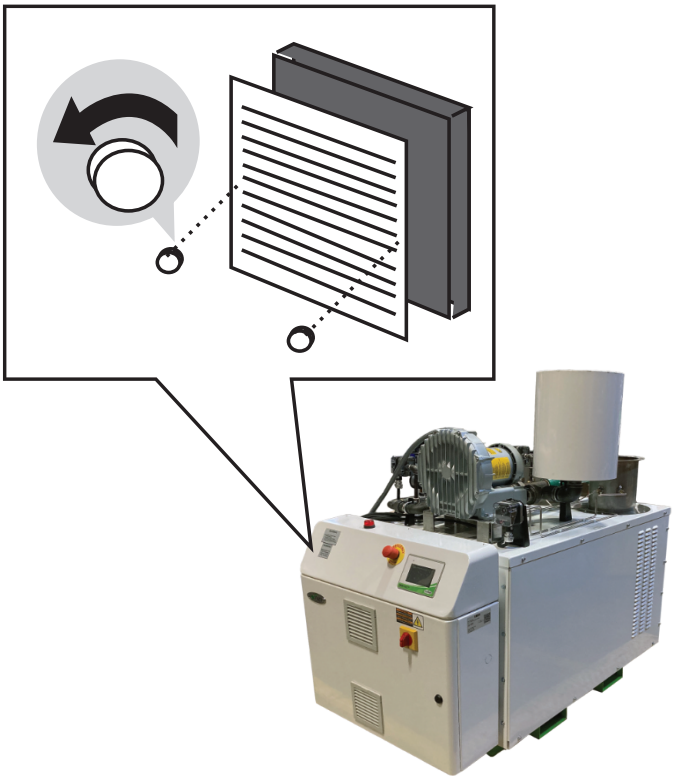
Cleaning The Electrical Enclosure Filters

Periodically, you should clean the filters covering the cooling fan inlet and outlet on the electrical enclosure.

1 **Remove the the thumb screws and filters.**

2 **Clean the filters.**
Use vacuum or low-pressure compressed air to remove loose debris. Wash the filters in warm, soapy water, then rinse and air dry. Replace torn or worn filters.

3 **Reassemble.**



Replacing the Spark Igniter

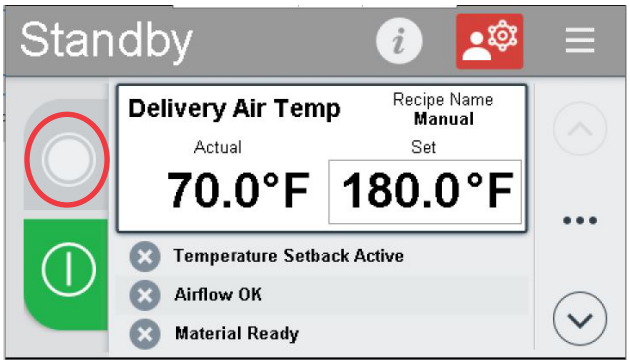
The spark igniter should be replaced at least once a year to assure trouble-free operation. You should replace the igniter before the annual period, if you inspect it and find:

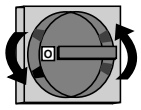
- The spark gap is less than 0.125 inch. The gap should be between 0.07 and 0.09 inch.
- The igniter insulation is cracked
- The spark electrodes are warped or taper to a needle-like shape.

Do not operate the GasTrac with a worn or damaged spark igniter. A badly burned or warped igniter can cause burner ignition failure.

WARNING: Hot surfaces

Allow the GasTrac to cool before removing the burner guard to perform maintenance.





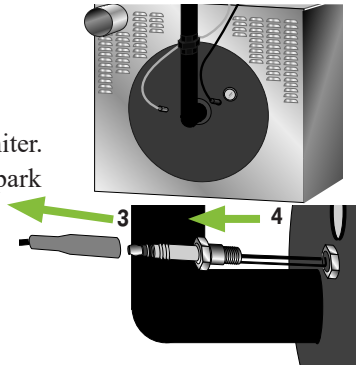
1 **Stop the GasTrac.**
Press the STOP button.

2 **Disconnect and lock out main power.**

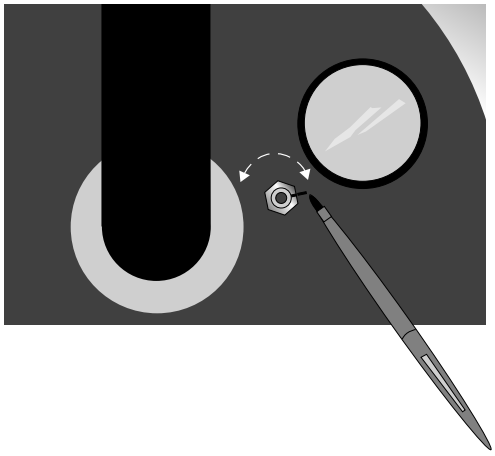
3 **Remove the igniter wire.**
Pull the wire boot, not the wire, away from the spark igniter. If the wire or its boot is cracked, you should replace it.

IMPORTANT: When removing or inserting the spark igniter, do not allow the igniter electrode or grounding rod to touch the burner. You could damage the burner surface.

4 **Remove the spark igniter.**
Use a 7⅛8 inch spark plug socket and ratchet to loosen the igniter. Pull the igniter straight out of the GasTrac. Do not allow the spark igniter to touch the burner surface.

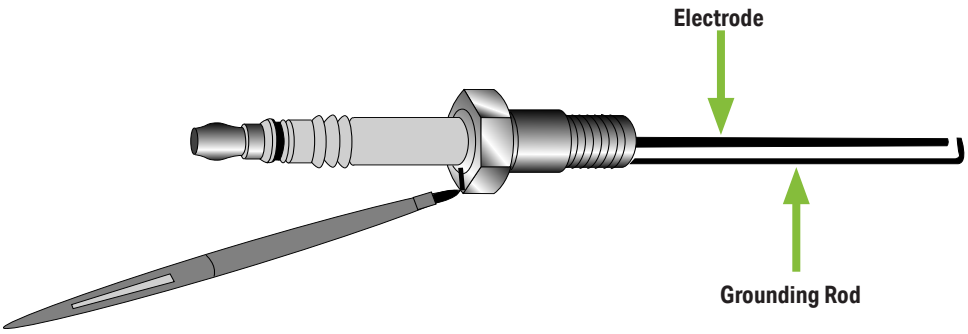


TIP: Before removing the spark igniter for inspection, use a felt tip marker to mark the position of the igniter in its threaded hole. By indexing the position, you will able to return the igniter to the correct position after inspection. The igniter must be installed so that the ground rod is 180° away from the burner surface.



Replacing the Spark Igniter (Cont'd)

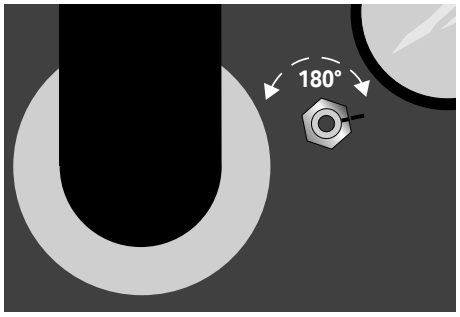
5 **Mark the position of the grounding rod** on the new spark igniter, using a felt tip marker. This index mark must end up 180° away from the burner surface when the spark igniter is inserted and tightened. The electrode should be closest to the burner surface.



6 Coat the threads of the igniter with a high-temperature conductive anti-seize compound.

7 **Carefully insert the igniter into GasTrac.**
Insert the igniter straight into the threaded fitting. Do not bend the electrode, and do not allow the spark igniter to touch the burner surface.

8 **Screw the igniter into the threaded fitting.**
Tighten by hand first. Then use a socket and ratchet to tighten the igniter one turn or a partial turn until the index mark on the igniter is 180° away from the burner surface.



⚠ **WARNING:** Do not over tighten the spark igniter. You could damage the porcelain insulator.

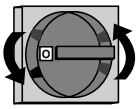
9 **Push the boot and wire onto the spark igniter.**
Push until you feel the boot snap into place.

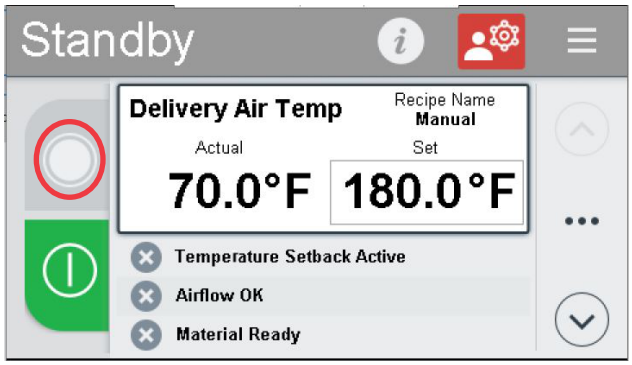
Cleaning the Ultraviolet Flame Detector

A dirty ultraviolet flame detector may fail to recognize burner ignition, which will cause the GasTrac to alarm and shut down automatically.

WARNING: Hot surfaces

Allow the GasTrac to cool before removing the burner guard to perform maintenance.

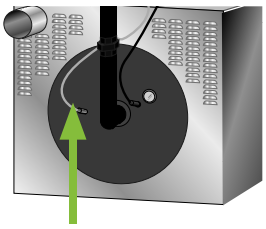




1 **Stop the GasTrac.**
Press the STOP button.

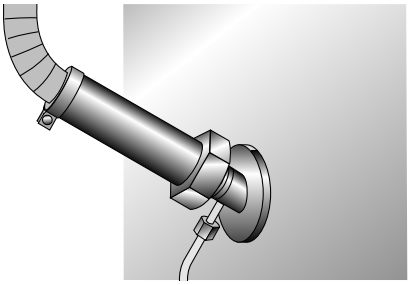
2 **Disconnect and lock out main power.**

3 **Remove the flame detector.**
Loosen the mounting nut while holding the flame detector, then pull the detector away from the viewing hole.



4 **Clean the viewing hole lens.**
Use a soft cloth or cotton swab moistened with alcohol.

5 **Replace the flame detector.**
Align the detector over the viewing hole, and thread the silver mounting nut onto the coupling. Hand tighten first. Then use a wrench to tighten the nut an additional quarter turn.

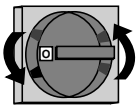


Cleaning the Burner Sight Glass

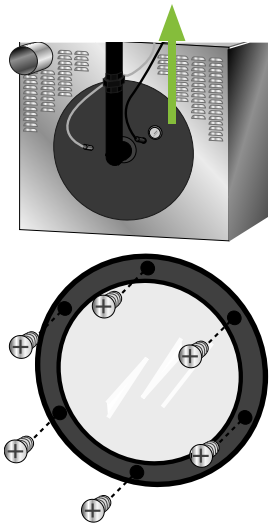
A dirty sight glass prohibits inspection or viewing of the metal-ceramic burner during operation.

WARNING: Hot surfaces

Allow the GasTrac to cool before removing the burner guard to perform maintenance.



1. **Stop the GasTrac.**
2. **Disconnect and lock out main power.**
3. **Remove the screws on the sight glass bracket.**
4. **Clean the sight glass.**
   Use a clean soft cloth or cotton swab moistened with alcohol.
5. **Coat the screw threads** with a high-temperature anti-seize compound.
6. **Replace the sight glass.**
   Tighten the screws in the bracket to hold the glass in place.



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SECTION
6

Troubleshooting

Before Beginning

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

Before you begin troubleshooting:

- ❒ **Find the wiring and assembly diagram** you received with your GasTrac. These diagrams will note any custom features such as special wiring or alarm capabilities not covered in the User Guide.
- ❒ **Find the instruction manuals and diagrams** that were shipped with the GasTrac and your host dryer.
- ❒ **Find any installation diagrams** or notes which may have been generated at the time the GasTrac was installed.

A Few Words of Caution

WARNING:

The GasTrac should be maintained and repaired by qualified technicians who are equipped with the correct tools and are experienced in the maintenance and repair of industrial gas appliances.

WARNING: Hot surfaces.

Temperatures inside the GasTrac can reach more than 800° F. Always shut down the GasTrac and host dryer and wait for them to cool before servicing.

WARNING: Disconnect and lock out main power before servicing.

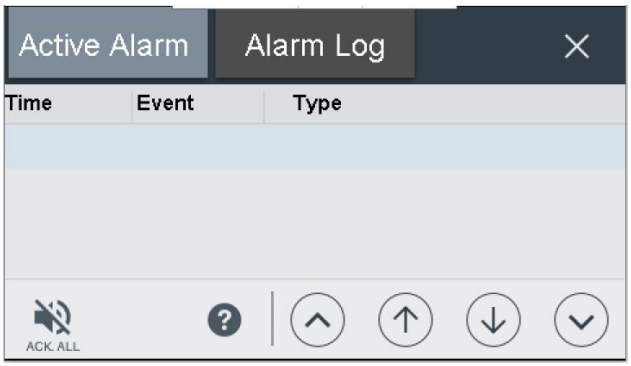
The GasTrac is connected to high voltage. Always disconnect and lock out the main power source to the GasTrac before servicing. Also disconnect and lock out the main power to the host dryer before servicing the GasTrac. Failure to disconnect and lock out this voltage source could result in severe personal injury.

WARNING: Shut off main gas supply and purge heat exchanger and gas lines before servicing.

Failure to eliminate this potential source of a gas leak could result in severe damage, personal injury or loss of life.

When an Alarm Occurs

When there is a problem with the GasTrac the alarm light will illuminate and the GasTrac will shutdown.



How to Identify the Cause of an Alarm

The single alarm may be caused by any one of five major control components or another device within the GasTrac.

Control components and indications of failure:

- **Temperature controller**
  Displays an alarm message.
- **Burner controller**
  Displays an alarm message.
- **Variable speed controller**
  Displays an alarm message.
- **Process outlet high temperature limit switch**
  Verify switch contact closure.
- **Flue gas high temperature limit switch**
  Verify switch contact closure.

1 **Check the controllers for alarm messages.**
Causes of the more probable alarm messages can be found in this section of the User Guide. If you don't find the alarm message here, then see the manufacturer's manual for that particular controller. These manuals can be found in the instruction packet that came with your GasTrac.

2 **Check the limit switches for contact closure.**
Possible causes of switch failure can be found in this section of the User Guide.

3 **Check the GasTrac electrical and gas systems.**
These checks should be performed only by trained electrical and gas technicians equipped with the proper tools.

Temperature Controller Alarms

The Control will flash an alarm message in the display window.

⚠ **WARNING**: The GasTrac should be maintained and repaired by qualified technicians who are equipped with the correct tools and are experienced in the maintenance and repair of industrial gas appliances.

Alarm	Possible Cause	Solution
`Deviation Band` The drying, or process circuit, temperature is higher or lower than the setpoint alarm band allows.	Is something blocking or restricting the flow of drying, or process, air?	❒ Check the process filter in the host dryer. Clean or replace the filter if it is clogged or damaged. ❒ Check the process air hoses for leaks, crimps, blockage or loose connections. Remove obstructions. Repair leaks or loose connections. ❒ Check the process air blower in the host dryer. If it is not running correctly, see the dryer's manual.
	Is the RTD temperature probe installed correctly?	Make sure the sensing end of the RTD probe is positioned near the center of the process air line at the hopper inlet. Temperature readings will be incorrect if the sensing end is too close to the wall of the inlet hose or pipe.
	Is the temperature range for the deviation band too narrow?	Increase the deviation band 5° F at a time. The default setting is 20° F. To avoid nuisance alarms, do not adjust this band more than necessary.

(Continued)

Temperature Controller Alarms (Cont'd)

The Control will flash an alarm message in the display window.

⚠ **WARNING**: The GasTrac should be maintained and repaired by qualified technicians who are equipped with the correct tools and are experienced in the maintenance and repair of industrial gas appliances.

Alarm	Possible Cause	Solution
`Sensor Break` The sensor input for RTD temperature probe has failed.	Is the RTD temperature probe connection loose or incorrectly installed?	❒ Verify that the RTD temperature probe is installed. ❒ Check for a loose RTD connection at the GasTrac control or the process air inlet of the hopper.
	Is the RTD temperature probe damaged?	Replace the RTD temperature probe.

(Continued)

Temperature Controller Alarms (Cont'd)

The Control will flash an alarm message in the display window.

⚠ **WARNING**: The GasTrac should be maintained and repaired by qualified technicians who are equipped with the correct tools and are experienced in the maintenance and repair of industrial gas appliances.

Alarm	Possible Cause	Solution
Loop Break The actual drying temperature did not approach the setpoint within the loop break time. There may be a problem in the combustion or process air circuit.	Is something blocking or restricting the flow of drying, or process, air?	❒ Check the process filter in the host dryer. Clean the filter, or replace it if it is damaged. ❒ Check the process air hoses for leaks, crimps, blockage or loose connections. Remove obstructions. Repair leaks or loose connections. ❒ Check the process air blower in the host dryer. If it is not running correctly, see the dryer's manual.
	Is the GasTrac combustion air filter dirty?	Clean the combustion air filter. Replace the filter if it is torn or too clogged with dirt to clean.
	Is the Variable Speed Controller operating correctly?	Check the Variable Speed Controller for error or alarm messages. See the Variable Speed Controller pages in this Troubleshooting section and in the Allen-Bradley controller manual.
	Is the setpoint correct?	Make sure the setpoint is within the range specified for your GasTrac unit.
`Power Failure` The line voltage to the Temperature Controller is too low.	Is the GasTrac being supplied with the correct voltage? Is there a loose or faulty connection in the electrical circuit?	Check the main power supply to the GasTrac and the electrical circuits supplying power to the control panel and the temperature controller.
`Error 1` The ROM self test failed.	The temperature controller is defective.	Replace the temperature controller, or return it to the factory for repair.
`Error 2` The RAM self test failed.	The temperature controller is defective.	Replace the temperature controller, or return it to the factory for repair.
`Error 3` Watchdog Failure	The temperature controller is defective.	Replace the temperature controller, or return it to the factory for repair.

(Continued)

Temperature Controller Alarms (Cont'd)

The Control will flash an alarm message in the display window.

⚠ **WARNING**: The GasTrac should be maintained and repaired by qualified technicians who are equipped with the correct tools and are experienced in the maintenance and repair of industrial gas appliances.

Alarm	Possible Cause	Solution
`Error 4` Keyboard Failure	A button on the temperature controller keypad is stuck or was pressed during power up.	Switch the power to the GasTrac control off and the on using the POWER ON/OFF switch. Do not touch any buttons on the temperature controller.
`Error 5` Input Circuit Failure	The temperature controller is defective.	Replace the temperature controller, or return it to the factory for repair.

(Continued)

Burner Controller Alarms

When there is a problem related to the burner or ignition, the burner controller displays an alarm message. To restart the GasTrac after a burner controller alarm:

1. Press the GasTrac STOP button.
2. Press the burner RESET button.
3. Press the GasTrac RUN button.

⚠ **WARNING**: The GasTrac should be tested and repaired only by qualified technicians equipped with the correct tools and trained in the maintenance and repair of electrical systems and industrial gas appliances.

Alarm	Possible Cause	Solution

`LOCKOUT #16`
`*Flame Out Timer*`
 	
Flame did not occur within the 4-second flame establishing period.
	Is the spark igniter providing a spark?	Restart the GasTrac while watching through the sight glass. If you don't see a spark during the 4-second ignition period:
		❒ Verify there is power supplied to the transformer during the ignition period.
		❒ Check the wire and connections between the transformer and spark igniter.
		❒ Check the spark igniter. Replace if damaged.

	Is there a problem with the gas supply?	If the burner fails to light even though you can see a spark: ❒ Verify that the gas supply is on and that the gas shutoff valves are open during the ignition period. ❒ Restart the GasTrac 4 or 5 times to purge any air that may be in the gas lines. ❒ Verify that the gas pressure regulator is set to supply the correct pressure.
	Is the lens of the ultraviolet sensor dirty?	If the burner ignites and then goes out, check the lens for dirt. Clean if necessary.
	Is negative pressure in the building affecting static pressure of the combustion exhaust flue?	Verify that the static pressure of the combustion exhaust flue is 1 to 2 inches of water column. If not, you may need to add a draft fan to the flue to create the correct static pressure.
	Is the burner controller defective?	If none of the solutions above can resolve the problem, you may need to replace the burner controller.

(Continued)

Burner Controller Alarms (Cont'd)

When there is a problem related to the burner or ignition, the burner controller displays an alarm message. To restart the GasTrac after a burner controller alarm:

1. Press the GasTrac STOP button.
2. Press the burner RESET button.
3. Press the GasTrac RUN button.

Alarm	Possible Cause	Solution
`Lockout #23 or Lockout #32`	Is the combustion blower intake filter clogged?	Clean the filter. Replace the filter if it is worn, torn or so clogged with dirt that it can't be cleaned.
	Are the safety pressure switches malfunctioning or detecting incorrect pressures?	Reset the GasTrac, press RUN and check the LED lights on the process air, combustion air, low gas and high gas pressure switches during the 90-second purge cycle. If a light is not green, check for leaks, blockage or other problems that could interfere with air or gas flow detected by that switch.
	Did the airflow interlock fail closed?	Switch the burner controller RUN/TEST button to TEST. Press the RUN button on the GasTrac control. Measure the voltage between terminal 7 and G (ground). You should find 120V present if the interlock is working.

(Continued)

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Variable Speed Controller Alarms

When a problem occurs, the HMI displays an alarm message You must correct the problem before restarting the GasTrac.

Alarm	Possible Cause	Solution
Power Loss	DC Bus Voltage remained below 85% nominal for more than 5 seconds on power up.	Check for proper incoming AC voltage.
Under Voltage	DC Bus Voltage fell below the minimum.	Check for low incoming AC voltage or power interruption. The under voltage trip point for 200-240 VAC units is: 210 VDC, which is equal to 150 VAC incoming voltage. The under voltage trip point for 380-460 VAC units is: 390 VDC, which is equal to 275 VAC incoming voltage.
Over Voltage	DC Bus Voltage exceeded the maximum.	Bus over voltage may be caused by motor regeneration. Check for high incoming AC voltage. The over voltage trip point for 200-240 VAC units is: 410 VDC, which is equal to 290 VAC incoming voltage. The under voltage trip point for 380-460 VAC units is: 815VDC, which is equal to 575 VAC incoming voltage.
Motor Stall	Motor has stalled.	Check for physical or mechanical blockage of the combustion blower fan.
Motor Overload	T The internal electronic overload tripped.	❒ Check for physical or mechanical blockage of the combustion blower fan. ❒ Check for a faulty combustion blower motor.
Over Temperature	Excessive heat was detected in the variable speed control.	❒ Clean the air filters on both sides of the GasTrac electrical enclosure. Verify that the cooling fan in the electrical enclosure is operating correctly. ❒ Check for dirty or blocked heat sink passages or a faulty fan inside the variable speed controller.

(Continued)

Variable Speed Controller Alarms (Cont'd)

When a problem occurs, the HMI displays an alarm message You must correct the problem before restarting the GasTrac.

Alarm	Possible Cause	Solution
Over Current	Excessively high current was detected in the hardware trip circuit.	❒ Check for a short circuit at the variable speed control output. ❒ Check for physical or mechanical blockage of the combustion blower fan.
EEPROM Fault	The controller EEPROM has invalid data.	Reset EEPROM. *See Resetting Factory Defaults* in the Allen Bradley variable speed controller manual.
Phase U Fault	The controller has detected a phase U-to-ground fault between the controller and combustion blower motor.	❒ Check the wiring between the control and motor for damage or incorrect connections. ❒ Make sure the motor ground is wired correctly.
Phase V Fault	The controller has detected a phase V-to-ground fault between the controller and combustion blower motor.	❒ Check the wiring between the control and motor for damage or incorrect connections. ❒ Make sure the motor ground is wired correctly.
Phase W Fault	The controller has detected a phase W-to-ground fault between the controller and combustion blower motor.	❒ Check the wiring between the control and motor for damage or incorrect connections. ❒ Make sure the motor ground is wired correctly.
Phase UV Fault	Excessive voltage was detected between the U and V controller output phases.	❒ Check for a shorted condition in the wiring to the controller. ❒ Check motor wiring for a shorted condition.
Phase UW Fault	Excessive voltage was detected between the U and W controller output phases.	❒ Check for a shorted condition in the wiring to the controller. ❒ Check motor wiring.
Phase VW Fault	Excessive voltage was detected between the V and W controller output phases.	❒ Check for a shorted condition in the wiring to the controller. ❒ Check motor wiring.
Phase Test Fault	An electrical fault was detected during the initial start-up sequence.	❒ Check wiring to the controller. ❒ Check wiring to the motor.

(Continued)

⚠ **WARNING**: The GasTrac should be tested and repaired only by qualified technicians equipped with the correct tools and trained in the maintenance and repair of electrical systems and industrial gas appliances.

Flue Gas High Temperature Limit Switch

⚠ **WARNING**: The GasTrac should be tested and repaired only by qualified technicians equipped with the correct tools and trained in the maintenance and repair of electrical systems and industrial gas appliances.

The flue gas high temperature switch monitors the temperature of a type J thermocouple mounted in the flue gas outlet. When the combustion exhaust gas temperature exceeds 800° F, the GasTrac shuts down and the alarm light illuminates.

Alarm	Possible Cause	Solution
The control panel alarm light is on, but no other controller alarm messages or lights are displayed.	Is the temperature limit switch faulty?	❒ Push the reset button on the GasTrac electrical enclosure and restart the GasTrac. If the alarm occurs again, a qualified electrician should verify that the latching alarm contacts of the flue gas high temperature limit switch are closed.
	Does the combustion air/fuel train need tuning?	This must be done by a qualified technician who is trained in the maintenance of industrial gas appliances, and who is familiar with tuning procedures outlined in the various controller, valve and switch manuals that came with the GasTrac. If the alarm persists, call the Conair Service Department.

Process High Temperature Limit Switch

The process high temperature switch monitors the temperature of a type J thermocouple mounted in the GasTrac process air outlet. If the process air outlet temperature exceeds 450° F, the GasTrac shuts down and the alarm light illuminates.

Alarm	Possible Cause	Solution
The control panel alarm light is on, but no other controller alarm messages or lights are displayed.	Is something blocking or restricting the flow of drying, or process, air?	❒ Check the process filter in the host dryer. Clean or replace the filter if it is clogged or damaged. ❒ Check the process air hoses for leaks, crimps, blockage or loose connections. Remove obstructions. Repair leaks or loose connections. ❒ Make sure the process air blower in the host dryer is running correctly.
	Is the drying temperature setpoint incorrect?	Check the setpoint on the temperature controller. Enter a new setpoint, if necessary. Press the reset button on the GasTrac electrical enclosure and restart the GasTrac.
	Is the temperature limit switch faulty?	Press the reset button on the GasTrac electrical enclosure and restart the GasTrac.If the alarm occurs again, a qualified electrician should verify that the latching alarm contacts of the process high temperature limit switch are closed.
	Is the temperature controller faulty?	If the alarm persists, replace the temperature controller.

⚠ **WARNING**: The GasTrac should be tested and repaired only by qualified technicians equipped with the correct tools and trained in the maintenance and repair of electrical systems and industrial gas appliances.

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Appendix A: Warranty & Service

We're Here to Help

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

Additional manuals and prints for your Conair equipment may be ordered through the Customer Service or Parts Department for a nominal fee.

Most manuals can be downloaded free of charge from the product section of the Conair website.

www.conairgroup.com

How to Contact Customer Service

To contact Customer Service personnel, call:

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

From outside the United States, call: 814-437-6861

You can commission Conair service personnel to provide on-site service by contacting the Customer Service Department. Standard rates include an on-site hourly rate, with a one-day minimum plus expenses.

Before You Call...

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

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

Equipment Guarantee

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

Performance Warranty

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

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

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

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

Warranty Limitations

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

Appendix B: Modbus Communications

Description of Modbus Communications

The common controls series of products from Conair use standard Modbus communications protocol to allow the user to access the control boards for supervisory type functions. For example, you may want to display the drying temperature for all hoppers in a facility in one central location. By connecting all the dryers to a central computer, the temperatures and setpoints can be displayed in one location using a standard SCADA software program such as Wonderware or RSView.

All ResinWorks hoppers are provided with a Modbus TCP/IP Ethernet interface. When connected to a Conair dryer the hopper parameters are available at the dryer. Getting the data from the dryer greatly reduces the number of connections required.

Installing the Modbus Communication Hardware

The hardware required for Modbus communications is included with the product when it is shipped. Connectors and cabling must be supplied by the user or ordered from Conair.

Using the Modbus Parameter List

The Modbus interface uses standard Modbus protocol to communicate with a common controls system. The data that may be retrieved is arranged in a parameter list. By using the Modbus register read and write commands, the desired data may be read from or written to the controller. The list of data that may be set or retrieved with the common controls system is arranged in Modbus registers.

⚠ **CAUTION:**

The list of data that may be read and written to by the user is arranged in a specific location. Writing to a location with improper data, or writing to an incorrect location outside of the specified range may cause your common controls system to become inoperative or to operate in a manner that may damage your process. Be certain that you understand each parameter and its effect before changing anything. Conair recommends that you initially attempt to read from the registers and do not attempt any writes. Once the information you are trying to read has been confirmed as accurate, you can program your new/additional data. All Conair remote heat sources "ResinWorks, HTC, CGT and HAD" use the same registers. All registers are not active on all products.

Modbus Parameter / TAG List

Tag Name	Addressing	Datatype	Accessibility/Applicability			
	Address	Datatype	Units	Enumeration Values	Security	Description
Dryer start PB	1	Bit	N/A	0=Nothing, 1=Activate	RW	User_Control_Start
Dryer stop PB	2	Bit	N/A	0=Nothing, 1=Activate	RW	User_Control_Stop
Engineering units PB	3	Bit	E/M	0=English, 1=Metric	RW	User_Control_EngUnit
Acknowledge alarm PB	4	Bit	N/A	0=Nothing, 1=Activate	RW	User_Control_AckAlarm
Dew point control enable PB	5	Bit	N/A	0=Nothing, 1=Activate	RW	User_Control_DewPntCtrlEn
After cooler temperature control enable PB	6	Bit	N/A	0=Nothing, 1=Activate	RW	User_Control_AfterCoolCtrlEn
Setback temperature control enable PB	7	Bit	N/A	0=Nothing, 1=Activate	RW	User_Control_SetBkCtrlEn
Setback setpoints mode	8	Bit	N/A	0=Manual, 1=Auto	RW	User_Control_SetBkMode
Reciever 1 enable PB	9	Bit	N/A	0=Nothing, 1=Activate	RW	User_Control_Recvr1En
Reciever 2 enable PB	10	Bit	N/A	0=Nothing, 1=Activate	RW	User_Control_Recvr2En
Hopper cool down enable	11	Bit	N/A	0=Disable, 1=Enable	RW	User_Control_CoolDnEn
Hopper cool down mode	12	Bit	N/A	0=Manual, 1=Auto	RW	User_Control_CoolDnMode
Cooldown type	13	Bit	N/A	0=Time, 1=Temperature	RW	User_Control_CoolDnType
Continuous Level	14	Bit	N/A	0=Disable, 1=Enable	RW	User_ContLevel
Machine Run Type	15	Bit	N/A	0=Temp, 1=Digital In	RW	User_MachRunType
Optimized recipe	16	Bit	N/A	0=No, 1=Yes	RW	User_Control_OptmzdRcp
Optimizer control enable PB	17	Bit	N/A	0=Nothing, 1=Activate	RW	User_Control_OptmzrEn
Optimize for Incoming material supply	18	Bit	N/A	0=Disable, 1=Enable	RW	User_Control_MatSplyHot
Optimize Plus Band	19	Bit	N/A	0=Disable, 1=Enable	RW	User_Control_PlusBand
Auto start Sunday enable	30	Bit	N/A	0=Disable, 1=Enable	RW	User_AutoStartEn[1]
Auto start Monday enable	31	Bit	N/A	0=Disable, 1=Enable	RW	User_AutoStartEn[2]
Auto start Tuesday enable	32	Bit	N/A	0=Disable, 1=Enable	RW	User_AutoStartEn[3]
Auto start Wednesday enable	33	Bit	N/A	0=Disable, 1=Enable	RW	User_AutoStartEn[4]
Auto start Thursday enable	34	Bit	N/A	0=Disable, 1=Enable	RW	User_AutoStartEn[5]
Auto start Friday enable	35	Bit	N/A	0=Disable, 1=Enable	RW	User_AutoStartEn[6]
Auto start Saturday enable	36	Bit	N/A	0=Disable, 1=Enable	RW	User_AutoStartEn[7]
Auto stop Sunday enable	37	Bit	N/A	0=Disable, 1=Enable	RW	User_AutoStopEn[1]
Auto stop Monday enable	38	Bit	N/A	0=Disable, 1=Enable	RW	User_AutoStopEn[2]
Auto stop Tuesday enable	39	Bit	N/A	0=Disable, 1=Enable	RW	User_AutoStopEn[3]
Auto stop Wednesday enable	40	Bit	N/A	0=Disable, 1=Enable	RW	User_AutoStopEn[4]
Auto stop Thursday enable	41	Bit	N/A	0=Disable, 1=Enable	RW	User_AutoStopEn[5]
Auto stop Friday enable	42	Bit	N/A	0=Disable, 1=Enable	RW	User_AutoStopEn[6]
Auto stop Saturday enable	43	Bit	N/A	0=Disable, 1=Enable	RW	User_AutoStopEn[7]
Maintenance alert 1; Enable "Proc. Filter"	50	Bit	N/A	0=Disable, 1=Enable	RW	MaintAlert[1]_Enable
Maintenance alert 2; Enable "Regen Filter"	51	Bit	N/A	0=Disable, 1=Enable	RW	MaintAlert[2]_Enable
Maintenance alert 3; Enable "After Cooler"	52	Bit	N/A	0=Disable, 1=Enable	RW	MaintAlert[3]_Enable
Maintenance alert 4; Enable "Process Heater"	53	Bit	N/A	0=Disable, 1=Enable	RW	MaintAlert[4]_Enable

Modbus Parameter / TAG List (Cont'd)

Tag Name	Addressing	Datatype	Accessibility/Applicability			
	Address	Datatype	Units	Enumeration Values	Security	Description
Maintenance alert 5; Enable "Regen Heater"	54	Bit	N/A	0=Disable, 1=Enable	RW	MaintAlert[5]_Enable
Maintenance alert 6; Enable "Wheel"	55	Bit	N/A	0=Disable, 1=Enable	RW	MaintAlert[6]_Enable
Maintenance alert 1; Reset Time "Proc. Filter"	60	Bit	N/A	0=No, 1=Yes	RW	MaintAlert[1]_Reset
Maintenance alert 2; Reset Time "Regen Filter"	61	Bit	N/A	0=No, 1=Yes	RW	MaintAlert[2]_Reset
Maintenance alert 3; Reset Time "After Cooler"	62	Bit	N/A	0=No, 1=Yes	RW	MaintAlert[3]_Reset
Maintenance alert 4; Reset Time "Process Heater"	63	Bit	N/A	0=No, 1=Yes	RW	MaintAlert[4]_Reset
Maintenance alert 5; Reset Time "Regen Heater"	64	Bit	N/A	0=No, 1=Yes	RW	MaintAlert[5]_Reset
Maintenance alert 6; Reset Time "Wheel"	65	Bit	N/A	0=No, 1=Yes	RW	MaintAlert[6]_Reset
Dryer status	100001	Bit	N/A	0=False, 1=True	RO	User_Status_DryerOn
Local expantion I/O communications Active	100002	Bit	N/A	0=False, 1=True	RO	User_Status_RemCommsOk
Local expantion I/O communicating without errors	100003	Bit	N/A	0=False, 1=True	RO	User_Status_RemCommsOk
Remote drying monitor communication Active	100004	Bit	N/A	0=False, 1=True	RO	User_Status_RemCommsOk
Remote drying monitor communicating without errors	100005	Bit	N/A	0=False, 1=True	RO	User_Status_RemCommsOk
Variable speed drive communications Acttive	100006	Bit	N/A	0=False, 1=True	RO	User_Status_VfdCommsOk
Variable speed drive communicating without errors	100007	Bit	N/A	0=False, 1=True	RO	User_Status_VfdCommsOk
Main auto start enabled	100008	Bit	N/A	0=False, 1=True	RO	User_Status_AutoStartEnabled
Main auto stop enabled	100009	Bit	N/A	0=False, 1=True	RO	User_Status_AutoStopEnabled
Setback control enabled	100010	Bit	N/A	0=False, 1=True	RO	User_Status_SetBkEnabled
Setback control active	100011	Bit	N/A	0=False, 1=True	RO	User_Status_SetBkActive
Dew point control active	100013	Bit	N/A	0=False, 1=True	RO	User_Status_DewPntCtrlActive
Wheel clean mode active	100014	Bit	N/A	0=False, 1=True	RO	User_Status_WhlCleanActive
Optimizer control enabled	100015	Bit	N/A	0=Inactive, 1=Active	RO	User_Status_OptmzrActive
Optimizer control active	100016	Bit	N/A	0=Inactive, 1=Active	RO	User_Status_OptmzrEnabled
Cool down control enabled	100017	Bit	N/A		RO	User_Status_CoolDnEnabled
Cool down cycle active	100018	Bit	N/A		RO	User_Status_CoolDnActive
Drying hopper low level	100019	Bit	N/A	0=Not Low, 1=Low	RO	User_Status_HopperLowLevel
Material ready; attemperature for time	100020	Bit	N/A		RO	User_Status_MaterialRdy
Downstream machine is running	100021	Bit	N/A		RO	User_Status_MachRunActive
Reviever 1 Enabled	100022	Bit	N/A	0=Disabled, 1=Enabled	RO	User_Status_Recvr1Enabled
Reviever 2 Enabled	100023	Bit	N/A	0=Disabled, 1=Enabled	RO	User_Status_Recvr2Enabled
Remote heat source 1 status	100040	Bit	N/A	0=Offline or Errors, 1=Online	RO	RemHtSrcCommsOk[1]
Remote heat source 2 status	100041	Bit	N/A	0=Offline or Errors, 1=Online	RO	RemHtSrcCommsOk[2]
Remote heat source 3 status	100042	Bit	N/A	0=Offline or Errors, 1=Online	RO	RemHtSrcCommsOk[3]
Remote heat source 4 status	100043	Bit	N/A	0=Offline or Errors, 1=Online	RO	RemHtSrcCommsOk[4]
Remote heat source 5 status	100044	Bit	N/A	0=Offline or Errors, 1=Online	RO	RemHtSrcCommsOk[5]
Remote heat source 6 status	100045	Bit	N/A	0=Offline or Errors, 1=Online	RO	RemHtSrcCommsOk[6]
Remote heat source 7 status	100046	Bit	N/A	0=Offline or Errors, 1=Online	RO	RemHtSrcCommsOk[7]

Modbus Parameter / TAG List (Cont'd)

Tag Name	Addressing	Datatype	Accessibility/Applicability			
	Address	Datatype	Units	Enumeration Values	Security	Description
Remote heat source 8 status	100047	Bit	N/A	0=Offline or Errors, 1=Online	RO	RemHtSrcCommsOk[8]
Remote heat source 9 status	100048	Bit	N/A	0=Offline or Errors, 1=Online	RO	RemHtSrcCommsOk[9]
Remote heat source 10 status	100049	Bit	N/A	0=Offline or Errors, 1=Online	RO	RemHtSrcCommsOk[10]
Remote heat source 11 status	100050	Bit	N/A	0=Offline or Errors, 1=Online	RO	RemHtSrcCommsOk[11]
Remote heat source 12 status	100051	Bit	N/A	0=Offline or Errors, 1=Online	RO	RemHtSrcCommsOk[12]
Remote heat source 13 status	100052	Bit	N/A	0=Offline or Errors, 1=Online	RO	RemHtSrcCommsOk[13]
Remote heat source 14 status	100053	Bit	N/A	0=Offline or Errors, 1=Online	RO	RemHtSrcCommsOk[14]
Remote heat source 15 status	100054	Bit	N/A	0=Offline or Errors, 1=Online	RO	RemHtSrcCommsOk[15]
Remote heat source 16 status	100055	Bit	N/A	0=Offline or Errors, 1=Online	RO	RemHtSrcCommsOk[16]
Auto start Sunday enable status	100060	Bit	N/A	0=Disabled, 1=Enabled	RO	UserAutoStartStatus[1]
Auto start Monday enable status	100061	Bit	N/A	0=Disabled, 1=Enabled	RO	UserAutoStartStatus[2]
Auto start Tuesday enable status	100062	Bit	N/A	0=Disabled, 1=Enabled	RO	UserAutoStartStatus[3]
Auto start Wednesday enable status	100063	Bit	N/A	0=Disabled, 1=Enabled	RO	UserAutoStartStatus[4]
Auto start Thursday enable status	100064	Bit	N/A	0=Disabled, 1=Enabled	RO	UserAutoStartStatus[5]
Auto start Friday enable status	100065	Bit	N/A	0=Disabled, 1=Enabled	RO	UserAutoStartStatus[6]
Auto start Saturay enable status	100066	Bit	N/A	0=Disabled, 1=Enabled	RO	UserAutoStartStatus[7]
Auto stop Sunday enable status	100067	Bit	N/A	0=Disabled, 1=Enabled	RO	UserAutoStopStatus[1]
Auto stop Monday enable status	100068	Bit	N/A	0=Disabled, 1=Enabled	RO	UserAutoStopStatus[2]
Auto stop Tuesday enable status	100069	Bit	N/A	0=Disabled, 1=Enabled	RO	UserAutoStopStatus[3]
Auto stop Wednesday enable status	100070	Bit	N/A	0=Disabled, 1=Enabled	RO	UserAutoStopStatus[4]
Auto stop Thursday enable status	100071	Bit	N/A	0=Disabled, 1=Enabled	RO	UserAutoStopStatus[5]
Auto stop Friday enable status	100072	Bit	N/A	0=Disabled, 1=Enabled	RO	UserAutoStopStatus[6]
Auto stop Saturay enable status	100073	Bit	N/A	0=Disabled, 1=Enabled	RO	UserAutoStopStatus[7]
Shutdown Alarm: E-stop pressed	100100	Bit	N/A		RO	Alarms_Shutdown[1]
Passive Alarm: Drying monitor low temperature	100140	Bit	N/A		RO	Alarms_Passive[1]
Maintenance Alers: Clean or replace delivery air filter	100180	Bit	N/A	True=Active, False=Inactive	RO	MaintAlert[1]_State
Maintenance Alers: Clean or replace regeneration air filte	100181	Bit	N/A	True=Active, False=Inactive	RO	MaintAlert[2]_State
Maintenance Alers: Clean after cooler coils	100182	Bit	N/A	True=Active, False=Inactive	RO	MaintAlert[3]_State
Maintenance Alers: Check delivery air heater	100183	Bit	N/A	True=Active, False=Inactive	RO	MaintAlert[4]_State
Maintenance Alers: Check regeneration heater	100184	Bit	N/A	True=Active, False=Inactive	RO	MaintAlert[5]_State
Maintenance Alers: Inspect desiccant wheel	100185	Bit	N/A	True=Active, False=Inactive	RO	MaintAlert[6]_State
Maintenance alert 1 hours set point "Proc. Filter" time	400001	Integer	HRS		RW	MaintAlert[1]_TimeSetPoint
Maintenance alert 2 hours set point "Regen Filter" time	400002	Integer	HRS		RW	MaintAlert[2]_TimeSetPoint
Maintenance alert 3 hours set point "After Cooler" time	400003	Integer	HRS		RW	MaintAlert[3]_TimeSetPoint
Maintenance alert 4 hours set point "Process Heater" tim	400004	Integer	HRS		RW	MaintAlert[4]_TimeSetPoint
Maintenance alert 5 hours set point "Regen Heater" time	400005	Integer	HRS		RW	MaintAlert[5]_TimeSetPoint
Maintenance alert 6 hours set point "Wheel" time	400006	Integer	HRS		RW	MaintAlert[6]_TimeSetPoint

Modbus Parameter / TAG List (Cont'd)

Tag Name	Addressing	Datatype	Accessibility/Applicability			
	Address	Datatype	Units	Enumeration Values	Security	Description
Drying monitor low temperature alarm position	400022	Integer	N/A	0=T2, 1=T3, 2=T4, 3=T5	RW	User_DM_Low_Alarm_Pos
Drying monitor high temperature alarm position	400023	Integer	N/A	0=T2, 1=T3, 2=T4, 3=T5	RW	User_DM_High_Alarm_Pos
Cool down position	400024	Integer	N/A	1=T1, 2=T2, 3=T3, 4=T4, 5=T5,	RW	User_CoolDnPos_SP
Del. air temperature set point	400025	Float	F/C		RW	User_DeliveryAir_Temp_SP
Delivery air temperature set point maximum limit (limits	400027	Float	F/C		RW	User_DeliveryAirSP_Max
Delivery air temperature set point minimum limit (limits	400029	Float	F/C		RW	User_DeliveryAirSP_Min
Delivery air dew point set point (limits in F)	400031	Float	F/C		RW	User_DeliveryAir_Dewpoint_SP
Delivery air dew point high alarm set point (limits in F)	400033	Float	F/C		RW	User_Dewpoint_High_Alm
Setback activation set point	400035	Float	F/C		RW	User_SB_ReturnAir_SP
Setback to this set point	400037	Float	F/C		RW	User_SB_Setback_SP
Setback resets at this set point	400039	Float	F/C		RW	User_SB_Reset_SP
Drying monitor low temperature alarm set point	400041	Float	F/C		RW	User_DM_Low_Alarm_SP
Drying monitor high temperature alarm set point	400043	Float	F/C		RW	User_DM_High_Alarm_SP
Material residence time set point	400045	Float	HRS		RW	User_RsdncTime_SP
Delivery air flow set point	400047	Float	%		RW	User_DelAirFlow_SP
Hopper level set point	400049	Float	%		RW	User_HopperLvl_SP
Hopper low level alarm set point	400051	Float	%		RW	User_HopperLowLvl_SP
Exit material tempature set point	400053	Float	F/C		RW	User_Matl_Exit_Temp_SP
Predry delivery air temperature set point	400055	Float	F/C		RW	User_PreDryAirTemp_SP
Predry delivery air flow set point	400057	Float	%		RW	User_PreDryAirFlow_SP
Dynamic delivery air temperature set point	400059	Float	F/C		RW	User_DynAirTemp_SP
Dynamic delivery air flow set point	400061	Float	%		RW	User_DynAirFlow_SP
Material throughput set point	400063	Float	lb/h-kg/h		RW	User_Throughput_SP
Material bulk density set point	400065	Float	Lb/F3-Kg/M3		RW	User_BulkDensity_SP
Cool Down Alarm after this many hours of running with n	400067	Float	HRS		RW	User_CoolDnAlmHrs_SP
Cool down after this many hours of running	400069	Float	HRS	0=No Auto Cool, 1=Auto Cool	RW	User_CoolDnAfterHrs_SP
Cool down for this many hours (Cool down type = time)	400071	Float	HRS		RW	User_CoolDnTime_SP
Cool down to this material temperature (Cool down type	400073	Float	F/C		RW	User_CoolDnTemp_SP
Optimizer control +/-band, range	400075	Float	N/A		RW	User_OptmzrBan
Loader 1: Load time in seconds	400100	Integer	SEC		RW	User_Loader[1]_I_Load_SP
Loader 1: Discharge time in seconds	400101	Integer	SEC		RW	User_Loader[1]_I_Dischrg_SP
Loader 1: Purge/Pocket time in seconds	400102	Integer	SEC		RW	User_Loader[1]_I_Purge_SP
Loader 1: Ratio; percentage of regrind	400103	Integer	%	0=Off, >0=Value	RW	User_Loader[1]_I_Ratio_SP
Loader 1: Number of load attempts before alarm	400104	Integer	N/A		RW	User_Loader[1]_I_B4_Alarm_SP
Loader 1 name 16 charactors, UTF-8 characters 1,2	400110	Integer	N/A		RW	User_Loader[1]_I_Name[1],[2]
Loader 1 name 16 charactors, UTF-8 charactors 3,4	400111	Integer	N/A		RW	User_Loader[1]_I_Name[3],[3]
Loader 1 name 16 charactors, UTF-8 characters 5,6	400112	Integer	N/A		RW	User_Loader[1]_I_Name[5],[6]

Modbus Parameter / TAG List (Cont'd)

Tag Name	Addressing	Datatype	Accessibility/Applicability			
	Address	Datatype	Units	Enumeration Values	Security	Description
Loader 1 name 16 charactors, UTF-8 charactors 7,8	400113	Integer	N/A		RW	User_Loader[1]_I_Name[7],[8]
Loader 1 name 16 charactors, UTF-8 characters 9,10	400114	Integer	N/A		RW	User_Loader[1]_I_Name[9],[10]
Loader 1 name 16 charactors, UTF-8 charactors 11,12	400115	Integer	N/A		RW	User_Loader[1]_I_Name[11],[12]
Loader 1 name 16 charactors, UTF-8 charactors 13,14	400116	Integer	N/A		RW	User_Loader[1]_I_Name[13],[14]
Loader 1 name 16 charactors, UTF-8 charactors 15,16	400117	Integer	N/A		RW	User_Loader[1]_I_Name[15],[16]
Loader 2: Load time in seconds	400120	Integer	SEC		RW	User_Loader[2]_I_Load_SP
Loader 2: Discharge time in seconds	400121	Integer	SEC		RW	User_Loader[2]_I_Dischrg_SP
Loader 2: Purge/Pocket time in seconds	400122	Integer	SEC		RW	User_Loader[2]_I_Purge_SP
Loader 2: Ratio; percentage of regrind	400123	Integer	%	0=Off, >0=Value	RW	User_Loader[2]_I_Ratio_SP
Loader 2: Number of load attempts before alarm	400124	Integer	N/A		RW	User_Loader[2]_I_B4_Alarm_SP
Loader 2 name 16 charactors, UTF-8 characters 1,2	400130	Integer	N/A		RW	User_Loader[2]_I_Name[1],[2]
Loader 2 name 16 charactors, UTF-8 charactors 3,4	400131	Integer	N/A		RW	User_Loader[2]_I_Name[3],[3]
Loader 2 name 16 charactors, UTF-8 characters 5,6	400132	Integer	N/A		RW	User_Loader[2]_I_Name[5],[6]
Loader 2 name 16 charactors, UTF-8 charactors 7,8	400133	Integer	N/A		RW	User_Loader[2]_I_Name[7],[8]
Loader 2 name 16 charactors, UTF-8 characters 9,10	400134	Integer	N/A		RW	User_Loader[2]_I_Name[9],[10]
Loader 2 name 16 charactors, UTF-8 charactors 11,12	400135	Integer	N/A		RW	User_Loader[2]_I_Name[11],[12]
Loader 2 name 16 charactors, UTF-8 charactors 13,14	400136	Integer	N/A		RW	User_Loader[2]_I_Name[13],[14]
Loader 2 name 16 charactors, UTF-8 charactors 15,16	400137	Integer	N/A		RW	User_Loader[2]_I_Name[15],[16]
Auto start Sunday set points: Hour	400140	Integer	N/A		RW	UserAutoStartSP[1]_Hour
Auto start Sunday set points: Minute	400141	Integer	N/A		RW	UserAutoStartSP[1]_Minute
Auto start Monday set points: Hour	400142	Integer	N/A		RW	UserAutoStartSP[2]_Hour
Auto start Monday set points: Minute	400143	Integer	N/A		RW	UserAutoStartSP[2]_Minute
Auto start Tuesday set points: Hour	400144	Integer	N/A		RW	UserAutoStartSP[3]_Hour
Auto start Tuesday set points: Minute	400145	Integer	N/A		RW	UserAutoStartSP[3]_Minute
Auto start Wednesday set points: Hour	400146	Integer	N/A		RW	UserAutoStartSP[4]_Hour
Auto start Wednesday set points: Minute	400147	Integer	N/A		RW	UserAutoStartSP[4]_Minute
Auto start Thursday set points: Hour	400148	Integer	N/A		RW	UserAutoStartSP[5]_Hour
Auto start Thursday set points: Minute	400149	Integer	N/A		RW	UserAutoStartSP[5]_Minute
Auto start Friday set points: Hour	400150	Integer	N/A		RW	UserAutoStartSP[6]_Hour
Auto start Friday set points: Minute	400151	Integer	N/A		RW	UserAutoStartSP[6]_Minute
Auto start Saturday set points: Hour	400152	Integer	N/A		RW	UserAutoStartSP[7]_Hour
Auto start Saturday set points: Minute	400153	Integer	N/A		RW	UserAutoStartSP[7]_Minute
Auto Stop Sunday set points: Hour	400160	Integer	N/A		RW	UserAutoStopSp[1]_Hour
Auto Stop Sunday set points: Minute	400161	Integer	N/A		RW	UserAutoStopSp[1]_Minute
Auto Stop Monday set points: Hour	400162	Integer	N/A		RW	UserAutoStopSp[2]_Hour
Auto Stop Monday set points: Minute	400163	Integer	N/A		RW	UserAutoStopSp[2]_Minute
Auto Stop Tuesday set points: Hour	400164	Integer	N/A		RW	UserAutoStopSp[3]_Hour

Modbus Parameter / TAG List (Cont'd)

Tag Name	Addressing	Datatype	Accessibility/Applicability			
	Address	Datatype	Units	Enumeration Values	Security	Description
Auto Stop Tuesday set points: Minute	400165	Integer	N/A		RW	UserAutoStopSp[3]_Minute
Auto Stop Wednesday set points: Hour	400166	Integer	N/A		RW	UserAutoStopSp[4]_Hour
Auto Stop Wednesday set points: Minute	400167	Integer	N/A		RW	UserAutoStopSp[4]_Minute
Auto Stop Thursday set points: Hour	400168	Integer	N/A		RW	UserAutoStopSp[5]_Hour
Auto Stop Thursday set points: Minute	400169	Integer	N/A		RW	UserAutoStopSp[5]_Minute
Auto Stop Friday set points: Hour	400170	Integer	N/A		RW	UserAutoStopSp[6]_Hour
Auto Stop Friday set points: Minute	400171	Integer	N/A		RW	UserAutoStopSp[6]_Minute
Auto Stop Saturday set points: Hour	400172	Integer	N/A		RW	UserAutoStopSp[7]_Hour
Auto Stop Saturday set points: Minute	400173	Integer	N/A		RW	UserAutoStopSp[7]_Minute
Maintenance alert 1; actual (Hours) "Proc. Filter"	300001	Integer	HRS		RO	MaintAlert[1]_ActualHours
Maintenance alert 1; actual (Minutes) "Proc. Filter"	300002	Integer	MIN		RO	MaintAlert[1]_ActualMinutes
Maintenance alert 2; actual (Hours) "Regen Filter"	300003	Integer	HRS		RO	MaintAlert[2]_ActualHours
Maintenance alert 2; actual (Minutes) "Regen Filter"	300004	Integer	MIN		RO	MaintAlert[2]_ActualMinutes
Maintenance alert 3; actual (Hours) "After Cooler"	300005	Integer	HRS		RO	MaintAlert[3]_ActualHours
Maintenance alert 3; actual (Minutes) "After Cooler"	300006	Integer	MIN		RO	MaintAlert[3]_ActualMinutes
Maintenance alert 4; actual (Hours) "Process Heater"	300007	Integer	HRS		RO	MaintAlert[4]_ActualHours
Maintenance alert 4; actual (Minutes) "Process Heater"	300008	Integer	MIN		RO	MaintAlert[4]_ActualMinutes
Maintenance alert 5; actual (Hours) "Regen Heater"	300009	Integer	HRS		RO	MaintAlert[5]_ActualHours
Maintenance alert 5; actual (Minutes) "Regen Heater"	300010	Integer	MIN		RO	MaintAlert[5]_ActualMinutes
Maintenance alert 6; actual (Hours) "Wheel"	300011	Integer	HRS		RO	MaintAlert[6]_ActualHours
Maintenance alert 6; actual (Minutes) "Wheel"	300012	Integer	MIN		RO	MaintAlert[6]_ActualMinutes
Dryer type	300020	Integer	N/A	1=Central, 2=Standard, 3=MD	RO	UserAct_Dryer_Type
Dryer states	300021	Integer	N/A	0=Powering up, 1=Standby, 2=	RO	UserAct_Dryer_State
Loader 1 status	300022	Integer	N/A	0=Disabled, 1=Enabled, 2=In c	RO	UserAct_Loader1_Status
Loader 2 status	300023	Integer	N/A	0=Disabled, 1=Enabled, 2=In c	RO	UserAct_Loader2_Status
Optimizer status	300024	Integer	N/A	0=Standby, 1=Stopping, 2=Sta	RO	UserAct_OptimizerStatus
Regeneration air temperature actual	300025	Float	F/C		RO	UserAct_Regen_Temp
Regeneration air temperature set point actual	300027	Float	F/C		RO	UserAct_Regen_TempSP
Regeneration air heaters percent on-time actual	300029	Float	%		RO	UserAct_Regen_OnTime
Process protection temperature, D15-D400 only	300031	Float	F/C		RO	UserAct_ProcPrtcn
Delivery air temperature actual	300033	Float	F/C		RO	UserAct_DeliveryAir_Temp
Delivery air heaters percent on-time actual	300035	Float	%		RO	UserAct_Process_OnTime
Return air temperature at the wheel actual	300037	Float	F/C		RO	UserAct_RA_Temp_At_Wheel
Delivery air dew point actual	300039	Float	F/C		RO	UserAct_DeliveryAir_Dewpoint
Wheel outlet temperature, (Calculated air flow only)	300041	Float	F/C		RO	UserAct_DeliveryAir_Dewpoint
Return air temperature at the hopper actual	300043	Float	F/C		RO	UserAct_HprOutletT
Auto calculated set back to set point	300045	Float	F/C		RO	UserAct_SetBkToSP

Modbus Parameter / TAG List (Cont'd)

Tag Name	Addressing	Datatype	Accessibility/Applicability			
	Address	Datatype	Units	Enumeration Values	Security	Description
Auto calculated set back reset set point	300047	Float	F/C		RO	UserAct_SetBkRstSP
Delivery air flow in CFM/MÂ³h from function	300049	Float	cfm/M3H		RO	UserAct_DelAirFlow
Delivery air VFD speed, 60-100%	300051	Float	%		RO	UserAct_VfdSpeed
Hopper material level actual	300053	Float	%		RO	UserAct_HopperLvl
Return air dew point actual	300055	Float	F/C		RO	UserAct_RA_Dewpoint
Hopper material residence time actual (Up to 110% of set	300057	Float	HRS		RO	UserAct_RsdnsTime
Optional, drying monitor T1 temperature, bottom of the h	300059	Float	F/C		RO	UserAct_DryingMon_T1
Optional, drying monitor T2 temperature	300061	Float	F/C		RO	UserAct_DryingMon_T2
Optional, drying monitor T3 temperature	300063	Float	F/C		RO	UserAct_DryingMon_T3
Optional, drying monitor T4 temperature	300065	Float	F/C		RO	UserAct_DryingMon_T4
Optional, drying monitor T5 temperature	300067	Float	F/C		RO	UserAct_DryingMon_T5
Optional, drying monitor T6 temperature, top of the hopp	300069	Float	F/C		RO	UserAct_DryingMon_T6
Material exiting the hopper temperature actual	300071	Float	F/C		RO	UserAct_Matl_Exit_Temp
Cool down temperature based on the position selected	300073	Float	F/C		RO	UserAct_CoolDnTemp
The remaining degrees when in temperature mode or the	300075	Float	F/C		RO	UserAct_CoolDnTemp
The remaining time when in time mode or the elapsed ti	300077	Float	HRS		RO	UserAct_CoolDnTime
Drying hopper volume, cubic-foot/cubic-meter, (Optimiz	300079	Float	Ft³/M³		RO	UserAct_HprVolume
Total running hours of the dryer; not resetable	300081	Float	HRS		RO	UserAct_TotalRunHrs
Total measurment hours	300083	Float	HRS		RO	UserAct_Energy_Hours
Energy active average power in kW	300085	Float	KWH		RO	UserAct_EnergyAvgKw
Total dryer kWh, includes attached remote heat sources	300087	Float	KWH		RO	UserAct_Energy_Total_kWh
Energy consumtion in the last hour, includes attached rer	300089	Float	KWH		RO	UserAct_Energy_Last_Hour
Optimizer time for large set point changes in hours	300091	Float	HRS		RO	UserAct_RsdncFullHrs
Dynamic hopper level set point actual (optimizer enabled	300093	Float	%		RO	UserAct_DynHopperLvl_SP