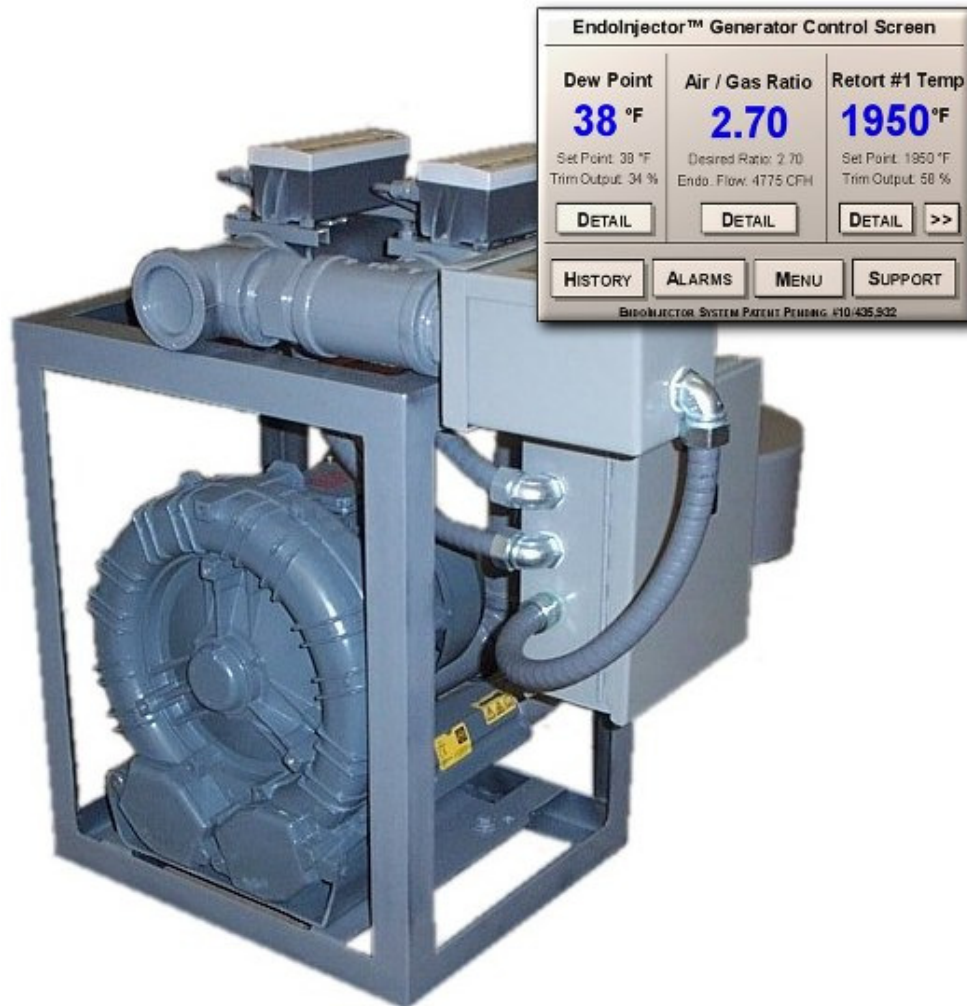


# ENDOINJECTOR™

## INSTALLATION AND OPERATION MANUAL



### NOTICE

This bulletin contains important safety information and should be read and understood by all installation and operation personnel.



### ATMOSPHERE ENGINEERING COMPANY

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# NOTICE, CAUTIONS, AND WARNINGS

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## NOTICE

This Bulletin contains important safety information and should be read and understood by all individuals who install, use, or service this equipment.

Failure to follow the precautions and recommendations of this manual may subject personnel and property to dangerous conditions.

## WARNING

The valves used for gas flow control do not provide positive gas shut off. Valve may leak gas into retort and cause asphyxiation or poisoning to personnel within confined spaces.

Install appropriate lockable gas shut off valves for positive gas shut off.

## CAUTION

The EndoInjector™ is designed to accurately mix air and gas at the specific ratios required to produce high quality endothermic gas. Setting the ratio outside the recommended values described in this manual could subject personnel and property to dangerous conditions.

## TECHNICAL ASSISTANCE

Contact Atmosphere Engineering Company with any questions or concerns regarding the installation, operation, or setup of the EndoInjector™ mixing system.

Phone: 414-331-2457 Fax: 414-332-2457 E-Mail: [sales@atmoseng.com](mailto:sales@atmoseng.com)

# EXPRESS WARRANTY ON ATMOSPHERE ENGINEERING EQUIPMENT

ATMOSPHERE ENGINEERING COMPANY (AEC) warrants products for a period of one (1) year from the date of shipment from AEC to the original purchaser to be free from defects in material and workmanship under normal recommended use, service, inspection, and maintenance. Normal recommended use, service, inspection, and maintenance, mean:

1. Not to be used in excess of nor below the rated capacity, pressure, and temperature ranges specified in the applicable quotation, purchase order, acknowledgment, marketing literature, nameplate, specification sheet, or the Installation, Operation, Inspection, and Maintenance Manual (THE MANUAL); and
2. Using only clean gases free of solids and other contaminants not considered constituents of the gas; and
3. Installation, operation, inspection, and maintenance in compliance with THE MANUAL; and
4. The AEC products being used only in:
  - a. Ambient environments lower than 132 ° Fahrenheit (54 °Celsius) unless specifically designed and so labeled by AEC for higher temperatures; and
  - b. Non-corrosive environments; and
  - c. Completely protected from moisture, rain, snow, or other outside environments; and
  - d. Not to be used below 32 ° Fahrenheit (0 °Celsius) unless precautions are taken for low temperature conditions as shown in THE MANUAL.
5. Being used only for applications permitted by THE MANUAL or other AEC literature or special applications approved in a separate written authorization by AEC.

## WARRANTY EXCEPTIONS

This Warranty does not apply to damage caused by any or all of the following circumstances or conditions:

1. Freight damage;
2. Parts, accessories, materials, or components not

obtained from nor approved in writing by AEC;

3. Any consequential or incidental damages including but not limited to loss of use, loss of profits, loss of sales, increased costs, arising from the use of any product system or other goods or services manufactured, sold, or provided by AEC;
4. Misapplication, misuse, and failure to follow THE MANUAL or other literature, instructions, or bulletins (including drawings) published or distributed prior to THE MANUAL.

The exclusive remedy under this Warranty or any other express warranty is the repair or replacement without charge for labor and materials of any AEC parts found upon examination by AEC to have been defective. Since certain AEC equipment is heavy, bulky and not deliverable by U.S. mail or other parcel service, AEC equipment may be returned only upon written consent of AEC and then only to the location designated by AEC. Generally such consent will be given only upon the condition that the customer assume and prepay all carrier charges and responsibility for damage in transit.

Purchasers of AEC products, equipment, goods, or services waive subrogation on all items covered under their own or any other insurance.

## DISCLAIMER

THIS WARRANTY IS EXCLUSIVE. AEC EXPRESSLY DISCLAIMS ANY AND ALL OTHER WARRANTIES WHETHER EXPRESS OR IMPLIED INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR ANY PURPOSE.

No person, including and dealer, seller, or other representative of AEC is authorized to make, on behalf of AEC, any representations beyond those contained in AEC literature and documents or to assume for AEC any obligations or duties not contained in this Warranty and Warranty Policy.

AEC reserves the right to make design and other changes, modifications or improvements to products, services, literature, or systems, without any obligation, to furnish or install same on any previously sold or delivered products or systems.

*(Continued on page 5)*

# EXPRESS WARRANTY ON ATMOSPHERE ENGINEERING EQUIPMENT

(Continued from page 4)

## LIMITATION OF LIABILITY

It is expressly agreed that the liability of AEC is limited and AEC does not function as an insurer. The purchaser and/or user agree that AEC is not liable for loss, harm, or damage due directly or indirectly to any occurrence or consequences therefrom. If AEC should be found liable to anyone on any theory (except any express warranty where the remedy is set forth in Section 2 of this Warranty and Warranty Policy) for loss harm or damage, the liability of AEC shall be limited to the lesser of the actual loss, harm or damage or the purchase price of the involved AEC equipment or service when sold (or when service performed) by AEC to customer. This liability is exclusive and regardless of cause or origin resulting directly or indirectly to any person or property from:

1. The performance or nonperformance of any obligations set forth in this Warranty and Warranty Policy;
2. Any agreement including specifications between AEC and the customer;

3. Negligence, active, passive or otherwise of AEC or any of agents or employees;
4. Breach of any judicially imposed warranty or covenant of workmanship, durability or performance; and
5. Misrepresentation (under the Restatement, common law or otherwise) and/or strict liability involvement;
6. Liability for fraud-in-the-inducement.

## WARRANTY FIELD SERVICE

If warranty Field Service at the request of the purchaser or user is rendered and the difficulty is found not to be with AEC's product, the purchaser shall pay the time and expense (at the prevailing rate at the time of the service) of AEC's field representative(s). Charges for service, labor, and other expenses that have been incurred by the purchaser, customer or agent without written approval of AEC will not be accepted. The OEM or other reseller is responsible for transmitting installation and operating instructions, THE MANUAL or other service literature supplied by AEC with the equipment.

# DESCRIPTION

The EndoInjector™ is a precision gas mixing system designed specifically to provide an accurately controlled mixture of air and gas for endothermic gas generators. The system includes the ControlCarb™ gas control system designed by Atmosphere Engineering to utilize electronic flow measurement and precision gas injection valves to constantly provide the ideal gas mixture for high quality endothermic gas generation.

The EndoInjector™ incorporates the latest technology in regenerative blower design that is capable of significant turndown for multi-retort generators. When combined with the precise TrueTrim™ software, the EndoInjector™ delivers flow on demand throughout the working range of any generator down to 20% of rated capacity. This feature eliminates endothermic gas waste during production while maintaining the precise gas mixture required.

The EndoInjector™ comes factory assembled and tested to perform to the exact specifications required by the endothermic gas generator.

# SPECIFICATIONS

Check the Orifice Meter Calibration reports attached to this manual for flow rate and capacity information. Contact Atmosphere Engineering with any questions.

**Temperature Limits:** 32°F to 130°F

**Flow Meter Pressure Limits:** 5 psig max.

**Inlet Gas Supply Pressure:** 3 - 5 psig (min-max)

## Blower Motor (Check Horsepower)

**Horsepower:** 3/4 HP

**Power:** 3 Phase 208-230/460 VAC 60 Hz

**Rated F.L. Current:** 2.9-2.6/1.3 Amps

**Horsepower:** 2 HP

**Power:** 3 Phase 208-230/460 VAC 60 Hz

**Rated F.L. Current:** 6.9-6.2/3.1 Amps

**Horsepower:** 3 HP

**Power:** 3 Phase 208-230/460 VAC 60 Hz

**Rated F.L. Current:** 8.9-8.0/4.0 Amps

**Horsepower:** 5 HP

**Power:** 3 Phase 208-230/460 VAC 60 Hz

**Rated F.L. Current:** 15.5-14.0/7.0 Amps

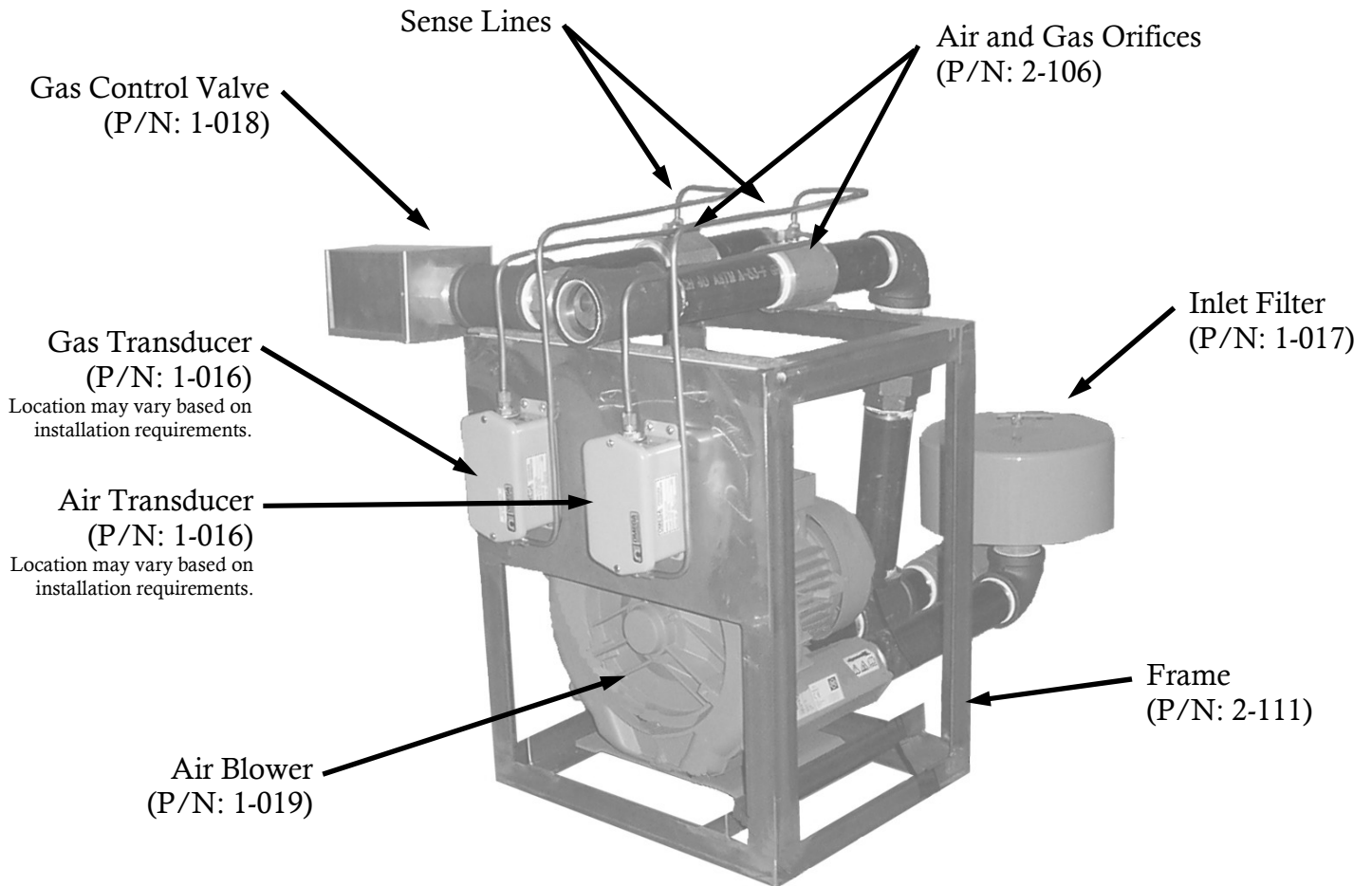
## ControlCarb™ Controller

**Power:** 85—264 VAC 50/60 Hz

**Recommended Fuse:** T type (time-lag type) 1A

# COMPONENT OVERVIEW

The EndoInjector™ contains many individual components that are all pre-assembled and tested to perform to the exact specifications required by the endothermic gas generator.



*Figure 1*

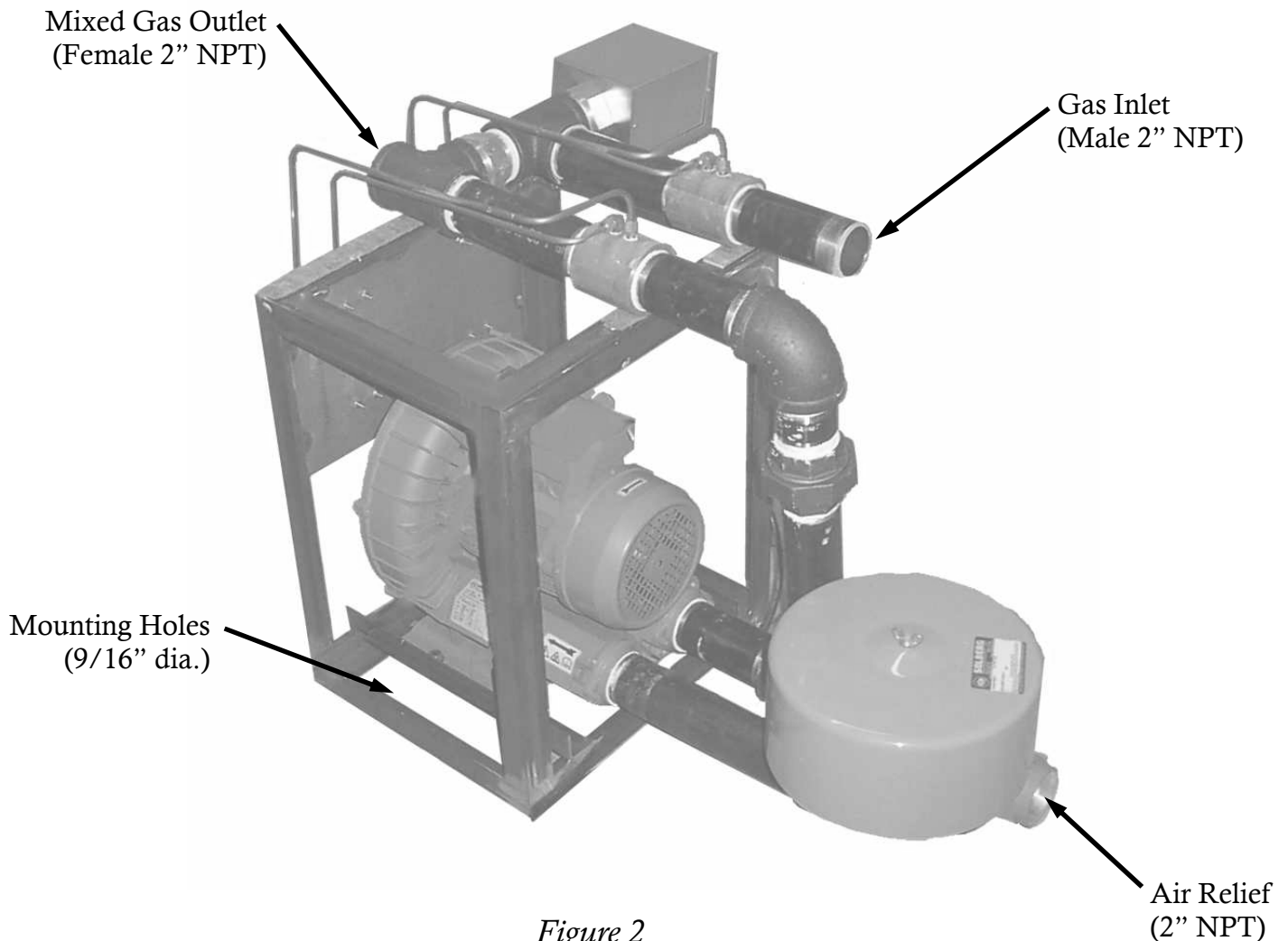
Not pictured is the ControlCarb™ Controller (P/N: 1-020-SS).

# INSTALLATION

## MECHANICAL CONNECTION

The EndoInjector™ is shipped as a complete unit as shown in figures 1 and 2. The ControlCarb™ Controller is shipped in a separate container and must be installed in a suitably cooled enclosure.

- Inspect the EndoInjector for any damaged or missing components.
- Secure the mixing system to the generator frame using mounting holes. Mixing system should be mounted level and should be insulated from radiant heat sources.
- Attach main gas supply to gas inlet. Gas supply must be pressure regulated to at least 1 psig greater than the desired output pressure and be fitted with the appropriate safety pressure switches per local regulations or using the guidelines set out in NFPA 86 & 86C.
- Attach mixed gas outlet to appropriate fire check valve.
- Air Relief valve should be fitted with muffler (included). Note: the relief valve controls the main output pressure of the mixing system and therefore should be piped to an accessible location.
- Mount ControlCarb™ Controller inside suitably cooled controls enclosure.



*Figure 2*



# INSTALLATION

## MECHANICAL CONNECTION (cont.)

Flow and Control System Diagram.

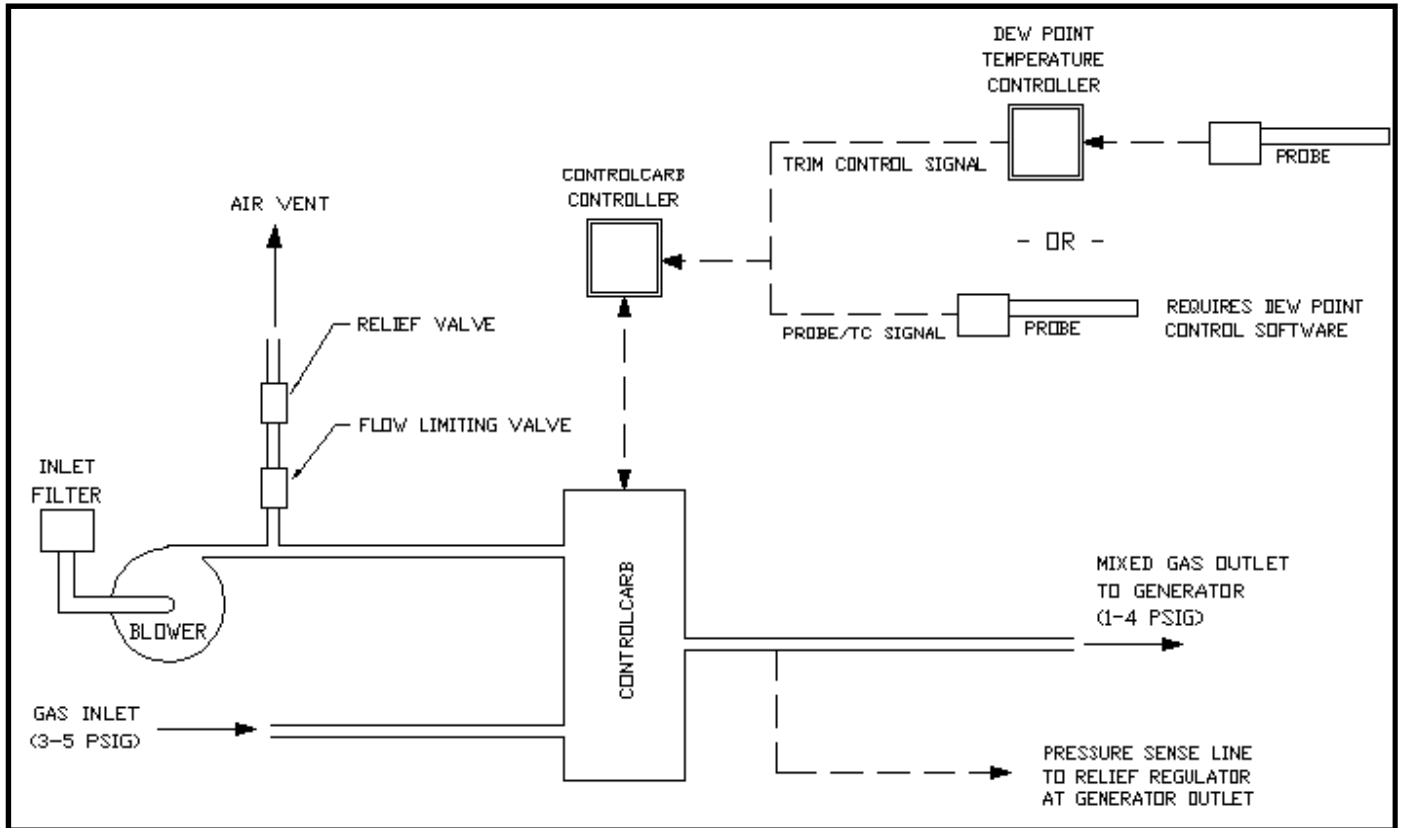


Figure 3

# INSTALLATION

## ELECTRICAL WIRING

The electrical connections are made to the screw terminals on the ControlCarb™ controller and to the terminals located in the electrical enclosure mounted to the EndoInjector™ mixing system. They accept wire sizes from 14 to 18 AWG and should be tightened to a torque of 3.5 lb-in. Caution should be taken to prevent hands or metal from making accidental contact with live wires. The EndoInjector is a precision instrument that requires a properly grounded power source to ensure signal integrity. Review the attached installation wiring diagram for complete wiring details.

### **BUILT-IN DEW POINT CONTROL WIRING (OXYGEN PROBE/T.C. SENSOR)**

— SEE ATTACHED CUSTOM WIRING DIAGRAM FOR DETAILS —

This configuration utilizes the integrated dew point control software within the EndoInjector gas mixing system. The dew point is calculated from a zirconia probe and thermocouple signal. The measured values and calculated dew point are displayed on the “Dew Point Control Screen” described on page 16 of this manual.

### **BUILT-IN TEMPERATURE CONTROL WIRING (T.C. SENSOR)**

— SEE ATTACHED CUSTOM WIRING DIAGRAM FOR DETAILS —

This configuration utilizes the integrated temperature control software within the EndoInjector gas mixing system to control the temperature of each retort on the endothermic generator. The temperature is measured with an industrial thermocouple signal (S-Type recommended). The measured values and calculated dew point are displayed on the “Temperature Control Screen” described on page 18 of this manual.

### **BLOWER MOTOR WIRING**

Each blower is selected to provide the exact amount of air flow required by the endothermic gas generator. Therefore, the horsepower and electrical requirements depend on the capacity of the mixing system. A detailed wiring diagram is located under the electrical cover of each blower motor. Consult this diagram and informational labels attached to the blower.

**⚡ IMPORTANT: CHECK TERMINAL JUMPER LOCATIONS ON BLOWER MOTOR TO ENSURE CORRECT LOCATION ACCORDING TO VOLTAGE REQUIREMENTS. PROPER LOCATION IS DESCRIBED ON DECAL UNDER MOTOR ENCLOSURE COVER.**

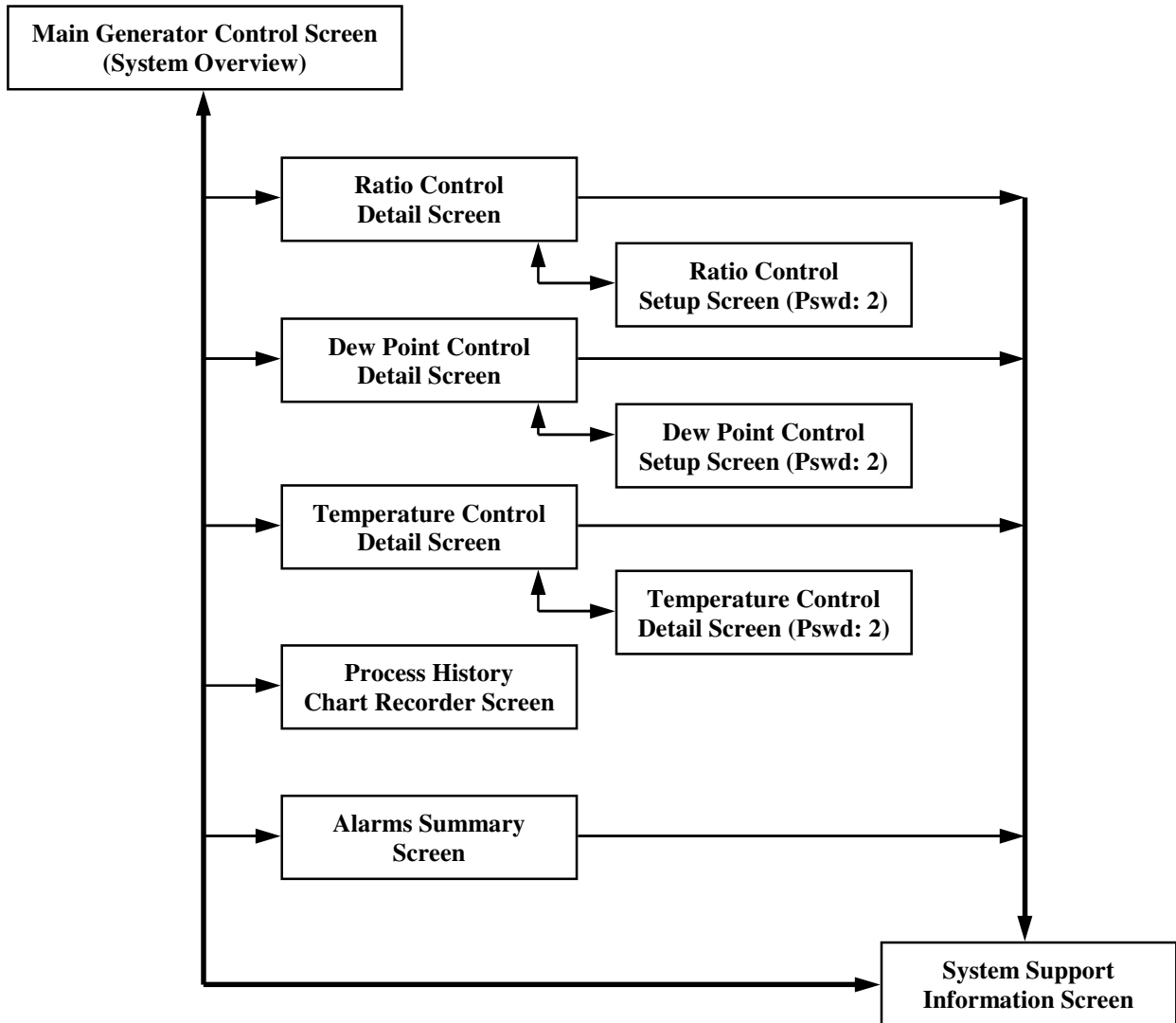
# OPERATION

## CONTROL CARB™ CONTROLLER

The EndoInjector™ utilizes the ControlCarb™ controller with a touch screen interface and software designed specifically for use with endothermic gas generators. **Misapplication of this mixing system could result in damage to the process being controlled and/or personal injury.**

### OPERATOR INTERFACE (TOUCH SCREEN NAVIGATION)

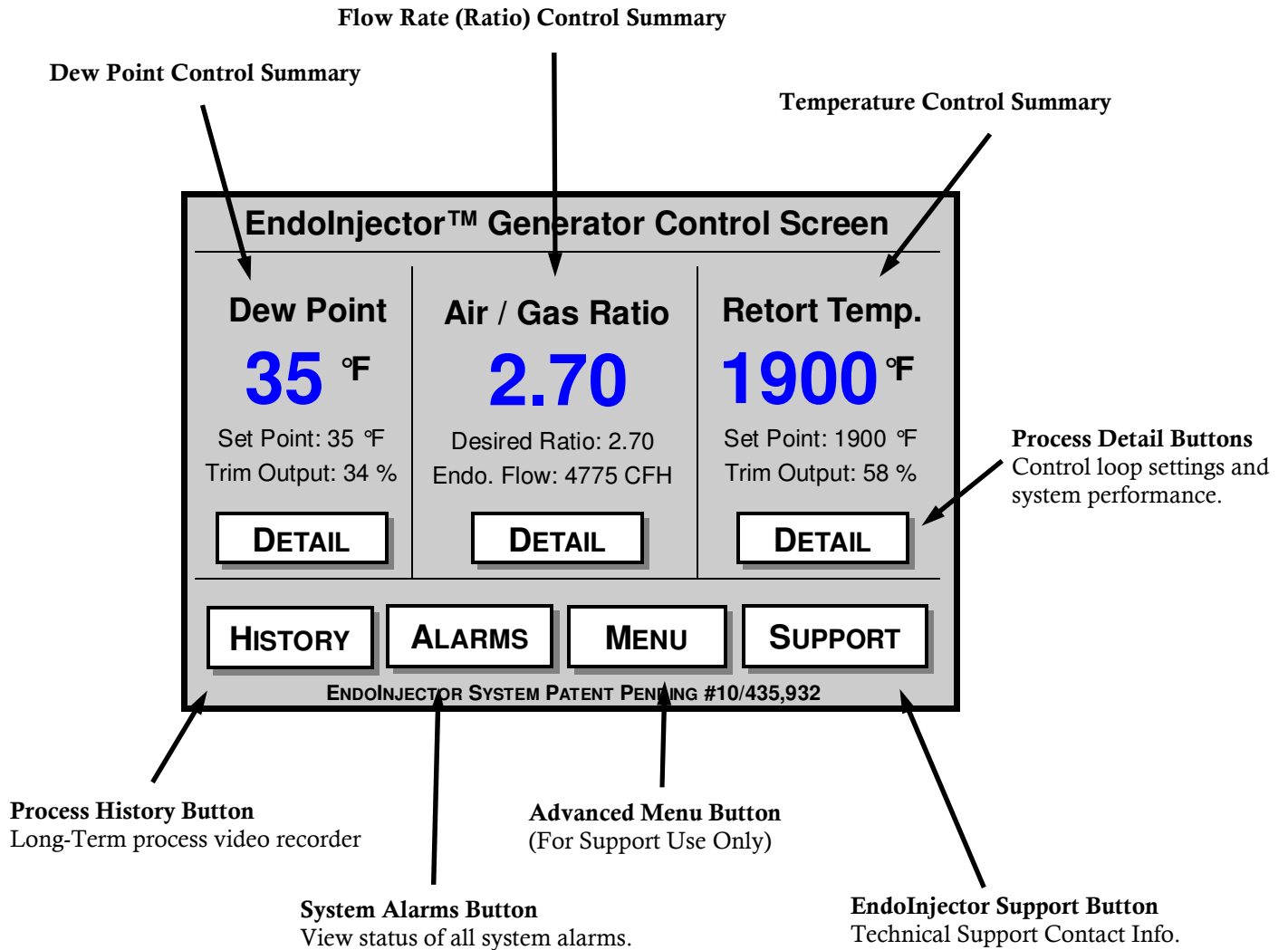
The EndoInjector™ utilizes a color touch screen navigation system that provides all generator process information in one bright and easy to understand display screen. The following is an overview of each screen available. It should be noted that all variables and setpoints are password protected to prevent accidental changes. If you would like to make any system adjustments refer to the “Setup” screen in this manual associated with the function to be changed.



# OPERATION

## MAIN GENERATOR CONTROL SCREEN (SYSTEM OVERVIEW)

The “Main Control Screen” serves as a generator overview that displays all important process factors. Process factors are “Blue” when within expected limits and “RED” when outside of the prescribed deviation band.



# OPERATION

## DEW POINT CONTROL DETAIL AND SETUP SCREENS

The dew point of endothermic gas indicates the quality and consistency of generator performance. Dew point is measured from a sample of endothermic gas by a zirconia probe or dew cell. The “Dew Point Control Detail and Setup” screens display the status of the sensor signals and loop control parameters.

**EndoInjector™ Generator Dew Point Detail**

<p><b>Dew Point</b></p> <p style="font-size: 2em; color: blue; font-weight: bold;">35 °F</p> <p style="text-align: center; border: 1px solid black; padding: 2px; width: fit-content; margin: 10px auto;">SETUP</p>	<p>Set Point: 35 °F            Trim Output: 34 %            Probe Signal: 1095 mV            Probe Temperature: 1600 °F            Deviation Alarm Set Point: ± 5 °F</p> <p>PID Control Loop Values:            P = 30 : I = 0.10 : D = 0.00</p>
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MAIN SCREEN

PROCESS SUPPORT

ENDOINJECTOR SYSTEM PATENT PENDING #10/435,932

**Dew Point Control Detail Screen**  
(READ ONLY)

Values can not be modified on this screen. To change these values press the “Setup” button on this screen and enter the password number 2.

Parameter	Value	
Control Mode	Auto	<div style="border: 1px solid black; padding: 5px; margin-bottom: 5px; text-align: center;">↑</div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 5px; text-align: center;">ENTER</div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 5px; text-align: center;">↓</div> <div style="border: 1px solid black; padding: 5px; text-align: center;">Esc</div>
Set Point:	35	
Trim Output	34%	
Deviation Alarm +/-	5 °F	
(P) Control Value	30	
(I) Control Value	0.10	
(D) Control Value	0.00	
H Factor	400	
Probe Burnout Time	120 sec	
Probe Burnout Interval	0 hr	
Probe Recovery Time	125 sec	

**Dew Point Setup Screen**  
(Login Password Required)  
Password = 2

**IMPORTANT:** CHANGES TO THIS SCREEN WILL EFFECT THE CURRENT OPERATION OF THE ENDOINJECTOR. Review this manual for a complete description of all Setup Parameters prior to adjustments.

# OPERATION

## DEW POINT CONTROL SETUP SCREEN PARAMETERS (LOGIN PASSWORD = 2)

*These parameters define the control of the dew point quality of the endothermic gas in production. Changes to these parameters will take effect immediately.*

### **Control Mode (Auto/Manual)**

Sets the control mode for the dew point control system. Used to place controller in Manual mode during system startup and during retort burnout.

### **Dew Point Set Point (Limits: 0 to 100 °F)**

Determines the desired dew point that the control system will maintain.

### **Trim Output (Limits: 0 - 100 %) [READ ONLY]**

This value represents the trim control output signal in percent. During normal operation this value should not equal 0% or 100%. If this value is equal to one of the limits then the "Ratio Setpoint" must be adjusted to compensate for the trim control range.

### **Dew Point Deviation Alarm (Limits: 0 - 100 °F)**

The value that determines when a dew point deviation alarm should be indicated.

### **(P) Proportional Band**

The proportional term delivers an output which is proportional to the size of the error signal.

### **(I) Integral Term**

The integral term removes steady state control offset by ramping the trim output up or down in proportion to the amplitude and duration of the error signal. This value must be set longer than the time constant of the dew point control process to avoid dew point oscillations.

### **(D) Derivative Term**

The derivative term is proportional to the rate of change of the dew point value. It is used to prevent overshoot and undershoot of the setpoint by introducing an anticipatory action.

### **Probe Burnout Time (seconds) (Default: 120 sec)**

FOR AUTOMATIC PROBE BURNOUT SYSTEM USE ONLY (sold separately)

### **Probe Burnout Interval (hours) (Default: 0 hours)**

FOR AUTOMATIC PROBE BURNOUT SYSTEM USE ONLY (sold separately)

### **Probe Recovery Time (seconds) (Default: 125 sec)**

FOR AUTOMATIC PROBE BURNOUT SYSTEM USE ONLY (sold separately)

# OPERATION

## RATIO CONTROL DETAIL AND SETUP SCREENS

The “Air/Gas Ratio Detail” screen provides complete information regarding the flow rate and fuel injection performance of the EndoInjector mixing system.

**EndoInjector™ Generator Air / Gas Ratio Detail**

<p><b>Air / Gas Ratio</b></p> <p style="font-size: 2em; color: blue; text-align: center;"><b>2.70</b></p> <p style="text-align: center; border: 1px solid black; padding: 2px; width: 80px; margin: 10px auto;"><b>SETUP</b></p>	<p>Air Flow: 2600 CFH            Gas Flow: 963 CFH            Endothermic Gas Output Flow: 4775 CFH            Ratio Set Point: 2.50            Max. Trim Ratio: 2.95            Trim Input Signal: 34%            Desired Ratio: 2.70            Deviation Alarm Set Point: ± 0.10</p>
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**MAIN SCREEN**

**PROCESS SUPPORT**

ENDOINJECTOR SYSTEM PATENT PENDING #10/435,932

**Ratio Control Detail Screen**  
(READ ONLY)

Values can not be modified on this screen. To change these values press the “Setup” button on this screen and enter the password number 2.

Parameter	Value	
Maximum Ratio Set Point	2.95	<div style="border: 1px solid black; padding: 5px; margin-bottom: 5px; text-align: center;">↑</div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 5px; text-align: center;">ENTER</div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 5px; text-align: center;">↓</div> <div style="border: 1px solid black; padding: 5px; text-align: center;">Esc</div>
Minimum Ratio Set Point	2.50	
Trim Signal Input Selection	External	
Deviation Alarm +/-	0.10	
Valve Capacity Value	3500	

**Ratio Control Setup Screen**  
(Login Password Required)  
Password = 2

**IMPORTANT:** CHANGES TO THIS SCREEN WILL EFFECT THE CURRENT OPERATION OF THE ENDOINJECTOR. Review this manual for a complete description of all Setup Parameters prior to adjustments.

# OPERATION

## AIR/GAS RATIO CONTROL SETUP SCREEN PARAMETERS (LOGIN PASSWORD = 2)

*These parameters define the control of the air/ gas mixing function of the EndoInjector. Changes to these parameters will take effect immediately.*

### **Maximum Ratio Set Point (Limits: 0.00 to 99.99)**

Maximum Air/Gas Ratio to be introduced based on a 100% (20 mA) ratio trim signal. The default setting of 3.00 may differ slightly due to specific generator characteristics. If the dew point is too low and the trim signal is 100% then the Maximum Ratio Set Point should be increased to provide proper dew point control. NOTE: Do not set this value above 3.50 as excessive water vapor may be produced within the generator retorts. If the required air/gas ratio approaches 3.50 this could indicate a probe sensor failure or sooting of the catalyst within the retort. Consult the generator manual for troubleshooting guidelines or contact Atmosphere Engineering for further support.

### **Minimum Ratio Set Point (Limits: 0.00 to 99.99)**

Minimum Air/Gas Ratio to be introduced based on a 0% (4 mA) ratio trim signal. The default setting of 2.50 may differ slightly due to specific generator characteristics. If the dew point is too high and the trim signal is 0% then the Minimum Ratio Set Point can be decreased to provide proper dew point control. NOTE: Do not set this value below 2.00 as excessive sooting may occur within the generator retorts. If the required air/gas ratio approaches 2.00 this could indicate a probe sensor failure or water collection within the gas sample line. Consult the generator manual for troubleshooting guidelines or contact Atmosphere Engineering for further support.

### **Trim Control Selection (Values: External, Internal)**

The Trim Control selection parameter defines where the trim signal originates.

**External:** Separate dew point controller with trim output signal.

**Internal:** When built-in dew point control software is utilized.

### **Ratio Deviation Alarm (Limits: 0 - 3.0)**

This value defines the limit for the ratio deviation alarm. When the actual air/gas ratio deviates from the working ratio more than this value, the Deviation Alarm LED will turn "ON".

### **Valve Capacity Value (DO NOT CHANGE THIS VALUE)**

This value defines the speed of the fuel injection valve control response. (Note: A lower number increases the valve speed). Required during initial installation and generator start-up.



# OPERATION

## TEMPERATURE CONTROL DETAIL AND SETUP SCREENS

The “Temperature Control Detail” screen provides complete information regarding the temperature control loop parameters.

**EndoInjector™ Generator Retort Temp Detail**

<p><b>Retort Temp.</b> <b>1900 °F</b></p> <p style="text-align: center; border: 1px solid black; padding: 2px;"><b>SETUP</b></p>	<p>Set Point: 1900 °F Trim Output: 58 % Deviation Alarm Set Point: ± 10 °F Low Temperature Set Point: 1400 °F</p> <p>PID Control Loop Values: P = 3.0 : I = 0.10 : D = 0.00</p>
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**MAIN SCREEN**

**PROCESS SUPPORT**

ENDOINJECTOR SYSTEM PATENT PENDING #10/435,932

**Temperature Control Detail Screen**  
*(READ ONLY)*

Values can not be modified on this screen. To change these values press the “Setup” button on this screen and enter the password number 2.

Parameter	Value	
Retort Temp. Selection	Normal	<div style="display: flex; flex-direction: column; align-items: center; gap: 10px;"> <div style="border: 1px solid black; padding: 5px; width: 40px; height: 40px; text-align: center; color: blue; font-size: 2em;">↑</div> <div style="border: 1px solid black; padding: 5px; width: 40px; height: 30px; text-align: center;">ENTER</div> <div style="border: 1px solid black; padding: 5px; width: 40px; height: 40px; text-align: center; color: blue; font-size: 2em;">↓</div> <div style="border: 1px solid black; padding: 5px; width: 40px; height: 30px; text-align: center;">Esc</div> </div>
Setpoint	1900	
Low Temperature Alarm	1400	
Deviation Alarm	15	
(P) Control Value	3.0	
(I) Control Value	0.10	
(D) Control Value	0.00	

**Temperature Control Setup Screen**  
*(Login Password Required)*  
*Password = 2*

**IMPORTANT:** CHANGES TO THIS SCREEN WILL EFFECT THE CURRENT OPERATION OF THE ENDOINJECTOR. Review this manual for a complete description of all Setup Parameters prior to adjustments.

# OPERATION

## TEMPERATURE CONTROL SETUP SCREEN PARAMETERS (LOGIN PASSWORD = 2)

*These parameters define the control of the retort temperature and generator low temperature alarm. Changes to these parameters will take effect immediately.*

*IMPORTANT: NFPA 86C guidelines require a separate controller and suitable thermocouple must be installed as an excessive temperature controller. The EndoInjector temperature control circuit and low temperature limit switch shall not be used as an over temperature controller. Consult NFPA 86C and local industrial codes for complete generator safety requirements.*

### **Retort Temperature Selection (Normal, Idle, Off)**

There are three built-in temperature set point selections. The default temperature set point value for each selection can be changed and will remain in memory to be recalled at anytime.

The Retort Temperature Selections are defined as:

**NORMAL:** Typical Operating Temperature (Set Point = 1950 °F)

**IDLE:** Idle Generator Temperature (Set Point = 1500 °F)

**OFF:** Low Fire Setting (Set Point = 0 °F)

### **Temperature Set Point (Limits: 0 - 2000 °F)**

Retort Temperature Set Point. Defines the required temperature to be used by the temperature control loop.

### **Low Temperature Alarm (Default: 1400 °F)**

The temperature limit where reaction gas can not be introduced until the retort temperature rises above this value. (Triggers Low Temperature Alarm Relay)

### **Temperature Deviation Alarm (Limits: 0 - 50°F)**

This value defines the limit for the temperature deviation alarm. When the temperature deviates from the set point by more than this value, the Deviation Alarm LED will turn "ON".

### **P) Proportional Band**

The proportional term delivers an output which is proportional to the size of the error signal.

### **(I) Integral Term**

The integral term removes steady state control offset by ramping the trim output up or down in proportion to the amplitude and duration of the error signal. This value must be set longer than the time constant of the dew point control process to avoid dew point oscillations.

### **(D) Derivative Term**

The derivative term is proportional to the rate of change of the dew point value. It is used to prevent overshoot and undershoot of the setpoint by introducing an anticipatory action.

# ADDITIONAL DOCUMENTATION

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- Assembly Wiring Diagram
- Installation Wiring Diagram
- Pipeline Diagram
- Installation Setup Sheet
- Air Orifice Flow Meter Calibration Curve
- Gas Orifice Flow Meter Calibration Curve