

## 36G Gas Control Product Information

The 36G (Gemini) combination gas control valve is a versatile multifunction control designed to meet the requirements for use with non-piloted intermittent ignition systems (Direct Spark Ignition, Hot Surface Ignition). Models include fast and slow open single and two stage valves. These valves are also convertible for natural/LP gases. Along with its reduced size, all control adjustments and features, as well as the system interface-wiring panel, have been designed on the top surface of the control for simplified application and easy accessibility. The Gemini gas control is designed to meet today's requirement for maximum capacity, smaller size and highly efficient gas systems.

Features include:

- Patented coaxial solenoid design.
- Inlet and optional outlet screens help protect from debris.
- High sealing force direct acting valves.
- Controlled gasket compression to withstand high inlet pressures.
- Tamper resistant screws.
- Automated/manual assembly and comprehensive testing.
- Built-in hose connections for simplified field service.
- Conveniently located electric on-off switch.
- Versatile mounting (any position).

Information in this manual is provided to qualified HVAC Professionals Only for the installation and replacement of gas valves. Homeowners must contact their local HVAC Contractor for gas valve replacement.

Any gas valve suspected of damage or if it has been flooded with water must be replaced immediately. There are no serviceable parts on a gas valve.

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## Two Stage Model

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# General Specifications

## Standard Features

- Inlet/Outlet screen
- Ambient temperature for -40°F to 175°F
- Mounting (Any position)
- Quiet redundant
- Electrical shut-off
- Top mounted components
- Outlet pressure tap (5/16" I.D. hose connection)
- Vent connection for 5/16" I.D. hose
- Quick-connect terminals (1/4")
- Mounting holes for 8-32 screws
- Adjustable regulator(s)
- Maximum pressure (1/2 PSI)
- CSA approved

CURRENT REQUIREMENTS		
Valve (Stages)	Voltage Frequency	Total Current
Single	24V, 50/60 HZ	.3A
Two	24V, 50/60 HZ	.43A

## Optionals Features

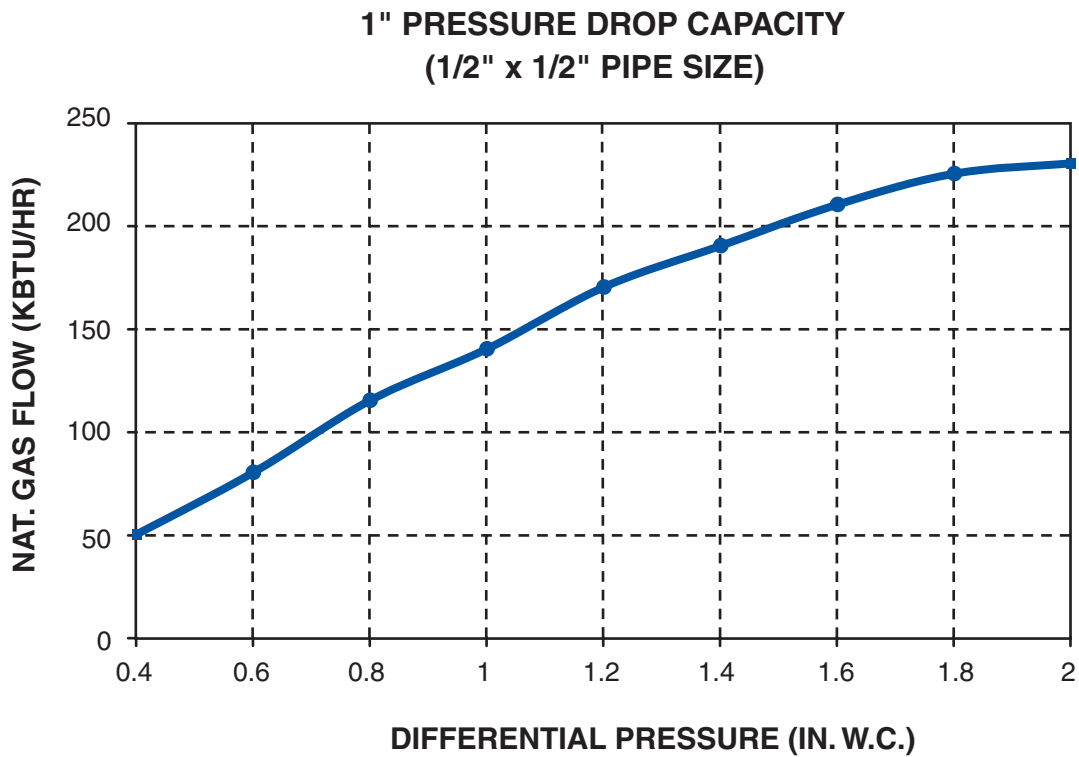
- Ground terminal
- Natural to LP regulator selector (convertible; single stage only)
- Slow open
- Inlet pressure tap (5/16" I.D. hose connection)
- Right-angle outlet
- Limited maximum adjustable regulator
- Vent fitting for 1/4" I.D. hose (90° elbow)
- 1/8" N.P.T. Pressure taps (inlet and outlet)

## Regulator Adjustment Range

RANGE OF REGULATION					
Valve (Stages)	Pipe Sizes	CSA Std. Gas .64 Sp. Gr. (1000 BTU/CU. FT.)	LP Gas 1.53 Sp. Gr. (2500 BTU/CU. FT.)	Adjustment Range (NAT., IN. W.C.)	Adjustment Range (LP., IN. W.C.)
Single	1/2 x 1/2 NPT	40 -210	60 -340	1.5 - 3.5 2.5 - 5.0	5.0 - 11.5 7.0 - 12.0
Two	1/2 x 1/2 NPT	20 low -210 high	32 low -340 high	1.0 - 4.0 low 2.0 - 5.0 high	4.0 - 10.0 low 6.0 - 12.0 high

# General Specifications

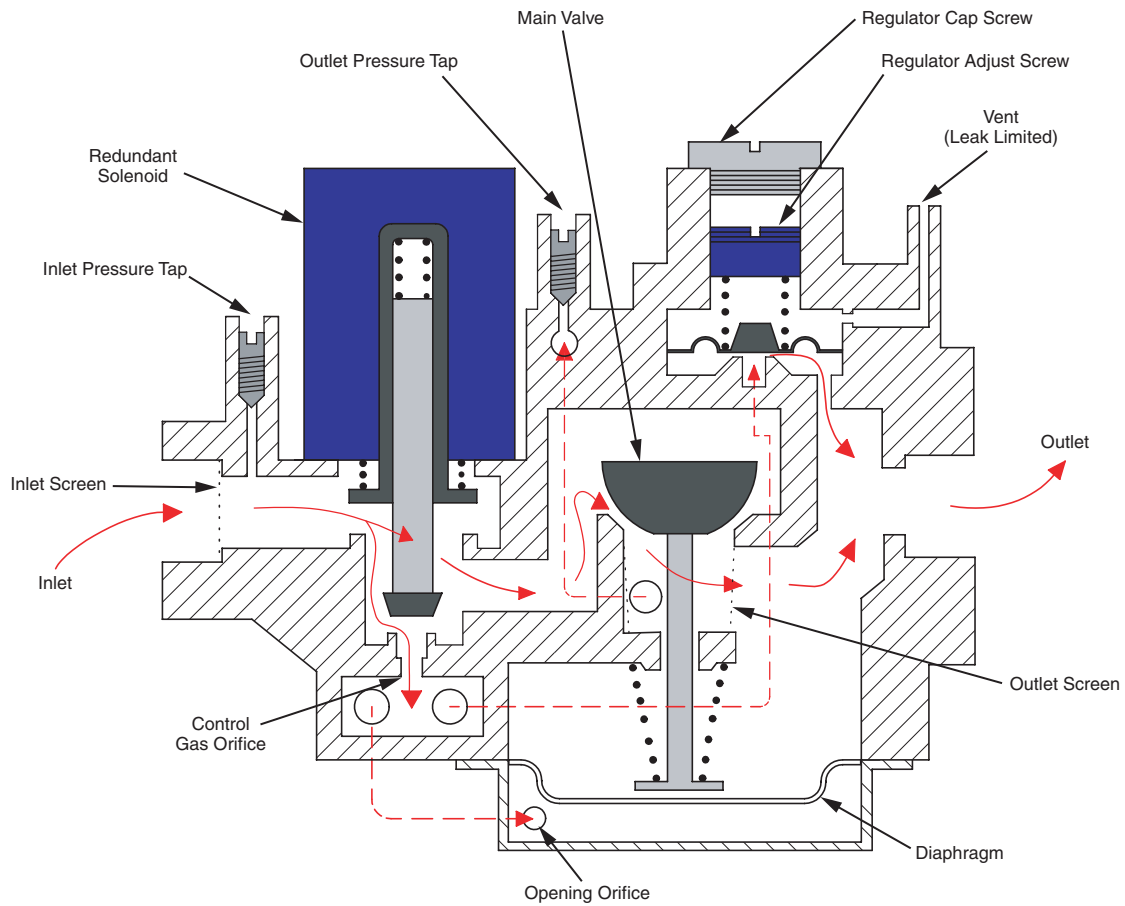
## 1" Pressure Drop Capacity



1.0" PRESSURE DROP CAPACITY		
Pipe Sizes (NPT)	CSA Std. Gas .64 Sp. Gr. (1000 BTU/CU. FT.)	LP Gas 1.53 Sp. Gr. (2500 BTU/CU. FT.)
1/2 x 1/2	140,000 BTU/HR	226,800 BTU/HR

# Single Stage Model

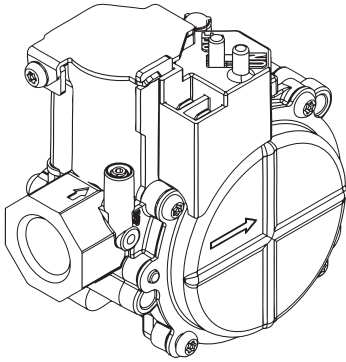
## Schematic Gas Flow Diagram



**DIAGRAM FOR ILLUSTRATION ONLY, NOT ALL DETAILS ARE INCLUDED**

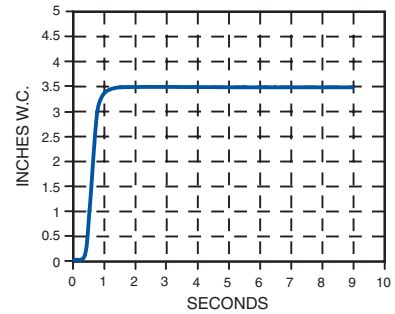
# Single Stage Model

## Standard Open Control



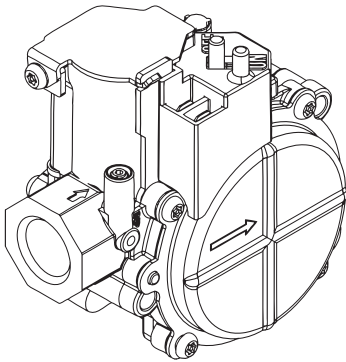
This control has a standard opening characteristic, which is suitable for a wide range of applications. It provides a fast rise to full pressure upon energizing the solenoid. Regulator LP spring conversion kits are available for this control.

**GEMINI STANDARD OPEN GAS VALVE  
(.019 OPENING ORIFICE)**



NOTE: TYPICAL OPENING CURVE NATURAL GAS  
100,000 BTU/HR. 7" W.C. INLET / 3.5" W.C. OUTLET

## Slow Open Control



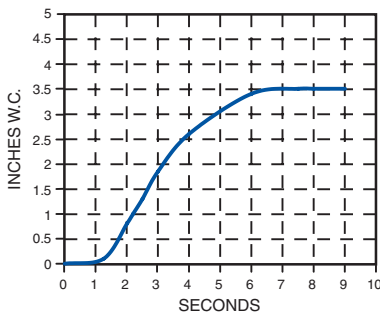
This control has a slow opening characteristic. It provides a slow increase of gas to full pressure for smoother ignition, as may be required by some applications.

There are options available:

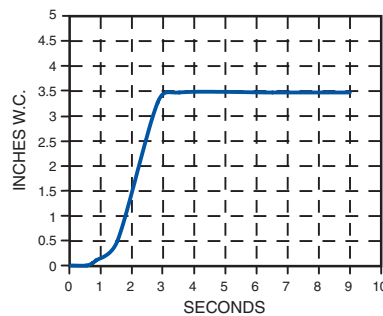
- B. .006 Opening orifice
- C. .008 Opening orifice
- D. .012 Opening orifice

NOTE: TYPICAL OPENING CURVE NATURAL GAS 100,000 BTU/HR. 7" W.C. INLET / 3.5" W.C. OUTLET  
OPENING CHARACTERISTICS WILL VARY WITH FLOW RATE AND APPLICATION.

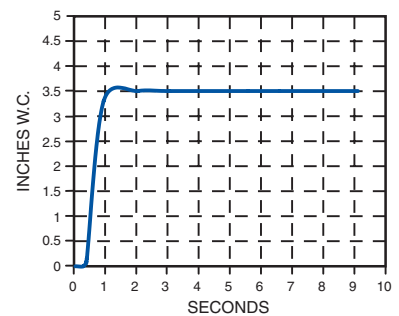
**GEMINI SLOW B**



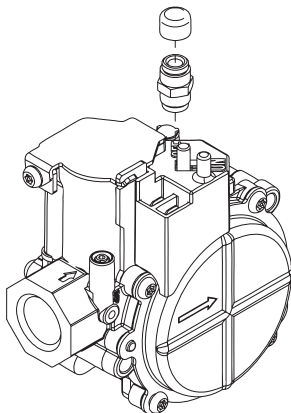
**GEMINI SLOW C**



**GEMINI SLOW D**



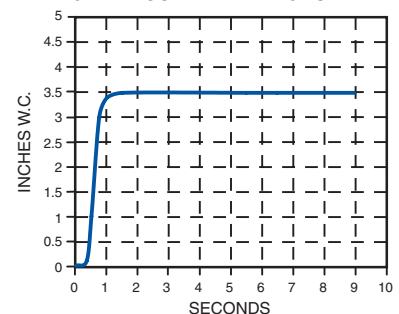
## Convertible Regulator



The convertible regulator option for this control involves a construction, which permits easy Natural to LP conversion (or vice versa) by removing, inverting and replacing the regulator cap screw. This feature easily lends itself to use in mobile homes and infra-red applications

NOTE: TYPICAL OPENING CURVE NATURAL GAS  
100,000 BTU/HR. 7" W.C. INLET / 3.5" W.C. OUTLET

**GEMINI CONVERTIBLE GAS VALVE**

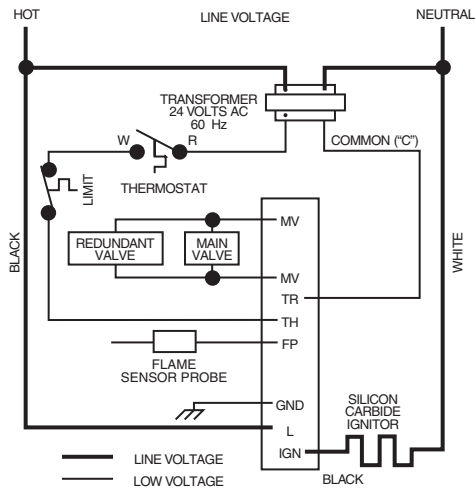


# Single Stage Model

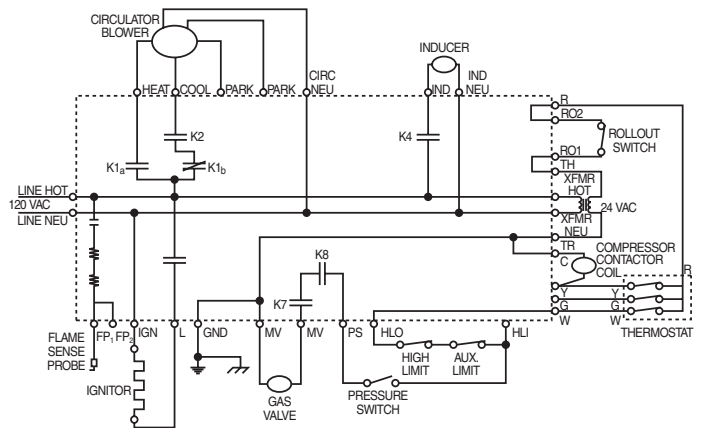
## System Applications – Hot Surface Ignition

**HSI CONTROL.** The thermostat calls for heat and energizes the HSI control. If system is equipped with prepurge, the purge fan is energized and power will be delayed thirty seconds before application to the silicon carbide ignitor. If prepurge is not selected, the ignitor is powered within one second. The ignitor heats up and at the end of the heating period, the redundant and main valves are opened. A flame must be detected within a fixed time period or both valves close, the ignitor is turned off and the HSI control locks out unless the system is equipped with retry. Retry indicates the ignition sequence will be repeated for a total of three tries if flame is undetected or lost within 30 seconds of ignition.

**Accessories:** HSI control, Sense Electrode, Silicon Carbide Ignitor, Silicon Nitride Ignitor



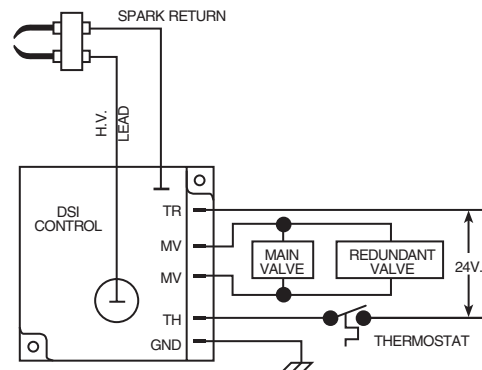
**INTEGRATED CONTROL.** The 50A55 or 50A65 Integrated Hot Surface Ignition controls employ a microprocessor to continuously monitor, analyze, and control the proper operation of the gas burner, inducer, and fan. Signals interpreted during continual surveillance of the thermostat and flame sensing element initiate automatic ignition of the burner, sensing of the flame, and system shut-off during normal operation. The control incorporates system fault analysis for quick gas flow shut-off, coupled with automatic ignition retry upon sensing a fault correction.



## System Applications – Direct Spark Ignition

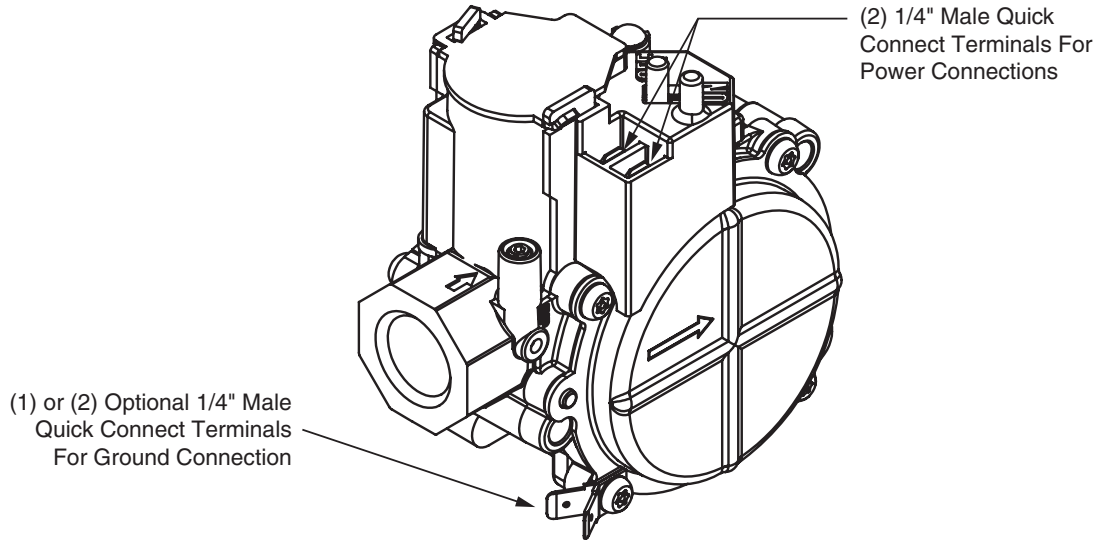
The thermostat calls for heat and simultaneously energizes the DSI control module and gas valve solenoid. Sparks at the ignition electrodes ignite the gas at the main burner. Flame is sensed through the electrodes by the flame detection circuit and shuts off the sparking. If flame is not established within a fixed time period (lock-out time) main and redundant valves close, sparking ceases and the control module locks out.

**Accessories:** DSI control, Electrodes

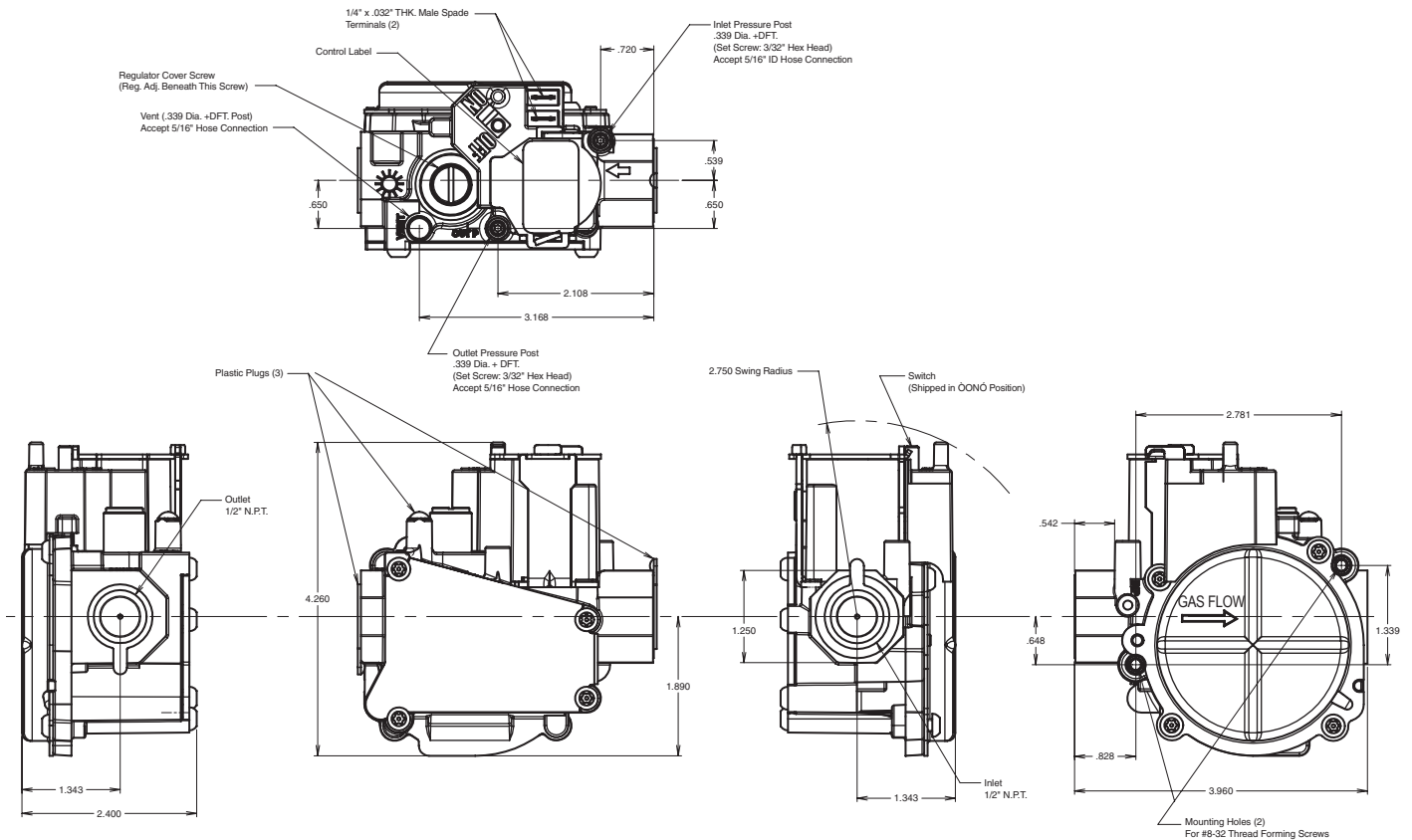


# Single Stage Model

## Electrical Connections



## Dimensions – Gemini Standard/Slow Open Control





# Two Stage Model

## Schematic Gas Flow Diagram

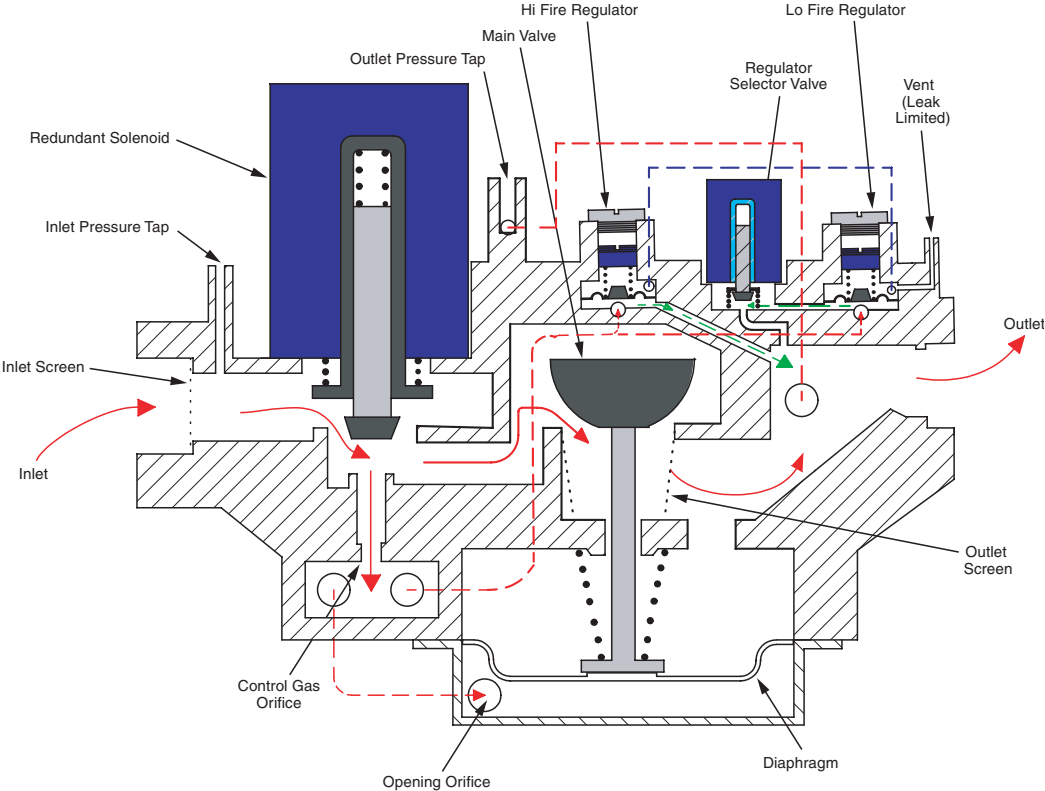
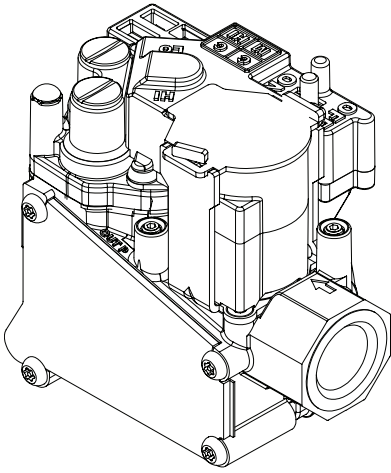


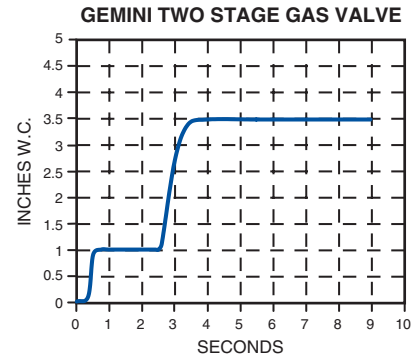
DIAGRAM FOR ILLUSTRATION ONLY, NOT ALL DETAILS ARE INCLUDED

# Two Stage Model

## Standard Open Control

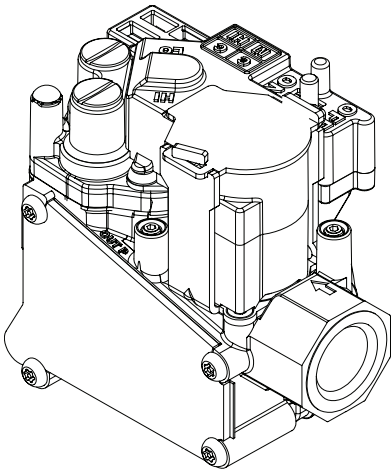


This control has dual outlet pressure levels, which is desirable for high efficiency applications. It provides a fast rise to first stage pressure upon energizing the single stage solenoid. Then, if more pressure level is required to satisfy heating requirement, energizing a second stage solenoid can attain a higher pressure level. Regulator LP spring conversion kits are available for both pressure levels on this control.

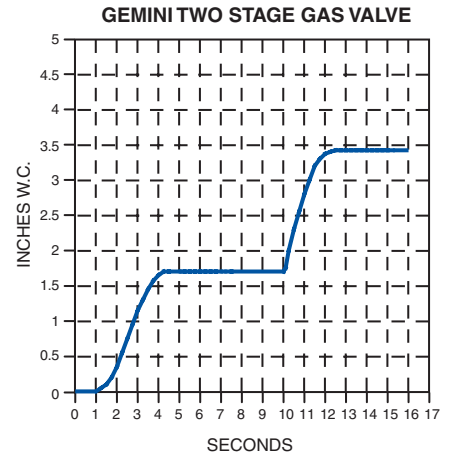


NOTE: TYPICAL OPENING CURVE NATURAL GAS  
100,000 BTU/HR. 7" W.C. INLET / 3.5" W.C. OUTLET

## Slow Open Control



This control has dual outlet pressure levels, which is desirable for high efficiency applications. It provides a slower rise to first stage pressure upon energizing the single stage solenoid. If more pressure is required to satisfy heating requirement, energizing a second stage solenoid can attain a slower rise to a higher pressure level. This slower rise condition is dependent on the size of orifice used. Regulator LP spring conversion kits for both pressure levels are available for this control.



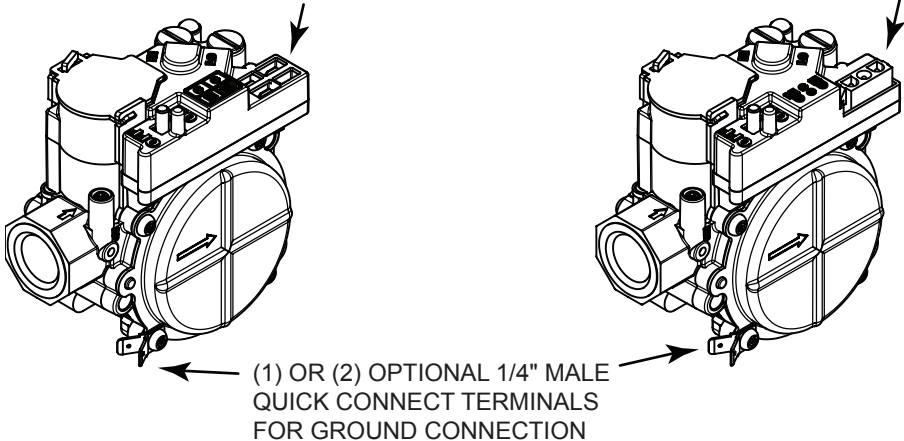
NOTE: TYPICAL OPENING CURVE NATURAL GAS  
100,000 BTU/HR. 7" W.C. INLET / 3.5" W.C. OUTLET

# Two Stage Model

## Electrical Connections

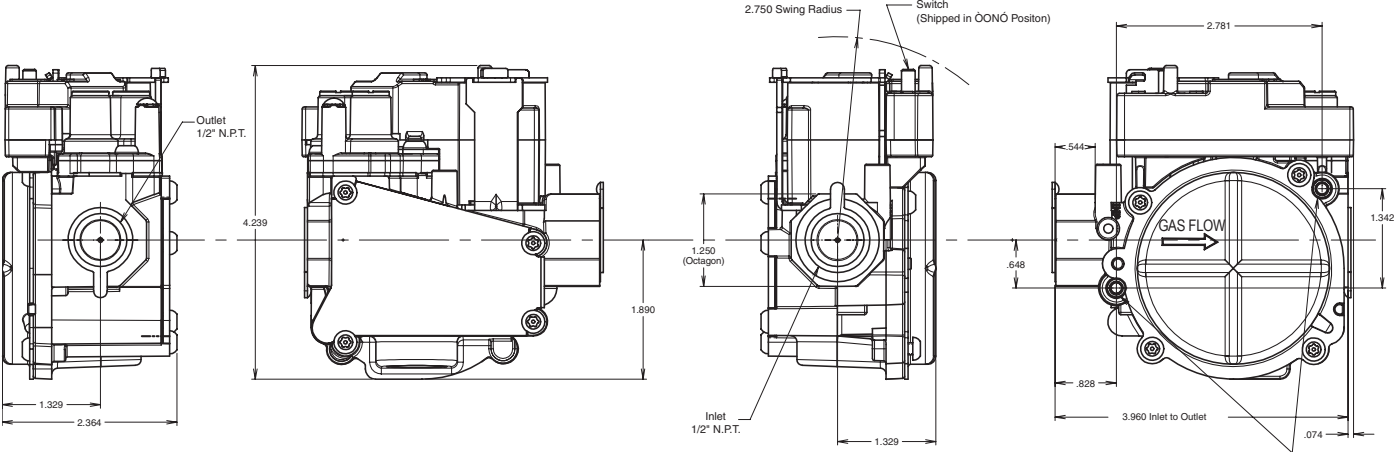
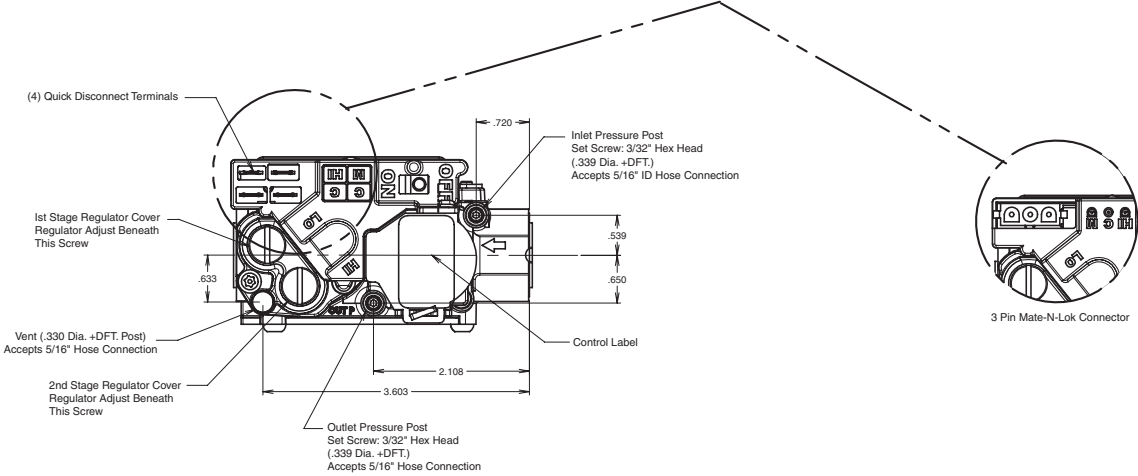
(4) MALE QUICK CONNECT TERMINALS

3-PIN AMP CONNECTOR



(1) OR (2) OPTIONAL 1/4" MALE QUICK CONNECT TERMINALS FOR GROUND CONNECTION

## Dimensions



# Models Available

**36G XX X**      **TYPE XX**

BASIC MODEL NUMBER SERIES

Model Number	OPTIONS			FEATURES		Notes
	Fast Open	Slow Open	Convertible	Two Stage		
36G22	X					A
36G23		X				B
36G24		X				C
36G29	X		X			A
36G52		X				D
36G54	X			X		E
36G55		X		X		C

**Notes:**  
 A – .019 Opening Orifice  
 B – .006 Opening Orifice  
 C – .008 Opening Orifice  
 D – .012 Opening Orifice  
 E – .0276 Opening Orifice

PACK OPTION	
Pack Code	Description
Blank	Single Pack
B1	Bulk Pack
P1	Pallet Pack

TYPE NUMBER CODING	
Number	Pipe Size (inlet x outlet)
2XX	1/2 NPT x 1/2 NPT Pressure Tap Towers
5XX	1/2 NPT x 1/2 NPT 1/8 NPT Press. Taps
6XX	1/2 NPT x 1/2 NPT Side Outlet 1/8 NPT Press. Taps

VOLTAGE / FEATURE LETTER CODING		
Alpha Numeric	Voltage	Additional Features
None	24V 50/60 HZ	Std. Adj.
Y	24V 50/60 HZ	Limited Max. Adj. Reg.

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