MAXITROL

EXA Valve Series Operating Instructions

EXA40, EXA50, EXA60 Valve Operating Instructions

⚠ WARNING

Inappropriate and/or improper installation, adjustment, alteration, service or maintenance can cause property damage, injury or death. Read the installation, operating and maintenance instructions thoroughly before installing or servicing this equipment.

Read these instructions carefully. Failure to follow them could result in a fire or explosion causing property damage, personal injury, or loss of life. The product must be installed and operated according to all local regulations.

Service and or installation must be performed by a trained experienced service technician.

⚠ WARNING

Disconnect power before installation to prevent electrical shock or equipment damage.

FOR YOUR SAFETY
If you smell gas:
1. Open windows.
2. Do not touch electrical switches.
3. Extinguish any open flame.
4. Immediately call the gas supplier.

FOR YOUR SAFETY
The use and storage of gasoline or other flammable vapors and liquids in open containers in the vicinity of this control or other appliance is hazardous.

⚠ WARNING

Installation shall conform with local codes. or in the absence of local codes, in accordance with the National Fuel Gas Code ANSI Z223.1/NFPA54 or CSA B149.1 as is applicable, and operated in accordance with the manufacturer's instructions. These instructions do not supersede OEM's installation or operating instructions. Installation, inspection, and replacement must be performed by a qualified installer or gas supplier.

This control must be electrically wired in accordance with local codes, or in absence of local codes, with the National Electrical Code, ANSI/NFPA 70 or the Canadian Electrical Code, CSA C22.1 as applicable.

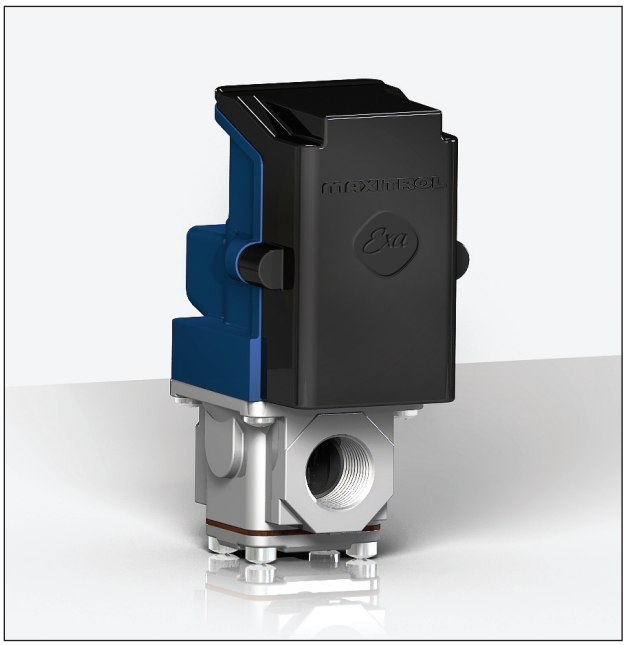

Figure 1: EXA Valve

DESCRIPTION

The EXA series are highly accurate and precise modulating control valves. EXA valves provide repeatable process control with minimal hysteresis throughout the entire range of modulation.

The valves' high fire setting and low fire setting are user programmable.

INTERFACE

The EXA valve has a built-in digital controller that provides a seamless interface with a process controller.

SPECIFICATIONS

Maximum Inlet Pressure Limits: 5 psi

Power Requirements: 24VAC/DC +/- 10% 50/60hz
NOTE: The 24V power must be isolated from the control signal.

Maximum Current Draw: 200mA.

Temperature Limits:
-40 to 150ºF Operating

Control Signal:
0-10VDC, 2-10VDC, 0-20mA, 4-20mA, (user selectable)
100KOhm Input impedance

Mounting: Multipoise

Gases:
Suitable for natural, manufactured, mixed gases, liquefied petroleum gases and LP gas-air mixtures.

Certifications:
- EMC (EN 61000:2001)
- Immunity (61000-6-2:2001)
- Emissions (61000-6-4:2001)
- UL Recognized

Enclosure: IP40

Electrical Connection: UL310

Sizes:
EXA40: 3/8”, 1/2” NPT or Rp ISO 7-1
EXA50: 1/2”, 3/4” NPT or Rp ISO 7-1
EXA60: 3/4”, 1” NPT or Rp ISO 7-1

Capacity @ 1” Pressure Drop - 0.64 sp. gr. gas:

EXA40 (3/8”) ..... 217 cfh
EXA40 (1/2”) ..... 242 cfh

EXA50 (1/2”) ..... 434 cfh
EXA50 (3/4”) ..... 524 cfh

EXA60 (3/4”) ..... 733 cfh
EXA60 (1”) ..... 815 cfh

DIMENSIONS

Dimensions are to be used only as an aid in designing clearance for the valves. Actual production dimensions may vary somewhat from those shown.

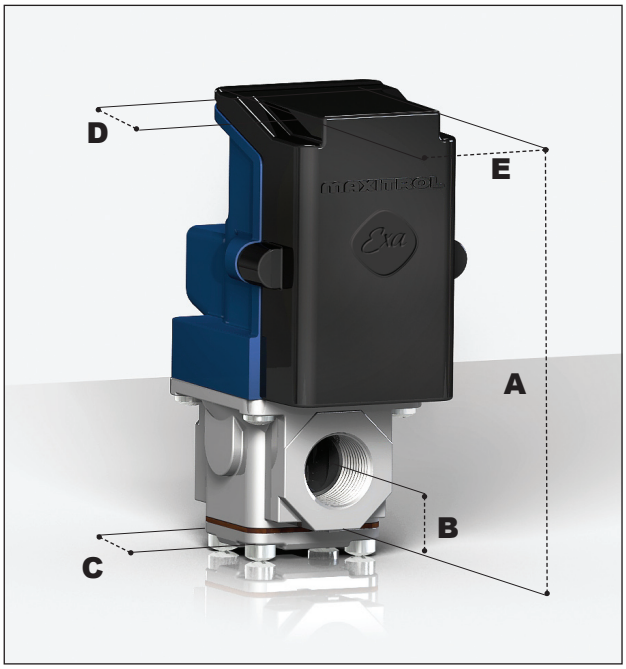

Figure 2: EXA Valve Dimensions

Model Number	Swing Radius	Dimensions in inches (millimeters)				
		A	B	C	D	E
EXA40	4 (102)	4.8 (122)	1 (26)	2.1 (54)	3.7 (94)	2.4 (61)
EXA50	4.3 (110)	5.5 (140)	1.3 (34)	3.4 (87)	3.7 (94)	3.3 (84)
EXA60	4.6 (117)	6 (153)	1.5 (39)	4.1 (105)	4.1 (105)	3.9 (100)

The EXA valve has full open and full close mechanical limits. The user can program settings that are within the valve's mechanical limits. This added dimension for sizing and applying the valve is an important feature. It allows the valve to be set up for an entirely different net output characteristic (dependent upon supply pressure).

The control signal is "scaled" between the high and low fire setting of the valve. The minimum control signal will correspond to the programmed low fire setting and the maximum control signal will correspond to the programmed high fire setting.

There are four (4) electrical connections on the EXA valve. Two (2) are for power requirements and two (2) are for the control signal (see Figure 4).

Button 1 = High Set / Increase
Button 2 = Low Set / Decrease

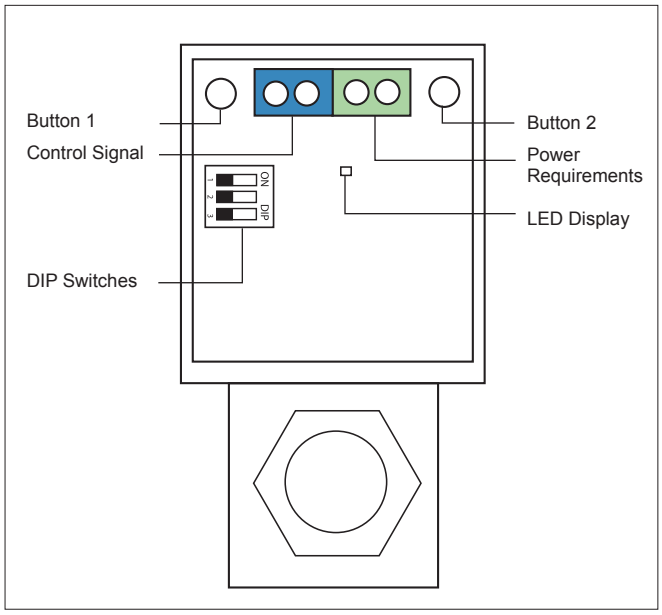

Figure 3: EXA Valve Control Signal and Power Requirements

Control Signal:
The control signal drives the EXA valve within a programmable range of modulation.

NOTE: Control signal is polarity sensitive. Connect control signal positive (+) to terminal 1 and control signal return (-) to terminal 2.

Connection Table

Terminal 1	Terminal 2	Terminal 3	Terminal 4
Signal (+)	Signal (-)	Power 1	Power 2

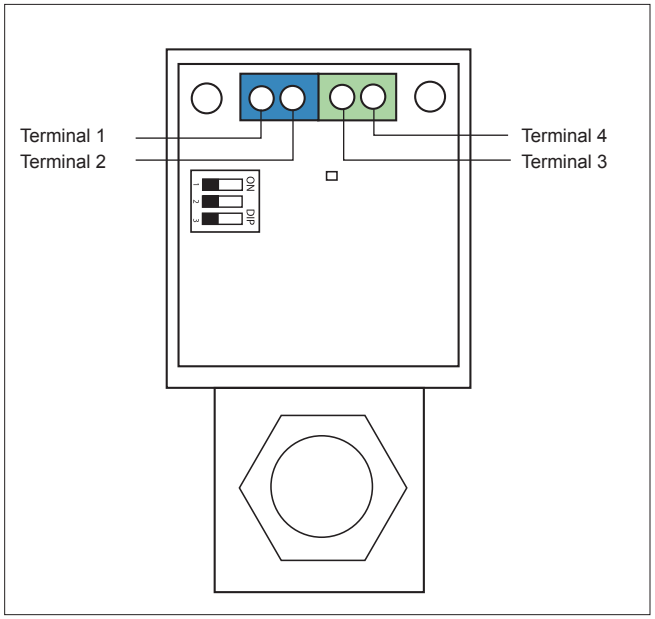

Figure 4: EXA Valve Terminals

DIP Switches:
A three (3) position DIP switch is located on the PCB (see figure 3). Change the signal type and offset by changing the position of DIP switches. (For DIP switch position and corresponding current/voltage ranges, see table below).

DIP Switch Position Table			
Control Signal	SW1 Signal	SW2 Offset	SW3 Characteristic
0-10V	OFF	OFF	OFF
2-10V	OFF	ON	OFF
0-20 mA	ON	OFF	OFF
4-20 mA	ON	ON	OFF

OPERATION

Step 1: Remove 2 screws holding cover.
Step 2: Connect switched OFF 24 V (AC/DC) power source to terminals 3 and 4.
Step 3: Set DIP switches to match available control signal.
Step 4: Connect switched OFF control signal to terminals 1 and 2. Observe polarity. Note that the return, or signal ground, must be connected to terminal 2.
Step 5: Switch Power and control signal ON.

VALVE SETTING

The Exa valve has two (2) buttons and an LED for the user interface. The buttons are used to set the valve for high and low fire settings (see figure 5).

1. High Fire Setting (LED will be solid red)
2. Low Fire Setting (LED will be blinking red)
3. Operating Mode (LED will be OFF)

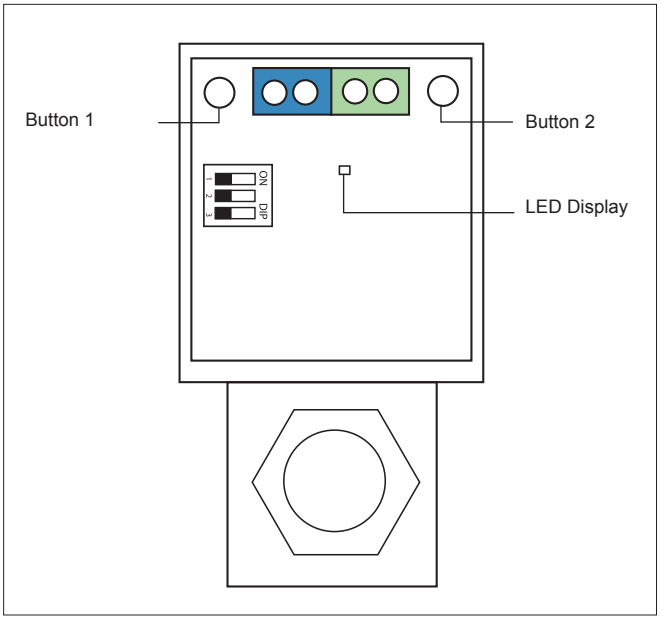

Figure 5: EXA Valve Adjustment Controls

HIGH FIRE SETTING - BUTTON #1

To enter the high fire setting mode, press and hold button #1 until the LED lights solid red. Release. The valve is now in the high fire setting mode. Buttons #1 and #2 are used to set desired high fire setting.

Press or hold button #1 to increase gas flow. Each button press equates to the minimum available step size and will increase flow slowly. Holding the button down auto steps and eliminates the need to continuously press the button. Use this feature to rapidly increase the flow.

Press or hold button #2 to decrease gas flow. Each button press equates to the minimum available step size and will decrease flow slowly. Holding the button down auto steps and eliminates the need to continuously press the button. Use this feature to rapidly decrease the flow.

To save the high fire setting, simultaneously hold buttons #1 and #2 until the LED turns off

NOTE: Controls left in the high fire setting mode will default to the current setting after 5 minutes of inactivity.

LOW FIRE SETTING - BUTTON #2

To enter into the low fire setting mode, press and hold button #2 until the LED light blinks red. Release. The valve is now in the low fire setting mode. Buttons #1 and #2 are used to set the desired low fire setting.

Press or hold button #2 to decrease gas flow. Each button press equates to the minimum available step size and will decrease flow slowly. Holding the button down auto steps and eliminates the need to continuously press the button. Use this feature to rapidly decrease the flow.

Press or hold button #1 to increase gas flow. Each button press equates to the minimum available step size and will increase flow slowly. Holding the button down auto steps and eliminates the need to continuously press the button. Use this feature to rapidly increase the flow.

To save the low fire setting, simultaneously hold buttons #1 and #2 until the blinking LED turns off.

NOTE: Controls left in the low fire setting mode will default to the current setting after 5 minutes of inactivity.

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