

V-2410

Three-Way Solenoid Air Valve

Description

The V-2410 Three-Way Multipurpose Solenoid Air Valve is used in applications where an electrical circuit operates a pneumatic control device. This valve diverts the air signal to the pneumatic device when the coil is energized or de-energized, depending on the choice of air connection.

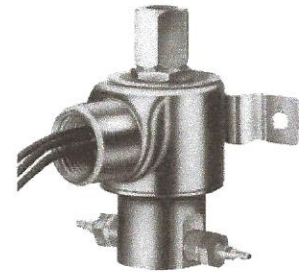
Refer to *V-2410 Three-Way Multipurpose Solenoid Air Valve (LIT-7171560)* for important product information.

Repair Information

If the V-2410 Three-Way Multipurpose Solenoid Air Valve fails to operate within its specifications, replace the unit. For a replacement valve, contact the nearest Johnson Controls® representative.

Features

- three air connections:
 - N.O. (normally open)
 - N.C. (normally closed)
 - COM (common)
- numerous mounting configurations
- compact size with durable, solid brass construction
- conduit adaptable to meet electrical code requirements (conduit housing style models only)
- readily adaptable air connections
- positive air seal
- can be used in smoke control applications



V-2410 Series Conduit Housing Style Air Solenoid Valve

Selection Chart

Code Number	Style	Electrical Rating	Electrical Termination	Nominal Power Consumption
V-2410-1	Conduit Housing	24 V/50-60 Hz	Thermoplastic Leads	6.5 Watts
V-2410-2		120 V/50-60 Hz		
V-2410-3		208 V/50-60 Hz		
V-2410-4		240 V/50-60 Hz		
V-2410-5		277 V/50-60 Hz		
V-2410-6		480 V/50-60 Hz		
V-2410-7		24 VDC		
V-2410-8	Yoke	24 V/50-60 Hz	Push-On Spade Terminal	8.0 Watts
V-2410-9		120 V/50-60 Hz		

CAUTION: IMPORTANT: The V-2410 is basically an inductive device in an electrical circuit. When switching an inductive load, it may be necessary to provide transient suppression, depending on the circuitry and switching devices involved.

Technical Specifications

V-2410 Three-Way Multipurpose Solenoid Air Valve			
Air Connections	Conduit Housing Style Models	N.O.	1/8 in. NPT
		N.C. & COM.	1/8 in. NPT Barbed Fittings for 5/32 or 1/4 in. O.D. Poly tubing
	Yoke Style Models	N.O., N.C., & COM. 1/8 in. NPT	
Operating Pressure			0 to 30 psig (0 to 210 kPa) Maximum
Leakage	Internal		None
	External		Maximum 0.1 scim (0.03 mL/s) per Fitting Used
Ambient Operating Temperature Limits			32 to 130°F (0 to 54°C)
Materials			Solid Brass Body
Wiring (Conduit Housing Style Models Only)			Three 18 AWG Thermoplastic Wires, 18 in. (457 mm) Long.
Agency Listings	Conduit Housing Style Models		UL and CSA Listed
	Yoke Style Models		UL and CSA Component Listed

Volt-Ampere Ratings

V-2410-Suffix	50 Hz		60 Hz	
	Inrush	Holding	Inrush	Holding
-1	20 VA	15 VA	18 VA	11 VA
-2	20 VA	15 VA	18 VA	11 VA
-3	20 VA	15 VA	18 VA	11 VA
-4	20 VA	15 VA	18 VA	11 VA
-5	20 VA	15 VA	18 VA	11 VA
-6	20 VA	15 VA	18 VA	11 VA
-7	20 VA	15 VA	18 VA	11 VA
-8	24 VA	17 VA	19 VA	13 VA
-9	24 VA	17 VA	19 VA	13 VA

Output Flow Capacity SCIM (mL/s)

Air Connections	20 psig (140 kPa) Supply, 1 psig (7 kPa) Drop		20 psig (140 kPa) Supply, 20 psig (140 kPa) Drop	
	N.O.	N.C.	N.O.	N.C.
Barbed Fittings for 5/32 or 1/4 in. O.D. Poly tubing (Included with Conduit Housing Style Models)	700 (191)	750 (205)	1900 (519)	2100 (573)
Barbed Fittings for Compression Fittings for 1/4 in. O.D. Tubing	1000 (273)	1400 (382)	2650 (723)	4200 (1147)

V-2410 Three-Way Multipurpose Solenoid Air Valve

Features

- Compact Size with Durable, Solid Brass Construction
- Can Be Mounted in Any Position
- Conduit Adaptable to Meet Electrical Code Requirements (Conduit Housing Style Models Only)
- Readily Adaptable Air Connections
- Positive Air Seal
- Can Be Used in Smoke Control Applications

The V-2410 Three-Way Multipurpose Solenoid Air Valve is designed for use in applications where the operation

of a pneumatic device is dependent upon an electrical circuit. The V-2410 diverts the air signal to the pneumatic device(s) when the coil is energized or de-energized, depending on the choice of air connections used (N.O. Normally Open, N.C. Normally Closed, and COM. Common).

Operation

In a typical V-2410 application, supply air is connected to the N.C. port, the control device is connected to the COM. port, and the N.O. port is left vented. When the solenoid is energized, a magnetic field activates a plunger-type valve stem, the N.C. port opens, and supply air is directed through the COM. port to the control device. When the solenoid is de-energized,

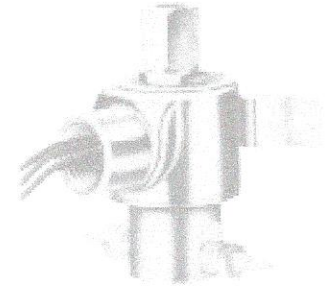


Fig. 1: V-2410 Conduit Housing Style Three-Way Multipurpose Solenoid Air Valve



Fig. 2: V-2410 Yoke Style Three-Way Multipurpose Solenoid Air Valve

the supply air connection is closed and the N.O. port exhausts air from the control device. Reversed signals may be obtained by connecting the supply air to the N.O. port, using the N.C. port for exhaust.

(Continued on Page 4)

Specifications

Product		V-2410 Three-Way Multipurpose Solenoid Air Valve	
Models		See Table 1	
Air Connections	Conduit Housing Style Models	N.O.	1/8 in. NPT
		N.C. & COM.	1/8 in. NPT Barbed Fittings for 5/32 or 1/4 in. O.D. Poly tubing
	Yoke Style Models	N.O., N.C., & COM.	1/8 in. NPT
Output Flow Capacity		See Table 2	
Operating Pressure		0 to 30 PSIG (0 to 210 kPa) Maximum	
Power Consumption		See Table 1	
Volt-Ampere Ratings		See Table 3	
Leakage	Internal	None	
	External	Maximum 0.1 SCIM (0.03 mL/s) per Fitting Used	
Ambient Operating Temp Limits		32 to 130°F (0 to 54°C)	
Materials		Solid Brass Body	
Wiring (Conduit Housing Style Models Only)		Three 18 AWG Thermoplastic Wires, 18 in. (457 mm) Long	
Agency Listings	Conduit Housing Style Models	UL and CSA Approved	
	Yoke Style Models	UL and CSA Component Listed	

The performance specifications are nominal and conform to acceptable industry standards. For application at conditions beyond these specifications, consult the local Johnson Controls office. Johnson Controls, Inc. shall not be liable for damages resulting from misapplication or misuse of its products.

Table 1: Models

V-2410 -Suffix	Style	Electrical Rating	Electrical Termination	Nominal Power Consumption*	Shipping Weight lb**
-1	Conduit Housing	24V/50-60 Hz	Thermoplastic Leads	6.5 Watts	0.9
-2	Conduit Housing	120V/50-60 Hz	Thermoplastic Leads	6.5 Watts	0.9
-3	Conduit Housing	208V/50-60 Hz	Thermoplastic Leads	6.5 Watts	0.9
-4	Conduit Housing	240V/50-60 Hz	Thermoplastic Leads	6.5 Watts	0.9
-5	Conduit Housing	277V/50-60 Hz	Thermoplastic Leads	6.5 Watts	0.9
-6	Conduit Housing	480V/50-60 Hz	Thermoplastic Leads	6.5 Watts	0.9
-7	Conduit Housing	24 VDC	Thermoplastic Leads	5.7 Watts	0.9
-8	Yoke	24V/50-60 Hz	Push-On Spade Terminal	8.0 Watts	0.8
-9	Yoke	120V/50-60 Hz	Push-On Spade Terminal	8.0 Watts	0.8

* Refer to Table 3 for transformer sizing.

** lb x 0.454 = kg

**Table 2: Output Flow Capacity ^{SCIM}
mL/s**

Air Connections	20 PSIG (140 kPa) Supply, 1 PSIG (7 kPa) Drop		20 PSIG (140 kPa) Supply, 20 PSIG (140 kPa) Drop	
	N.O.	N.C.	N.O.	N.C.
Barbed Fittings for 5/32 or 1/4 in. O.D. Polytubing (Included with Conduit Housing Style Models)	700 191	750 205	1900 519	2100 573
Barbed Fittings or Compression Fittings for 1/4 in. O.D. Tubing	1000 273	1400 382	2650 723	4200 1147

Table 3: Volt-Ampere Ratings

V-2410 - Suffix	50 Hz		60 Hz	
	Inrush	Holding	Inrush	Holding
-1	20 VA	15 VA	18 VA	11 VA
-2	20 VA	15 VA	18 VA	11 VA
-3	20 VA	15 VA	18 VA	11 VA
-4	20 VA	15 VA	18 VA	11 VA
-5	20 VA	15 VA	18 VA	11 VA
-6	20 VA	15 VA	18 VA	11 VA
-7	20 VA	15 VA	18 VA	11 VA
-8	24 VA	17 VA	19 VA	13 VA
-9	24 VA	17 VA	19 VA	13 VA

Caution: The V-2410 is basically an inductive device in an electrical circuit. When switching an inductive load, it may be necessary to provide transient suppression, depending on the circuitry and switching devices involved.

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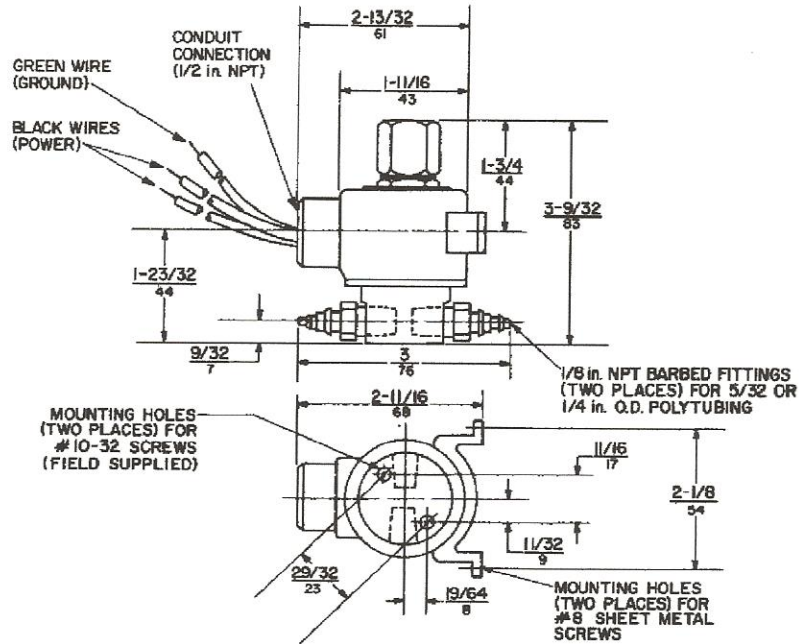


Fig. 3: Conduit Housing Style V-2410
Dimensions $\frac{\text{in.}}{\text{mm}}$

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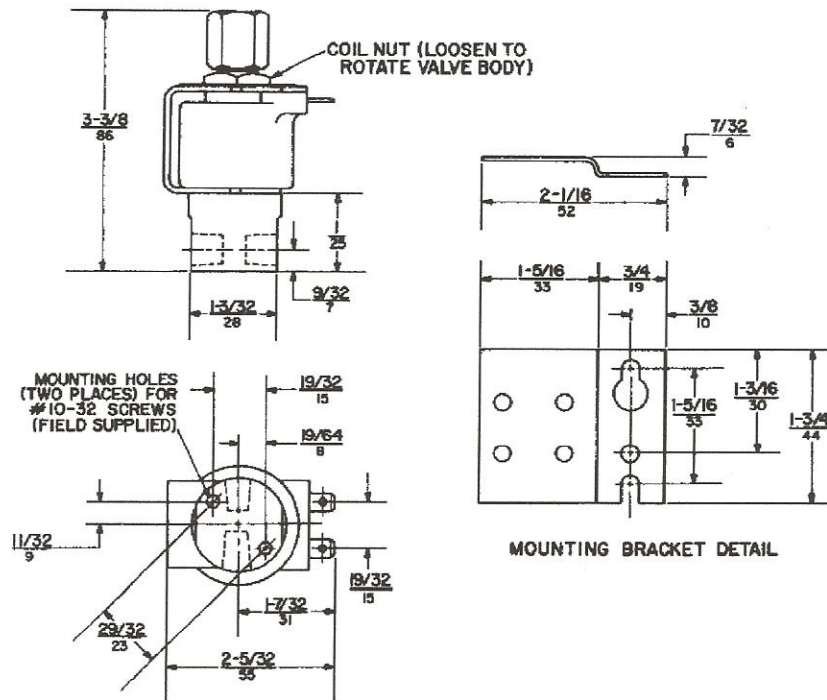


Fig. 4: Yoke Style V-2410
Dimensions $\frac{\text{in.}}{\text{mm}}$

Mounting

The V-2410 can be mounted in a variety of ways depending on the model ordered. All models feature two mounting holes on the bottom of the unit for surface mounting using two #10-32 screws (field supplied).

In addition, the V-2410-1, -2, -3, -4, -5, -6, and -7 feature an integral bracket for wall or panel mounting using two #8 screws (field supplied). These models also feature a conduit connection should the application require it.

▲ CAUTION: All conduit housing style V-2410s are furnished with a ground wire; however, if this style of solenoid is to be grounded via the conduit, make sure that metallic conduit is used to conform with electrical code requirements.

The V-2410-8 and V-2410-9 (yoke style models featuring push-on spade terminals) are

shipped with a separate mounting bracket which can be attached to the valve base using the two furnished #10-32 screws. The valve and bracket assembly can then be mounted to the surface using two #10 screws (field supplied).

Regardless of the mounting method chosen, all models can be installed in any position without affecting the operation of the unit. Refer to Figs. 3 and 4 for space requirements and additional mounting details.

▲ CAUTION: Where system closure, improper flow, or loss of pressure due to valve failure can result in personal injury and/or loss of property, it is recommended that additional devices be added to indicate proper system operation (for example, blade position indication on damper blades in smoke control applications).

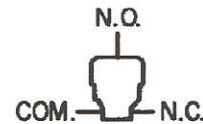
When the V-2410 is used in smoke control applications, it is recommended that the solenoid be mounted in an upright position as close to the actuator as possible to provide quick response.

Repair Information

Field repairs must not be made. For a replacement V-2410, contact the nearest Johnson Controls branch office.

Application and Drawing Identification

E/PV-



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