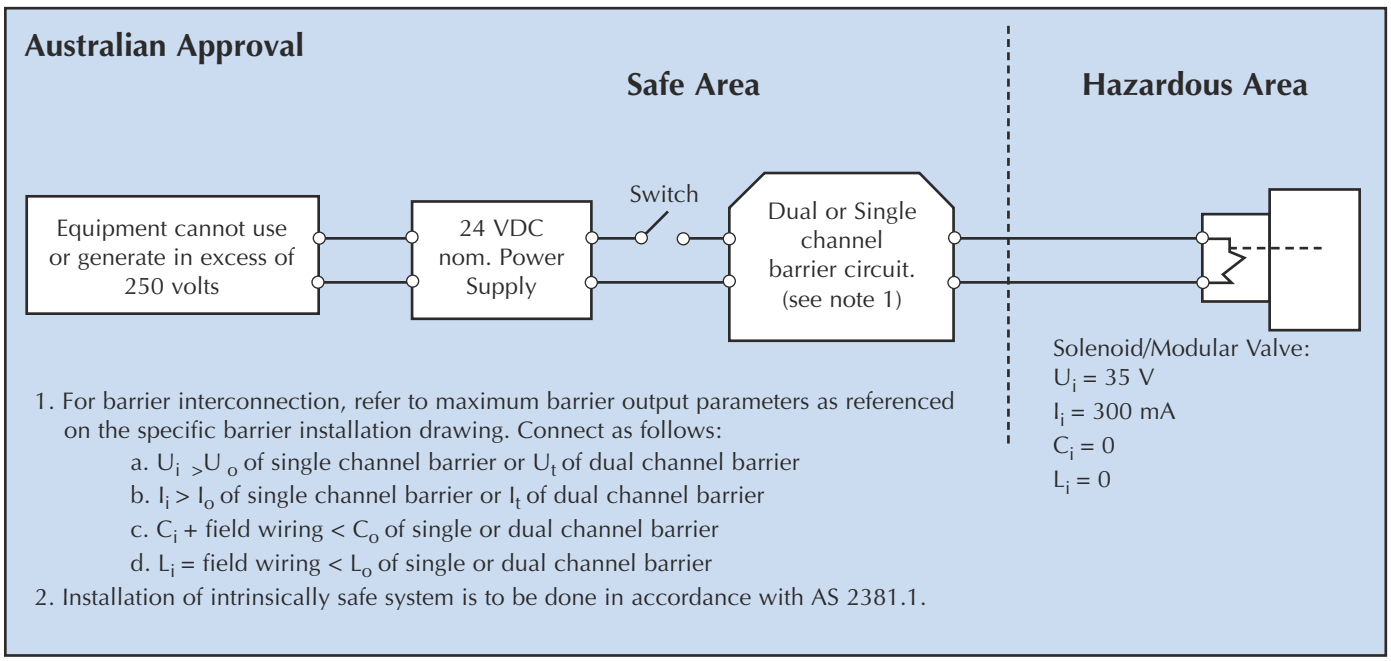


Increase Flow

High Flow Valves Models 2020 and 2021 high flow valves are piloted 3-way valves that work with EI/EIO intrinsically safe valves as well as EV/ET 3-way valves. They are designed to be mounted on EI/EIO manifold valves. Outputs from the EI/EIO will actuate the valve and produce outputs up to 22 scfm at 100 psig. Piloted 3-way valves are also available as R-481 and R-482.

EVB Booster Valve Clippard EVB-3 booster valve mates with manifold mounted EI/EIO valves and manifolds to provide increased flow. Direct piloting from Clippard EI/EIO valves provides a flow of up to 6.1 scfm at 100 psig.

Solenoid/Modular Valve:
(Electrical Parameters)
U_{max} = 28 V
I_{max} = 93.3 mA
P_{max} = 0.653 W
C_{eq} = 1.0 pF (opened circuit)
L_{eq} = 157 H/Ω

What is Intrinsic Safety?

An intrinsically safe system is one in which all electrical devices and their associated circuits are designed such that they can neither arc nor spark with sufficient energy to ignite the hazardous substances around which they are being used. Put another way, the energy stored from the inductance of the circuit components must be unable to generate a spark or arc at the circuits open point during current circulation that is capable of igniting the hazardous materials present when they are in a fuel/air mixture that is most favorable for ignition.

What is Entity approval?

According to INTRINSIC SAFETY standards, there is no requirement for authorized laboratory certification of system-wide intrinsic safety if the designer can determine, with certainty, that the physical and electrical parameters of every system component has been met sufficient to ensure that system-wide intrinsic safety has been maintained.
An "Entity Approval" is documentation stating that a device is intrinsically safe in specified hazardous atmospheres if the stated physical and electrical conditions contained in the approval are met. By meeting the requirements of "Entity Approvals" on all components of a system, the designer can more easily document that system-wide intrinsic safety has been maintained.

The Clippard EI-EIO series valves hold the Entity Approvals listed and supporting documentation is available to our customers.

EI Intrinsically Safe Normally Closed Valves

EI-❑❑-15.5-❑

Standard Mount Manifold Mount

Type: 2-way or 3-way poppet, Normally Closed

Medium: air (40 micron filtration)

Temperature Range: 30° - 180°F

Input Pressure: 28 Hg. Vac to 105 psig
28 Hg. Vac to 50 psig (L)
28 Hg. Vac to 25 psig (H)

Air Flow: @100 psig - 0.6 SCFM
@50 psig (L) - 0.5 SCFM
@25 psig (H) - 0.45 SCFM

Voltages: 15.5 VDC

Power Consumption: 0.66 watt at rated voltage

Response: @100 psig - 5 - 10 ms

Ports: Inlet - 10-32, Outlet - 10-32 - on std.

EI-❑❑-15.5-❑C

Standard Mount Manifold Mount

Type: 2-way or 3-way poppet, Normally Closed

Medium: air (40 micron filtration)

Temperature Range: 30° - 180°F

Input Pressure: 28 Hg. Vac to 105 psig
28 Hg. Vac to 50 psig (L)
28 Hg. Vac to 25 psig (H)

Air Flow: @100 psig - 0.6 SCFM
@50 psig (L) - 0.5 SCFM
@25 psig (H) - 0.45 SCFM

Voltages: 15.5 VDC

Power Consumption: 0.65 watt at rated voltage

Response: @100 psig - 5 - 10 ms

Ports: Inlet - 10-32, Outlet - 10-32 - on std.

EI-❑❑-15.5-❑CP

Standard Mount Manifold Mount

Type: 2-way or 3-way poppet, Normally Closed

Medium: air (40 micron filtration)

Temperature Range: 30° - 180°F

Input Pressure: 28 Hg. Vac to 105 psig
28 Hg. Vac to 50 psig (L)
28 Hg. Vac to 25 psig (H)

Air Flow: @100 psig - 0.6 SCFM
@50 psig (L) - 0.5 SCFM
@25 psig (H) - 0.45 SCFM

Voltages: 15.5 VDC

Power Consumption: 0.65 watt at rated voltage

Response: @100 psig - 5 - 10 ms

Ports: Inlet - 10-32, Outlet - 10-32 - on std.

EIO-❑❑-15.5-❑

Standard Mount

Manifold Mount

Type: 2-way or 3-way poppet, Fully Ported

Medium: air (40 micron filtration)

Temperature Range: 30˚ - 180˚F

Input Pressure: 28 Hg. Vac to 105 psig
28 Hg. Vac to 50 psig (L)
28 Hg. Vac to 25 psig (H)

Air Flow: @100 psig - 0.6 SCFM
@50 psig (L) - 0.5 SCFM
@25 psig (H) - 0.45 SCFM

Voltages: 15.5 VDC

Power Consumption: 0.65 watt at rated voltage

Response: @100 psig - 5 - 10 ms

Ports: Inlet - 10-32, Outlet - 10-32 - on std.

EIO-❑❑-15.5-❑C

Standard Mount

Manifold Mount

Type: 2-way or 3-way poppet, Fully Ported

Medium: air (40 micron filtration)

Temperature Range: 30˚ - 180˚F

Input Pressure: 28 Hg. Vac to 105 psig
28 Hg. Vac to 50 psig (L)
28 Hg. Vac to 25 psig (H)

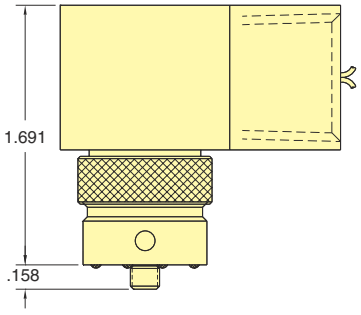
Air Flow: @100 psig - 0.6 SCFM
@50 psig (L) - 0.5 SCFM
@25 psig (H) - 0.45 SCFM

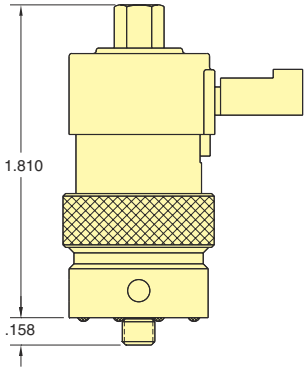
Voltages: 15.5 VDC

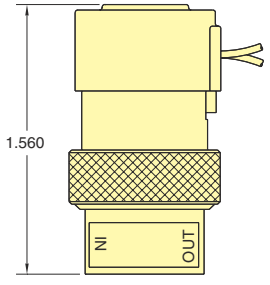
Power Consumption: 0.65 watt at rated voltage

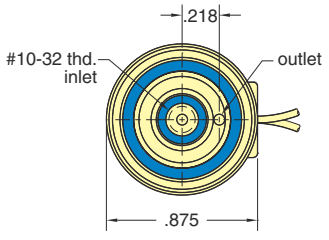
Response: @100 psig - 5 - 10 ms

Ports: Inlet - 10-32, Outlet - 10-32 - on std.









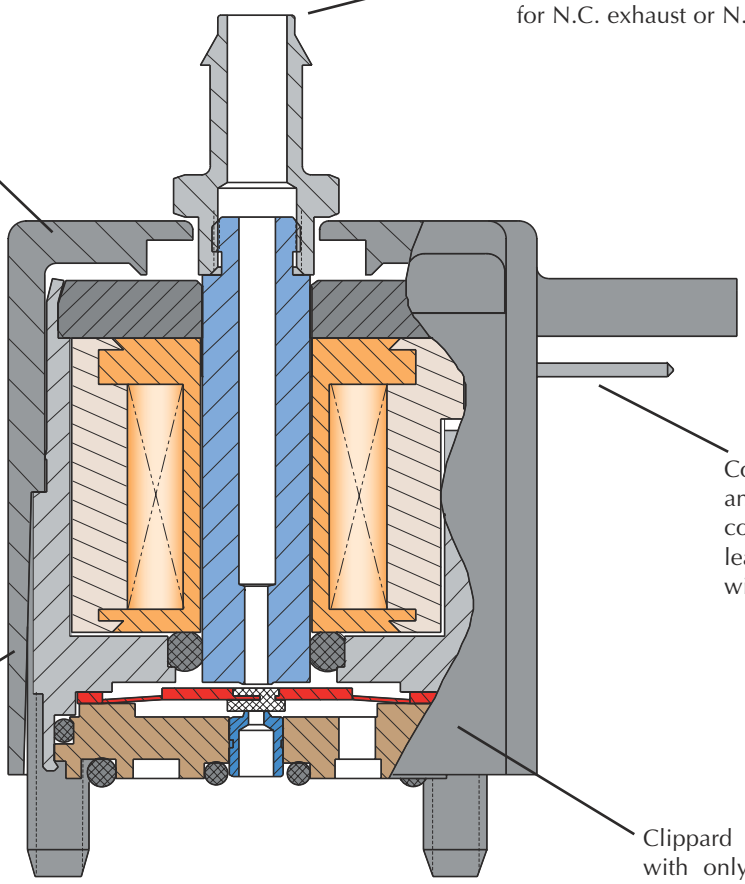
NOTES

ES, ESO Series Compact Valves

Valves are small in size with a variety of coil voltages and flow options. Mounting is as close as 7/8″ on center.

ESO and similar styles have top hose barb or 10-32 threaded fitting for N.C. exhaust or N.O. inlet.

Housing is molded Zytel ST 801 for toughness and rigidity.



Coils are available with an AMP# 103959-2 pin connection or 18″ wire leads which utilize #26 wire.

Valves feature low power, cool running, quiet operation and fast response time. They convert low voltage, low current signals into high pressure pneumatic outputs.

Clippard ES valves are unique, with only one internal moving part that travels a mere .007 inches.

ES, ESO Series Valves

NUMBERING SYSTEMS

E S ❑ - ❑ ❑ - ❑ - ❑ ❑

- Valve Type: **2** - 2 Way; **3** - 3 Way
- Options (ESO only): **Blank** - 10-32 Female; **1** - 1/16″ I.D. Hose Barb; **2** - 1/8″ I.D. Hose Barb
- Porting: **Blank** - Normally CLOSED; **O** - Normally Open or Captivated Exhaust
- Coil Connections: **S** - Side Pin; **T** - Top Pin; **W** - Wires; **B** - Board Mount
- Voltage: **6** - Volts; **12** - Volts; **24** - Volts
- Orifice Options: **Blank** - .025 Dia. Orifice (105 psig); **L** - .040 Dia Orifice (50 psig); **H** - .060 Dia Orifice (25 psig)

Quality Design

The compact ES valve, like Clippard EV and ET valves, converts low voltage, low current signals into high pressure (0-105 psig) pneumatic outputs, utilizing a unique, patented, valving principle. Since there are no sliding parts, and complete poppet travel is only .007″, low power consumption and exceptionally long life are assured with this design. No flow is required for cooling because the compact ES is cool, as well as quiet, in operation.

The compact nature of design makes this valve well suited to a wide range of applications in biomedical, environmental test equipment, textile machines, packaging machinery, computerized industrial automation, and portable systems.

Features

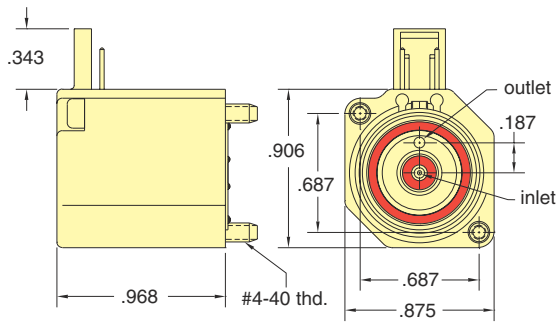
- Temperature Range: 30˚ - 180˚ F
- Close mounting - 7/8″ on center
- Overall height less than 1 inch
- Easy to mount
- Geometric design
- Polymer housing - Zytel ST 801® super tough
- Pin connectors - AMP # 103959-2 or 18″ wire leads: #26 wire
- Flow up to 0.6 scfm

Zytel ST 801® super tough is a registered trademark of DuPont

NOMINAL			Watts	Working Range (cont. duty)
Voltage	Amps	Resistance		
6	.17	36	1.0	90% - 150% of rated voltage
12	.083	144	1.0	
24	.042	576	1.0	

ES-2S - ❑

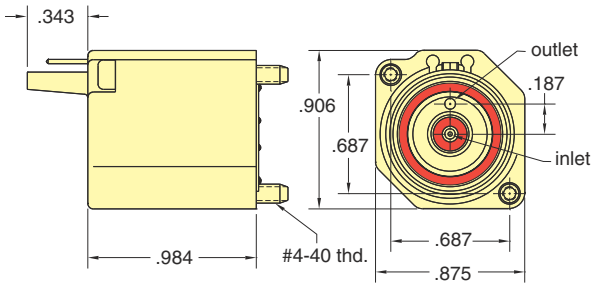
Normally closed 2-way electronic valve with side pin connectors



Type: Normally closed 2-way poppet
Medium: air (40 micron filtration)
Input Pressure: 28″ Hg Vac. to 105 psig
28″ Hg Vac. to 50 psig (L)
25″ Hg Vac. to 50 psig (H)
Air Flow: 0.6 scfm @ 100 psig
0.5 scfm @ 50 psig (L)
0.45 scfm @ 25 psig (H)
Voltages: 6, 12, or 24 VDC
Power Consumption: 1 watt at rated voltage
Response: 5-10 ms at max rated pressure
Mounting: Onto manifold with two #4-40 screws
Ports: Inlet and outlet, 10-32 through manifold

ES-2T - ❑

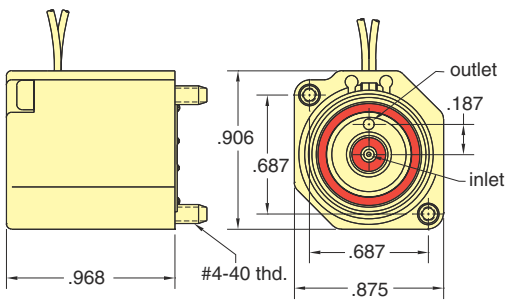
Normally closed 2-way electronic valve with top pin connectors



Type: Normally closed 2-way poppet
Medium: air (40 micron filtration)
Input Pressure: 28″ Hg Vac. to 105 psig
28″ Hg Vac. to 50 psig (L)
25″ Hg Vac. to 50 psig (H)
Air Flow: 0.6 scfm @ 100 psig
0.5 scfm @ 50 psig (L)
0.45 scfm @ 25 psig (H)
Voltages: 6, 12, or 24 VDC
Power Consumption: 1 watt at rated voltage
Response: 5-10 ms at max rated pressure
Mounting: Onto manifold with two #4-40 screws
Ports: Inlet and outlet, 10-32 through manifold

ES-2W - ❑

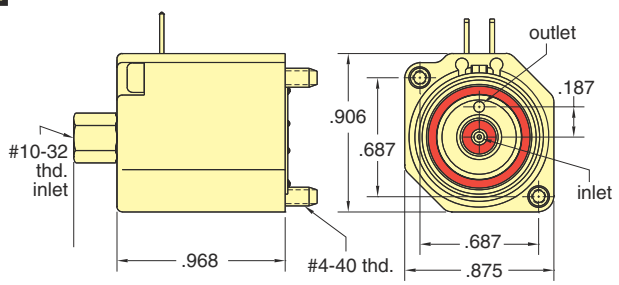
Normally closed 2-way electronic valve with wire leads



Type: Normally closed 2-way poppet
Medium: air (40 micron filtration)
Input Pressure: 28″ Hg Vac. to 105 psig
28″ Hg Vac. to 50 psig (L)
25″ Hg Vac. to 50 psig (H)
Air Flow: 0.6 scfm @ 100 psig
0.5 scfm @ 50 psig (L)
0.45 scfm @ 25 psig (H)
Voltages: 6, 12, or 24 VDC
Power Consumption: 1 watt at rated voltage
Response: 5-10 ms at max rated pressure
Mounting: Onto manifold with two #4-40 screws
Ports: Inlet and outlet, 10-32 through manifold

ES-2B - ❑

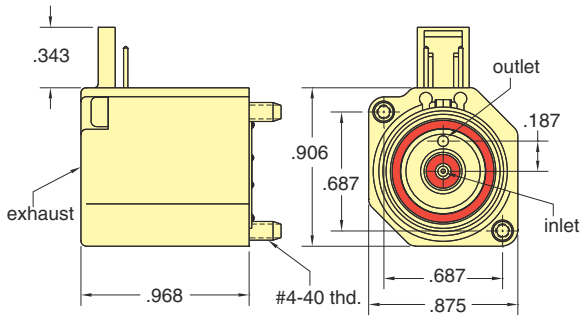
Normally closed 2-way electronic valve with board mount



Type: Normally closed 2-way poppet
Medium: air (40 micron filtration)
Input Pressure: 28″ Hg Vac. to 105 psig
28″ Hg Vac. to 50 psig (L)
25″ Hg Vac. to 50 psig (H)
Air Flow: 0.6 scfm @ 100 psig
0.5 scfm @ 50 psig (L)
0.45 scfm @ 25 psig (H)
Voltages: 6, 12, or 24 VDC
Power Consumption: 1 watt at rated voltage
Response: 5-10 ms at max rated pressure
Mounting: Onto manifold with two #4-40 screws
Ports: Inlet and outlet, 10-32 through manifold

ES-3S - ❑

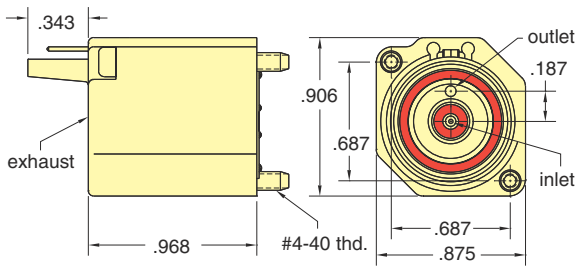
Normally closed 3-way electronic valve with side pin connector



Type: Normally closed 3-way poppet
Medium: air (40 micron filtration)
Input Pressure: 28″ Hg Vac. to 105 psig
28″ Hg Vac. to 50 psig (L)
25″ Hg Vac. to 50 psig (H)
Air Flow: 0.6 scfm @ 100 psig
0.5 scfm @ 50 psig (L)
0.45 scfm @ 25 psig (H))
Voltages: 6, 12, or 24 VDC
Power Consumption: 1 watt at rated voltage
Response: 5-10 ms at max rated pressure
Mounting: Onto manifold with two #4-40 screws
Ports: Inlet and outlet, 10-32 through manifold; 3-way exhaust through top of valve

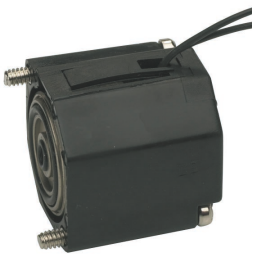
ES-3T - ❑

Normally closed 3-way electronic valve with top pin connector

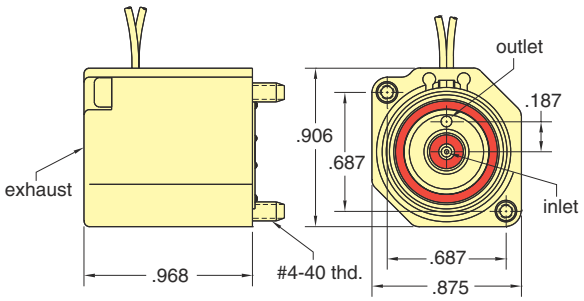


Type: Normally closed 3-way poppet
Medium: air (40 micron filtration)
Input Pressure: 28″ Hg Vac. to 105 psig
28″ Hg Vac. to 50 psig (L)
25″ Hg Vac. to 50 psig (H)
Air Flow: 0.6 scfm @ 100 psig
0.5 scfm @ 50 psig (L)
0.45 scfm @ 25 psig (H)
Voltages: 6, 12, or 24 VDC
Power Consumption: 1 watt at rated voltage
Response: 5-10 ms at max rated pressure
Mounting: Onto manifold with two #4-40 screws
Ports: Inlet and outlet, 10-32 through manifold; 3-way exhaust through top of valve

ES-3W - ❑



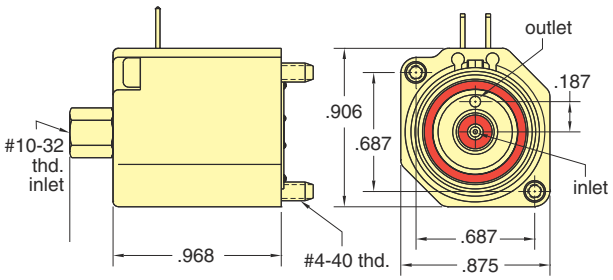
Normally closed 3-way electronic valve with wire leads



Type: Normally closed 3-way poppet
Medium: air (40 micron filtration)
Input Pressure: 28″ Hg Vac. to 105 psig
28″ Hg Vac. to 50 psig (L)
25″ Hg Vac. to 50 psig (H)
Air Flow: 0.6 scfm @ 100 psig
0.5 scfm @ 50 psig (L)
0.45 scfm @ 25 psig (H)
Voltages: 6, 12, or 24 VDC
Power Consumption: 1 watt at rated voltage
Response: 5-10 ms at max rated pressure
Mounting: Onto manifold with two #4-40 screws
Ports: Inlet and outlet, 10-32 through manifold; 3-way exhaust through top of valve

ES-3B - ❑

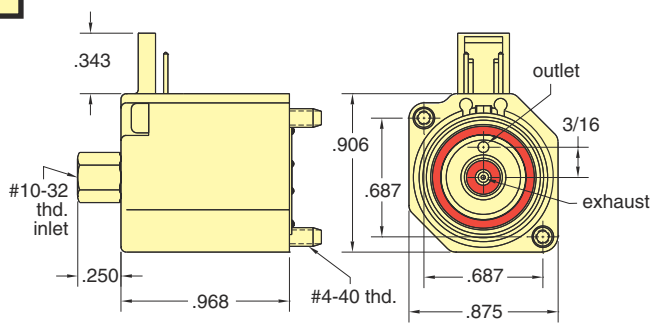
Normally closed 3-way electronic valve with board mount



Type: Normally closed 3-way poppet
Medium: air (40 micron filtration)
Input Pressure: 28″ Hg Vac. to 105 psig
28″ Hg Vac. to 50 psig (L)
25″ Hg Vac. to 50 psig (H)
Air Flow: 0.6 scfm @ 100 psig
0.5 scfm @ 50 psig (L)
0.45 scfm @ 25 psig (H)
Voltages: 6, 12, or 24 VDC
Power Consumption: 1 watt at rated voltage
Response: 5-10 ms at max rated pressure
Mounting: Onto manifold with two #4-40 screws
Ports: Inlet and outlet, 10-32 through manifold; 3-way exhaust through top of valve

ESO-3S- ❑

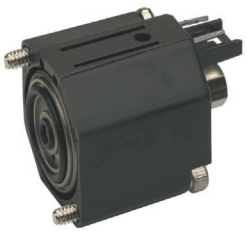
Fully ported 3-way electronic valve with side pin connector

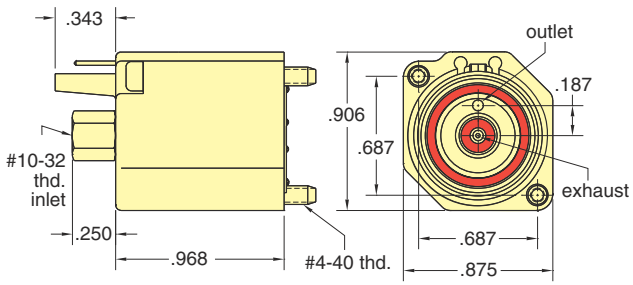


Type: Fully ported 3-way poppet
Medium: air (40 micron filtration)
Input Pressure: 28″ Hg Vac. to 105 psig
28″ Hg Vac. to 50 psig (L)
25″ Hg Vac. to 50 psig (H)
Air Flow: 0.6 scfm @ 100 psig
0.5 scfm @ 50 psig (L)
0.45 scfm @ 25 psig (H)
Voltages: 6, 12, or 24 VDC
Power Consumption: 1 watt at rated voltage
Response: 5-10 ms at max rated pressure
Mounting: Onto manifold with two #4-40 screws
Ports: Exhaust and outlet, 10-32 through manifold; 3-way supply through top of valve

ESO-3T- ❑

Fully ported 3-way electronic valve with top pin connector

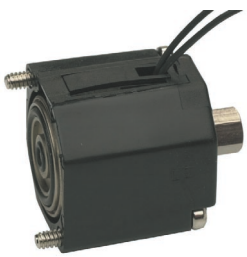


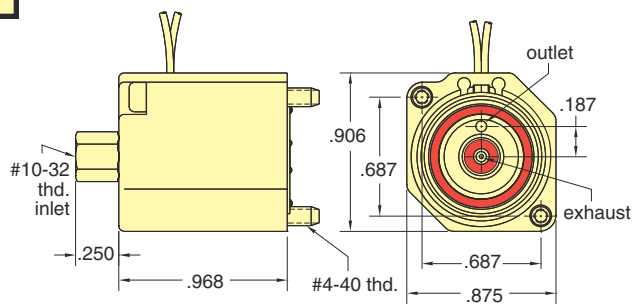


Type: Fully ported 3-way poppet
Medium: air (40 micron filtration)
Input Pressure: 28″ Hg Vac. to 105 psig
28″ Hg Vac. to 50 psig (L)
25″ Hg Vac. to 50 psig (H)
Air Flow: 0.6 scfm @ 100 psig
0.5 scfm @ 50 psig (L)
0.45 scfm @ 25 psig (H)
Voltages: 6, 12, or 24 VDC
Power Consumption: 1 watt at rated voltage
Response: 5-10 ms at max rated pressure
Mounting: Onto manifold with two #4-40 screws
Ports: Exhaust and outlet, 10-32 through manifold; 3-way supply through top of valve

ESO-3W- ❑

Fully ported 3-way electronic valve with wire leads

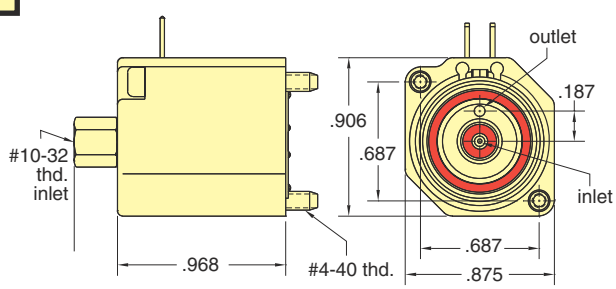




Type: Fully ported 3-way poppet
Medium: air (40 micron filtration)
Input Pressure: 28″ Hg Vac. to 105 psig
28″ Hg Vac. to 50 psig (L)
25″ Hg Vac. to 50 psig (H)
Air Flow: 0.6 scfm @ 100 psig
0.5 scfm @ 50 psig (L)
0.45 scfm @ 25 psig (H)
Voltages: 6, 12, or 24 VDC
Power Consumption: 1 watt at rated voltage
Response: 5-10 ms at max rated pressure
Mounting: Onto manifold with two #4-40 screws
Ports: Exhaust and outlet, 10-32 through manifold; 3-way supply through top of valve

ESO-3B- ❑

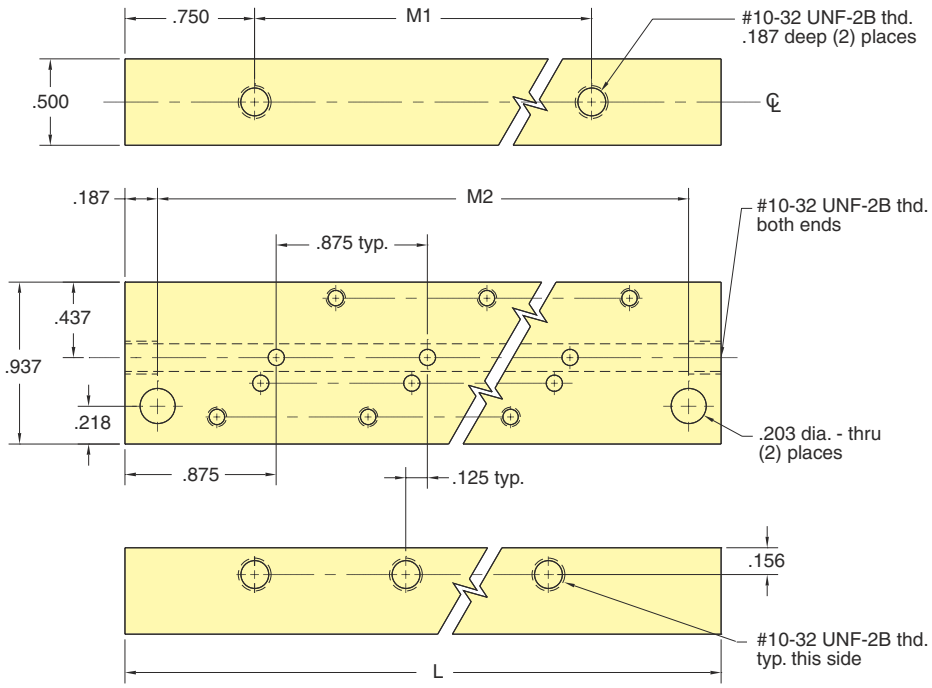
Normally open 3-way electronic valve with board mount



Type: Fully ported 3-way poppet
Medium: air (40 micron filtration)
Input Pressure: 28″ Hg Vac. to 105 psig
28″ Hg Vac. to 50 psig (L)
25″ Hg Vac. to 50 psig (H)
Air Flow: 0.6 scfm @ 100 psig
0.5 scfm @ 50 psig (L)
0.45 scfm @ 25 psig (H)
Voltages: 6, 12, or 24 VDC
Power Consumption: 1 watt at rated voltage
Response: 5-10 ms at max rated pressure
Mounting: Onto manifold with two #4-40 screws
Ports: Exhaust and outlet, 10-32 through manifold; 3-way supply through top of valve

26081-❑

Single sided dual mount

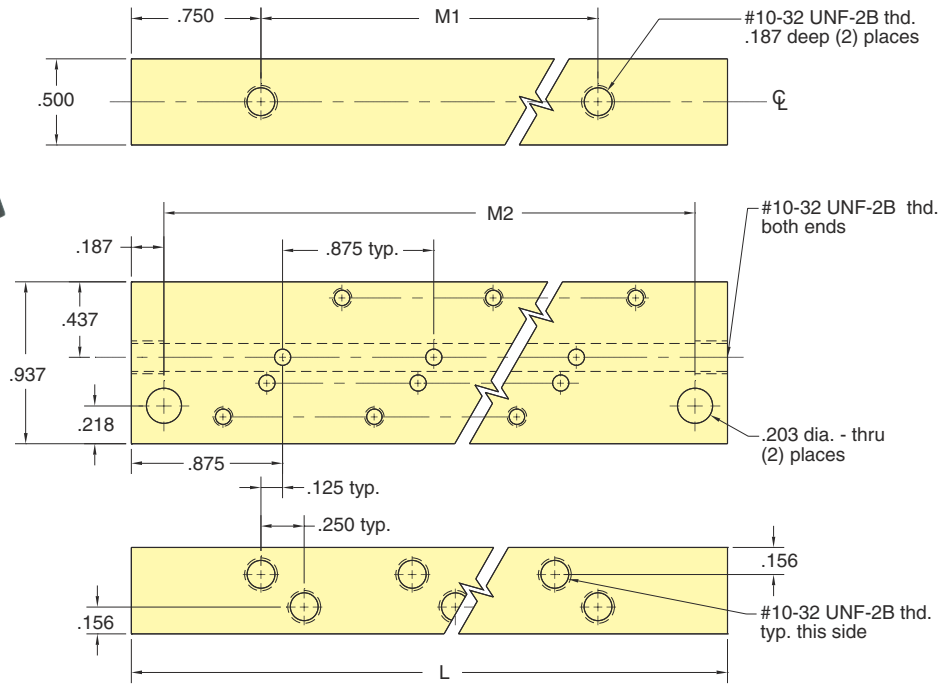


Dash	Valves	L(in.)	M1(in.)	M2(in.)
4	4	4.375	2.875	4.000
6	6	6.125	4.625	5.750
8	8	7.875	6.375	7.500

* ESM-CP plate is to cover individual unused manifold station.

26082-❑

Double sided dual mount

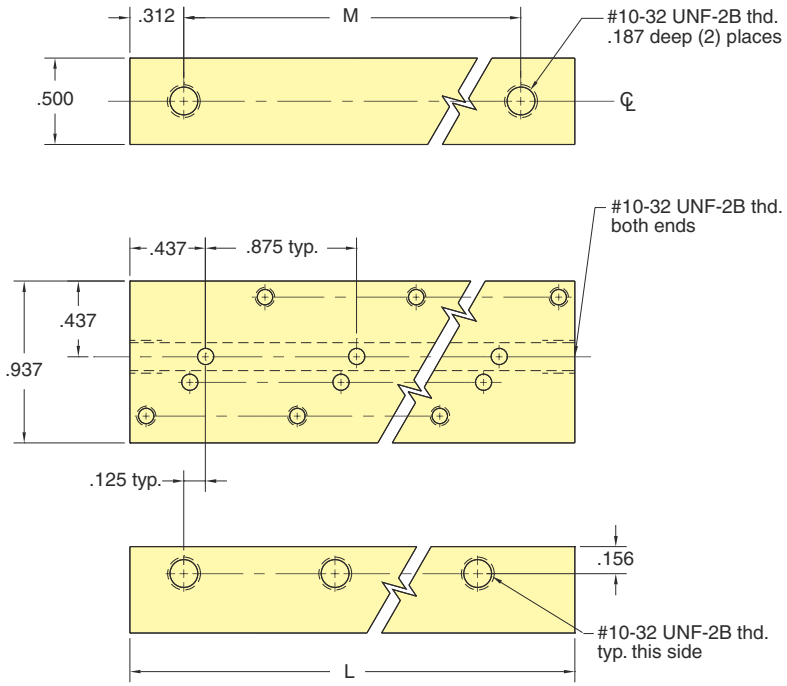


Dash	Valves	L(in.)	M1(in.)	M2(in.)
8	8	4.375	2.875	4.000
12	12	6.125	4.625	5.750
16	16	7.875	6.375	7.500

* ESM-CP cover plate is available for one manifold station.

26083-❑

Single sided rear mount

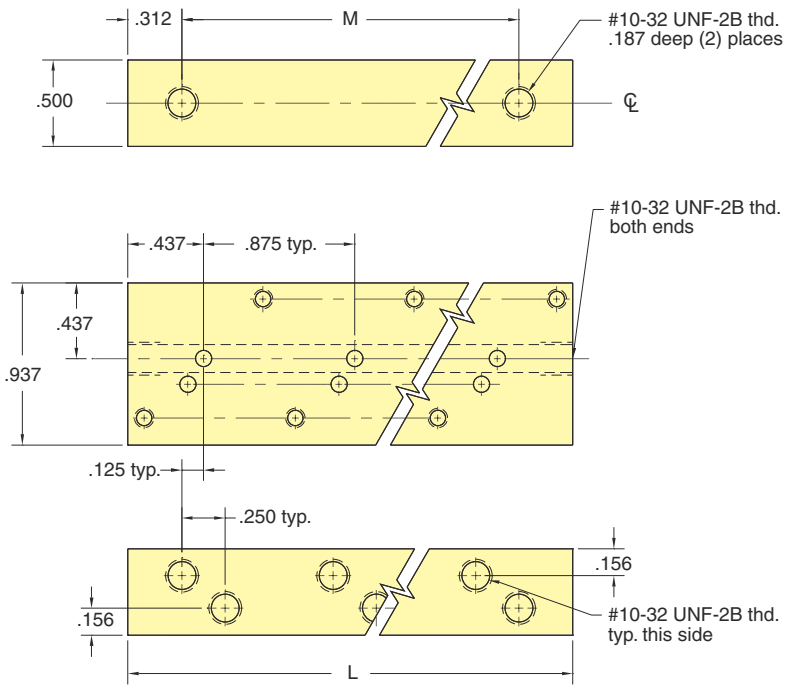


Dash	Valves	L(in.)	M1(in.)
4	4	3.500	2.875
6	6	5.250	4.625
8	8	7.000	6.375

* ESM-CP cover plate is available for one manifold station.

26084-❑

Double sided rear mount

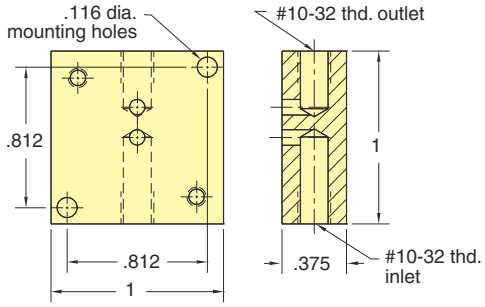


Dash	Valves	L(in.)	M1(in.)
8	8	3.500	2.875
12	12	5.250	4.625
16	16	7.000	6.375

* ESM-CP cover plate is available for one manifold station.

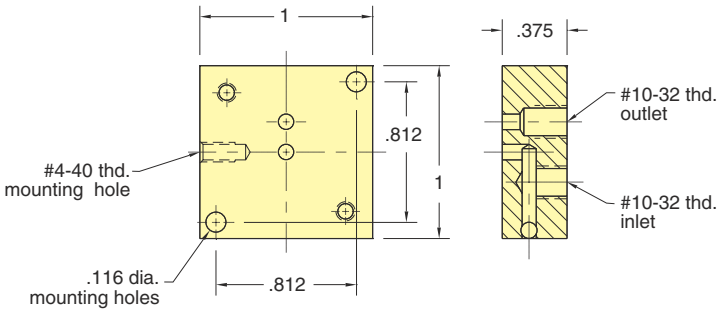
26090-1

Single station side port manifold



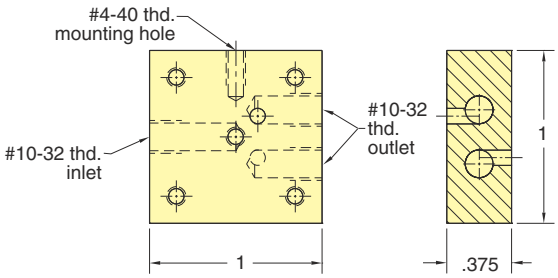
26090-2

Single station bottom port manifold



26090-3

Dual station manifold

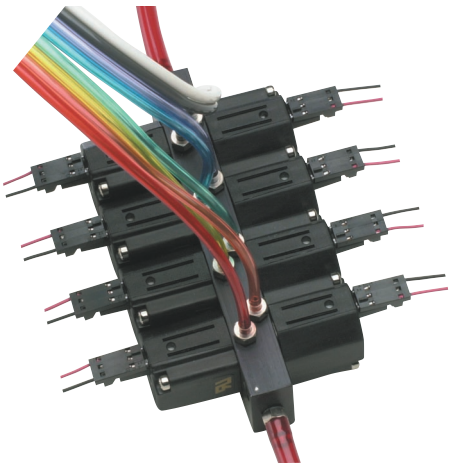


ES / ESO

The ES/ESO series valve was developed to fit into tighter physical envelopes. By reducing the size of the base as well as the size of the coil, a considerable volume savings was achieved.

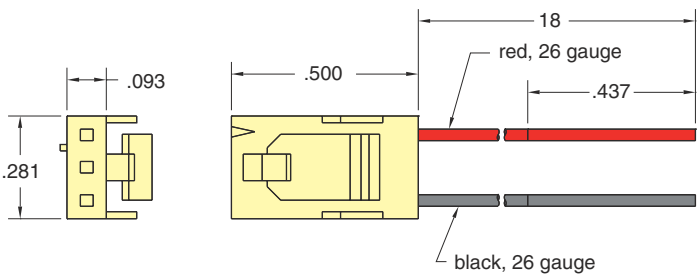
As in the case of the EI/EIO product, the ES/ESO uses the single moving part design proven many times in the EV/ET/EC series valves. Of course, given the reduced size of the coil the power to operate increases to 1 watt.

Because of its reliability, the ES/ESO series valve is found in many of the same applications and industries as its predecessor, the EV/ET, EC. However, the smaller size finds it used more commonly in portable or mobile equipment. This makes the valve particularly applicable in home healthcare applications.



C3-RXB18

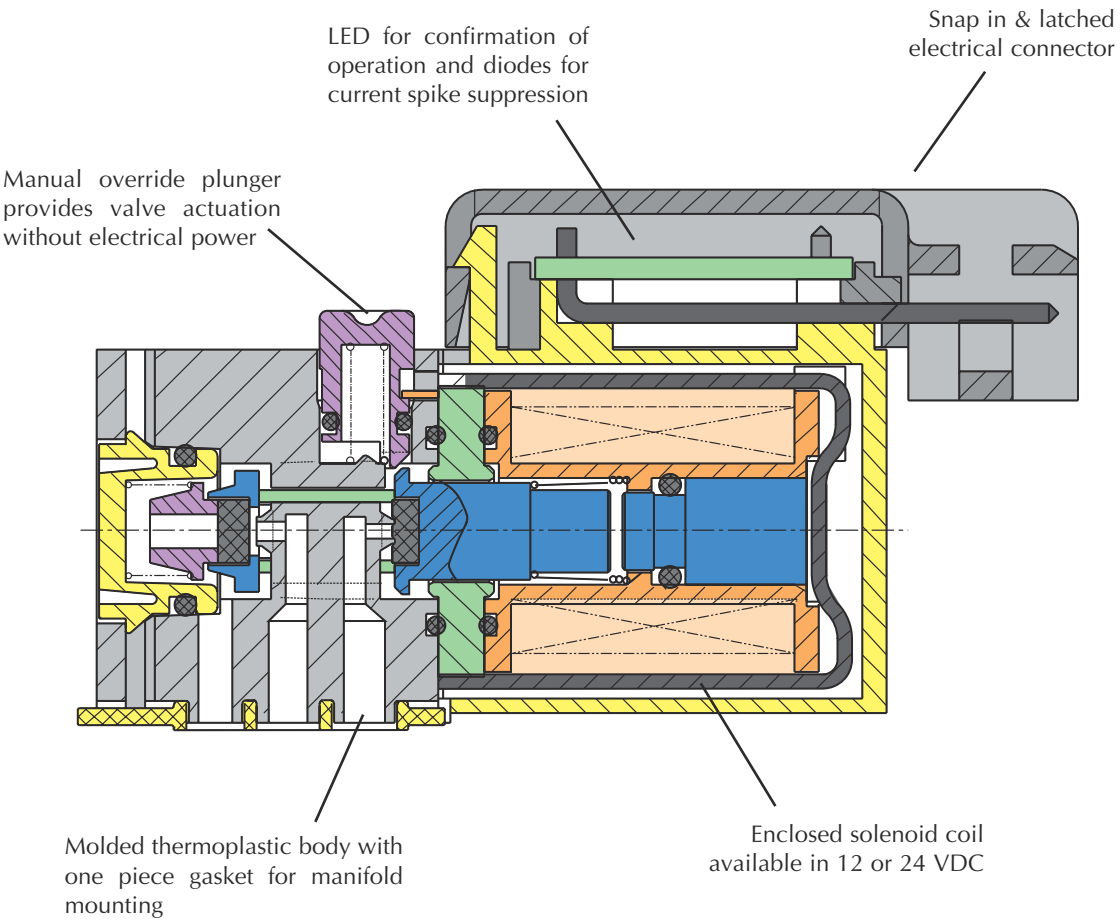
AMP connector #103960-2 with 18″ wire leads for ES/ESO valves



Lead Set Chart For ES Valve						
Part No.	Used On	Wire Colors			Lead Length	Wire gage
		pin 1	pin 2	pin 3		
C3-RXB18	ES	red	~	black	18″	#26

NOTES

EE3 Series Subminiature Valves

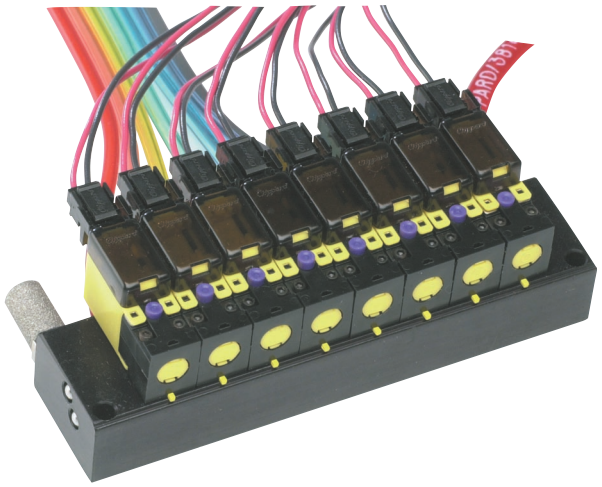


EE3 Series Sub-Miniature Valves

VALVE NUMBERING SYSTEM

E E 3 ❑ - T ❑ - ❑ ❑ - ❑

- Valve Type: **3** - 3 Way (N.C.)
- Electrical Options: **L** - LED & Diodes; **O** - None
- Product Type: **EE** - Double E Valve
- **Blank** - Normally Closed; **O** - Normally Open
- Coil Connection: **T** - Plug
- Voltage: **12** VDC; **24** VDC
- Orifice Options: **Blank** - Standard Flow; **H** - High Flow



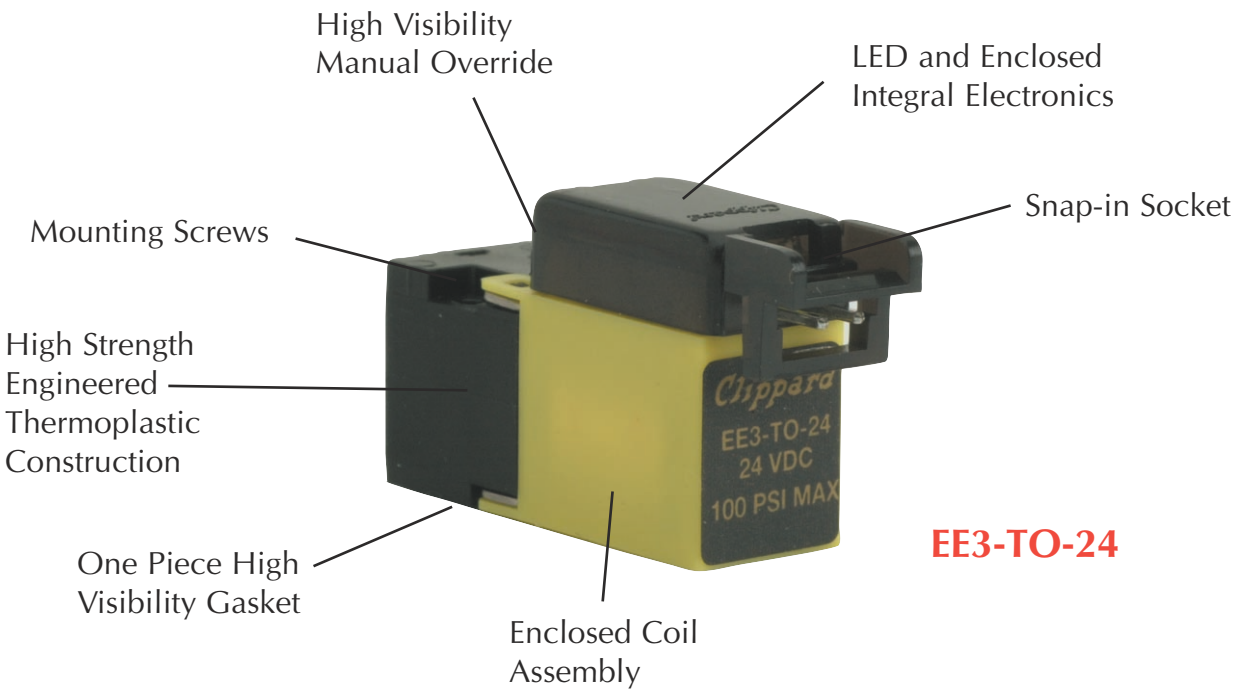
All the benefits of Clippard quality and reliability are available in our Double E-3 normally closed 3-way valve, an American made 10 mm subminiature electronic valve. A normally open model is also available.

The Double E-3 has a high strength, lightweight engineered thermoplastic body, making it suitable for a wide range of applications. Since it has few moving parts, the Double E-3 is subject to less wear, and has a longer life.

Double E-3 Valves are available factory assembled on manifolds

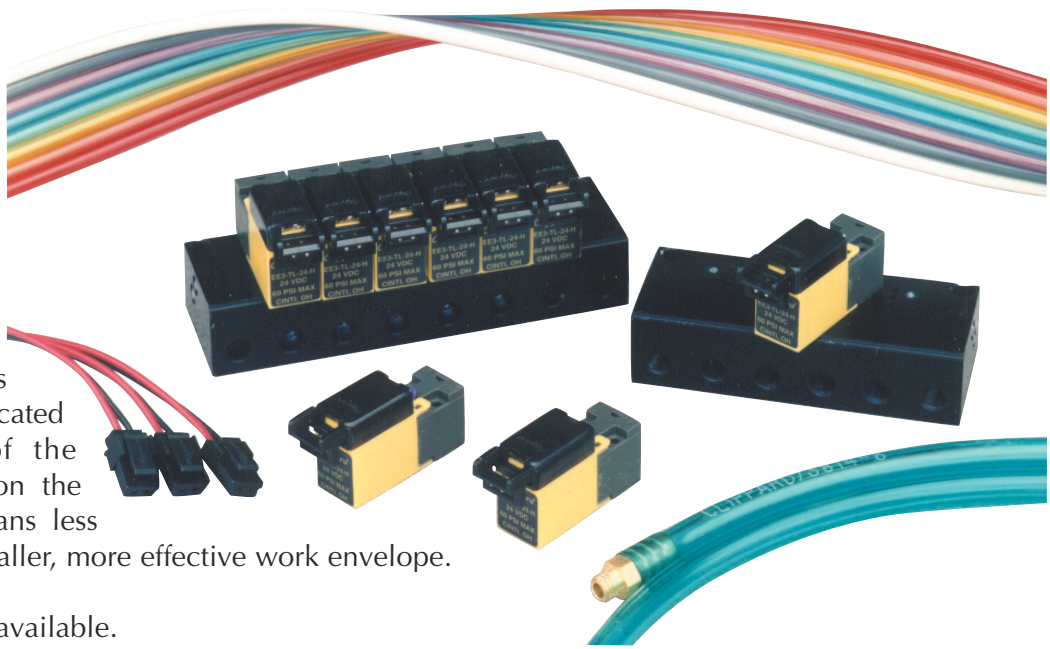
Features

- Made in USA
- Miniature size
- 12 and 24 VDC
- Direct acting
- Fast response
- Few moving parts
- High flow/low power
- Made of high strength engineered thermoplastic
- Manifold mount
- LED for confirmation of operation
- Spike suppression diodes
- High visibility manual override
- Universal orientation
- Enclosed integral electronics
- One-piece gasket eases installation
- Short stroke, low mass poppet
- Corrosion resistant molded body
- Electrical plug snaps in - clip latched



EE3-TO-24

Unique Porting Method



Unlike other valves, Double E-3 supply ports and exhaust ports are located on the output side of the manifold, rather than on the manifold ends. This means less space required, and a smaller, more effective work envelope.

Other configurations are available.

Double E-3 valves are available factory assembled on manifolds.

EE3-T❑-❑

Double-E 3-way valve
normally closed

Response: 10 milliseconds

Manual Override: High visibility momentary push button

Material: Wetted parts are acetal, nylon, nickel plated steel, stainless steel, and Buna-N

Temperature Range: 30˚ - 180˚ F

Electrical Connection: Custom plug with 12″ long #22 AWG, 19 strand, 105˚C PVC insulation lead wires

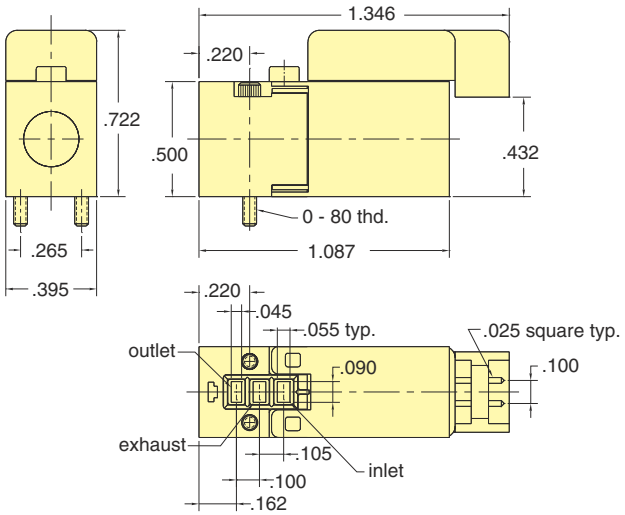
Power Consumption:
1.4 watts (with LED and diodes)
1.1 watts (24 VDC coil only)

Medium: air, gas

Pressure: Standard: 0-100 PSI
High Flow: 0-60 PSI

Air Flow: Standard: 30 scfh @ 100 PSI
High Flow: 30 scfh @ 60 PSI

Electrical: 12 VDC or 24 VDC - Allowable variation ± 10%
LED and spike suppression diodes standard (No LED and diodes option available)



EE30-T❑-❑

Double-E 3-way valve
normally open

Response: 10 milliseconds

Manual Override: High visibility momentary push button

Material: Wetted parts are acetal, nylon, nickel plated steel, stainless steel, and Buna-N

Temperature Range: 30˚ - 180˚ F

Electrical Connection: Custom plug with 12″ long #22 AWG, 19 strand, 105˚C PVC insulation lead wires

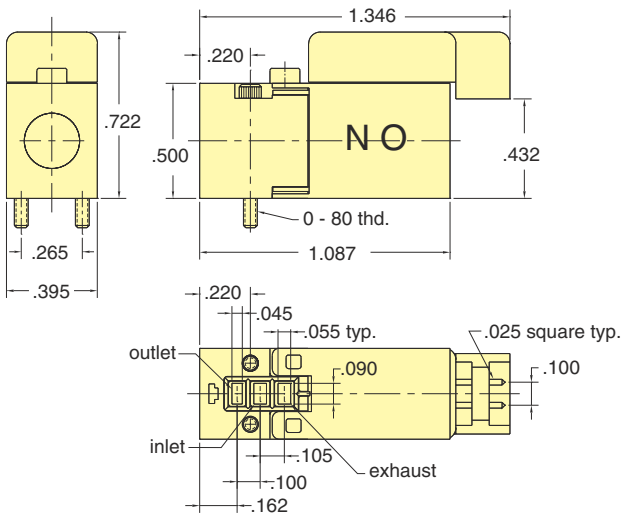
Power Consumption:
1.4 watts (with LED and diodes)
1.1 watts (24 VDC coil only)

Medium: air, gas

Pressure: Standard: 0-100 PSI
High Flow: 0-60 PSI

Air Flow: Standard: 30 scfh @ 100 PSI
High Flow: 30 scfh @ 60 PSI

Electrical: 12 VDC or 24 VDC - Allowable variation ± 10%
LED and spike suppression diodes standard (No LED and diodes option available)



MANIFOLD NUMBERING SYSTEM

Valve Type
3 - 3 Way

E E 3 M - ❑ ❑ - ❑ ❑

Port Size
Blank - 10-32
M5 - M5 Thread

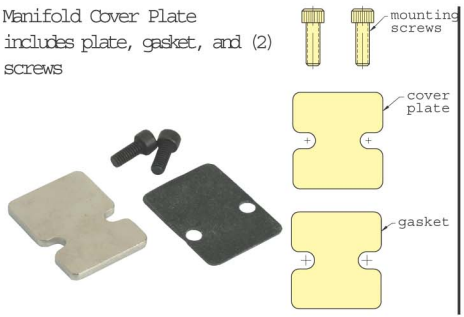
Product Type
EE - Double E Valve

Mounting Style
M - Manifold Mount

Number of Stations
1A - Single Station Specialty
1 - One Station
2 - Two Station
4 - Four Station
6 - Six Station
8 - Eight Station
10 - Ten Station
12 - Twelve Station

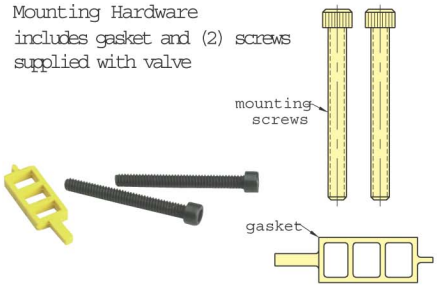
EE3M-CP

Manifold Cover Plate
includes plate, gasket, and (2) screws



EE3M-MH

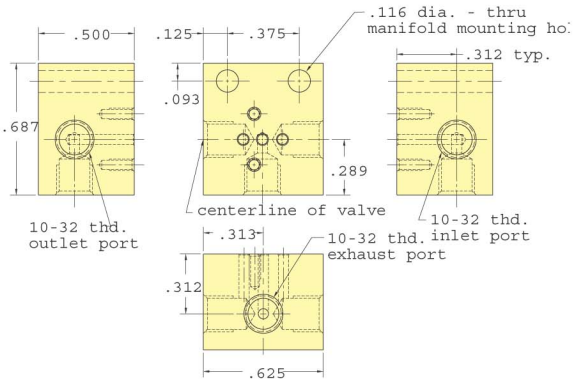
Mounting Hardware
includes gasket and (2) screws supplied with valve



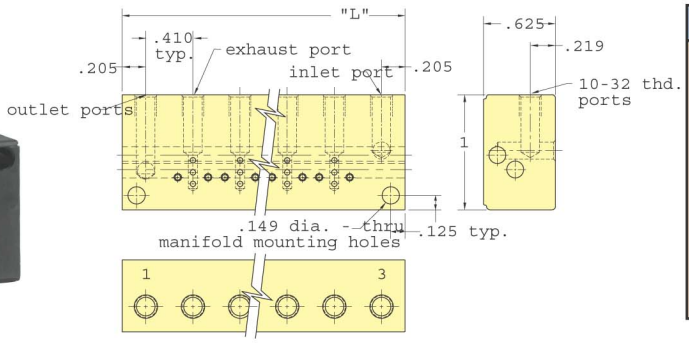
C2A-RB12

W ire Connector
includes connector with 12" wire leads supplied with valve

EE3M-1A



EE3M-❑ ❑



Dash #	Station	"L"
-01	1	1.230
-02	2	1.640
-04	4	2.460
-06	6	3.280
-08	8	4.100
-10	10	4.920
-12	12	5.740

NOTES

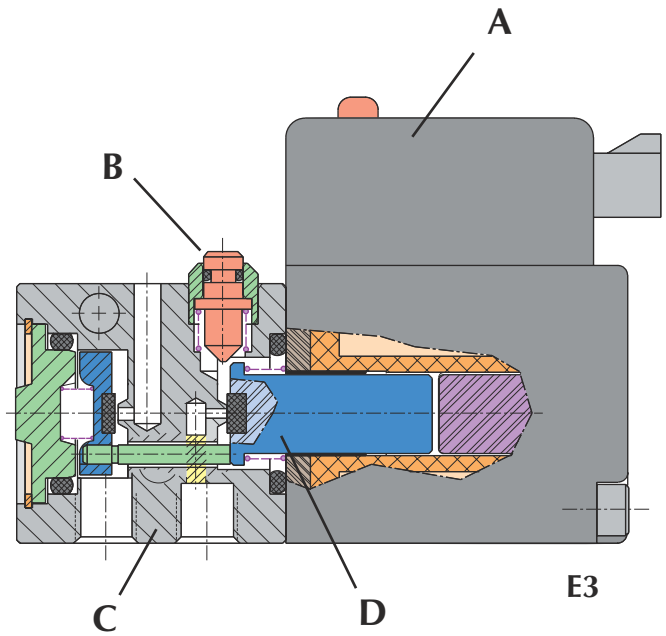
E3 AND E4 SERIES

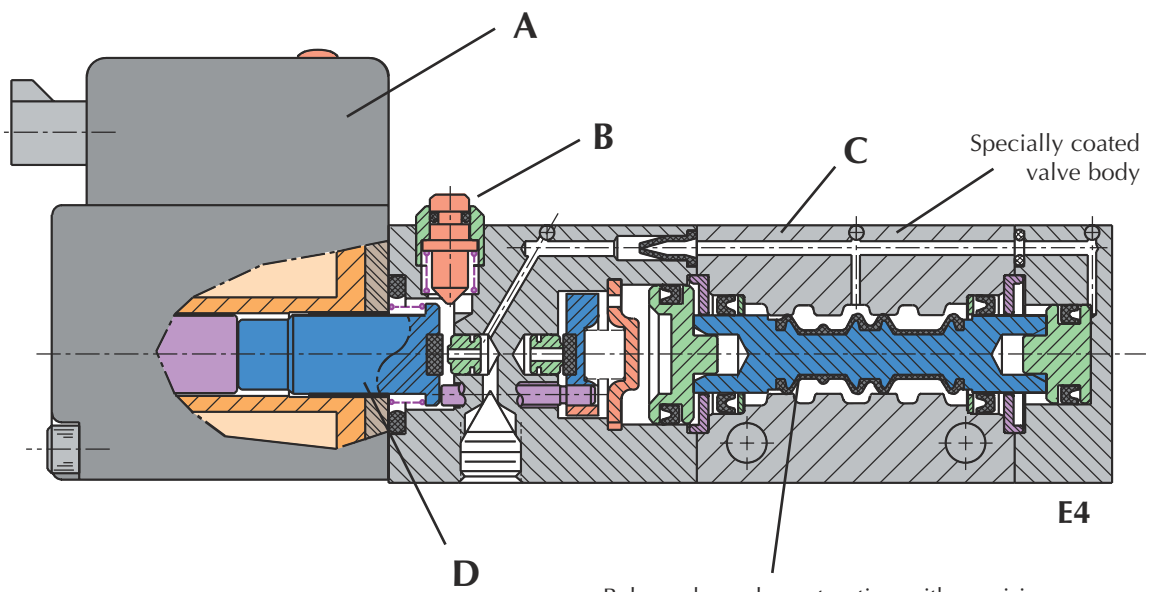
A Solenoid coil is available in AC or DC with LED and plug-in connector or wire leads.

B Manual override plunger provides valve actuation with no electrical power.

C Valve body is tapped #10-32 and may be mounted inline or on matching manifolds.

D Solenoid quality stainless steel plunger with precision-ground elastomer seal.

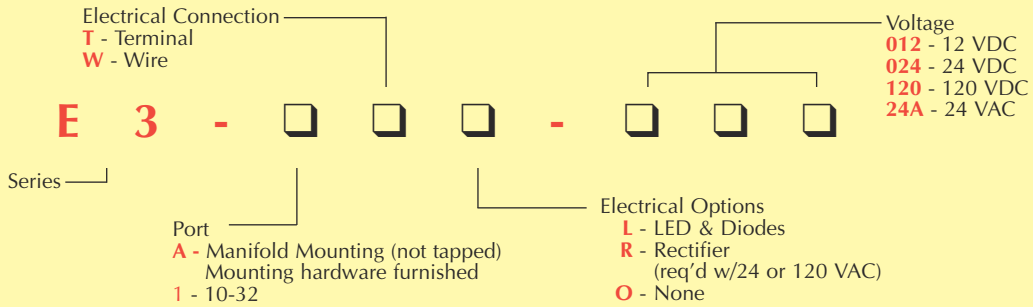




Balanced spool construction with precision ground molded spool assembly (no o-rings).

E3 Series Valves

VALVE NUMBERING SYSTEM



The Eagle (E-3) 3-way valve is a direct acting, non-piloted, two-position, plunger type valve. There is one supply port, one output port and one exhaust. The ports are tapped 10-32 on the surface mount valves and drilled .062 on the manifold style. The straightforward operation of this poppet style valve will function for millions of trouble free cycles.

Operated by a single solenoid, the E-3 valve is designed to perform numerous tasks, whether a single valve is needed or a stack mounted on manifolds. The E-3 is available with a AC or DC coil and offers special features with each. Although compact in size, the E-3 valve provides quick response time and a high flow rate. The ease of installation, compact size and performance mean both time and money.

Type: 3-way plunger type

Material: body - anodized aluminum
coil - epoxy encapsulated

Temperature Range: 30° - 180° F

Medium: air (lubricated or non-lubricated)

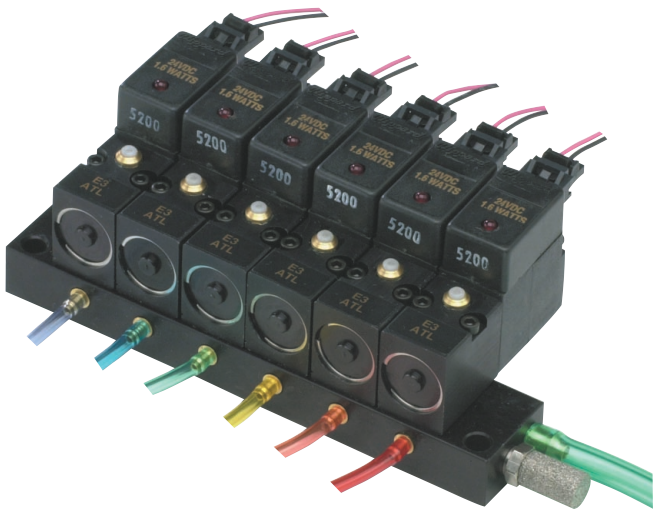
Flow Rate: 1.1 scfm @ 100 psig
0.65 scfm @ 50 psig

Voltage: 12 or 24 VDC and 24 or 120 VAC

Power Consumption: 1.4 watts DC without LED;
1.6 watts DC with LED 24 VAC = 1.6 watts;
120 VAC = 3.0 watts

Operating Pressure: 20 to 105 psig

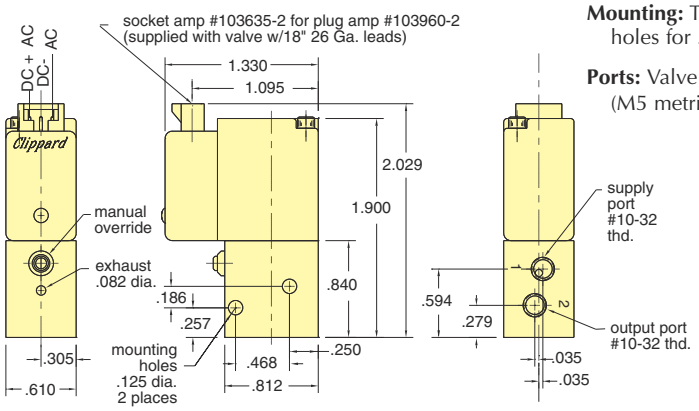
Response: <10 ms



Features

- Made in the USA
- Compact size
- Low power requirement
- Manual override for solenoids
- Plug-in connector or wire leads
- M5 metric threads available
- Numerous models
- AC or DC coils
- Manifold mounts available from one to twelve stations

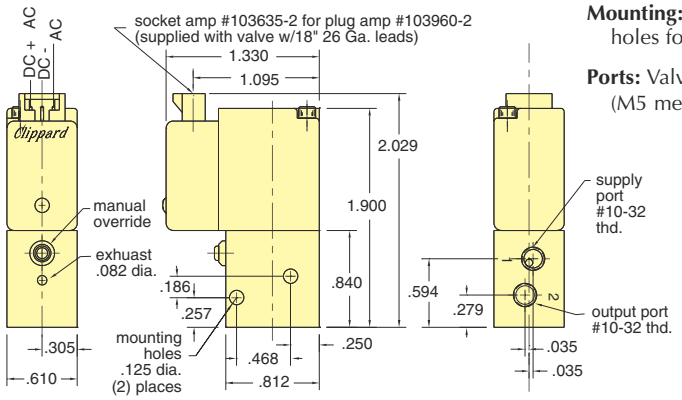
E3-1TL-❑



Mounting: There are two mounting holes for 3-56 screws

Ports: Valve body tapped for 10-32 ports (M5 metric optional)

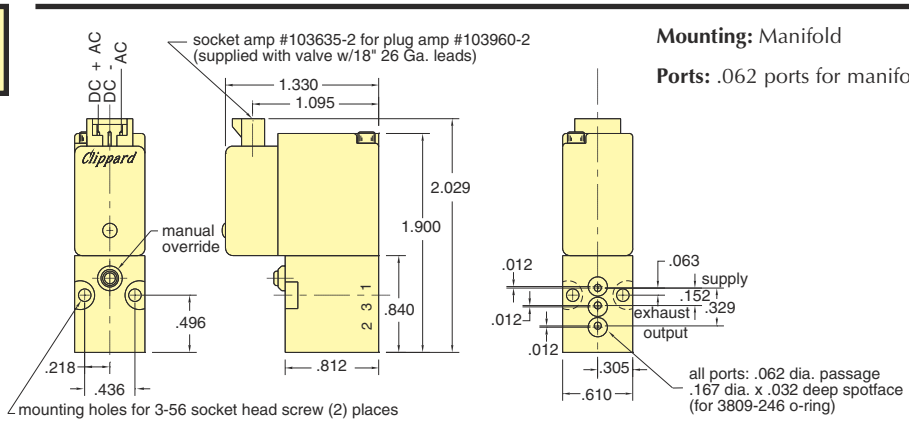
E3-1TR-❑



Mounting: There are two mounting holes for 3-56 screws

Ports: Valve body tapped for 10-32 ports (M5 metric optional)

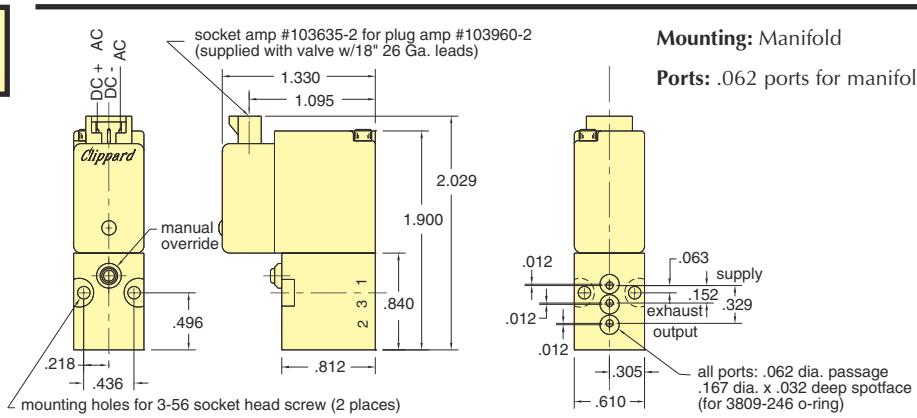
E3-ATL-❑



Mounting: Manifold

Ports: .062 ports for manifold

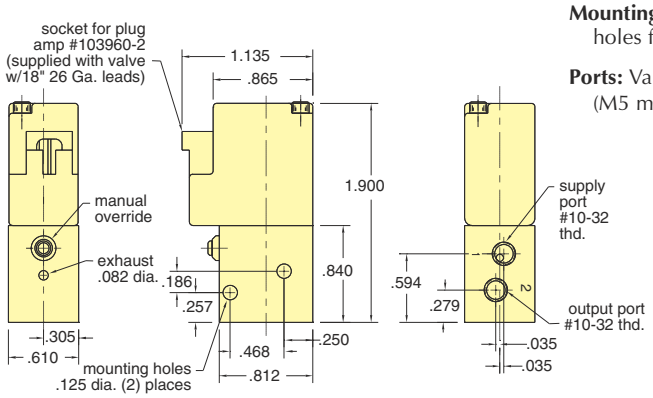
E3-ATR-❑



Mounting: Manifold

Ports: .062 ports for manifold

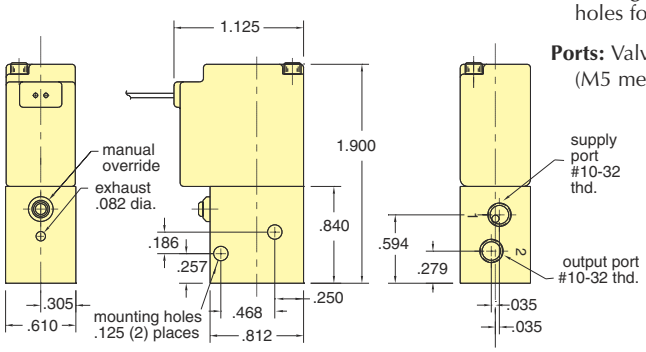
E3-1TO-❑



Mounting: There are two mounting holes for 3-56 screws

Ports: Valve body tapped for 10-32 ports (M5 metric optional)

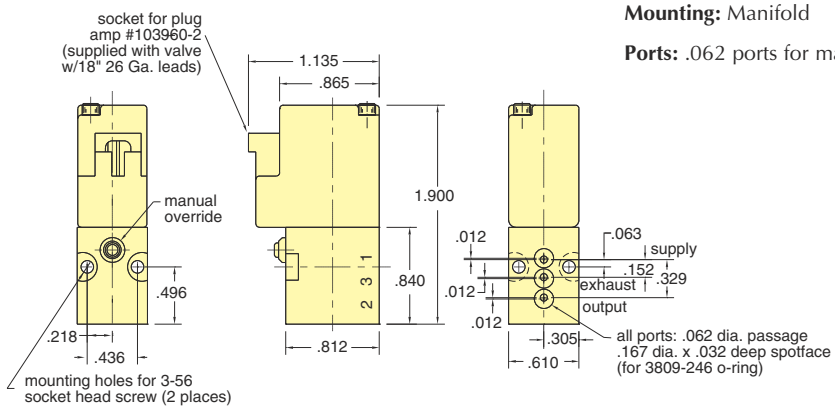
E3-1WO-❑



Mounting: There are two mounting holes for 3-56 screws

Ports: Valve body tapped for 10-32 ports (M5 metric optional)

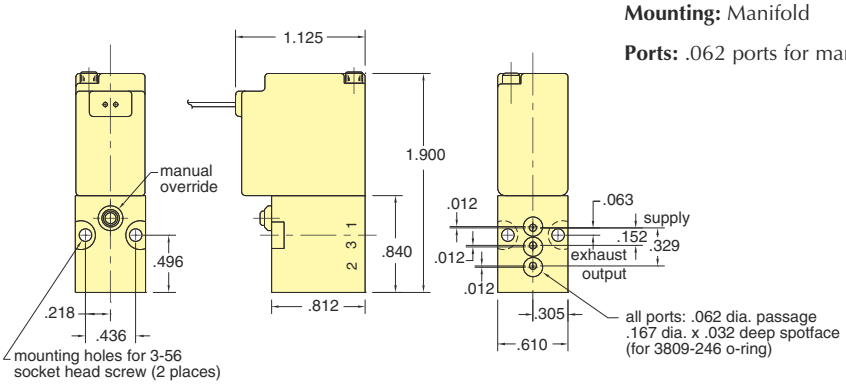
E3-ATO-❑



Mounting: Manifold

Ports: .062 ports for manifold

E3-AWO-❑



Mounting: Manifold

Ports: .062 ports for manifold

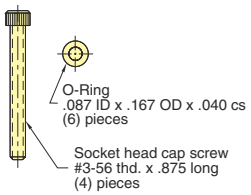
C3-RBX18

C3-WXB18

Lead Set Chart For E3/E4 Valve						
Part No.	Used On	Wire Colors			Lead Length	Wire gage
		pin 1	pin 2	pin 3		
C3-RXB18	E3/E4 (DC)	red	black	~	18″	26
C3-WXB18	E3/ER (AC)	white	~	black	18″	26

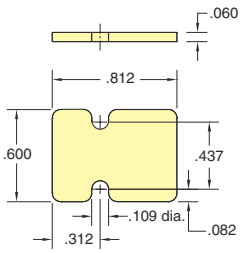
E3M-MH

Mounting hardware



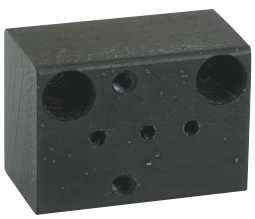
E3M-CP

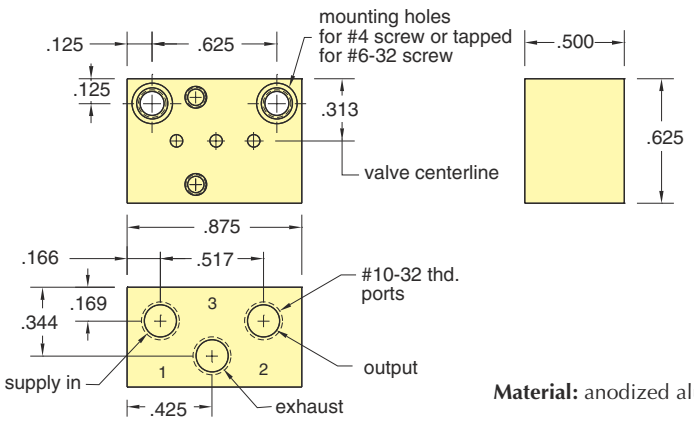
Cover plate



E3M-01

Single Station Manifold

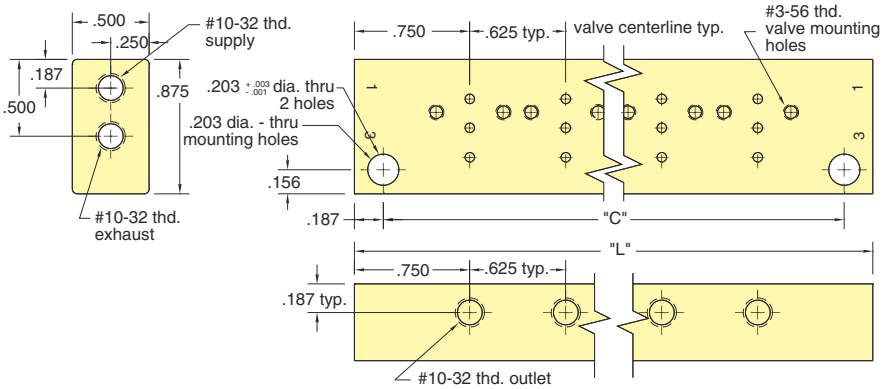




Material: anodized aluminum

E3M-❑

Multi-station Manifold



Dash #	Stations	Dim.″L″	Dim. ″C″
E3M-1	1	.875″	.625″
E3M-2	2	2.125	1.750
E3M-4	4	3.375	3.000
E3M-6	6	4.625	4.250
E3M-8	8	5.875	5.500
E3M-10	10	7.125	6.750
E3M-12	12	8.375	8.000

Material: anodized aluminum

E4 Series Valves

The entire Clippard compact Eagle valve line has been designed to meet today's fluid power engineering needs. Advanced features have been added to readily meet tomorrow's manufacturing requirements.

E4 VALVE NUMBERING SYSTEM

Primary Actuator
E - Electric Pilot
P - Pneumatic Pilot

Optional Package
L - LED & Diode
0 - None
R - Rectifier
(req'd w/24 or 120 VAC)

E 4 - 1 ❑ ❑ - ❑ ❑ - ❑

Secondary Actuator
E - Electric Pilot
P - Pneumatic Pilot
S - Spring Return
A - Air Return

Electrical Connection
W - Wire
T - Terminal
0 - None

Voltage
012 12 VDC
024 24 VDC
120 120 VAC
24A 24 VAC

By connecting a pressure supply greater than 30 psig to the auxiliary pilot supply port, the valve can still be actuated normally, but the main valve supply can range from 150 psig down to zero and into moderate vacuum. The valve can then be used below its normal operating pressure from "vacuum to 105 psig" as long as the pilot operating pressure is above 30 psig. The internal/auxiliary pilot supply feature is standard on every Eagle 4-way valve.

Features

- Made in the USA
- Compact in size, yet with true 10-32 flow: 9 + scfm
- Low power requirement.. a mere 1.4 watts DC, and 1.6 with LED
- M5 metric threads available
- Auxiliary pilot supply port for low pressure applications.
- Balanced spool construction with precision ground molded spool assembly (no o-rings); the spool travels in a specially coated valve body that is tapped 10-32; the valve can be mounted inline or on matching manifolds with matched input and output ports
- Exhaust can be controlled with a needle valve or can be piped away
- Manual override for solenoids
- Plug-in connector and signal LED, plus "spike" protection; optional electric input through 18" wire leads or plug-in connector only
- 30 models available with 12 or 24 VDC, 24 or 120 VAC piloted; also available with pneumatic pilot operation
- Manifolds for 4, 6, 8, 10, 12 stations; EMC card available
- **Special Feature:**
  A unique feature of the Clippard Eagle valve is the internal/auxiliary pilot that allows the pilot section of valve to be powered by the valves supply pressure (as long as it is above 30 psig) or by an external pressure supply that is above 30 psig. When operated on the internal pressure, the valve operates in the 30 to 105 psig range. The auxiliary pilot supply port remains plugged.

E4-1EA-❑❑-❑

Air return single solenoid

E4-1EA-TL-024

E4-1EA-TO-O24

E4-1EA-WO-024

Type: 4-way 2-position spool valve

Medium: air (lubricated or non-lubricated); moderate vacuum

Flow Rate: (Cv 0.14)
9.3 scfm @ 100 psig
5 scfm @ 50 psig

Voltage: 12 or 24 VDC and 24 or 120 VAC piloted

Power Consumption:
1.4 watts DC without LED;
1.6 watts DC with LED;
24 VAC 1.6 watts;
120 VAC 3.0 watts

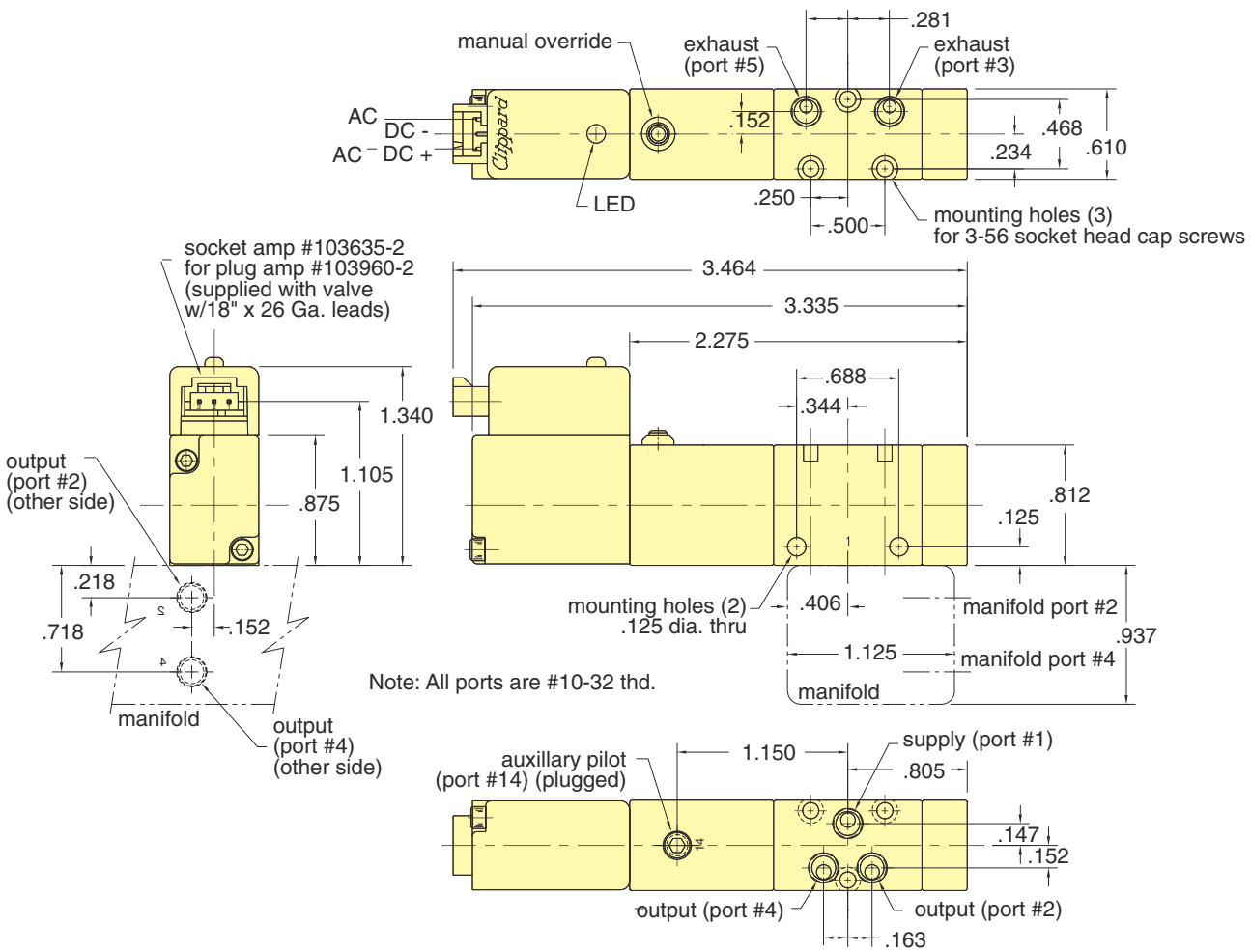
Operating Pressure: 30 to 105 psig

Vacuum: 25 InHg (external pilot required)

Response: 30 ms (on and off)

Mounting: There are three mounting holes for 3-56 screws

Ports: Valve body tapped for 10-32 ports (M5 metric optional)



E4-1EE-❑❑-❑

Double solenoid

E4-1EE-TL-024

E4-1EE-TO-O24

E4-1EE-WO-024

Type: 4-way 2-position spool valve

Medium: air (lubricated or non-lubricated); moderate vacuum

Flow Rate: (Cv 0.14)
9.3 scfm @ 100 psig
5 scfm @ 50 psig

Voltage: 12 or 24 VDC and 24 or 120 VAC piloted

Power Consumption:
1.4 watts DC without LED;
1.6 watts DC with LED;
24 VAC 1.6 watts;
120 VAC 3.0 watts

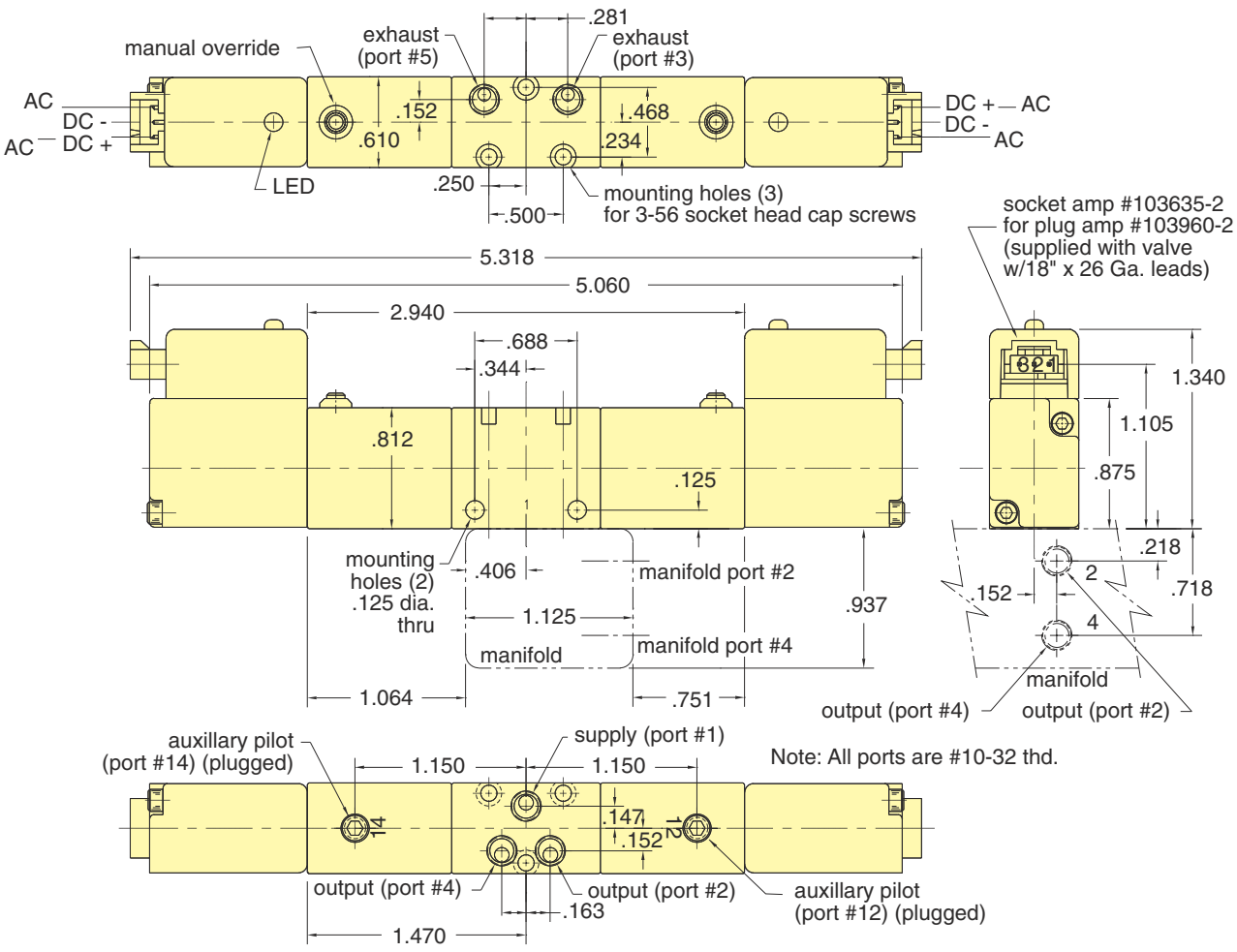
Operating Pressure: 30 to 105 psig

Vacuum: 25 InHg (external pilot required)

Response: 30 ms (on and off)

Mounting: There are three mounting holes for 3-56 screws

Ports: Valve body tapped for 10-32 ports (M5 metric optional)



E4-1EP-❑❑-❑

Air pilot return single solenoid

E4-1EP-TL-024

E4-1EP-TO-O24

E4-1EP-WO-024

Type: 4-way 2-position spool valve

Medium: air (lubricated or non-lubricated); moderate vacuum

Flow Rate: (Cv 0.14)
9.3 scfm @ 100 psig
5 scfm @ 50 psig

Voltage: 12 or 24 VDC and 24 or 120 VAC piloted

Power Consumption:
1.4 watts DC without LED;
1.6 watts DC with LED;
24 VAC 1.6 watts;
120 VAC 3.0 watts

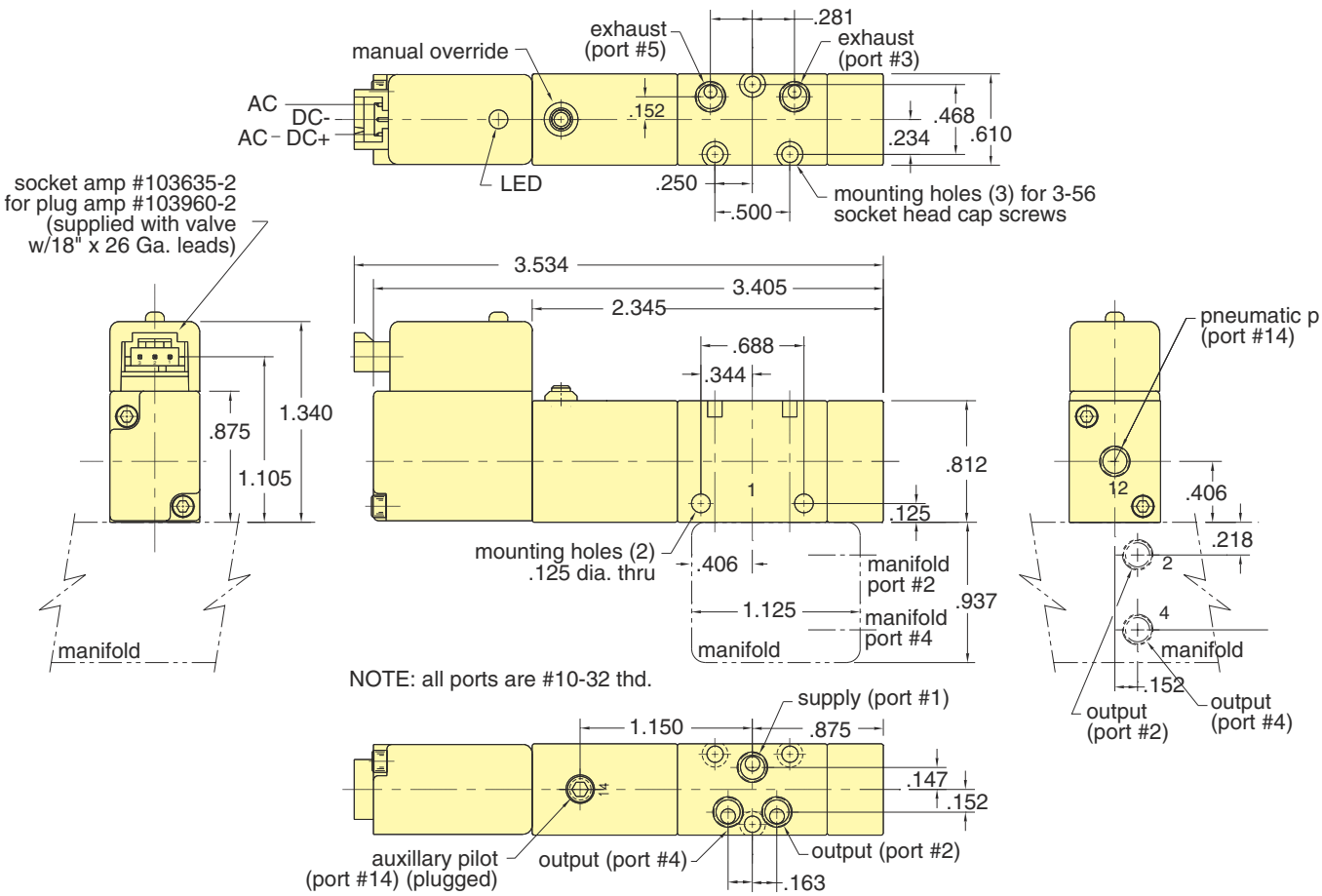
Operating Pressure: 30 to 105 psig

Vacuum: 25 InHg (external pilot required)

Response: 30 ms (on and off)

Mounting: There are three mounting holes for 3-56 screws

Ports: Valve body tapped for 10-32 ports (M5 metric optional)



E4-1ES-❑❑-❑

Spring return single solenoid

E4-1ES-TL-024

E4-1ES-TO-O24

E4-1ES-WO-024

Type: 4-way 2-position spool valve

Medium: air (lubricated or non-lubricated); moderate vacuum

Flow Rate: (Cv 0.14)
9.3 scfm @ 100 psig
5 scfm @ 50 psig

Voltage: 12 or 24 VDC and 24 or 120 VAC piloted

Power Consumption:
1.4 watts DC without LED;
1.6 watts DC with LED;
24 VAC 1.6 watts;
120 VAC 3.0 watts

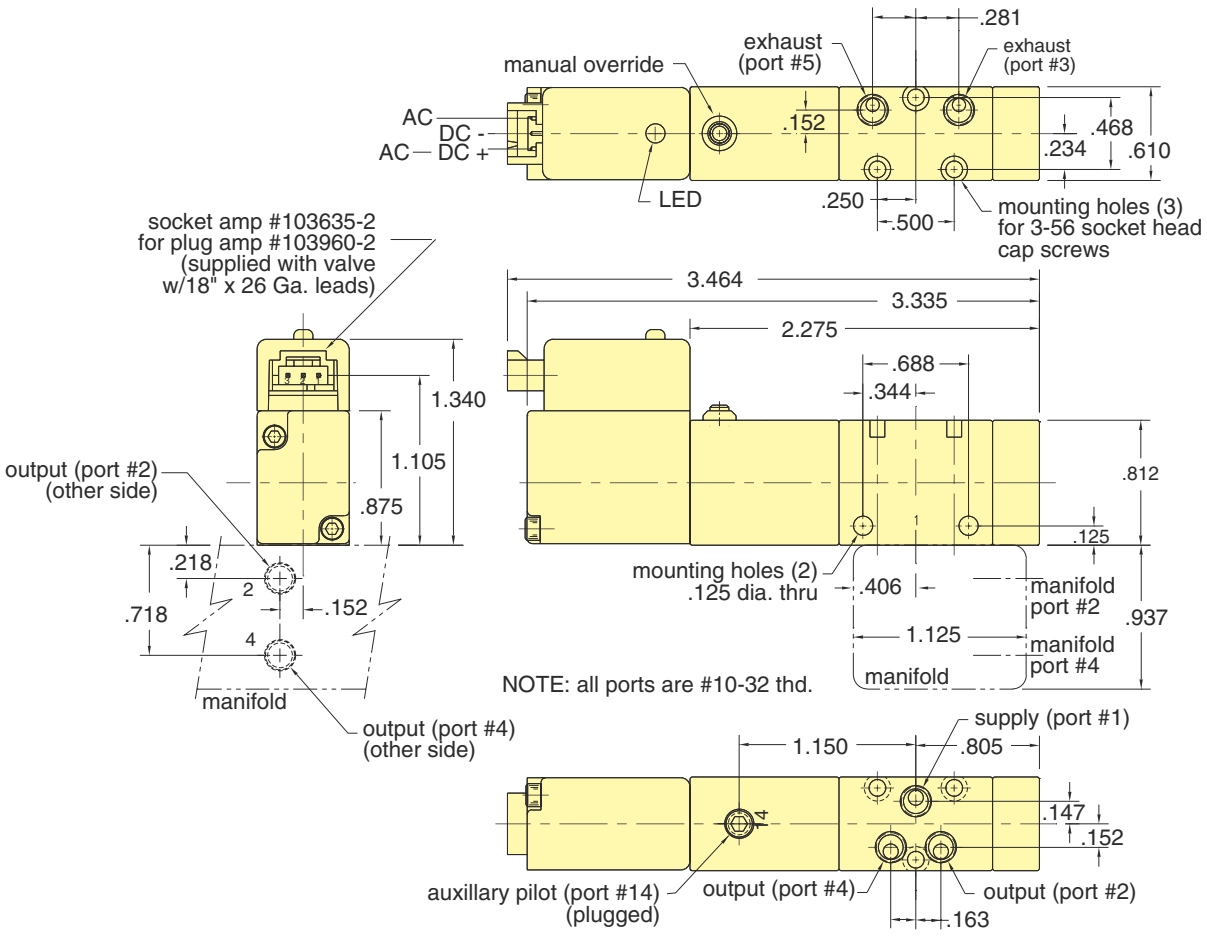
Operating Pressure: 30 to 105 psig

Vacuum: 25 InHg (external pilot required)

Response: 30 ms (on and off)

Mounting: There are three mounting holes for 3-56 screws

Ports: Valve body tapped for 10-32 ports (M5 metric optional)



E4-1PS-00-000

Single pneumatic spring

Type: 4-way 2-position spool valve

Medium: air (lubricated or non-lubricated); moderate vacuum

Flow Rate: *(CV 0.14 9.3 scfm @ 100 psig/ 5 scfm @ 50 psig

Operating Pressure: 0 to 105 psig

Vacuum: 25 InHg

Mounting: There are three mounting holes for 3-56 screws

Ports: Valve body tapped for 10-32 ports (M5 metric optional)

E4-1PP-00-000

Double pneumatic pilot

Type: 4-way 2-position spool valve

Medium: air (lubricated or non-lubricated); moderate vacuum

Flow Rate: *(CV 0.14 9.3 scfm @ 100 psig/ 5 scfm @ 50 psig

Operating Pressure: 0 to 105 psig

Vacuum: 25 InHg

Mounting: There are three mounting holes for 3-56 screws

Ports: Valve body tapped for 10-32 ports (M5 metric optional)

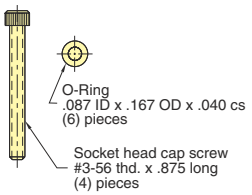
C3-RBX18

C3-WXB18

Lead Set Chart For E3/E4 Valve						
Part No.	Used On	Wire Colors			Lead Length	Wire gage
		pin 1	pin 2	pin 3		
C3-RXB18	E3/E4 (DC)	red	black	~	18″	26
C3-WXB18	E3/ER (AC)	white	~	black	18″	26

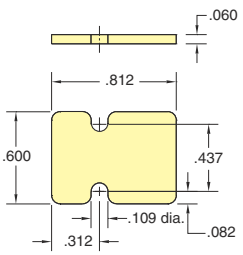
E4M-MH

Mounting hardware

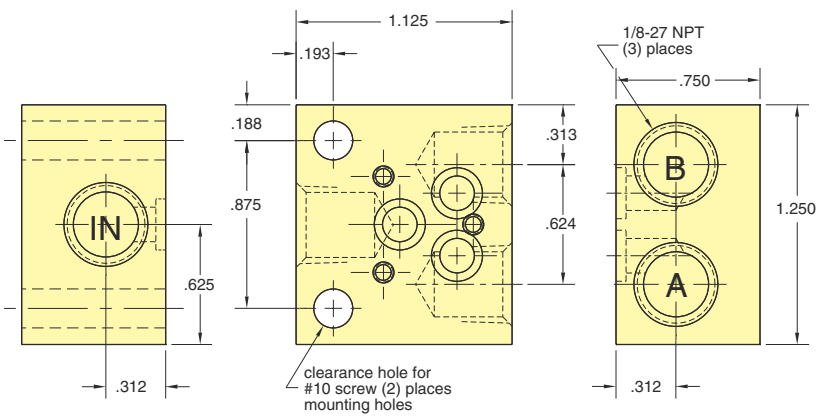


E4M-CP

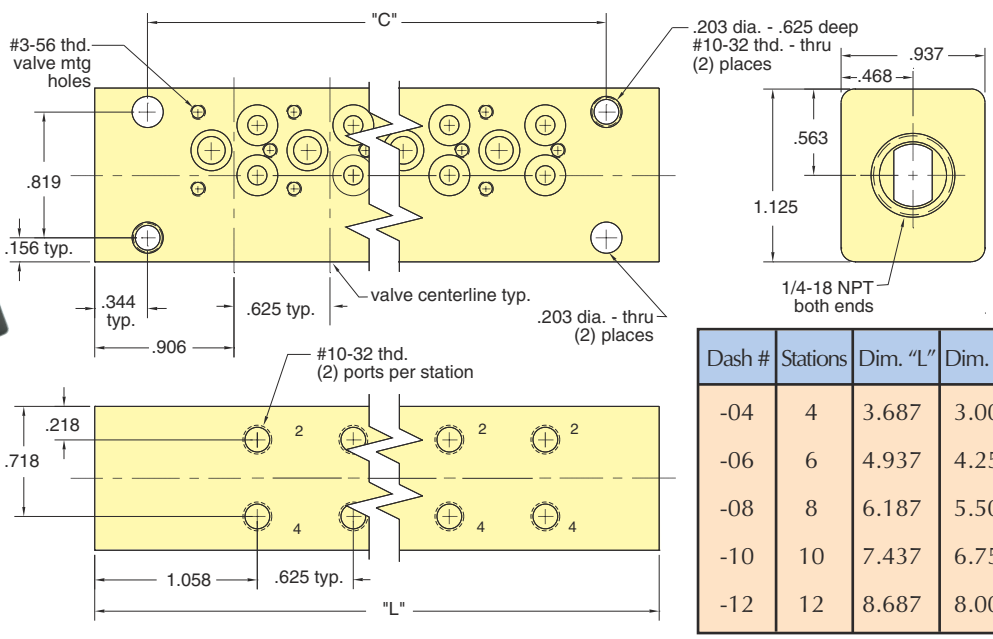
Cover plate



E4M-01P

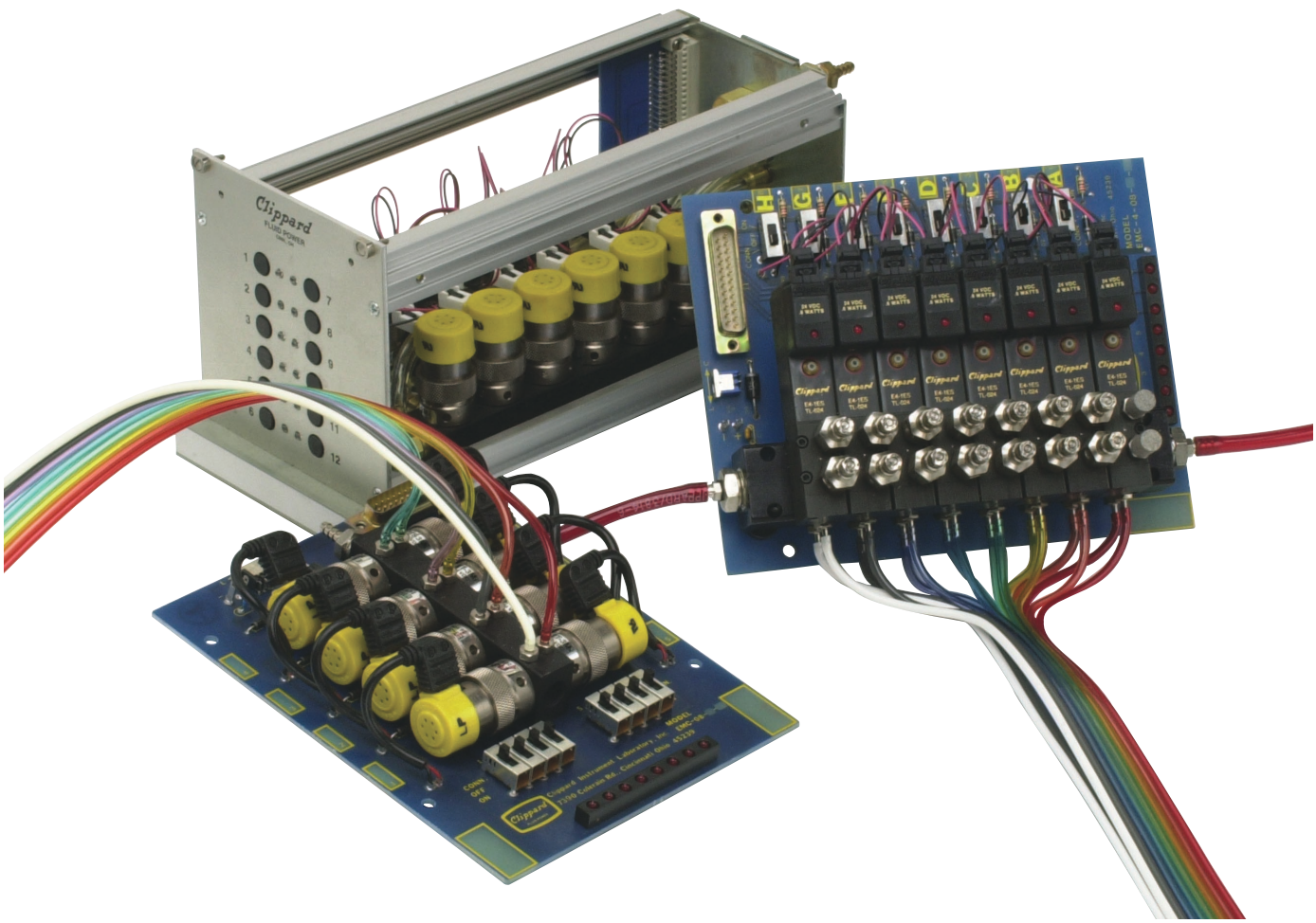


E4M-❑



Dash #	Stations	Dim. "L"	Dim. "C"
-04	4	3.687	3.000
-06	6	4.937	4.250
-08	8	6.187	5.500
-10	10	7.437	6.750
-12	12	8.687	8.000

Electronic Manifold Cards



EMC Cards

MANIFOLD NUMBERING SYSTEM

❑ ❑ ❑ ❑ - ❑ ❑ - ❑ ❑ - ❑ ❑

Type
EMC Electronic Manifold Card with ET or ETO valves
EMC4 Electronic Manifold Card with E4 valves

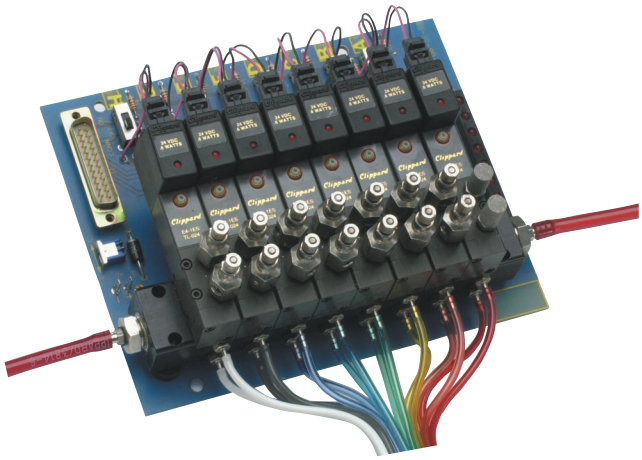
Number of Valves on Card
08 - 8 valves
12 - 12 valves

Voltage of Valves
00 - w/o valves
06 - 6 VDC
12 - 12 VDC
24 - 24 VDC

Type of Valve
01 - w/o valves
20 - ET-2M-XX
22 - ET-2M-XX-H
25 - ET-2M-XX-L
30 - ET-3M-XX
32 - ET-3M-XX-H
35 - ET-3M-XX-L
40 - ETO-3M-XX
42 - ETO-3M-XX-H
45 - ETO-3M-XX-L
60 - E4-1EA-TO-XX
70 - E4-1ES-TO-XX

EMC-08-00-01, EMC-12-00-01, EMC4-08-00-01 and EMC4-12-00-01 are part numbers for cards without any valves, and without manifold. Manifold mounting hardware is included. Manifolds may be ordered separately, if desired.

Part numbers are: 15482-8, 15482-12, E4M-08 and E4M-12.



Convenience in interfacing electronics and pneumatics... fast mounting, completely assembled, manifolded valve cards.

Clippard Electronic Manifold Cards

Now you can direct low-voltage DC signals from controllers, systems, computers or other sources to operate powerful pneumatic valves with a minimum of piping and hook-up.

Self-contained card includes:

- 8 or 12 Clippard ET interface valves
- Manifold mount for single air supply
- Circuit board fully wired
- Instant plug-in with 25-pin connector
- Resistor, diode, LED and switch for each valve
- Auxiliary power supply connection

Ready to operate quickly. Just mount the card and make external connection.

And each valve may be individually removed and replaced without any need for desoldering!

Features

- Fast, easy to mount
- Pre-assembled; all valves mounted
- 8 or 12 valve sizes
- 6, 12 or 24 volts DC
- Low power requirements (0.67 WATT per valve)
- Choice of valve types
- Each valve switchable
- Shut-off spike protection
- 25-pin connector
- No expensive card rack required

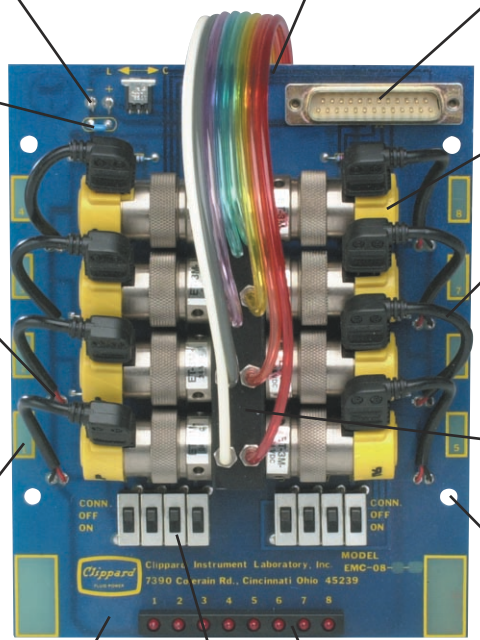
Auxiliary Power Input
Power to operate the valves may be provided through two sources: ONE, through the 25-pin connector if your signal source also has sufficient power to operate the bank of valves, or TWO, through a separate auxiliary power input connection built into the board. To isolate power from the 25-pin connector, use the power source selector switch.
NOTE: In applying power on a temporary basis, use care to observe proper circuit polarity.

Power Selector Switch
Two-position selector switch enables choice of power input source (25-pin connector or auxiliary).

25-Pin Connector

Clippard Electronic Valves

Reverse Polarity Protection
Circuit using diodes and capacitor provides input voltage protection against reverse polarity.



Valve Connection Cords
Cord and plug leads are terminated with solder connections on the board, and connect by molded plug to the valves. All connections are completed at the factory.

Resistor-Diode-LED Circuit
Individual circuit to each valve provides protection against shut-off spikes. LED is illuminated when valve is actuated.

Clippard Valve Manifold
Compact, efficient mounting of the valves is by Clippard multi-valve manifolds.

Valve Identification
Valve numbers are silk-screened on each panel.

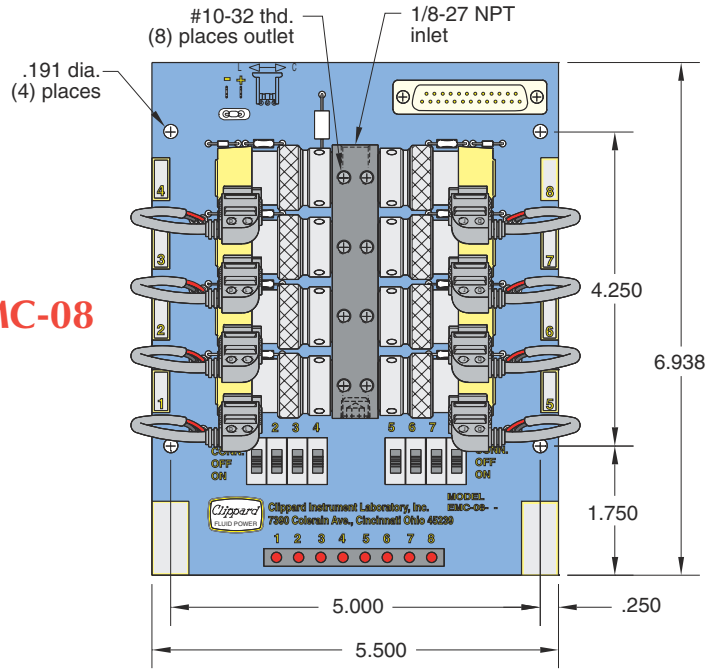
Mounting Holes
Four (EMC-08) and six (EMC-12) mounting holes .191" dia. are built into each board.

LED Bank
Illuminated LED signals that the valve is actuated.

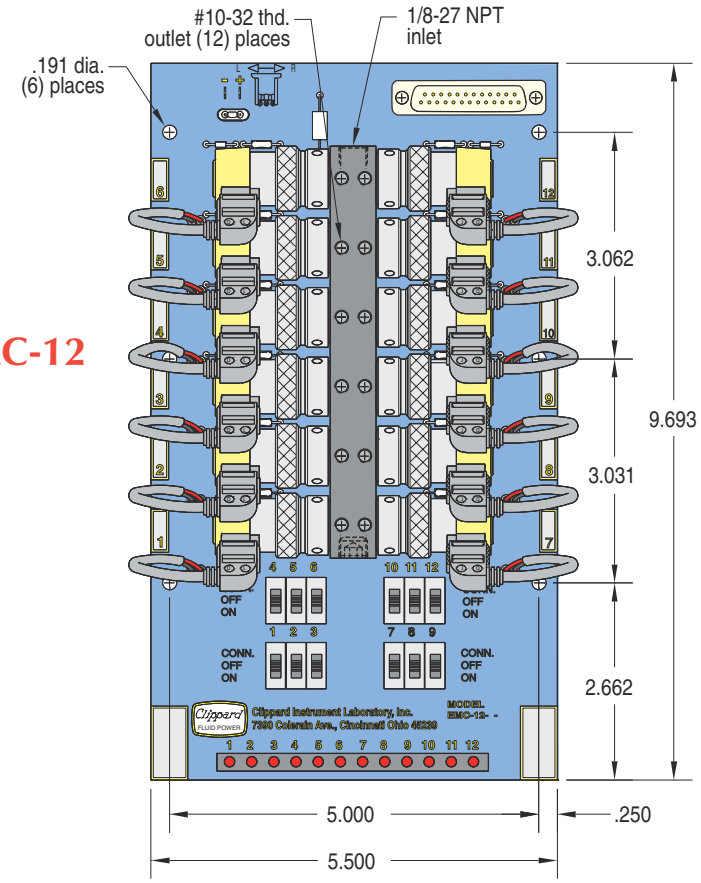
Printed Circuit Board
Basic board is a fiberglass laminated base with all components surface-mounted.

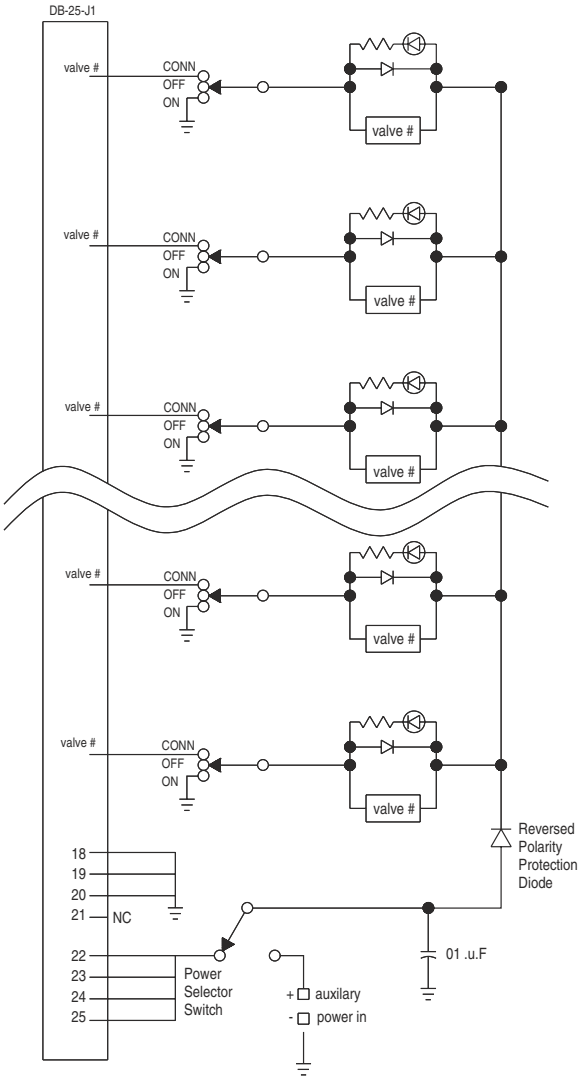
3-Position Detented Switches
Three position slide switch provides for:
ON - Power "ON"; valve is activated
OFF - Power "OFF"; valve not connected
CONN - Valve connected to 25-pin connector, and will be controlled through it.

EMC-08



EMC-12

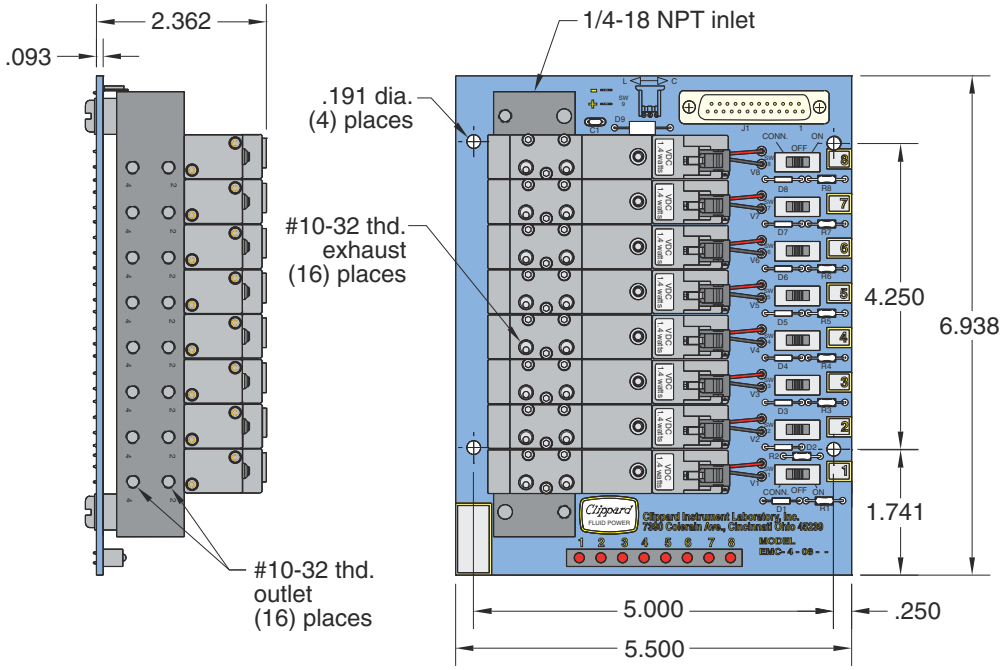




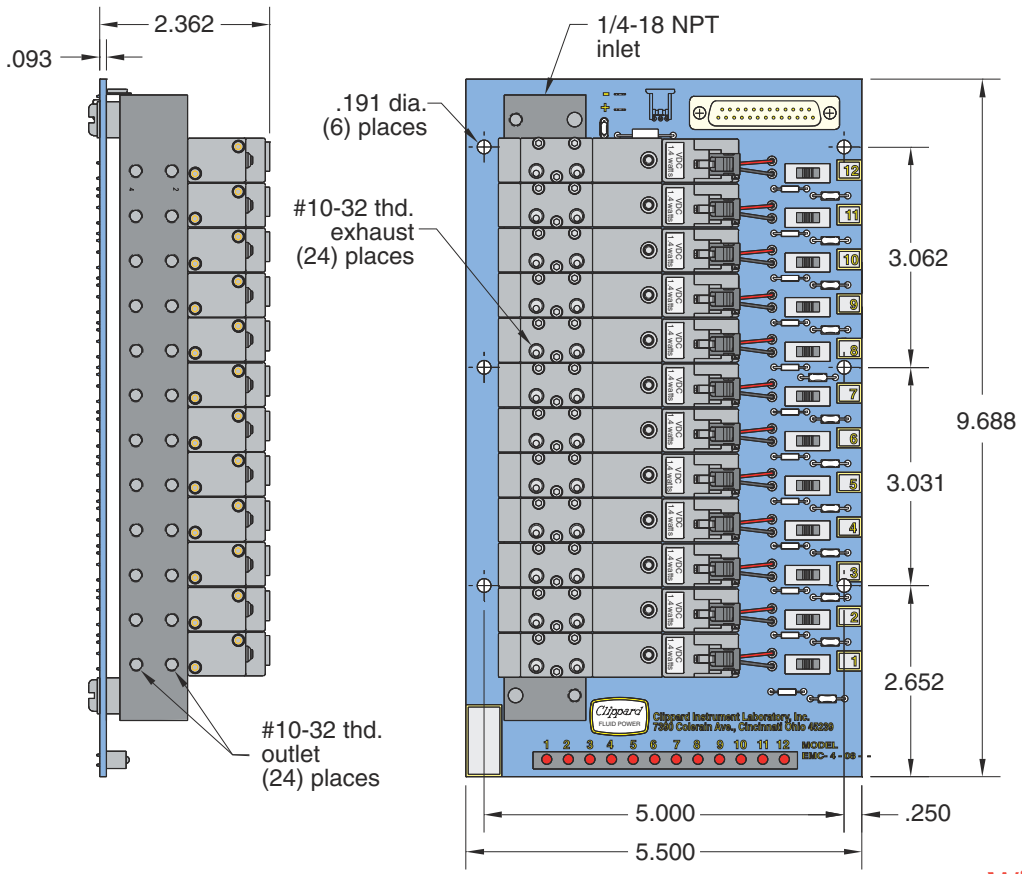
Wiring Diagram
for EMC and EMC4

Note: Manifold mounted valves are normally closed. Use ETO models if exhaust must be ported. ETO models cannot be used "Normally Open" without special piping.

EMC4-08



EMC4-12



Wiring Diagram
same as EMC

NOTES

CRS VALVE DRAWER NUMBERING SYSTEM

C R S ❑ - ❑ ❑ - ❑ ❑ - ❑ ❑ - ❑ ❑

- Control Wiring: **1** - Sinking; **5** - Sourcing
- Voltage of Valves: **00** w/o valves; **06** 6 VDC (EC only); **12** 12 VDC; **24** 24 VDC
- Options: **B** Booster; **Blank** no options; **S** 3 Position Switch; **BS** booster & switch
- Clippard Rack System
- Number of Valves: ***10** - E4 valves; **12** - EC valves
- Type of Valves: **01** w/o valves; **20** EC-2M; **25** EC-2M-L; **30** EC-3M; **35** EC-3M-L; **40** ECO-3M; **45** ECO-3M-L; **60** E4-1EA-TO; **70** E4-1ES-TO

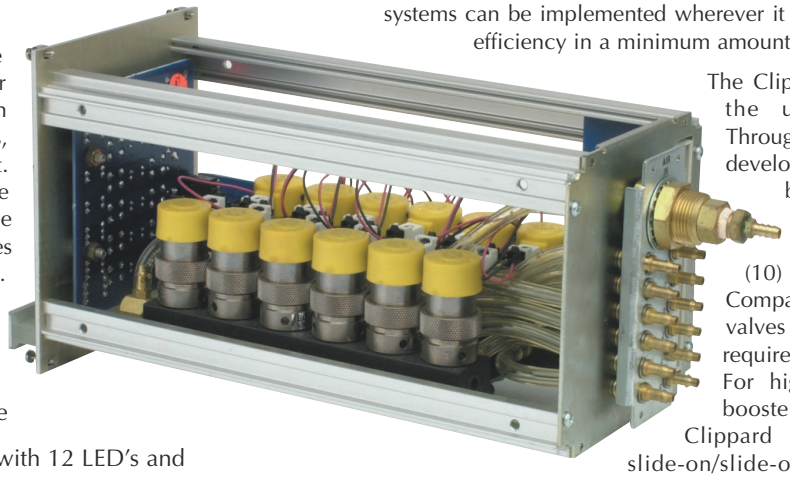
*Consult factory for availability of CRS with E4 valves

Rack System Valve Drawer

Flexible Design

When the valve drawer is disconnected, the air supply is blocked, so it is unnecessary to turn off the main air supply. This allows the primary system to remain in operation, avoiding downtime.

Each individual valve can be quickly removed from the drawer for service. A special connection on the end of each EC valve loosens, allowing for ease of replacement. The electronic connection, on the back panel, is similar to the pneumatic connections and provides operational control capabilities. The valve drawer can be interfaced with any common computer or data base.



Type: 2-way, 3-way & 4-way valve

Design: 3U plug-in I/O Drawer with 12 LED's and 12 manual overrides

Air Supply: Unlubricated - 30 psig minimum with booster 0 - 105 maximum

Air Connection Supply: 1/8" NPT female connection

Output: Barb for 1/8" I.D. polyurethane hose

Electrical Connection: 64 pin #41612, IEC #603-2 use type C connector, positive connector, and negative connect

Electronic Control Options: 12 control connectors, sinking or sourcing, with a working range of 6 to 30 VDC

Electronic Valve Options: Twelve 2-way or 3-way valves, normally closed and 10 4-way valves

Flow: 3-way: .6 scfm @ 100 psig; 6.0 scfm @ 100 psig with booster valve; 4-way; .9 scfm @ 100 psig

Electrical Current (2 & 3-way valve): .028 amps per valve / 24 VDC; .065 amps per valve / 12 VDC; .120 amps per valve / 6 VDC

Compact and Powerful

Pneumatic / Electronic valve drawer is for use in rack systems. State-of-the-art design technology has integrated maximum efficiency and power into a single compact unit.

Designed for ease of operation and installation where space is limited, rack systems have been used extensively in many industries, including: textile, metal working, painting, and petrochemical. Rack systems can be implemented wherever it is necessary to maximize efficiency in a minimum amount of space.

The Clippard valve drawer offers the utmost in capability. Through extensive research and development, this drawer has been designed to house up to (12) Clippard EC valves and boosters, or (10) 4-way Eagle E4 valves. Compact, yet powerful, these valves offer the high flow rates required for many applications. For higher flow requirements, boosters can be used with Clippard EC valves. The simple slide-on/slide-out pneumatic/electronic connection featured with the valve drawer helps eliminate downtime and offers easy access for serviceability.

Electrical Current (4-way valve):
.058 amps per valve / 24 VDC
.117 amps per valve / 12 VDC

Power Consumption:
.67 watts per valve (EC valve)
1.4 watts per valve (E-4 valve)

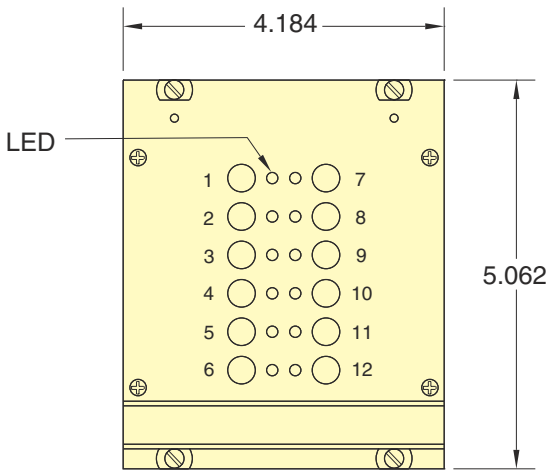
Temperature Range: 30° to 180° F

Size: Fits into standard 19" rack system 220 deep, 3U high and 21 HP width

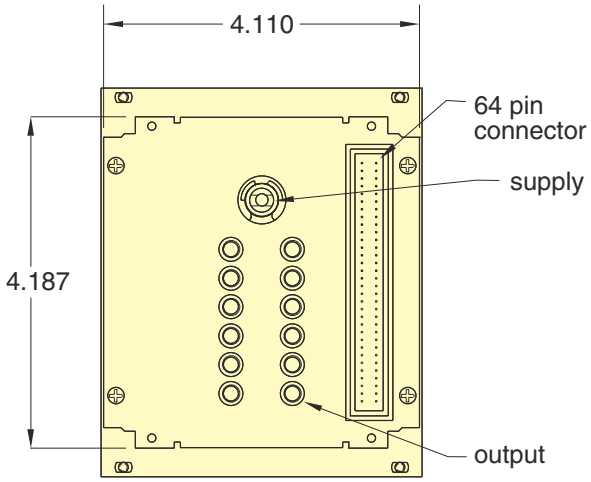
Weight: 3-way rack: 6 lbs.; 4-way rack: 6 lbs.

Electrical Connector: 64 pin for pin #14612, IEC #603-2 use type C connector

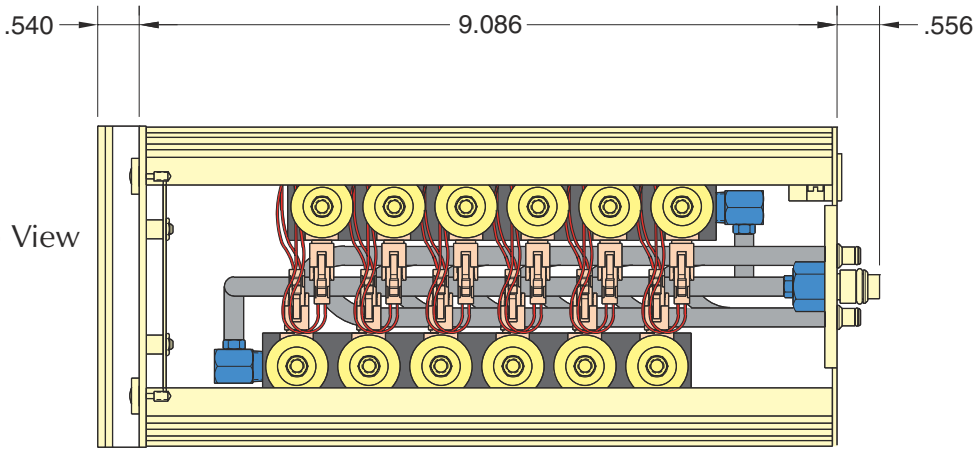
CRS 2 & 3-Way Valve Drawer



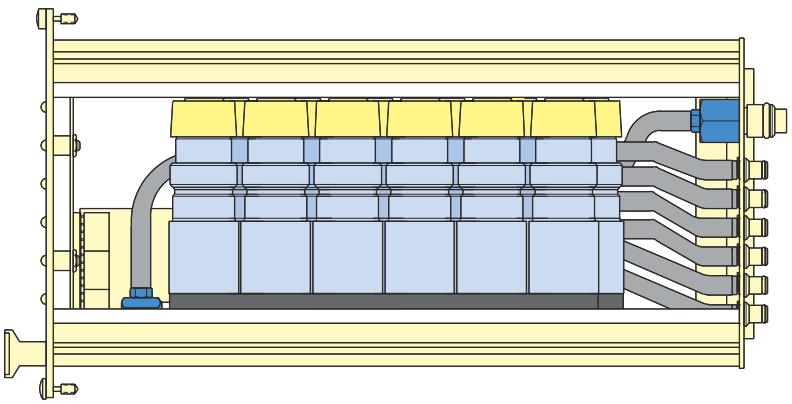
Front View



Back View of 3-Way

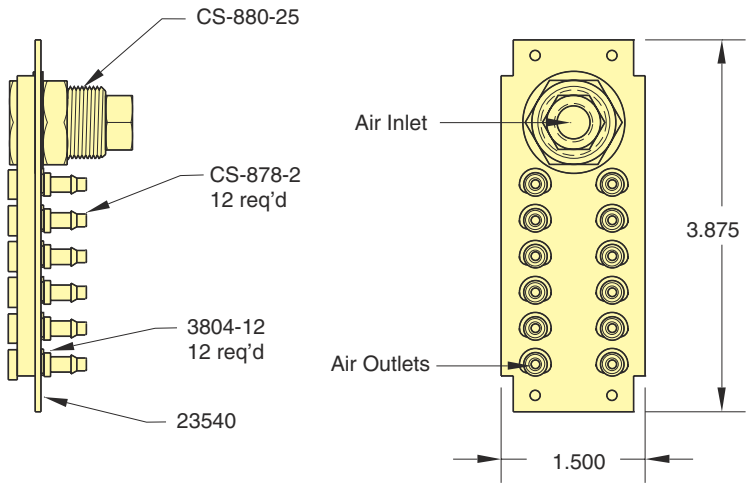


Top View



Left Side View

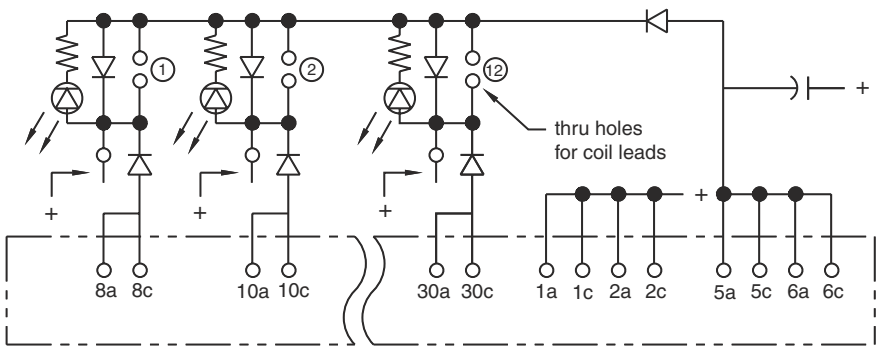
Rack Pneumatic Connection



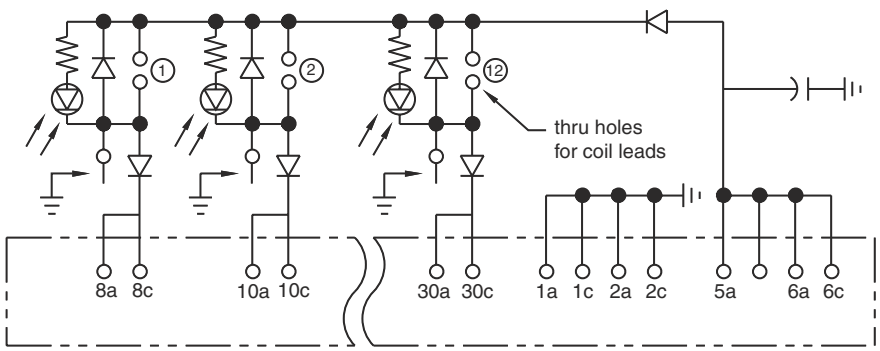
Side View

Back View

CRS Valve Drawer Schematic



Sourcing



Sinking

Notes