

## Miniature Pulse Valves

A normally open 3-way valve that closes shortly after being pressurized and remains closed until supply pressure is exhausted and repressurized. Widely used in control circuits.



**Medium:** Air

**Input Pressure:** 40-150 psig/20 bar max.

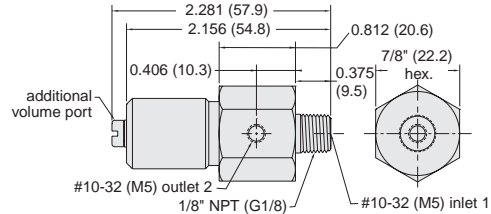
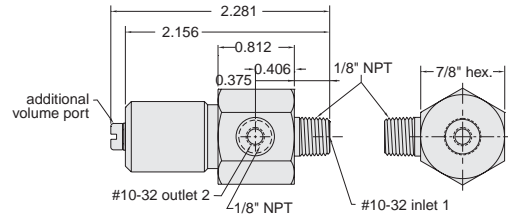
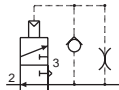
**Mounting:** 1/8" NPT (G1/8) thread; nut furnished

**Volume Chamber:** #10-32 (M5)

**Operation:** Converts a continuous supply of inlet air into a pulse of approximately 100 milliseconds

**Response:** 300 cycles per minute; time delay may be increased by adding standard Clippard volume chambers not to exceed 3 cu. in.

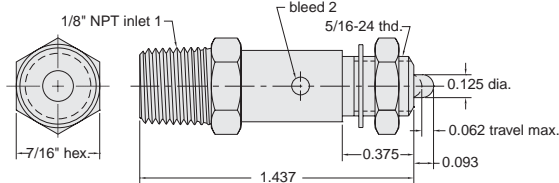
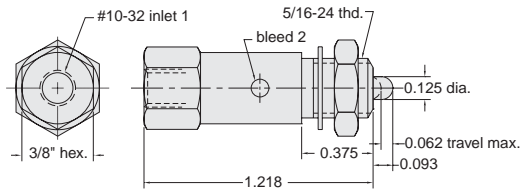
**Construction:** Body - brass, Seals - Buna-N rubber, Spring - stainless steel, Poppet - Delrin®



Part No.	Description
PV-1	Pulse Valve, #10-32
PV-1-M5	Pulse Valve, M5 Metric
PV-1P	Pulse Valve, 1/8" NPT

## Normally Closed 2-Way Pilot Sensor

For use with pressure piloted control circuits, can repeatedly detect a position within 0.005" properly mounted. In jigs or fixtures it will signal correct position and start-ok to control circuit.



**Medium:** Air

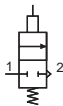
**Stem Travel:** 1/16" max. (will open and close in as little as 0.005")

**Input Pressure:** 300 psig max.

**Air Flow:** 3 SCFM @ 50 psig; 6 SCFM @ 100 psig

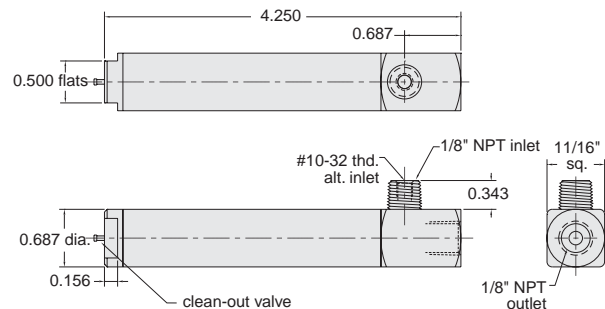
**Force For Full Stem Travel:** 7 oz. nominal

**Mounting:** #15/16-24 thread. Nut and lockwashers furnished



Part No.	Description
MPS-2	Poppet Valve with Pilot Sensor, #10-32
MPS-2-P	Poppet Valve with Pilot Sensor, 1/8" NPT

## Replaceable Air Filter with Element



**Medium:** Air Only

**Filtration:** 35 micron

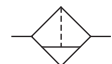
**Input Pressure:** 0-250 psig max.

**Air Flow:** 5.0 SCFM @ 50 psig; 9.0 SCFM @ 100 psig

**Material:** Brass

**Mounting:** Direct or inline

**Cleanout:** Press clean-out valve stem periodically to remove accumulated water. For complete cleaning, filter body unscrews at point "A" without disturbing piping. DO NOT DISASSEMBLE UNDER PRESSURE. Remove screw and filter element to clean or replace



Part No.	Description
MAF-1	Replaceable Air Filter with Element
12382	Low Pressure Drop, Concentric, Chemically-Inert 35-micron Filter Elements



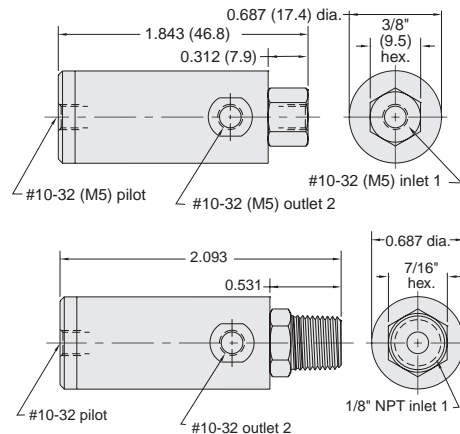
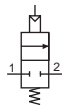
# SPECIALTY COMPONENTS

## Piloted Actuated Water Drawback Valves

When this normally-closed valve closes a spring biased internal piston draws back a small volume on outlet side (approx. 6-7" in 1/8" I.D. tube) thus preventing overflow or dribbles. Ideal for use in quenching or water spray applications.



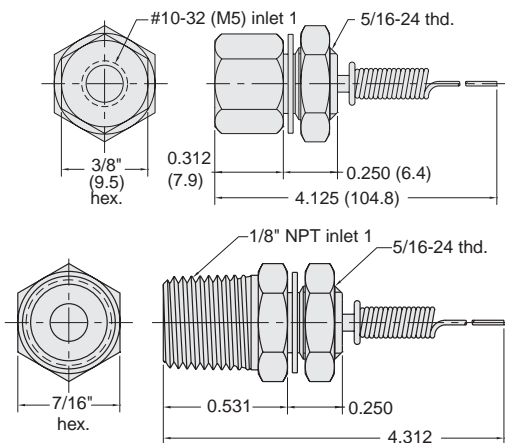
- Medium:** Water or Other Light Liquids
- Input Pressure:** 100 psig/10 bar max.
- Pilot Pressure:** 25 psig min.
- Flow:** 74 cu. in. H<sub>2</sub>O per min. @ 80 psig
- Drawback:** 0.07 cu. in. (1.2 ml)
- Mounting:** Mounts inline



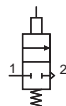
Part No.	Description
WDV-2 . . . .	.Poppet Valve with Air Pilot, #10-32
WDV-2-M5 . . . .	.Poppet Valve with Air Pilot, M5
WDV-2P . . . .	.Poppet Valve with Air Pilot, 1/8" NPT

## 2-Way Normally Closed Whisker Valve

For use with bleed pressure piloted control circuits. Coil spring stainless steel whisker is easily replaceable and can be formed to different shapes.



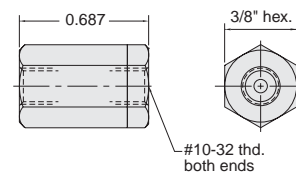
- Medium:** Air
- Input Pressure:** 150 psig/10 bar max.
- Air Flow:** 1.0 SCFM @ 50 psig; 1.5 SCFM @ 100 psig
- Force For Full Stem Travel:** 1/4 oz. approx.
- Mounting:** 5/16-24 male thread. Nut and lockwashers furnished
- Bleed:** To atmosphere around whisker stem
- Whisker:** Stainless steel, approx. 3" (76.2) length. Replaceable (Part Number 12375)



Part No.	Description
MWV-1 . . . .	.Normally-Closed Whisker Valve, #10-32
MWV-1-M5 . . . .	.Normally-Closed Whisker Valve, M5
MWV-1P . . . .	.Normally-Closed Whisker Valve, 1/8" NPT

## In-Line Fixed Orifice Air Chokes

Each choke is calibrated for precise flow



- Medium:** Air
- Material:** Brass
- Working Range:** 0-300 psig max.

Part No.	Description
MAC-A . . . .	.Air Choke, 0.0135" Hole, Yellow Disk
MAC-B . . . .	.Air Choke, 0.010" Hole, Green Disk
MAC-C . . . .	.Air Choke, 0.0075" Hole, Blue Disk
MAC-D . . . .	.Air Choke, 0.006" Hole, Red Disk



Quality remains a primary feature of every product Clippard produces. This is achieved through the excellence

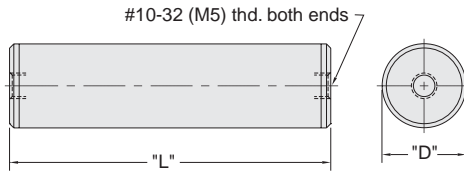
in manufacturing practices and craftsmanship that has continued throughout the years. The company motto—Quality People, Quality Products—emphasizes the important role every employee plays in maintaining the company's reputation.



## In-Line Volume Chamber



Used for providing a time delay in pneumatic circuits



The time delay of the PV-1, PV-1P and R-711 may be increased by adding standard Clippard volume chambers. The charts show total TIME versus VOLUME for these combinations.

Volume CU. IN.	Volume Chamber
0.1	MAT-.1
0.25	MAT-.25
0.50	MAT-.50
1.0	MAT-1.0
1.2	R-821
2.0	MAT-2.0
2.4	R-821 (2)
3.6	R-821 (3)
4.0	MAT-4.0

Suffix	Bore	"L"	"D"	Cu.In
0.1	3/8"	1.265"	0.437"	0.1
0.25	3/8"	2.640"	0.437"	0.25
0.5	9/16"	2.390"	0.625"	0.5
1.0	9/16"	4.390"	0.625"	1.0
2.0	15/16"	3.328"	1"	2.0
4.0	15/16"	6.234"	1"	4.0

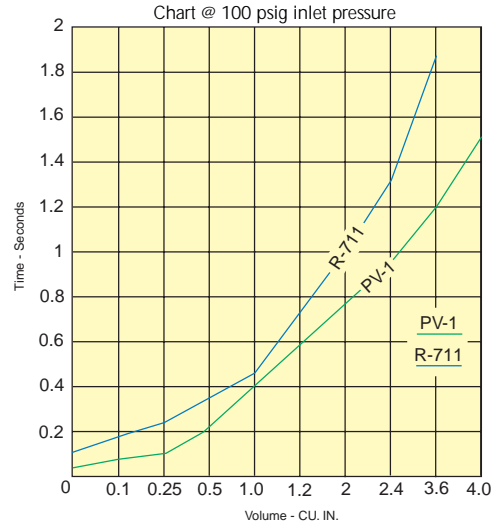
Volume	Time in Seconds	
	PV-1	R-711
0	0.042	0.117
0.1	0.074	0.180
0.25	0.124	0.245
0.5	0.210	0.350
1.0	0.390	0.450
1.2	0.580	0.700
2.0	0.760	1.000
2.4	0.950	1.300
3.6	1.200	1.900
4.0	1.500	N.R.

Medium: Air only

Material: Brass

Input Pressure: 150 psig/10 bar max.

Mounting: Direct or inline; Mounting clamp with MAT-20 and MAT-4.0



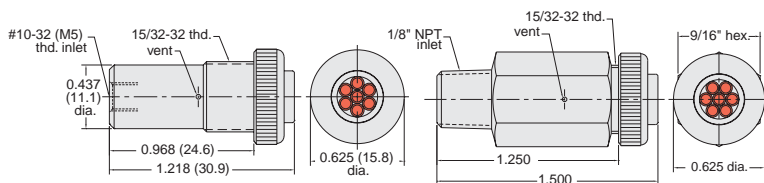
Part No.	Description
MAT-(size)	. . . .In-Line Volume Chamber, #10-32
MAT-(size)-M5	.In-Line Volume Chamber, M5

Specify Size per Chart

R-821 volume charts are shown in the Modular Section of this catalog.

## Multi-Pin Air Indicator

Plunger type (when extended 7-pin color display signals "on")



Medium: Air Only

Input Pressure: 150 psig/1-10 bar max.

Minimum Actuation Pressure: 15 psig (approx)

Response: Approx. 10 ms @ 50 psig

Filtration: 40 micron recommended

Mounting: IND-3: Panel mount in hole. #15/32-32 nut and lockwasher provided; IND-3P: Direct mount into 1/8" NPT hole

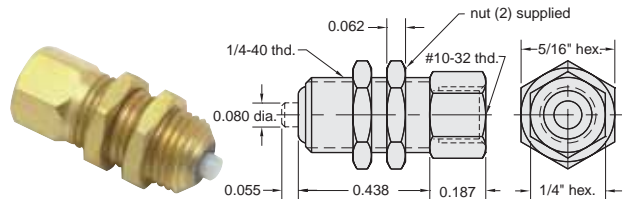
Maximum Panel Thickness: 3/16" (4.8)

Part No.	Description
IND-3-(color)	. . . .Multi-Pin Air Indicator, #10-32
IND-3-M5-(color)	. .Multi-Pin Air Indicator, M5
IND-3P-(color)	. . .Multi-Pin Air Indicator, 1/8" NPT

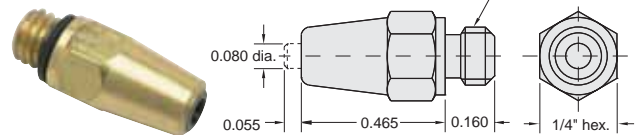
GN-Green, WH-White, RD-Red, YL-Yellow

## Single Pin Air Indicator

Plunger type (when extended white pin display signals "on")



Part No.	Description
IND-1-WH	. .Single Pin Air Indicator



Part No.	Description
IND-1M-WH	Single Pin Air Indicator

Medium: Air Only

Input Pressure: 150 psig max.

Minimum Actuation Pressure: 12 psig (approx)

Response: Approx. 10 ms @ 50 psig

Filtration: 40 micron recommended

Mounting: IND-1-WH: Panel mount 1/4 dia. hole. 1/4-40 thd. nuts provided. IND-1M-WH: Direct mount into 1/8" NPT hole

Maximum Panel Thickness: 3/16"



# HEAVY-DUTY LIMIT VALVES

## Heavy-Duty Limit Valves



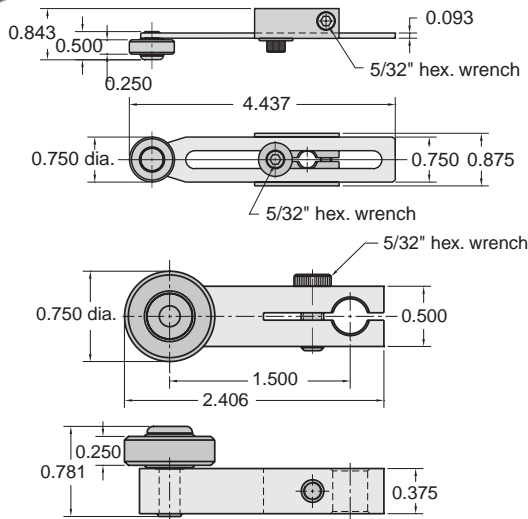
These valves feature rugged construction to withstand heavy use. A zinc alloy die cast actuator head with a hardened steel shaft in a bronze bearing is mated to a solid aluminum valve body. Inside is

a Clippard series cartridge valve (MJV-2C or 3C, MJVO 2C or 3C) made of brass and stainless steel with Buna-N seals. Valve cartridge is easily replaced in minutes. Three different style actuator arms are available as shown below.

Part No.	Description
LVA-2	2-Way Poppet Normally-Closed Limit Valve
LVA-3	3-Way Poppet Normally-Closed Limit Valve
LVAO-2	2-Way Normally-Open Limit Valve
LVAO-3	3-Way Normally-Open Limit Valve

## Roller Actuator Arms

Roller Actuator Arms are ideal for Clippard heavy duty air limit valves.



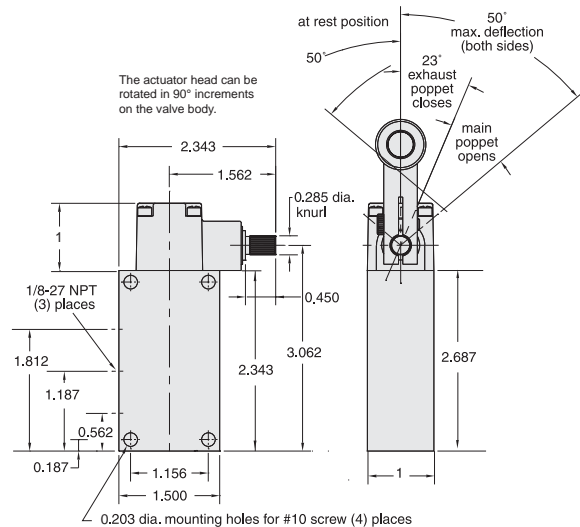
**Arm:** Aluminum base with steel extendable arm (AR-L only)

**Roller:** Hardened steel

**Adjustment:** AR-L only - 1.0 to 3.5 in.

**Mounting:** Slotted mounting clamp tightens onto limit valve with 5/32" hex. wrench; may be positioned on limit valve shaft in any direction within a 360° circle.

Part No.	Description
AR-K	Roller Actuator Arm
AR-L	Roller Actuator Arm, Adjustable



**Medium:** Air

**Stem Travel:** Actuator arm may move 50° in either direction

**Input Pressure:** 300 psig max.

**Air Flow:** 10 SCFM @ 50 psig; 19 SCFM @ 100 psig

**Torque to Actuate:** 3 in./lbs.

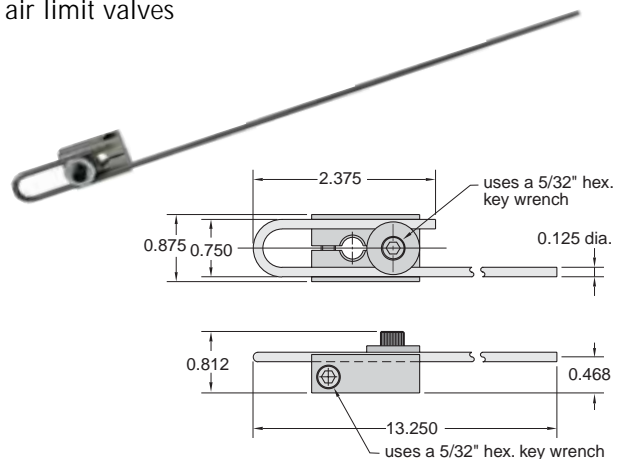
**Actuation Range:** 0-23° Off, 23-50° On, Maximum travel 50°

**Mounting:** Four 13/64" dia. mounting holes provided in valve body for use with #10 screw, or for tapping 1/4-20 by customer

**Ports:** Inlet - 1/8-27" NPT, Outlet - 1/8-27" NPT, Exhaust - 1/8-27" NPT for convenience in porting away exhaust air or attaching muffler; it should not be restricted; exhaust port is not used on 2-ways

## Adjustable Rod Actuator Arm

Adjustable Rod Actuator Arm for Clippard heavy duty air limit valves



**Arm:** Steel 1/8" rod 13 inches long retained by screw clamp; the rod may be shortened and/or bent to desired shape

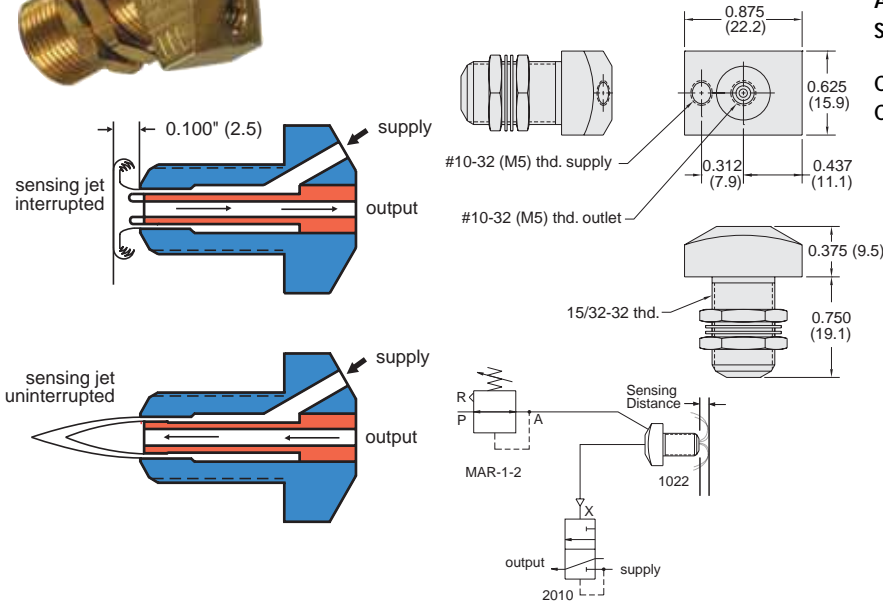
**Mounting:** Slotted aluminum mounting clamp may be positioned on limit valve shaft in any direction within a 360° circle

Part No.	Description
AR-M	Rod Actuator Arm

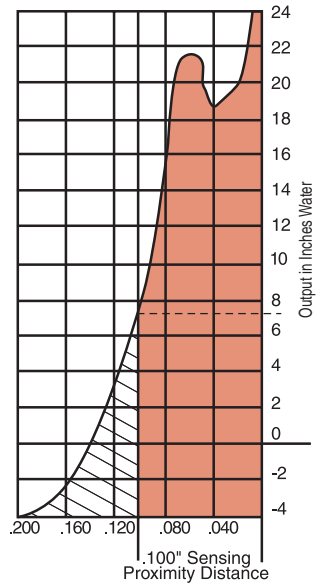
## Non-Contact Air Proximity Switch



Non-Contact Air Proximity Switch with no moving parts: will sense any flat or curved object which presents a sensing surface of 1/4" or more to the sensing nozzle



Medium: Air  
 Input Pressure: 4-10 psig/0.3-0.7 bar  
 Nominal Proximity Distance: 0.100"  
 Output Signal at 4 psig supply: Normal: 2" H<sub>2</sub>O  
 actuated: 7 1/2" H<sub>2</sub>O  
 Frequency Response: 500 CPM  
 Air Consumption: 0.3 SCFM  
 Sensing Capability: Flat or curved surfaces with 1/8" minimum radius  
 Connections: #10-32 (M5) female  
 Construction: Solid brass bright dipped

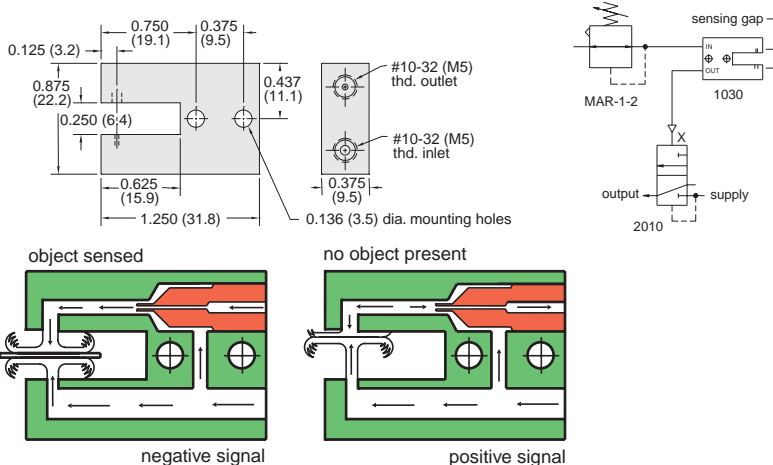


Part No.	Description
1022	Non-Contact Air Limit Switch, #10-32
1022-M5	Non-Contact Air Limit Switch, M5

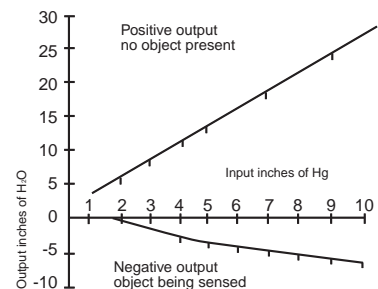
## Non-Contact Gap Sensor



Non-Contact Gap Sensor will sense any flat or round object with a 1/32" minimum radius. Produces a positive signal when no object is present and a negative signal when an object interrupts its sensing system



Medium: Air  
 Input Pressure: 0.5-5 psig  
 Output: -3" to 26" H<sub>2</sub>O @ 4 psig  
 Frequency Response: 1000 cpm  
 Air Consumption: 1/4 SCFM @ 4 psig  
 Sensing Capability: Flat or curved surfaces with 1/32" minimum radius. May be used for up to 4" gap with an additional auxiliary jet  
 Connections: #10-32 (M5) female  
 Construction: Solid brass bright dipped



Part No.	Description
1030	Non-Contact Positive Pressure Sensor, #10-32
1030-M5	Non-Contact Positive Pressure Sensor, M5

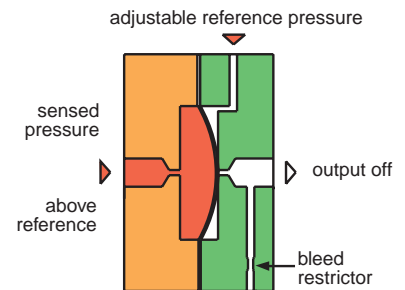
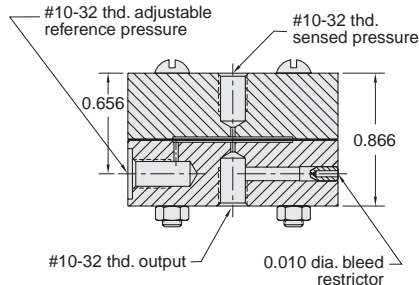
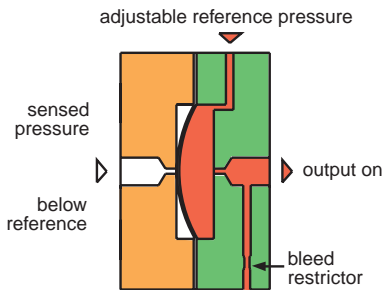
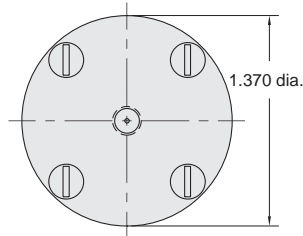


# PRESSURE SENSORS

## Normally-On Single Stage Pressure Repeater



Normally on Single Stage Pressure Repeater for off-on control of an adjustable reference pressure when a sensed pressure moves above or below the reference pressure level



**Medium:** Reference pressure - air sensed pressure - Air, gas, or liquid

**Input Pressure:** 1-150 psig max.

**Air Flow:** 0.029" orifice

**Response Time:** 5 ms.

**Differential Sensitivity:** 2%

**Frequency Response:** 60 Hz

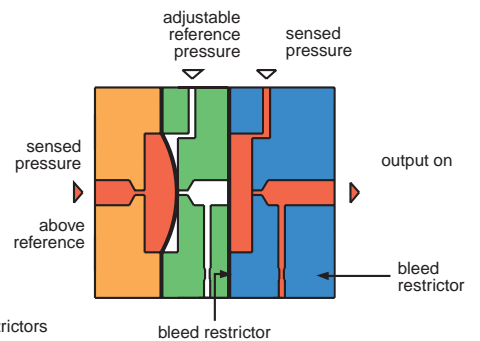
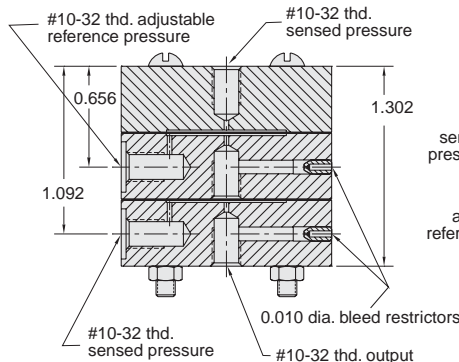
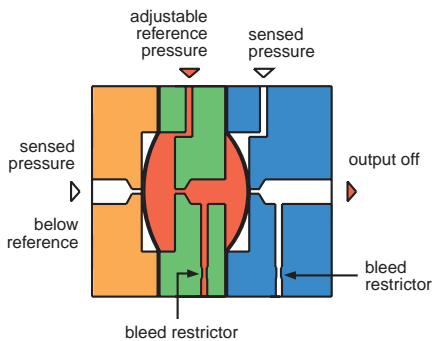
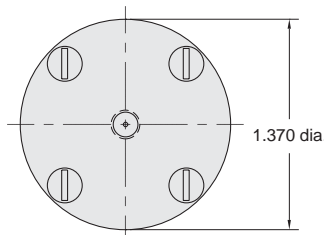
**Materials:** Anodized aluminum body, Buna-N diaphragms

Part No.	Description
1043 . . . . .	Single Stage Pressure Repeater

## Normally-Off Two Stage Pressure Repeater



Normally Off Two Stage Pressure Repeater for off-on control of an adjustable reference pressure when a sensed pressure moves above or below the reference pressure level



**Medium:** Reference pressure - air sensed pressure - Air, gas, or liquid

**Input Pressure:** 1-150 psig max.

**Air Flow:** 0.029" orifice

**Response Time:** 5 ms.

**Differential Sensitivity:** 2%

**Frequency Response:** 60 Hz

**Materials:** Anodized aluminum body, Buna-N diaphragms

Part No.	Description
1044 . . . . .	Two Stage Pressure Repeater

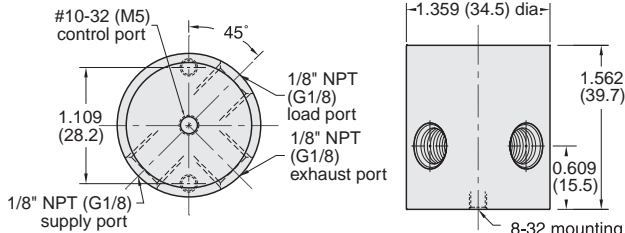
# SPECIAL PILOTED 3-WAY VALVES



## 3-Way Normally-Closed Amplifier Valves

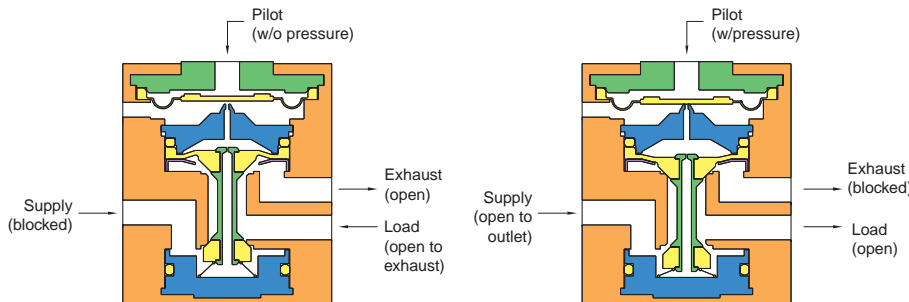


3-Way Valve Normally Closed Interface amplifies very low pressure air-jet sensing signals to working power levels



Top View

Side View



Valve Closed

Valve Open

Medium: Air

Material: Anodized aluminum body, Buna-N diaphragms

Input Pressure: 30-100 psig/2-7 bar max.

Air Flow: 22 SCFM @ 100 psig;  
530 l/min @ 6 bar

Pilot Pressure: 4" H<sub>2</sub>O @ 100 psig

Maximum Allowable Pilot Pressure: 5 psig

Response Time: 10 ms. dead headed

Operating Speed: 50 Hz

Bleed: 0.1 SCFM @ 100 psig

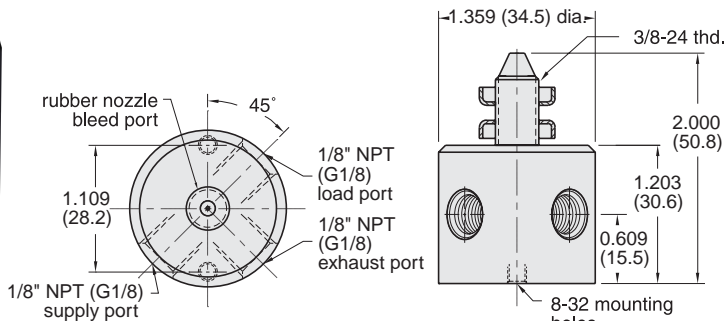
Ports: Load - 1/8" NPT (G1/8) female  
Supply - 1/8" NPT (G1/8) female  
Exhaust - 1/8" NPT (G1/8) female  
Control - #10-32 (M5) female

Part No.	Description
2010 . . . . .	Normally-Closed Interface, 1/8" NPT
2010-MG . . . . .	Normally-Closed Interface, G1/8

## 3-Way Bleed Pressure Piloted Limit Valves

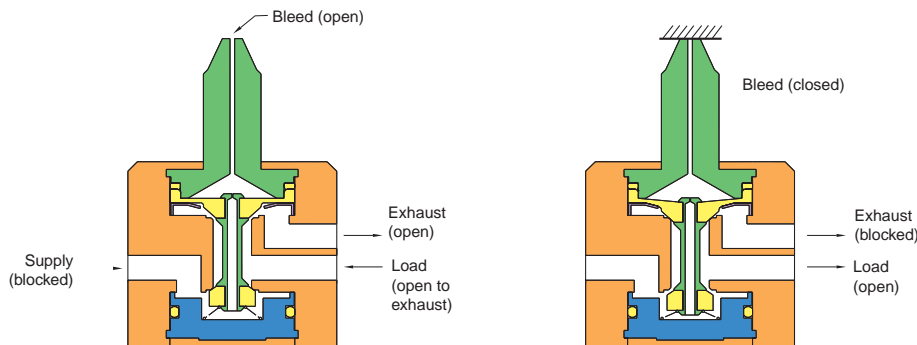


3-Way Bleed Pressure Piloted Limit Valve; blocking of the sensing port causes rapid valve opening



Top View

Side View



Valve Closed

Valve Open

Medium: Air

Material: Anodized aluminum body, Buna-N diaphragms

Input Pressure: 30-100 psig/2-7 bar max.

Air Flow: 22 SCFM @ 100 psig;  
530 l/min @ 6 bar

Bleed: 0.1 SCFM @ 100 psig

Response Time: 15 ms.

Ports: 1/8" NPT (G1/8)

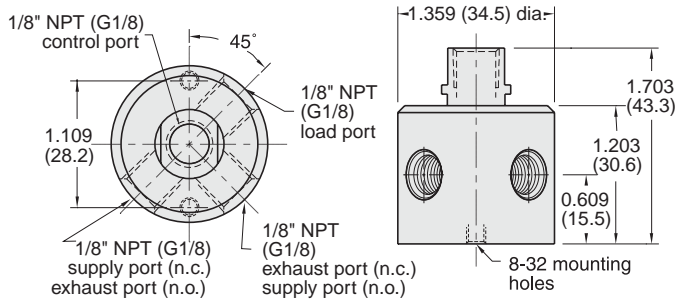
Note: Supplied with threaded bulkhead mount and integral rubber nozzle for direct actuation by mechanical closure. By removing rubber nozzle and inserting a #10-32 fitting and length of hose, 2011-1 can be converted to a remote sensing valve.

Part No.	Description
2011-1 . . . . .	Piloted Limit Valve, 1/8" NPT
2011-1-MG . . . . .	Piloted Limit Valve, G1/8



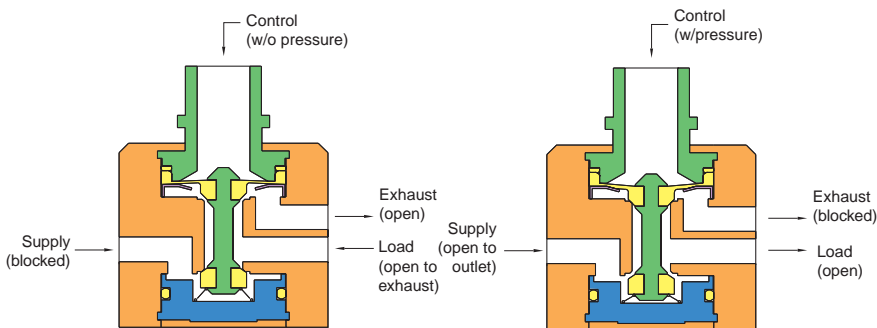
# SPECIAL PILOTED 3-WAY VALVES

## 3-Way N.O. or N.C. Air-Piloted Valves



Top View

Side View



Valve Closed

Valve Open

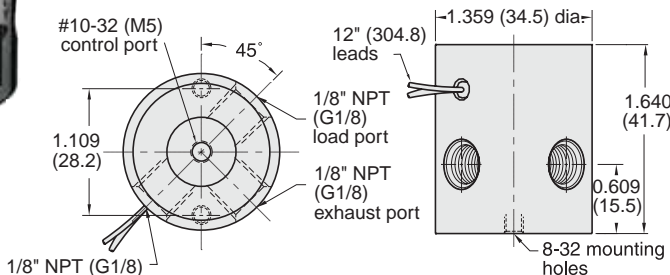
**Medium:** Air  
**Material:** Anodized aluminum body, Buna-N diaphragms  
**Input Pressure:** 1-100 psig/7 bar max.  
**Air Flow:** 22 SCFM @ 100 psig; 530 l/min @ 6 bar  
**Bleed:** 0.1 SCFM @ 100 psig  
**Minimum Pilot Pressure:**  
 N.O. - 90% of supply pressure  
 N.C. - 60% of supply pressure  
**Response Time:** 15 ms. after pilot pressure reaches switch point  
**Operating Speed:** 1100 CPM

Part No.	Description
2012 . . . . .	Piloted Valve, 1/8" NPT
2012-MG . . . . .	Piloted Valve, G1/8
2012-VAC . . . . .	Valve for Vacuum Operation (requires positive pressure pilot signal)
2012-G . . . . .	Valve for Liquid Adhesives (silicone diaphragm and seals), 1/8" NPT
2012-G-MG . . . . .	Valve for Liquid Adhesives (silicone diaphragm and seals), G1/8

## 3-Way N.O. or N.C. Electronically Piloted Valves

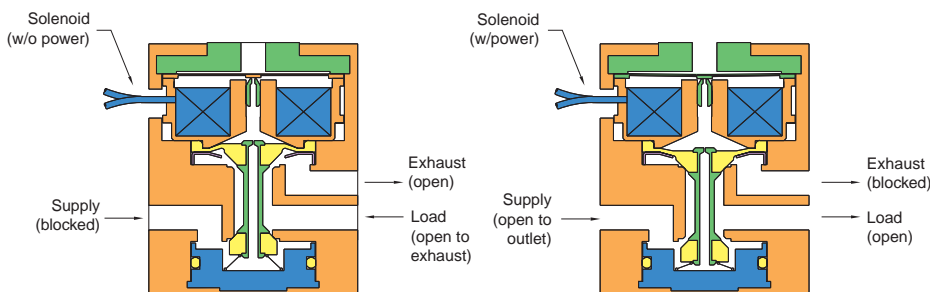


3-Way Normally Closed Electronic Valve with low-power DC solenoid can be directly converted to high pressure pneumatic power without electronic amplification.



Top View

Side View



Valve Closed

Valve Open

**Medium:** Air  
**Material:** Anodized aluminum body, Buna-N diaphragms  
**Input Pressure:** 30-100 psig/2-7 bar max.  
**Air Flow:** 22 SCFM @ 100 psig; 530 l/min @ 6 bar  
**Bleed:** 0.1 SCFM @ 100 psig  
**Filtration:** 10 micron  
**Frequency Response:** 50 Hz @ 100 psig; 70 Hz @ 30 psig  
**Switching Speed:** 10 ms.  
**Leads:** 28 gauge stranded P.V.C. insulated  
**Continuous Overload:** 350% @ 25° C ambient; 250% @ 50° C ambient  
**Power Consumption:** less than 0.50 watts at rated voltage  
 80 ma. @ 6V  
 40 ma. @ 12V  
 20 ma. @ 24V

Part No.	Description
2013-6 . . . . .	Valve, 6 Volts DC, 1/8" NPT
2013-12 . . . . .	Valve, 12 Volts DC, 1/8" NPT
2013-24 . . . . .	Valve, 24 Volts DC, 1/8" NPT
2013-6-MG . . . . .	Valve, 6 Volts DC, G1/8
2013-12-MG . . . . .	Valve, 12 Volts DC, G1/8
2013-24-MG . . . . .	Valve, 24 Volts DC, G1/8



# SPECIAL PILOTED 3-WAY VALVES



## 3-Way Normally-Closed Pressure Piloted Valve



Designed to be piloted by a Clippard EV or ET manifold mount electronic valve. Output from the EV/ET actuates the valve to produce outputs up to 22 SCFM at 100 psig. Combines low wattage, long life and cool running of the EV/ET valves with quick response and high flow of Clippard booster type valves.

The 2020 and 2021 are identical in all respects except one. The 2020 has an external #10-32 (M5) port for the pressure supply to the EV/ET electronic pilot valve. The 2021 has an internal pressure supply to the EV/ET.

Medium: Air

Input Pressure: 30-100 psig/2.7-7 bar max.

Air Flow: 22 SCFM @ 100 psig; 620 l/min @ 6 bar

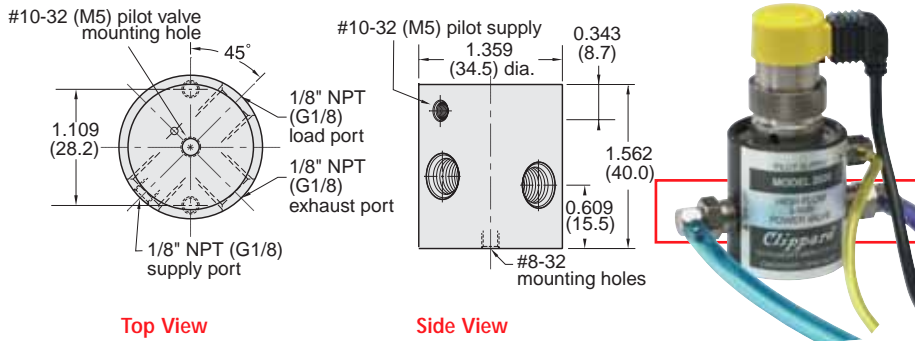
Pilot Pressure: 60% of supply pressure, min.

Response Time: Approx. 20 ms.

Mounting: Mounting holes provided

Materials: Anodized aluminum, stainless steel

Part No.	Description
2020 . . . . .	Piloted Valve, 1/8" NPT
2020-MG . . . . .	Piloted Valve, G1/8
2021 . . . . .	Piloted Valve, 1/8" NPT
2021-MG . . . . .	Piloted Valve, G1/8



2020 shown with ET Pilot Valve and external pilot supply

## Pressure Piloted Snap Action Amplifying Valve



Provides a sharp, clean output signal, even with slow-changing pressure input signals; output is stabilized without chatter or oscillation

Medium: Air

Input Pressure: 3-100 psig/0.2-7 bar max.

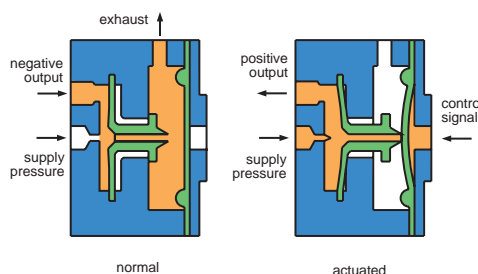
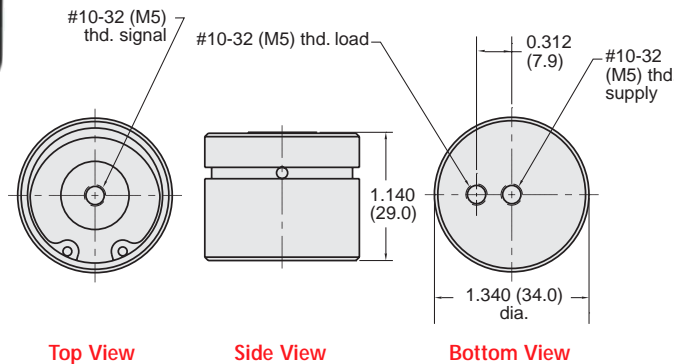
Minimum Pilot Pressure: 1.5" H<sub>2</sub>O psig

Maximum Pilot Pressure: 1 psig (28" H<sub>2</sub>O")

Air Flow: 0.18 SCFM @ 100 psig; 5 l/min @ 6 bar

Bleed Orifice Diameter: 0.010"

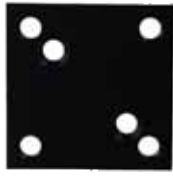
Part No.	Description
3200-A . . . . .	Amplifying Valve, #10-32
3200-A-M5 . . . . .	Amplifying Valve, M5



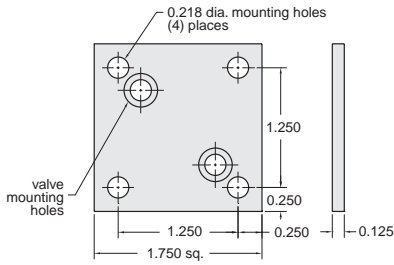


# VALVE MOUNTING BRACKETS & ACCESSORIES

## Flat Bracket



Flat bracket designed to mount 2010, 2011-1, 2012 and 2013 valves



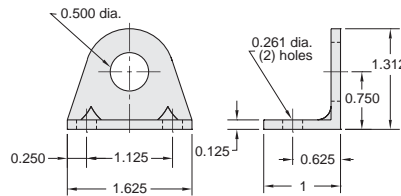
**Construction:** Black oxide finish, two mounting screws furnished.

Part No.	Description
2010-050	Flat Bracket

## Mounting Bracket, 90°



90° angle, heavy duty Mounting Bracket for Clippard miniature valves



**Mounting:** 1/2" dia. hole for valve; two 0.261" dia. holes for attaching bracket

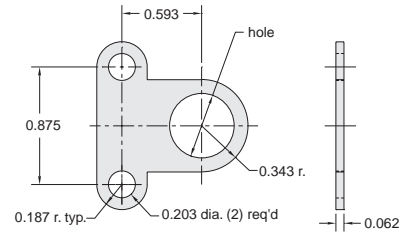
**Construction:** Stamped from 1/8" thick steel zinc plated

Part No.	Description
15018-2	Mounting Bracket, 90°

## Flat Metal Bracket



Flat metal Bracket, for mounting Clippard miniature valves



**Mounting:** two 31/64" dia. mounting hole for valve; two 13/64" dia. mounting holes for attaching bracket

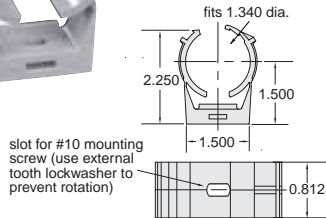
**Construction:** Stamped from 1/16" thick steel, zinc plated

Part No.	Description
11917-1	Metal Bracket, 0.484 Hole
11917-2	Metal Bracket, 0.328 Hole

## Bracket for Action Relays



Mounting bracket for 3200-A snap action relays.

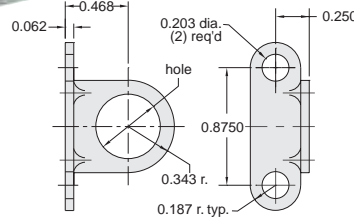


Part No.	Description
3200-006	Snap Action Relay Bracket

## Foot Mounting Bracket



90° angle, Foot Metal Mounting Bracket for Clippard miniature valves



**Mounting:** 31/64" dia. mounting hole for valve; two 13/64" dia. mounting holes for attaching bracket

**Construction:** Stamped from 1/16" thick steel, zinc plated

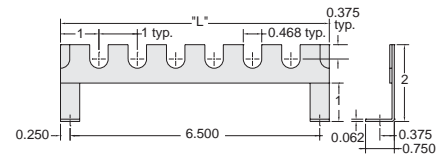
Part No.	Description
11918-1	Mounting Bracket, 0.484 Hole
11918-2	Mounting Bracket, 0.328 Hole

## Slotted Mounting Bracket



Quick mounting, slotted drop-in type metal

Mounting Bracket for Clippard miniature valves, regulators, controls, cylinders and switches. Open tops make them ideal for quick, easy assembly of compact pneumatic logic control systems inside small spaces.



**Mounting:** 31/64" wide slots, with bottom radius. Mounted legs have 0.119" dia. mounting holes in feet

**Construction:** Machined from 16 gauge steel; spot welded legs; zinc plated.

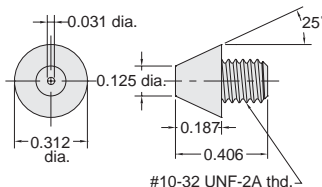
**Piping Path:** 1" high open area below bracket horizontal member provides space for tubing or piping paths

Part #	# of Slots	"L"
MB-4	4	0.5"
MB-6	6	0.7"
MB-8	8	0.9"
MB-10	10	1.1"

## Rubber Nozzles



#10-32 rubber nozzles for replacement 2011-1 limit valves. #10-32 thread, five to a package

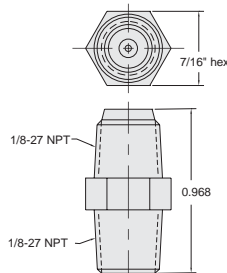


Part No.	Description
2011-012	Rubber Nozzles

## 1/8" NPT Filter



1/8" NPT hex nipple with 40 micron filter / strainer, can be used as a muffler

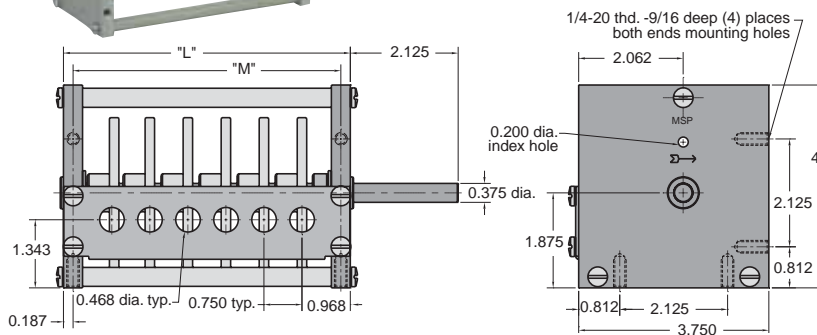


Part No.	Description
9002-01	1/8" NPT Filter

## Miniature Sequence Programmer



Center Shaft Replaceable Cam  
Miniature Sequence Programmer



**Use:\*\*** Power may be by machine controlled or by any small geared-down motor. Cams mounted on shaft operate up to 14 Clippard standard 2-, 3-, or 4-way valves (using Cam Follower 11925), and snap action switches such as Clippard ES-1. Valves on unit may control large pilot operated valves, or may be connected directly to cylinders, air limits, or circuitry, eliminating costly switches and solenoid valves.

**\*\* Cams not included**

Furnished with valve mounting bracket and Allen wrench. May be used with standard, adjustable or special cut cams at extra charge. Please specify desired cams when ordering. Use Clippard wrench #11751 for valve mounting.

**Recommended Torque:** Approx. 2 in. lbs. per cam.

**Timing:** Cams aligned originally using rod through holes in end blocks and cams. Once locked to shaft, timing is permanently established, rotation of cams actuates valves according to lobes provided. (see cam data)

**Construction Features:**

- Self-lubricating bronze bearings
- 1/8" black oxidized steel shaft-extendible either end
- One-piece phenolic cams - extendible either end
- Easy cam adjustment - one set screw
- End plates tapped for mounting bottom or rear
- Positive cam indexing
- Heavy aluminum end blocks
- Rigid channel steel mounting bracket for valves, switches

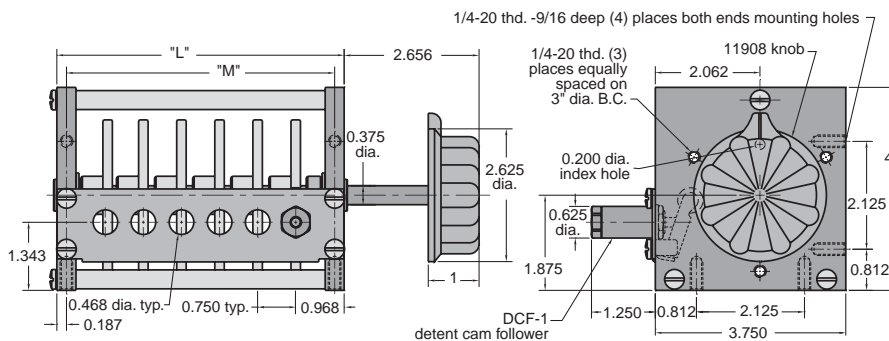
Part No.	# of Cams	"L"	"M"
MSP-4	4	4.156	3.781
MSP-6	6	5.656	5.281
MSP-8	8	7.156	6.781
MSP-10	10	8.656	8.281
MSP-12	12	10.156	9.781
MSP-14	14	11.656	11.281

## Miniature Sequence Programmer



Center Shaft Replaceable Cam Detent  
Sequence Programmer.

Specify desired standard Clippard programmer cams plus one detent cam.



**Construction:** Basically the same as the MSP programmers with the addition of a spring plunger detent mechanism, an extended shaft with hand knob, and tapped mounting holes for panel mounting

**No. Of Cams\*:** 3 to 13, depending upon model; six standard models (3, 5, 7, 9, 11 and 13 valve stations respectively)

**Mounting:** Mount on panel, or by bottom or rear, as required; three (3) 1/4-20 tapped holes provided on front plate for flush mount to panel; additional holes provided on front plate for flush mount to panel; additional holes at bottom and sides of end plates

**\*Cams not included**

**Use:** Manually to set a predetermined sequence; or as a stepping switch

Part No.	# of Cams	"L"	"M"
DSP-3	3	4 5/32	3 25/32
DSP-5	5	5 21/32	5 9/32
DSP-7	7	7 5/32	6 25/32
DSP-9	9	8 21/32	8 9/32
DSP-11	11	10 5/32	9 25/32
DSP-13	13	11 21/32	11 9/32



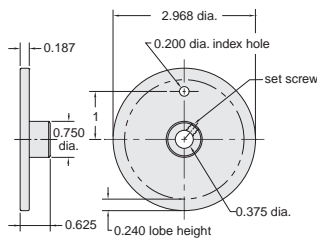
# MECHANICAL SEQUENCER CAMS & GAUGES

## Minimatic® Cams



Minimatic Sequence Programmer Cams. Use with Clippard MSP or DSP sequence programmers.

Available in 8 models pre-cut with lobes from 15° to 340°, also blank 360° cam for custom machining.

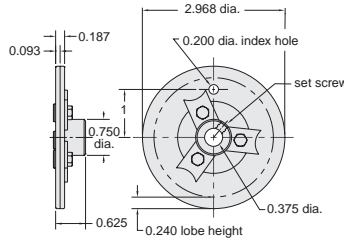


Order No.	Lobe	Order No.	Lobe
C-33-15	...15°	C-33-180	...180°
C-33-30	...30°	C-33-270	...270°
C-33-60	...60°	C-33-340	...340°
C-33-90	...90°	C-33-360	...uncut*
C-33-120	...120°		

## Adjustable Cams



Use with Clippard MSP or DSP sequence programmers. Available in five models with adjustable lobes covering from 30° to 360°, also as a blank for custom machining.

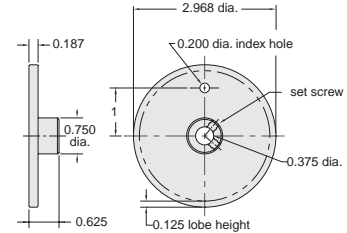


Order No.	Lobe Adjustment	
	From	To
A-33-30	...30°	...50°
A-33-45	...45°	...80°
A-33-70	...70°	...130°
A-33-120	...120°	...230°
A-33-210	...210°	...360°
A-33-360	...uncut	

## Detent Cams

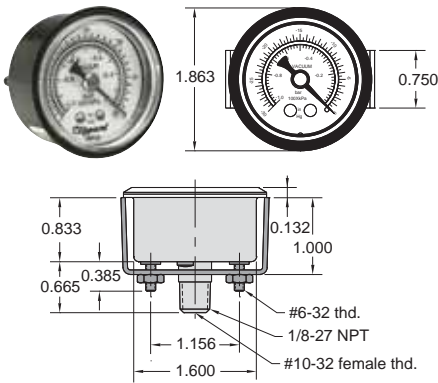


One standard phenolic detent cam with 4, 6, 8, 10 or 12 evenly spaced cuts is required with each DSP. Special cut detent cams are available at nominal cost.



Order No.	Number of Positions
DC-4	...4
DC-6	...6
DC-8	...8
DC-10	...10
DC-12	...12

## Vacuum Gauge



Gauge measures pneumatic vacuum pressure. Mounting bracket included.

**Range:** Scale reading from 0 to 30 in.Hg. and 0 to -1 bar

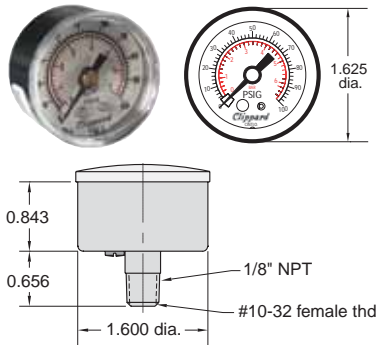
**Construction:** Nickel-plated steel case. Plastic face. Dial shows two ranges; Hg in black. Bars in red. Built-in pressure snubber.

**Ports:** Connection located at rear is double threaded O.D. - male thread 1/8" NPT I.D. - tapped for #10-32 fitting

**Mounting:** Stud mount using 1/8" NPT center stud or panel mount using the zinc plated steel bracket supplied.

Part No.	Description
VG-30	...Vacuum Gauge

## Pressure Gauge



Gauge measures pneumatic system pressure. Stud mounted.

**Range:** Scale reading from 0 to 100 psig and 0 to 6.9 bar

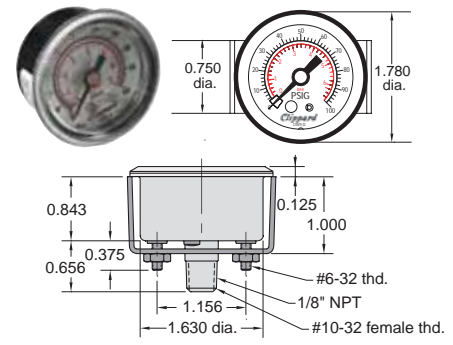
**Construction:** Steel case. Plastic face. Dial shows two ranges; psig in black. Bars in red. Built-in pressure snubber.

**Ports:** Connection located at rear is double threaded O.D. - male thread 1/8" NPT I.D. - tapped for #10-32 fitting

**Mounting:** Direct with 1/8" NPT

Part No.	Description
PG-101-BK	...Pressure Gauge, Black Case
PG-101-NP	...Pressure Gauge, Nickel-Plated

## Pressure Gauge



Gauge measures pneumatic system pressure. Mounting bracket included.

**Input Pressure:** Scale reading from 0 to 100 psig and 0 to 6.9 bar

**Construction:** Nickel-plated steel case. Plastic face. Dial shows two ranges; psig in black. Bars in red. Built-in pressure snubber.

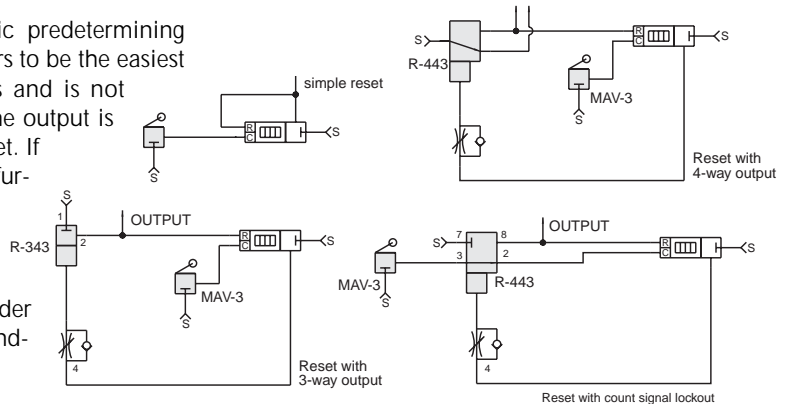
**Ports:** Connection located at rear is double threaded O.D. - male thread 1/8" NPT I.D. - tapped for #10-32 fitting

**Mounting:** With zinc plated steel bracket supplied

Part No.	Description
PG-100	...Pressure Gauge

Here are some suggested means for resetting pneumatic predetermining counters. While the simple reset shown in Figure 1 appears to be the easiest means of resetting a counter, it has serious drawbacks and is not recommended. As soon as the counter begins to reset, the output is cut off and the counter may or may not be completely reset. If an output is taken from the reset loop (Figure 1), this further jeopardizes the completion of the reset conditions or, in fact, any reset at all.

The following circuits are suggested as means to reset the Clippard PC-3PM. All air logic circuits should be tested under actual conditions to determine their suitability for the intended application.

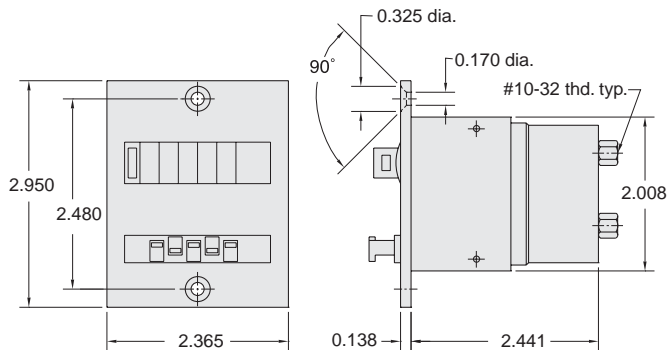


## Pneumatic Predetermining Counter



This unit is a highly versatile Pneumatic Predetermining Counter. It counts down from a preselected number and gives a pneumatic signal output when zero is reached. The output can then be used to actuate or initiate machine functions. The PC-3PM can be used in combination with pneumatic logic controls, limit switches, proximity switches, and similar controls.

The counter is preset by depressing the reset button, and at the same time entering the desired preset figure by depressing the preset keys. It can be used to count products being packaged, count machine operations and cause a change in operation after the preset value has been reached.



**Display:** 5 figures, numerals 0.100" to 0.160"

**Medium:** filtered compressed air containing no oil

**Connections:** Z (1) Counter impulse input; Y (2) Reset impulse; P (3) Air input; A (4) Air output signal

**Reset:** Manual push button and pneumatic spring return

**Input Pressure:** 30-120 psig

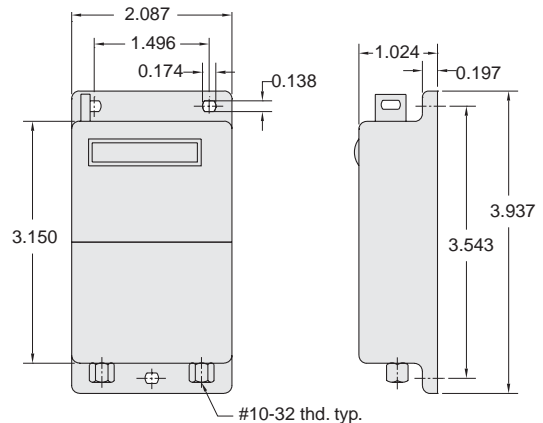
**Mounting:** Panel mount

Part No.	Description
PC-3PM	Pneumatic Predetermining Counter

## 6-Digit Pneumatic Totalizing Counter



This model is a 6-digit pneumatic totalizing counter. A pneumatic signal or impulse adds the value of 1 to the display. When the indicator reaches its maximum value, the counter starts again at zero. The counter may be reset manually by depressing the reset push button, or by an air impulse. The counter is useful for event recording, piece or part counting, for indicating program steps, cycle counting, machine time logging, and for many other purposes. The PT-1SM is designed for surface mounting.



**Display:** 6 figures, numerals 0.080" to 0.160"

**Medium:** filtered compressed air containing no oil

**Reset:** Manual push button and pneumatic spring return

**Input Pressure:** 30-120 psig

**Mounting:** Surface mount

Part No.	Description
PT-1SM	6-Digit Pneumatic Totalizing Counter

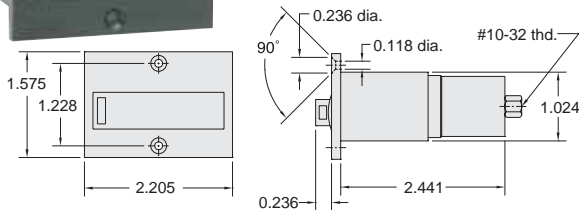


# PALM BUTTONS

## Pneumatic Totalizing Counter



This unit is a 6-digit pneumatic totalizing counter, designed for panel mounting. Its operation is identical to that of the PT-1SM, but in a different physical arrangement. Both units may be reset manually or by a pneumatic impulse. Operating pressure range is extremely wide (30 to 120 psig).



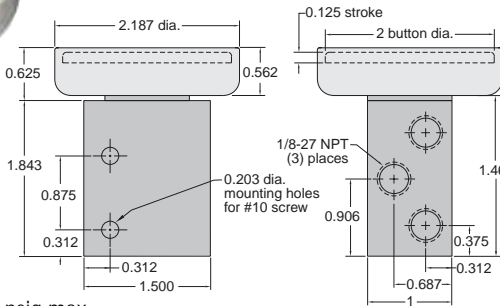
- Display:** 6 figures, numerals 0.080" to 0.160"
- Medium:** filtered compressed air containing no oil
- Reset:** Manual push button and pneumatic spring return
- Input Pressure:** 30-120 psig
- Mounting:** Panel mount

Part No.	Description
PT-2PM . . . . .	Pneumatic Totalizing Counter, 6-Digit

## 3-Way Poppet Palm Button Valves



3-Way Poppet (MAV-3C) Normally Closed - Bubble Tight Cartridge Valve (- replaceable)



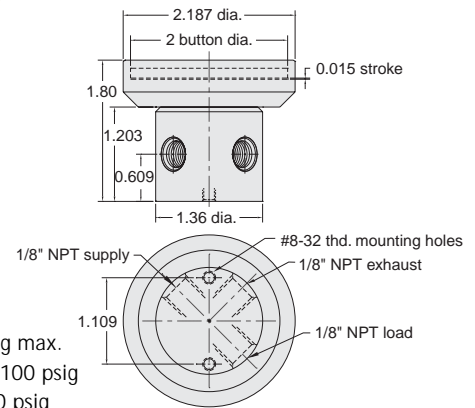
- Medium:** Air
- Stem Travel:** 1/8"
- Input Pressure:** 100 psig max.
- Air Flow:** 3.5 SCFM @150 psig; 6.0 SCFM @100 psig
- Bleed:** 0.1 SCFM @ 100 psig
- Force to Actuate:** 1.75 lb. manual
- Ports:** 1/8" NPT - exhaust may be muffled or piped away but NOT restricted
- Mounting:** Mounting holes provided; optional Bracket Kit #12959 provides additional mounting versatility; valve available with anodized color buttons

Part No.	Description
PB-1-RD . . . . .	3-Way Poppet Bubble Valve, Red
PB-1-GN . . . . .	3-Way Poppet Bubble Valve, Green
PB-1-BK . . . . .	3-Way Poppet Bubble Valve, Black
12959 . . . . .	90° Mounting Bracket Kit (shown below)

## Low Force 3-Way Palm Button Valves



3-way low force poppet valve; Normally closed; depressing button blocks the sensing port causing rapid valve opening



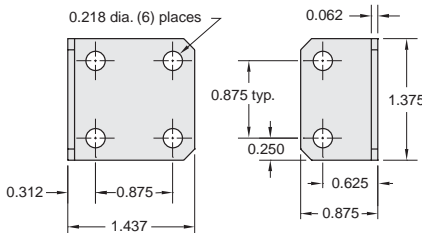
- Medium:** Air
- Input Pressure:** 100 psig max.
- Air Flow:** 22 SCFM - @100 psig
- Bleed:** 0.8 SCFM @ 100 psig
- Force to Actuate:** 1 oz. manual
- Mounting:** Mounting holes provided; optional Bracket Kit #2010-50 provides additional mounting versatility; valve available with anodized color buttons

Part No.	Description
PB-2-RD . . . . .	Low Force 3-Way Poppet Valve, Red
PB-2-GN . . . . .	Low Force 3-Way Poppet Valve, Green
PB-2-BK . . . . .	Low Force 3-Way Poppet Valve, Black
2010-050 . . . . .	Mounting Bracket Kit (shown below)

## 90° Mounting Bracket



90° angle, heavy duty versatile Mounting Bracket for Clippard palm button valves



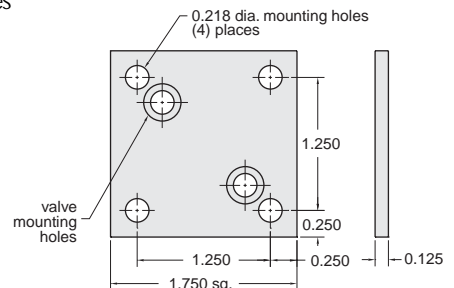
- Mounting:** Six 7/32" dia. holes on 1/8" centers for attaching valves to bracket
- Construction:** Stamped from 1/8" thick steel, zinc plated

Part No.	Description
12959 . . . . .	90° Mounting Bracket Kit

## Mounting Bracket



Bracket to mount 2010, 2011-1, 2012 and 2013 valves



- Black oxide finish, two mounting screws furnished

Part No.	Description
2010-050 . . . . .	Mounting Bracket Kit