Isonic®

The Award-Winning "Half-Shell" Design

The heart of the Isonic® concept is its patented "half-shell" design. Composed of two mirror-image halves, Isonic® allows its flow channels and internal component compartments to be designed directly into these molded body sections. Valve bodies are molded of high-strength, glass-impregnated Ultem thermoplastic.

Assembly is achieved by simply inserting the various valve elements into their corresponding "half-shell" pockets. Internal components are easily positioned to make optimal use of space.

The valve is completed by ultrasonically welding the two valve segments, creating a strong bond and hermetic seal. This design totally eliminates the need for fasteners, adhesives, gaskets and inserts.

Revolutionary Valve Production

Isonic® technology eliminates all machining operations associated with valve manufacturing. Requiring only simple assembly, Isonic® can be produced quickly and easily with significant cost reduction.

Design Optimizes Valve Performance

Isonic® 2, 3 and 4-way valves feature a unique, multi-patented design that significantly shrinks valve size while boosting flow capacity. With its design and a state-of-the-art manufacturing process, Isonic® breaks through the restriction and limitations of conventional valve manufacturing.

Loaded with Standard Features

Along with its size and price advantages, Isonic® offers numerous user features, many of them standard. Most models feature an integral electronic board with surge suppression and LED. A variety of voltages and wiring options are available. This combination of price and versatility make Isonic® the perfect control choice for pneumatic systems.

Faster Manifold Connections

The Isonic® manifold system has been designed to virtually eliminate downtime, eliminating all end plates, screws, o-rings and gaskets customarily found in manifold systems. Connecting any valve to the manifold base is as easy as plugging in an electrical cord. With this patented "plug-in" design, replacing an individual valve can be accomplished in seconds, without the aid of any tools!

Available in two, three, four or five station segments, the Isonic® manifold's unique modular design creates a versatile, expandable control base. For larger manifolds, two or more segments can be easily combined to fulfill any needs. Further, manifold segments are easily isolated for applications with differential pressures.

Quick-Connect Collets - No Fittings Needed

With its unique design Isonic® eliminates the need for tube fittings. Built-in, push-to-connect collets allow for fast and easy tube and manifold connections.

Resistant To Harsh Conditions

Molded from a high performance thermoplastic, Isonic® achieves superior heat, impact and chemical resistance. It is listed with both UL and CSA.

Maximum Air Flow

Instead of the angular passages of most conventional valves, Isonic's internal channels are aerodynamically shaped for maximum air flow and minimal internal friction. Eliminating sharp corners and abrupt changes in direction reduces air turbulence and energy loss. Normally round air passages are replaced by thin, deep, tape-like channels that conserve space and optimize air flow.

New Patents

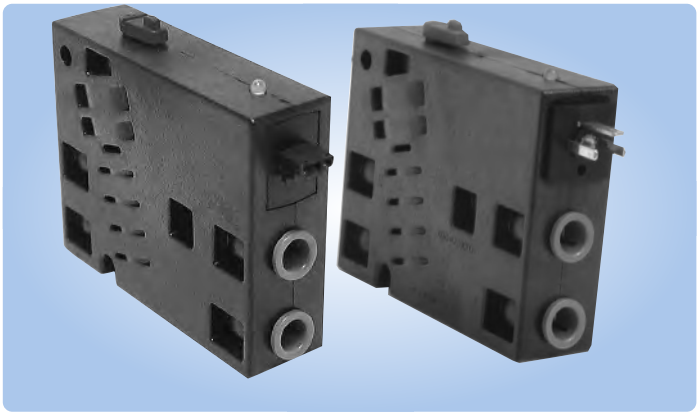
Patent #	Patented Property
5,222,715	"Half-Shell" Valve Construction
5,341,846	Plug-In Valve Stack Assembly

Additional Patents Pending

Isonic® is a registered trademark of Mead Fluid Dynamics, Inc.

Isonic® V1 and V4 have earned UL recognition and have been tested to the standards of CSA and conforms to the applicable directives of the European Union.

Isonic® V4000 Series (4-Way)



Isonic® Control Valves

While only 20 mm in width, these 2 position spool valves provide a surprisingly high flow (C_v=0.8). With its thin, aerodynamic flow passages, Isonic® maintains a higher flow in a smaller area. The pilot piston features an innovative oval design to further facilitate a compact, low-profile power valve.

Versatile Mounting

With a hole and a slot molded into its body, Isonic® valves may be mounted flush to any flat surface. Mounting brackets are also available for individual surface or DIN rail mounting.

Solenoid Data

Voltage	Amps	Resistance	Initial Power	Continuous On
12DC	0.133	92	1.6	1.3
24DC	0.058	406	1.4	1.2
24AC	0.058	406	1.4	1.2
120AC	0.014	8350	1.7	1.5

Specifications	
Design:	Spool (2-Position)
Ports :	1/4" OD tube collet or 6mm OD tube collet
Pilot Ports :	5/32" (4mm) OD tube collet
Media:	Air or Inert Gas
Lubrication:	None Required
Filtration:	40 micron
Cycle Life:	20,000,000 (minimum)
Orifice Size:	0.2" (5.0mm)
Flow:	0.8 C_v
Vacuum:	Air pilot models can be used in vacuum applications with external air signal to pilot ports
Minimum Pressure:	30 PSI (2 Bar)
Maximum Pressure:	120 PSI (8.3 Bar)
Temperature Range:	0° - 120°F (-18°C - 49°C)
Mounting Holes:	0.177" (4.5mm) diameter (1 hole, 1 slot)
Weight:	Solenoid models 3.1 oz each Air Pilot models 2.1 oz each

Materials

Body. . . . . GE thermoplastic
Seals . . . . . Fluorocarbon and Nitrile

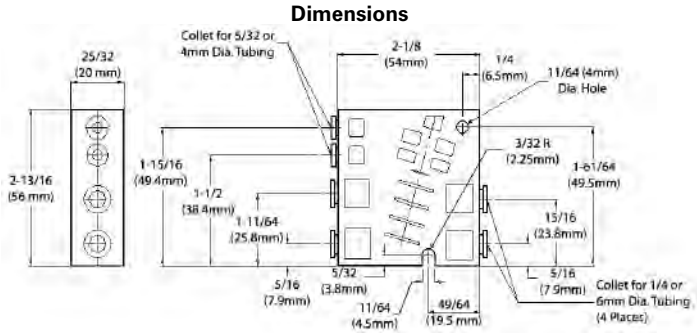
Electrical

Voltages. . . . . DC: 12, 24
. . . . . AC: 24, 110/120
Leads . . . . . 18" standard - 24 AWG wire
Duty Cycle . . . . . Continuous duty
Response Time . . . . . 16 milliseconds @ 100 PSI
Serial Interface . . . . . 10-pin flat cable connector
Manual Override . . . . . Standard (solenoid models)

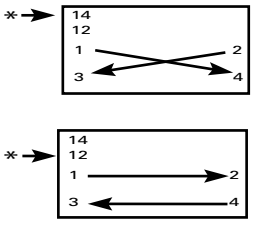
Din Connector: Protection Class- IP 65 according to DIN 40 050
Insulation Class- Group C according to VDE 0110
Conform to DIN 43650 Form C Specifications

Pressure Piloted Models

Dimensions

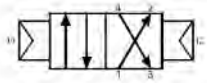


Function

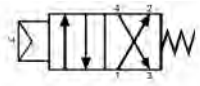


Symbol

4/2 Double Air Pilot



4/2 Single Air Pilot

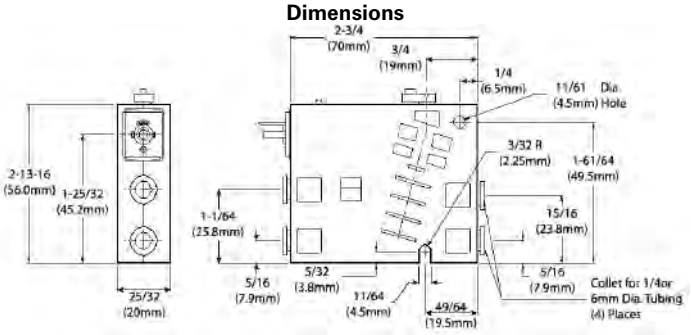


* Arrow Indicates Pressure applied to Pilot Port

1.....Air Supply 2.....Cylinder
3.....Common Exhaust 4.....Cylinder

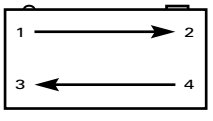
Solenoid Models

Dimensions

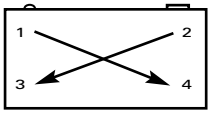


Function

Unactuated



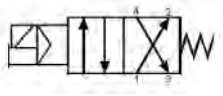
Actuated



1.....Air Supply 2.....Cylinder
3.....Common Exhaust 4.....Cylinder

Symbol

4/2 Single Solenoid



The Quick-Change Manifold

The Isonic® manifold system has been designed to virtually eliminate downtime. Connecting any valve to the manifold base is as easy as plugging in an electrical cord. With this patented "plug-in" design, replacing an individual valve on the manifold can be accomplished in a matter of seconds!

Isonic® Manifold Expands With Your Needs

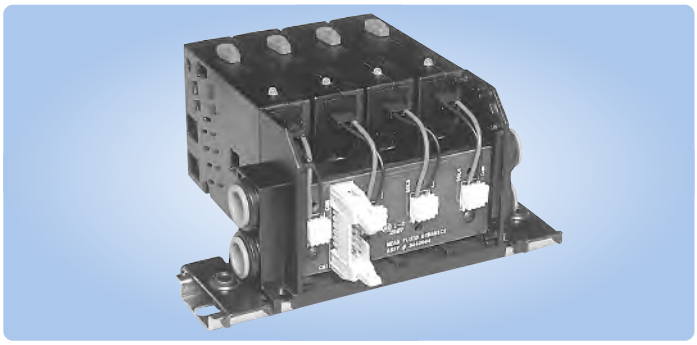
Available in two, three or four station segments, the manifold's unique modular design creates a versatile, expandable control base. For manifolds larger than four stations, two or more segments can be easily combined to create any size manifold (multiple segments are assembled on DIN rail and secured with end stops). Manifold segments are easily isolated for applications with differential pressures.

Mounting Options

The Isonic® manifold can be either foot mounted or DIN rail mounted. 35mm DIN rail can be ordered from Mead.

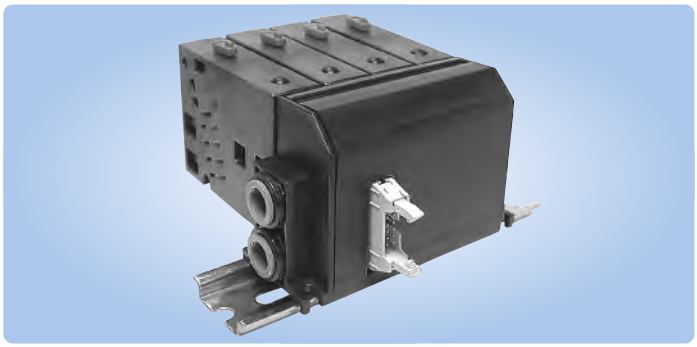
Manifold Specifications

Common Air Inlet . . . . . Both ends: built in collets for ⅜" OD (or 10mm) tubing
Foot Mounting. . . . . 0.177 (4.5 mm) diameter
DIN Rail Mounting. . . . . Attaches to 35 mm DIN rail



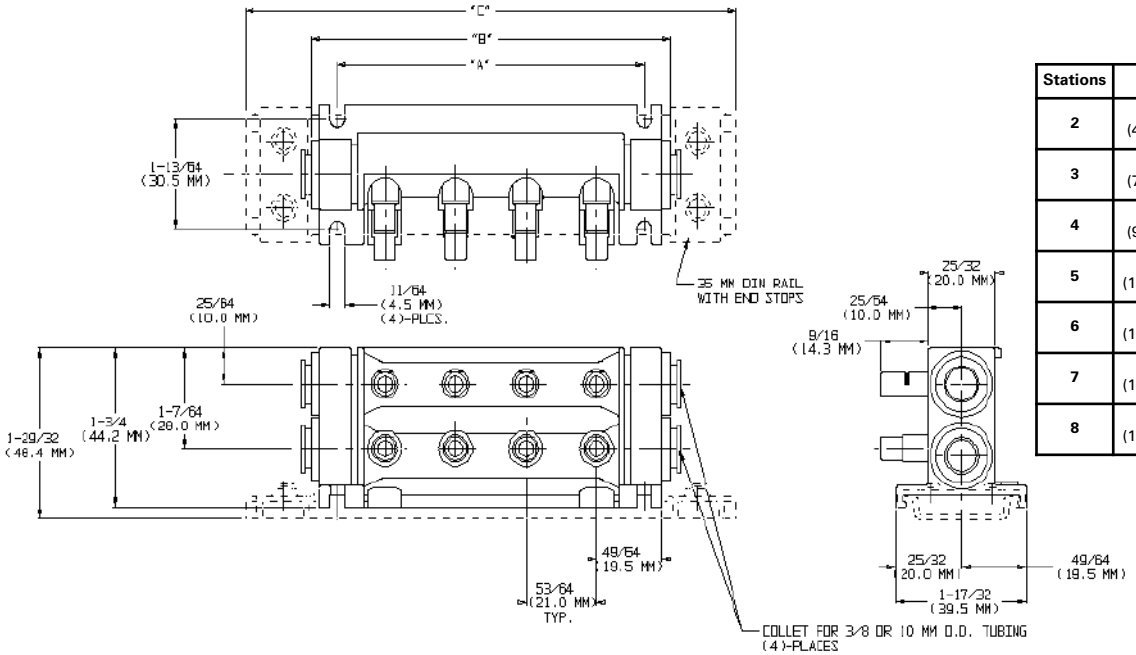
Simplify Wiring Tasks With Cable Connector

To further reduce set-up time and installation costs, the Isonic® manifold can be prewired to accept a single connection. With this option, a printed circuit board connects each of the manifold's valve stations. Simply plug in a standard flat-cable ribbon to the 10-pin connector for quick, clean wiring. A single connector can supply wiring for up to 8 valves. A second cable connector is necessary for manifolds of more than 8 valves.



Pre-wired manifolds are supplied with a protective cover. The cover snaps easily into place to protect the wiring and circuit board. It is easily removed for servicing or replacing a valve.

V4 Manifold Dimensions



Stations	"A"	"B"	"C"
2	1-61/64 (49.5 mm)	2-35/64 (64.7 mm)	4-9/64 (105 mm)
3	2-25/32 (70.5 mm)	3-3/8 (85.6 mm)	4-15/16 (125 mm)
4	3-39/64 (91.5 mm)	4-13/64 (106.7 mm)	5-49/64 (146 mm)
5	5-9/64 (130.5 mm)	5-57/64 (145.6 mm)	7-19/64 (185 mm)
6	5-31/32 (151.5 mm)	6-9/16 (166.7 mm)	8-1/8 (206 mm)
7	6-51/64 (172.5 mm)	7-25/64 (187.7 mm)	8-61/64 (227 mm)
8	7-5/8 (193.5 mm)	8-7/32 (208.7mm)	9-25/32 (248 mm)

Isonic® V4000 Series (4-Way)

How To Order

Valves:

V 4 A 0307 - A W 1 - (**)

Product Category
V = Valve

Family
4 = Isonic 4000 (4-way)

Collet Size
A = ¼" O.D. Tube Collet
B = 6mm O.D. Tube Collet

Actuator Type
0507 = Single Air Pilot, Spring Return
0505 = Double Air Pilot
0307 = Single Solenoid, Spring Return

Options
V = Pilot Breather Vent Filter

LED
0 = (only available with connector Z)
1 = LED(not available with connector Z)

Connector
0 = None (pressure models)
W = Mini Quick Connect (w/board)
X = 8mm micro DIN Connector (w/board)
Y = Flying Lead (with board)
Z = Flying Lead (no board - DC only)

Solenoid Voltage
0 = None (pressure models)
A = 12 DC
B = 24 DC
D = 24 50/60 Hz AC
F = 110 / 120 50/60 Hz AC

Manifold:

M 4 A 03 - 2 Y

Product Category
M = Manifold

Family
4 = ISONIC 4000 (4-way)

Collet Size
A = ⅜" O.D Tube Collets (Common Air Inlet)
B = 10mm O.D. Tube Collets (Common Air Inlet)

Number of Stations
02 = 2 Stations
03 = 3 Stations
04 = 4 Stations
N = N Stations
(modular segments are combined for manifolds over 4 stations)

Wiring Options
N = None
Y = Pre-wired 10-pin ribbon connector*
(wiring cover included)
C = Manifold with wiring cover

* Pre-wired manifolds not available with DIN connector valves.

Manifold Assembly
0 = Manifold Only
2 = Manifold Mounted on DIN rail
(required for 5 or more stations)

Isonic® V4000 Series (4-Way) Accessories

Accessories

Electrical Connectors

8mm Micro DIN Connector P1D1
8mm Pre-wired DIN Connector (includes 39″ leads) . . P1D2
Mini Quick-Connect (includes 18″ leads) P1Q1

Mounting Brackets (For 4-Way Valves Only)

Single Valve Mounting Bracket P4SM
Single Valve DIN Rail Mount P4DM

Port Adapter (For 5/32″ Ports)

Converts Port to Barb for 1/4″ OD Tube P1SA1
Converts Port to Push-in Fitting (1/4″ OD Tube) P1SA2

DIN Rail & Manifold End Stops

15mm DIN Rail (x = # of feet required) P1M1-x
35mm DIN Rail (x = # of feet required) P4M1-x
15mm Rail End Stop P1S1
35mm Rail End Stop P4S1

10-Pin Connector & Ribbon Cable (For Pre-Wired Manifolds)

Connector w/ 1.0 meter leads P4RC10
Connector w/ 1.5 meter leads P4RC15
Connector w/ 3.0 meter leads P4RC30

Manifold Station Blocking Plugs & Port Plugs

5/32″ (4mm) Station Plug (for empty manifold stations) . P1B1
1/4″ Station Plug (for empty manifold stations) P4B1
6mm Station Plug (for empty manifold stations) P4B2
1/4″ Port Plug P1P1
6mm Port Plug P1P2
3/8″ Port Plug P4P1
10mm Port Plug P4P2

Miscellaneous Accessories

Valve Locking Clip (locks 2 valves in place) P4LC-2
(locks 3 valves in place) P4LC-3
(locks 4 valves in place) P4LC-4
Manifold Valve ID Strip (50 #s per strip) P4ID

Tube Collets (For Replacement Only)

For 1/4″ Port P4C1
For 6mm Port P4C2
For 3/8″ Port P4CA
For 10mm Port P4CB

Push-In Exhaust Mufflers

For 1/4″ Port MMP-250
For 6mm Port MMP-006
For 3/8″ Port MMP-375
For 10mm Port MMP-010

Mounting Bracket (P4DM)

P4DM Shown here with valve and without on DIN Rail

Manifold Accessories

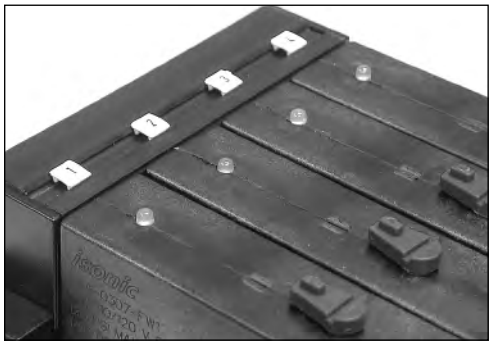
P4B1

Collets

P4C1 & P4CA

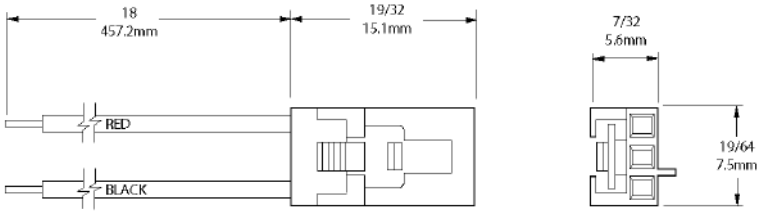
P4LC-4

Valve Identifiers (P4ID)



Wiring Connector Dimensions

Mini Quick-Connect - 24 AWG wires



8mm DIN Connector