I/P , E/P Transducer

Model: MDIP1

Applications

- Valve actuators
- Valve positioners
- HVAC systems
- Material handling systemes
- Automation systems
- Liquid and gas processing systems
- Process industry: Chemical/petro chemical, power stations, food and beverage, offshore oil rigs,marine application, pulp and paper, environmental technology, machine building and general plant construction

Special features

- Accuracy 1% of span standard(A type) and 0.5% (C type)
- Best accuracy, reproducibility and long-term stability
- Local zero and span adjustments
- Intrinsically safe and explosion proof
- RFI/EMI Protection eliminates susceptibility to
- electromagnetic and radio interference.
- Six output pressure ranges meet final control element requirements.
- Six input signal ranges meet most process and machine requirements.
- Input and Output ports on both front and bottom simplifies pneumatic piping.
- For level, Best fit for vacuum applications and applications with corrosive and abrasive media Process safety through membrane breakage detection
- Explosion-Proof NEMA 4X, Ip65, Type 4,
- Enclosure available for outdoor installations.
- Compact size permits use in space restricted areas.

Materials of Construction

Body and Housing:	Aluminum
Trim:	Zinc Plated Steel
Diaphragm:	Nitrile
Orifice:	Nickel Plated Brass

The Type MDIP1 (I/P, E/P)Transducer is a force balance device in which a coil is suspended in a magnetic field by a flexure. Current flowing through the coil generates movement of the flexure. As this assembly moves towards the nozzle, it creates back pressure, which acts as a pilot to an integral booster relay. Input signal increases cause an accurate proportional change in output. Zero and Span are calibrated by turning adjust screws on the front face of the unit. Adjustment of the zero screw repositions the nozzle relative to the flexure. The span adjustment is a potentiometer that controls the amount of current through the coil.
The zero-based version of the Type MDIP1 incorporates an integral negative bias booster relay. The negative bias allows the unit to provide zero output while the booster section amplifies the pressure to provide outputs up to 120 psig.

Description

	Standard Range	Zero Based
Hysteresis	<0.65% of span	<0.9% of span
Repeatability	<0.5% of span	<0.5% of span
Linearity (Independent)	<0.65% of span <1.0% of span for fluorocarbon units	<0.9% of span
Flow @ Mid Range	6.5 SCFM (Minimum) @ 15.0 PSIG / 1.0 BAR output pressure, 120 PSIG / 8.3 BAR supply pressure	9.0 SCFM (Minimum) @ 15.0 PSIG / 1.0 Bar output pressure, 150 PSIG / 10.3 BAR supply pressure
Maximum Air Consumption	3 SCFH @ 15 PSI / 1.0 BAR output pressure	18 SCFH @ Maximum output pressure
Exhaust Capacity	>1.0 SCFM @ 5 PSI / 0.4 BAR above set point	>1.0 SCFM @ 5 PSI / 0.4 BAR above set point
Supply Pressure Range	5 psi above maximum output up to 120 psig / 8.3 BAR maximum	0-15 units: 25-150 PSIG / 1.7-10.3 BAR 0-30 units: 40-150 PSIG / 2.8-10.3 BAR 0-60 units: 70-150 PSIG / 4.8-10.3 BAR 0-120 units: 125-150 PSIG / 8.6-10.3 BAR
Weight	1.3 lbs.	1.63 lbs.
Port Size	1/4 NPT, BSPT, BSPP	1/4 NPT, BSPT, BSPP
Supply Pressure Sensitivity	<2.5% of span for a supply pressure change of 15 PSIG / 1.0 BAR	<1.7% of span change in output pressure over full supply pressure range (0-120 units)
Temperature Range	-20°F to +150°F	-20°F to +150°F
Input Signal	4-20 mA DC, 0-5 VDC, 1-5 VDC, 1-9 VDC, 0-10 VDC, 1-10 VDC	4-20 mA DC, 0-5 VDC, 1-5 VDC, 1-9 VDC, 0-10 VDC, 1-10 VDC
Output Range	3-15, 3-27, 6-30 PSIG 0.2-1.0, 0.2-1.9, 0.4-2.1 BAR	0-15, 0-30, 0-60, 0-120 PSIG 0-1.0, 0-2.1, 0-4.1, 0-8.3 BAR

Electrical Connections: Both the I/P & E/P versions are two-wire devices, plus a safety ground. The E/P requires a DC voltage input signal; example: 1 to 9 VDC. The I/P models require an input current of 4 to 20 mA.

Hazardous Area Classification

Intrinsically Safe (1/2 " NPT Conduit)
Class I, II, III, Division 1,
Groups C, D, E, F, & G
Enclosure Nema 4X(IP 65)
Temp. Code T4 Ta = 70° C
Rated 4-20 mA, 30 Vdc Max.

Intrinsically Safe (DIN & Terminal)
Class I, Division 1, Groups C & D
Temp. Code T4 Ta = 70° C
Rated 4-20 mA, 30 Vdc Max.

ATEX Approvals (option K)
Ⓔx II 1 G Ex ia IIB T4
Tamb = -40° C to +70° C

Non-Incendive (Conduit, DIN, Terminal)
Class I, Division 2,
Groups A, B, C & D
Temp. Code T4 Ta = 70° C

Suitable for (Conduit only)
Class II & III, Division 2,
Groups F & G
Temp. Code T4 Ta = 70° C

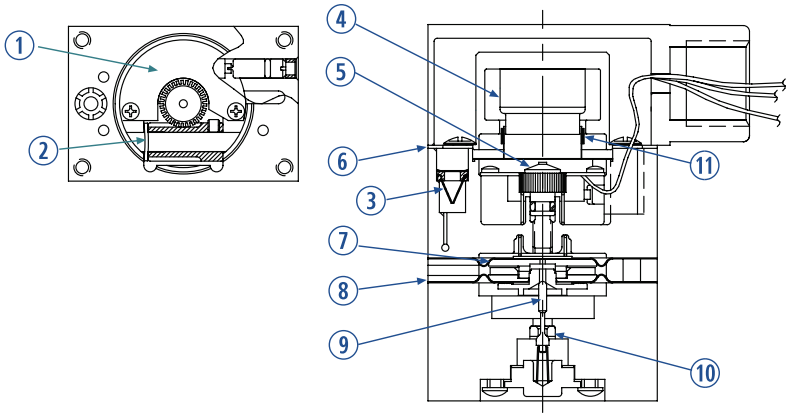
Entity Parameters
Ui (Vmax) = 30 Vdc Ci = 0 uF
Ii (Imax) = 125 mA Li = 0 m H
Pi = .7 w Max.

Entity Parameters
U: (Vmax) = 30 Vdc Ci = 0 uF
I: (Imax) = 125 mA Li = 0 mH
Pi = .7 W Max.

MDIP1 Standard Range Parts

Number	Description
1	Circuit Board
2	Worm Gear
3	Duckbill Valve (NEMA 4X Only)
4	Magnet Assembly
5	Nozzle Assembly
6	Bonnet Gasket (NEMA 4X Only)
7	Servo Diaphragm (I/P Section)
8	Control Diaphragm (I/P Section)
9	Pintle
10	Supply Seat
11	Coil/Flexure Assembly

Figure 1: Type MDIP1 Standard Range Parts



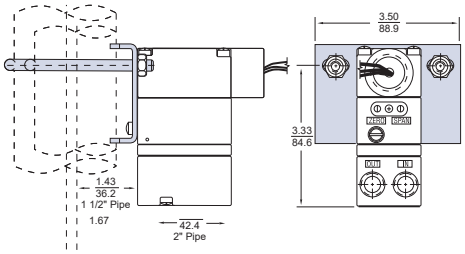
Drawings and dimensions are for reference only.

Type MDIP1 Standard Range Dimensions

Mounting Options

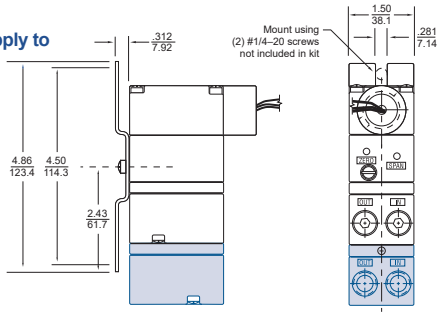
Pipe Mounting

Blue areas and dimensions apply to the zero-based unit only



Panel Mounting

Blue areas and dimensions apply to the zero-based unit only

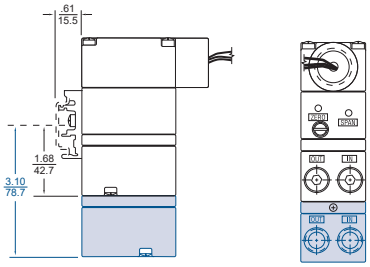


DIN Rail Mounting

Kit #445-766-024

DIN Rail suitable for EN-50035, EN-50045 and EN-50022 Rails

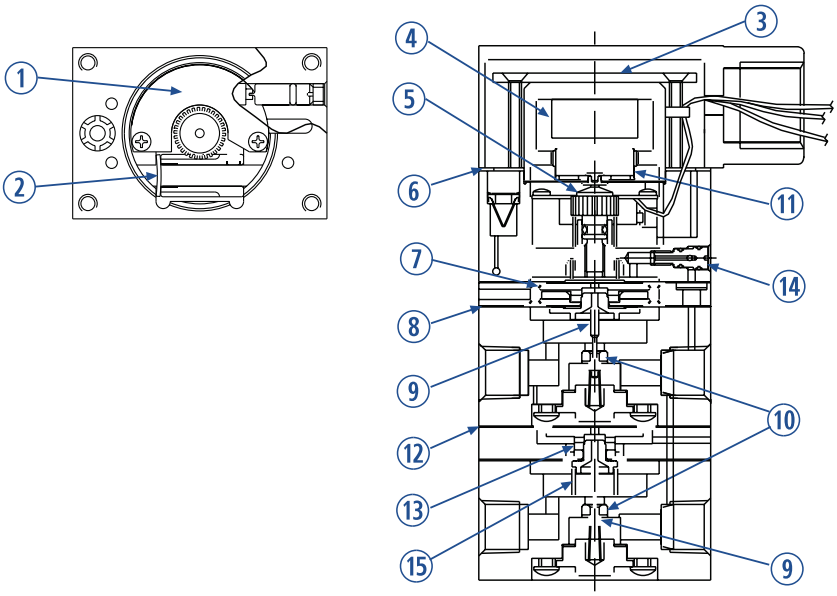
Blue areas and dimensions apply to the zero-based unit only



MDIP1 Extended Range Parts

Number	Description
1	Circuit Board
2	Worm Gear
3	Duckbill Valve (NEMA 4X only)
4	Magnet Assembly
5	Nozzle Assembly
6	Bonnet Gasket (NEMA 4X Only)
7	Servo Diaphragm (I/P Section)
8	Control Diaphragm (1/P Section)
9	Pintle
10	Supply Seat
11	Goil/Flexure Assembly
12	Servo Diaphragm (Bias Relay)
13	Control Diaphragm (Bias Relay)
14	Orifice Screw
15	Bias Spring

Figure 2: Type MDIP1 Extended Range Parts



Extended Range Dimensions

Back Dimensions

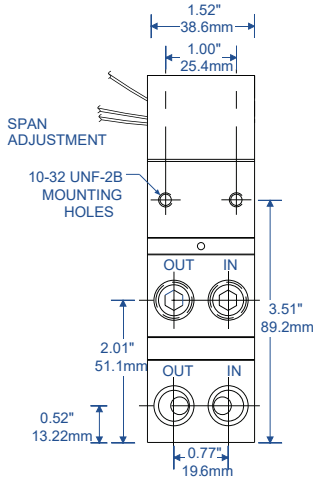


Figure 3 - Hirschmann ® (DIN 43 650-A)

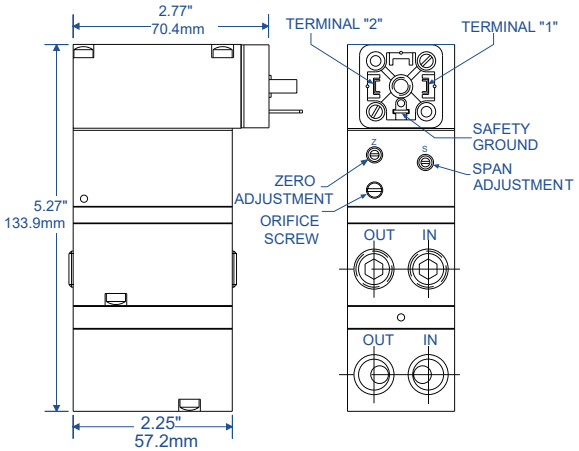


Figure 4: Hirschmann ® (DIN 43 650-A)

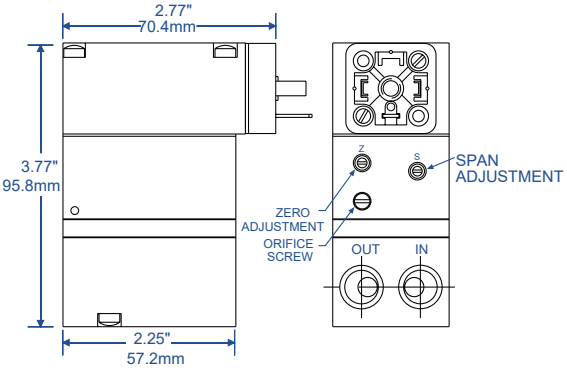


Figure 5: Terminal Block

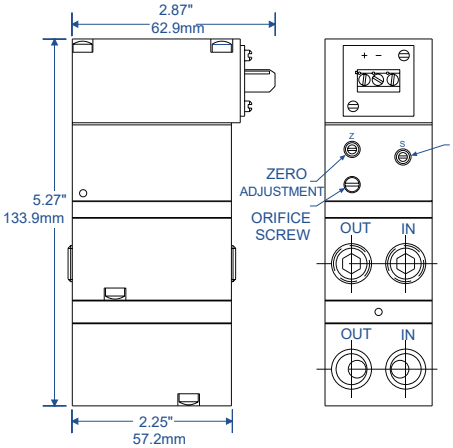
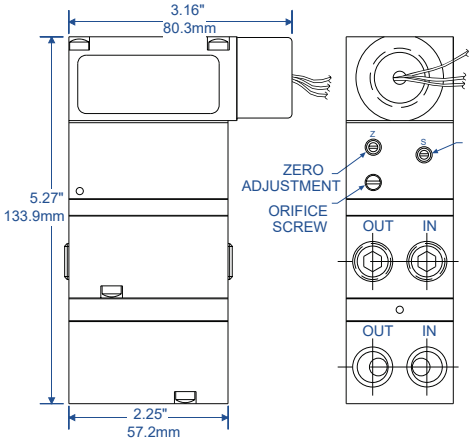


FIGURE 5: 1/2 NPT / BSPT



MDIP1 I/P , E/P Transducer

ORDERING CODE	Example: MDIP1	N	1	4	3	2	N	A	Note
Enclosure Rating									
N - NEMA 4X (Includes Approvals)		N							
I - Indoor use / General purpose									
“In and Out” Pneumatic Port Connections									
1 - 1/4 NPT			1						
2 - 1/4 BSPT									
3 - 1/4 BSPP									
C - Customer									
Input (Signal)									
1 -(4...20 mA DC)									
2 - (0...5 VDC)									
3 - (1...9 VDC)									
4 - (1...10 VDC)				4					
5 - (0...10 VDC)									
6 - (1...5 VDC)									
C - Customer									
Output (Pressure)									
1 - (3...15 PSIG / 0.2...1.0 BAR)									
2 - (3...27 PSIG / 0.2...1.9 BAR)									
3 - (6...30 PSIG / 0.4...2.1 BAR)					3				
4 - (0...15 PSIG / 0...1.0 BAR)									
5 - (0...30 PSIG / 0...2.1 BAR)									
6 - (0...60 PSIG / 0...4.1 BAR)									
6 - (0...120 PSIG / 0...8.3 BAR)									
C - Customer									
Electrical Connection									
1 - 1/2 NPT (1/4 NPT ports only)									
2 - Terminal block (Indoor use / General purpose only)						2			
3 - Hirschmann Connection(DIN 43 650-A)									
4 - 1/2 BSPT conduit (1/4 BSPT or BSPP ports only)									
Elastomer									
N - Nitrile							N		
F - Fluorocarbon									
Agency Approvals and Certification									
F - FM Approvals									
C - CSA									
A - ATEX intrinsically safe								A	
N - None - General purpose only									
Other									

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