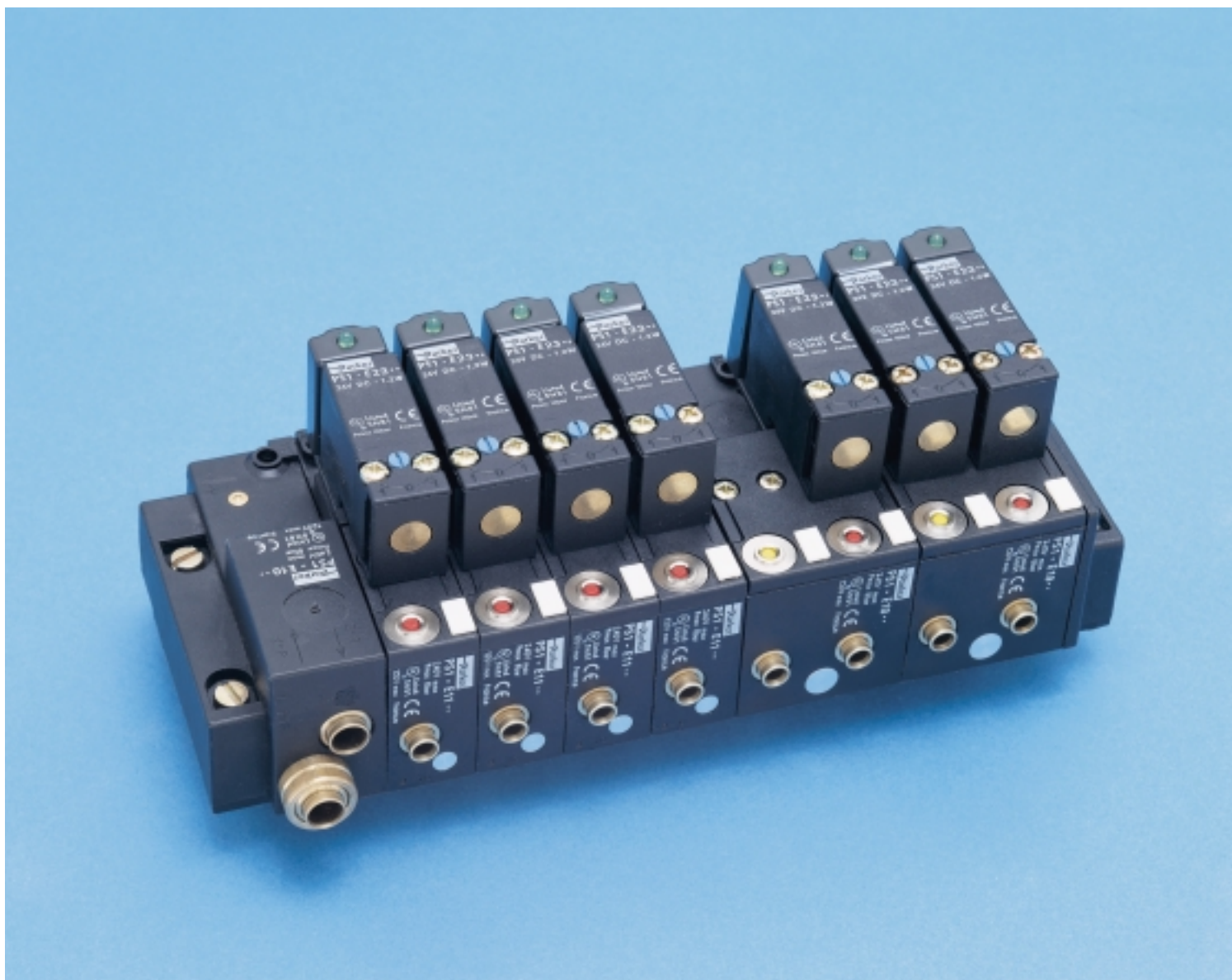


PS1E Series Electro-pneumatic Interface Valves

*Catalog PS1E-1/USA
April, 2000*





WARNING

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Features 2-3

3/2 and 4/2 Electro-pneumatic interface modules

- complete units, head / tail sets, intermediate pressure supply 4
- modules without solenoid, solenoids, pressure switch 5

Technical data, dimensions 6

Suppressor and LED indicators, spare parts, marking accessories 7

Offer of sale 9

Compact, easy to install, reliable...

Easy to meet system design needs

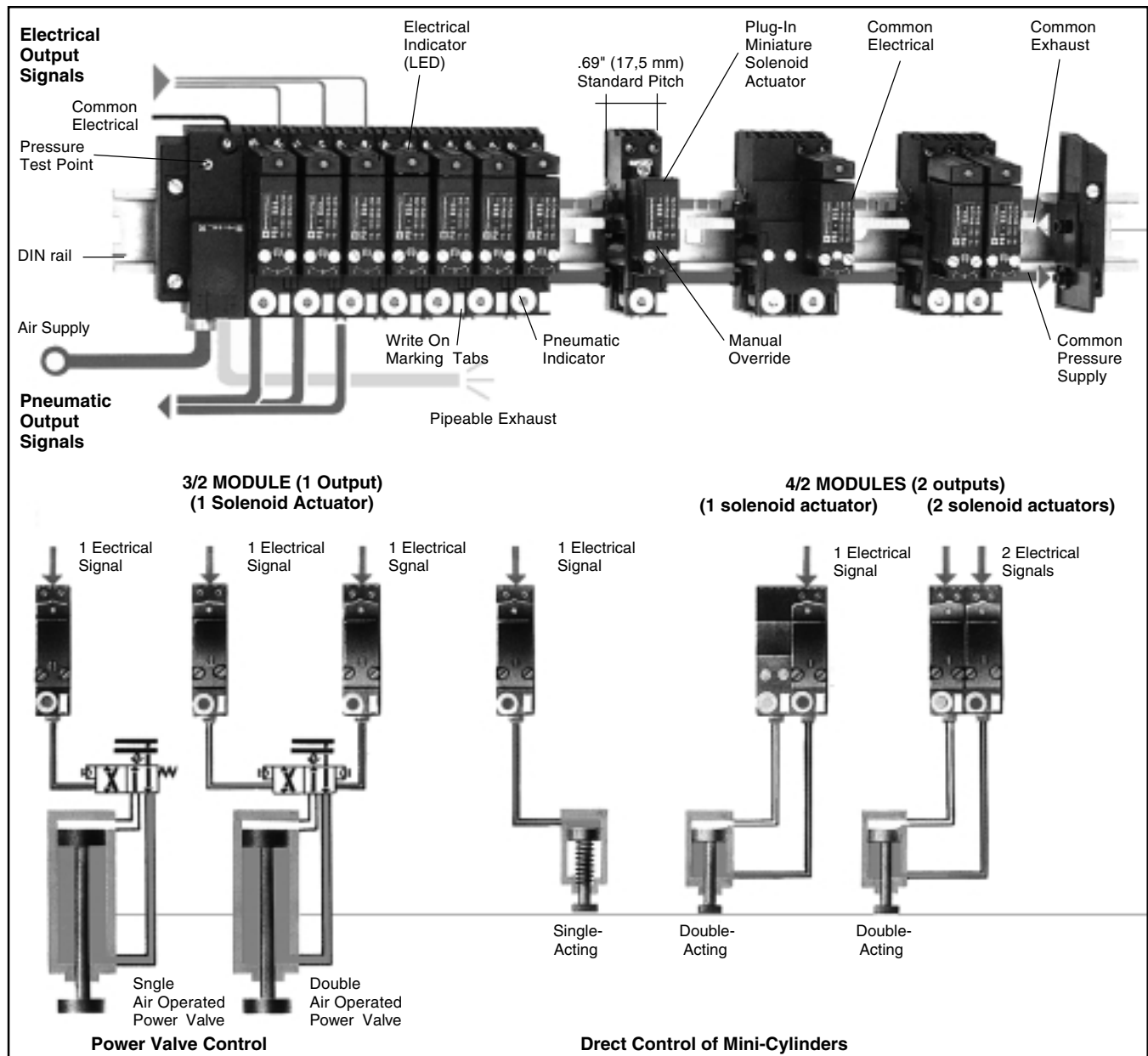
- Full flow capacity allows direct operation of small cylinders (single or double acting) or pneumatic piloting of larger control valves (pneumatic or hydraulic).
- Valve configurations in 3/2 or 4/2 (single or double acting).
- Outlet fittings (push-in) for 5/32" or 1/4" tubing.
- System modification or expansion simplified by easily adding modules to stack.
- Wide range of voltages available.
- Multiple pressures possible in one assembly.

Easy to install in your system

- Modules snap together and mount on 35mm (DIN) rail.
- Micro-valve stack and PLC may be mounted in the same enclosure.
- Common air supply, exhaust, and electrical supply reduce connections to 1 wire and 1 tube per module.
- Supply and exhaust air can be piped with only one tube for each.
- Fast hook-up with captive wire clamp connections and push-in fittings.
- Compatible pneumo-electric module provides integrated feedback capability for the PLC.
- Eliminates cumbersome electrical connections on machine mounted solenoid valves.

Easy to maintain system operation

- Manual override for setup and troubleshooting.
- Poppet design for long, trouble free life (lubricated or non-lubricated air).
- Integrated diagnostics (main air test point, output pneumatic indicator, optional suppressor/LED) provide system status at a glance.
- All electrical connections are in a protected enclosure.
- Modular design and easy connection aid in module replacement or system expansion.



⚠ Caution: Because these are poppet valves, the common air supply pressure must be built up rapidly (never use a slow start valve 2/2 on the air supply for the interfaces). When pressure is applied, the 4/2 valve takes up a predetermined position (unactuated) when no electrical signal is present.

- Output 2 (yellow indicator) passing.
- Output 4 (red indicator) non-passing.

Assembled Units

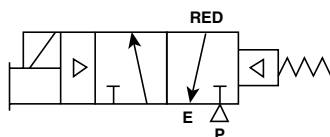
All units include pop-up indicator for pneumatic output. Red indicates NNP / NC function. Yellow indicates NP / NO function.

All model numbers shown include non-locking manual override.
 (For other voltages, use component parts shown on page 5).



PS1E21102●●

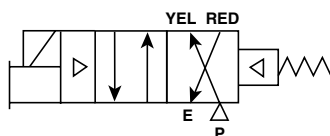
Single Solenoid - Spring Return 3/2 - Normally Non-Passing (NNP) / Normally Closed (NC)



Voltage	Output Port Push-In Connection Size	
	5/32" (4 mm) Tube	1/4" Tube
12V DC	PS1E21102J	PS1E216702J
24V DC	PS1E21102B	PS1E216702B
24V AC	PS1E21101B	PS1E216701B
120V AC	PS1E21101F	PS1E216701F

Weight: 0.21 lb (0.095 kg)

Single Solenoid - Spring Return 4/2



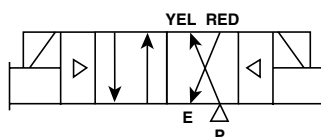
Voltage	Output Port Push-In Connection Size	
	5/32" (4 mm) Tube	1/4" Tube
12V DC	PS1E28102J	PS1E286702J
24V DC	PS1E28102B	PS1E286702B
24V AC	PS1E28101B	PS1E286701B
120V AC	PS1E28101F	PS1E286701F

Weight: 0.36 lb (0.165 kg)



PS1E29102●●

Double Solenoid 4/2



Voltage	Output Port Push-In Connection Size	
	5/32" (4 mm) Tube	1/4" Tube
12V DC	PS1E29102J	PS1E296702J
24V DC	PS1E29102B	PS1E296702B
24V AC	PS1E29101B	PS1E296701B
120V AC	PS1E29101F	PS1E296701F

Weight: 0.45 lb (0.205 kg)



PS1E1027

Head and Tail Sets

Used to mount valves to DIN rail and provide supply and exhaust ports. All hardware is included.

Single supply type supplies from one end of the manifold assembly with the other end blocked.

Double supply type provides pressure and exhaust ports on both ends of the assembly.

Push-In Connection Ports		
1/4" Tube	PS1E1017	PS1E1027
6mm Tube	PS1E101	PS1E102

Wt: 0.22 lb (0.100 kg) Wt: 0.28 lb (0.125 kg)



PS1E10387

Intermediate Supply Module - PS1E10387

1/8" Pipe port for supply and exhaust ports.

Allows replenishment or isolation of the supply and / or exhaust ports using included plugs.

Weight: 0.28 lb (0.125 kg)

1/8" Pipe Supply & Exhaust	
NPT	PS1E10387
BSP	PS1E1038

Shaded Items: Consult factory for availability.

Valves Without Solenoid Operators ⁽¹⁾

All valve units include pop-up indicator for pneumatic output. Red indicates NNP / NC function. Yellow indicates NP / NO function.

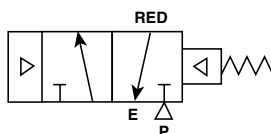
⁽¹⁾ To obtain a complete assembled unit, i.e. PS1E21102J, order valve PS1E111 + solenoid PS1E2302J.

Single Acting - Spring Return 3/2 -

Normally Non-Passing (NNP) / Normally Closed (NC)

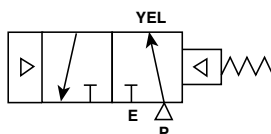


PS1E111●



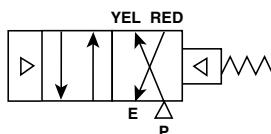
Output Port Push-in Connection Size			
5/32" (4 mm) Tube	6 mm Tube	1/4" Tube	10-32 UNF
PS1E111	PS1E116	PS1E1167	PS1E115

Single Acting - Spring Return 3/2 - Normally Passing (NP) / Normally Open (NO)



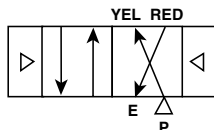
Output Port Push-in Connection Size			
5/32" (4 mm) Tube	6 mm Tube	1/4" Tube	10-32 UNF
PS1E121	PS1E126	PS1E1267	PS1E125

Single Acting - Spring Return 4/2



Output Port Push-in Connection Size			
5/32" (4 mm) Tube	6 mm Tube	1/4" Tube	10-32 UNF
PS1E181	PS1E186	PS1E1867	PS1E185

Double Acting 4/2



Output Port Push-in Connection Size			
5/32" (4 mm) Tube	6 mm Tube	1/4" Tube	10-32 UNF
PS1E191	PS1E196	PS1E1967	PS1E195



PS1E191●

Plug-In Solenoid Operators



PS1E230●●

Voltage	Power Consumption	Drop-out* Current (mamp)	With Non-Locking Manual Override	With Locking Manual Override
12 VDC	1.2W		PS1E2302J	PS1E2352J
24 VDC	1.2W	5	PS1E2302B	PS1E2352B
48 VDC	1.2W	2.5	PS1E2302E	PS1E2352E
24 V 50-60 Hz	1.6VA**	22	PS1E2301B	PS1E2351B
48 V 50-60 Hz	1.6VA**	12	PS1E2301E	PS1E2351E
120V 60Hz / 115V 50Hz	1.6VA**	5	PS1E2301F	PS1E2351F
240V 60Hz / 230V 50Hz	1.6VA**	2	PS1E2301M	PS1E2351M

** 3.5VA Inrush

Weight: 0.10 lb (0.043 kg)

* The solenoid valves are programmable controller compatible provided that leakage currents of the PLC outputs are lower than the drop-out current value.

Line Mounted Pressure Switch

Includes pop-up indicator to show presence of pressure.

Includes Clip for mounting on 35mm DIN Rail.

1 SPDT Contact.

5A 250V

5/32 (4 mm) Push-In Tubing Port

Shaded Items: Consult factory for availability.



PS1P10●●

Switching Pressure	
20 PSIG Fixed PS1P1081	30 - 75 Adjustable PS1P1091

Wt: 0.11 lb (0.050 kg)

Valve Specifications

Body Material:

Glass filled polyamide

Electrical Connection:

Captive wire clamp

LED / Noise Suppressor*:

Combination LED (green) and zener diode

Life Expectancy:

10 million operations

Maximum operating frequency:

10 Hz

Medium Quality:

Standard shop air, lubricated or non-lubricated, 50µ filtered

Mounting:

35mm (DIN) rail

Operating Medium:

Compressed air

Operating Pressure Range:

40 to 120 PSI (3 to 8 bar)

Operating Principal:

Solenoid pilot operated poppet valve

Operating Temperature Range:

5° to 140°F (-15° to 60°C)

Response Time:

10-15 ms (electronic signal to pneumatic output)

Seal Material:

Poppet - polyurethane
 Seals - Nitrile (Buna N)

Supply and Exhaust Ports:

1/4"

Outlet port:	5/32"	1/4"
Flow rate: (SCFM @ 90 PSI)	7.1	9.2
Cv	.14	.16

Tube Connections:

Push-in (instant) fittings

Voltage Tolerance:

+10 to -15% of rated voltage @ 70°F

Wire Size:

14 - 22 AWG

Caution: Memory in double acting (Bistable) 4/2 modules is input dependent. Either air supply or electrical command signal must be maintained or memory may be lost.

*120/240VAC LED only (No noise suppressor)

Pressure Switch Specifications

Body Material:

Glass filled polyamide

Contact Material:

Silver

Contact Rating:

10A / 250VAC

Maximum Operating Frequency:

10 Hz

Mechanical Life:

30 million operations

Pressure Range:

Fixed pressure:

19 to 120 PSI (1.3 to 8 bar)

Adjustable pressure:

30 to 120 PSI (2 to 8 bar)

Operating Temperature Range:

5° to 140°F (-15° to 60°C)

Operating Principal:

Pressure operated micro switch

Seal Material:

Poppet - polyurethane

Seals - Nitrile (Buna N)

Switch Pressure:

Fixed pressure:

>19 PSI (>1.3 bar)

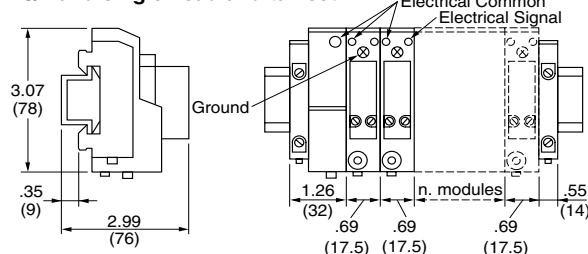
Adjustable pressure:

30 to 75 PSI (2 to 5 bar)

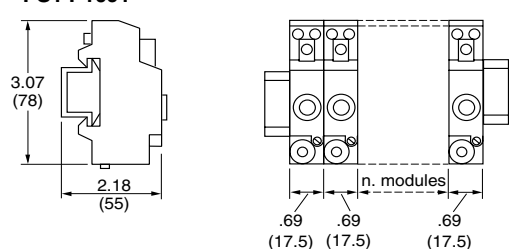
		AC				DC		
Contact life		24V	48V	120V	240V	12V	24V	48V
1 Million Operations	Inductive	25	56	115	140	17	24	37
	Resistive	86	190	370	440	42	58	88
2 Million Operations	Inductive	—	—	—	—	10	14	25
	Resistive	—	—	—	—	30	43	70
5 Million Operations	Inductive	10	14	19	21	—	—	—
	Resistive	35	82	160	200	—	—	—

Dimensions shown in inches (mm)

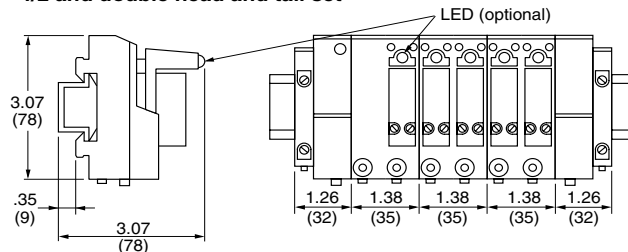
3/2 and single head and tail set



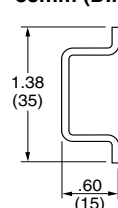
PS1 P1091



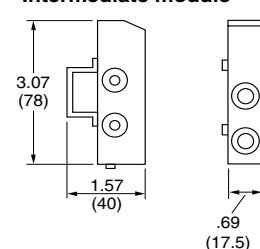
4/2 and double head and tail set



35mm (DIN) rail*



Intermediate module



*Rail at less than .6" does not allow enough room for mounting clips and may cause air leaks.

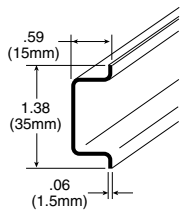
Suppressor and LED Indicators

Mount between Solenoid Valve and the Interface Module



PS1E1620●

Characteristics	Circuit Diagram	Voltage	Part Number	Weight lb kg
Indication by LED Sold in Lots of 5		24 VDC and 50/60 Hz	PS1E1620B	.022 0.010
		48 VDC and 50/60 Hz	PS1E1620E	.022 0.010
		120 V / 60 Hz 115 V / 50 Hz	PS1E1511F	.028 0.012
		240 V / 60 Hz 230 V / 50 Hz	PS1E1511M	.028 0.012



I = 15mm (0.6")
H = 35mm (1.38")
e = 1.5mm (0.06")

AM1 DE200

Mounting Rail 35mm (DIN)

Material	Length	Part Number
Steel	6'	AM1 DE200

Spare Parts

Description	Part Number
1 lot of 100 O-ring seals Between Modules (Pressure - Exhaust)	PPR-L12
1 lot of 50 seals Between Modules 3/2 or 4/2 and Coil PS1-E23 - 25 Seals (Type A) for Modules 3/2 and 4/2 Bistable - 25 Seals (Type B) for Modules 4/2 Monostable and Bistable	PPR-L13

Marking Accessories

To be used in place of Write-On Marking Tabs



AB1-G●

Clip-On Marker Strips	Part Number
Strip of 10 Identical Numerals (State the Number required)	AB1-R.
Strip of 10 Identical Letters (State the Letter required)	AB1-G.
Strip of 10 + Signs*	AB1-R12
Strip of 10 - Signs*	AB1-R13

*Sold in Lots of 25 Strips of 10 Markers

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7. Special Tooling: A tooling charge may be imposed for any special tooling, including without limitations, dies, fixtures, molds and patterns, acquired to manufacture items sold pursuant to this contract. Such special tooling shall be and remain Seller's property notwithstanding payment of any charges by Buyer. In no event will Buyer acquire any interest in apparatus belonging to Seller which is utilized in the manufacture of the items sold hereunder, even if such apparatus has been specially converted or adapted for such manufacture and notwithstanding any charges paid by Buyer. Unless otherwise agreed, Seller shall have the right to alter, discard or otherwise dispose of any

special tooling or other property in its sole discretion at any time.

8. Buyer's Property: Any designs, tools, patterns, materials, drawings, confidential information or equipment furnished by Buyer, or any other items which become Buyer's property, may be considered obsolete and may be destroyed by Seller after two (2) consecutive years have elapsed without Buyer placing an order for the items which are manufactured using such property. Seller shall not be responsible for any loss or damage to such property while it is in Seller's possession or control.

9. Taxes: Unless otherwise indicated on the face hereof, all prices and charges are exclusive of excise, sales, use, property, occupational or like taxes which may be imposed by any taxing authority upon the manufacture, sale or delivery of the items sold hereunder. If any such taxes must be paid by Seller or if Seller is liable for the collection of such tax, the amount thereof shall be in addition to the amounts for the items sold. Buyer agrees to pay all such taxes or to reimburse Seller therefore upon receipt of its invoice. If Buyer claims exemption from any sales, use or other tax imposed by any taxing authority, Buyer shall save Seller harmless from and against any such tax, together with any interest or penalties thereon which may be assessed if the items are held to be taxable.

10. Indemnity For Infringement of Intellectual Property Rights: Seller shall have no liability for infringement of any patents, trademarks, copyrights, trade dress, trade secrets or similar rights except as provided in this Part 10. Seller will defend and indemnify Buyer against allegations of infringement of U.S. patents, U.S. trademarks, copyrights, trade dress and trade secrets (hereinafter "Intellectual Property Rights"). Seller will defend at its expense and will pay the cost of any settlement or damages awarded in an action brought against Buyer based on an allegation that an item sold pursuant to this contract infringes the Intellectual Property Rights of a third party. Seller's obligation to defend and indemnify Buyer is contingent on Buyer notifying Seller within ten (10) days after Buyer becomes aware of such allegations of infringement, and Seller having sole control over the defense of any allegations or actions including all negotiations for settlement or compromise. If an item sold hereunder is subject to a claim that it infringes the Intellectual Property Rights of a third party, Seller may, at its sole expense and option, procure for Buyer the right to continue using said item, replace or modify said item so as to make it noninfringing, or offer to accept return of said item and return the purchase price less a reasonable allowance for depreciation. Notwithstanding the foregoing, Seller shall have no liability for claims of infringement based on information provided by Buyer, or directed to items delivered hereunder for which the designs are specified in whole or part by Buyer, or infringements resulting from the modification, combination or use in a system of any item sold hereunder. The foregoing provisions of this Part 10 shall constitute Seller's sole and exclusive liability and Buyer's sole and exclusive remedy for infringement of Intellectual Property Rights.

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