PURITY LEVEL 5 99.999%

Pressure Differential Switchover Manifold For High Pressure Carbon Dioxide and Nitrous Oxide Gas Cylinders, 1500 PSIG (PDSM1500HB Series - Brass- With Electric Trim Heater - Laboratory Applications)

Pressure Differential Switchover Manifold

The BeaconMedaes Laboratory Pressure Differential Switchover Manifold (PDSM1500HB Series) is specifically designed to be used with Carbon Dioxide and Nitrous Oxide high pressure cylinders. The manifold accommodates multiple gas cylinders equally divided into two banks, providing an uninterrupted supply of gas for the specific gas application. The manifold is cleaned, tested and prepared for the indicated gas service and constructed following NFPA, ASME B31.3 and CGA guidelines.

Manifold Description

The PDSM1500HB Series manifold is provides an uninterrupted supply of high purity gas by switching over to the reserve gas bank automatically. At a preset pressure, the system automatically changes from the supply bank to the reserve bank. Easy to read analog gauges show the delivery and individual bank pressure.

Operation and Design

The manifold box includes a delivery pressure gauge, two analog cylinder bank pressure gauges (left and right bank), primary bank selector knob and a delivery pressure adjustment knob. The direction of the arrow on the primary bank selector knob determines which bank is in service. The manifold has intermediate and line pressure relief valves to protect components from over pressurization.

The manifold can include an alarm box option with color coded LED visual indicators. NOTE: The alarm option is only available at the time of order and must be installed in the factory (no retrofitting available). The green LED's are illuminated if their respective cylinder bank pressures are satisfactory. The red LED illuminates when either cylinder bank is depleted. The alarm box contains an audible horn that alarms when a bank is depleted. The silence button stops the horn but the red LED remains illuminated until the cylinder bank is pressurized again. The alarm box includes dry contacts allowing for remote alarm connections for cylinder changeover. The alarm box requires a 120 VAC power receptacle.

A bank regulator (one for each cylinder bank) is used to initially reduce the cylinder pressure to the line regulator which controls the pressure outlet to the pipeline distribution system. The manifold automatically changes from the depleted primary supply bank to the reserve supply bank. After replacement of the depleted cylinders the priority bank selector knob should be turned to the opposite cylinder bank.

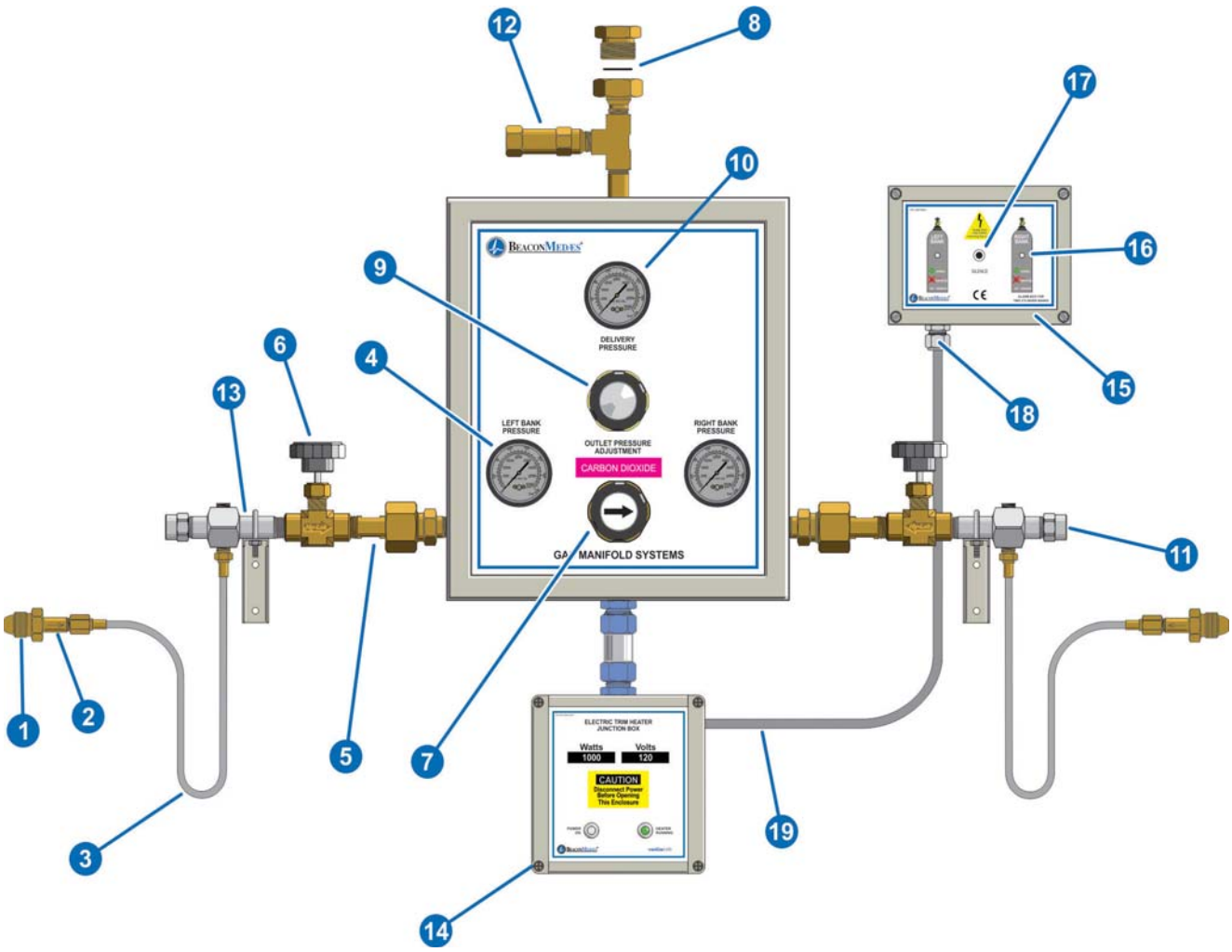
Electric Trim Heater (ETH)

The PDSM1500HB Manifold is equipped with an inboard electric trim heater (gas heater). The capacity of this heater is 500 standard cubic feet per hour (scfh) of carbon dioxide. The final line pressure regulator will provide a constant delivery pressure regardless of the cylinder pressure.

The ETH requires 120 VAC to operate and is located inside of the manifold enclosure itself. The junction box is factory installed and located at the bottom of the manifold enclosure.

A qualified electrician is required to connect the 120 VAC power source to the junction box (hardware by others). A terminal strip is installed inside the junction box for ease of installation. Because the ETH and the manifold controller work independently, an additional 120 VAC power line is needed for the Electric Trim Heater (hard wired).

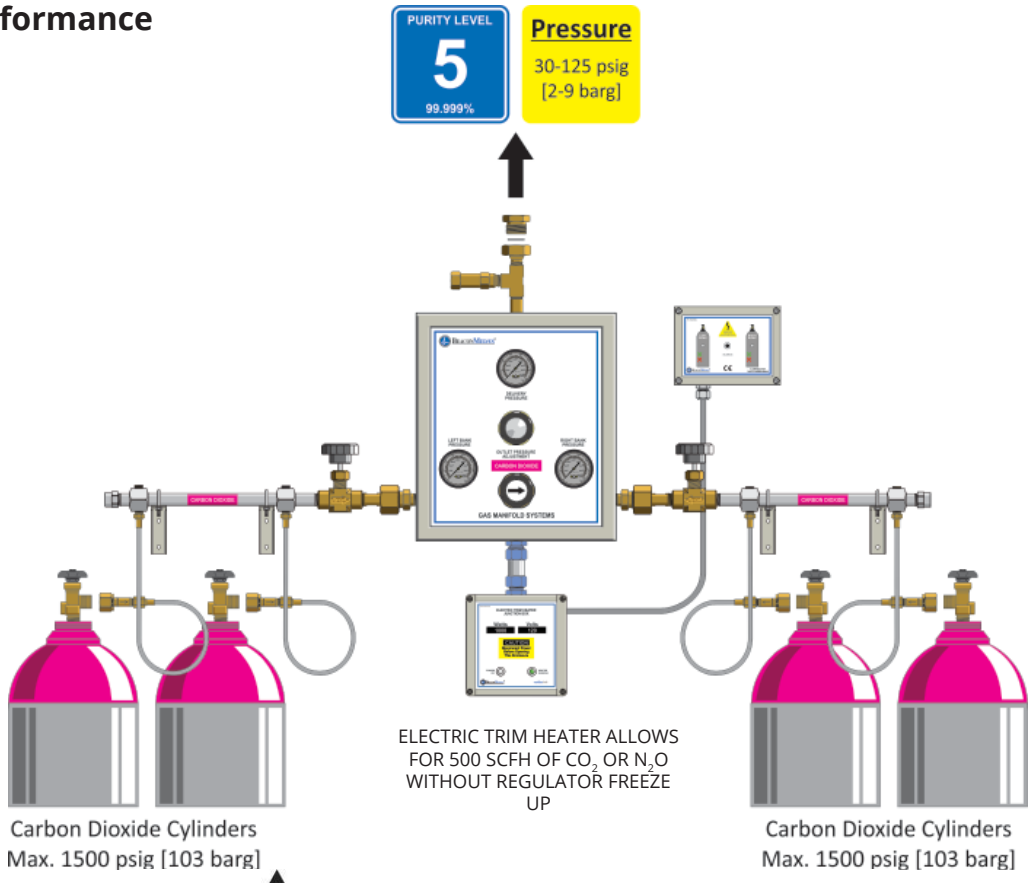
Standard Configuration - Brass Construction

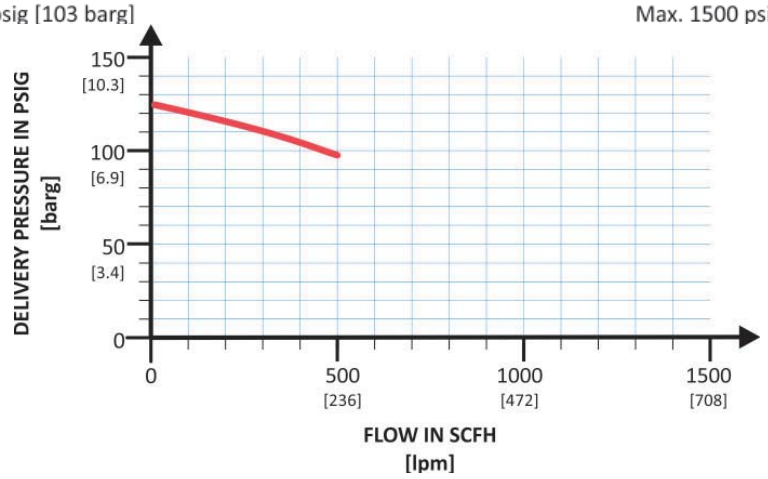


1. *Gas Specific Cylinder Nut*
2. *Gas Specific Cylinder Nipple with Check Valve*
3. *Cylinder Lead*
4. *Inlet Pressure Gauge (0-2000 psi)*
5. *Header Bar Union*
6. *Needle Valve (Header Isolation)*
7. *Priority Bank Selector*
8. *Outlet Union (1/2" F.NPT)*
9. *Delivery Regulator Adjustment Knob*
10. *Outlet Pressure Gauge (0-200 psi)*
11. *Capped for Future Expansion*
12. *Outlet Pressure Relief Valve (1/2" F.NPT)*
13. *Header Bar*
14. *Heater Junction Box*
15. *Alarm Enclosure*
16. *Visual Green/Red LED Status Indicatior*
17. *Silence Pushbutton*
18. *Alarm Cable Cord Grip*
19. *Alarm Box Cable*

Materials	**Enclosure**	Steel, Powder Coated, Light Grey
	Header Bars	Brass Bar Stock, Nickel Plated
	Tubing	Copper, ASTM B75
	Fittings	Brass
	Flexible Hoses	TCH: Teflon Core, Brass Fittings, Stainless Steel Braiding SSH: Stainless Steel Core, Fittings and Braiding
	Relief Valves	Brass Body, Teflon Seat, Stainless Steel Spring
	Pressure Reducing Regulators	Brass Body, Stainless Steel Diaphragm, Teflon Seat
	Pressure Switches	Brass Connection, Stainless Steel Piston, Viton Seals
	Trim Heater	Brass

Use & Performance





Ordering Information

PDSM1500HB - ___ - ___ - ___ - ___ - ___ - ___
A B C D E F G H

BeaconMedæs PDSM1500 Manifold Model Number Chart			
Variable	**Definition**	**Allowable Value**	**Description**
A	**Inlet Pressure**	1500H	1500 PSIG [103 BARG] (with Heater)
B	**Material**	B	Brass
C	**Gas**	320 326	Carbon Dioxide Nitrous Oxide
D	**No. of Cylinders**	2 4 6 8	1x1 2x2 3x3 4x4
E	**Alarm**	AB (leave blank)	Alarm Box No Alarm Box
F	**Hose**	TCH SSH SSHAG	Teflon Core Hose Stainless Steel Hose Stainless Steel Hose with Armour Guard
G	**Configuration**	10S 10V	Standard 10" Center Vertical Crossover 10" Center
H	**Option**	WM 3R*	Wall Mount Outside Installation
(H)	**Cylinder Connection**	CGA (leave blank) BS DIN NEN	CGA-United States BS341-Great Britian DIN 477-Germany NEN 3268-The Netherlands

Example: MANIFOLD PDSM, 1500 PSIG INLET, BRASS,CARBON DIOXIDE, 2X2 CYLINDERS, ALARM, STAINLESS STEEL HOSES, USA
Example Model Number: PDSM1500HB-320-6-AB-SSH-10V-WM

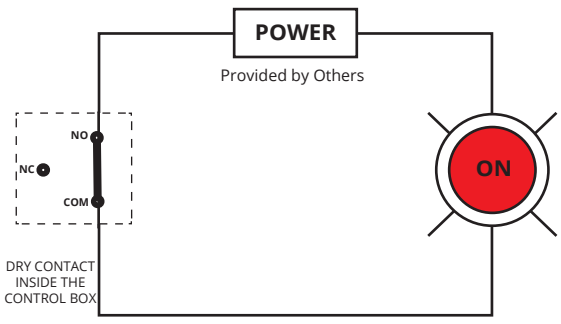
***3R Option--Outside Installation**
PDSM Series Manifolds are designed for indoor installations. If outdoor installation is required, by selecting the "3R" option, all electrical devices (within the manifold and alarm) will be mounted with NEMA 4X enclosures. Please be aware that even with the 3R option selected, the PDSM enclosure, which is not NEMA 4X, will rust over time due to outdoor exposure as it is made out of steel.

Technical Specifications	
Gas Service	Refer to Part Number Matrix
Maximum Inlet Pressure	1500 psig [103 barg]
Delivery Pressure Range	30-125 psig [2-9 barg]
Maximum Flow	500 scfh [14 m^3/hr]
Operating Temperature	32°F to 100°F [0°C to 38°C]
Pipeline (Outlet) Relief Valve	150 psig [10 barg]
Inlet Connections	Gas Specific CGA Fittings
Manifold Outlet Connection	1/2" F.NPT
Power (Alarm/Control Box)	120 VAC Power Receptacle
Maximum Power Consumption	6 Amp
Electrical Components	All Electrical Components are UL and CSA listed
Configuration	Normally Open (Supplies Gas When Not Energized)
Dry Signal Contact	Normally Open (3 Amp. @ 28 VDC/277 VAC when contact is in Close Position)
Cleaning	Cleaned for Oxygen Service as per CGA 4.1

Remote Alarm Signal Circuitry

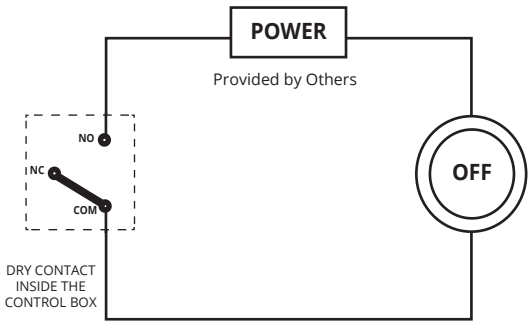
The Alarm/Control Box of the PDSM1500HB Series Manifold has a dry contact available for remote alarm actuation. It is triggered each time any of the two cylinder banks are empty.

Alarm Conditon



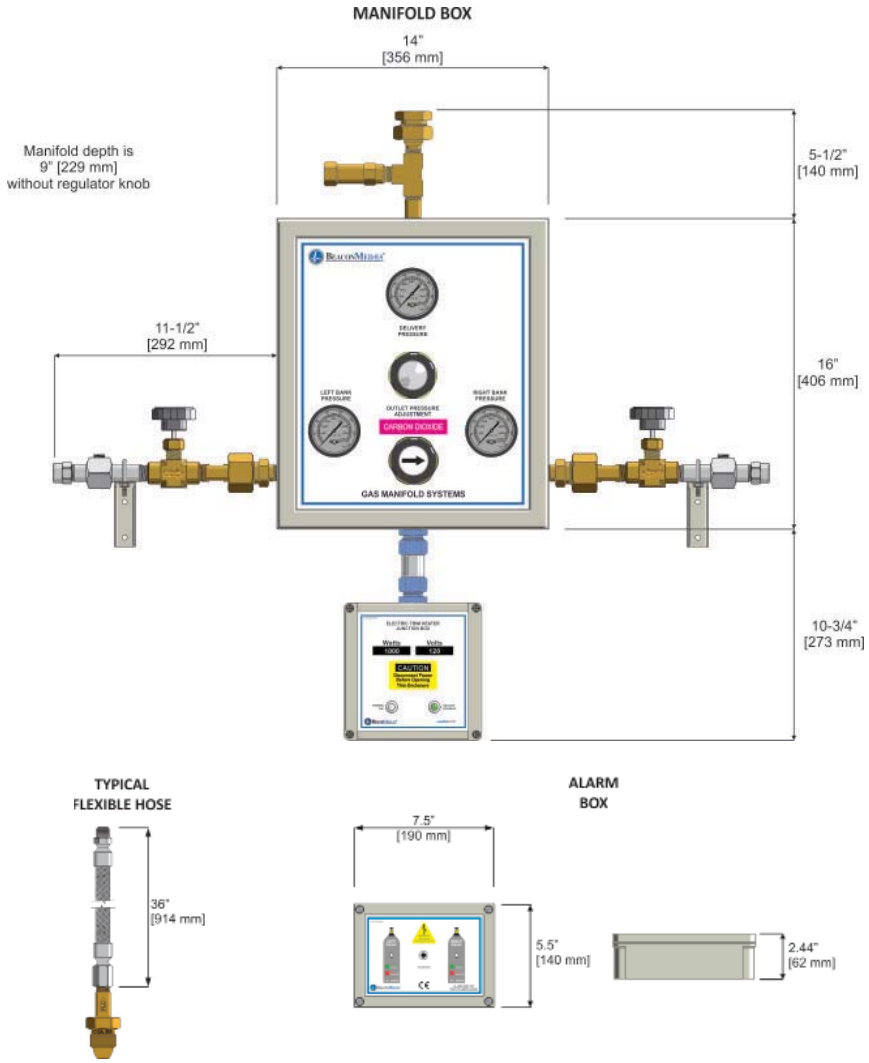
The content inside one of the gas cylinder banks is depleted (low pressure). The dry contact switches from the Normally Closed (NC) position to Normally Open (NO) position. The electrical circuit is closed and the alarm device is actuated.

No Alarm Conditon



In this situation, both gas cylinder bank pressures are satisfactory (i.e. not empty). The dry contact inside the remote alarm box is in the Normally Closed position. The electrical circuit is open and the alarm device is NOT actuated.

Standard Configuration (1x1) in inches
Numbers between [ ] are in millimeters



BeaconMedæs AFAM1500 Header Bar Length				
Cylinder Configuration	**1x1 (10S)**	**2x2 (10S)**	**3x3 (10S)**	**4x4 (10S)**
	2x2 (10V)	**3x3 (10V)**	**5x5 (10V)**	**7x7 (10V)**
		4x4 (10V)	**6x6 (10V)**	**8x8 (10V)**
Inches	37.50"	57.50"	79.25"	99.50"
Milimeters	952.5 mm	1460.5 mm	2012.95 mm	2527.3 mm

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