Mercoid® SERIES PG, PR, PRL LOW PRESSURE DIAPHRAGM CONTROL

FOR AIR OR GASES—PRESSURE—VACUUM—DIFFERENTIAL PRESSURE

This control employs a diaphragm which actuates a mechanism for opening or closing a mercury switch. The diaphragm separates two pressure chambers making the control particularly adapatable to the following uses:

(A) SP-ST controls open at the set point on a pressure or vacuum change. For controls with circuit suffix numbers -152, -153, -156, the dial setting indicates the high operating point. For controls with circuit suffix number -105, -129, -158 and -161, the dial setting indicates the pressure or vacuum at which the "safety" circuit opens.

(B) For differential pressure or vacuum applications where operation is due to a difference between two sources of pressure or vacuum both pressure chambers are used. In this application the dial setting indicates the pressure or vacuum DIFFERENCE between the two chambers which will operate the circuit.

INSTALLATION INSTRUCTIONS

LOCATION AND MOUNTING

Select a location recommended by equipment manufacturer.
Install control firmly in a level position. Use the three mounting studs attached to control case to mount on a panel or smooth wall surface or mount by means of rear pressure connection. To level, sight across cover center line.

PRESSURE SOURCE CONNECTIONS

REAR PRESSURE CHAMBER: 1/2" male, 1/8" female NPT.

FRONT PRESSURE CHAMBER: 1/8" female NPT.

FOR OPERATION AS A PRESSURE CONTROL:
Connect pressure source to REAR pressure connection. On gas applications where venting is required connect vent pipe to FRONT pressure connection. If venting is not required front pressure connection must be left open.

FOR OPERATION AS A VACUUM CONTROL:
Connect vacuum source to FRONT pressure connection. Rear pressure connection must be left open.

FOR OPERATION AS A DIFFERENTIAL CONTROL:
Connect high pressure (or low vacuum) source to REAR pressure connection and low pressure (or high vacuum) source to FRONT pressure connection.

WIRING

Wire in accordance with local electrical codes or equipment manufacturer's instructions.

For general purpose controls use a short piece of BX between the rigid conduit and the control so that it will not be subjected to conduit expansion and contraction. Where control is directly connected into load circuit it should be connected into hot side of line.

HOW TO SET OPERATING POINT

DIAL SCALE & SETTINGS: Operating settings cannot be made below the lowest scale marking (do not force adjustment for lower setting). Loosen guard screw and rotate guard so that it does not interfere with adjustment screw. Turn adjustment screw clockwise to increase setting. To decrease setting turn adjustment screw counter-clockwise. Pointer indicates at which point control will operate circuit.

OPERATING RANGE - DIFFERENTIALS & CIRCUITRY

EXAMPLE SETTING — RANGE 1.0" - 30" H_2O

TYPE PG-2 (pressure): If pointer is set at 5", control will open its circuit when pressure rises to 5". When pressure drops to 4.3" (differential 0.7") control automatically closes its circuit.

(vacuum): circuit opens when vacuum increase to dial setting.

TYPE PG-3 (pressure): If pointer is set at 5" control will open its circuit when pressure drops to 5". When pressure increases to 5.7" (differential 0.7") control automatically closes its circuit.

(vacuum): circuit opens when vacuum decreases to dial setting.

TYPE PG-2 (differential pressure): Example: If pointer is set at 5", control will open the circuit when the difference between two pressures increases to 5" regardless of the actual pressure or vacuum, as long as the higher pressure is in rear chamber. When pressure difference decreases to 4.3" (differential 0.7") regardless of actual pressures or vacuums, control will automatically close the circuit.

SEMI-AUTOMATIC WITH MANUAL RESET

Semi-Automatic Operation: Pointer is set for pressure and vacuum where switch is to automatically operate. To restore switch to pre-actuated position use reset button.

Manual reset incorporates "trip-free" feature which makes it impossible for the control to reset automatically by holding or blocking the reset button.

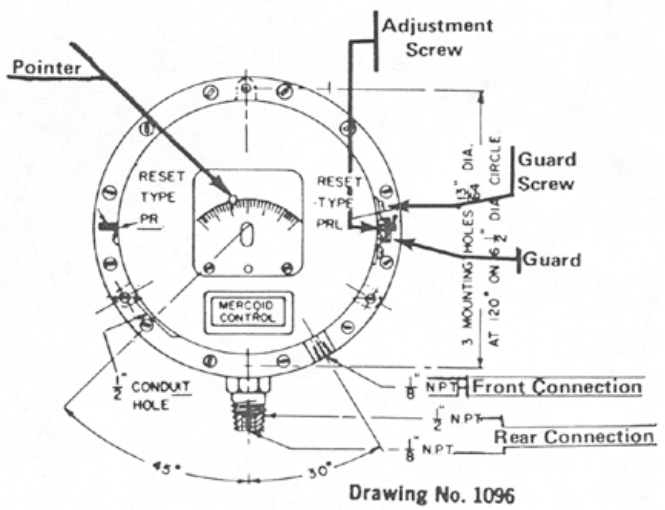
Reset Button for Manual Reset: For types PR reset button is located on left side of case. For types PRL reset button is on right side of case.

TYPES PR-2, and PR-153: Automatically operate at the set point on an increase - circuit is restored by manual reset.

TYPES PR-3, PR-3P: Automatically close circuit at the set point on an increase - circuit is restored by manual reset.

TYPES PRL-2 and PRL-153: Automatically operate at the set point on decrease - circuit is restored by manual reset.

TYPES PRL-3 and PRL-3P: Automatically open circuit at the set point on decrease - circuit is restored by manual reset.



Drawing No. 1096

See reverse side of bulletin for Side View of Control

CONTROL TYPE PG, PR, PRL

OPERATING RANGES

Note. Range P1 incorporates two calibrations on one scale.
Upper scale section indicates 1-30" W.C., lower section 1-17 oz.

Range No.	Operating Point Adjustable From
P1	1.0" - 30" H_2O 1 - 17 oz.
P2	1/2 - 5 Psig. also KG/cm2

Maximum sustained pressure each range 15 Psig.
Maximum surge limits each range 20 Psig.

DIFFERENTIALS

CONTROL TYPE PG, PR, PRL
SINGLE MERCURY SWITCHES

Circuit No.	Range No.	Switch Differentials With Pointer Set At: Low	Medium	High
-2 or -3	P1	0.7" .4 oz.	1.0" .6 oz.	1.3" .75 oz.
	P2	1.7 oz.	2.5 oz.	4 oz.
-2P or -3P	P1	2" .75 oz.	2¾" 1.0 oz.	4" 1.25 oz.
	P2	5 oz.	7 oz.	18 oz.
-152, -153, -4 or -54	P1	1.0" 0.5 oz.	1.5" 9 oz.	1.9" 1.0 oz.
	P2	2 oz.	4 oz.	6 oz.

WITH DOUBLE MERCURY SWITCHES

-103, -127, or -156	P1	2.5"	3.5"	4.5"
	P2	6 oz.	9 oz.	20 oz.
-105, -129, -158, -161, or -804	P1	1.5"	2"	2.5"
	P2	3.5 oz.	5 oz.	12 oz.
-119, -131, or -190	P1	1.0"	1.5"	1.9"
	P2	2 oz.	4 oz.	6 oz.

MODEL PG-7000 — WITH SINGLE SNAP SWITCH

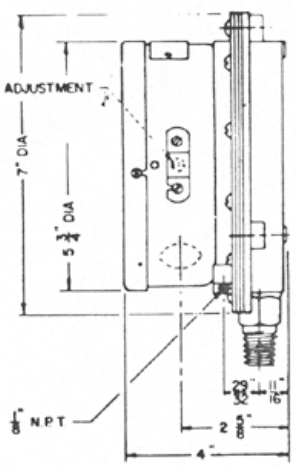
-7000-153	P1	2.5"	3"	4"
	P2	6 oz.	7 oz.	8 oz.

MODEL PG-7200 — WITH DOUBLE SNAP SWITCH

-7200-804	P1	0.5"	0.6"	0.7"
	P2	2 oz.	2.5 oz.	3 oz.

Manual reset - Not Available

Drawing No. 1096



PG, PR, PRL — CIRCUIT ARRANGEMENTS

SINGLE MERCURY SWITCHES

Circuit No.	ACTION AND RATINGS
-2	SP-ST Opens On Increase 6A. 120V., 3A. 240V.
-2P	SP-ST Opens On Increase 10A. 120 V., 5A. 240V.
-3	SP-ST Closes On Increase 6A. 120V., 3A. 240V.
-3P	SP-ST Closes On Increase 10A. 120V., 5A. 240V.
-152 4 Wire	SP-DT One Circuit Opens As Other Closes 4A. 120V., 2A. 240V.
-153 3 Wire	SP-DT One Circuit Opens As Other Closes 4A. 120V., 2A. 240V.
-4	DP-ST Circuit Close On Increase 4A. 120V., 2A. 240V.
-54	DP-ST Circuits Open On Increase 4A. 120V., 2A. 240V.

WITH DOUBLE MERCURY SWITCHES

Circuit No.	ACTION AND RATINGS	
-103	Closes On Increase 10A. 120V., 5A. 240V.	Closes On Increase 10A. 120V., 5A. 240V.
-105	Opens On Decrease 10A. 120V., 5A. 240V.	Opens On Decrease 1A. 120V., 0.5A. 240V
-127	Opens On Increase 10A. 120V. 5A. 240V.	Opens On Increase 10A. 120V., 5A. 240V.
-129	Opens On Increase 10A. 120V., 5A. 240V.	Opens On Increase 1A. 120V. 0.5A. 240V.
-156	One Switch Opens As Other Closes Each Switch — 10A. 120V., 5A. 240V.	
-158	Opens On Increase 10A. 120V., 5A. 240V.	Closes On Increase 1A. 120V., 0.5A.240V.
-161	Opens On Decrease 10A. 120V., 5A. 240V.	Closes On Decrease 1A. 120V. 0.5A.240V.
-131	DP-ST Opens On Increase 6A. 120V., 3A. 240V.	
-119	DP-ST Opens On Decrease 6A. 120V., 3A. 240V.	
-190	SP-DT One Circuit Opens as Other Closes 6A. 120V., 3A. 240V.	
-804	DP-DT Two Circuits Open As Two Circuits Close 4A. 120V., 2A. 240V.	

MODEL PG-7000 — WITH SINGLE SNAP SWITCH

7000-153	SP-DT One Circuit Opens as Other Closes 15A.120/240VAC; 0.5A.,120V.DC;0.25A.,240VDC

MODEL PG-7200 — WITH DOUBLE SNAP SWITCHES

-7200-804 No Manual Reset	DP-DT Two Circuits Open As Two Circuits Close 5A. 120/240V. A.C. 30VDC Resistive

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