



8590 CONTINUOUS GAS SUPPLY CONTROLLER

Instruction Manual

LTR	REVISION	DATE	BY
A1	Rel for Prod	1-12-94	BT

INT-0051 Rev A

LIMITED WARRANTY

This equipment is sold by Matheson Gas Products (Matheson) under the warranties set forth in the following paragraphs. Such warranties are extended only with respect to the purchase of this equipment directly from Matheson or Matheson's Authorized Agent as new merchandise and are extended to the first Buyer thereof other for than the purpose of resale.

For a period of one year from date of original delivery (ninety days in corrosive service) to Buyer or to Buyer's order, this equipment, is warranted to be free from functional defects in materials and workmanship and to conform to the description of this equipment contained in this manual and any accompanying labels and/or inserts, provided that this equipment is properly operated under the conditions of normal use and that regular and periodic maintenance and service is performed or replacements are made in accordance with the instructions provided. Expendable parts of this equipment are similarly warranted to be free from functional defects in materials and workmanship and to conform to the description of this equipment contained in this manual and any accompanying labels and/or inserts. The foregoing warranties shall not apply if the equipment has been repaired other than by Matheson or a service facility designated by Matheson, or if this equipment has not been operated and maintained in accordance with written instructions provided by Matheson, or has been altered by anyone other than Matheson, or if the equipment has been subject to abuse, misuse, negligence or accident.

Matheson's sole and exclusive obligation and the Buyer's sole and exclusive remedy under the above warranties is limited to repairing or replacing, free of charge, at Matheson's sole discretion, the equipment or part which is telephonically reported to be a problem to the local Matheson Branch Location, and which if so advised, is returned with a written statement of the observed deficiency, not later than seven days after the expiration of the applicable warranty, to the Matheson Gas Equipment Technology Center during normal business hours, transportation charges prepaid, and which, upon examination, is found to comply with the above warranties. Return trip transportation charges for the equipment or part shall be paid by the Buyer.

MATHESON SHALL NOT BE OTHERWISE LIABLE FOR ANY DAMAGES INCLUDING BUT NOT LIMITED TO INCIDENTAL DAMAGES, CONSEQUENTIAL DAMAGES, OR SPECIAL DAMAGES, WHETHER SUCH DAMAGES RESULT FROM NEGLIGENCE, BREACH OF WARRANTY OR OTHERWISE.

THERE ARE NO EXPRESS OR IMPLIED WARRANTIES WHICH EXTEND BEYOND THE WARRANTIES HEREINABOVE SET FORTH. MATHESON MAKES NO WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE WITH RESPECT TO THE EQUIPMENT OR PARTS THEREOF.

ACCEPTANCE OF THE EQUIPMENT BY THE FINAL BUYER INDICATES THE FINAL BUYER'S ACCEPTANCE OF ALL WARRANTIES AND LIMITATIONS SET FORTH ABOVE.

USER RESPONSIBILITY

This equipment will perform in conformity with the description thereof contained in this manual and accompanying labels and/or inserts when installed, operated, maintained and repaired in accordance with the instructions provided. This equipment must be checked periodically, with the frequency of such inspections depending upon the scope of use. Damaged, worn or contaminated equipment should not be used. Parts that are broken, missing, plainly worn, distorted or contaminated should be replaced immediately. Should such repair or replacement become necessary, Matheson Gas Products recommends that a telephonic or written request for service advice be made to the Matheson Equipment Engineering Group in Montgomeryville Pennsylvania or to the nearest Matheson Gas Products Branch location.

This equipment or any of its parts should not be altered without the prior written approval of Matheson Equipment Engineering Group. The user of this equipment shall have the sole responsibility for any malfunction which results from improper use, faulty maintenance, damage, improper repair or alteration by anyone other than Matheson Gas Products or a service facility designated by Matheson Gas Products. Further, the ultimate user of the equipment is responsible for the training and safe operation of the equipment by personnel in his/her employ.

GENERAL SERVICE

A unit which is not functioning in a normal manner should be removed from service until such time that repairs or replacement can be made. Upon completion of repair, full testing should be performed to assure the user that the unit has been returned to its original operating parameters. Matheson offers a repair service to its customers for all products that Matheson sells. To arrange for repair service, call 1-800-828-4313 and ask for the Warranty Administrator. **NO PRODUCT WILL BE RECEIVED BY MATHESON WITHOUT INDICATION OF GAS SERVICE AND WITHOUT PROPER RETURN MATERIAL AUTHORIZATION PROVIDED BY THE WARRANTY ADMINISTRATOR. (All repairs must be made by Matheson or an assigned and approved facility to maintain any warranties or guarantees)**

If the unit is under an applicable warranty, return the unit to Matheson for repair or replacement. To arrange for warranty service, call 1-800-828-4313 and ask for the Warranty Administrator. **NO PRODUCT WILL BE RECEIVED BY MATHESON WITHOUT INDICATION OF GAS SERVICE AND WITHOUT PROPER RETURN MATERIAL AUTHORIZATION PROVIDED BY THE WARRANTY ADMINISTRATOR.**

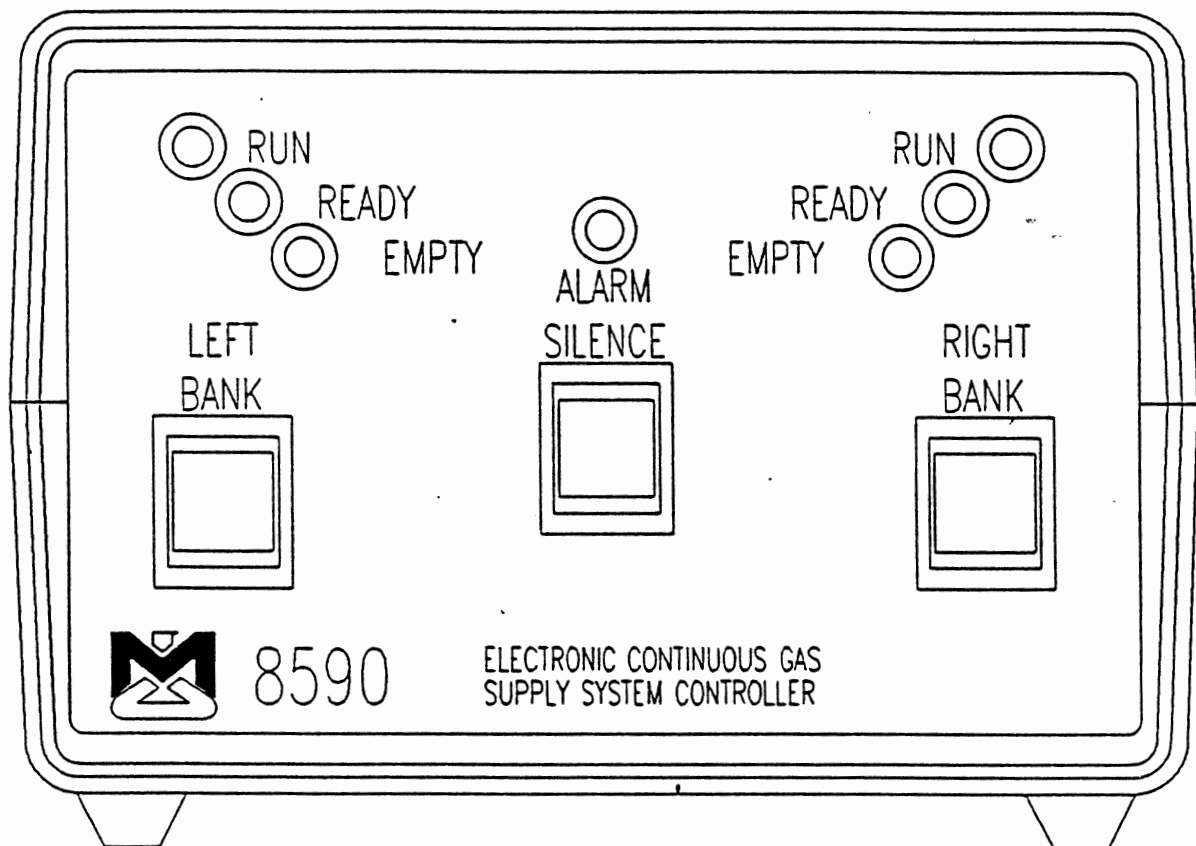
If advised by the Warranty Administrator to return the product to Matheson, prepare the product for shipment and write, in large lettering the RMA Number assigned by the Warranty Administrator on the outside of the box. Also, if required by the Warranty Administrator, supply the completed RMA form with the product. Make sure that the product is adequately packaged, in the original shipping container if possible, and shipped prepaid (Matheson will not accept COD freight) with a description of the observed deficiency to the attention of the:

Warranty Administrator
Matheson Gas Products
166 Keystone Drive
Montgomeryville, PA 18936

The user is expected to periodically inspect the product for leaks, loose or worn parts, broken or non-functioning components and to address those situations immediately. If the user would require verbal assistance in ascertaining the potential of a problem with any Matheson product, contact the local Matheson branch for assistance or your Matheson Sales Representative.

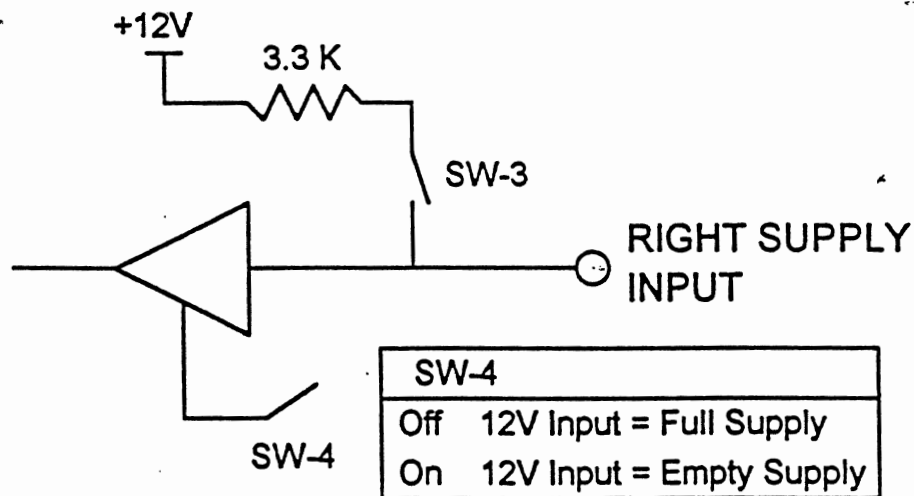
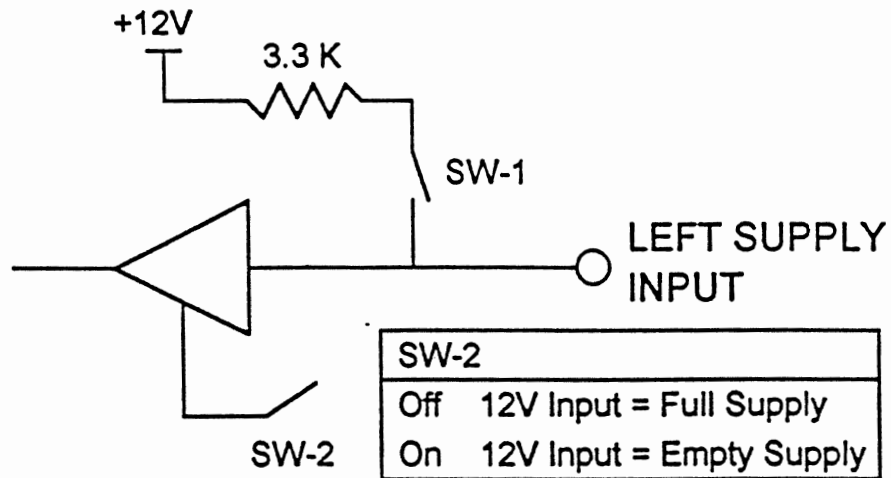
Overview: The Matheson 8590 Continuous Gas Supply Controller is designed to work in conjunction with a pneumatically actuated switchover manifold. The unit requires AC power, pneumatic supply pressure (to actuate the manifold valves), and either one or two externally supplied switched inputs. The unit controls the pneumatic valves of the manifold based on the inputs of the switches and the front panel controls.

Description: The Matheson Model 8590 Continuous Gas Supply Controller is a self contained unit. The unit may be used as a stand-alone or in conjunction with a wide variety of inputs; including, Matheson 8575 Pressure Monitor/Controllers, Matheson 8550 Electronic Cylinder Scales or any equipment that will provide a digital (on/off) signal with respect to low supply contents. The front panel of the unit contains a color lighted status indication of each supply, an alarm status indicator, an alarm silence button and a control button for each supply side.



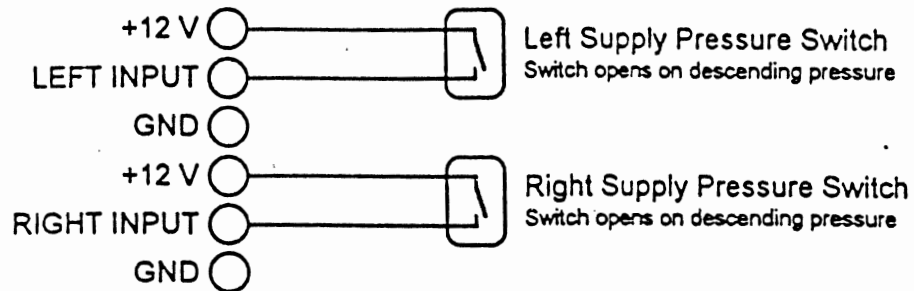
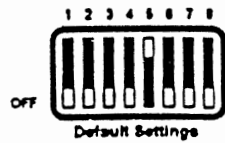
✓ PRESSURE SWITCH CONNECTIONS

Input signal connections are made to the 8590 controller using the binding posts located on the rear of the unit. 12 volt and ground connectors are provided for easy wiring to many different input configurations. The input section is configured using the dip switch located inside of the unit. Switch positions 1 through 4 determine the status of the inputs. The default settings for switch positions 1 through 4 are all off.

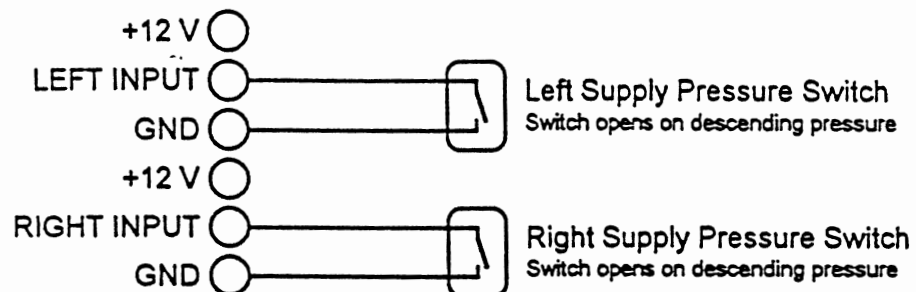


The type of input switch used will determine the switch settings. Use the following examples to determine your configuration.

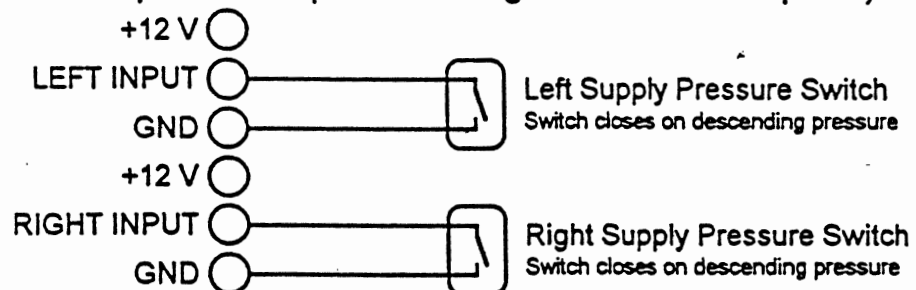
Pressure switch CLOSSES on ASCENDING pressure
 (Switch is closed when pressure is greater than set point)



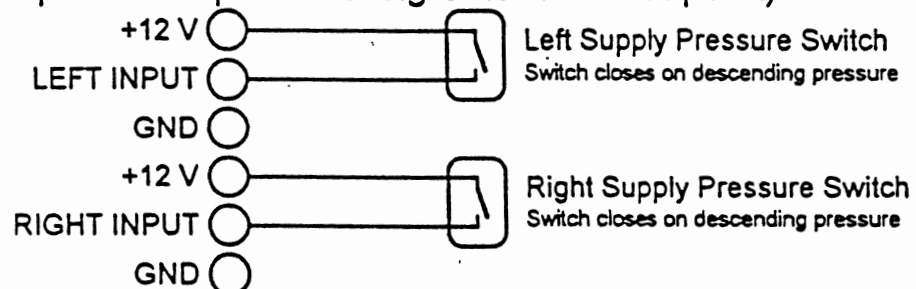
Pressure switch CLOSSES on ASCENDING pressure (Alternate)
 (Switch is closed when pressure is greater than set point)



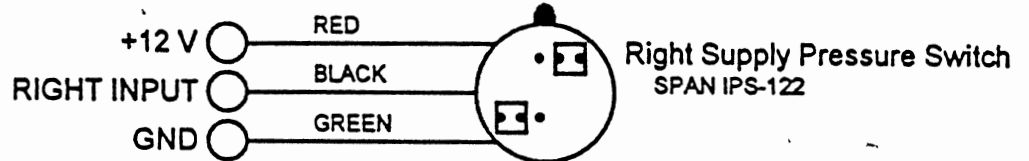
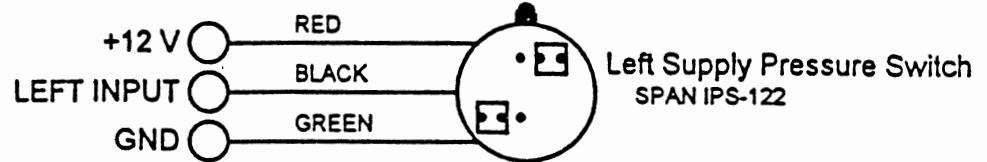
Pressure switch CLOSSES on DESCENDING pressure
 (Switch is open when pressure is greater than set point)



Pressure switch CLOSSES on DESCENDING pressure (Alternate)
 (Switch is open when pressure is greater than set point)

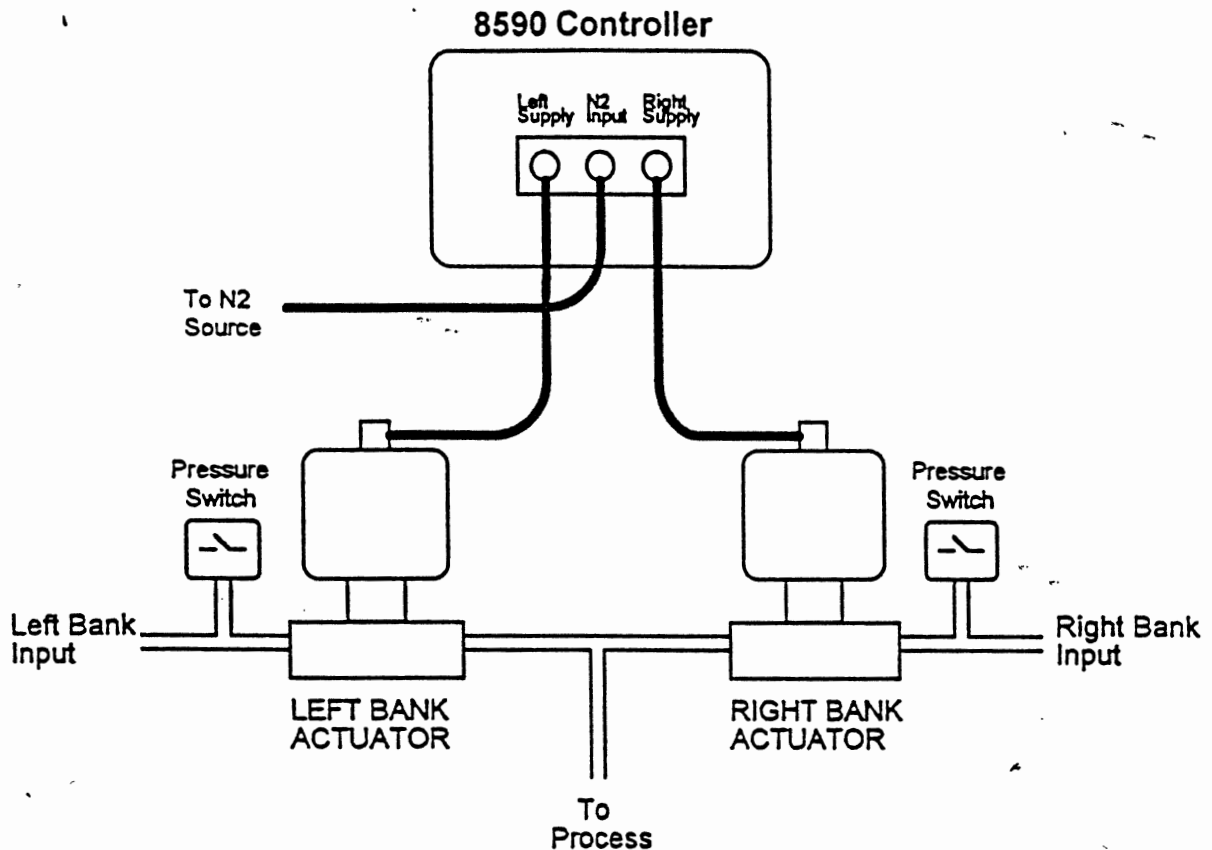


Connecting to a SPAN IPS-122 (type 2)



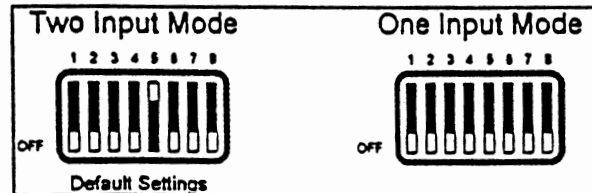
PNEUMATIC CONNECTIONS

Pressure connections for pneumatic valve actuation are made at the rear of the unit. The three 1/8" NPT female fittings provided are for; Pneumatic pressure Input, Left Bank Actuator and Right Bank Actuator. The input pressure should be 90- 100 PSI dry air or nitrogen from a clean, dry source.



Operation

The Continuous Gas Supply Controller has two modes of operation. The primary mode is the TWO INPUT mode, in which supply content is monitored at the source (i.e. before the pneumatic valve). The alternate mode of operation is the ONE INPUT mode, in which the supply content is monitored at a single point between the pneumatic valves. The mode of operation is determined by the position of dip switch position 5, which is located inside of the controller.



Two Input Mode

The two input mode is the most effective way to utilize the 8590 controller. The two input mode provides the greatest amount of information to the controller and to the user. The front panel of the controller displays the status of each bank; Empty, Ready, or Run. Only one bank may be in Run at a time.

- EMPTY:** indicates that the bank has less than the minimum supply content.
- READY:** indicates that the bank has more than the minimum supply content.
- RUN:** Indicates that the bank has more than the minimum supply content, and that pneumatic valve is actuated.

Either bank may be switched from READY to RUN by pressing the button associated with it, assuming that the other bank is not currently in the RUN position. Conversely, the bank can be switched from RUN to READY, regardless of the status of the other bank.

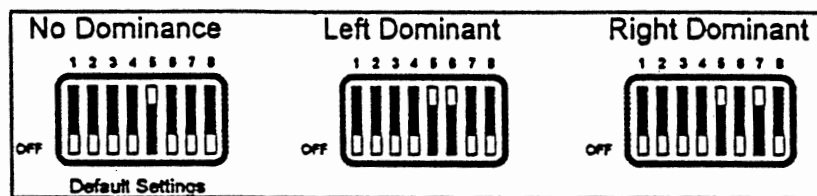
Gas can now be used from the bank that is in the RUN position. When the gas supply has depleted to the minimum supply content set point, the input switch will signal the controller to automatically switch to the reserve side and turn on the alarm circuit after closing the depleted bank valve. Note: the reserve side will only be switched to RUN if the bank status is in the READY position.

The Alarm may be silenced by pressing the ALARM SILENCE button, located on the front of the controller.

Replenish the empty bank as soon as possible to assure an uninterrupted supply of gas.

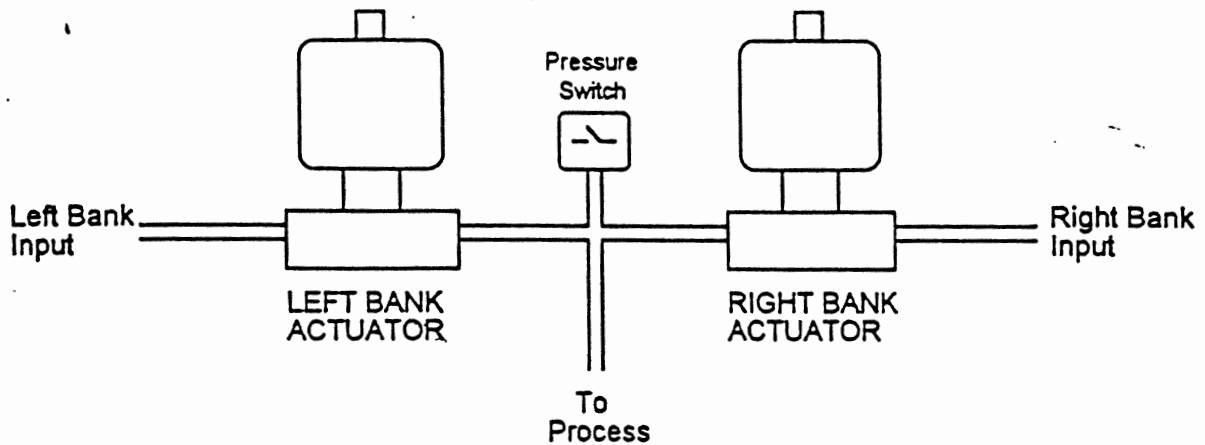
OPTIONAL SETTINGS for TWO INPUT MODE: DOMINANT BANKS

An added feature to the controller is the ability to have a Dominant bank. The Dominance feature allows the selected side to resume the RUN position once the supply has been replenished. This feature could be used to implement a consistent primary and reserve bank. The primary bank could be a bulk supply or a compressor, and the reserve supply could be a cylinder of the same gas. The dominant bank (primary supply) would supply gas for normal operation. The reserve supply would only assume control in the event of the primary side becoming depleted. The reserve supply would then run until either the primary side is replenished or the reserve supply is exhausted. The dip switch positions 6 and 7 control the dominance feature.



One Input Mode

The one input mode of operation differs slightly from the two input mode. The first difference is the location of the pressure switch. The switch is located between the left and right pneumatically actuated valves.



The input signal from this switch is connected to the LEFT INPUT terminal only.

The front panel of the controller still displays the same information as the two input mode, with the exception that the READY indicator is entered manually. The controller must see an increase followed by a decrease in pressure to detect that a supply has become depleted.

The usage of the controller is similar to the two input mode, except that the operator must place the controller into the READY position by pressing the associated button, after the bank supply has been replenished.

EMPTY: Indicates that the bank has no pressure.

READY: Indicates that the bank has more than the minimum pressure.

RUN: Indicates that the bank has more than the minimum pressure, and that pneumatic valve is actuated.

A bank may be switched from EMPTY to READY by pressing the button associated with it. This should not be done unless the operator has assured the status of the bank by some other means. Failure to verify that a bank is full could result in a loss of continuous gas delivery (the controller could try to switch to an empty bank).

A bank may be switched from READY to RUN by pressing the button associated with it, as long as the other bank is not currently in the RUN position. If the other bank is currently in the RUN position, pressing the other bank button will switch the bank from READY to EMPTY. A bank that is in the RUN position can be switched to EMPTY by pressing that bank button.

Gas can now be used from the bank that is in the RUN position. The controller is expecting to see a high pressure signal from the pressure switch. The controller will ALARM if the minimum pressure is not met within 3 seconds, to ensure that the bank placed into the RUN position is not empty. The pressure switch is used to determine when the minimum pressure is reached. When this minimum pressure is breached, the controller will turn off the actuated valve, turn on the alarm circuit, and will switch the other bank into RUN, only if the other bank is in the READY position.

The Alarm may be silenced by pressing the ALARM SILENCE button, located on the front of the controller.

Replenish the empty bank as soon as possible and place the controller into the ready position to assure an uninterrupted supply of gas.

OPTIONAL SETTINGS for ONE INPUT MODE

The 3 second rise in pressure check may be over-ridden using the dip switch positions 6 and 7.

