

## C-5230 Pneumatic Signal Limiter

### Features

- Independently Adjustable High/Low Limits
- Integral Hypodermic Needle Test Points
- Field Chosen Supply Source
- Low Volume with Fast Response
- Compatible with Dual Supply Systems

The C-5230 Pneumatic Signal Limiter is designed to impose high and/or low limits on any pneumatic signal. The limits imposed depend on the model used. The limiter is available in two models; the C-5230-2 is designed to impose high **or** low limits and the C-5230-3 is designed to impose high **and** low limits.

The low volume output (45 SCIM) of the C-5230 is isolated from the input and repeats the input signal at a 1:1 ratio, limited by the high and/or low adjustments.

### Operation

The C-5230 contains an internal pressure dropping orifice along with one or two regulators (depending on the model) for adjusting the high and/or low pressure limits. The high limit regulator can be adjusted from 3 PSIG (21 kPa) to within 1 PSI (7 kPa) of the supply pressure, and the low limit regulator can be adjusted from 2 PSIG (14 kPa) to within 1 PSI (7 kPa) of the supply pressure. The high and low limits can operate within 0.25 PSI (1.7 kPa) of each other.

The output of the C-5230 equals the low limit setting when the input signal is below the low limit. The output equals the high limit

when the input signal is above the high limit setting. The output equals the input when the input signal is between the set points.

The C-5230-3 is shipped with both of its pressure regulators preassembled on the unit. The C-5230-2 is shipped with its regulator mounted for the low limit application. For high limit applications, the regulator must be removed and installed in the high limit location.

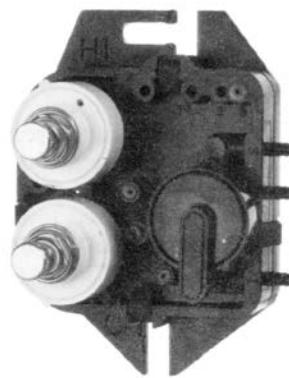


Fig. 1: C-5230 Pneumatic Signal Limiter

### Specifications

<b>Product</b>	C-5230 Pneumatic Signal Limiter
<b>Models</b>	<b>C-5230-2</b> High <b>or</b> Low Limit (Shipped in Low Limit Configuration) <b>C-5230-3</b> High <b>and</b> Low Limit
<b>Action</b>	Proportional-Direct Acting
<b>Ratio</b>	1:1 Between Limits
<b>Supply Pressure*</b>	13 to 25 PSIG (91 to 175 kPa) Nominal 20 PSIG (140 kPa) Air Supply Must Be Clean, Dry, and Oil Free
<b>Adjustments</b>	<b>Low Limit</b> 2 PSIG (14 kPa) to within 1 PSI (7 kPa) of Supply <b>High Limit</b> 3 PSIG (21 kPa) to within 1 PSI (7 kPa) of Supply
<b>Factory Set Points</b>	<b>C-5230-2</b> Low: Approximately 9 PSIG (63 kPa) <b>C-5230-3</b> High: Approximately 15 PSIG (105 kPa) Low: Approximately 5 PSIG (35 kPa)
<b>Minimum Limit Differential</b>	0.25 PSI (1.7 kPa)
<b>Ambient Operating Temp Limits</b>	40 to 120°F (4 to 49°C)
<b>Ambient Storage Temp Limits</b>	-20 to 150°F (-29 to 66°C)
<b>Air Connections</b>	Barbed Fittings for 5/32 in O.D. Polytubing, 1/4 x 5/32 in. Adapters Included for 1/4 in. Installations
<b>Air Consumption and Output Flow Capacity</b>	45 SCIM (12 mL/s)
<b>Materials</b>	<b>Body</b> Noryl <b>Regulator</b> Brass Knob, Polysulfone Body <b>Diaphragm</b> Silicone Rubber
<b>Mounting</b>	Surface with Two #8 Screws (Furnished)
<b>Shipping Weight</b>	0.2 lb (.09 kg)

\* 1/16 in. yellow cap furnished - see Mounting section.

The performance specifications are nominal and conform to acceptable industry standards. For application at conditions beyond these specifications, consult the local Johnson Controls office. Johnson Controls, Inc. shall not be liable for damages resulting from misapplication or misuse of its products.

**Note: To remove the regulator, move it from side to side 1/8 in. while pulling on the knurled brass knob; do not pull directly upward.**

Before the regulator can be reinstalled in the high limit location, the 3/32 in.

polyurethane plug must be removed. The plug should be stored in one of the holes as shown in Fig. 2. Simply push it into the hole with a small probe such as a paper clip, being careful not to puncture the plug.

**Note: The pressure regulator is properly installed when the action tab is positioned toward its respective HI or LO marking. The regulator should be pushed in firmly.**

## Mounting

The C-5230 is designed for surface mounting using the two #8 sheet metal screws included with the instrument. Air connections are made to barbed fittings for 5/32 in. O.D. polytubing. Adapters for converting 5/32 in. connections to 1/4 in. connections are included with the unit.

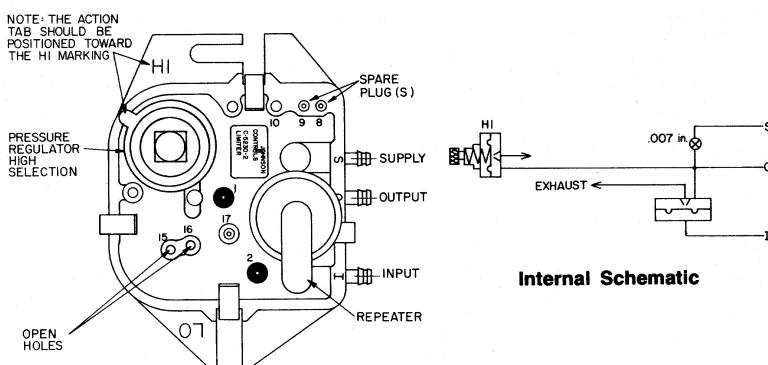
If the output "O" connection of the C-5230 is being fed by a restricted supply (for example T-9000 manifold), the supply "S" connection must be closed off with the furnished 1/16 in. yellow cap.

## Repair Information

Field repairs must not be made. For a replacement C-5230, contact the nearest Johnson Controls branch office.

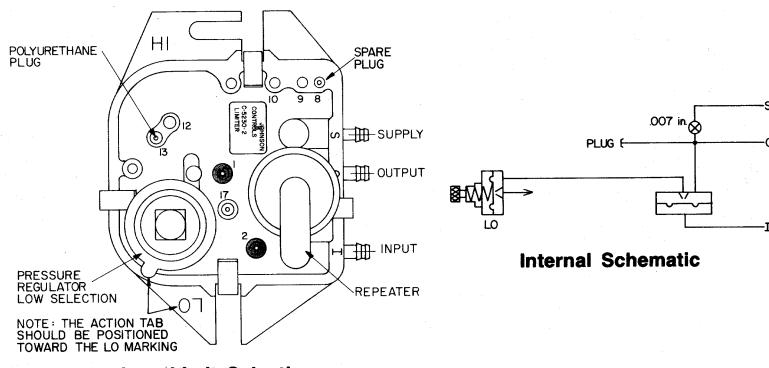
## Application and Drawing Identification

PLH/L
PLH -
PLL -



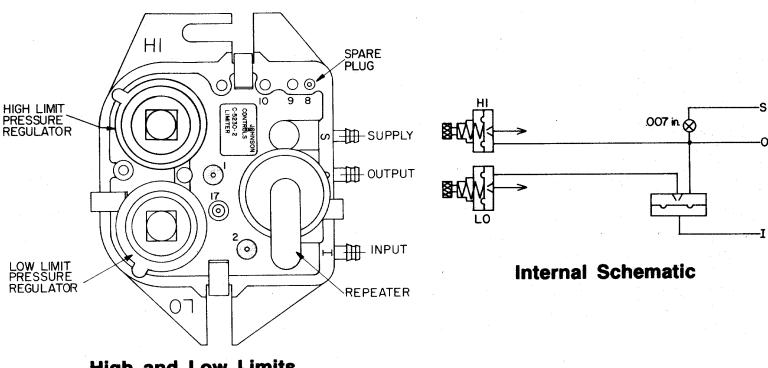
**Internal Schematic**

**Fig. 2: C-5230-2**



**Internal Schematic**

**Fig. 3: C-5230-2**



**Internal Schematic**

**Fig. 4: C-5230-3**

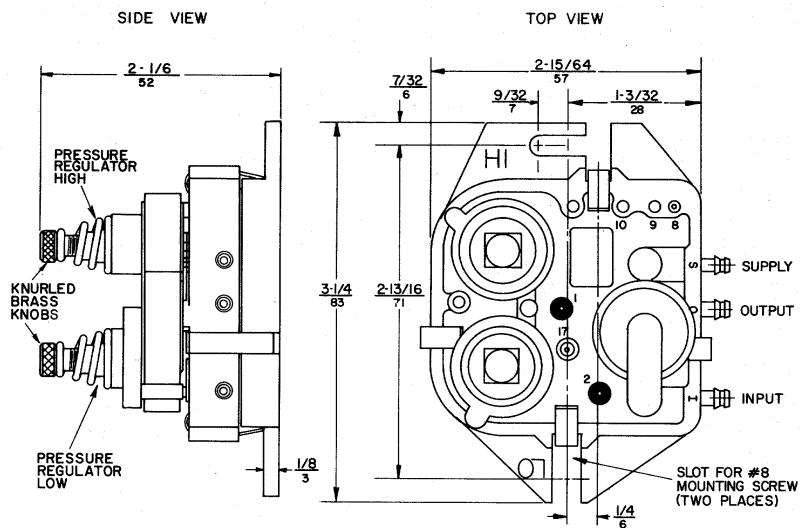


Fig. 5: C-5230-3 Dimensions  $\frac{\text{in.}}{\text{mm}}$

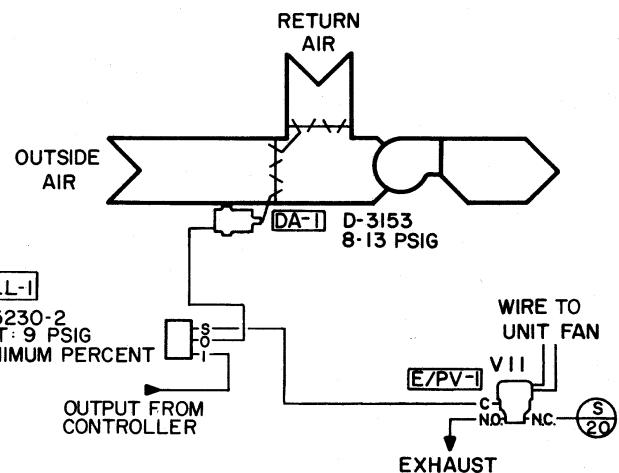


Fig. 6: Typical Low Limit Application using C-5230-2

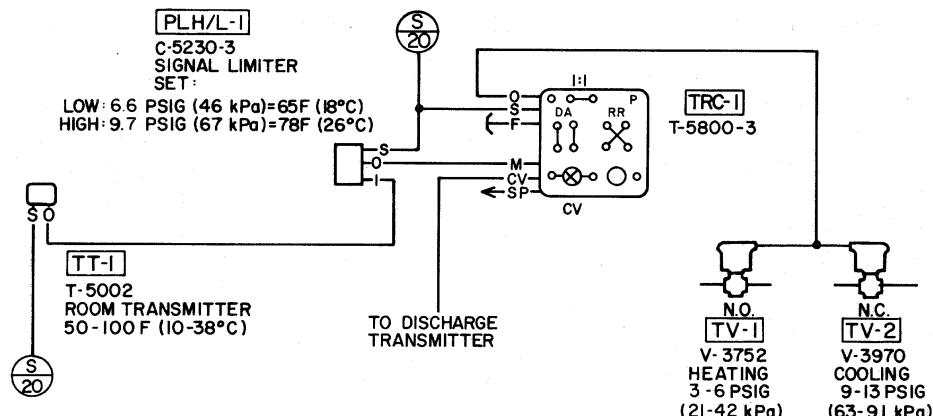


Fig. 7: Typical High and Low Limit Application using C-5230-3

## Calibration

High and/or low limits are an integral feature of the C-5230. The pressure regulator for the C-5230-2 is preassembled in the low limit configuration and preset at approximately 9 PSIG (63 kPa). The high and low limits for the C-5230-3 are factory set at approximately 15 and 5 PSIG (105 and 35 kPa) respectively. If adjustments are required, proceed as follows:

1. Furnish 20 PSIG (140 kPa) supply air to the C-5230 supply "S" connection **OR** cap the "S" connection and furnish a .007 in. restricted source of supply to the output "O" connection.
2. Insert a hypodermic needle test probe (X-200-140 ordered separately, connected to a 0 to 30 PSIG gage using a 1 in. length of polytubing) into output test point #1 (see Fig. 8).
3. Set the input "I" connection to 0 PSIG.

### C-5230-3 Adjustments for High and Low Limits

4. Turn the low limit regulator fully clockwise (approximately two turns).
5. Adjust the high limit regulator until the desired high limit is noted on the output gage.
6. Adjust the low limit regulator until the desired low limit setting is noted on the output gage.

### C-5230-2 Adjustments for Low Limit Only

Follow Steps 1 through 3 above.

4. Adjust the low limit regulator until the desired low limit setting is noted on the output gage.

### C-5230-2 Adjustments for High Limit Only (See Fig. 8)

Follow Steps 1 through 3 above.

4. Remove the polyurethane plug from hole #13 and store it in hole #9 (see Fig. 3).
5. Remove the regulator from the low position and relocate it to the high position. **Note:** **To remove the regulator, move it from side to side 1/8 in. while pulling on the knurled brass knob; do not pull directly upward. Install the regulator in the high position with the action tab pointing toward the HI marking. The regulator should be pushed in firmly.**
6. Close off hole #16 with a finger or temporarily plug it. Doing so will allow the high limit adjustment to be made.
7. Adjust the high limit regulator until the desired high limit is noted on the output gage.
8. Reopen hole #16 to the atmosphere.

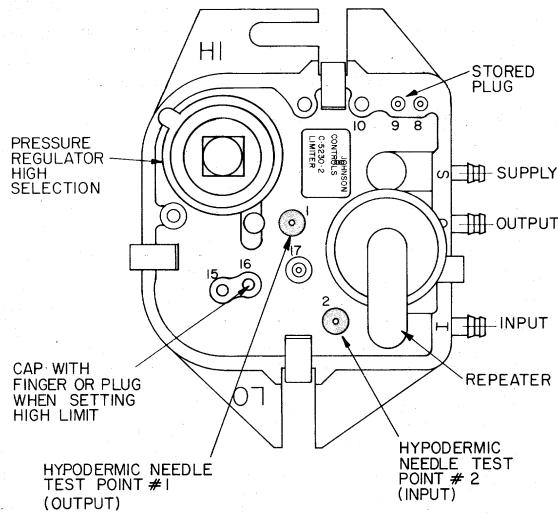


Fig. 8: C-5230-2

**Note: Do not use Locktite® in an attempt to seal the high and/or low limits of the C-5230 Signal Limiter; its chemical makeup is such that it will cause deterioration to the plastic components of the C-5230. If sealant is required, it is recommended that common fingernail polish be used.**

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