

## C-5222 Adding/Subtracting Repeater

The C-5222 Adding/Subtracting Repeater is a low volume output auxiliary device designed to increase or decrease the output pressure of a transmitter at a constant ratio. Models are available with a 1:1 or 5:1 ratio.

### Operation

The C-5222 is a double spring-loaded, biased repeater. The device is adjusted to bias the output up or down with respect to its input. See Figs. 1 and 2 for adjustable ranges for each model.

### Application

The C-5222-1 is used to provide the differential switch point for a solar switching application when two identical range temperature transmitters are used (see Fig. 3).

In Fig. 4, the C-5222-1 is used in a hot water reset application to provide a night-time load compensating feature.

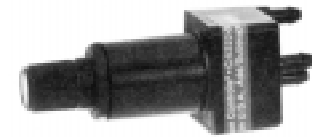
The 5:1 ratio C-5222-3 can be used to increase the sensitivity of a transmitter for low limit applications (see Fig. 5). It also provides the low limit set point, and functions as a low signal selector. This prevents the low limit control from interfering with normal control until the low limit temperature is reached.

### Mounting

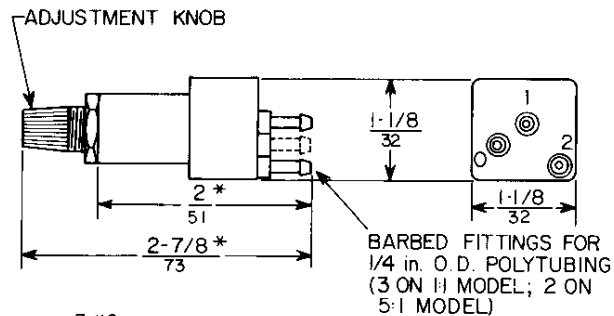
The C-5222 can be mounted in-line or on a panel with the C-5222-100 mounting bracket (ordered separately). Connections are made with 1/4 in. O.D. polytubing to barbed fittings on the device. The fittings are marked "0", "1" and "2" for hookup convenience.

### Adjustment

The C-5222 is adjusted by means of the knob located at the top of the instrument. It can be adjusted to any point found in the shaded areas of the graphs in Figs. 1 and 2. The device will maintain the specified ratio over its entire operating range.



**C-5222  
Adding/Subtracting Repeater**



Dimensions  $\frac{\text{in.}}{\text{mm}}$

### Specifications

<b>Product</b>	C-5222 Adding/Subtracting Repeater	
<b>Models</b>	C-5222-1 — 1:1 Ratio C-5222-3 — 5:1 Ratio	
<b>Action</b>	Proportional; Direct Acting	
<b>Max Input Pressure</b>	25 PSIG (175 kPa)	
<b>Adjustable Range</b>	<b>C-5222-1</b>	+ 5 to -8 PSI (+ 35 to -56 kPa)
	<b>C-5222-3</b>	+ 5 to -13 PSI (+ 35 to -91 kPa)
<b>Air Connections</b>	Barbed Fittings for 1/4 in. O.D. Polytubing	
<b>Air Consumption and Output Flow Capacity</b>	45 SCIM (12 mL/s) with .007 in. Restrictor 25 SCIM (7 mL/s) with .005 in. Restrictor	
<b>Ambient Operating Temperature Limits</b>	50 to 120F (10 to 49°C)	
<b>Material</b>	<b>Body</b>	Polysulfone Plastic
	<b>Diaphragm</b>	Silicone Rubber
<b>Mounting</b>	In-Line or Panel	
<b>Accessories (Order Separately)</b>	External Restrictor, .007 or .005 in. C-5222-100 Panel Mounting Bracket	

*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.*

## Operational Checkout

After adjusting the C-5222 to the desired value, slowly vary the input pressure. Check that the proper input/output relationship is maintained according to the graphs in Figs. 1 and 2.

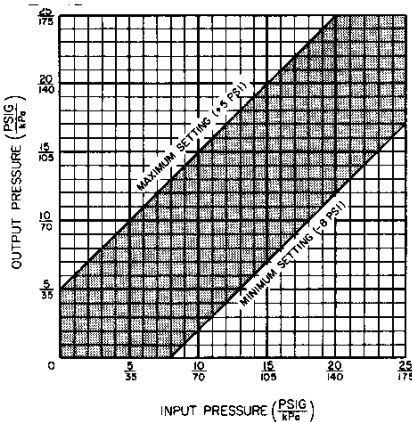
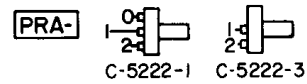
**Note:** Output line length, size of restrictor and capacity

requirements of the controlled device may affect response time.

## Repair Information

If the C-5222 fails to operate within its specifications, unit replacement is required; field repairs cannot be made.

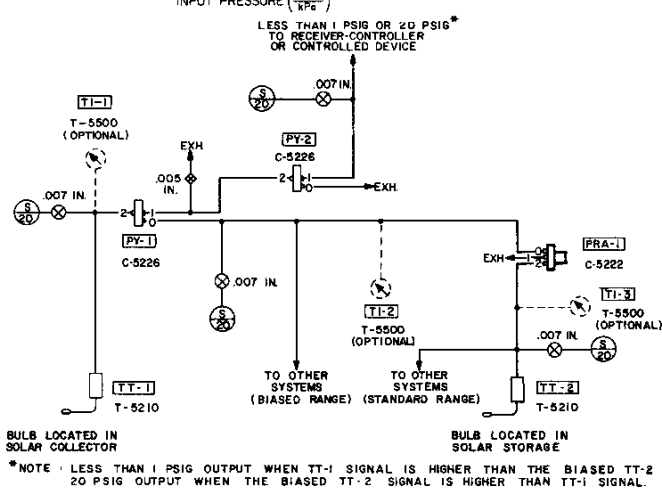
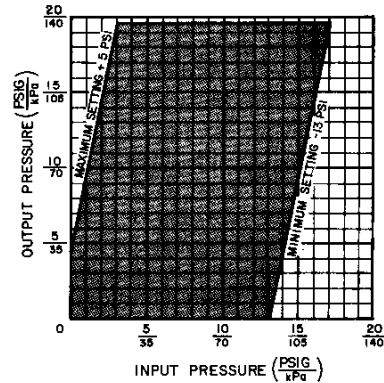
## Application and Drawing Identification



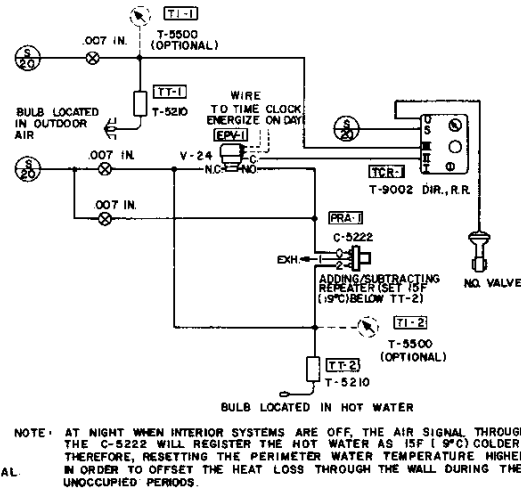
**Fig. 1 (Left): Input/Output Relationship of C-5222-1 (1:1)**

Shaded areas indicate range of adjustment.

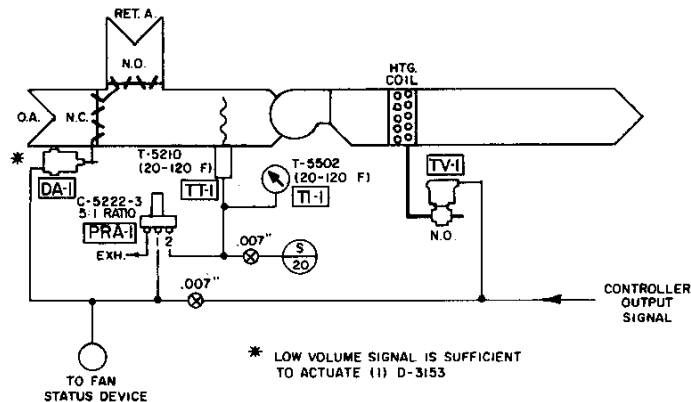
**Fig. 2 (Right): Input/Output Relationship of C-5222-3 (5:1)**



**Fig. 3: Solar Switching Application**



**Fig. 4: Hot Water Reset Application**



**Fig. 5: Low Limit Control Application**

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