

C-2220 High-Low Pressure Selector

The C-2220 High-Low Pressure Selector is a pneumatic device that selects and transmits the highest and lowest control pressure signals from a group of thermostats or controllers. The selector is available in master and slave modules for use with high volume output and low volume output thermostats or controllers.

One master and as many as 19 slaves can be combined in a single selector for up to 20 zones of high-low pressure selection. A combination of high and low volume output modules can also be used in the same selector for applications involving both high and low volume output thermostats.

Note: For non-relay assemblies consisting of more than 10 modules, an A-4000-135 filter must be used in place of the C-2220-601 filter because of its higher flow capacity. In all cases, the appropriate C-2220 module must be chosen for proper operation with the corresponding type of thermostat or controller. Low volume C-2220 modules are furnished with integral restrictors to provide restricted supply air pressure to their respective thermostats.

Operation

Figure 2 shows an internal view of a three-zone selector for a low volume output application. Each C-2220 module contains a high and a low signal repeater. When the modules are coupled together to form the selector, the high signal repeaters are connected in series and the low signal repeaters are connected

in parallel. These interconnections form the high and low signal selector.

Through the use of the C-2220, heating and cooling apparatus are controlled by the zones with the greatest demand. Heating cool air or cooling heated air, which may occur in dual duct and multizone systems, is minimized.

Mounting

Master C-2220 modules are furnished with two vinyl plugs and two small round head screws. The vinyl plugs are used with the small screws to

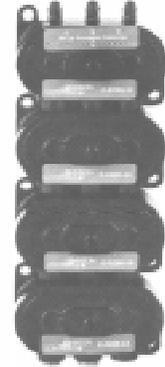


Fig. 1: C-2220 High-Low Pressure Selector

Specifications

Product	C-2220 High-Low Pressure Selector	
Models	C-2220-11	Master Module for Low Volume Input
	C-2220-12	Slave Module for Low Volume Input
	C-2220-13	Master Module for High Volume Input
	C-2220-14	Slave Module for High Volume Input
Signal Limits	Output	1 to 19 PSIG (7 to 133 kPa) @ 25 SCIM (7 mL/s)
	Input	0 to 25 PSIG (0 to 175 kPa)
Air Consumption	C-2220-11	60 SCIM (16 mL/s)
	C-2220-12	20 SCIM (5 mL/s)
	C-2220-13	40 SCIM (11 mL/s)
	C-2220-14	0 SCIM (0 mL/s)
Output Capacity (Master Modules Only)	High and Low 25 SCIM (7 mL/s)	
Supply Pressure	15 to 25 PSIG (105 to 175 kPa) Nominal 20 PSIG (140 kPa)	
Air Connections	"S" Supply "H" High "L" Low	Barbed Fittings for 1/4 in. O.D. Poly tubing
	Input	Barbed Fitting for 5/32 in. O.D. Poly tubing
Ambient Operating Temperature Limits	40 to 120F (4 to 49°C)	
Ambient Storage Temperature Limits	-20 to 150F (-29 to 66°C)	
Material	Polysulfone	
Mounting	Panel or Surface Mounting	
Accessory (Order Separately)	C-2220-5 Mounting Base Kit	
Shipping Weight	0.1 lb per Module	

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.

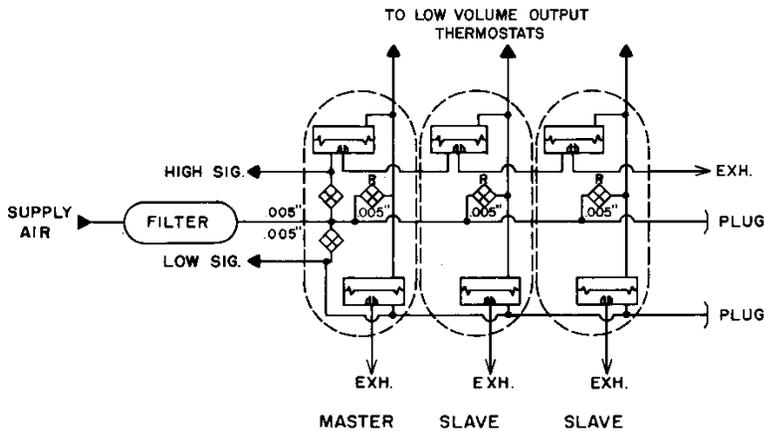


Fig. 2: Internal View of Three-Zone Low Volume Output Selector

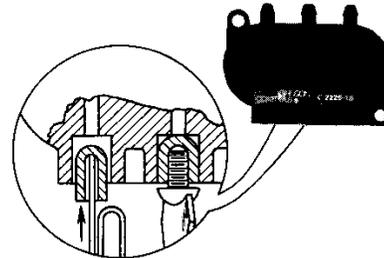


Fig. 3: Plug Installation

block off the “S” and “L” receptacles of the last slave module.

All C-2220 modules are furnished with two holes for mounting with #6 sheet metal screws. A short length of 5/32 in. O.D. tubing with a 5/32 to 1/4 in. in-line coupler is also furnished for existing applications using 1/4 in. tubing.

To mount the selector, it is only necessary to secure every other module and the master and last slave module. The C-2220-5 Mounting Base Kit (ordered separately) is available for mounting the selector to a rough surface. The mounting base can accommodate up to six modules and contains eight #6 sheet metal screws. This kit is not required for panel mounted selectors.

Installation

1. Check that each C-2220 module is appropriately matched with its high or low volume output controller or thermostat.
2. Insert the three barbed fittings on the top of the first slave module into the corresponding receptacles on the bottom of the master module. Similarly attach the succeeding slave modules together in the same manner.
Note: The modules will lock and seal tightly.

Once two modules have been locked together, they should only be uncoupled for troubleshooting or replacement.

3. After the last slave is connected, the “L” and “S” receptacles must be plugged (see Fig. 3). The “H” receptacle is not plugged and must be open to atmosphere. Insert the small vinyl plugs into the receptacles and push them all the way in with a small probe such as a paper clip.
4. Insert the small round head screws into the vinyl plugs and tighten them until the heads just touch the C-2220 body. **Note: Overtightening the screws will loosen the vinyl plugs and result in air leakage.**
5. If the system is expanded at a later date, unscrew the small round head screws in the last slave module part way to loosen the plugs. Remove the plug and screw from both receptacles and add the additional slaves required. Replace the plugs in the last slave module as per steps 3 and 4.

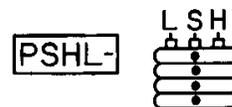
Operational Checkout

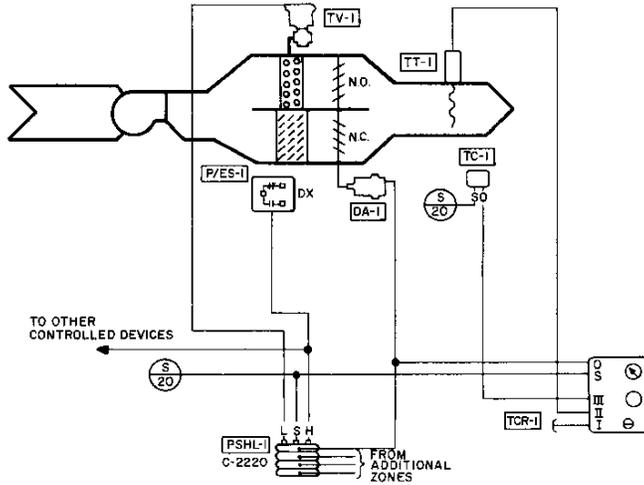
Note the input pressures from each of the controllers or thermostats. Check the high and low output pressures to see that they match the highest and lowest input pressures.

Repair Information

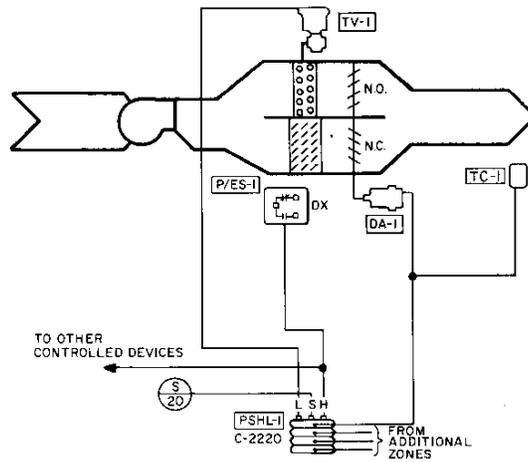
If the C-2220 fails to operate within its specifications, individual modules can be replaced. Work the modules apart gradually; do not pull them straight apart or use a screwdriver to pry them apart as this may damage the receptacles and fittings. Replacement filters are also available. Refer to the Repair Parts table for appropriate code numbers.

Application and Drawing Identification





**Fig. 4: Typical High Volume Controller
Application for Multizone System**



**Fig. 5: Typical Low Volume Controller
Application for Multizone System**

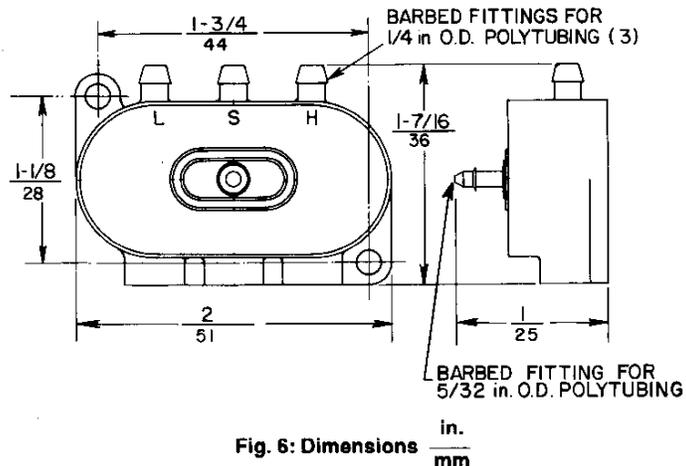


Fig. 6: Dimensions
in.
mm



C-2220-601



A-4000-135

Repair Parts

Air Filter Code No.	Flow Capacity	Useage	Shipping Weight*
C-2220-601	300 SCIM (82 mL/s) at a 1 PSIG (7 kPa) Pressure Drop with a 20 PSIG (140 kPa) Supply	For Mildly Contaminated Systems (such as systems contaminated with construction dirt)	0.25 lb
A-4000-135	1100 SCIM (300 mL/s) at a 1 PSIG (7 kPa) Pressure Drop with a 20 PSIG (140 kPa) Supply	For Severely Contaminated Systems (such as systems contaminated with oil)	0.25 lb

*lbs x 0.454 = kg

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