

# S-224 Pneumatic Gradual Switch

## Product Bulletin

Code No. LIT-7171370P  
Part No. 24-4699-3, Rev. A  
Issued September 27, 2013  
Supersedes January 3, 1972

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The Johnson Controls® S-224 Pneumatic Gradual Switch provides manual selection of the pressure in air lines from a remote location. The S-224 is a proportional action relay type switch that maintains a selected output pressure setting until it is readjusted.

The setting can range from 0 to full supply pressure up to 20 psig. The extremely stable output of the S-224 makes the switch ideally suited for position controlled devices or for use as a remote pneumatic set point adjuster.

A model is available with 2 psi span per dial revolution of 300 angular degrees. Graduated dials are available with various inscriptions to adapt the switches to a broad range of functions. The 2 psi span switch can be used with 0 to 20 or 6 to 12 psi span dials.

See *Construction Details S-224-2* for dial descriptions.

### Features

- adjustable setting from 0 to 20 psig (140 kPa)
- available with 2 psig (14 kPa) span per dial revolution of 300 angular degrees, which can be set anywhere between the 0 to 20 psig
- graduated dials are available with various inscriptions to adapt the switches to a broad range of functions
- mounts flush on a control panel with a maximum thickness of 1-1/16 inch (27 mm)



Figure 1: S-224 Pneumatic Gradual Switch

### Dimensions

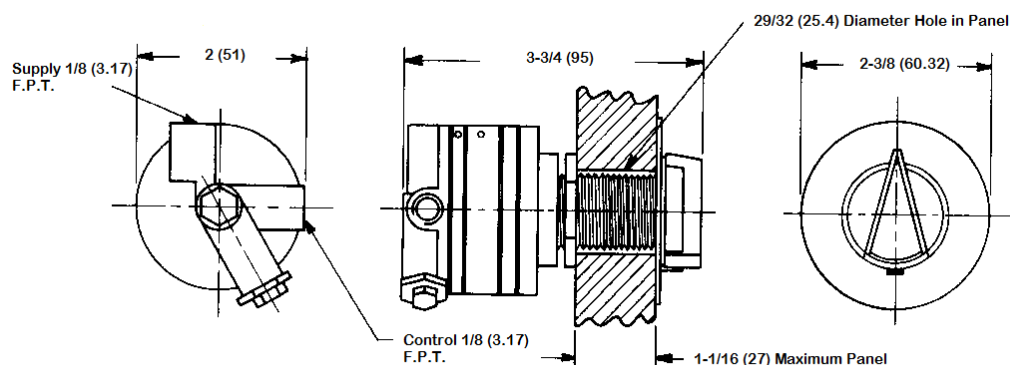
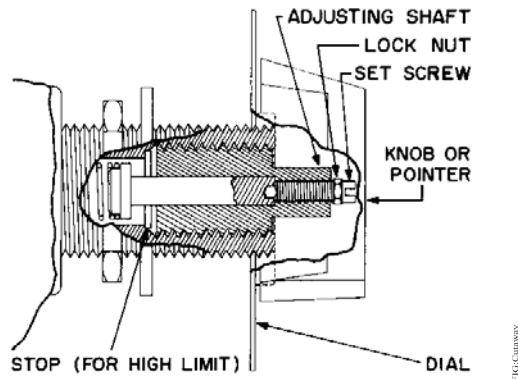


Figure 2: S-224 Switch Dimensions, in. (mm)

## Mounting

The S-224 is designed to be flush mounted on a control panel up to 1-1/16 in. thick. The key slot on the mounting shaft must be located so that the bottom of the dial is in the correct position. See Figure 2 for dimensions.

## Adjustment



**Figure 3: S-224 Switch Cutaway**

To set the maximum pressure limit of the S-224:

1. With a test gage in the output line and air supplied to the switch, turn the adjusting shaft clockwise against the stop.
2. Loosen the locknut and adjust the calibrating set screw until the required maximum output pressure is obtained. Retighten the locknut.
3. Replace the knob so that it indicates the maximum pressure (225 angular degrees for 15 psi; 300 angular degrees for 20 psi).

## Selection

Code Number	Description
<b>Span per 300° knob rotation with range of 0 to 20 psig:</b>	
<b>S-224-1</b> <sup>1</sup>	20 psi Span
<b>S-224-2</b>	2 psi (Adjustable over Range)

1. Order Dials Separately

## Accessories

Code Number	Description
<b>S-224 Dials; 180° Knob Rotation – 12 psi Span:</b>	
<b>S-224-50</b>	Temperature Increase (CW)
<b>S-224-51</b>	Pressure Increase
<b>S-224 Dials; 225° Knob Rotation – 15 psi Span:</b>	
<b>S-224-53</b>	Temperature Increase (CW)
<b>S-224-54</b>	Pressure Increase (CW)
<b>S-224 Dials; 300° Knob Rotation – 20 psi Span: <sup>1</sup></b>	
<b>S-224-58</b>	Temperature Increase (CW)
<b>S-224-61</b>	Temperature Increase (CCW)
<b>S-224-59</b>	Pressure Increase (CW)
<b>S-224-60</b>	Humidity Increase (CW)
<b>S-224-63</b>	Open-Closed
<b>S-224-64</b>	Closed-Open <sup>2</sup>

1. 2 PSI per 300° Rotation
2. Damper Position Inscribed Across Dial

## Repair Information

If the S-224 Pneumatic Gradual Switch fails to operate within its specifications, replace the unit. For a replacement sensor, contact the nearest Johnson Controls® representative.

## Technical Specifications

### S-224 Pneumatic Gradual Switch

<b>Action</b>	Proportional Action Relay	
<b>Output Pressure Range</b>	6 to 12 psig; 0 to 20 psig; 0 to 20 psig, 2 psi Span	
<b>Maximum Supply Pressure</b>	25 psig	
<b>Maximum Control Pressure</b>	20 psig	
<b>Material</b>	<b>Body</b>	Die Cast Zinc
	<b>Dial Plate</b>	Brass, Satin Chrome Finish
	<b>Knob</b>	Implex Plastic
<b>Mounting</b>	Flush Panel (1-1/16 in. Maximum)	
<b>Air Connections</b>	1/8 in. FPT	
<b>Ambient Temperature Limits</b>	-40 to 200°F (-40 to 93°C)	

*The performance specifications are nominal and conform to acceptable industry standard. 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.*



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