

# Conoflow's Snap Acting Relays GVB

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Jeff Gotthelf  
Principal Engineer

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**Conoflow<sup>®</sup>**

# GVB11 and GVB12 Snap Acting Relay Description

- The Conoflow GVB11 and GVB12 Snap Acting Relays are air control valves that are air and spring operated.
- There is a signal port to sense the system supply pressure.
- There is a user adjustable control spring to calibrate a trip point.
- There are one or two 3 way valves to switch air flow.
  - Change happens “in a snap” when the supply pressure changes and trips the relay.
  - The GVB11 Snap Acting Relay uses a single 3 way valve.
  - The GVB12 Snap Acting Relay has two (2) 3 way valves that are ganged together.
    - Both 3-way valves trip and reset in unison.

# GVB11 and GVB12 Snap Acting Relay Comparison

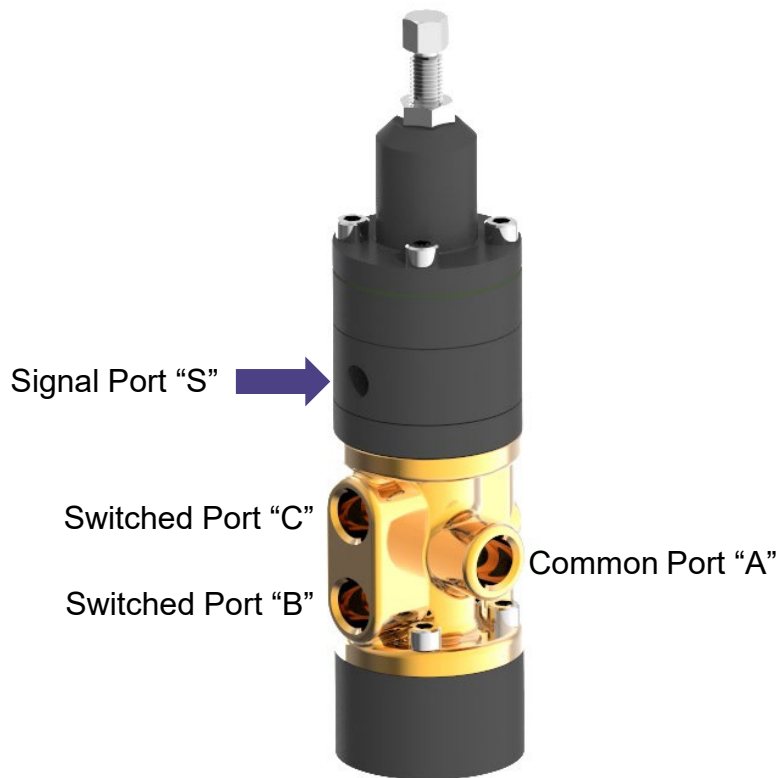


GVB11 Snap Acting Relay

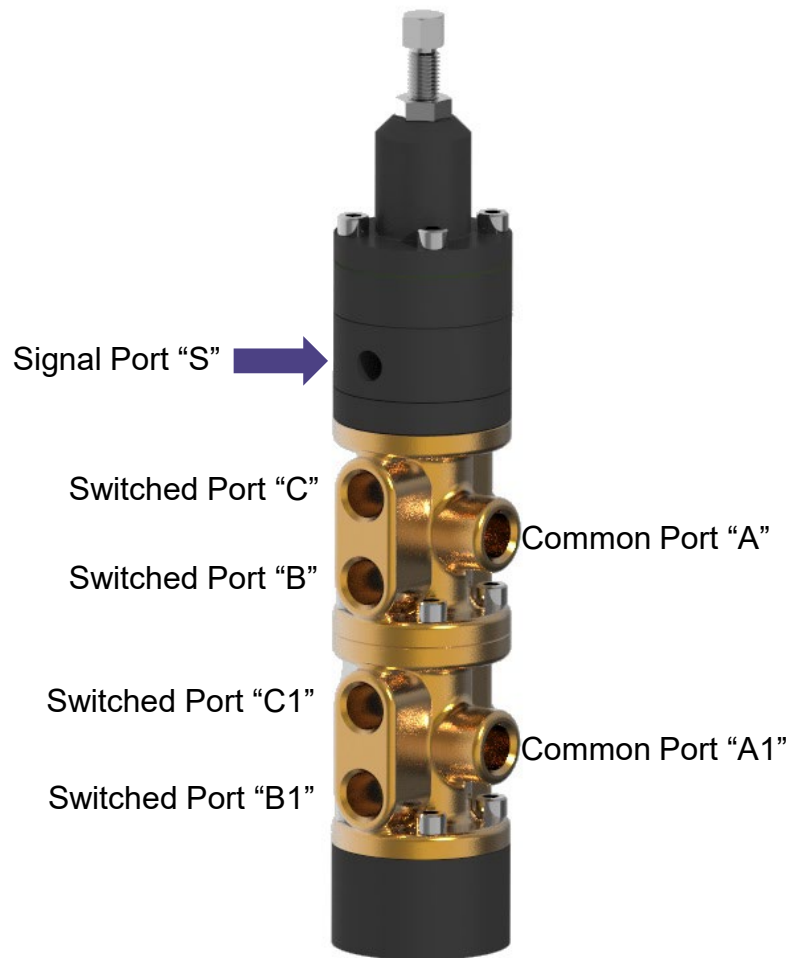


GVB12 Snap Acting Relay

# GVB11 and GVB12 Snap Acting Relay Comparison



GVB11 Snap Acting Relay



GVB12 Snap Acting Relay

# GVB11 and GVB12 Snap Acting Relay Operation

- Condition: Pressure at signal port S remains above trip point.
  - Flow goes to/from A to B (and A1 to B1 for GVB12).
  
- Condition: Pressure at signal port S falls below trip point.
  - Flow goes to/from A to C (and A1 to C1 for GVB12)
  
- Condition: Pressure at signal port S resumes and reaches the reset point.
  - Flow goes to/from A to B (and A1 to B1 for GVB12)
  
- The reset point is typically about 20% greater than the trip point.
  
- As shipped from factory, the trip point is set to 40 psig.
  
- The trip point is adjustable by the user from 25 to 85 psig.

# GVB11 and GVB12 Snap Acting Relay Uses

Some of the applications for Snap Acting Relays include:

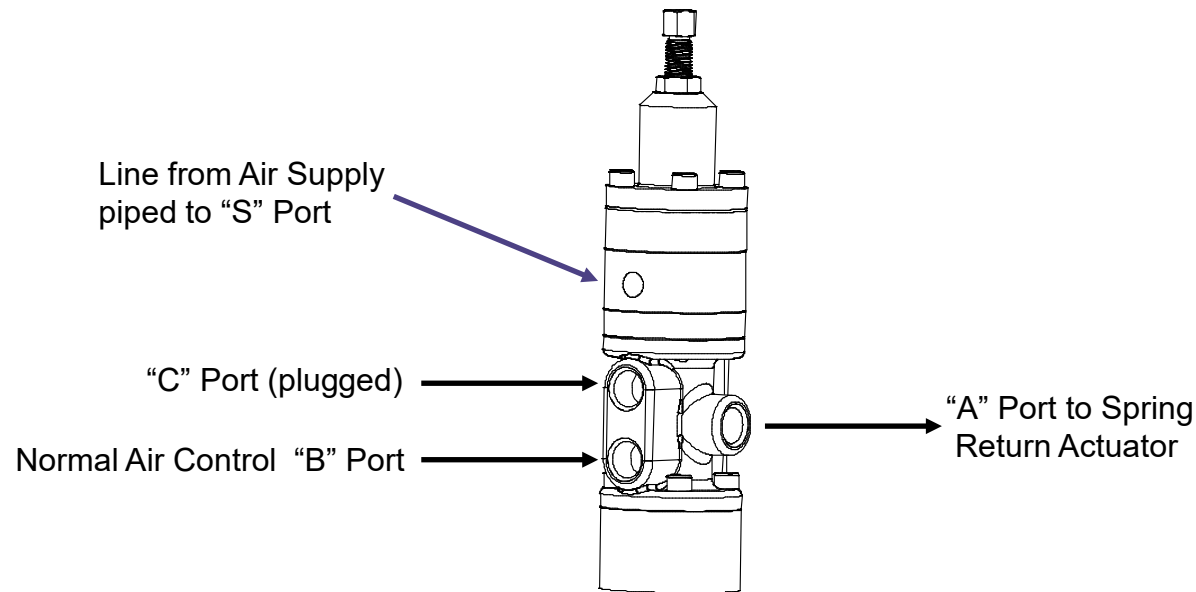
- Lock an actuator in its last position
- Extend or retract an actuator stem
- Divert flow or pressure from one device to another
- Switch from primary to auxiliary pneumatic power

Snap Acting Relays are typically used for critical air loss fail safe applications, to guard against a compressor stoppage or an air line breakage.

Snap acting relays are a preferred failsafe valve as they are relatively small, light weight, are self contained, and fairly easy to pipe into the system. They require no external valves or sensors to operate.

# GVB11 Snap Acting Relay Connection

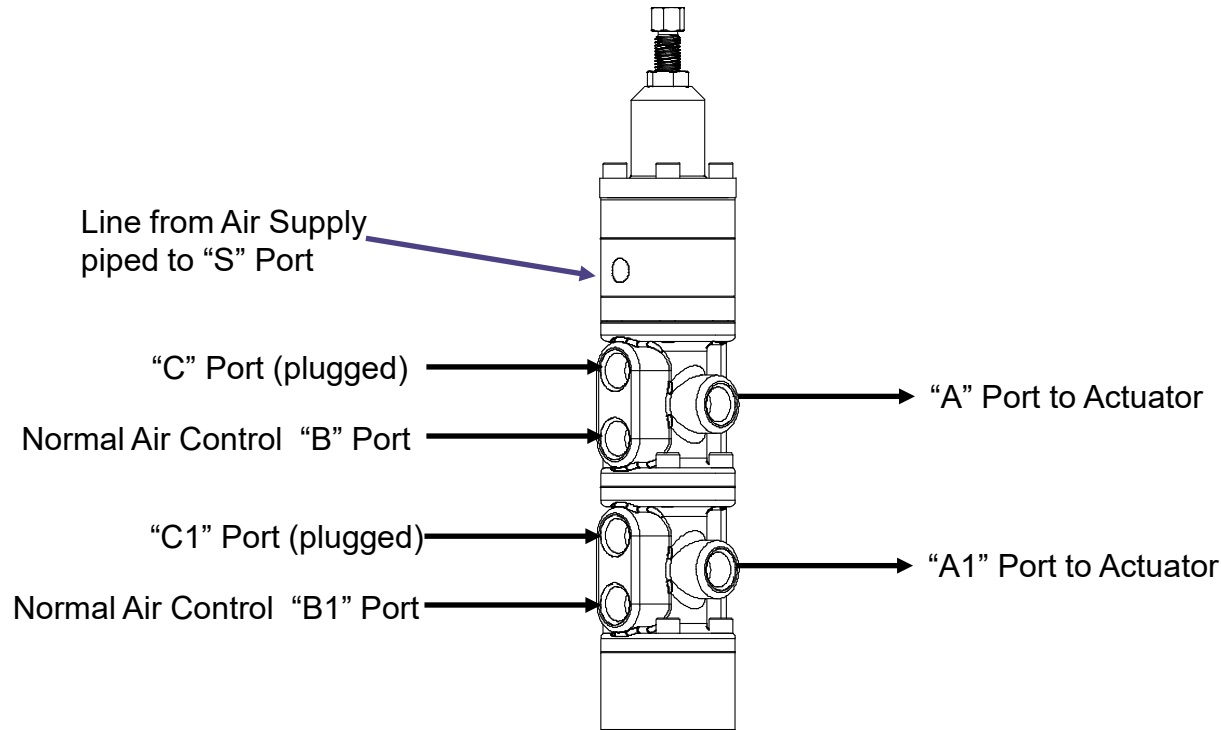
## Spring Return Actuator - Lock in Last Place Application



In this simple layout, when the air pressure is above the trip point, normal operation will allow air to flow to and from the spring return actuator in the A to B flow mode. When there is an air supply failure, the relay will trip and try to flow air to and from the spring return actuator from the C port, which is plugged by the installer. This system will trap air in the actuator until the air supply pressure is restored, the GVB11 resets, and then switches operation back to the A to B flow mode.

# GVB12 Snap Acting Relay Connection

## Double Acting Actuator - Lock in Last Place Application

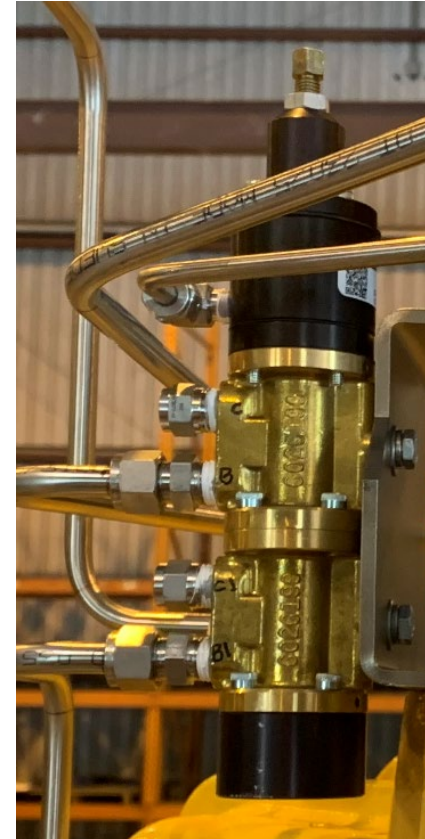


In this simple layout, when the air pressure is above the trip point, normal operation will allow air to flow to and from the double acting actuator's A to B (and A1 to B1) flow modes. When there is an air supply failure, the relay will trip and try to flow air to and from the double acting actuator from the C and C1 ports, which are plugged by the installer. This system will trap air in the actuator until the air supply pressure is restored, the GVB12 resets, and then switches operation back to both A to B flow modes.



# GVB12 Snap Acting Relay Connection

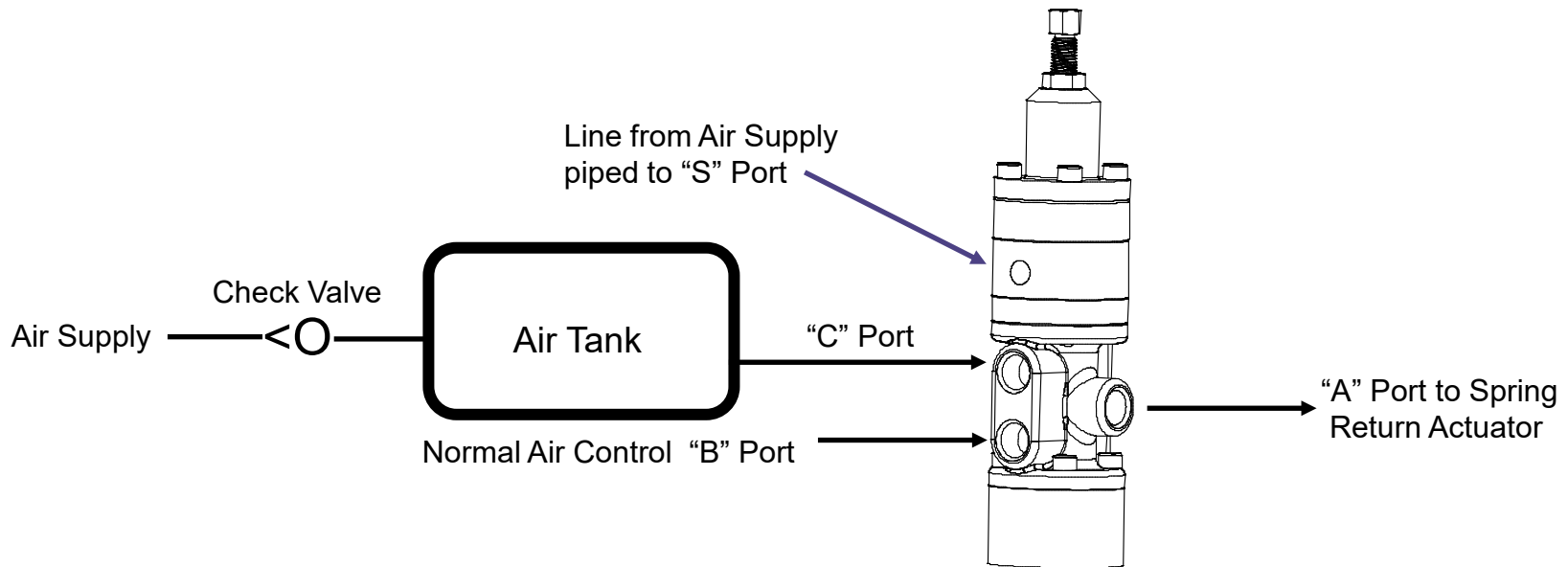
## Double Acting Actuator - Lock in Last Place Application



The photos above shows an example of a GVB12 piped between a rotary positioner and a large rotary actuator mounted to a large mixing valve. The customer needed to have the actuator lock in last place as an air failure fail safe mode.

# GVB11 Snap Acting Relay Connection

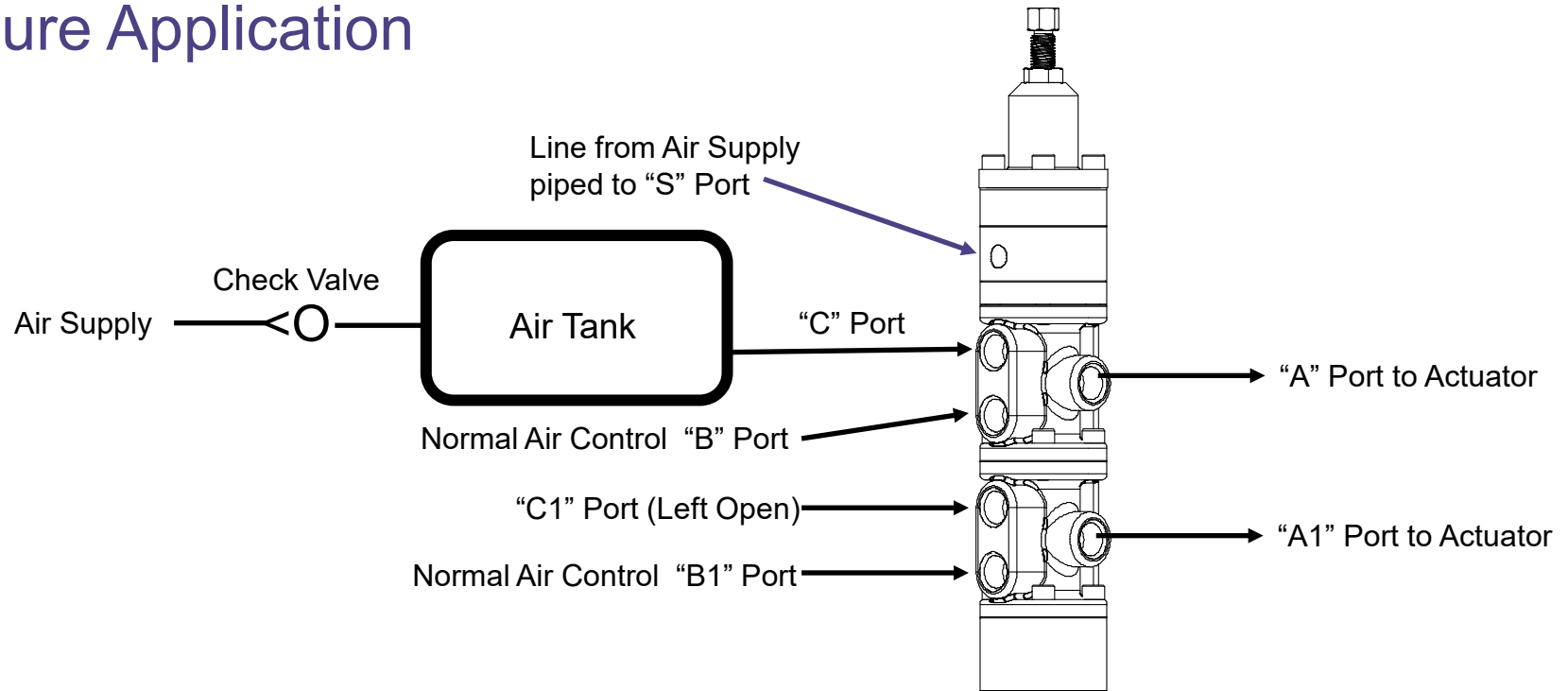
## Spring Return Actuator – Extend or Retract Upon Air Failure Application



In this layout, when the air pressure is above the trip point, normal operation will allow air to flow to and from the spring return actuator in the A to B flow mode. When there is an air supply failure, the relay will trip and flow air to the spring return actuator from the C port, which is supplied by a remote air tank. This system will extend or retract the actuator stem (depending on the actuator type) until the air supply pressure to the "S" port is restored, and switches operation back to the normal A to B flow mode.

# GVB12 Snap Acting Relay Connection

## Double Acting Actuator – Extend or Retract Upon Air Failure Application



In this layout, when the air pressure is above the trip point, normal operation will allow air to flow to and from the double acting actuator's A to B (and A1 to B1) flow modes. When there is an air supply failure, the relay will trip and flow air to the double acting actuator from the C port, while exhausting air from the C1 port. This system will extend or retract (depending on the A and A1 connections) the actuator until the air supply pressure is restored, the GVB12 resets, and then switches operation back to both A to B flow modes.