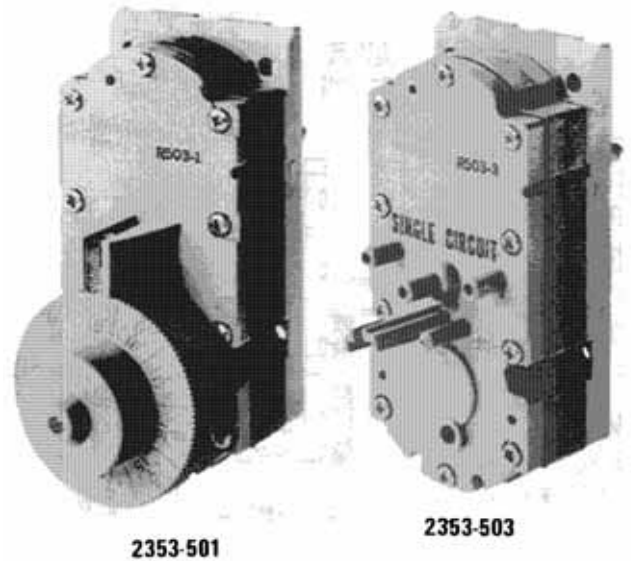


The 2353-501 and 502 Diverting Relays are snap-acting devices with adjustable set points. They are designed for a variety of switching and interlocking functions in pneumatic control systems where the application requires one or more of the following functions: feeding and exhausting branch lines, diverting a supply line to either one of two branch lines, or diverting one of two supply lines to one branch line. The primary function of these devices is to convert a proportional pneumatic signal, at a predetermined setting, into a positive signal for a final control device.

The 2353-503 is a non-adjustable, snap acting, signal comparing diverting relay designed for use in pneumatic control systems where the application requires a pneumatic switching function based on the comparison of two proportional pneumatic input signals. Its primary function is the comparison of two input signals from outside and inside enthalpy transmitters, providing SPDT pneumatic two-position switching based on the transmitted enthalpy values, however, it may be used with any two pneumatic input signals up to a maximum of 30 psig.



**Table-1 ORDERING DATA.**

TAC UNI-LINE NUMBER	REPLACES MODEL	SET POINT RANGE
2353-501	R503-1	3 to 20 psig (0.3 ± 0.1 psig Differential)
2353-502	R503-2	4 to 20 psig (3.0 ± 1.0 psig Differential)
2353-503	R503-3	Non-adjustable (0.3 ± 0.1 psig Differential)
22-151	K503	Optional Mounting Bracket

## GENERAL INSTRUCTIONS

These devices are to be used on clean, dry, oil free control air only and will operate properly when mounted in any position.

The inherent reliability of these devices is enhanced and prolonged through regular inspection and preventive maintenance by a qualified control expert. Should any of these devices become inoperative, it should be replaced by a new unit.

## SPECIFICATIONS

### ACTION

**2353-501 & 502:** Signal below set point, ports NO and C are connected. Signal above set point, ports NC and C are connected.

**2353-503:** A pressure at port S equal to or greater than the pressure at port S<sub>2</sub> connects ports C and NC. A pressure at S<sub>2</sub> greater than the pressure at port S connects ports C and NO.

**Main Air Pressure:** 15 to 25 psig operating, 30 psig maximum

**Air Capacity:** 60 SCFH

**Air Consumption:** 29 SCIM

**Maximum Ambient Temperature:** 140°F

**Mounting:** Designed for use on 22-120 TAC Pneumodular manifold socket. These devices can also be surface mounted by using the appropriate mounting bracket. (see mounting instructions.)

## OPERATION & ADJUSTMENTS

### 2353-501, 502

#### Operation

These relays are two position devices with "SPDT" switching action. Ports C and NO are connected on a rise in signal pressure up to the set point. Ports C and NC are connected above the set point and on a fall of signal pressure down to the set point minus the differential.

#### Adjustments

The set point of the 2353-501 is adjustable between 3 and 20 psig and is factory set at 9 psig. The differential is factory set at 0.3 psig ( $\pm 0.1$  psig) and is non-adjustable.

The set point of the 2353-502 is adjustable between 4 and 20 psig and is factory set at 9 psig. The differential is factory set at 3.0 psig ( $\pm 1.0$  psig) and is non-adjustable.

### 2353-503

#### Operation

The 2353-503 is a two position device. A pressure at port S equal to or greater than the pressure a port S<sub>2</sub> causes the relay to switch port C to NC with port NO blocked. A pressure at port S<sub>2</sub> of .4 psig ( $\pm .2$  psig) greater than the pressure at port S will cause the relay to switch port C to NO with port NC blocked.

## Adjustments

None

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**Caution:** This device should be installed by a qualified person with due regard for safety as improper installation could result in a hazardous condition.

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## MOUNTING INSTRUCTIONS & DIMENSIONS

### Panel Mounting

These devices have been designed to be mounted on a TAC Pneumodular manifold socket. One socket, one gasket and four mounting screws are required in addition to the appropriate manifold backplate. Refer to the TAC Pneumodular Parts and Accessories Data Sheet for complete ordering information.

### Surface or Field Mounting

These devices may also be mounted without the backplate, socket and gasket to replace competitive and old TAC Robertshaw devices by using an optional 22-151 mounting bracket or by using the plastic mounting straps and adhesive bases provided.

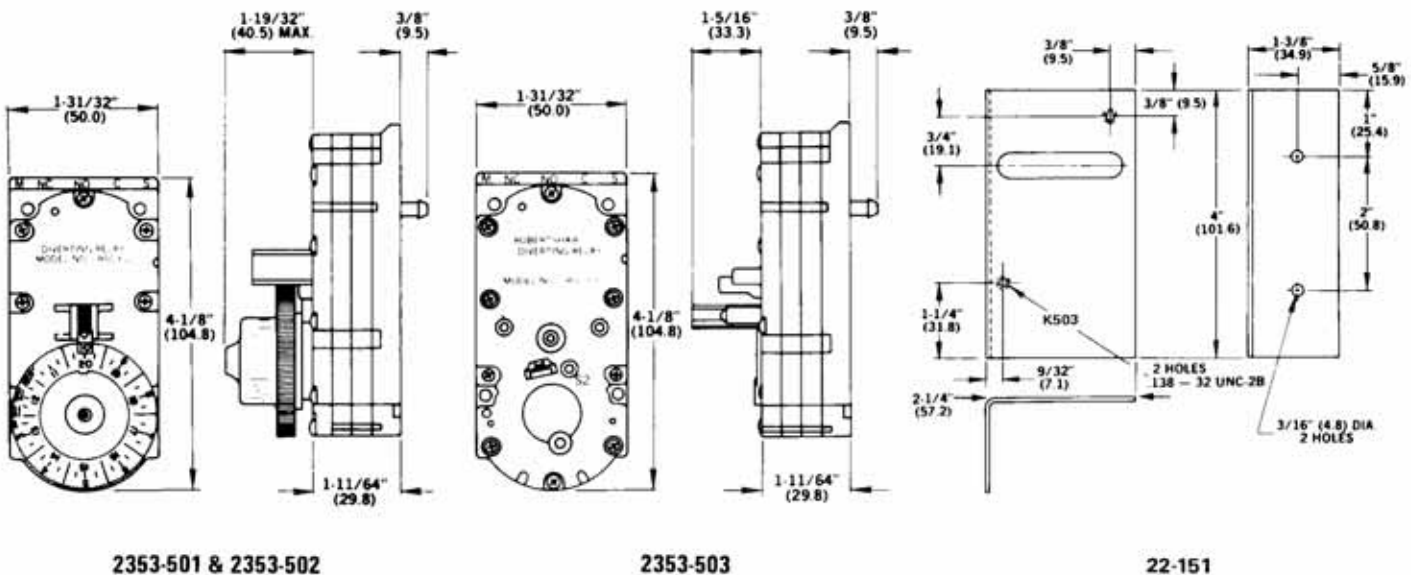
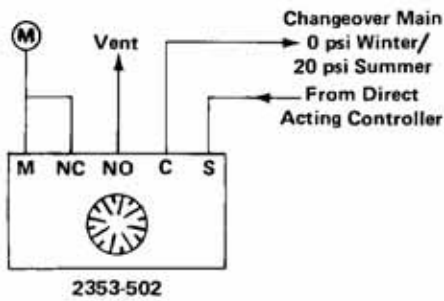


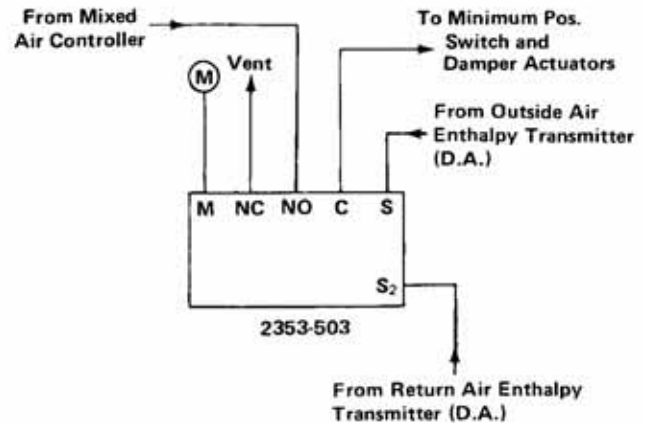
Figure-1

## TYPICAL APPLICATIONS



### Summer/Winter Changeover

A temperature controller, with its sensing element in the outside air, is piped to the switching signal port (S) of the 2353-502. When the outside air temperature is below the set point, the 2353-502 switches port C to port NO; when the outside air temperature is above the set point, the 2353-502 switches port C to port NC. By piping main air to the NC port and venting and NO port, a two position summer/winter main air changeover results.



### Enthalpy Control

Whenever the outside air enthalpy is LOWER than the return air enthalpy, the 2353-503 will switch port C to port NO and the dampers will be controlled by the signal from the mixed air controller. When the outside air enthalpy is HIGHER than the return air enthalpy, the 2353-503 will switch port C to NC and the line to the minimum position switch will be vented, and the dampers will move to the minimum position setting.

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