

REFLEX[®] MODEL 202 VOLTAGE SENSITIVE RELAY
PART NUMBER 12M03-00101-01
APPLICATION NOTES

1. If a "fail safe" operation is required, think through the operation and arrange the circuitry so either power loss or removal of the relay will result in a "safe" situation.

NOTE: IT WILL NOT PROVIDE PROTECTION FOR A FAILURE OF THIS ASSEMBLY. IF ABSOLUTE PROTECTION IS REQUIRED A REDUNDANT CIRCUIT MUST BE USED!

In this "safer" configuration the Set-Point Potentiometer is connected to the regulated negative 6 volt supply through a jumper between points "I" and "H" on 2TB. As the Set Point Potentiometer is turned clockwise the relay will be energized. A positive DC signal must be applied to terminal 5. When the set-point is reached the relay will drop out.

If bi-polar operation is required connect a rectifier bridge ahead of the input (for signals above 1 volt only).

2. If reversed input polarity is required terminal 5 may be connected to system common and the input signal applied to terminal 8 (common for this assembly).
3. The Differential adjustment will affect both the pick-up and drop-out points and readjustment of the Set Point Potentiometer may be required when the Differential Adjustment is changed significantly.
4. This assembly can be used as a "RATE DETECTOR" by adding a capacitor in series with the input (terminal 5). With the input jumper on A to E (0.1V scale) there is a 1000 ohm resistor from input to common (terminal 8).

The charging current through the capacitor "i" is:

$$i = C \frac{dE}{dt}$$

Where "C" is in microfarads, "E" in volts "t" in seconds and "i" in microamperes.

EXAMPLE: 10MF film type capacitor (low leakage) a 90 volt tach generator and 10 seconds.

$$i = 10 \times \frac{90}{10} = 90\mu\text{A}$$

$$90\mu\text{A} \times 1000 \text{ ohms} = .09 \text{ volts (90mV)}.$$

This is within the adjustment range of the VSR on the 0.1V (100mV) scale, and the relay will drop out if this rate is exceeded by more than 10% for a few milliseconds.

It would normally be used in conjunction with the REFLEX Model 237 Tach Loss and Overspeed Detector.

5. The Model 202 Voltage Sensitive Relay can be converted to a Current Sensing Relay by the addition of a shunt between terminals 5 and 8. Reflex P/N 01P03-06705 may be used. It has a resistance of .006 ohms \pm 2% and is rated at 25 amperes and can be mounted directly between terminals 5 and 8 if bent in a "U" shape. The total control range is nominally 2 to 25 amperes AC or DC.
6. The input op-amp 3IC is an Intersil ICL7650 CTV (Reflex P/N 05P08-00009). An acceptable substitute is Fairchild 714 (Reflex P/N 05P08-00005), but capacitors 5C and 6C must be removed.