GENERAL

The Model Series 380B Deviation Alarm Modules sense the difference between two process input signals and provides relay actuation at a pre-set deviation point.

The deviation alarm is provided with two relays. One is for plus deviation (input A > input B) and one is for minus deviation (input A < input B). The plus and minus deviations are equal and are set by the deviation trip-point potentiometer adjustable through 100% of span. Deviation adjustment settings on blind trip-point models (i.e., 380B1 and 380B2) have very high resolution utilizing 22 turn potentiometers.

Standard units are equipped with a one to ten percent deadband adjustment. The modules also feature field selectable high or low fail safe operation and LED's to indicate an energized relay. Graduated dials and hermetically sealed relays are available options.

The modules are designed to accept voltage inputs. Process current inputs are accepted when precision resistors are placed across the enclosure input terminals. This also permits the removal of the module without breaking the input current loop.

MODEL DESIGNATION

Basic Series Designation

Designates Deviation Alarm Module

Options

1 - None, standard relay, blind trip-points
2 - Hermetically sealed relay, blind trip-points
3 - Standard relay, single turn graduated dials
4 - Hermetically sealed relay, single turn graduated dials

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SPECIFICATIONS

Input:
Standard 1-5V dc
With optional 1-5mA
signal conditioning
resistors 4-20mA
10-50mA

Deviation Adjustment: 0-100% of span
Deadband Adjustment: 1-10% of span

Output: Two SPDT relays contact rated at 2A, 117VAC resistive

Relay Operation: Reversible
Accuracy: Repeateable within ±0.1% of span
Response Time: 100m Sec.

INSTALLATION

Using the card cage enclosure instructions for reference (Service Instruction, SD3801), set the keys as follows:

Left Key: V (vertical)
Right Key: H (horizontal)

If the alarm module is not factory calibrated, refer to the CALIBRATION section which follows. If the alarm is calibrated, insert the module into the proper slot in the card cage enclosure. The alarm modules accept a 1-5V dc input signal, if current input signals are to be used refer to the enclosure instructions (i.e., Service Instruction SD3801) for details on input signal conditioning resistors.

CALIBRATION

RELAY OPERATION

Determine which trip mode is required by your application, NORMAL or REVERSE acting. NORMAL refers to relay de-energized when deviation is less than set point. REVERSE acting refers to relay energized when deviation is less than set point. The jumpers are located on the foil side of the circuit board, arrange jumpers as required.

ADJUSTMENT PROCEDURE

1. Connect the deviation alarm as shown in the connection diagram.
2. Set the DEADBAND adjustment to its minimum setting (i.e., deadband of about 1% of span).
3. Determine the desired deviation required and adjust input A and input B to values that differ by the desired amount.

EXAMPLE: 50% deviation for the 1 to 5 volt inputs would be 2 volts (.5 x 4.0V span = 2 volts)

NOTE: Both inputs must be within the normal operating range.
4. Adjust the DEVIATION potentiometer until the output relay operates. If input A is greater than input B, relay 1 will operate, and if the reverse is true, relay 2 will operate. The LED's on the card will indicate which relay is energized.

5. If the input signal in the field has noise and/or jitter, this has the effect of reducing the instruments deadband, and may produce relay chatter. This can be reduced by increasing the setting of the deadband adjustment.

MAINTENANCE

These instruments are solid state and require no maintenance on a regular basis, except for annual cleaning, blowing out dirt, and verifying calibration. If the deviation alarm is not operating properly, remove it and give it a full bench check-out. Most problems occur in the field wiring or other circuits. If the problem is traced to the unit itself, conventional electronic troubleshooting methods suffice.

CONNECTION DIAGRAM

Terminal strip on Series 380 rack enclosures.

1 INPUT RLY 1 (Note 1 & 2)
2 INPUT RLY 2
3 COMMON
4 A
5 Com. RELAY 1
6 B (Note 3)
7 A
8 Com. RELAY 2
9 B

Notes:

1. 1-5V dc signals are standard inputs. For process current inputs, refer to Service Instruction, SD3801 for proper input conditioning resistors.

2. The "common" input terminal is also common with the cage DC power supply.

3. Relay contact load limitations are listed under "OUTPUT" of the specifications.

4. Contacts shown with output relay deenergized. Standard units have relay deenergized when deviation is less than "trip point" and reverse acting (R) units have relay deenergized when deviation is greater than "trip point".