Initial Calibration (with transmitters)

1. Set input to minimum
2. Adjust process transmitter output for 0.000 Volts using the zero potentiometer
3. Set input to maximum
4. Adjust process transmitter output for 1.000 Volts using the input span potentiometer

Setpoint and Deadband Calibration

1. Input the desired trip point
2. Set deadband to minimum
3. Adjust setpoint just until limit alarm 1 trips
4. Repeat the above steps for limit alarm 2 (unnecessary if limit alarm 2 is slaved)
5. Adjust deadband potentiometer until the relay stops chattering or adjust the deadband until the desired deadband is reached (if using latching, leave deadband at minimum)

If you want to set deadband to a specific percentage:

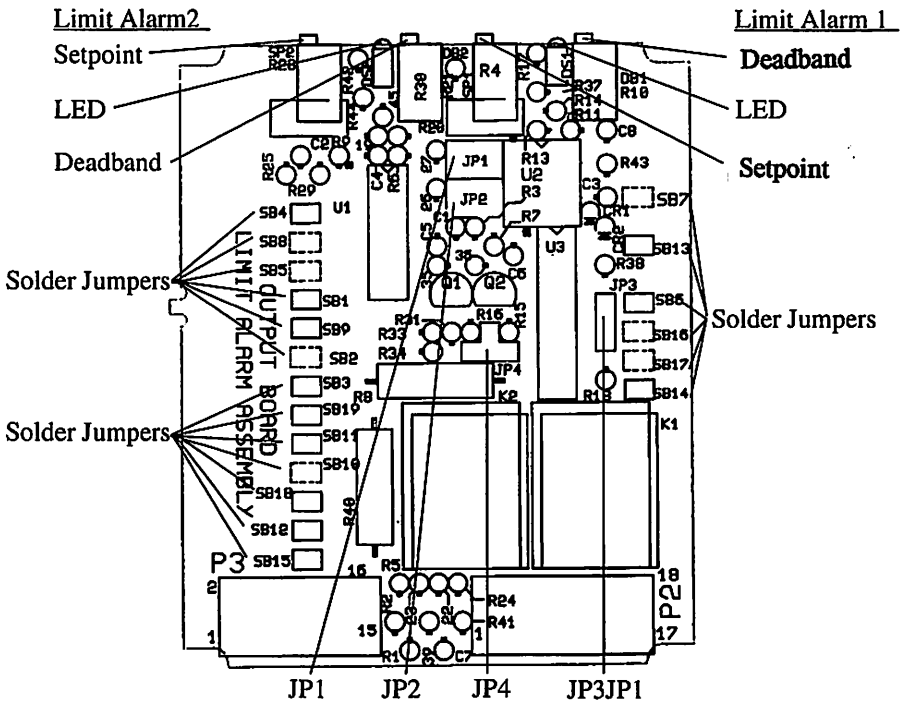
a. Set deadband to maximum (turn clockwise)
b. Set the input to the desired untrip point (be certain that the limit alarm is in a tripped state)
c. Adjust deadband slowly counterclockwise until the limit alarm trips

6. Repeat the above step for limit alarm 2

Setpoint and Deadband Calibration (with transmitters)

1. Set the setpoint transmitter output to the desired setpoint
2. Adjust the deadband as described above

Limit Alarm Board Part Locations



Series 8000 Dual Limit Alarm Output

Specifications

Deadband:	Adjustable per setpoint, 1.0 to 100% of span
External Relay Drive:	24VDC, 15mA max, per relay
Transmitter Outputs:	1.0VDC at 1mA
Contacts:	5A Form C, noninductive loads (For UL approved installation, maximum contact voltage is 42VDC or AC peak)
LEDs:	One for each channel, lights to show alarm condition

For general Series 8000 specifications, see the Series 8000 main manual, which provides general information for the entire series.

Setup Procedure

Check that solder jumpers and pin jumpers are all open to avoid setup problems.

I. Disassemble the Series 8000 unit as described on page 6 of the main manual.
II. Remove the Limit Alarm Board.
III. Configure the board for your requirements, according to the following instructions.
IV. Calibrate the unit as described in the main manual, page 10, and these instructions, page 90-3.
V. Reassemble the unit as described in the main manual, pages 4 to 6.

Setup Requirements for Using the Limit Alarm Board with Sample/Hold, LVDT, Add/Subtract, Strain Gage or High/Low Select Boards

When using these boards (only), certain solder jumpers must be reset (limit alarm 1 only) on the Limit Alarm Board. These are normally closed; open them for these applications.

Special Function Board

Sample/Hold	SB5, SB7, SB8	(Setpoint transmitters and latching are disabled)

Input Boards

LVDT, Add/Subtract, Strain-gage & High/Low Select	SB5, SB8	(Setpoint transmitters are disabled)

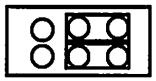
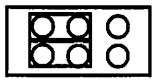
Setup Instructions

This board includes many options. To set up for your needs, select an alarm configuration and find the heading on the following pages that covers your need. Read those instructions. The illustration on page 90-4 shows the jumper locations.

For use on Output board # 2800-5470

Set Relay Sense

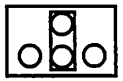
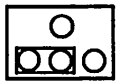
This option allows you to select high and/or low trip alarms on limit alarms 1 and 2. Below are illustrations of the the pin jumper connections needed for each.

	Alarm 1		Alarm 2
High Trip	JP1		JP2
Low Trip	JP1		JP2

High trip: If input ≥ setpoint, then the unit is in a tripped condition.
If input < setpoint, then the unit is in an untripped condition.
Low trip: If input ≤ setpoint, then the unit is in a tripped condition.
If input > setpoint, then the unit is in an untripped condition.

Set Fail-safe/Non-Fail-safe Operation

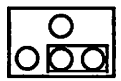
Fail-safe means that the limit alarm's relay, when tripped, is *not* energized (the Normally Closed and Common contacts are closed). Non-fail-safe is the opposite; when tripped, the relay is energized (Normally Open and Common contacts are closed). Below are the necessary jumper pin connections.

	Alarm 1		Alarm 2	
Fail-safe	JP3		JP4	
Non-fail-safe	JP3		JP4	

Slaving Limit Alarm 2 to Limit Alarm 1

For the above options, limit alarm 2 can be slaved to limit alarm 1 with the pin jumper connection shown here:

Alarm 2
JP4



Slaving causes the two SPDT relays to act as a DPDT relay.

Remote Setpoints

For the Series 8000 Limit Alarm Board, any setpoint from outside the unit is remote. The standard setpoints* are internal potentiometers. To enable remote setpoints and disable the internal setpoints, certain solder jumpers must be opened or closed.

* Standard jumper settings are: SB1, SB3, and SB4 are open and SB2 is closed for limit alarm 1. SB9, SB11, SB12 are open and SB10 is closed for limit alarm 2.

Setpoints	Limit Alarm 1		Limit Alarm 2	
	Open	Closed	Open	Closed
Potentiometer (external)	SB1, SB2, SB3, SB4	—	SB9, SB10 SB11, SB12	—
0 to 1V	SB1, SB2, SB3, SB4	—	SB9, SB10 SB11, SB12	—
0 to 10V	SB1, SB2, SB3	SB4	SB9, SB10 SB11	SB12
1 to 5V	SB2, SB3,	SB1, SB4	SB10, SB11	SB9, SB12
4 to 20mA	SB2	SB1, SB3 SB4	SB10	SB9, SB11 SB12

Latching

Latching describes an alarm state which, once tripped, remains tripped (latched) until manually reset. Solder jumper SB6 controls latching on limit alarm 1; closing SB6 implements latching, opening it (its normal state) turns latching off. Solder jumper SB13 controls latching for limit alarm 2 in the same manner.

24 Volt Relay Drive Output

For certain applications (e.g., controlling a pilot relay which drives a large motor or using solid state relays) this option is useful. The standard configuration disables this option.

Relay Status	Limit Alarm 1		Limit Alarm 2	
	Open	Closed	Open	Closed
Disabled (int. relays)	SB14, SB15	SB16	SB18, SB19	SB17
Enabled (24V relay)	SB16	SB14, SB15	SB17	SB18, SB19

Deadband

"Deadband" describes an area within the normal activation area of the established high and low setpoints which is inactive, or "dead." Typically, it is used in situations (e.g. filling a tank with fluid) where oscillation effects falsely trigger the on and/or off alarms. Deadband desensitizes your system, within selectable limits.

Deadband is set using the procedure described in Calibration, below.

Calibration

Initial Calibration

1. Set input to minimum
2. Set deadband to minimum (turn counterclockwise)
3. Set limit alarm 1 setpoint adjustment to minimum (turn counterclockwise)
4. Adjust input zero just until limit alarm 1 trips
5. Set input to maximum
6. Set limit alarm 1 setpoint adjustment to maximum (turn clockwise)
7. Adjust input span just until limit alarm 1 trips