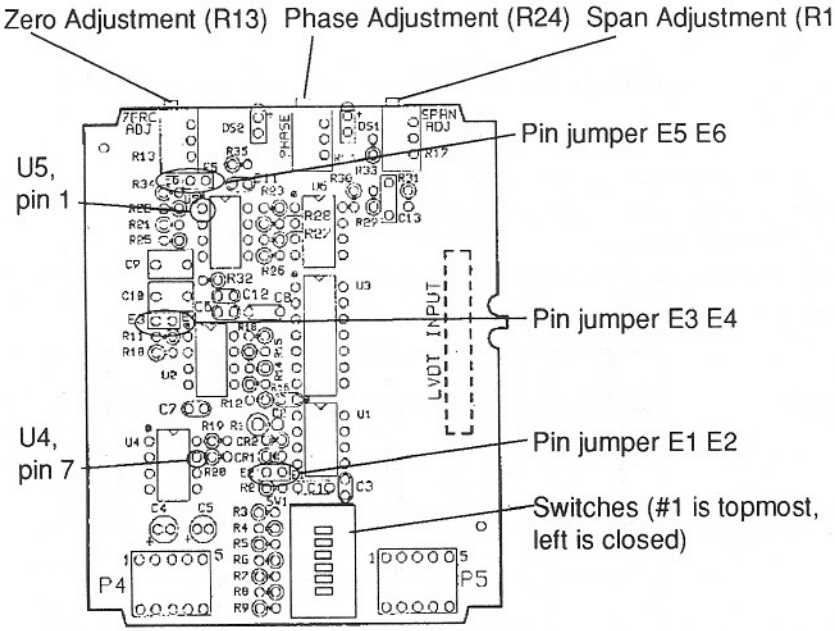
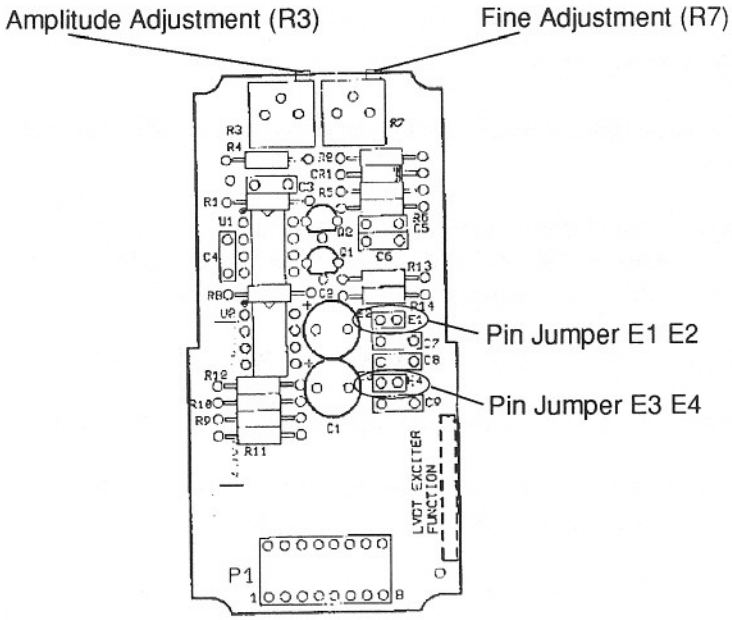
LVDT Input Board and Excitation Function Board Part Locations





Specifications

Stability: 0.025% of span/°C
Repeatability: 0.1% of span
Linearity: 0.25% of span
Span Adjustment: ±15% of span
Response Time: 150ms
Phase Shift Adjustment: 0°- 45°
Zero Adjustment: ±15% of span
Input: switch selectable, ±25mV to 2.4V RMS full scale
Excitation Voltage: 0.5 to 3.0V RMS, 20mA adjustable
Excitation Frequency: selectable, 2.5kHz or 4kHz
Null Sense LEDs: DS1 lights above Null, DS2 lights below Null, both at Null.
LVDT Primary Impedance: min 2.5kΩ, max 17kΩ, typical 4kΩ
Excitation frequency adjustment: ±15%

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

Setup Procedure

I. Disassemble the Series 8000 unit as described on page 6 of the main manual.
II. Remove the LVDT Input Board and Exciter Function Board.
III. Set the Excitation Function Board and the LVDT Input Board as described below (pages 08-1 and 08-2).
IV. Calibrate as described on page 08-3.
V. Reassemble the unit as described in the main manual, pages 4 to 6.

Setup Instructions (differential hookup only)

Excitation Function Board

1. Determine the nominal excitation voltage recommended for your LVDT/ application. Set the amplitude potentiometer (R3) to achieve this RMS voltage.
2. Select the excitation frequency: 2.5kHz or 4kHz (as recommended by the LVDT manufacturer). Note that the factory setting is 4kHz:

Select Excitation Frequency

	Open	Closed
4kHz	E1, E2, E3, E4	—
2.5kHz	—	E1-E2, E3-E4

LVDT Input Board

1. Determine the full scale input range for your LVDT/application. Close the appropriate SW1 switch (all others should be open) and the input attenuator jumper, E1-E2, if called for in the table.

Example

For full scale input with a 1 inch LVDT:

LVDT sensitivity is given in mV per V per 0.001". For an excitation voltage of 1V, this means that for each 0.001 inches of LVDT sensor displacement the output would be 1mV. The total output would be 1000 x 1mV = 1V RMS full scale.

Setup for the above example: Set the excitation voltage to 1V RMS and set the input range to 1.2V RMS, closing switch 2 as shown in the table below and also closing jumper E1-E2.

Full Scale Input Range (V RMS)	Switch (Closed)	Input Attenuator E1-E2
±2.40	1	Closed
±1.20	2	Closed
±0.80	1	Open
±0.60	3	Closed
±0.40	2	Open
±0.30	4	Closed
±0.20	3	Open
±0.15	5	Closed
±0.10	4	Open
±0.075	6	Closed
±0.05	5	Open
±0.025	6	Open

Calibration (with sensor)

1. Set LVDT to negative full scale (LVDT output in phase with reference and at greatest amplitude).
   Adjust the zero potentiometer (R-13) for minimum output or 0.000VDC.

2. Set LVDT to null. Adjust the span potentiometer (R-17) for mid-scale output or 0.500VDC. Both null indicators should be on at this time.

3. Set LVDT to positive full scale (LVDT 180° out of phase with reference). Output should be maximum. If it is not, refer to phase adjustment procedure.

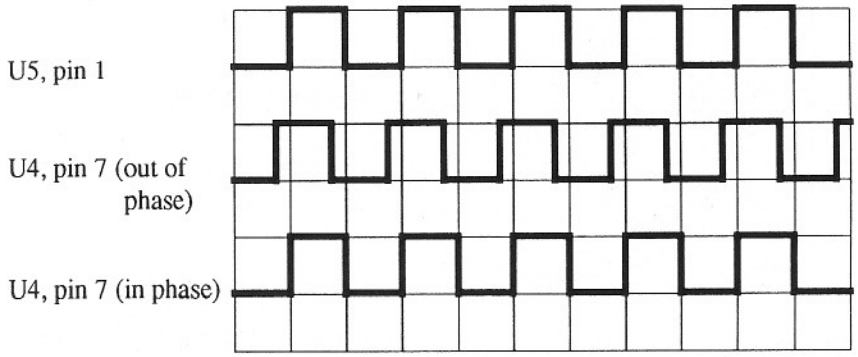
Phase Adjustment

A phase adjustment allows you to adjust the phase control ±45° to the phase sensitive demodulator (allowing for varying cable length and transducers). If needed, enable the phase adjust network by opening E3-E4. The standard factory setting leaves this jumper closed, disabling the network.

If you are unable to calibrate for a full scale input, then a phase adjustment might be required.

Phase adjustments (using a dual trace oscilloscope)

1. Synch on excitation voltage (probe 1 on U5, pin 1).
2. Probe 2 on input U4, pin 7.
3. Adjust R 24 (jumper E3-E4 open) so that the probe 1 and probe 2 signals are in-phase.



Calibration (without sensor)

This calibration can be done without an LVDT sensor hookup to verify zero and span adjustment.

1. Set excitation voltage to match the input range selected.
   Example: input range = 0.800V RMS. Adjust R3 on the function board to 0.800V RMS as measured at output P1, pin 2 (base socket pin#4).

2. Jumper excitation output P1, pin 2 to input P4, pin 2 (base socket pin #9).

3. Measure output at P4, pin 1 and adjust zero potentiometer (R13) for 0.000VDC.

4. Remove input and short input P4, pin 3 to P4, pin2 (base socket pins #9 and #7) together. Adjust span potentiometer R17 for 0.500VDC.

5. Remember to set excitation voltage to sensor requirements.