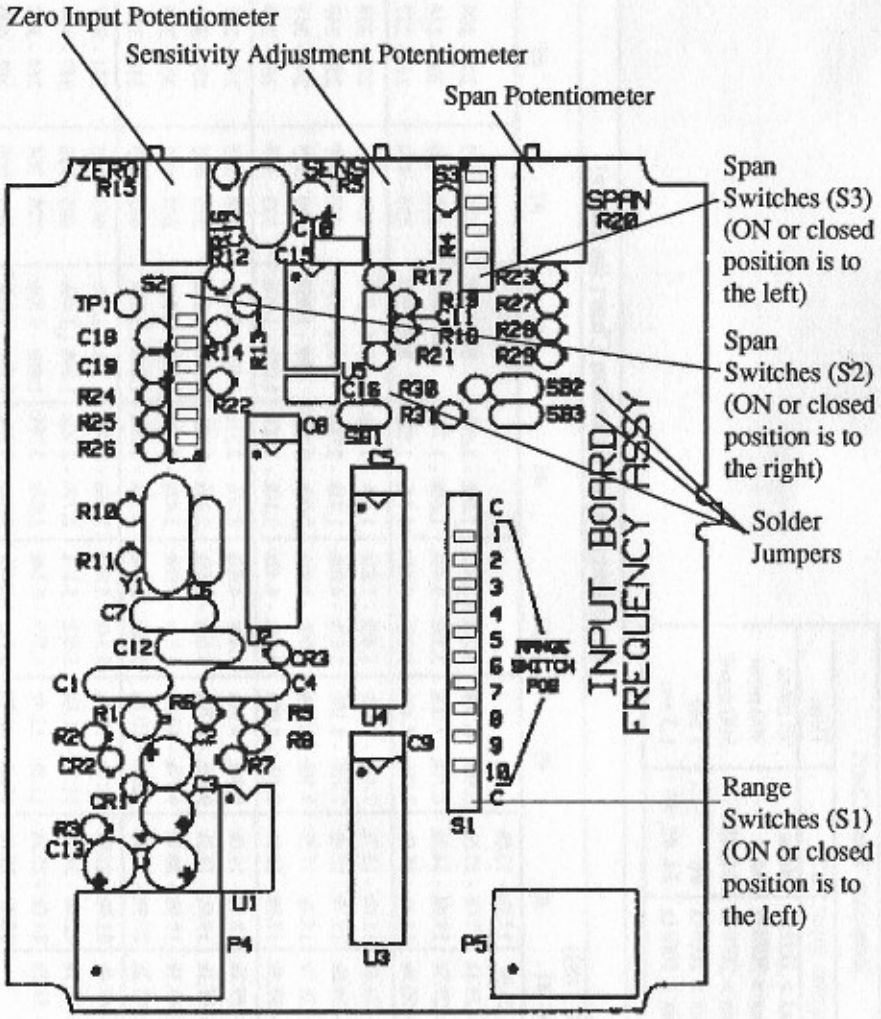
Frequency Input Board Parts Location



Note: when "none" is called out as a switch setting, all switches on that switch trip are left open (OFF).

Specifications

Frequency Input: Selectable from 50Hz-51.2kHz
Frequency Offset: 34.5% maximum
Card Operating Temperature: 0°-60°C
Accuracy: Includes linearity, zero, span drift and offset. 0.25% of full span
Stability: 0.05% FS/°C
Repeatability: ± 0.05% of full scale
Response Time: Selectable, 100ms; 300ms; 500ms; 1s, 1.5s
Input Impedance: >50kΩ
Threshold Sensitivity Adjustment: 200mV to 1V peak
Input Voltage: 200mV minimum - 100V maximum peak
Overvoltage: 150V indefinite

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

Setup Procedure

I. Disassemble the Series 8000 unit as described on page 6 of the main manual.
II. Remove the Frequency Input Board.
III. Set switches as shown in Setup Instructions below.
IV. Reassemble the unit as described in the main manual, pages 4 to 6.

Setup Instructions

Range Selection

F_{max} = maximum input frequency = range
F_{min} =minimum input frequency
Span = $\Delta f = F_{max} - F_{min}$ Offset = $\frac{F_{max}}{\Delta F}$

Setting Frequency Range
Find your F_{max} on the Frequency Input Selection Chart on page 10-3. Set S1 to the indicated position.

Setting Response Time
Check the Response Time Chart on page 10-3 and set S2 to the indicated position(s).

Setting the Span
If your range is zero-based (i.e., 0 - 866Hz), the range equals the span. To set span, refer to the Span Switches column of the chart and set S2 and S3 to the positions corresponding to the row your range is in, and proceed to Calibration.

If your range is zero-offset (i.e. 15-50kHz), your span does not equal your range and the span switches you must set are not on the corresponding row.

1. Calculate your span (F_{max}—F_{min} = span = ΔF).
2. Find that span on the chart.
   - If the span is in the same column as your range, set the Span Switches which correspond to the *span*.
   - If the span is not in the same column, you must close solder jumper SB1. This doubles your span (for calculation only, it will not disturb your expected output). Find the new, doubled span on the chart and set the corresponding Span Switches.

Setting Zero Offset

If $\frac{F_{min}}{F_{max}} > 0.345$, then offset is greater than 34% which is outside this board's ability.

If $\frac{F_{min}}{F_{max}} \leq 0.345$, proceed with setting your offset.

Calculate percentage offset, which = $(\frac{F_{min}}{F_{max}})$ x 100%, and close the solder jumpers indicated on the chart below.

Solder Jumpers	% Offset
None	0 - 11.1%
SB3	11.1-20%
SB2	20 - 25.9%
SB2, SB3	25.9-34.5%

Reassemble the unit and calibrate.

Calibration

1. Use an appropriate input source and set input to F_{min}. Adjust the zero input potentiometer until the Zero LED on output board lights up.
2. Adjust zero output potentiometer on the output board for minimum output.
3. Set input to F_{max}; adjust span pot for maximum output.
4. If output can't be adjusted low enough, less gain is needed; set S3 position 1.

Sensitivity Adjustment

1. Install fully assembled unit into application process. Set sensitivity adjustment pot fully clockwise to its most sensitive position.
2. Turn sensitivity adjustment pot counterclockwise until a reading consistent with a known reading appears.

Response Time Chart		
Freq max input	S2	Time
Fmax > 1kHz	None	95 msec
Fmax > 300Hz	#4	300 msec
Fmax > 200Hz	#4, #5	500 msec
Fmax > 100Hz	#6	1 sec
Fmax < 100Hz	#4, #5, #6	1.5 sec

Frequency Input Selection Chart (in Hertz)

Span Switches (S2)	(S3)	Switch 1 (S1) Position #1	#2	#3	#4	#5	#6	#7	#8	#9	#10
None	2	25.6k - 26.8k	12.8k - 13.0k								
	3	26.8k - 28.1k	13.0k - 13.6k	6.40k - 6.70k	3.20k - 3.32k	1.60k - 1.66k	800 - 826	400 - 413	200 - 206	100 - 103	50.0 - 51.5
	4	28.1k - 29.5k	13.6k - 14.3k	6.70k - 7.00k	3.32k - 3.48k	1.66k - 1.74k	826 - 866	413 - 433	206 - 216	103 - 108	51.5 - 54.4
	N	29.5k - 30.9k	14.3k - 15.0k	7.00k - 7.40k	3.48k - 3.65k	1.74k - 1.82k	866 - 908	433 - 454	216 - 227	108 - 113	54.4 - 56.6
#1	2	30.9k - 32.4k	15.0k - 15.7k	7.40k - 7.70k	3.65k - 3.83k	1.82k - 1.91k	908 - 952	454 - 476	227 - 238	113 - 119	56.6 - 59.4
	3	32.4k - 34.0k	15.7k - 16.4k	7.70k - 8.10k	3.83k - 4.02k	1.91k - 2.00k	952 - 998	476 - 499	238 - 249	119 - 125	59.4 - 62.3
	4	34.0k - 35.7k	16.4k - 17.3k	8.10k - 8.49k	4.02k - 4.21k	2.00k - 2.10k	998 - 1.05k	499 - 523	249 - 261	125 - 131	62.3 - 65.3
	N	35.7k - 37.4k	17.3k - 18.1k	8.49k - 8.90k	4.21k - 4.42k	2.10k - 2.20k	1.05k - 1.10k	523 - 548	261 - 274	131 - 137	65.3 - 68.5
#2	2	37.4k - 39.2k	18.1k - 19.0k	8.90k - 9.33k	4.42k - 4.63k	2.20k - 2.31k	1.10k - 1.12k	548 - 575	274 - 287	137 - 144	68.5 - 71.8
	3	39.2k - 41.1k	19.0k - 19.9k	9.33k - 9.79k	4.63k - 4.85k	2.31k - 2.42k	1.12k - 1.21k	575 - 603	287 - 301	144 - 151	71.8 - 75.3
	4	41.1k - 43.1k	19.9k - 20.9k	9.79k - 10.3k	4.85k - 5.09k	2.42k - 2.53k	1.21k - 1.26k	603 - 632	301 - 316	151 - 158	75.3 - 78.9
	N	43.1k - 45.2k	20.9k - 21.9k	10.3k - 10.8k	5.90k - 5.34k	2.53k - 2.66k	1.26k - 1.33k	632 - 663	316 - 331	158 - 166	78.9 - 82.8
#3	2	45.2k - 47.4k	21.9k - 22.9k	10.8k - 11.3k	5.34k - 5.60k	2.66k - 2.79k	1.33k - 1.39k	663 - 695	331 - 347	166 - 174	82.8 - 86.8
	3	47.4k - 49.7k	22.9k - 24.0k	11.3k - 11.8k	5.60k - 5.87k	2.79k - 2.92k	1.39k - 1.46k	695 - 728	347 - 364	174 - 182	86.8 - 91.0
	4	49.7k - 51.2k	24.0k - 25.2k	11.8k - 12.4k	5.87k - 6.14k	2.92k - 3.08k	1.46k - 1.53k	728 - 764	364 - 382	182 - 191	91.0 - 95.4
	N		25.2k - 25.6k	12.4k - 12.8k	6.14k - 6.40k	3.08k - 3.20k	1.53k - 1.60k	764 - 800	382 - 400	191 - 200	95.4 - 100.0