

Phillips Scientific

Octal Linear/Logic Fan-Out

NIM MODEL 748

FEATURES

- * Linear or Logic Fan-Out of Four per Channel
- * Wideband - DC to 250 MHz
- * Bipolar Operation to ± 2.5 Volts
- * DC Offset Control per Channel
- * Reliable - Both Inputs and Outputs are Protected

DESCRIPTION

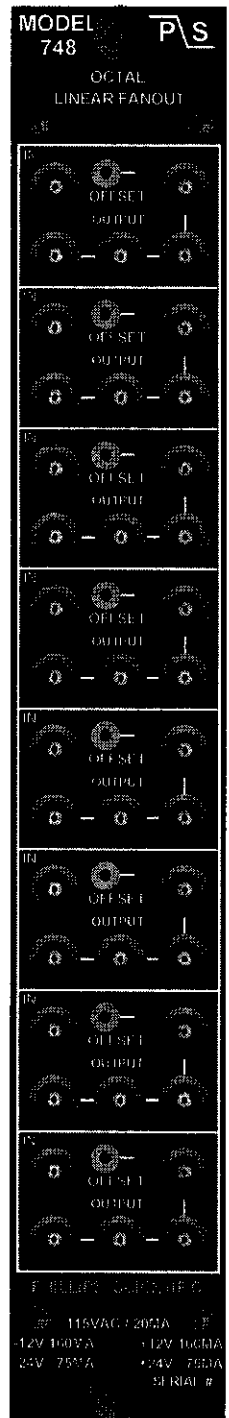
The Model 748 is an eight-channel, direct-coupled linear fan-out packaged in a single width NIM module. It provides four unity gain outputs from a single input to easily fan-out detector signals to simultaneously drive discriminators, converters, transient recorders or other signal conditioning and data acquisition instruments.

INPUT CHARACTERISTICS

- General** : One LEMO input connector per channel; bipolar input, accepts positive or negative voltages.
- Impedance** : $50 \Omega \pm 2\%$ direct coupled input.
- Protection** : Protected with clamping diodes, no damage will occur from transients of ± 100 Volts (± 2 Amps) for 1μ Sec or less duration.
- Reflections** : Less than $\pm 4\%$ for input risetime of 1nSec.
- Overdrive Response** : Recovery time of 20nSec for a ± 10 Volt input.

OUTPUT CHARACTERISTICS

- General** : Four bridged LEMO output connectors per channel. Low impedance voltage source output stage.
- Protection** : Outputs can be continuously shorted to ground without damage.
- Output Voltage Swing** : Bipolar outputs deliver over ± 2 Volts across four 50Ω loads.
- DC Offset** : A front panel fifteen-turn potentiometer provides ± 250 mV adjustment. A front panel test point allows easy monitoring of the DC offset.



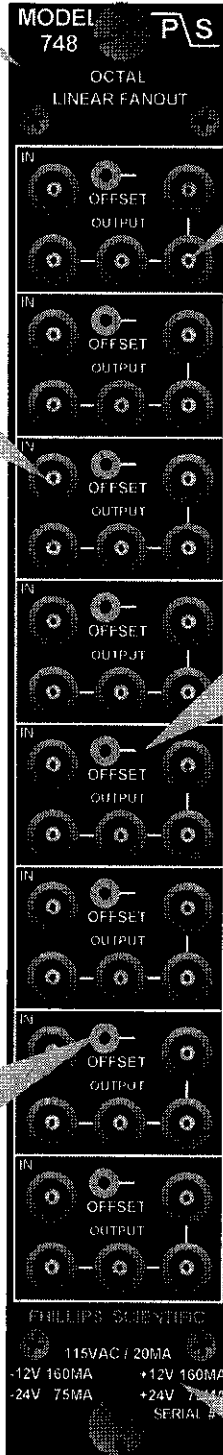
GENERAL PERFORMANCE

- Gain** : Fixed gain of $1.0 \pm 5\%$, non-inverting.
- Stability** : Better than $\pm 50 \mu\text{Volt}/^\circ\text{C}$ from DC to 1 MHz, and $\pm .05\%$ $^\circ\text{C}$ above 1 MHz.
- Linearity** : $\pm 0.1\%$ for ± 2 Volts across two 50Ω output loads or ± 1.5 Volts across four 50Ω loads.
- Bandwidth** : DC to 250 MHz, 3 db point for 1 Volt peak to peak.
- Wideband Noise** : Less than 350 $\mu\text{Volts RMS}$, referred to the input. ($25\text{nV}/\sqrt{\text{Hz}}$)
- Risetime** : Typically 1.3nSec, for a 1 Volt output excursion.
- Insertion Delay** : Typically 3.0nSec.
- Crosstalk** : Greater than 60 db, DC to 100 MHz.
- Power Supply Requirements** : +12V @ 160 mA +24V @ 75 mA 115 VAC @ 20mA
-12V @ 160 mA -24V @ 75 mA
- Note:** All currents are within NIM power supply limits for a single width NIM module.
- Operating Temperature** : 0°C to 70°C ambient.
- Packaging** : Standard single width NIM module in accordance with TID 0893 and section ND-524.
- Quality Control** : Standard 36 hour, cycled burn-in with switched power cycles.

MODEL 748 OCTAL BIPOLAR LINEAR FANOUT

(Front Panel Description)

Standard # 1 NIM Packaging
In accordance with TID-20893



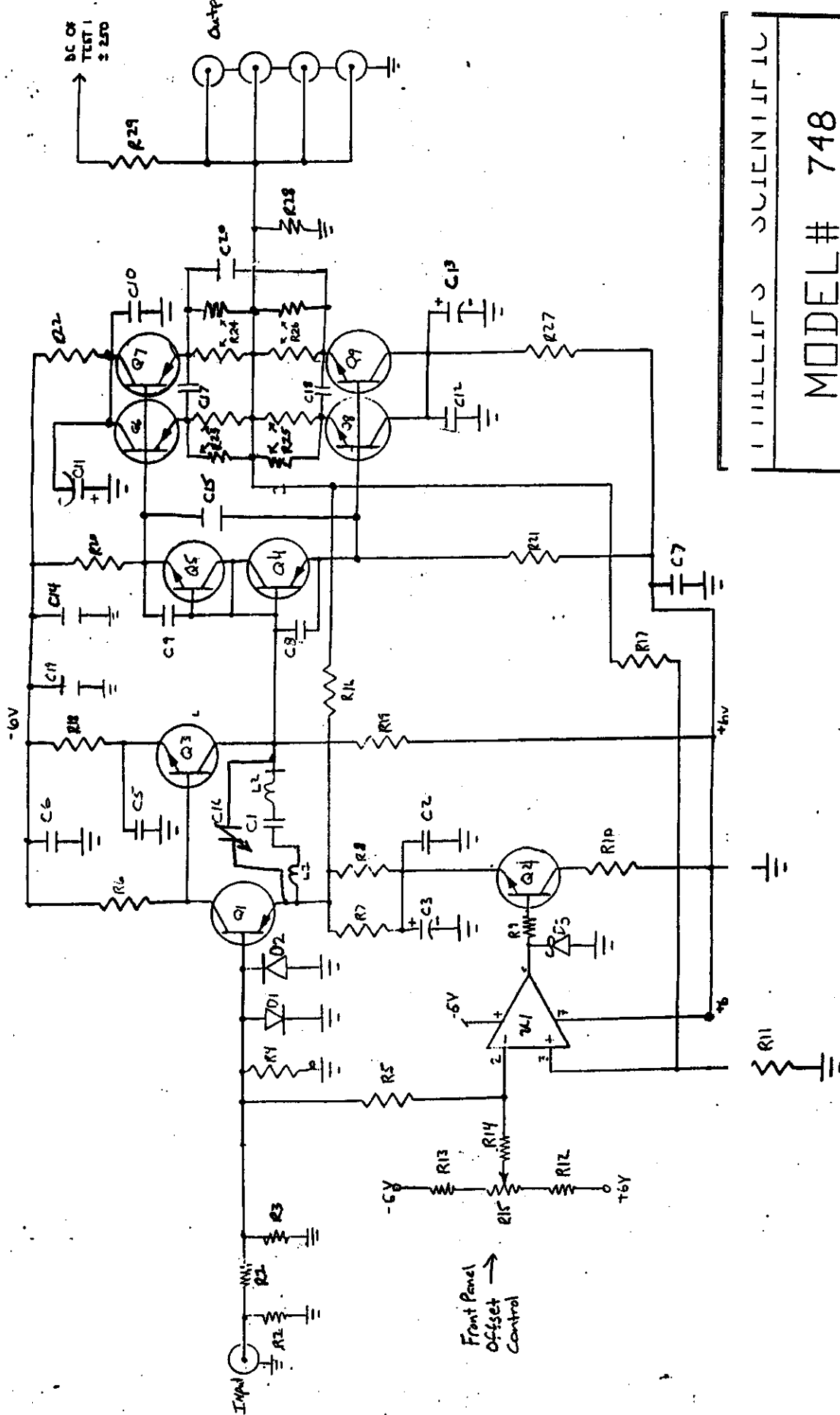
Four Linear Bridged Outputs
Each Capable of Delivering $\pm 2.5V$
into 50 ohm Load. Non-Inverting.

Linear Input
Accepts $\pm 2.5V$ Signal Levels,
50 ohm, Direct Coupled

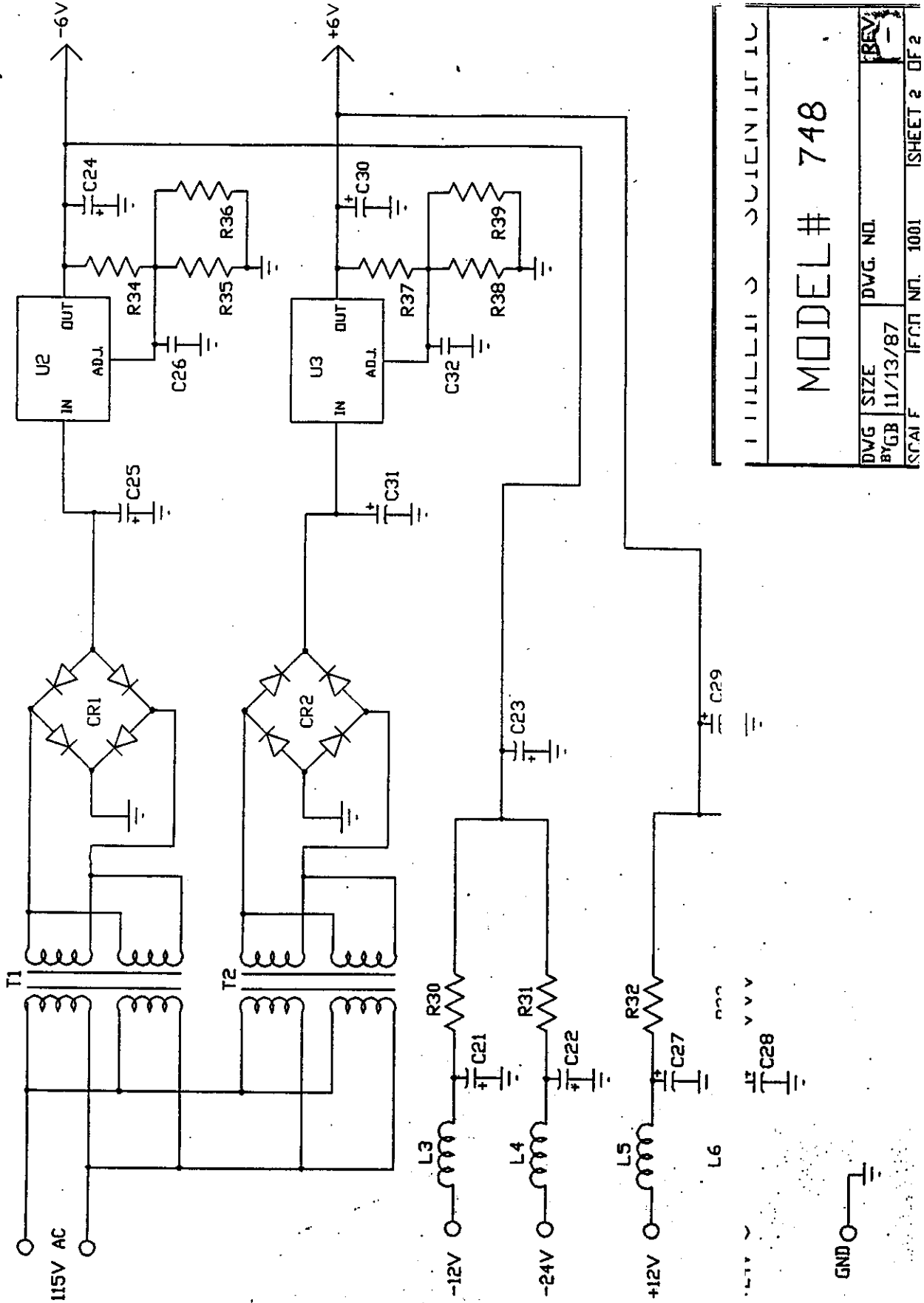
Output Offset Control
15-Turn Slider Adjustment,
Variable Range of $\pm 250mV$

Test Point for Easy Monitoring
of Output DC Offset Level

NIM Voltage and Current
Requirements



| | |
|---------------------|----------------|
| ILLINOIS SCIENTIFIC | |
| MODEL # 748 | |
| DWG SIZE | DWG. NO. |
| BYGB | 11/13/87 |
| SCALE | IFCN INT. 1001 |
| | SHEET 1 OF 2 |



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MODEL # 748

| | |
|--------------|----------|
| DWG. NO. | 11/13/87 |
| BY | GB |
| SCALE | 1:1 |
| SHEET 2 OF 2 | |

RESISTORS :

| QUANTITY | VALUE | |
|----------|-------------|--------------|
| 64 | 1.0 ohm | |
| 8 | 10 ohm | |
| 8 | 1.0K ohm | |
| 16 | 1.8K ohm | |
| 16 | 200 ohm | |
| 8 | 270 ohm | CF 1/8W 5% |
| 16 | 2.4K ohm | |
| 8 | 200K ohm | |
| 8 | 3.3K ohm | |
| 8 | 5.1 ohm | |
| 8 | 51 ohm | |
| 8 | 6.8K ohm | |
| 8 | 20 ohm | |
| 8 | 200 ohm | |
| 2 | 221 ohm | |
| 8 | 267 ohm | RN55D 1% |
| 8 | 2.43K ohm | |
| 8 | 51.1 ohm | |
| 16 | 61.9 ohm | |
| 8 | 249 ohm | |
| 2 | 845 ohm | |
| 16 | 18 ohm | CF 1/2W 5% |
| 2 | 36 ohm 2_W | |
| 2 | 240 ohm 2_W | |
| 1 | 5.0K ohm | POTENTIOMETE |

CAPACITORS :

| QUANTITY | VALUE | |
|----------|------------------|-------------|
| 84 | .1 μ fd | MONO CAP |
| 16 | .01 μ fd | |
| 16 | 33 μ fd@10v | TANTALUM CA |
| 8 | 100 μ fd@4v | |
| 2 | 100 μ fd@35v | AL. EL. |

CAPACITORS :

| QUANTITY | VALUE |
|----------|-------------------|
| 2 | 220 μ fd@16v |
| 2 | 470 μ fd@10v |
| 4 | 2200 μ fd@25v |
| 8 | .5pfd CERAMIC |
| 48 | 1000pfd SMD |
| 8 | 9402 TRIM CAP |

DIODES :

| QUANTITY | VALUE |
|----------|--------|
| 24 | IN4448 |

TRANSISTORS :

| QUANTITY | VALUE |
|----------|---------------|
| 8 | BFR96 SOT-37 |
| 8 | BFQ32 SOT-37 |
| 8 | 2N3904 TO-92 |
| 16 | PNP SOT-23 |
| 16 | NPN SOT-23 |
| 8 | BFR92 SOT-23 |
| 8 | BFR93R SOT-23 |

REGULATORS :

| QUANTITY | VALUE |
|----------|-------------|
| 1 | LM317K TO-3 |
| 1 | LM337K TO-3 |

RECTIFIERS :

| QUANTITY | VALUE |
|----------|-------|
| 2 | KBL04 |

TRANSFORMERS :

| QUANTITY | VALUE |
|----------|---------|
| 2 | SPW-303 |

IC's

QUANTITY

VALUE

8

LF711

MISC.

QUANTITY

VALUE

8

3.9 BEADS

4

POWER INDUCTERS

PRODUCT WARRANTY

PHILLIPS SCIENTIFIC warrants its products to be free from defects in materials and workmanship and to meet performance specifications under normal use and operating conditions for a period of one year from the date of product shipment. The provisions of this warranty shall not apply to any product that has been subjected to misuse or which has been repaired or altered in any way by the purchaser.

Obligations under this warranty is hereby limited to the repair or replacement of the product, or part thereof, which is returned to Phillips Scientific within the warranty period. The foregoing constitutes the entire warranty in lieu of other warranties, expressed or implied, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose with respect to a product and the accompanying written materials. In no event will Phillips Scientific be liable for damages, including any loss of profits, or other direct, incidental or consequential damages arising out of use of or inability to use the product, even if Phillips Scientific or an authorized representative, agent or employee has been advised of the possibility of such damages. Phillips Scientific will not be liable for any such claim by any other party.

To obtain service under this warranty, the purchaser must in advance be issued a returned material authorization (RMA), and ship products prepaid to Phillips Scientific with documentation explaining the malfunction noted. The items will be evaluated, repaired or replaced and promptly returned prepaid if warranty claims are substantiated.