

Phillips Scientific

16 Channel Photomultiplier Preamplifier

NIM MODEL 776

FEATURES

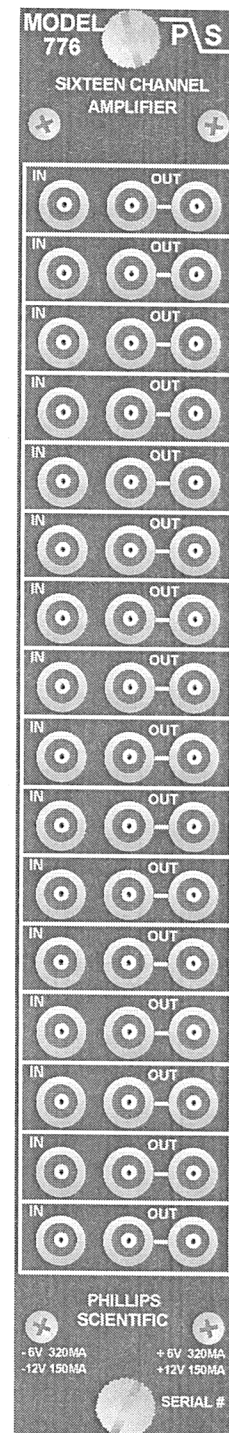
- * Fixed Gain of 10 Non-Inverting
- * Wideband DC to 275 MHz
- * High Density - 16 Channel NIM
- * Low Noise - Less than 25 μ V RMS
- * Cascadable for Gains of 100
- * Excellent Stability, Gain and Offset
- * Fan-Out of Two
- * All Inputs and Outputs Protected

DESCRIPTION

The Model 776 provides 16 independent, direct-coupled amplifiers in a single width NIM module. Each channel has a non-inverting voltage gain of 10, operates from DC to 275 MHz and has two 50 ohm outputs. It's designed for use with fast photomultiplier detectors having negative going output pulses.

This amplifier exhibits excellent DC and high frequency stability. Two channels can be cascaded to obtain voltage gains of 100 while maintaining good pulse fidelity without significant overshoot or baseline drift. Each channel has an internal DC offset adjustment allowing for compensation of the DC output due to variations of input source impedance or grounding differences.

The output stage is a low-impedance voltage source design with short-circuit protection. No damage will occur from overloading or continuous shorts to ground. The outputs are designed to drive two 50 ohm loads. However, unused outputs may remain unterminated with no adverse effects.



Phillips Scientific

"A THEORY DEVELOPMENT COMPANY"

31 Industrial Ave * Mahwah, NJ 07430 * (201) 934-8015 * Fax (201) 934-8269

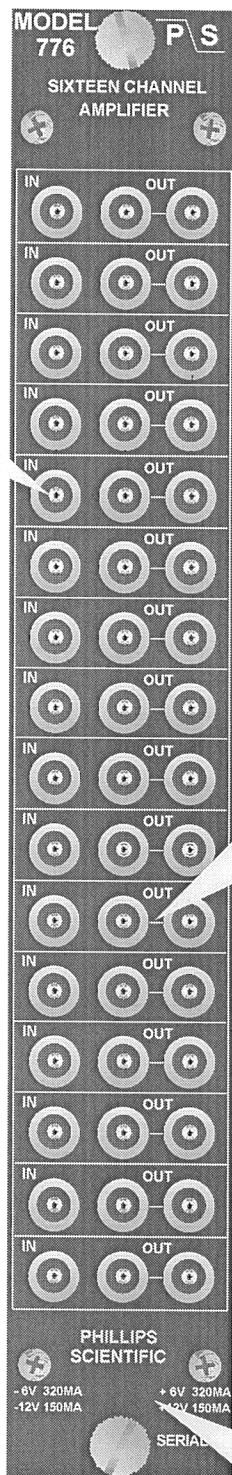
MODEL 776 SIXTEEN CHANNEL PHOTOMULTIPLIER AMPLIFIER

(Front Panel Description)

Standard # 1 NIM Packaging
in accordance with TID-20893

Linear Input
50 ohms Direct Coupled

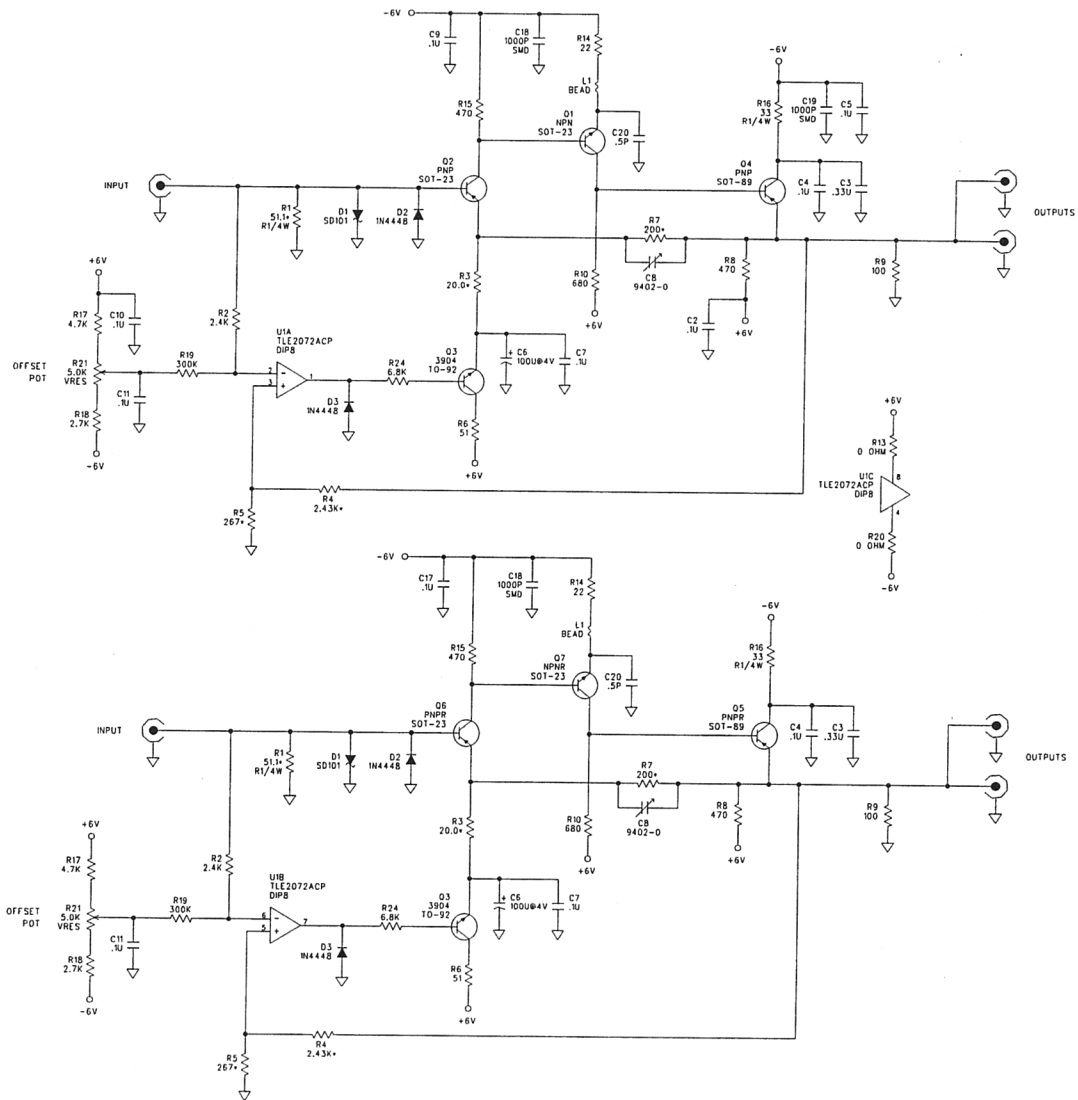
Note: An Internal 15-Turn Pot Provides
DC Offset Control of Output Levels;
 $\pm 250\text{mV}$ Range.



One Pair of Bridged Outputs
Each Capable of Delivering
-3 Volts into 50 ohm Load

NIM Voltage and Current
Requirements

TWO OF SIXTEEN CHANNELS



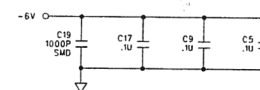
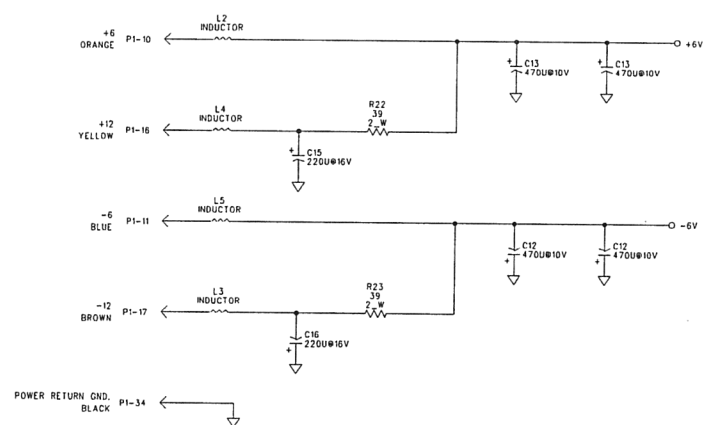
PHILLIPS SCIENTIFIC

MODEL 776
Sixteen Channel Amplifier

DATE		FILE

02-07-05	REV. B	77601
----------	--------	-------

COMMON TO ALL CHANNELS



PHILLIPS SCIENTIFIC

MODEL 776
Sixteen Channel Amplifier

DATE	REV.	FILE
02-07-05	REV. B	77602

<u>Ident.</u>	<u>Qty.</u>	<u>Part Number</u>	<u>Description</u>
R1	16	006551R1	51.1 ohm 1% RN 1/4 resistor
R2	16	00102401	2.4K ohm 5% CF 1/8 resistor
R3	16	002520R0	20 ohm 1% MF 1/8 resistor
R4	16	00252431	2.43K ohm 1% MF 1/8 resistor
R5	16	00252670	267 ohm 5% CF 1/8 resistor
R6	16	001051R0	51 ohm 5% CF 1/8 resistor
R7	16	00252000	200 ohm 1% MF 1/8 resistor
R8	16	00104700	470 ohm 5% CF 1/8 resistor
R9	16	00101000	100 ohm 5% CF 1/8 resistor
R10	16	00106800	680 ohm 5% CF 1/8 resistor
R11			Not Used
R12			Not Used
R13	8	00100000	0 ohm 5% CF 1/8 resistor
R14	16	001022R0	22 ohm 5% CF 1/8 resistor
R15	16	00104700	470 ohm 5% CF 1/8 resistor
R16	16	001133R0	33 ohm 5% CF 1/4 resistor
R17	16	00104701	4.7K ohm 5% CF 1/8 resistor
R18	16	00102701	2.7K ohm 5% CF 1/8 resistor
R19	16	00103003	300K ohm 5% CF 1/8 resistor
R20	8	00100000	0 ohm 5% CF 1/8 resistor
R21	16	05105001	5.0K ohm 15 turn Rect. Pot.
R22	1	003439R0	39 ohm 5% MOF 2W resistor
R23	1	003439R0	39 ohm 5% MOF 2W resistor
R24	16	00106801	6.8K ohm 5% CF 1/8 resistor
C1			Not Used
C2	8	10151003	.1 mfd cer mono capacitor
C3	16	10153303	.33 mfd cer mono capacitor
C4	16	10151003	.1 mfd cer mono capacitor
C5	9	10151003	.1 mfd cer mono capacitor
C6	16	10791006	100 mfd @ 4v tan capacitor
C7	16	10151003	.1 mfd cer mono capacitor
C8	16	13010002	Johanson 9402-0 variable capacitor
C9	9	10151003	.1 mfd cer mono capacitor
C10	8	10151003	.1 mfd cer mono capacitor
C11	16	10151003	.1 mfd cer mono capacitor
C12	2	10614706	470 mfd @ 10v al el capacitor
C13	2	10614706	470 mfd @ 10v al el capacitor
C14			Not Used
C15	1	10522206	220 mfd @ 16v al el capacitor
C16	1	10522206	220 mfd @ 16v al el capacitor
C17	9	10151003	.1 mfd cer mono capacitor
C18	16	10121001	1000 pfd SMD cer capacitor
C19	9	10121001	1000 pfd SMD cer capacitor
C20	16	1010P500	0.5 pfd NPO cer disc capacitor
D1	16	2020101C	SD101 schottky diode
D2	16	20004448	1N4448 diode
D3	16	20004448	1N4448 diode
L1	16	14000000	Large Bead
L2	1	15000000	Power Inductor
L3	1	15000000	Power Inductor
L4	1	15000000	Power Inductor
L5	1	15000000	Power Inductor
U1	8	30202072	TLE2072ACP OP-AMP IC

<u>Ident.</u>	<u>Qty.</u>	<u>Part Number</u>	<u>Description</u>
Q1	8	2420NPN0	NPN (SOT-23) (R2) transistor
Q2	8	2420PNP0	PNP (SOT-23) (MD) transistor
Q3	16	24003904	2N3904 NPN (TO-92) transistor
Q4	8	2421PNP0	BFQ149 PNP (SOT-89) transistor
Q5	8	2421PNPR	BFQ149 PNP (SOT-89) reverse transistor
Q6	8	2420PNPR	PNP (SOT-23) (MD) reverse transistor
Q7	8	2420NPNR	NPN (SOT-23) (R2) reverse transistor
	8	40000L08	8 Pin Very Low Profile DIP Socket
	48	40100000	Lemo Connector
	48	40100001	Lemo Lock Washer
	34	40100002	Lemo Solder Lug
	48	40100003	Lemo Spanner Nut
	16	40100004	Lemo Shield
	1	40200000	NIM Connector Block
	1	40200001	NIM Connector Shield
	5	40200002	NIM Male Elect. Pin
	2	40200003	NIM Female Guide Pin
	1	40200004	NIM Male Guide Pin
	1	40200005	NIM Male Guide Pin Gold Plate
	1	40200006	#4 Lock Washer Gold Plate
	1	40200007	#4 Hex Nut Gold Plate
	1	40950002	Solder Lug
	1	58000102	Back Panel
	1	58000103	Right Side Cover
	1	58000104	Left Side Cover
	2	58000105	Square Rail
	2	58000106	Round Rail
	1	58007760	Front Panel
	4	65025603	2-56 x 3/16" Flat Head Phillips Screw
	6	65044003	4-40 x 3/16" Flat Head Phillips Screw
	6	65144006	4-40 x 3/8" Round Head Phillips Screw
	4	65944004	4-40 x 1/4" Fillister Head Screw
	2	65944005	4-40 x 5/16" Fillister Head Screw
	2	73010000	Stand Off
	2	73010001	Captive Screw
	1	85007760	Model 776 Printed Circuit Board