

# Phillips Scientific

## Octal DC-300MHz Amplifier

## NIM MODEL 772

### FEATURES

- \* Voltage Gain of 10, Cascadable for Higher Gains
- \* DC to 300 MHz Bandwidth
- \* Noise Less than 25  $\mu$ V RMS
- \* Offset Control with  $\pm 250$  mV Range
- \* Reliable - Inputs and Outputs Protected
- \* Excellent Stability - Gain and Offset

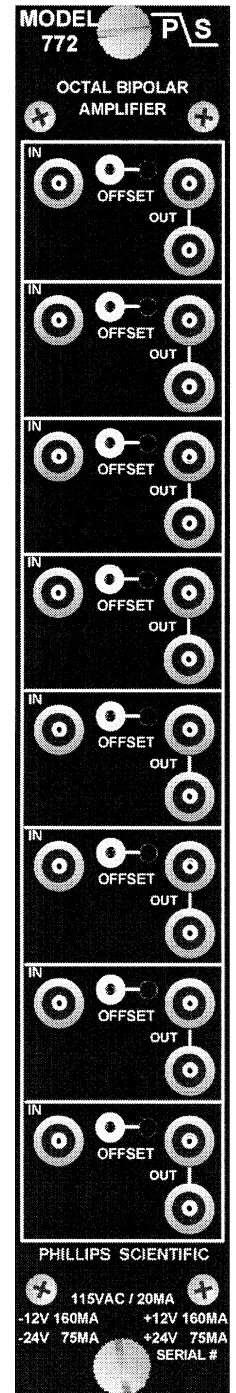
### DESCRIPTION

The Model 772 is an eight-channel, direct coupled amplifier packaged in a single width NIM module. Each channel provides a non-inverting voltage gain of ten and is fully bipolar, capable of amplifying positive or negative signals. Both the DC and fast pulse characteristics are exceptional. This allows for cascading of channels for gains in excess of 500 without suffering significant overshoot or baseline drift. Each channel has individual offset controls which can compensate for DC offsets due to the input source impedance or differences in ground levels.

The output stage is a low-impedance voltage source design with short-circuit protection. No damage can occur from overloading or continuous shorts to ground. The outputs have been designed to drive two 50 ohm loads for fan-out of the amplified signal.

### INPUT CHARACTERISTICS

- General** : One LEMO input connector per channel; bipolar input, accepts positive or negative voltages.
- Impedance** : 50 ohms  $\pm 2\%$  direct coupled input.
- Protection** : Protected with clamping diodes, no damage will occur from transients of  $\pm 100$  Volts ( $\pm 2$  amps) for 1  $\mu$ Sec or less duration.
- Reflections** : Less than  $\pm 4\%$  for input risetime of 1 nSec.
- Overdrive Response** : Recovery time of 20 nSec for a  $\pm 1.0$  Volt input.



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"A THEORY DEVELOPMENT COMPANY"

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

## **OUTPUT CHARACTERISTICS**

- General** : Two 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  $\pm 2$  Volts across two 50 ohm loads.
- DC Offset** : A front panel 15-turn potentiometer provides  $\pm 250$  mVolt adjustment. A front panel test point allows easy monitoring of the DC offset.

## **GENERAL PERFORMANCE**

- Gain** : Fixed gain of  $10 \pm 2\%$  non-inverting.
- Stability** : Better than  $\pm 5.0 \mu\text{Volt}/^\circ\text{C}$  from DC to 1 MHz, and  $\pm .01\%/^\circ\text{C}$  above 1 MHz.
- Linearity** :  $\pm 0.1\%$  for  $\pm 2$  Volts across one 50 ohm load or  $\pm 1.5$  Volts across two 50 ohm loads.
- Bandwidth** : DC to 300 MHz, 3 db point for 1 Volt peak to peak.
- Wideband Noise** : Less than 25  $\mu\text{Volts RMS}$ , referred to the input (1.5 nV/ $\sqrt{\text{Hz}}$ ).
- Risetime** : Typically 1.1 nSec, for a 1 Volt output excursion.
- Insertion Delay** : Typically 3.0 nSec.
- Crosstalk** : Greater than 60 db, DC to 100 MHz.
- Power Supply Requirements** : +12V @ 160 mA    +24V @ 75 mA    115VAC @ 20mA  
- 12V @ 160 mA    - 24V @ 75 mA  
Note: All currents are within NIM power supply limits for a single width NIM module.
- Operating Temperature** :  $0^\circ\text{C}$  to  $70^\circ\text{C}$  ambient.
- Packaging** : Standard single width NIM module in accordance with TID-20893 and Section 524.
- Quality Control** : Standard 36 hour cycled burn-in with switched power cycles.

10/97