The Model 1641 Current Preamplifier is a simple, low cost, wideband gain block for use with photo-multipliers, photodiode detectors and other current source type transducers. Like the Model 1211 the Model 1641 is relatively heavily damped for operation with higher capacitance input devices, such as large area photodiodes. It operates with an input virtual ground to mitigate the effects of source and cabling shunt capacitance and to prevent loading effects on non-linear transducers such as photodiodes. A three position switch allows the selection of a 100 MΩ, 1 MΩ or 10 KΩ feedback resistor for conversion of input current to output voltage with gains of 10^8, 10^6 and 10^4 volts per ampere, respectively.

An input offset trimpot can be used to prevent unwanted current from upsetting the zero bias voltage condition of a quiescent photodiode detector, or alternatively to trim the output voltage to zero.

**SPECIFICATIONS**

- **SENSITIVITY**: 10^4, 10^6, 10^8 V/A
- **BANDWIDTH**: 600 kHz, 60 kHz, 1 kHz
- **NOISE**: @ 1kHz, 5pA/√Hz, 130fA/√Hz, 13fA/√Hz
- **RECOMMENDED SOURCE IMPEDANCE**: >10 KΩ, >100 KΩ, >1 MΩ
- **INPUT OFFSET**: Trim pot nullable to zero
- **AMPLIFIER COUPLING**: dc only
- **OUTPUT POLARITY**: Inverting
- **OUTPUT MAX**: 20 V peak-peak
- **OUTPUT IMPEDANCE**: 50 Ω, unbuffered
- **dc SUPPLY REQUIREMENT**: ±13 to ±18V @ 10 mA or ±20 to ±28 V @ 15 mA
- **TEMPERATURE AND HUMIDITY**
  - Operating: 0 to 45°C, 10 to 90% R.H.
  - Storage: -20 to +60°C, 10 to 80% R.H.
- **DIMENSIONS** (Exclusive of Connectors): 94 x 65 x 43 mm (3.3" x 2.3" x 1.5")
- **WEIGHT**: 110 grams (3.9 ounces)

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**1600 SERIES CABLES** (2 meter length)

- **391V1M7**: Power cable for 399 Lock-In
- **4200V1**: Signal and power cable for 450 Series Amplifiers and 4000 Series Electronic Filters

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Model 1641 Current Preamplifier Block Diagram

**1600 Series Preamplifier Power and Grounding**

For more information contact

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