Model 5185

Wideband Preamplifier

FEATURES

- **50 Ω or 1 MΩ input impedance**
- **Low noise**
- **×10 or ×100 gain**
- **DC to > 200 MHz frequency response**
- **DC offset control**
- **Line power**

APPLICATIONS

- **Signal averager preamplification**
- **Boxcar averager preamplification**
- **Increasing sensitivity of oscilloscopes and fast ADC**

DESCRIPTION

The model 5185 is a wideband voltage preamplifier with a frequency response from DC to 200 MHz and switchable gain settings of x10 (20 dB) or x100 (40 dB). It has a selectable input impedance of 50 Ω or 1 MΩ and a DC offset facility.

The 50 Ω frequency response extends from DC to 200 MHz with an equivalent input noise of 10 nV/√Hz at 10 kHz. The 1 MΩ response exceeds 100 MHz, has switch selected AC or DC coupling and an equivalent input noise of 30 nV/√Hz at 10 kHz. A ground switch allows the input signal to be isolated from the output and an adjustable offset facility allows a DC offset on the input signal to be subtracted before it reaches the amplifier output. An overload detector is also provided.

The unit is powered from an external line power supply module, model PS0108, included with each instrument. Signal connections are made via the front-panel BNC connectors.

The model 5185 will prove invaluable for users who need a compact, low cost, high performance wideband preamplifier. It is an ideal accessory for use with oscilloscopes, digitizers, signal averagers and boxcar averager systems.

Specifications

General

DC coupled wideband voltage amplifier with selectable x10 (20dB) or x100 (40dB) voltage gain and a maximum frequency response extending from DC to > 200 MHz. Single-ended input and single-ended output via BNC connectors.

Line powered from model PS0108 power supply included with each unit.

Inputs

Configuration	Single-ended. Front panel ground terminal provided
Coupling	
50 Ω Input	DC only
1 MΩ Input	DC or AC
Impedance	50 Ω or 1 MΩ // 25 pF
Frequency Response	
50 Ω Input	DC to 200 MHz (±1 dB) DC to 250 MHz (+1 to -3 dB)
1 MΩ Input DC	DC to 100 MHz (±1 dB) DC to 125 MHz (+1 to -3 dB)
1 MΩ Input AC	5 Hz to 100 MHz (±1 dB) 5 Hz to 125 MHz (+1 to -3 dB)
Equivalent input noise, rms.	
50 Ω Input	10 nV/√Hz @ 10 kHz
1 MΩ Input	30 nV/√Hz @ 10 kHz
Rise and Fall Times	
50 Ω Input	< 2 ns
1 MΩ Input	< 2.6 ns
Max input voltage	
x10 gain	100 mV pk-pk
x100 gain	10 mV pk-pk
Gain	x10 (20 dB) or x100 (40 dB)
Gain Accuracy	±3% at 10 kHz
Gain Stability	±250 ppm/°C

Output

Impedance	50 Ω
Max voltage swing	>1 V pk-pk
Slew rate	> 2000 V/µs (unloaded)
Polarity	Non-inverting
DC Stability	100 µV//°C (referred to input)
DC Offset Control Range	± 10 mV (referred to input)

Power

a)	±15 V or ±18 V DC @ 300 mA
b)	110 V AC or 240 V AC via external model PS0108 power supply included with unit

Dimensions

(excluding connectors)	8.25" wide x 11" deep x 3.5" high (210 mm wide x 279 mm deep x 89 mm high)
Weight	6.4lbs (2.9 kg) excluding power supply