# MODEL 568
# 10 MHz DIFFERENTIAL VOLTAGE PREAMPLIFIER

DL Instruments, LLC

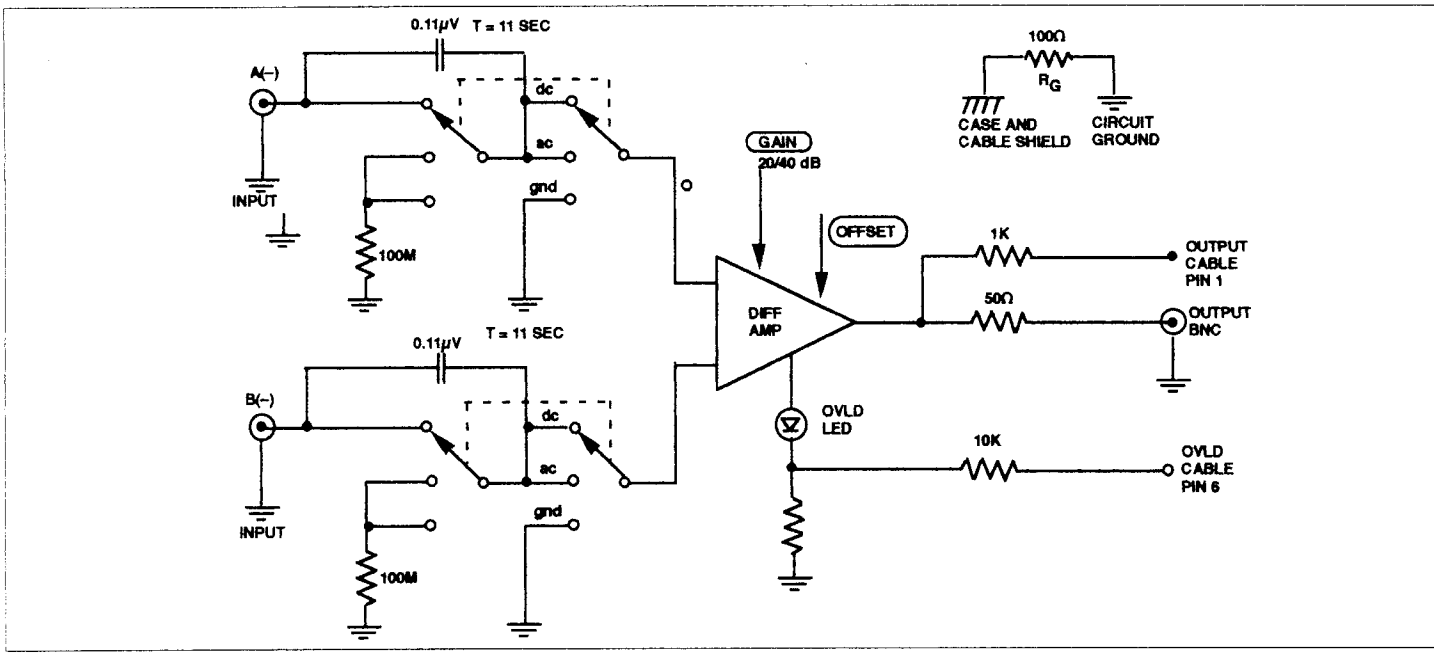
725 West Clinton Street, Ithaca, N.Y. 14850 Phone 607-277-8498 FAX 607-277-8499

Model 568 offers 20 or 40 dB differential amplification of signals up to 10 MHz. Rejection of common mode voltages is more than 100 dB over a wide 10 kHz frequency range. Designed for medium and high impedances, amplifier noise is negligible for source resistances from 10 kΩ to the G Ω range. Low input capacitance allows good frequency response even for high impedance sources, high input resistances gives negligible signal attenuation. Separate dc–ac–GND switchable BNC inputs, 50 Ω BNC output cable drive capability, overload indication, uncritical power requirements and small size make Model 568 a universal preamplifier front end.

## SPECIFICATIONS

**GAIN** A 40 dB ( X100) and 20 dB (X10) switchable. Accuracy ±0.02 dB (±0.2%) for f <100 kHz
**BANDWIDTH** dc to 10 MHz (–3 dB) dc coupled 0.015 Hz to 10 MHz (–3 dB) ac coupled
**INPUTS** BNC, differential and single ended, switchable dc or ac coupled. Protected up to ±25V in dc mode, 50 Vpp ac and ±100 Vdc in ac mode
**INPUT IMPEDANCE** dc coupled min. 5 GΩ. ac coupled 100 MΩ single ended, 200 MΩ, differential
**INPUT NOISE** Typ. 8 nV/√Hz, 2fA/√Hz which is less than self noise of resistive signal sources from 4 KΩ to 3 GΩ. See noise figure contours
**INPUT OFFSET** trimmable to zero. Drift typ. ±3μV/°C
**INPUT CURRENT** Typ. 1 pA, max. 5 pA at 25°C. Doubles every 10°C temperature rise
**COMMON MODE REJECTION** Better than 100 dB for frequencies. dc – 10 kHz in dc mode, 10 Hz – 10 kHz in ac mode. Better than 60 dB for 1 MHz. Common mode voltage max. ±8 V
**OUTPUTS** BNC, impedance 50 Ω. Max. swing ±10 V unloaded. Max. swing ±1.25 V terminated 50 Ω. Cable connector output impedance 1 KΩ.
**POWER SUPPLY REQUIREMENT** ±14 to ±24 V dc @ typ. 50 mA. Max. 100 mA* when driving 50 Ω loads
**OVERLOAD INDICATION** A and B input and output overload indicated by LED and 5 V signal on pin 6 of power connector (impedance 10 KΩ)
**TEMPERATURE AND HUMIDITY**
**Operating** 0° to 45°C, 10% to 90% R.H.
**Storage** –20° to 60°C, 10% to 80% R.H.
**DIMENSIONS** 60 x 80 x 54 mm, (2.36" x 3.15" x 2.13")
**WEIGHT** 350 grams (12.5 oz)

*All DL Lock-Ins and Filters have sufficient power available to supply 50 mA to the 568 to drive loads as low as 600 Ω. Only the 450 Amplifier and 4100 Filter rack supplies or the 511 Power Supply can provide 100 mA to drive 50 Ω loads.




*Model 568 Differential Voltage Input Preamplifier Block Diagram*

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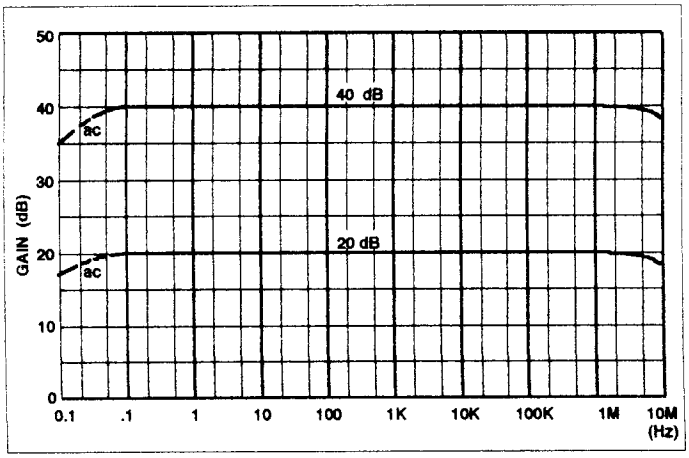
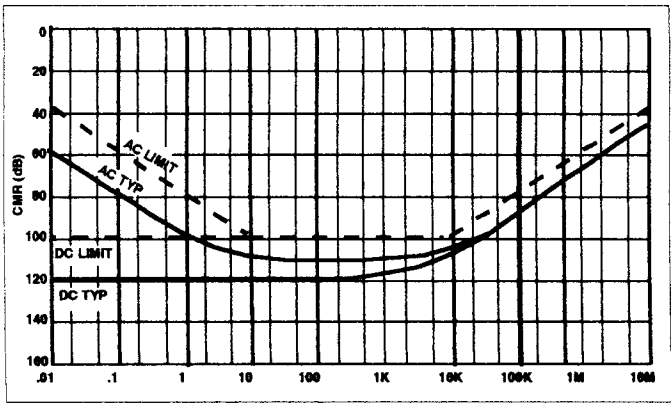
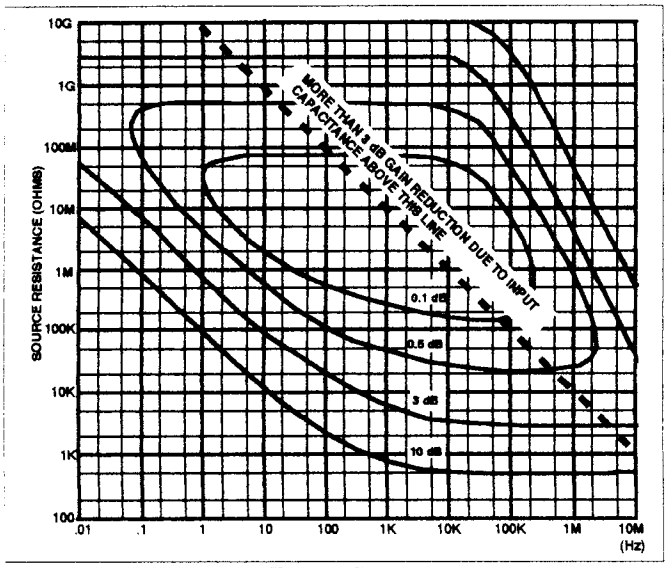


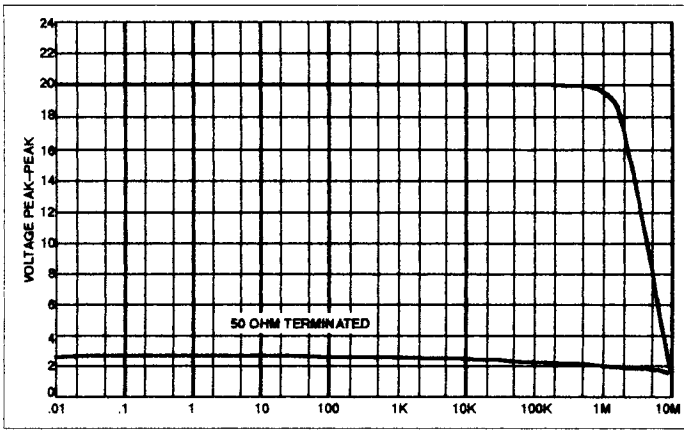

*Frequency Response*



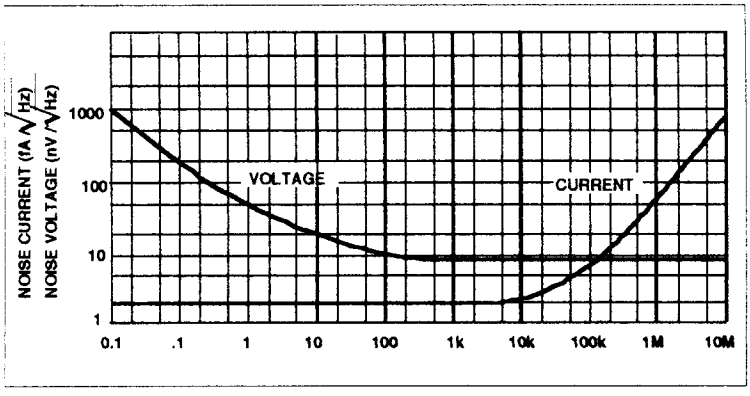

*Common Mode Rejection vs Frequency*



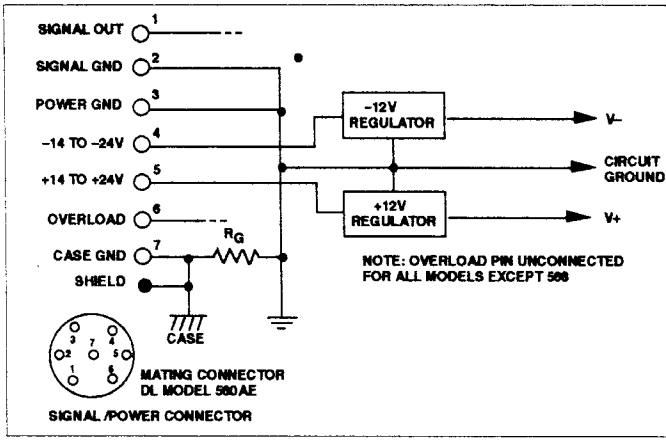

*Noise Figure Contours*




*Maximum Sinusoidal Output Voltage vs Frequency*




*Input Noise vs Frequency*




*560 Series Preamplifier Power and Grounding*

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

**560V1** Power Cable for 399 Lock–In

**4200V2** Power and signal cable for 450 Series Amplifiers and 4000 Series Filters


For more information contact

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