

# Model 7008

**8 Channel Low Noise Differential Preamplifier  
DC to 1MHz**



- **Gain Settings:** x1, x10, x100 and x1000
- **Noise (RTI):** 7nV/√Hz
- **Amplitude Flatness:** ±0.3dB
- **Output:** ±10V Peak
- **Selectable Input Configurations:** Differential, +SE, -SE and OFF
- **Selectable Input Shunts:** 50, 500, 5k and 50k Ohms
- **CMRR:** >100dB at 1kHz
- **Optional Remote Programming:** USB or LAN

## DESCRIPTION

The Krohn-Hite Model 7008 is an Eight Channel, Remote Programmable, Differential, Preamplifier providing low noise and high gain amplification to 1MHz. The output of the 7008 is derived from using a very low noise FET instrumentation amplifier. Noise referred to input is 7nV/√Hz and common mode rejection is >100dB at 1kHz. The Model 7008 has fixed gain settings of x1 (0dB), x10 (20dB), x100 (40dB) and x1000 (60dB). Four input configurations and four input shunt resistor selections for current to voltage conversions are also provided.

A 16 character, 2-line front panel display is provided as a monitor to indicate each channel's complete setup. Optional USB or LAN is available for programming any or all parameters remotely. BNC connectors are provided for single-ended and differential input configurations, and for the amplified output.

The Model 7008 is ideal for a wide variety of applications such as amplifying low level signals in the presence of noise in data acquisition systems, temperature measurements, audio engineering, radio astronomy, optical detection, process control, and as a general purpose preamplifier for other devices.

**SPECIFICATIONS****Number of Channels:** 1 to 8.**INPUT****Configurations:** Differential, +single-ended (minus grounded), -single-Ended (plus grounded), off (both inputs grounded).**Coupling:** AC 0.16Hz (0.16mHz with Option 10 installed) and DC, switch selectable.**Impedance:** 1M ohm (1G ohm with option 10 installed) shunted by 40pF.**Input Shunt Resistor:** Selectable 50 ohm, 500 ohm, 5k ohm, 50k ohm,  $\pm 0.3\%$ , and none.

Resistor Values (ohms, 1/4W)	Max Current (amps)	Max Volts	Max Watts
50	0.05	2.5	0.125
500	0.016	8	0.128
5,000 (5k)	0.005	25	0.125
50,000 (50k)	0.0016	80	0.128

**Maximum Input Voltage:** 10V peak with gain set to x1 with shunt selection off.**Max Safe Voltage:** Any continuous voltage between  $\pm 30V$  (for 7008-10 option,  $\pm 15V$ ) with shunt selection off.**Gains:** Pushbutton momentary switch selectable, x1 (0dB), x10 (20dB), x100 (40dB), x1000 (60dB).**Accuracy:**  $\pm 0.3dB$ .**Stability:** 200ppm/ $^{\circ}C$ .**Bias Current:**  $\pm 5pA$  typical, 50pA max.**CMMR:**

FREQ	GAIN = 1	GAIN = 10 to 1k
50Hz	>90dB	>102dB
10kHz	>75dB	>87dB
50kHz	>60dB	>72dB

**FILTER****Cutoff Frequency:** 100kHz, 2-pole, 12dB/octave; selectable by momentary pushbutton switch. Selections are on and off. Option 11 available to change the cutoff from 100kHz to 400Hz.**OUTPUT****Maximum Output Voltage:** 10V peak.**Impedance:** 50 ohms, single-ended.**Distortion:** 0.005% (-85dB) at 1kHz.**Offset Voltage:** Adjustable to zero,  $\pm 50mV$  range.

**Wideband Noise (RMS - 2MHz Bandwidth Detector)**

GAIN	FILTER OFF ( $\mu\text{V}$ )	100kHz FILTER ( $\mu\text{V}$ )
1	120	90
10	14	9
100	10	3.2
1k	10	3.2

**Noise Density (x1k gain setting, filter off):** 7nV/√Hz typical.

**GENERAL**

**Power Requirements:** Switch selectable, 90-130, 210-260 volts, single-phase, 50-60Hz, 3-terminal AC line receptacle.

**Isolation to Chassis:**  $\pm 200\text{Vdc}$ .

**Operating Temperature:** 0°C to +45°C.

**Storage Temperature:** -25°C to +70°C.

**Dimensions:** 4"(10.28cm) high with feet, 3.5" (9cm) high without feet; 14.15" (36.36cm) wide; 14.3" (36.75cm) deep.

**Weights:** 12 lbs (5.4kg) net, 14 lbs (6.3kg) shipping.

**Certification:** A Certificate of Compliance is issued with each new instrument to certify the calibration and traceability to N.I.S.T.

**Warranty:** ONE FULL YEAR warranty on parts and labor includes specifications and performance.

**FRONT PANEL**

**Switches:** Power On/Off, selections of Channel UP and DOWN, INPUT CONFIG, FILTER, INPUT COUPLING, GAIN, SHUNT RESISTOR, SAVE/EDIT, and LOCAL REMOTE operation.

**Input Connectors:** BNC, max input is 10V peak at a gain of 1.

**Output Connectors:** BNC, max output 10V peak.

**DC Offset Control:** Approximately  $\pm 50\text{mV}$  range.

**REAR PANEL**



**LAN/USB Remote Control:** Optional (see Options below).

**Line Fuse:** 3/4A slow-blow for 120V; 3/8A slow-blow for 240V; fuse rating is 250V.

**Input Power Receptacle:** 3-terminal.

**Low/High Line Switch:** Ranges are 105Vac to 132Vac or 210Vac to 264Vac.

**OPTIONS**

**Option 10:** 1G ohm input impedance.

**Option 11:** 400Hz filter replaces 100kHz filter.

**USB-COM:** USB remote control.

**LAN-COM:** LAN remote control.

**ACCESSORIES**

**Rack Mount Kit:** Part No. RK-314 permits the installation of the Model 7008 into a standard, 19" rack spacing.



**LPNF:** 2MHz Low-Pass Noise Filter



**CAB-025:** Cable, BNC, 3ft, Low Noise



**2720B:** Carrying Case



**Extended 1 Year Warranty:** Part No. EW7008.

Specifications are subject to change without notice.