

# Eliminate 50/60 Hz noise and harmonics without filtering.



## Hum Bug Noise Eliminator

- **Eliminates electrical interference**
  - Simple 50/60 Hz sine waves
  - Mixtures of 50/60 Hz harmonics
  - Noise spikes from dimmers
  - Complex noise from fluorescent lamps
- **No waveform distortion**
  - No frequency loss or DC voltage shift
  - No signal attenuation or phase error

The Hum Bug is a powerful device for canceling electrical interference in real-time, avoiding all of the traditional problems associated with notch filters. The Hum Bug constructs a replica of noise present on the input signal and continuously subtracts this replica from the signal as it passes through the instrument. It performs this function in the presence of biological activity even when noise characteristics evolve over time.

## Specifications:

### Physical

Standard steel instrument box with cast aluminum base

- W-6.5" D-7.5" H-1.3" (32.2 x 18.1 x 3.1 cm)
- Weight - 2.8 lbs. (1.3 kg)

### Power

- 115-120 VAC at 60 Hz
- 230-240 VAC at 50/60 Hz

### Input Voltages

Input protection: 50 volts peak-to-peak

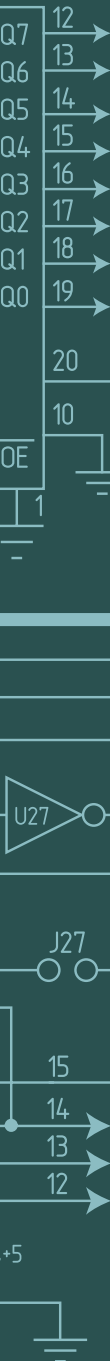
Maximum input signal recognized by the adaptor: 5 volts peak-to-peak

Maximum noise amplitude for complete cancellation: 1 volt peak-to-peak

### Frequency Response

Input to output: DC to greater than 500 kHz

Hz and harmonics cancellation: 50/60 Hz to 4 kHz



**Controls**

Bypass: halts noise cancellation by routing input directly to output

Hold: suspends adaptation to evolving noise characteristics

Clear: clears the noise replica

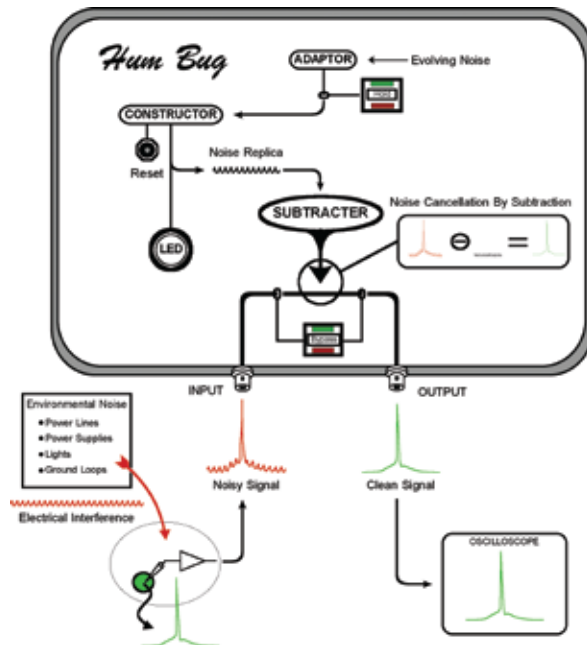
**Display**

LED indicates changing noise levels

- Green: decreasing amplitude of the noise replica
- Red: increasing amplitude of the noise replica

The Hum Bug is not a filter. It does not create phase delays, amplitude errors, DC shifts or waveform distortion. Simply connect it between your preamplifier and any analysis equipment and it will automatically eliminate 50/60 Hz noise and harmonics with frequencies up to several kHz. Noise is eliminated without altering the signal of interest even when frequencies within the signal overlap with noise components. No settings or adjustments are required.

The Hum Bug can eliminate 50/60 Hz noise from virtually any analog signal. It is equally effective at removing noise associated with inadequate grounding, ground loops, and electrical pickup. Common applications include noise elimination from signals recorded using microelectrodes, skin electrodes (EKG, EMG, EEG), high gain amplifiers, magnetic sensors, and audio equipment.



**Hum Bug Noise Eliminator Ordering Information**

Part No.	Product Description	Price
Q-HUMBUG	Hum Bug - 50/60Hz active noise eliminator	\$ 1,725

U.S./Canada prices shown. International prices add 15%. Email or visit web store for latest prices.