

## Model 60 Tactical Infrasond Sensor\*



Introducing the Chaparral Physics Model 60 Infrasond Sensor, the smallest and lightest fully-engineered infrasond sensor available. With its extremely low power consumption and robust weather sealed construction, this sensor reduces the required weight and size of equipment needed to install an array. Less than 2 inches tall and weighing 7 ounces, the M60 sits easily in the palm of your hand. A full array of 4 sensors and a compact data logger fit easily inside a small backpack. Despite this size and weight reduction, the M60 maintains the low noise, stable operation, wide bandwidth, and low seismic sensitivity of all Chaparral Physics infrasond sensors.

\* Patent pending

Chaparral Physics sensors combine rugged construction with wide bandwidth and low noise to ensure accurate measurements in the most demanding environments. They have no need for altitude adjustments, and are carefully designed to reduce the effect of environmental temperature variations and mechanical vibrations. From the Ross ice-shelf in Antarctica through the rain forests of Central America to Alaska's tundra, Chaparral Physics microphones have proven their reliability and value as the finest infrasound measuring instruments in the world.

## Features

Some of the important features which give our sensors an advantage in real world installations include:

- Extremely small size and weight.
- Very low power consumption
- Robust physical build quality with sealed electronics
- High dynamic range
- Low noise floor
- Differential output
- 12.5 octave bandwidth that includes the low audio spectrum (0.03 Hz to 240 Hz)

The Model 60 is ideally suited for military or remote applications where small size, low weight, and low power consumption are critical. The small size is particularly valuable in stealth applications where the array must be concealed. It allows installation in locations that would have previously been impractical. The M60 is an excellent choice for any application requiring a high resolution infrasound sensor in a small form factor. It excels at accurately recording signals which span the low audio/infrasound boundary, such as explosions and avalanches, and makes an excellent sensor for campaign style experiments because of its rugged construction. If your application requires a high quality infrasound sensor, the Chaparral Physics Model 60 provides you with a compact, robust solution.

These sensors are export controlled under the U.S. Bureau of Industry and Security (BIS). All Chaparral Physics sensors are classified as EAR99 and only require an export license for Cuba, Iran, North Korea, Sudan, and Syria, or for someone on the Denied Persons List. It is the responsibility of the purchaser to insure compliance with all applicable U.S. export regulations after the sensors are received

# SPECIFICATIONS

## Nominal Sensitivity:

Gain 0.4 volts/Pa @ 1 Hz, 55 Pa full scale peak to peak

Individual sensor's calibrated value is +/-5% from nominal. Calibration value is traceable to the Los Alamos National Laboratory (LANL) calibration chamber.

## Output:

Output Type Differential  
Maximum 22 volts peak-to-peak (signal+ to signal-)  
 $\pm 11$  volt max, signal to ground  
Frequency Response Flat to within +0, -3 dB from 0.03 Hz to 245 Hz  
Flat to within +0, -1 dB from 0.06 Hz to 200 Hz  
Self Noise Less than  $0.63 \mu\text{Pa}^2/\text{Hz}$  @ 1 Hz  
(-62dB Pa<sup>2</sup>/Hz, relative to 1 Pa)  
Less than 3 mPa RMS 0.1 to 40 Hz  
Less than 0.8mPa RMS 0.5 to 2 Hz  
Dynamic Range 88dB (@ 0.8mPa RMS self noise)  
Output Impedance  $150\Omega$  non-reactive  
Recommended Load  $R > 10 \text{ k}\Omega$ ,  $C < 100\text{nF}$   
Short Circuit Protected signal+ to signal- and signal to ground

## Power Requirements:

DC Source 12 volts, (11.25-20 volts) DC, reverse voltage protected.  
Current Drain Less than 150 mW, 12 mA @ 12.6 v

## Physical:

Sensor will function in any position or attitude. Sealed to IP-64 with acoustic inlet sealed and mating electrical connector installed  
Operating Temperature  $-40^\circ \text{C}$  to  $+65^\circ \text{C}$   
Humidity 95% (non-condensing)  
Dimensions 3.75" diameter, 1.688" tall (not including the calibration tube)  
Weight M25 7.1oz (201 g)  
Std. Acoustic Inlets Single port.

We reserve the right to modify and improve the sensor's performance.