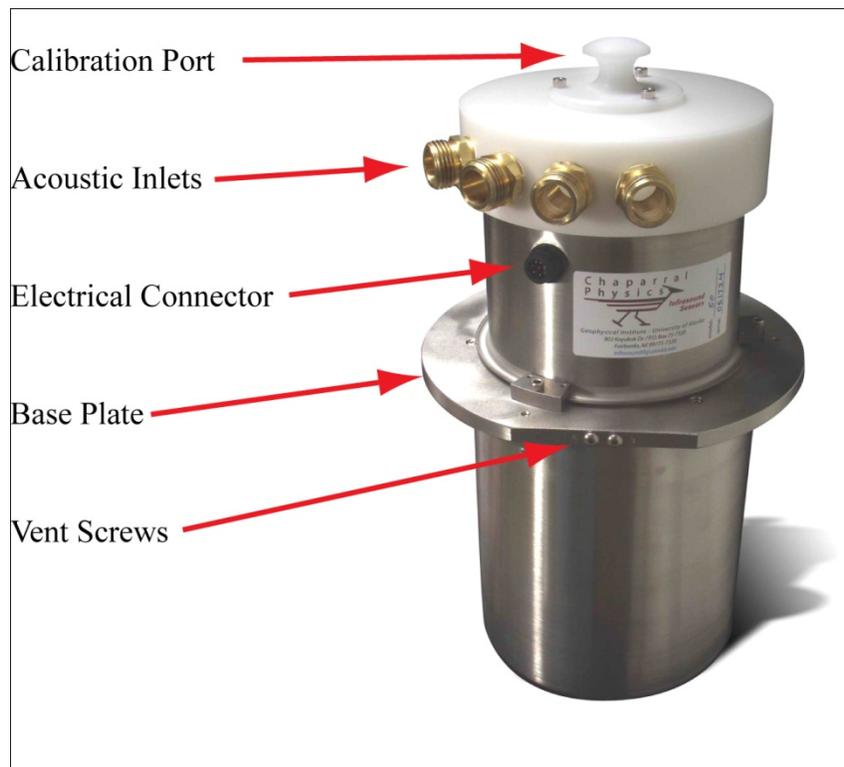


## Model 50A Infrasound Sensor



Chaparral Physics sensors combine rugged construction with wide bandwidth and low noise to ensure accurate measurements in the most demanding of 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:

- Robust physical build quality with stainless steel and sealed electronics
- Built in manifold for connecting to a noise reduction array
- Very low noise floor
- Low power consumption
- High sensitivity
- Differential output
- 12 octave bandwidth down to the Brunt-Vaisala frequency (0.01 Hz to 50 Hz)
- On the fly switching between two sensitivity options
- Remotely operable self-diagnostics

The Chaparral Physics Model 50A Infrasound Sensor represents the cutting edge of low noise, high resolution, wide-bandwidth infrasound sensing technology. This observatory grade instrument has class leading low noise characteristics, coupled with extremely wide bandwidth, low sensitivity to seismic and thermal noise, and robust environmentally sealed construction. The Model 50A is an excellent choice for any application requiring infrasonic data of the highest quality. It excels at accurately recording very weak acoustic signals with excellent signal to noise ratio, down to the lowest frequencies. If your application requires the highest quality infrasound data, the Chaparral Physics Model 50A provides you with a no-compromise 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:

High	2.0 volts/Pa @ 1 Hz, 18 Pa full scale range
Low	0.4 volts/Pa @ 1 Hz, 90 Pa full scale range

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	36 volts peak-to-peak (signal+ to signal-) ±9 volt max signal to ground
Frequency Response	Flat to within +0, -3 dB from 0.01 Hz to 50 Hz Flat to within +0, -0.5 dB from 0.06 Hz to 10 Hz
Self-noise	Less than -76dB Pa <sup>2</sup> /Hz, rel to 1 Pa Less than 0.8 mPa RMS, 0.02 to 50 Hz Less than 0.2 mPa RMS, 0.5 to 2 Hz,
Dynamic range	99dB high gain, 113dB in low gain @ 0.5 Hz to 2 Hz
Output Impedance	150Ω non-reactive, (recommend load >10kΩ) (Recommended less than 10,000pf loading)
Short circuit protected	signal+ to signal-, and signal to ground

## Power Requirements:

DC Source	12 volts (9-18 volts) DC, reverse voltage protected.
Current Drain	Less than 40 ma @ 12 v

## Physical:

	Sensor will function in any position or attitude. Sealed to IP-67 with acoustic inlets sealed and mating electrical connector or cap installed
Operating Temperature	-40° C to +65° C
Humidity	95% (non-condensing)
Dimensions	16.5" (42 cm) maximum height 9.9" (25 cm) maximum diameter
Weight	17.6 lbs (8 Kg), for 4-port version
Std Acoustic inlets	4 inlet ports (maximum 12), male, Garden-Hose-Thread, and a calibration port. Total fore-volume of a 4 port Model 50A with capped GHT inlets is ~55 cubic cm.

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



**Chaparral Physics**

A Division of the Geophysical Institute of the University of Alaska  
*Development, Calibration, and Production of Fine Infrasonic Sensors*

## Standard OPTIONS

Option	Approximate Price
1 to 12 port custom manifold. Ports can be together or evenly spaced.	There is a fixed setup charge of \$200 per order plus a per port fee of \$25 for each port over four.
Plastic Connector	(-\$50 per sensor) In a fixed installation the ruggedness of the Mil. Spec. connector is not required.
“Volcano Mod”	(no extra charge) The V mod changes several items inside the sensor and reduces the sensitivity to maximize the dynamic range. For the details of the differences see the M25V manual on the website.
Custom Sensitivity	(no extra charge) Sensitivity can be set to any value requested by the user. Standard range is 0.05 to 5 V/Pa. A value outside the standard range may result in a per sensor charge.
Pelican Shipping Box	Sensors can be shipped in a reusable Pelican case. Inquire for details and pricing.

Chaparral Physics is able to customize the sensor to your needs. Please inquire about other modifications to make the sensor best fit your application.