

Superior Signal  
**AccuTrak**®

ULTRASONIC INSPECTION SYSTEMS



***Hear the Difference!***

# AccuTrak® The Smart Choice!

Whether you're an active user of ultrasonic technology or just getting started, AccuTrak® is worth a look and a listen! Offering truly advanced patented technology, innovative features, and all at exceptional values. Our diverse line offers something for every application, and any budget. Here are a few ways thousands of existing AccuTrak® customers benefit everyday.



## Find Air leaks Fast!

Did you know that compressed air often devours more electrical energy than any other equipment in the plant? Do your compressors run on weekends when the plant is unoccupied? Do you have difficulty maintaining optimum pressures? Have you come to rely on your backup compressor for routine demand? - **Still think Air is Free???** Save thousands (20 to 50%)\* annually by locating and repairing air leaks! Do it with AccuTrak®, the easiest way to find them, **Simply turn it on and go!!!** AccuTrak® is also great for refrigerant leaks, vacuum leaks, heat exchangers, or any pressurized system.



## Test Valves and Steam Traps!

How would you like to save \$30,000/yr. or more!\* That's what many companies can expect by initiating a simple steam trap testing and repair program. Leaking steam traps waste thousands of dollars in live steam, while traps failed closed won't remove damaging condensate. Identifying these problems with AccuTrak® is simple!

The touchprobe sensor lets you **hear** the ultrasonic sound created by turbulence and flow inside the body of a valve or steam trap. When in the closed position a healthy valve or steam trap is silent, while a leaker screams for attention! Use AccuTrak® to test all types of steam traps, control valves, expansion valves, check valves... *you name it!*

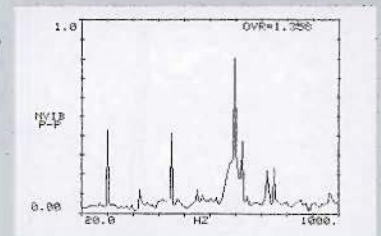
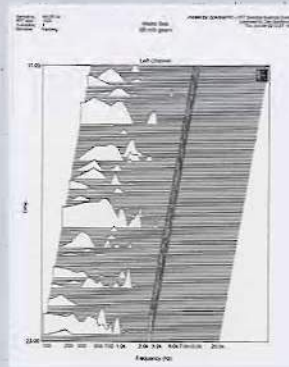


## Detect bearing wear!

The surfaces of internal bearing components are constantly wearing down. Increased friction and impact creates changes in ultrasonic sound signatures as they progressively get worse. AccuTrak® not only lets you hear the internal components but allows you to set baselines for both comparative and historical trending. Inconsistently high readings indicate wear or lubrication problems and provide you with advanced warning of failure on the horizon. **AccuTrak® model VPE-2000 offers digital frequency selection, volume/sensitivity and meters with peak hold** to assure you of **repeatable and reliable results every time!**

## Signal Analysis!

Trends in sound intensity can be noted using AccuTrak's LED meters, however if more detailed recording and comparison is what you're after, AccuTrak® can be connected to your engine/valve analyzer, spectrum analyzer or to your PC using off the shelf PC based - dual channel, real time, FFT spectrum analysis software.



\* These figures have been presented by the US Department of Energy who has identified Air and Steam leaks as significant sources of energy loss. They have created the "Air Challenge" and "Steam Challenge" to help plants worldwide address these issues.

## Ultrasound is created by...

**Friction!**  
(in moving equipment)

**Arcing!**  
(in electrical connections)

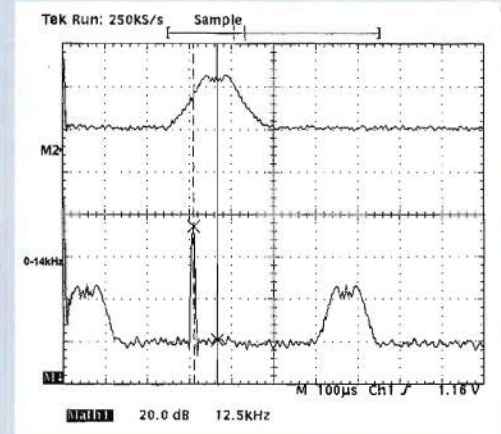
**Turbulence!**  
(in the flow of gasses and fluids)

## How it works, and the AccuTrak® advantage

AccuTrak® works by detecting the high frequency sound associated with friction, arcing, and turbulence in industrial systems, and translating/converting that sound down to the audible range where it can be heard through a headset, and viewed on a meter or analyzer. The translation is done by a process called heterodyning which compares the incoming signal (sound frequency detected by the sensor) with an internal signal generated by a local oscillator. The difference between these two signals is the sound which is heard. Because AccuTrak® is tuned to a much higher frequency than what humans can hear, most of the sound you consider "noise" in your plant does not interfere with detection accuracy.

AccuTrak®'s clear translation assures that the original sound signature of the ultrasonic frequencies are maintained. This makes it easy for your ear to distinguish the difference between the hiss of an air leak, and the mechanical sound of a running compressor.

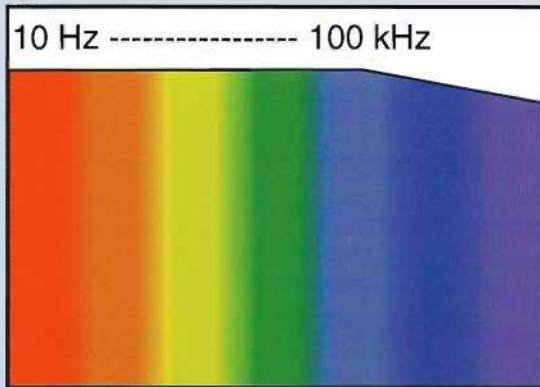
Here is a group of sound frequencies recorded using AccuTrak®. The upper trace shows the original ultrasonic sound spectrum, and the lower trace shows the signal after conversion. Notice the waveforms are translated almost exactly as they appear in their original form. (X) marks the internal tuning of the instrument.



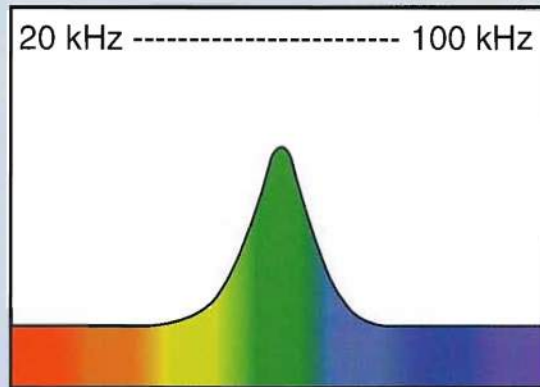
## The AccuTrak® Difference.

There are a lot of companies who claim to offer technologically advanced ultrasonic detection systems. **Maybe it's time to take a closer look.**

**It all starts with the sensor.** The sensor itself must be capable of detecting and collecting the sound before any other processing can be done with the signal. For example, the contact sensor in our Model VPE-2000 is an exclusive design capable of a wide range of detection. This special sensor offers a relatively flat response through a range of 10Hz to over 100kHz. Competitive units use a "bi-morph" type sensor which is extremely limiting, capable of detecting a non-adjustable range of only 4 to 5kHz wide.



VPE-2000 contact probe frequency response gives the full picture of sound.



Competitors Bi-Morph frequency response is extremely limited.

**AccuTrak®'s exclusive contact sensor gives you the full picture!**

**Repeatability...** When testing a bearing or other test which needs to be repeated, it is very important that the unit be tuned **exactly** as it was in previous tests, otherwise you are not hearing or recording the same sound! Competitors analog adjustments are not precisely locked in and can easily vary from user to user. The digital VPE-2000 offers diverse, yet extremely **repeatable** settings for maximum accuracy and reliability!

**Hidden costs...** With competitor's units you can pay maintenance charges from 10% to 25% of the cost of the unit - per year! Beware of the high cost of repairs, replacement costs for accessories that can fall off during use, and calibration charges. You will never pay these ridiculous charges with AccuTrak®! Older analog ultrasonic guns use RC oscillators which can go out of calibration with changes in temperature, humidity and age. AccuTrak® uses digital numerical oscillators that don't need calibrating.

# Model VPE-2000

# Advanced Digital!



AccuTrak® VPE-2000 is the **first digitally controlled** ultrasonic detector. Like two instruments in one it uses two independent sensors supported by separate electronic circuits configured specifically to their own sensor. This assures optimum sound clarity and frequency response. When switching between the airborne and contact sensors all settings are retained in memory!

Digital LED meters let you establish baselines, perform trending, and accurately repeat these tests better than older more expensive analog instruments.

**Other applications...** Heat exchangers, vacuum leaks, electrical arcing, worn belts, confirm and locate increased noise from motors, gears, compressors, and more! Use the sound generator to find leaks in door gaskets, welds, rivets, windows, and even roofing.

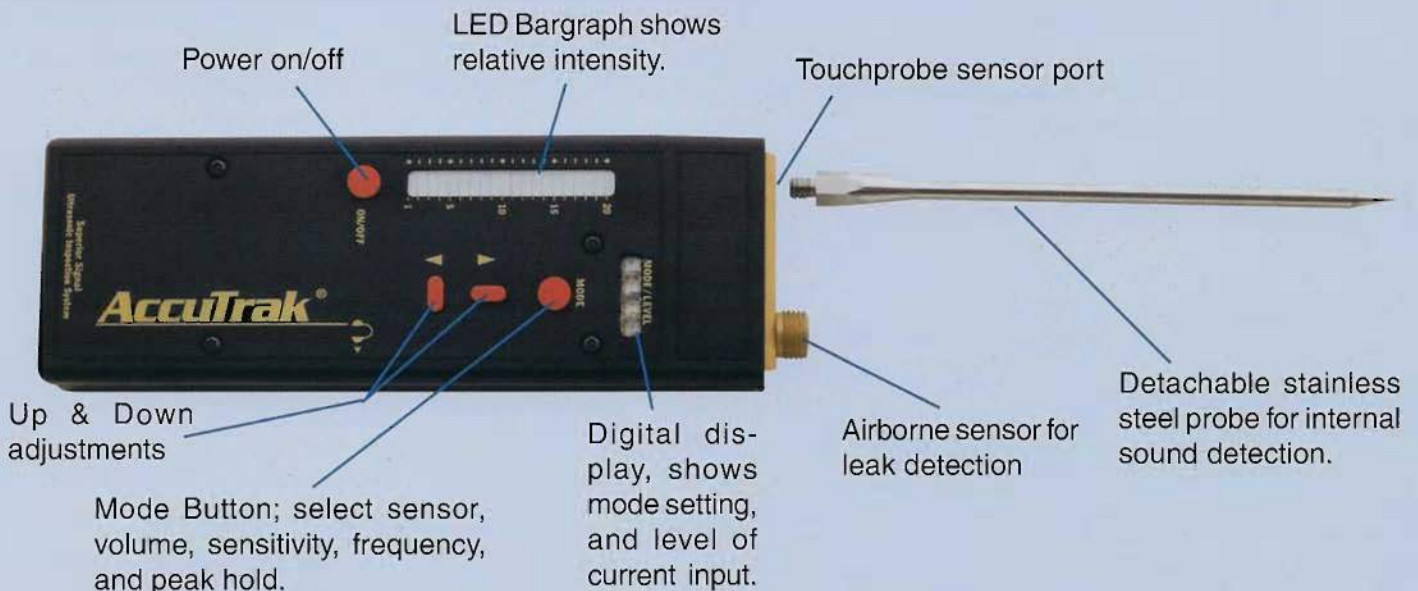
**Construction...** The AccuTrak® VPE-2000 is constructed of durable ABS, with solid anodized aluminum to house and protect both sensors. The circuit boards are **bolted** to the case for optimum strength and support. All the displays are high intensity for easy readability, and the buttons are sealed to keep out foreign substances. The VPE-2000 is **made in the USA**, and built to last!

**Includes** everything needed to do the job; instrument, deluxe headset, contact probe extension kit, hard carrying case, protective canvas pouch with vinyl window, batteries, manual and video overview.

## AccuTrak® First in Digital Ultrasonics!

1. Digital LED Indicators (Alphanumeric and bargraph)
2. Digital Frequency Selection (With SONIC Probe Mode)
3. Digital PEAK HOLD Feature
4. Separate Volume and Sensitivity
5. Digital Mode Selection
6. Stores all Settings in Memory
7. Wide Dynamic Range (256 Steps)

## Other features and controls



# Model VPX-WR *Ultimate Air Leak Detector!*



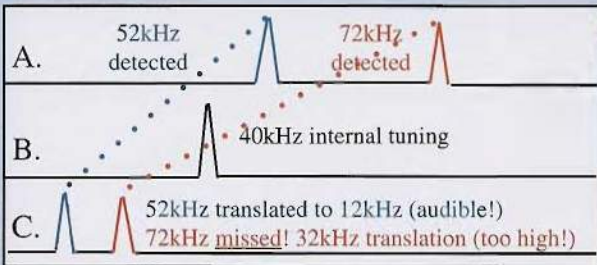
You might be impressed with the fact that AccuTrak® can actually hear the blink of a human eye, but what will *really* impress you is AccuTrak®'s ability to identify the hiss of a compressed air leak, even in the noisiest facility.

AccuTrak® Model VPX-WR represents *THE* state-of-the-art technology for ultrasonic air leak detection! This *ultra-durable and waterproof* instrument incorporates our *patented and trademarked* circuitry we call "DND" (Dynamic Noise Discrimination). Older detectors using only the heterodyne technique, simply cannot offer the same leak detection abilities, especially in loud plant environments.

## How DND works...

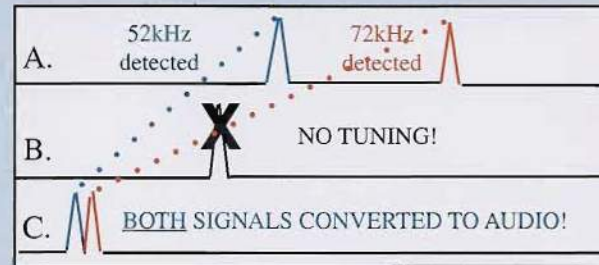
Superior Signal engineers have devoted thousands of man hours to the development of DND. This truly advanced technology allows AccuTrak® to detect and translate a broad band of ultrasound (20kHz to 100kHz) without the guesswork associated with manual tuning!

**Heterodyne** type detectors compare the *incoming signal* (A) with an *internally generated frequency* (B), in most cases around 40 kHz.



The difference between these two signals is what gets heard in the headset (C). One problem (as seen here) is that if the *incoming* sound is too far from the *internally generated* frequency the difference is too large (high in frequency) to ever be heard by the user. "Fixed band" systems do not widen the frequency detection range of the instrument, only lock in on one *internally generated* one.

**DND** constantly "scans" the complete range of detection from 20 to 100kHz and automatically tracks both frequency and intensity of



incoming signals (A). When a sound is detected which is above the previous intensity baseline, it uses a sophisticated mapping process rather than simple subtraction to translate the sound to the audible range (C). The result is a leak detector able to find leaks faster than any other; *no tuning!* You can see from the example above that DND captures both incoming signals while standard heterodyning could hear only one.

## Waterproof Sensor!



## Single Control!



## Sophisticated inside, Simple outside!

Leaks come in all sizes, shapes, frequencies and intensities. You don't care what frequency a leak sound is, you just want to know where the leak is! Since the intensity of the leak sound is not directly proportional to the size of the leak, you can't use a meter to quantify CFM or volume of air lost, but you CAN find it! - THAT is what the VPX-WR does and does well... Finds leaks fast!

## Ultra-Durable Construction, Designed for Harsh Environments.

AccuTrak® VPX-WR has the only sensor in the world that combines high sensitivity and hermeticity. Its resistance to water, steam, oils, fumes, dust, etc. allows the instrument to be used in hostile environments where other detectors fail. Totally sealed controls, indicators, and plugs make the unit 100% water tight. The internal circuitry is housed in hard anodized aluminum for durability and longevity. The aluminum housing is surrounded with a padded grip for comfort and easy handling. It is the most durable instrument of its kind.

Specifications	VPE-2000	VPX-WR
<b>Physical</b>		
Size	7.06" x 2.39" x .84"	Cylindrical, 1.75' O.D.
Weight	.60 lbs	14 oz.
Construction	Durable ABS & anodized aluminum	Anodized Aluminum
Sensor	Airborne: Piezoelectric Contact: Broadband Piezoelectric	Piezoelectric, totally waterproof
Displays	Intense 20 element LED bargraph and 4 element alphanumeric	N/A
Headset	Deluxe, military style, for use with hardhat	Deluxe military style, for use with hardhat
Carrying Case	Injection molded with foam inserts	Injection molded with foam inserts
Standard Accessories	Contact probe, XP-3 probe extension kit, airborne waveguide, protective pouch, CD overview.	Standard contact probe, airborne waveguide, battery charger, optional output cable.
<b>Performance</b>		
Sensitivity	-80dB/v/μbar	-75dB/v/μbar
Frequency Range Contact -	Select: Sonic 10Hz - 6kHz, or Ultrasonic 18kHz to 22kHz, or 32 - 44kHz (center)	20kHz to 100kHz
Airborne -	Select: 36kHz to 42kHz or 28kHz to 32kHz (center)	20kHz to 100kHz
Frequency Selection	Digital numerical oscillators	Automatic "DND"
Frequency Conversion	Heterodyne	"DND" and Heterodyne mix
Adjustable Parameters	Volume, sensitivity, display, sensor select, frequency, and more.	Sensitivity / Threshold
<b>Power</b>		
Battery Type	9 volt cell	Re-Chargable NiMH
Battery Life (avg. charge)	7 hrs. continuous	8 hrs. continuous
Avg. Charge Time	N/A	16 hrs.
Low Batt. Indicator	Flashing "BATT" in display	Flashing LED
<b>Sound Generator (Optional)</b>		
Dimensions	4.16" x 2.4" x .866"	<div style="border: 1px solid black; padding: 5px;"> <p style="text-align: center;"><b>Warranty</b></p> <p><i>AccuTrak® is warranted for one year to be free of manufacturing defects, with the first 30 days unconditional! If you don't think AccuTrak® is the most accurate, and effective ultrasonic instrument available, simply return it (in good condition of course) for a full credit or refund!</i></p> <p style="text-align: center;"><i>AccuTrak® detectors are covered by numerous patents, and patents pending.</i></p> </div>
Construction	Durable ABS	
Indicators	Red LED	
Frequency Control	Precision Crystal Oscillator	
Output Frequency	40 kHz (+/- 2.5 Hz)	
Output Intensity	115 dB at 30cm. (nominal)	
Dual Mode Output	Continuous or Burst tone	
Power	9 volt cell	
Battery Life (approx.)	70 hrs. Continuous, 90 hrs. Burst	

Represented locally by:

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