Ultrasonic Leak and Corona Detector

- **Features compact long-distance directional pickup**
- **Locates gas leaks and corona within inches of the source**
- **Lightweight for easy use, even in remote field locations**
- **Insensitive to high ambient audible noise levels**

DESCRIPTION

The Ultrasonic Leak and Corona Detector is a low-cost, portable system that receives air-borne ultrasonic signals, converts them to the audible range, amplifies them and displays the output visibly on a meter and audibly through a speaker or headset. The system is designed for locating gas leaks and electrical corona sources, all of which emit strong ultrasonic signals that are inaudible to the unaided human ear. Variously shaped collectors facilitate quick location of ultrasonic sources; in particular, the new directional pickup horn allows pinpointing of discharges in high-voltage equipment while the operator remains at a safe distance.

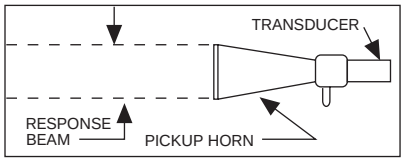
The ultrasonic detection system shown above consists of the instrument with indicator and speaker, plug-in ultrasonic transducer probe, directional pickup horn attachment, sound concentrator attachment and a headset. A carrying case is included.

Using the Detector

With the transducer probe plugged into the instrument, the operator can immediately locate many ultrasonic sources by scanning with the transducer probe held as a flashlight and using the speaker or meter to detect maximum emissions. For greater sensitivity, or to further pinpoint a distant source, the operator simply slips the directional horn over the transducer. The focus is now greatly concentrated, permitting source location to within a 1-ft (0.3-m) circle at 30 ft (9 m). If the source can be approached, the rubber sound concentrator is slipped over the transducer probe, pinpointing a source to within its tip diameter of about 0.5 in. (13 mm).

Pickup Horn Operation

The pickup horn amplifies signals originating within the response beam and rejects others.



The ultrasonic transducer in the probe responds primarily to a 35- to 45-kHz bandwidth—a range found most useful for the tests described here. The transducer is very insensitive to audible sounds, allowing use of the detection system in areas with high audible background noise levels.

The output meter, for indicating ultrasonic sound intensity, is calibrated with a 0-to-10 linear scale, showing relative level. Power is from a 9-volt transistor battery, and a single on-off volume-control switch is provided.

APPLICATIONS

The Ultrasonic Leak and Corona Detector is useful wherever electrical or pressurized equipment is used. Applications include preventive maintenance in plants and utilities to locate poor or arcing connections, switches, faulty insulators, lightning arresters, power supplies, motors and radio frequency interference sources. In the test laboratory, the set is useful in performing high-pot tests on components of all sizes and for high-voltage equipment tests. Early detection of leaks by preventive maintenance checks in compressed air systems, boilers and air-conditioning equipment will provide savings in reduced equipment replacement and downtime.

Locating a leak in an air pressure tank

The detector is excellent for patrolling pole lines.

For Leak Detection

Where gas or air leaks produce a turbulence that creates sonic energy, the ultrasonic detector can detect a 0.002-in. (0.05-mm) diameter leak at 5 ft (1.5 m) with only 10-psi pressure. The instrument can also be used to detect leaks in vacuum systems, and to detect leakage of poisonous, noxious, explosive or expensive gases in gas pressure systems.

For Corona Detection

The ultrasonic detector is most useful for locating corona sources that are exposed directly to the surrounding air, such as on terminations, high-voltage bus systems, bushings and transformers. The detector is excellent for patrolling pole lines and checking all kinds of electrical equipment for leaky insulators and faulty connections. It is invaluable in research and development work for locating points of excessive stress on small electrical components and assemblies, as well as on very large equipment. The detector is ideal for finding and cleaning up corona discharge points on the high-voltage test floor. When used for locating corona discharge, all suitable safety precautions must be taken to avoid electric shock.

Features and Benefits

- Locates leaks and corona within inches of the source
- Simple and foolproof to operate
- Lightweight for easy use, even in remote field locations
- Unique directional horn extends distance ranges to detect ultrasonics in various locations; operator uses pistol grip and peep sight to aim at the source.
- Insensitive to high ambient audible noise levels
- Solid-state circuitry designed for high reliability, long life and low maintenance
- Battery-powered; uses one 9-volt transistor battery

Specifications

Construction: Rugged anodized aluminum chassis protected by a leather case
Circuitry: Solid-state heterodyne receiver with single on-off switch and volume control
Frequency Response: Frequencies between 35 and 45 kHz are amplified and converted into audible sounds, while sounds within the frequency range of the human ear are not detected.
Meter: Ultrasonic intensity is indicated on a 0-to-10 linear scale showing relative level.

Battery

9-volt Eveready No. 216 (NEDA 1604) in quick-access compartment
Battery life is approximately 75 hours.

Dimensions (including case)

12 H x 17 W x 5 D in.
(305 H x 432 W x 127 D mm)

Weight

5.5 lb (2.5 kg)
Weight figure includes detector, transducer probe, directional horn, sound concentrator, headset, battery and case.

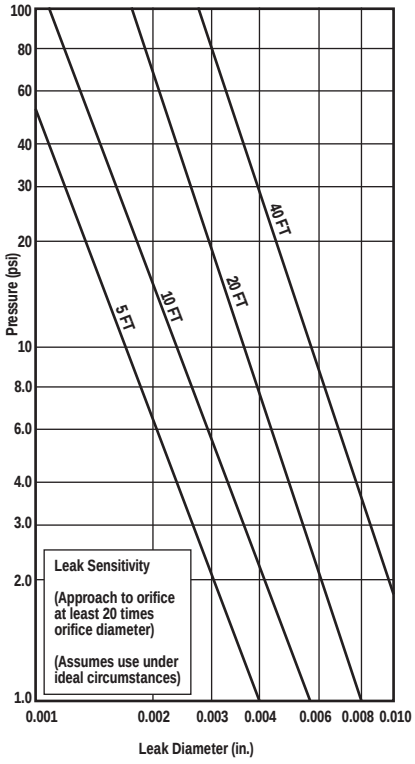
OPTIONAL ACCESSORIES

Ultrasonic Tone Generator

For testing nonpressurized items such as tanks and pipes for faulty welds, seams, seals and gaskets, the tone generator is placed inside the item to be tested, filling the area with ultrasound (35 to 45 kHz). Sound will leak through any openings. The detector is then used to scan the outside of the test object, pinpointing the leak location. The tone generator is powered by a standard 9-volt transistor battery.

Contact Probe

This probe is used to detect ultrasonic signals in environments other than air. The contact probe is extremely useful for detecting faulty steam traps, worn bearings, worn gears, etc.



ORDERING INFORMATION

Item (Qty)	Cat. No.
Ultrasonic Leak and Corona Detector	569001
Included Accessories	
Transducer probe, hand-held, insulated, moderately directional, with a 5.5-ft [1.7-m] retractable cable	569001-2
Directional horn that slips over probe, highly directional, with peep sight and pistol-grip handle	569001-6
Sound concentrator	569001-4
Headset, 8-ohm, lightweight, cushioned	569001-3
Case, foam-protected	569001-5
Optional Accessories	
Ultrasonic tone generator	569001-7
Contact probe	569001-8

UK
Archcliffe Road Dover
CT17 9EN England
T +44 (0) 1304 502101
F +44 (0) 1304 207342

UNITED STATES
4271 Bronze Way
Dallas TX75237-1088 USA
T 800 723 2861 (USA only)
T +1 214 330 3203
F +1 214 337 3038

OTHER TECHNICAL SALES OFFICES
Valley Forge USA, Toronto CANADA, Mumbai INDIA, Trappes FRANCE, Sydney AUSTRALIA, Madrid SPAIN and the Kingdom of BAHRAIN.

Registered to ISO 9001:2000 Reg no. Q 09290
Registered to ISO 14001 Reg no. EMS 61597
ULTRA_LEAKDECT_DS_en_V10