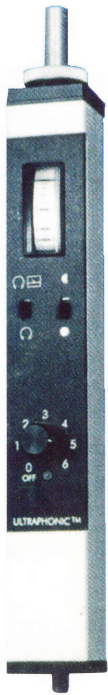


**CTRL UL 101**  
**Ultrasound Diagnostic Device**

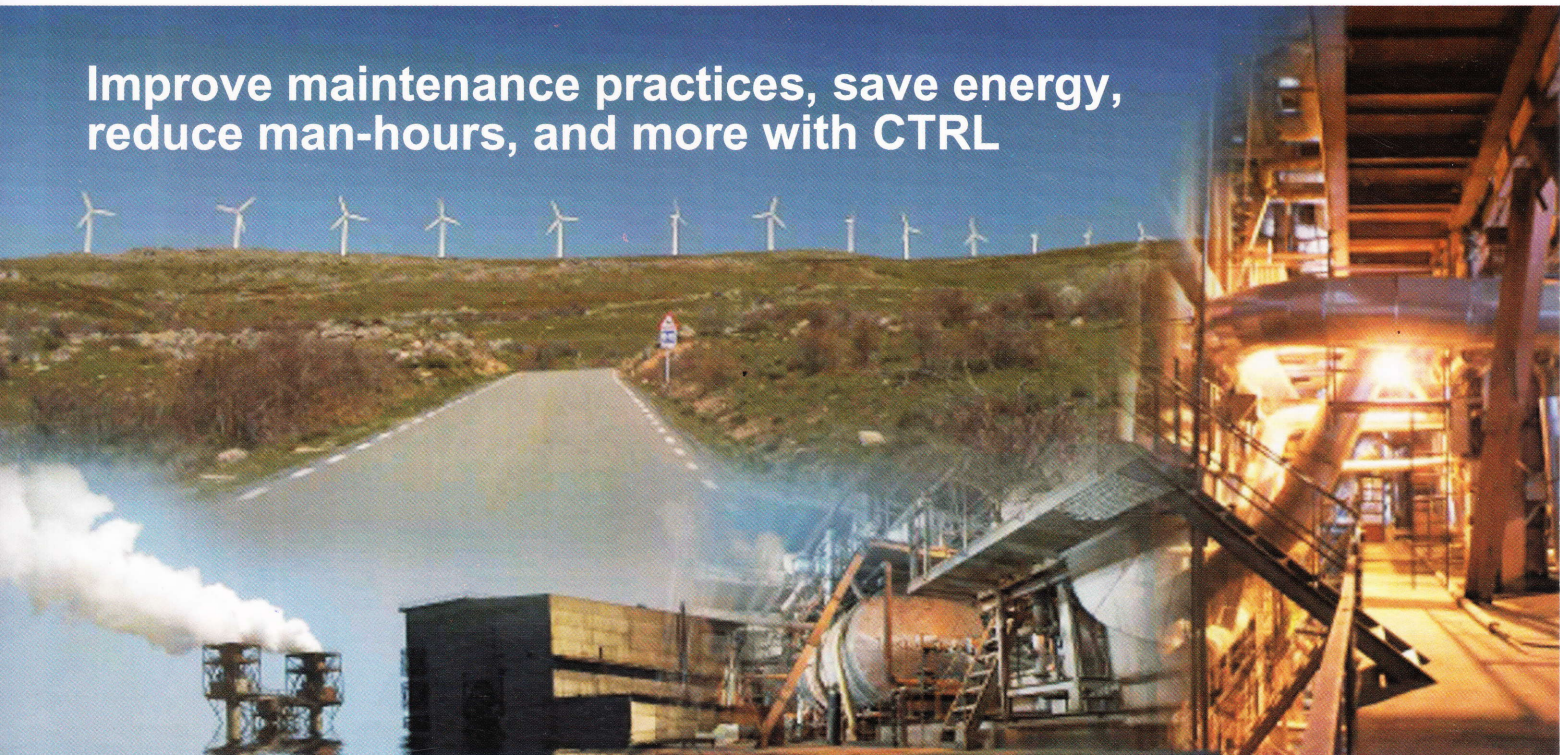


*Innovative Sound Solutions*



**Predictive Maintenance**  
**Energy Savings**  
**Leak Detection**  
**Integrity Testing**  
**Steam Trap Assessment**  
**Critical Valve Diagnostics**  
**Electrical Arcing & Corona Discharge**

**Improve maintenance practices, save energy,  
reduce man-hours, and more with CTRL**



**CTRL Systems Inc. Authorized Distributor :**



**PERMAWELD PVT. LTD.**

**Predictive Maintenance Division**

*Making Maintenance a Profit Centre.*

# 227, Akarsh Plaza, 1st Stage, 5th Phase, W.O.C. Road, Shivanagar, Bangalore - 560 010. INDIA.

Tel : +91-80 - 2314 1510-14 Fax : + 91-80-2314 1520

E-mail : [permaweld@permaweld.com](mailto:permaweld@permaweld.com) Web : [www.permaweld.com](http://www.permaweld.com)



# CTRL UL-101

## Ultrasound Diagnostic Device

The **CTRL UL-101** (UL101) is an ultrasound diagnostic tool that improves dramatically the ability of maintenance mechanics to perform technical diagnosis. These benefits are accomplished by providing the user a "sixth sense" available only with the UL101. The user is able to instantly (in real time) determine the operating condition of internal components, and to detect and pinpoint pressure and vacuum leaks as well as electrical arcing. In conjunction with the Universal Transmitter, the UL101 is also used to detect and pinpoint leaks in non-pressurized vessels and cavities.

### Advantages

- Simplicity :** Easy for any user to obtain faster and more accurate defect diagnosis plus do quality control on repairs.
- Sensitivity :** Enables user to detect faint ultrasounds.
- Selectivity :** Enables user to differentiate between various sources of ultrasound emissions (components or leaks), even close to each other.
- Accessibility :** Slim and light tool for easy access to difficult-to-reach locations.
- Durability :** Extruded aluminium case to maximize tool life in harsh shop environment.
- Ease of use :** No calibration. No special maintenance. Operates on a single 9 Volt battery. Simple controls to adjust sensitivity.
- Price :** Low cost allows tool to be issued to many mechanics, operators and quality control technicians.

### Benefits

- Assess/diagnose individual internal components instantly
- Detect over and under lubrication of bearings and gears
- Identify faulty component conditions in less than a minute
- Troubleshoot complex assemblies in minutes
- Replace soap suds and hydrostatic testing with quick and easy ultrasound testing
- Discover faulty conditions missed by other technologies
- Complement other predictive technologies
- Reduce uncertainty in diagnosis and repairing the wrong part
- Reduce unexpected downtime
- Reduce energy costs
- Inspect, test and diagnose while equipment is operating

### Applications

#### Contact Mode

- Bearings
- Gears
- Steam Traps
- Hydraulic Cylinders
- Fuel Injectors
- Seals
- Valves
- Solenoid Valves
- Engines
- Pumps
- Compressors

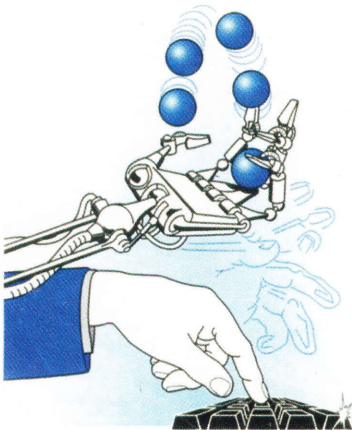
#### Scan Mode

- Compressed Air Leaks
- Steam Leaks
- Other Compressed Gas Leaks
- Vacuum Leaks
- Electrical Discharge to Ground
- Corona Discharge to Ground
- Exhaust Systems
- Heat Exchangers
- A/C Systems

#### Scan Mode

(with Universal Transmitter)

- Windshields
- Clean Rooms
- Seals
- Hoses
- Weld seams
- Tanks
- Heat Exchangers
- Hatches
- Sealed Doors
- Other Cavities



Innovative Sound Solutions™



# CTRL UL-101

## Specifications

**Dimensions :** W=32mm; D=32mm; H=234mm. (W=1.26 in; D=1.26 in; H=9.2 in)

**Weight :** 320 g (11.3 oz) including battery.

**Housing Construction:** Milled extruded aluminum. Wall thickness 2.3 mm (0.09 in)

**Shape :** Slim rectangular wand to allow access into hard-to-reach locations.

**Circuitry:** Solid State

**Receiver Frequency Response:** Detect ultrasonic signals about 1 kHz around 40 kHz central frequency. Ultrasound variations are converted into an audible range of sound heard in the headphones. Ultrasound intensity is indicated by a small analog meter located on the housing.

**Sensitivity:** Receiver can detect a gas leak through 0.1 mm (.004 in) diameter hole at 35 kPa (5 psi) from distance of 15 m (50 feet).

**Probes :**

**One 25 mm (1in) length acoustic probe :** 10 mm (0.39 in) external diameter aluminum pipe with self-contained threaded adapter.

**Three 320 mm (12.5 in) length acoustic extension probes :** 12.7 mm (.5 in) external diameter aluminum pipe. Two probes are threaded at both ends; one probe is threaded at one end. Probes are designed to attach to each other for a total extension of about 0.9 m (36 in). Additional extension probes may be purchased to form an extension up to 1.8 m (72 in).

**One 320 mm (12.5 in) length non-conductive acoustic extension probe :** 12.7 mm (.5 in) external diameter, polycarbonate pipe with a volume resistance rating of  $1.0 \times 10^{17}$  Ohm-cm and a temperature rating of 144 K to 394 K (-200 to 250°F).

**One threaded acoustic extension probe adapter :** This adapter is used to connect acoustic extension probe(s) to receiver.

**Four Selectable Length Solid Probes :** 9.65mm (.38 in) diameter solid aluminum alloy cylinder with nose tapering to 2.54mm. Acyral plastic probe case with threaded adapter. Available in Four lengths: 74.60 mm (2.937 in); 137.41 mm (5.41 in); 200.41 mm (7.89 in); 324.36 mm (12.77 in).

**Headset:** Manufactured to our specifications by the Dave Clark Company. Noise isolating type, double headset. The impedance is 600 Ohms. Over 24dB of external noise attenuation. Dual ear, behind the head style allowing use of hard hat or other headgear. Meets or exceeds ANSI specifications and OSHA standards.

**Power Supply :** Off-the-shelf, 9V alkaline battery. Receiver battery life is over 25 hours.

**Very Simple Controls:**

**Power Supply On/Off Switch & Gain Control Knob (Potentiometer):** Turns the unit on and off. The potentiometer adjusts the sensitivity of the receiver to the range of signals received.

**Gain Switch (Full or Half Gain):** Normal operation is half gain. Half gain mode reduces signal distortion when high intensity ultrasound is received. It allows the unit to focus on the ultrasound from the component under test. If the signal from the component under test is very weak, full gain is used to intensify the signal.

**Meter Selector Switch:** Signal registers by both the Meter and the Headset or by the Headset only (when the switch is in the Headset only position, the meter acts as a battery tester.)

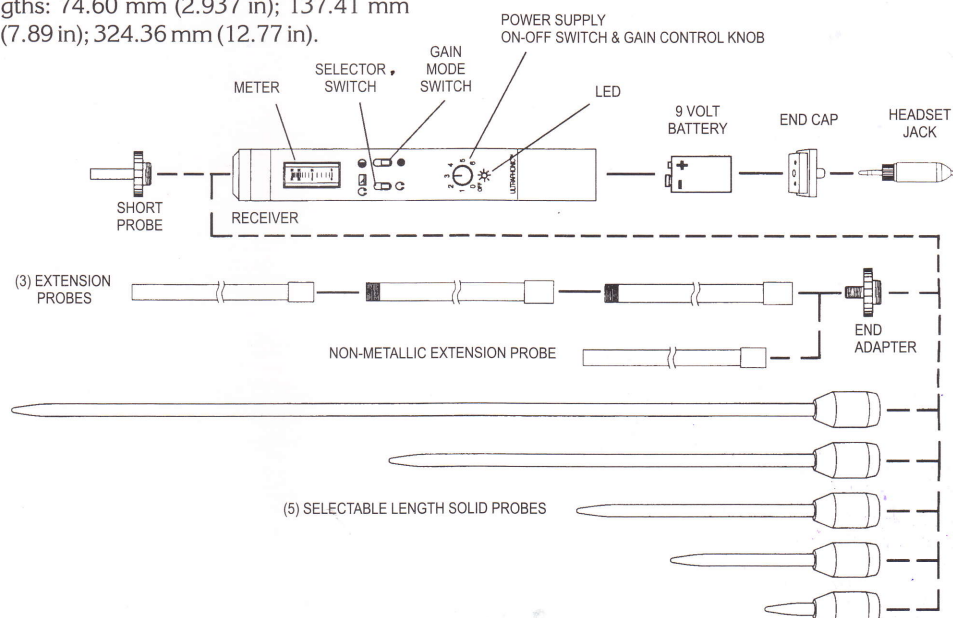
**Indicators:**

**LED Indicator:** Glows when power on.

**Analog Meter:** Indicates intensity of ultrasound received or the battery condition.

**Case with die cut foam:** Dimensions: W=400 mm; D=350 mm; H=160 mm (W=15.75 in; D=13.78 in; H=6.3 in)

**Warranty:** One year parts and labor. After the warranty period, repairs are completed on a time and material basis. Extended warranty available upon request. The design makes repairs rare and cost effective.





# Universal Transmitter 2000

## Ultrasound Signal Transmitter

The **Universal Transmitter 2000 (UT2000)** is used to fill non-pressurized vessels or cavities with ultrasound by emitting an ultrasound signal to create a sense of pressure. The **CTRL UL-101** receiver quickly detects escaping ultrasound through failures in seals, gaskets, welds, etc. The location of the failures are easily pinpointed.

### Specifications

**Dimensions:** W=32 mm; D=32 mm; H=115 mm; (W=1.26 in; D=1.26 in; H=4.52 in)

**Weight:** 180 g (6.3 oz) including battery

**Housing Construction:** Milled extruded aluminum. Wall thickness 2.3 mm (0.09 in)

**Shape :** Slim rectangular box to allow placement inside vessels or cavities.

**Circuitry :** Solid State

**Transmitter Signal:** Emits a 40kHz ultrasound signal. modulated by an audible frequency of about 400 Hz.

**Signal Strength:** Despite the small power consumption, the transmitter emits a powerful ultrasound signal which the UL101 receiver can detect at a distance of over 100 feet in open air.

**Probes :** The receiver acoustic probes can be attached to the transmitter for the purpose of injecting ultrasound into a vessel or cavity through a small orifice.

**Power Supply :** Off-the-shelf 9V alkaline battery. Transmitter battery life is over 120 hours.

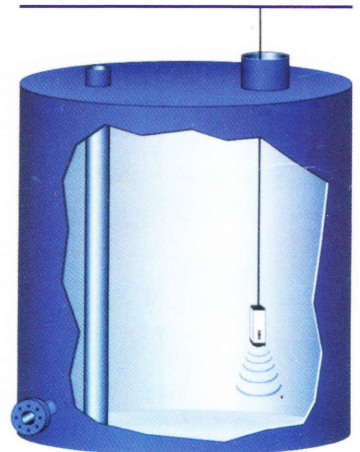
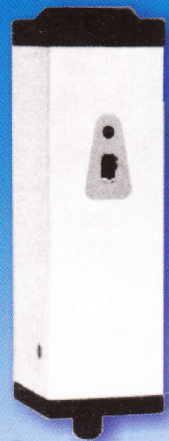
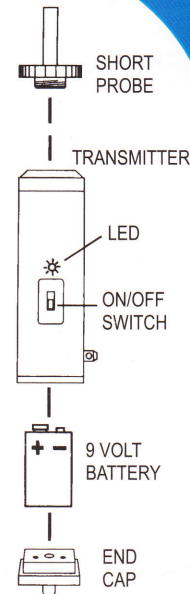
**Very Simple Controls :**

**Power On-Off Switch :** Turns unit on and off.

**Indicators :**

**Led Indicator:** Glows when power on.

**Warranty:** One year parts and labor. After the warranty period, repairs are completed on a time and materials basis. Extended warranty is available upon request. The design makes repairs rare and cost effective



The **Universal Transmitter 2000** is lowered into a non-pressurized tank. By emitting a powerful ultrasound signal, it creates a sense of pressure within the tank. The **CTRL UL-101** receiver easily detects any escaping ultrasound, providing a quick check of the integrity of the tank and its components.

## UL101 Full Kit

