721

Combustible Gas Leak Detector Instruction Manual

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A. INTRODUCTION

1. Congratulations!!

Thank you for purchasing TPI products. The 721 is easy to use and is built to last. It is backed by a 3 year limited warranty. Please remember to complete and return your product warranty registration card.

2. Product Description

The ergonomically designed 721 is a hand-held, combustible gas leak detector. It is capable of finding combustible gas leaks in pipes, fittings, regulators, etc. Additional features include the capability to display %LEL, leak level in ppm, and user adjustable alarm point.

The 721 comes complete with the following accessories:

Carrying Pouch (A780)
Instruction Manual
Battery & Sensor (Installed & Calibrated)

B. SAFETY CONSIDERATIONS

> ⚠ ***WARNING: Please follow manufacturers test procedures whenever possible. Do not place the sensor cage located on the end of the gooseneck on hot or in hot locations.***

GENERAL GUIDELINES

ALWAYS

- Turn your detector on in a “clean air” environment away from the test location.
- Inspect the sensor cage to ensure it is securely attached.

NEVER

- Place the detector or sensor cage in or on a hot item.

C. TECHNICAL DATA

1. Features and Benefits

Auto Zero	Automatically sets the sensor to zero at start up.
%LEL	Displays the percentage lower explosive limit (LEL)
PPM	Displays the amount of leakage in parts per million (ppm)
Mute	Mutes the speaker and earphone alarm
Zero	Manually sets the sensor to zero
Adjustable Alarm	Alarm point can be set as required
Visual Alarm	Alarm LED's located on the front and in the sensor cage tip
Auto Off	When enabled, the 721 turns off after approximately 20 minutes to saves battery life. Can be disabled.

2. Product Applications

Perform the following tests and/or measurements with the 721 leak detector:

- Locate combustible gas leaks in joints and fittings.
- Determine Lower Explosive Limit percentage.
- Determine the combustible gas leak level in ppm (parts per million).

3. Specifications

Leak Detection Sensitivity (methane): 10ppm

Gases Detected (partial listing): Acetone, Acetylene, Alcohol, Ammonia, Benzene, Butane, Ethanol, Ethylene Oxide, Gasoline, Hexane, Hydrogen, Methane, Naphtha, Natural Gas, Paint Thinners, Propane, Solvents

Display Type: Dual display with backlight

Display Modes: Real (ppm), Leak Level (stepped ppm), %LEL

Ranges: Real ppm: 0 to 9999ppm

Stepped ppm: 0, 500, 1000, 3000, 5000, 9999ppm

%LEL: 0 to 19.9%

Accuracy: +/-10%

Audible Leak Indication: Adjustable tic rate via side thumb wheel

Alarm Indication: Visual and audible (User adjustable alarm level)

Sensor Test and Zero: Automatic at start up

Goose Neck: 16” long with visual alarm indicator in sensor housing

Operating Temperature: 32 to 122 (0 to 50)

Gooseneck Length: 16 inches

Battery Type: “C” size Alkaline (2)

Size: 9.4” x 2.9” x 2.2” (240mm x 74mm x 55mm)

Weight: 1 lb (454g)

D. MEASUREMENT TECHNIQUES

1. Controls and Functions:

Push Buttons

Short Press: Turns the 721 on.
Long Press (3 seconds): Turns the 721 off.

Short Press: Silences the alarm.
Long Press (3 seconds): Activates Menu Mode.

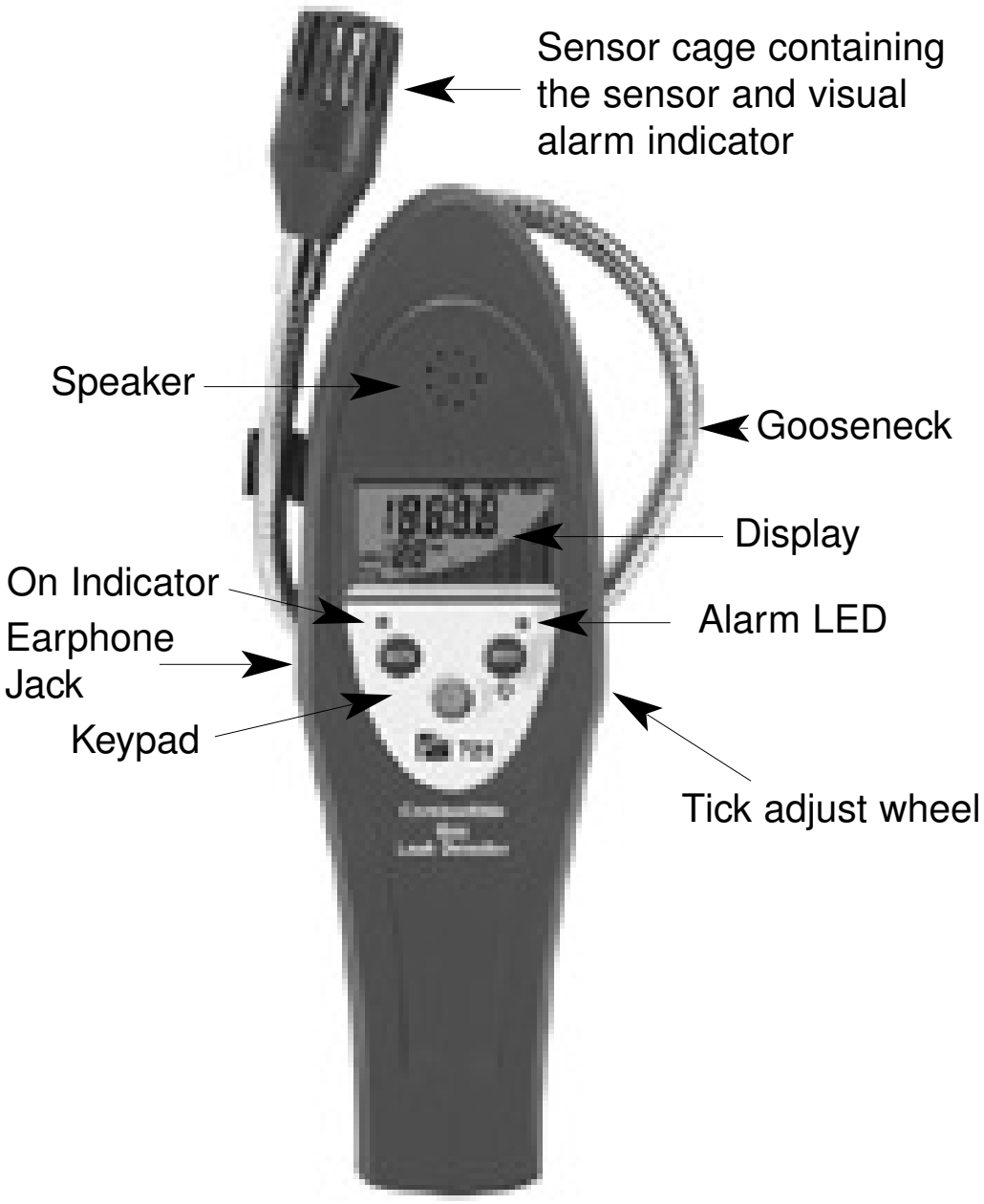
Short Press: Activates sensor zero.
Long Press (3 seconds): Turns the backlight on and off.

Thumb Wheel Controls speed of tick rate

D. MEASUREMENT TECHNIQUES

1. Controls and Functions (continued):

Instrument Layout



D. MEASUREMENT TECHNIQUES

2. Step by Step Procedures:

WARNING!
Turn the 721 in a "clean air" environment away from the test area. Failure to do so may cause the 721 to display sensor error and turn off.

Measurement Procedure:

1. Turn the 721 on by pressing the key. The 721 will begin a 30 second countdown and "wait" will display. During this countdown the sensor is being self tested and set to zero.
2. After the countdown is complete the 721 will display "0" and a tic rate will begin.
3. At this point the display mode can be selected. Once the display mode is selected the 721 will turn on in the same mode each time unless changed. If the display mode does not need to be changed, proceed to step 8.
4. To change the display mode press and hold the MUTE key for approximately 3 seconds to enter menu mode. The following will be displayed:

5. Press the key to proceed to the display mode screen.

Step by Step Procedures (continued):

6. Depending on the last display mode selected one of the following displays will be seen. The display modes can be changed by using the ZERO key to cycle between them.

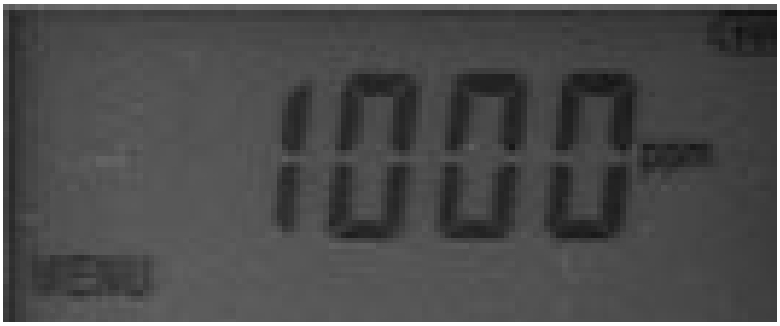
“REAL” mode will display leak levels in ppm (parts per million)

“LEL %” will display leak levels in %LEL (Lower Explosive Limit)

“0ppm ud (ud=under)” will display leaks in steps. The steps are 0ppm, ud 500ppm, ud 1000ppm, ud 3000ppm, ud 5000ppm, ud 9999ppm

Step by Step Procedures (continued):

7. Once the desired display mode is selected, press the key and the following display will be seen:



8. Press the key again to exit menu mode and return to normal operation.
9. Turn the thumbwheel on the side and set a consistent tic rate. If necessary the ZERO key can be used to zero the display. Enter the area and begin testing. As a leak is found the tic rate will increase and depending on the display mode selected, the concentration will be displayed on the LCD in ppm, %LEL, or stepped ppm.
10. To locate the source of a leak, use the thumbwheel to nullify the increase in tic rate and move along the pipe, fitting, etc. being tested.
11. Continue to nulify any increases in tic rate and move along the item being tested until the leak source is located.
12. If the leak concentration is above the alarm level the alarm will sound and LED's located in the front panel and sensor cage will flash.

E. Additional Features:

Alarm Level Adjustment

The alarm level can be adjusted by performing the following steps:

1. After the 721 has been turned on and has gone through the warm up period, press and hold the MUTE key for approximately 3 seconds to enter menu mode. The following will be displayed:

2. Press the ⏻ key to proceed to the display mode screen.
3. Press the ⏻ key to proceed to the alarm adjustment screen. The following will be displayed.

4. Press the MUTE key to increase the alarm level or the ZERO key to decrease the alarm level. The alarm can be adjusted from 100ppm to 5000ppm in increments of 100ppm. Press the ⏻ key when finished.

Additional Features (continued):

Auto Power Off

The auto power off feature can be enabled or disabled as required:

1. After the 721 has been turned on and has gone through the warm up period, press and hold the MUTE key for approximately 3 seconds to enter menu mode. The following will be displayed:

2. Press the ZERO key to enable (ys) or disable (no) the auto power off feature.
3. Press the ⏻ key to proceed to the display mode screen.
4. Press the ⏻ key to proceed to the alarm adjustment screen.
5. Press the ⏻ key to return to normal operation.

Display Backlight

The backlight can be activated at any time as required:

After the 721 has been turned on and has gone through the warm up period, press and hold the ZERO key for approximately 3 seconds to activate the backlight. The backlight will remain on for approximately 20 seconds.

Additional Features (continued):

Mute Function

When the 721 encounters a gas concentration above the alarm set point the alarm will begin to sound. Pressing the MUTE key will silence the alarm.

Zero Function

If the 721 fails to auto zero the zero key can be used to zero the display. Turn the 721 on in a clean air environment, wait for the sensor test to end, then press the ZERO key.

Battery Indicator

The battery indicator is located in the upper right corner of the display and monitors the condition of the battery:

The battery indicator will show full capacity ( ), half capacity ( ), one quarter capacity ( ), and replace ( ).

F. Trouble Shooting

Problem	Corrective Action
SENS ERR in display	Replace sensor
Tick rate inconsistent	Replace batteries / sensor
Weak LCD display	Replace Batteries

G. Maintenance

Battery Replacement:

Depress the latch on the back housing and slide the cover down. Replace batteries (2 x “C” alkaline) and reattach the cover.

Sensor Replacement:

Turn the 721 off. Turn the sensor cage counter clockwise and remove it. Unplug the old sensor and discard. Replace sensor and sensor cap.

Cleaning your 721:

Use a mild detergent and slightly damp cloth to clean the surfaces of the 721. For factory service please return your 721 to:

TPI / Attn: Service
9615 SW Allen Blvd. Suite 104
Beaverton, OR 97005

H. Accessories

Replacement Sensor: A739
Soft Pouch: A780
Earphone: A710

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