

TPI 730 SERIES

INSTRUCTION MANUAL

For use with Combustible Gases
and optionally available
Oxygen and Toxic Gases

Read and understand
instructions before use.



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PARTS AND ACCESSORIES

Standard Accessories (included)

Carrying Case
Alkaline Batteries
Wrist Strap
Sensor Cap
Instruction Manual

Accessories and Replacement Parts

Hot Air Probe Assembly
Bar Hole Probe
Confined Space Probe with Tubing
Printer
Sensor Cap with O Rings
Calibration Kits - Contact us with instrument model number for correct Calibration Kit.
Charging Kit for rechargeable Batteries (NiMH)

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GENERAL DESCRIPTION

The **TPI 730 Series** is designed to detect combustible gases, oxygen content and toxic gases when so equipped with the available sensors. Each model of the **TPI 730 Series** provides specific detection features based on available sensor options. Each **TPI 730 Series** can be reconfigured or upgraded by the manufacturer for an additional charge should your sensing requirements change. Consult TPI for a listing of new sensors available for use with the **TPI 730 Series**.

TPI 730 SERIES INSTRUMENTS	SENSING FEATURES					
	LEL ALARMS	LEL DISPLAY	LEAK DETECTION	CARBON MONOXIDE	OXYGEN	HYDROGEN SULFIDE
TPI 731	●	●	●			
TPI 733	●	●	●		●	
TPI 734	●	●	●			●
TPI 735	●	●	●	●		
TPI 736	●	●	●	●	●	
TPI 737	●	●	●	●		●
TPI 738	●	●	●		●	●
TPI 739	●	●	●	●	●	●

All **TPI 730 Series** instruments incorporate an advanced low power semiconductor sensor to measure combustible gases in LEL (Lower Explosive Limit) range. Additionally, a leak detection circuit can be operated with the use of a convenient thumbwheel to locate leakage as low as 10 parts per million of methane or propane. A backlit display simultaneously shows all gas concentrations being measured. LEDs located on the front of the instrument indicate preset visual warnings of increased gas concentration.

All gases are continuously sampled with the use of an internal pump.

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GENERAL DESCRIPTION - cont.

Audible and visual alarms warn the operator of hazardous conditions being sensed. The preset alarms are indicated by a red flashing LED, display indicator and alarm sound. The combustible gas alarm is preset at 50% LEL of methane. The carbon monoxide (CO) alarm is preset at 50ppm. The oxygen (O₂) alarms are preset at below 19.5% and above 23.5%. The Hydrogen sulfide (H₂S) alarm is preset at 10ppm.

The **TPI 730 Series** instruments are designed to meet US, Canadian and European intrinsic safety requirements for Class 1, Division 1, Groups A, B, C and D hazardous environments.

SPECIFICATIONS

SENSOR SPECIFICATIONS

TYPE	RESOLUTION	RANGE	ACCURACY
Leak	N/A*	0-50,000ppm	±10%
LEL	0.1%	0-100%	±10%
O ₂	0.1%	0-25%	±0.2% or 2%**
CO	1ppm	0-2000ppm	±5ppm or 5%**
H ₂ S	1ppm	0-100ppm	±1ppm or 5%**

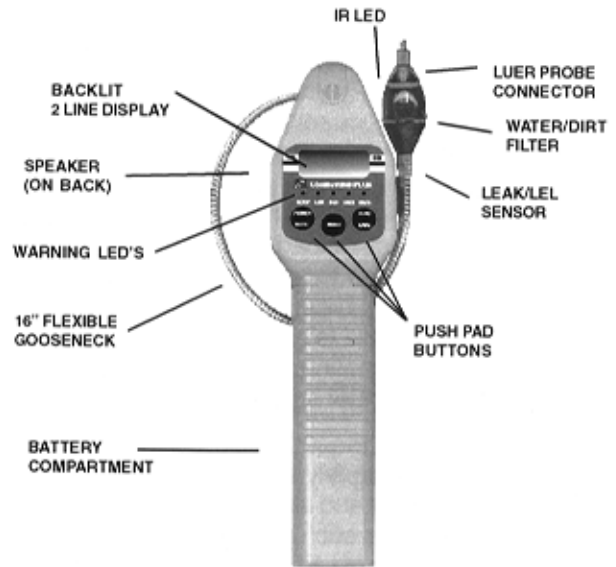
*Can be ordered with ppm display - 50ppm resolution

** Whichever is greater

PRODUCT SPECIFICATIONS

Size:	11.5" x 3" x 2.32" (292 x 76 x 69 mm)
Weight:	1.2 lbs.
Operational Temp:	0 to 120° F
Storage Temp:	-20° to 132° F
Battery Life:	Alkaline: 13 hrs. continuous Rechargeable: 15 hrs. continuous

PRODUCT FEATURES



TPI 730 Series instruments are constructed of durable Cyclopy plastic to withstand the rigors of field use.

Incorporated in the hand grip area is the **battery compartment**. All **TPI 730 Series** instruments require 3 "C" type alkaline or rechargeable batteries. *Duracell MN 1400* batteries provide approximately 13 hours of continuous use. When using the rechargeable battery system consult manufacturer when using batteries other than those supplied with the recharge option for approval.

A **tick adjust knob**, when so equipped, is located on the right side of the instrument to activate the audible tick sound that helps in locating the source of a gas leak. This tick is generated by using specialized circuitry in combination with the LEL sensor located at the end of the gooseneck assembly. The tick can be easily heard with the speaker located in the back of the instrument.

An **infrared LED** is located on the right side to allow the **TPI 730 Series** instruments to download calibration data and readings the operator has elected to save to the instrument's on-board memory.

A **flexible gooseneck** is used to assist in locating the source of gas leaks and remote sampling. A water/dirt trap is located at the end with a convenient luer style connector to attach sampling and probe accessories.

A **two line display** continuously updates the operator of all available gas concentrations and alarms simultaneously as well as indicates internal functions such as air flow and battery power. Below the display is a series of LEDs that are preset to indicate combustible gas concentrations. The red LED on the right side will flash during any alarm condition.

There are **3 operational button pads** on the front of all **TPI 730 Series** instruments.

- **LEFT BUTTON** operates *power* and *mute* features.
- **CENTER BUTTON** operates a *user menu* to calibrate, down load and set the clock.
- **RIGHT BUTTON** activates the *save* feature and performs a manual *zeroing* of the sensors.

Pressing any button will produce a click sound.

Combustible Gas Sensor

All **TPI 730 Series** instruments incorporate a highly sensitive semiconductor type sensor. The function and accuracy of the sensor are monitored and controlled by specialized circuitry and a microprocessor. This sensor is capable of measuring concentrations as low as 10ppm of methane (natural) gas up to 100% LEL. Concentration above 100% will not disable or destroy the sensor, however accuracy will vary while in concentrations beyond LEL.

Electrochemical Sensors (optional)

All **TPI 730 Series** instruments when equipped with the following optional sensors, microprocessor and associated circuitry will measure oxygen levels from 0-25%; measure carbon monoxide (CO) levels from 0-2000ppm; measure hydrogen sulfide (H₂S) levels from 0-100ppm. All gases are displayed simultaneously on the display.

The Pump

The **TPI 730 Series** instruments are equipped with a powerful and efficient rotary vane pump. A water/dirt filter at the end of the gooseneck protects the pump from foreign material. An additional internal filter protects the pump from damaging debris if the primary filter is missing or damaged. There are audible and visual indicators that will show a blocked or improperly operating pump.

BATTERY INSTALLATION/REPLACEMENT

Battery replacement or charging is necessary when the display reads **BAT LOW**, an audible alarm sounds and the green ready LED flashes.

CAUTION: Always change batteries in an environment free of combustible gases.

Remove the battery sleeve cover by depressing the locking tab on the front of the handle (yellow) with a coin or flat object and pulling the handle away from the top or display area of the instrument. Place 3 approved batteries into the battery holder. Observe the polarity markings on the inside of the battery holder. Improper installation will cause the instrument not to operate. Replace the battery sleeve and allow the locking tab to snap into position. Check to be sure the handle is secure to the instrument body by gently pulling the handle away. The handle will remain firmly in place if a proper connection is made.

BATTERY CHARGING (optional)

CAUTION: Do not operate battery chargers in hazardous gas environments.

Insert the adapter into the connector located on the right side of the instrument. Attach the wall adapter to a proper 110/220vac receptacle. An illuminated red LED next to the connector indicates the charger is operating. A full charge is indicated when the red LED flashes. Charging requires approximately 5 hours.

NOTE: An initial charge period of 24 hours is required prior to any use.

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OPERATION AND USE

CAUTION: Always start any **TPI 730 Series** instrument in a gas free environment to insure a proper zero.

To properly operate the **TPI 730 Series** after battery installation press the **POWER/MUTE** button. After a beep the pump will start and the display will illuminate. The following information will be displayed.

1. Instrument model and software version number
2. A 10 second countdown for system check
3. The date and time
4. Display **AUTOZERO**
5. Show all readings

Check for proper pump operation by blocking the inlet opening at the end of the gooseneck. The display should read **FLOW BLOCKED**. If it does not, check the "O" rings for proper sealing as well as the sensor cap for cracks. *Do not use any unit if it does not show **FLOW BLOCKED** as the readings may be inaccurate.*

When starting an instrument that has been stored in subfreezing temperatures, it may be necessary to manually zero the readings. Press the **ZERO/SAVE** for 5 seconds until the instrument quits ticking and **AUTOZERO** is displayed. This will re-zero all sensors.

CAUTION: Always zero any **TPI 730 Series** instrument in a gas free environment.

Other display readings include **BAT LOW** accompanied by a flashing green ready LED and an alarm sound indicating battery replacement or charging is necessary. All **TPI 730 Series** instruments have an automatic shut down that is factory set for 60 minutes. See the **MENU** section of the manual for instructions to change **POWER ON** time.

Following Federal, State, Municipal and/or Company procedures move to the areas where gas readings are suspected or must be tested. Use necessary accessories to draw samples 8

from areas not accessible with the instrument itself, such as confined spaces or flue gases. During sampling the respective readings may change. Audible and visual alarms will activate when the preset limits are reached.

To disable the audible alarm press the **POWER/MUTE** button until **ALARM MUTED** is displayed. To reactivate the alarm sound, press this button again.

To assist in locating the source of small combustible gas leaks, or in surveying areas, if so equipped, rotate the thumbwheel located on the right side of the instrument until a steady ticking sound is heard. Move the sensor head in the direction of the suspected leak. As the sensor head moves closer to the leak source the tick will increase. When the ticking sound becomes a steady tone, while keeping the sensor head in the current position, rotate the wheel clockwise to slow the ticking sound. Continue moving the sensor head and slowing the ticking sound until the leak is located. For best results use this prior to using liquid leak detection solution. These solutions can have combustible liquids contained in them.

REMEMBER: *The tick sound is more sensitive than the display. An increase in tick may not cause an increase in gas readings.*

During gas detection the LEDs may illuminate. Each of these are preset at the factory at 5, 10, 25 and 50% LEL of methane respectively.

When sampling areas with elevated temperatures use the flue probe accessory or damage may occur to the electrochemical sensors. To save any readings during operation press the **SAVE** button. These readings will be saved with the date and time and can be downloaded at a later time using the optional infrared printer or PC interface.

The **TPI 730 Series** instruments have several customer adjustable features including setting the date and time, performing calibration, changing the auto shut off time, printing a session log and printing a calibration log.

To access the menu press and hold the **MENU** button until the ticking sound stops and a beep is heard. Use the right button to review the menu options. Use the center button to select the option and the left button to return to the working display. After selection of a menu option use the left button to return to the menu. Pressing the left button again starts the working display.

POWER OFF

After selecting the "Power Off" menu option, push and release the center button to go to the automatic shut off timer. Push the right button to increase the operational time, pushing the center button will decrease the operational time. Setting to zero will keep the unit on until battery power is lost or the unit is turned off. Press the left button to set and press again to save.

SESSION LOG (Download)

First prepare the printer or PC interface (optional). Selecting the "Session Log" menu option immediately initiates downloading. Push and release the center button while aiming the IR LED toward the IR receptor of an approved printer or IR computer interface to access the data saved during an investigation.

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MENU - cont.

CALIBRATION LOG (Download)

First prepare the printer or PC interface (optional). Selecting the "Cal Log" menu option immediately initiates downloading. Push and release the center button while aiming the IR LED toward the IR receptor of an approved printer or IR computer interface to access the time and dates of the last successful calibration for each sensor.

SET CLOCK

After selecting the "Set Clock" option, push and release the center button. The month will flash upon entering clock set. The right button advances the flashing number. The center button advances to the next number to change. Pressing the left button will save the changes and return to the menu options. The date and time are based on US standards using a 24 hour clock.

CALIBRATION CHECK

To verify the accuracy of any **TPI 730 Series**, it must be exposed to a known concentration of test gas that will test any sensor combination included in your particular model prior to each days use. Any sensor that does not meet the specifications listed in this manual may require calibration or repair.

CALIBRATION

From the proper menu options, it is possible to calibrate all sensors in the **TPI 730 Series** instruments. Calibration is the process of setting the readings of the instrument to certified calibration gases. **When calibrating, the numbers shown on the display represent the numbers seen by the micro-processor. These readings should not be confused with actual gas readings.** Prior to any calibration, power the instrument in a gas free environment. Allow 5 minutes of additional warm-up time and manually zero the instruments using the zero button.

CAUTION: Using calibration kits other than the recommended kit may cause inaccurate readings. Repairs are required if any sensor fails to calibrate. Contact manufacturer for details.

COMBUSTIBLE GAS CALIBRATION (LEL - 50.0%)

After selecting the "LEL 50.0%" menu option, the display will show the span calibration of the gas/leak sensor. Apply 50.0% LEL methane gas to the instrument. When the reading stabilizes, press the left button to save. Press again to return to the work display.

CARBON MONOXIDE (CO) CALIBRATION (CO - 100PPM)

CO 100PPM: After selecting the "CO 100PPM" menu option, push and release the left button to display the span calibration of the CO sensor. Apply 100ppm CO in air until the reading stabilizes. Press the left button to set and press again to save. Press the left button a third time to return to the work display.

OXYGEN (O2) CALIBRATION

There is no menu option to select oxygen (O2) calibration. Calibration for this sensor is automatically performed by the electronics each time the instrument is activated or manually zeroed. Calibration may be checked from the working display using 100% nitrogen.

HYDROGEN SULFIDE (H2S) CALIBRATION (H2S - 25.0PPM)

After selecting the "H2S 25.0 PPM" menu option, push and release the left button to display the span calibration of the H2S sensor. Apply 25.0ppm H2S until the reading stabilizes. Press the left button to set and press again to save. Press the left button a third time to return to the work display.

NOTE: Improper calibration is indicated by "Bad Cal" when save is attempted. Calibration will be based on the last successful calibration. Recalibration is recommended. Any instrument that does not calibrate requires service. Contact manufacturer for details.

Your **TPI 730 Series** instrument is warranted to be free from defects in materials and workmanship for a period of two years after purchase. If within the warranty period, your instrument should become inoperative from such defects, the unit will be repaired or replaced at our option. This warranty covers normal use and does not cover damage which occurs in shipment or failure which results from alteration, tampering, accident, misuse, abuse, neglect or improper maintenance. Proof of purchase may be required before warranty is rendered. Units out of warranty will be repaired for a service charge. Internal repair or maintenance must be completed by a TPI authorized technician. Violation will void warranty. Units must be returned post-paid, insured and to the attention of the Service Dept. for warranty or repair.

This warranty gives you specific legal rights and you may have other rights which vary from state to state.

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