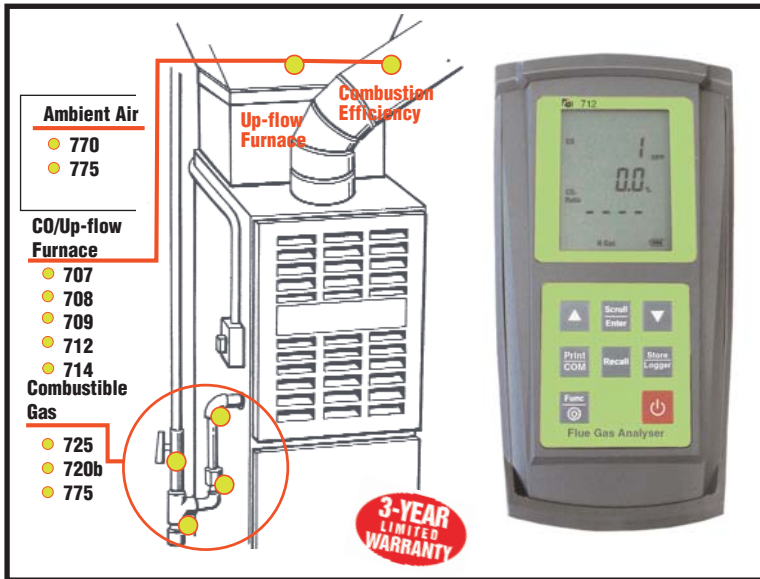




HVAC/R Combustion Catalog

QUICK AND SIMPLE SET UP

All TPI analyzers feature quick and simple set up. Fast purge and the ability to perform fuel selection during start up enable tests to be performed quickly without requiring extra set-up time after initial start up. TPI analyzers also use the last selected fuel as the default setting. This feature prevents the need to perform fuel selection every time the analyzer is turned on.



Verify Proper Operation: Testing flue gases in combustion equipment enables technicians to confirm operation is within manufacturer's specifications, maximizing service life and reducing the possibility of safety concerns and complaints after installation.

Reduced Operating Costs: Using a TPI flue gas analyzer to verify combustion equipment is operating at peak efficiency helps customers reduce fuel costs and save money.

Documentation: TPI combustion analyzers offer the capability to print test results providing customers with a detailed hard copy report confirming safe and efficient operation of combustion equipment.

Increased Sales & Reputation: TPI combustion test tools aid technicians in offering the highest level of service, helping maintain existing customers and generate new business by demonstrating a commitment to ensure heating equipment is operating safely, reliably and efficiently.

All TPI Analyzer have these Features

- Pump driven for fast response
- Will not shut off if 15 ppm CO is present for increased safety
- Store button to save up to 50 readings, except for 714 which has ten
- 1 ppm sensitivity
- Optional A740 IR printer for hard copies of test results
- Push on fittings for fast and easy use
- Large easy to read backlit display
- Selectable fuels except for 707
- Sensors can be replaced in field (with calibration gas)
- Protective rubber boot, flue probe, and soft shoulder strap carrying case included

707

Test for presence of CO in ambient air or in flue gasses

- Peak hold to capture peak CO reading

708

Combustion Efficiency Analyzer

- Measure CO, and temperature
- Calculate CO₂, efficiency, excess air, and CO air free

709

Combustion Efficiency Analyzer and Differential Manometer

- All the features of the 708 PLUS high resolution 0.001 in H₂O differential manometer for high efficiency and oil equipment

709R

Combustion Efficiency Analyzer w/ Differential Manometer

- All the features of the 708 PLUS rechargeable batteries and high resolution manometer

712

Deluxe combustion efficiency analyzer with optional PC interface

- All the features of the 709R PLUS checks combustibles in flue, optional PC interface

714

Combustion efficiency analyzer with NOX and optional PC capoirility

- Measure O₂, CO, and NOX
- Calculate CO₂, NOX, efficiency, excess air

To work on high efficiency furnaces, boilers, and oil equipment, you need a differential manometer function with at least 0.001 inches of H₂O resolution. The 709, 709R, 712, and 714 have 0.001 inches H₂O resolution.

The Value LeaderTM
www.tpi-thevalueleader.com

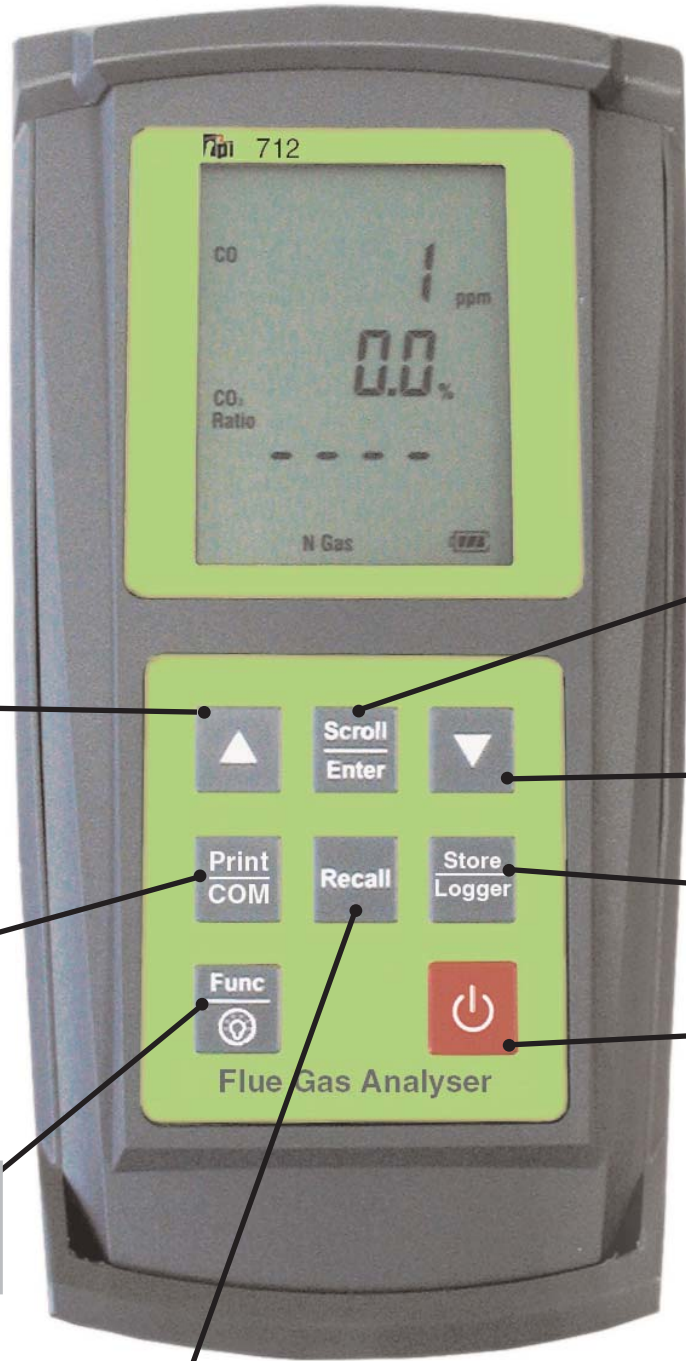


Combustion Flue Gas Analyzers

Using TPI analyzers to determine combustion efficiency at the time of equipment set up minimizes call backs. Analyzers can be used to verify to the home owner the value of service work by showing the increase in equipment efficiency after work is performed. Efficiency calculations can also be used to generate business by demonstrating the need to improve the efficiency of equipment or to show the benefit of purchasing new equipment with higher efficiency.

QUICK AND SIMPLE SET UP
All TPI analyzers feature quick and simple set up. Fast purge and the ability to perform fuel selection during start up enable tests to be performed quickly without requiring extra set-up time after initial start up. TPI analyzers also use the last selected fuel as the default setting. This feature prevents the need to perform fuel selection every time the analyzer is turned on.

Gas and Pressure Inlet Ports **Charge Socket** **Thermocouple Sockets**



Infrared Window

Exhaust Port

Up Arrow Key:
Saves the ratio readings, scrolls through selectable fuels, Toggles between gross and net efficiency, toggles between °C and °F, Scrolls between pressure readings mbar, kPa, and inH₂O

Scroll/Enter Key:
Scrolls through the five pages of combustion analysis information, Toggles between differential calculation On and Off, Toggles T2 temperature On and Off

Down Arrow Key:
Zeros pressure reading

Print/COM
Print real data or data stored to a location. Activates the COM port

Store/Logger
Stores Data to a location. Activates the logging function

On/Off Key:
Turns instrument On and Off

Function/Backlight Key:
Scrolls through Temperature, Pressure & Leak Detection Turns backlight On and Off

All combustion analyzers come with A787 soft carrying case



Recall:
Recalls stored data on the LCD

200mm x 90mm x 60mm

OPTIONAL ACCESSORIES	PART #
Infrared Printer	A740
PC Software (for 712 & 714 only)	A772
IRDA-RS232C Adapter	A767 (712 and 714 only)
Hard carrying case	A917
Replacement Printer Paper(2 rolls)	A746
20 Foot Flue Gas Analyzer Probe	A770-20
Oil Filter	A773

STANDARD ACCESSORIES	PART #
Flue Probe with GK11M, except for 707	A770
707 flue probe (no built in GK11M)	A769
K-type fiberglass temperature probe (except for 707)	GK11M
A794 in-line water/filter trap for 707, 708, and 709	A794
A795 in-line water/filter trap for filter for 709R, 712, and 714	A795
Mini-pump protection filter assembly (all)	A763
Soft shoulder strap carrying case (all)	A787
Protective rubber boot (all)	A765

Specifications



Measurement		707	708	709/709R	712	714
CO	Range	0 to 10,000ppm	0 to 10,000ppm	0 to 10,000ppm	0 to 10,000ppm	0 to 10,000ppm
	Resolution	1ppm	1ppm	1ppm	1ppm	1ppm
	Accuracy	±5ppm or 5% whichever is greater	±5ppm or 5% whichever is greater	±5ppm or 5% whichever is greater	±5ppm or 5% whichever is greater	±5ppm or 5% whichever is greater
O2	Range	NA	0 to 25%	0 to 25%	0 to 25%	0 to 25%
	Resolution	NA	0.1%	0.1%	0.1%	0.1%
	Accuracy	NA	±0.3%	±0.3%	±0.3%	±0.3%
NO	Range	NA	NA	NA	NA	0 to 5,000ppm
	Resolution	NA	NA	NA	NA	1ppm
	Accuracy	NA	NA	NA	NA	±5ppm or 5% whichever is greater
NOX	Range	NA	NA	NA	NA	0 to 5,250
	Resolution	NA	NA	NA	NA	1ppm
	Accuracy	NA	NA	NA	NA	calculated
CO2	Range	NA	0 to 25%	0 to 25%	0 to 25%	0 to 25%
	Resolution	NA	0.1%	0.1%	0.1%	0.1%
	Accuracy	NA	calculated	calculated	calculated	calculated
CO/CO2 Ratio	Range	NA	0 to 0.999	0 to 0.999	0 to 0.999	0 to 0.999
	Resolution	NA	0.001	0.001	0.001	0.001
	Accuracy	NA	calculated	calculated	calculated	calculated

FEATURES	707	708	709/709R	712	714
Excess Air (calculated)	NA	•	•	•	•
Efficiency (calculated)	NA	•	•	•	•
Leak Level	NA	NA	NA	•	NA
Pressure (difference)	NA	NA	•	•	•
Temp. (2-channel) (-100° to 1,000°F)	NA	•	•	•	•
Temp Difference (CH1-CH2 Calculated)	NA	•	•	•	•
Single Store Memory	50	50	50	50	10
Data Logger 4 page, 100 data points per page	NA	NA	NA	•	•
Recall Function	•	•	•	•	•
Real Time Display	•	•	•	•	•
Backlight	•	•	•	•	•
IR Print Port	•	•	•	•	•
Store Mode Print	•	•	•	•	•
Real Mode Print	•	•	•	•	•
IRDA	NA	NA	NA	•	•
Bluetooth Port	NA	NA	NA	•	•

GENERAL SPECIFICATIONS

Operating Temp Range:	-10°C to 50°C (14°F to 122°F)
Battery:	4AA Alkaline Batteries, (712: Rechargeable Ni-MH)
Fuels:	Natural Gas, LPG, Light Oil, Heavy Oil
Display:	Backlit LCD
Time & Date:	24 Hour Real-Time Clock
Dimensions:	200mm x 90mm x 60mm
Weight:	500g
Switch Off:	Failsafe
Exhaust:	Safety Spigot



Combustion Flue Gas Analyzers

712A740

- Fast purge & fuel selection during start up
- Work on high efficiency furnaces and oil
- Measure CO, O₂; and calculate efficiency, CO₂, excess air, and CO air free
- Dual input temperature
- Dual input pressure with 0.001 inches water resolution for high efficiency & oil
- Optional A767 adapter for PC interface



A740 IR Printer



- Easy to use
- Battery operated
- Self test facility
- Adjustable contrast
- Manual paper feed
- Maximum transmitting distance 16”(45cm)

709A740

- Fast purge & fuel selection during start up
- Work on high efficiency furnaces and oil
- Measure CO, O₂; and calculate efficiency, CO₂, excess air, and CO air free
- Dual input temperature
- Dual input pressure with 0.001 inches water resolution for high efficiency & oil



A740 IR Printer



- Easy to use
- Battery operated
- Self test facility
- Adjustable contrast
- Manual paper feed
- Maximum transmitting distance 16”(45cm)

709A740C1

- Fast purge & fuel selection during start up
- Work on high efficiency furnaces and oil
- Measure CO, O₂; and calculate efficiency, CO₂, excess air, and CO air free
- Dual input temperature
- Dual input pressure with 0.001 inches water resolution for high efficiency & oil



A740 IR Printer



- Easy to use
- Battery operated
- Self test facility
- Adjustable contrast
- Manual paper feed
- Maximum transmitting distance 16”(45cm)

Sulfur Filter for Oil Application A773



Use the A773 when working on oil fired appliances to extend the life of your sensors by eliminating acid gas exposure to your analyzer

709A740 OIL

- Fast purge & fuel selection during start up
- Work on high efficiency furnaces and oil
- Measure CO, O₂; and calculate efficiency, CO₂, excess air, and CO air free
- Dual input temperature
- Dual input pressure with 0.001 inches water resolution for high efficiency & oil



A740 IR Printer



- Easy to use
- Battery operated
- Self test facility
- Adjustable contrast
- Manual paper feed
- Maximum transmitting distance 16”(45cm)

A790 0 to 30 psi Analog Pressure Gauge



- Measures oil pressure

A788 Smoke Test Pump



Included with test pump:

- Smoke pump tester
- Smoke pump test paper
- Smoke scale

A773 Sulfur Filter for Oil Application



Use the A773 when working on oil fired appliances to extend the life of your sensors by eliminating acid gas exposure to your analyzer

708A740

- Fast purge & fuel selection during start up
- Work on high efficiency furnaces and oil
- Measure CO, O₂; and calculate efficiency, CO₂, excess air, and CO air free
- Dual input temperature



A740 IR Printer



- Easy to use
- Battery operated
- Self test facility
- Adjustable contrast
- Manual paper feed
- Maximum transmitting distance 16”(45cm)

Tech Tip: The primary way to affect change in combustion efficiency when working with modern gas fired equipment is through gas manifold pressure adjustment. Confirm manifold pressures are within manufacturers specifications prior to performing a combustion test. Once manifold pressures are within limits a combustion test can be performed to provide information regarding any adjustments that may be needed.

The carbon monoxide sensor used in TPI combustion efficiency analyzers feature an on-board filter capable of filtering NO (nitric oxide), NO₂ (nitric dioxide) and NO_x (NO plus NO₂), to prevent cross sensitivity errors.

Combustion Analyzer Accessories



Combustion Analyzer Standard Accessories

All TPI combustion analyzers have:

- A765 rubber boot
- A787 soft shoulder-strap carrying case
- A770 flue sampling probe
- GK11M K-type thermocouple
- A763 mini-pump protection filter

Plus these additional accessories

708

- A794 in-line water/filter trap

709

- A794 in-line water/filter
- A774 pressure tubing

709R

- A795 in-line water/filter
- A774 pressure tubing
- A766 battery charger

712 and 714

- A795 in-line water/filter trap
- A794F spare in-line filter
- A774 pressure tubing
- Two A776 static tips
- Two A6031/4" barded to 1/8" NPT fittings
- A611 gas valve adapter
- A791 adapter tubing
- A766 battery charger

Combustion Accessories Section



A770 Flue Probe
Flue probe w/ water trap and filter 7.5 foot

Flue Probe A770-20
20 foot version of A770



A797 Natural Draft Probe
For use with models 707, 708, 709, 709R, 712, and 714 to measure carbon monoxide levels on natural draft appliances including hot water heaters, boilers, and furnaces.



A603 Brass Hose Barb Fitting
Use for checking gas pressure on gas valves 1/4" hose barb x 1/8 NPT thread



A776 Static Tip
Measure static pressure with A776. It has a magnet to secure in place in duct work 1/4" hole required to use



A774 Silicone Tubing
6 foot length of silicone tubing for pressure measurements. Very flexible and will not go hard in cold temperatures.



A765 Rubber Boot
Protective rubber boot for the following meters: 707, 708, 709, 709R, 712 and 714



A773 Sulfur Filter for Oil Application
Use the A773 when working on oil fired appliances to extend the life of your sensors by eliminating acid gas exposure to your analyzer



A794 In-line water/filter trap
Replacement water block filter for the A794 water trap. Prevents water from getting past the water trap if it becomes full.



A787 Carrying Case
Soft carrying case with shoulder strap



A917 Hard Carrying Case
Use the A917 to protect your combustion analyzer and accessories. The A917 has an insert for the combustion analyzer, printer, paper, and accessories. The flue probe fits underneath the insert.



A763 Mini pump protection filter
Provides additional protection for the pump and strain relief for the flue probe.



A611 Gas Valve Pressure Adapter
Use for checking gas pressure on gas valve where the inert gas is in a tight or hard to reach location. Can be used with any TPI digital manometer.



A794F Replacement Filter for Watertrap
Replacement particle filter for A762 watertrap. Indicating filter gets dirty from the inside out. When you see black on the filter, it's time to change (5 pack)



GK11M K-type thermocouple
Fiberglass insulated multi-purpose beaded thermocouple probe.



A795 In-line water/filter
Replacement water trap for the 712, 714, and 715 combustion analyzers. Includes one A794F particle filter and on A794W water filter.



A791 Adapter tubing
Use with A774 pressure tube to check pressure on larger gas valve fittings.



A124 Magnetic Hanging Strap
For use with models 707, 708, 709, 709R, 712, and 714. Enables analyzers to be attached to a metal surface and used hands free.



A125 Magnetic Strap with Boot Hook
For use with models 707, 708, 709, 709R, 712, and 714. Enables analyzers to be attached to a metal surface via the magnetic strap or hung using the included A103 hook and used hands free.



390 TDS/Salt Meter

- Test condensate water in cooling tower and humidifier reservoir applications to prevent bacterial growth
- Test TDS levels in make-up water to prevent scale formation, corrosion, and embrittlement
- Determine when to perform blowdown and add make-up water
- Prevent contamination and corrosion of control valves, heat exchangers, and steam traps



395 Handheld Refractometer

The 395 is designed to give an accurate reading regarding the freezing point of fluids used in hydronic heating systems, measures propylene, glycol, ethylene, and battery fluid.

see page 6 for additional accessories.



Accessories



A612 Protective Rubber Boot
Protective rubber boot with tilt stand for the following meters: 610, 615, 620, and 625.



A605 Universal T Fitting
Ideal for use on setting pressure switches



A746 Replacement Paper Roll
Replacement thermal paper roll for the A740 (2 pack)



A740 IR Printer
IR printer for use with 708, 712, and 714, Combustion Efficiency Analyzers



TP-1 Threaded Pipe Plug
Use for plugging combustion efficiency test holes in high efficiency furnaces. Material: High density polythlene Temperature: up to 212°C 1/8" NPT thread 10 per pack



A788 Smoke Test Pump
Included with test pump:
• A789 Smoke pump tester
• Smoke pump test paper
• Smoke scale



A020 FLAME CURRENT LEAD SET
Use to check flame safeguard current on controls with a 3.5mm test jack.



A115 Thermocouple Adapter
Use the A115 to check thermocouples in series with the furnace running

A761 Replacement Oxygen Sensor

Replacement oxygen sensor for the 708 & 712 combustion analyzers. Price includes installation and calibration at TPI



A762 Replacement Watertrap
Replacement watertrap for the 707, 708, and 712 combustion analyzers. Cludes one A762F filter element



A795 Watertrap / Filter Assembly
For use with condensing boilers

A772 PC Software for 712 Allows the 712 to communicate with a PC

A767 Adapter Allows the 712 to communicate with a PC

Combustion Analyzer Care, FAQs, & Tech Tips

TPI Analyzer Care

The combustion analyzers use state of the art electrochemical sensors. This sensor technology provides the longest lasting, most accurate and reliable means for performing combustion tests. The sensors in will need to be replaced periodically and calibration is recommended once every year.

- ◆ Always keep the battery of your analyzer charged / fresh so power is constantly being supplied to your sensors.
- ◆ Always use the mini pump filter when testing flue gases and periodically check and replace the filter as needed.
- ◆ Always make sure the in-line filter / water trap is installed properly and periodically check and replace the filter as needed.
- ◆ Always remove water or condensation from the inside of the in-line filter / water trap assembly prior to performing tests.
- ◆ Always use the optional oil filter (p/n A773) when performing tests on oil burning equipment.

Analyzer Tech Tips

Tech Tip: Several factors affect combustion efficiency. Dirty or clogged air filters reduce the amount of air available for combustion therefore reducing efficiency. Obstructions in the flue block exhaust gases and alter the air mixture in the combustion chamber which reduces efficiency. Air leaks in the combustion chamber also alter the mixture causing decreased efficiency.

Tech Tip: The primary way to affect change in combustion efficiency when working with modern gas fired equipment is through gas manifold pressure adjustment. Confirm manifold pressures are within manufacturers specifications prior to performing a combustion test. Once manifold pressures are within limits a combustion test can be performed to provide information regarding any adjustments that may be needed.

Tech Tip: 10,000ppm is equal to 1%. The formula to convert percent to ppm is: ppm = %gas X 10,000. The formula to convert ppm to percent is: % = ppm / 10,000.

Tech Tip: The 709, 712, and 714 incorporate a differential manometer. Pressure applied to the (-) port is subtracted from the pressure applied to the (+) port. Examples of pressures being measured:

- (+) port = 10"H2O, (-) port = Not Connected, Displayed reading = 10"H2O
- (+) port = 10"H2O, (-) port = 5"H2O, Displayed reading = 5"H2O
- (+) port = Not Connected, (-) port = 10"H2O, Displayed reading = -10"H2O

ANALYZER FAQ

When should I use the optional A773 oil filter?

If your analyzer is used in an oil fuel application the A773 filter should be used. This filter does not have to be removed for other fuel types.

Should I set my analyzer to net or gross efficiency?

Gross efficiency is the correct choice for applications in the United States.

Can I use any of the TPI analyzers to test for the presence of combustible gas in the flue?

Yes, the 712 has the ability to test for combustible gases in the flue.

Can I log and send test data to a computer?

Yes, the 712 and 714 have the ability to communicate to a computer by using the optional A767 infrared adapter.

Can I test for CO in ambient air?

Yes, the 708, 709, 712, and 714 can all test for carbon monoxide in ambient air.

Do any of the TPI analyzers have a built in manometer?

Yes, the 709, 712, and 714 have built in differential manometers.

CO Analyzers & Ambient CO & Combustible Gas



National Ambient Air Quality Primary Standards in the US call for less than 9ppm carbon monoxide for an 8 hour average during any 12 month period. Concentrations of 1 to 2 ppm may be found in homes with a normal operating gas furnace, to well over 1,000ppm in homes with a faulty furnace. Just 200ppm CO over 2 to 3 hours can cause slight headache, fatigue, dizziness, and nausea. Carbon Monoxide testing is crucial service provided by HVAC/R technicians.



707



775



770



720b



725

PRODUCT NO.	MEASUREMENTS	RANGES	FEATURES & BENEFITS	APPLICATIONS
706 Advanced High CO Meter	CO	0 to 9,999ppm over 9,999 ppm redout in % 1.0 to 9.9% 9.9% equals 99,999ppm	<ul style="list-style-type: none"> • Quick and simple operation • Large, easy-to-read 3-line display • Infrared printing capabilities • Real time date stamp • 50 data storage locations • Auto range • Protective rubber boot 	<ul style="list-style-type: none"> • Check forklift exhaust gases for the presense and location of carbon monoxide
707 Advanced CO Meter	CO	0 to 9,999ppm	<ul style="list-style-type: none"> • Quick and simple operation • Large, easy-to-read 3-line display • Infrared printing capabilities • Real time date stamp • 50 data storage locations • Protective rubber boot 	<ul style="list-style-type: none"> • Ambient CO safety checks • Checking flue gasses for the presence and location of carbon monoxide
775 Ambient CO & Combustible Gas Leak Detector	CO Comustible Gases	0 to 2,000ppm Methane > 50ppm	<ul style="list-style-type: none"> • Quick and simple operation • Large, easy-to-read LCD • Visual and audible tic rate • 16" gooseneck handle length • Optional earphone attachment • One hand operation • Visual and audible alarm 	<ul style="list-style-type: none"> • CO safety measurements in and around combustion sources • Ambient CO safety checks • Locate combustible gas leaks
770 Carbon Monoxide Monitor	CO	0 to 2,000ppm	<ul style="list-style-type: none"> • Quick and simple operation • Large, easy-to-read LCD • Visual and audible alarm • Optional earphone attachment • Built-in alarm 	<ul style="list-style-type: none"> • Ambient CO safety checks
A771 Carbon Monoxide Adapter	CO	0 to 2,000ppm	<ul style="list-style-type: none"> • Quick and simple operation • Visual and audible alarm • One-hand operation • Built-in alarm is preset to 30ppm 	<ul style="list-style-type: none"> • Ambient CO safety checks
725 Pocket Combustible Gas Leak Detector	Combustible Gases	>1,000ppm Methane	<ul style="list-style-type: none"> • Quick and simple operation • Fits in shirt pocket • Visual and audible leak detection 	<ul style="list-style-type: none"> • Trace natural gas lines and fittings for leaks • Check gas generation equipment for leaks
719 Combustible Gas Leak Detector	Combustible Gases	>30ppm Methane	<ul style="list-style-type: none"> • Quick and simple operation • Visual and audible leak detection • Adjustable tic rate • Optional earphone attachment • One-hand operation • 16" gooseneck probe length 	<ul style="list-style-type: none"> • Detect combustible gases including natural gas methane, propane (LPG), gasoline, diesel, kerosene, etc. • Trace natural gas lines and fittings for leaks • Check gas generation equipment for leaks
720b Combustible Gas Leak Detector	Combustible Gases	>10ppm Methane	<ul style="list-style-type: none"> • Quick and simple operation • Visual and audible leak detection • Adjustable tic rate • Optional earphone attachment • One-hand operation • 16" gooseneck handle length 	<ul style="list-style-type: none"> • Detect combustible gasses including natural gas methane, propane (LPG), gasoline, diesel, and kerosene • Trace natural gas lines and fittings for leaks • Check gas generation equipment for leaks
721 Combustible Gas Leak Detector with ppm + % LEL Display	Combustible Gases	>10ppm Methane	<ul style="list-style-type: none"> • Quick and simple operation • Visual and audible leak detection • Audio and visual alarm with user adjustable alarm setting • Display leaks in real ppm, stepped ppm, and %LEL (Lower Explosive Limit). • Two line display with bargraph and backlight • Adjustable tic rate • Optional earphone attachment. • 16" gooseneck probe length 	<ul style="list-style-type: none"> • Detect combustible gases including natural gas methane, propane (LPG), gasoline, diesel, kerosene, etc. • Test areas for lower explosive limit (%LEL) concentration of combustible gases. • Trace natural gas lines and fittings for leaks • Check gas generation equipment for leaks



Indoor Air Quality (IAQ): air flow, humidity, temperature, CO₂, & CO, particle counters

PRODUCT NO.	MEASUREMENTS	RANGES	FEATURES & BENEFITS	APPLICATIONS
1010 Handheld Indoor Air Quality Meter w/ CO and humidity measurement	CO₂ Temperature Relative Humidity Dew Point Wet Bulb CO	0 to 5000ppm -5 to 140°F (-20 to 60°C) 5 to 95% -47 to 135°F (-44 to 57°C) 3 to 135°F (-16 to 57°C) 0 to 500ppm	<ul style="list-style-type: none"> Measure and display Carbon Dioxide (CO₂) and Carbon Monoxide Measure ambient air temperature Measure relative humidity, dew point, and wet bulb Log up to 10,000 readings in 1 second to 1 hour intervals 	<ul style="list-style-type: none"> Check ambient CO and CO₂ levels in work and living spaces Monitor results of air control systems Ambient air temperature and Humidity Test dew point and wet bulb humidity
1008 Handheld Indoor Air Quality Meter	CO₂ Temperature	0 to 5000ppm -5 to 140°F (-20 to 60°C)	<ul style="list-style-type: none"> Measure Carbon Dioxide (CO₂) levels Measure ambient air temperature Log up to 48 readings in 30 minute intervals 	<ul style="list-style-type: none"> Check ambient CO₂ levels in work and living spaces Monitor results of control systems Measure Ambient air temperature
597C1 Digital Hygrometer/ Psychrometer	Relative Humidity (RH) Ambient Temperature Dew Point Wet Bulb	0 to 100% -40°F to 176°F -40°C to 80°C -40°F to 176°F -40°C to 80°C 41°F to 140°C 5°C to 60°C	<ul style="list-style-type: none"> Data record function for maximum & minimum temperature of humidity reading Serial output through RS-232 39" cable length, hard wired Auto power off Protective rubber boot 	<ul style="list-style-type: none"> Building maintenance Computer rooms Heating & air conditioning systems Bakeries Humidistats calibration
575C1 Digital Combo vane & hotwire anemometer	Air Velocity Temperature	Vane: 1.3 to 80 fps 0.4 to 25m/s HotWire: 0.7 to 65 fps 0.2 to 20m/s -5°F to 175°F (-20°C to +80°C)	<ul style="list-style-type: none"> Data record function for maximum & minimum temperature of humidity reading Serial output through RS-232 39" cable length, hard wired Auto power off Protective rubber boot 	<ul style="list-style-type: none"> Building maintenance Computer rooms Heating & air conditioning systems Bakeries Humidistats calibration
556C1 Digital Vane Anemometer	Air Velocity *Low friction ball Conventional twist vane wheel Temperature * Precision thermistor Air Flow Area	1.3 to 100 f/s 0.4 to 30 m/s -5°F to 175°F -20°C to 80°C 0 to 999,900 CMM & CFM 0.001 to 9,999	<ul style="list-style-type: none"> Compact and rugged housing Easy to read LCD Measure air velocity, air flow with area and temperature simultaneously Record & recall Max, Min, & Avg Data logger and log send function Data hold Auto power off (10 min.) Low battery display Multiple measuring units: (m/s, k/h, mile/h, knots, ft./min) CMM (cubic meter minute) Download to a computer using the RS-232 port and optional A500 cable 39" cable length, hard-wired 	<ul style="list-style-type: none"> Air velocity measurements in heating, ventilation, and air conditioning systems Air duct analysis Fume hoods Floor registers Exhaust grills



1010



1008



575C1



556C1



1020

PRODUCT NO.	SPECIFICATIONS	FEATURES & BENEFITS	APPLICATIONS
1020 Handheld Particle Counter	Particle Size Range: 0.3, 0.5, 1, 2, 5 micron size selectable Concentration Range: 0 to 3,000,000 particles per cubic foot Sensitivity: 0.3 microns Display: 16 character 2 line LCD	<ul style="list-style-type: none"> Single channel with ranges of 0.3, 0.5, 1, 2, 5 microns capable of showing cumulative particle counts USB2 output Simple menu system to select particle sizes and sample time 	<ul style="list-style-type: none"> Controlled environment Indoor air quality Process control Filter testing Compliance testing Emission sourcing Remote sampling

Additional Testers & Accessories



SAFETY

Carbon monoxide and combustible gases are dangerous, and in high concentrations can be fatal. It is important to the safety of the customer and technician to test for both. Measuring CO levels and testing for combustible gas leaks should be part of a routine maintenance schedule and performed regularly. Remember, CO is odorless and can only be detected using the proper test instrument.

621C3 Pressure Kit

621C3 Kit Includes:

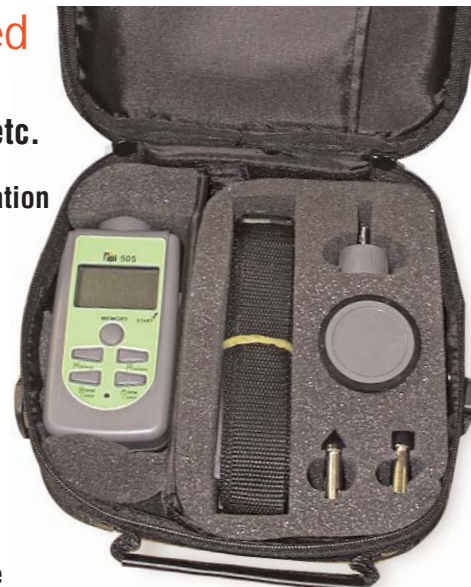
- 621 Dual Input Digital Manometer
- A612 protective boot with tilt stand
- A605 (2) 1/4" tapered "T"
- A603 (2) brass fitting, 1/4" NPT to 1/4" barb
- A774 6' silicone tubing
- A776 (2) static tip
- A908 shoulder strap carrying case
- A791 Adapter tubing



505 Photo / Contact Tachometer Surface Speed

Measure RPM of motors, pulleys, etc.

The 505 is a combination photo and contact tachometer that also measures surface speeds of belts and wheels.



Accessories:

- Reflective TapeCone
- Wheel for RPM Concave
- Wheel for RPM Large
- Wheel for Surface Speed
- Carrying Case

Photo Tach: 6 to 30,000RPM
Contact Tach: 6 to 20,000RPM
Surface Speed: 0.9 to 3,046 m/min
 2.0 to 9,990 ft/min

Use the 621C3 to:

adjust appliance regulators; set delivery pressures; make regulator adjustments for pressure and lock-up tests; test pressure switch operation on 2-stage gas furnace in positive and negative pressures; test air flow static pressure drop; draft pressure measurements; and check static pressure in exhaust stack when installing high efficiency gas hot water heaters.

810 Fiber Optic Inspection Tool



Carbon monoxide levels may not be high enough to indicate a heat exchanger problem. The TPI 810 enables finding cracks through visual inspection of heat exchangers

- Small 0.26 inch tip diameter
- Hi-resolution 8,000 pixel image offers enhanced vision and clarity
- Obedient wand maintains position after adjustment enabling access to tight areas with bends and curves
- Sealed tip for use in non-corrosive liquids
- Super bright LED flashlight light source provides longer battery life
- Machined aluminum housing is easy to hold and durable
- Knurled focus adjustment ring
- 45° Glass inspection mirror for side viewing
- Compact aluminum carrying case with locking latches
- One year limited warranty

Digital Manometers: 608 Single Input, 625 Dual Input, 621 Dual Input, High Resolution

608 Single Input Manometer

- -60 to +60" of water
- Four units of measure (inH2O, mbar, kPa, and psi)
- Temperature compensated
- Auto power off
- Backlight display
- Wall hook and magnets for no-hand use



Single Input
608

TPI DIGITAL MANOMETER APPLICATIONS

- Adjusting appliance regulators
- Setting delivery pressures
- Leakage "shut-in" tests
- Regulator adjustments for pressure and lock-up tests
- Test pressure switch operation on a 2-stage gas furnace in both positive and negative pressures



Dual Input
620

Dual Input
621

Dual Input
625

620, 625* SPECIFICATIONS

Auto Range	-80 to +80" of water
Accuracy	±0.5% of reading + 5 digits
Over Pressure	500 mbar
Power Supply	9V
Relative Humidity	0% to 80% (0° to 40° C)
Operating Temp	0° C to 40° C
Storage Temp	-10° C to 50° C
Auto Power Off	After 40 minutes

* units of measure for 625 are mmHg, inHg, mbar, PSI, inH2O, and mmH2O

621 DIGITAL MANOMETER high efficiency gas and oil fired furnaces along with condensing boilers require a manometer with 0.001 inches of water resolution to make proper adjustments

- Dual input and differential
- Autoranging
- No min/max/datahold

621 SPECIFICATIONS

Auto Range	0 to ±120.4 inH2O
Accuracy	±0.012 inH2O (< 0.4 inH2O) ±0.2% of full value (> 0.4 inH2O, < 40.1 inH2O) ±1% of measured value (> 40.1 inH2O)
Over Pressure	400 inH2O
Resolution	0.001 inH2O (< 40.1 inH2O) 0.01 inH2O (< 120.4 in H2O)
Operating Temp	0° C to +50° C
Storage Temp	-20° C to 70° C
Auto Power Off	After 20 minutes



Digital Clamp-On Testers & DMM



265 Digital Clamp-On Tester with Frequency and Capacitance

Features:

- Slim jaw and body design for use in crowded electrical panels
- 4,000 count display
- Capacitance range up to 4,000 microfarads to test run and start capacitors
- 0.1 DC millivolt resolution to accurately measure thermocouples and use optional adapters
- 0.01 AC Amp resolution to measure heat anticipator current
- Frequency measurement capability
- AC/DC volts up to 600V and AC Amps up to 400A
- Diode, resistance, and audible continuity ranges

And More...

- Auto / manual ranging
- Data hold
- Auto power off
- CAT III 600V rated

Applications:

- Test start and run capacitors
- Measure motor run current
- Measure heat anticipator current
- Determine thermocouple voltage
- Test line and control voltages
- Measure heating element resistance
- Measure and adjust variable frequency drives



270 Digital Clamp-On Tester with Slim Jaw and Body for Tight & Narrow Spaces

Features:

- Measure motor in-rush current and run current
- Measure temperature differential with relative mode
- Frequency, Min/Max/Record, Data Hold, and Peak Hold
- Up to 40,000 Microfarads to test run and start capacitors
- 4,000 count display with 41 segment analog bargraph
- NCV function detects down to 24V for thermostats
- Hi Voltage Indicator (>30V AC/DC)
- Auto Off after 30 minutes
- Separate Battery/Fuse Compartment
- Low Ohm Range (400V)
- Amps AC Resolution: 0.01A
- VDC/VAC Resolution: 0.1mV
- DCµA measurement (0.01µA resolution)
- Temperature measurement with 0.1° resolution

And More...

- Auto & Manual Ranging
- Low Battery Indicator
- Over Range Indication ("OL")

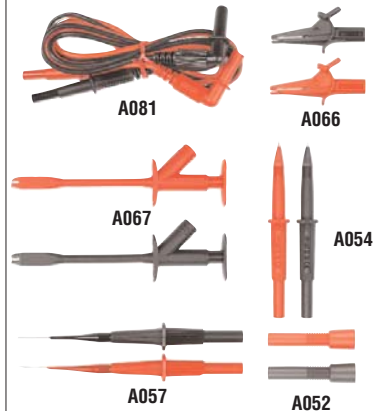
Applications:

- Measure flame safety control current
- Test run and start capacitors and motors
- Measure motor run current and capture peak motor start up amperage
- Measure heat anticipator current
- Determine thermocouple voltage
- Test line and control voltages
- Measure heating element resistance
- Measure air temperature in ducts
- Test for the presence of voltage in circuits without contacting the circuit
- Measure temperature differential using relative mode

TLK10 Includes TLSHVACR deluxe test lead set and TLSCASE1 carrying case

TLSHVACR1

- **A052** Screw-on modular adapter: Use to adapt TPI screw tip test leads for use with modular accessories.
- **A054** Sharp steel test prod: use to probe connections, connectors, and terminals.
- **A057** Modular back probes: use to check wiring harnesses and molex type connectors.
- **A066** Modular crocodile clips: use to test jumpers, terminals, and ground lugs.
- **A067** Modular grabbers: use to attach to terminals, including terminal strips, and hard to reach places.
- **A081** Shutter plug to fixed shroud lead set: safety double insulated CAT IV 600V 10A, CAT III 1000V 10A CULus 61010-1 / IEC 61010 listed, flexible multi-strand wire, long life silicone insulation, flame resistant.



275 True RMS, AC/DC Amp, Digital Clamp-On Tester

All the great features of the 270 PLUS: True RMS and up to 400 AC/DC amps!

- Measure motor in-rush current and run current
- Measure temperature differential with relative mode
- Frequency, Min/Max/Record, Data Hold, and Peak Hold
- Up to 40,000 Microfarads to test run and start capacitors
- 11,000 count display with 41 segment analog bargraph



A085 Test Leads

Consists of the A080 UL listed silicone test lead set with A150 screw on alligator clips.



- CULus 61010-1
- IEC 61010
- Flexible (stranded wire)
- Safety (double insulated CAT IV 600V 10A, CAT III 1000V 10A)
- Long life (silicone insulation)
- Flame resistant
- Can be used with A052 modular banana adapter to increase versatility

A115 Thermocouple Adapter



Use the A115 to check thermocouples in series with the furnace running

TPI TLSCASE1 Features:

Carrying pouch includes velcro belt loop, nine inside pockets with plenty of room for test leads, accessories, and will even fit a full size DMM. The inside pockets will not crack in cold weather. Easily holds the TLSHVACR1 test lead kit.





343C3 Temperature Differential Kit

Measure Temperature Differential, Supply & Return Air Temperature, and Thermostat Temperature with this Dual Input Kit 343C3.

- 343 Dual Input Temperature Tester
- Two CK21M Pipe Clamp Probes
- One GK13M Flexible Teflon Probe *FDA Approved up to 400°F*
- Protective Rubber Boot w/Tilt Stand, A304 and Padded Case, A908

343C1 (For High Temperature, over 400°F): 343; tilt-stand protective boot; (2) fiberglass, beaded, K-type thermocouple probes; soft pouch.

343C2 (For Low Temperature, under 400°F): 343; tilt-stand protective boot; (2) Teflon, beaded, K-type thermocouple probes; soft pouch.

AUTO FIELD CALIBRATION

Perform ice bath calibration to achieve $\pm 1^\circ\text{F}$ within the 30°F to 120°F temperature range. Calibration is easy two-step process performed with keypad, no additional tools needed.

CK20M Pipe clamp probe

Clamp probe for pipe temperatures

Range °F/°C
-58° to 212°F
-50° to 100°C



Max jaw opening: 0.79"
Nominal jaw opening: 0.25"
Lead Length: 39.4" (1M)
IP Rating: N/A

CK21M Pipe clamp probe

Clamp probe for pipe temperatures

Range °F/°C
-58° to 212°F
-50° to 100°C



Max jaw opening: 1.2"
Nominal jaw opening: 0.75"
Lead Length: 39.4" (1M)
IP Rating: N/A

GK11M General purpose beaded tip probe

Exposed junction for fast response in non-food liquid, air and surface applications

Range °F/°C
-40° to 950°F
-40° to 510°C



Stem Length: N/A
Diameter: 28 gauge
Lead Length: 48" (1.2M)
IP Rating: N/A

GK13M General purpose beaded tip probe

Exposed junction for fast response in food and non-food liquid, air and surface applications

Range °F/°C
-40° to 400°F
-40° to 204°C



Stem Length: N/A
Diameter: 24 gauge
Lead Length: 48" (1.2M)
IP Rating: N/A

EZ 100 Easy One Button Operation DMM

EZ 100 automatically switches between AC and DC Voltage as well as resistance measurements.

- Automatically measure DC Volts, AC Volts, and Ohms (resistance)
- Large, 4,000 count display
- 0-600 Volts AC and DC
- 10M Ohm impedance
- Auto power off after 10 minutes
- Includes test lead set, batteries, and protective rubber boot
- Three Year Limited Warranty



50 AC Safety Volt Check

Non-Contact Detection of 50-1,000 VAC Sound & Visual Alert!!

40 Low AC Locator

Non-Contact Detection of 24-90 VAC w/ Visual Alert!!

Infrared Technology

Applications include: Compressor heads, vents, hot and cold areas in insulation, leaks around cooler or freezer doors, leaks around windows, steam traps, and registers.

376 Non-Contact & Contact Thermometer

Two instruments in one! Use for contact and non-contact temperature applications. Choose from a variety of probes to fit your application.

- -58°-950°F or -50°~510°C Temperature Range
- Convert non-contact to contact with optional K-type surface probe.
- Laser Sighting, Back Light
- Display Hold, Record Function
- Adjustable Emissivity, 11. 5:1 Distance Spot Ratio



381 Non-Contact Thermometer

Infrared technology at a price you can afford.

- Easy-to-use one button operation
- 0.1 resolution for best reading
- Large, easy-to-read LCD
- Temperature compensated for accuracy and repeatability
- Laser sighting, 9:1 distance to spot ratio
- Last reading hold function
- °C and °F selectable, 0° to 500°F
- Soft pouch included
- **383 with -31° to 999°F range**



368 Close-Focus, Pocket-Size Infrared Thermometer



1.5" w x 2.75" h

- Close focus .125" to 1.5"
- -7°~248°F or -22°~120°C Temperature Range
- Auto Data Hold
- Min/Max function
- Continuously scan surface temperatures in real time
- Auto power off after 10 seconds

Pocket Digital Thermometers

315C

- **Rugged and Waterproof!**
- 3.1mm diameter stem for "Pete's" plug
- Magnetic clip perfect for air duct applications
- Auto off
- **Auto Field Calibration to +/- 2 F accuracy in less than 10 seconds in an ice water bath for all "C" version pocket digital thermometer.**



310C

- Reversible LCD head rotates for best viewing
- Easy-to-read LCD
- Data Hold for hard to reach areas
- Auto off



Additional Models: **317:** air tip
318: chisel tip
319: contact tip
TPI is your best source for pocket digital thermometers!



TPI Analyzer Maintenance

Test Products International offers a full calibration and repair facility capable of servicing all TPI branded equipment. TPI recognizes the importance of fast service for flue gas analyzers and typical turnaround time is 3 to 5 days in-house.

Analyzers are serviced on a first received basis. Analyzers received via expedited shipping are given priority. To maximize sensor life TPI installs and calibrates all sensors at the time of order. Sensors must "burn in" for 24 hours prior to calibration and shipment.

The repair and maintenance costs shown in this chart are for out of warranty service. All warranty service is done at no charge. At the time of service, any available software updates will be installed at no charge regardless of warranty.

TPI provides a complete estimate of charges for approval prior to performing any service work.

Service Description	Cost
General Maintenance & Calibration	\$30.00 *This service includes pump cleaning and complete systems check. Replacement parts and certificate of calibration are extra costs and not included in \$30 charge.
Oxygen Sensor Replacement	\$134.95 (Sensor Installed & Calibrated) *This service includes pump cleaning and complete systems check. Additional cost for NIST traceable certificate of calibration. Sensor Warranty 2 years
Carbon Monoxide Sensor Replacement	\$134.95 (Sensor Installed & Calibrated) *This service includes pump cleaning and complete systems check. Additional cost for NIST traceable certificate of calibration. Sensor Warranty 2 years
Nitric Oxide Sensor Replacement	\$299.95 (Sensor Installed & Calibrated) *This service includes pump cleaning and complete systems check. Additional cost for NIST traceable certificate of calibration. Sensor Warranty 2 years
Pump Assembly Replacement	\$35.00 Installed
NIST Traceable Certificate of Calibration	\$80.00

TPI offers a complete line of CO, combustible gas, Combustion efficiency, refrigeration leak detectors, digital manometers, temperature (contact and IR), IAQ (temperature, humidity, air flow), handheld oscilloscopes, DMMs, Clamp-on's, and accessories

Accessories

Adapters | Cables & Connectors | Oscilloscope Probes | Test Leads

Clamp-on Meters (Current)

Combustion Efficiency Analyzers (Flue Gas Analyzers)

Food Safety, Processing, & Preparation

Gas Detection

Carbon Monoxide (CO) | Combustibles | Refrigerants

Indoor Air Quality (IAQ)

Manometers (Pressure)

Multimeters (DMMs)

Oscilloscopes (Handheld)

Specialty Testers

Earth Resistance | Insulation | Multifunction | Photo-tachometer

Temperature

Contact | Non-contact (IR) | Pocket Digital Thermometers

Temperature Probes

J-Type | K-Type | T-Type | Thermistor

Test Leads & Accessories

Fused | Modular | Screw-on | Push-on

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