



# Combustion Analysis & Boiler Service Tools



## Combustion Gas Analyzer to use with Your Smartphone & TPI App

### DC710C1

SAVE TIME by easily managing documentation! Use FREE smartphone app to document and share measurement results with your clients, and keep on file.

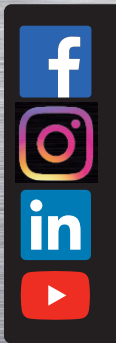
- Operate remotely via Bluetooth with smartphone or tablet and TPI app. No need for long probe hoses – remain at the control center with your smartphone, while the DC710 works at the stack. The free TPI app provides on-site reports which can instantly be emailed and stored without the need for paper or printers. 24-Hour real-time clock for time-stamp confirmation.
- Durable, rugged and sealed housing; with powerful magnet and/or hook for mounting.



DC710 S/N: 28035200001

FLUE GAS ANALYSIS	AMBIENT CO	DIFFERENTIAL TEMPERATURE
8/13/2018 8:41:13 AM	Battery: 41%	
Last Cal. Date: 8/3/2018	Cal. Due Date: 8/3/2019	
Fuel Type: Natural Gas		
Carbon Monoxide (CO):	704 PPM	
Carbon Dioxide (CO2):	8.6%	
CO Air Free:	1043	
Oxygen (O2):	5.8%	
Excess Air:	38%	
Temperature 1/Probe:	209.2°F	
Internal Temperature:	75.0°F	
Temperature Difference:	134.1°F	
Efficiency (Gross):	86.14%	

CREATE REPORT STOP PUMP



### Connect to Smartphone!



DC710C1 Includes DC710 instrument, flue probe, temperature probe, rechargeable battery, charger, and case. Smartphone not included.

# Combustion Analyzers, Specifications & Accessories

	708	709	709R	DC710C1	716	716N	716HC	717	717R
O2	0 to 25%	0 to 25%	0 to 25%	0 to 25%	0 to 25%	0 to 25%	0 to 25%	0 to 25%	0 to 25%
CO	0 to 10k ppm	0 to 10k ppm	0 to 10k ppm	0 to 10k ppm	0 to 10k ppm	0 to 10k ppm	0 to 100k ppm	0 to 10k ppm	0 to 10k ppm
CO2	0 to 25%	0 to 25%	0 to 25%	0 to 25%	0 to 25%	0 to 25%	0 to 25%	0 to 25%	0 to 25%
NO						0 to 5k ppm			
NOX						0 to 5,250 ppm			
CO2 Ratio	0 to 25%	0 to 25%	0 to 25%	0 to 25%	0 to 25%	0 to 25%	0 to 25%	0 to 25%	0 to 25%
Excess Air	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Efficiency (Gross & Net)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Temperature	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Temperature (Differential)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Pressure Measurement	No	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes
Internal NOX Filter	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Printer (Optional)	IR	IR	IR	Bluetooth	IR	IR	IR	IR	IR
External Oil Filter	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional
1ppm CO Resolution for BPI	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Residential, Commercial, Industrial	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Compatible with PC	No	No	No	No	Yes	Yes	Yes	No	No
LCD Display	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes
Smart Sensors (Field Replaceable)	No	No	No	Yes	No	No	No	Yes	Yes
Onboard Memory	50 Tests	50 Tests	50 Tests	Free App	50 Tests	50 Tests	100 Tests	100 Tests	100 Tests
Backlight	Yes	Yes	Yes	N/A	Yes	Yes	Yes	Yes	Yes
Rechargeable or Alkaline Battery Power	A	A	R	R	R	R	R	A	R
Data Logging	No	No	No	No	No	Yes	No	No	No
USB Output to PC	No	No	No	No	No	Yes	Yes	No	No
Optional Bluetooth Output	No	No	No	Included	No	Yes	Yes	No	No
Combustible Gas Leak Detection	No	No	No	No	Yes	Yes	No	No	No

## Standard Accessories Included with TPI Analyzers



A770



A787



A763



A794



A796



GK11M

### A763 Mini Pump Protection Filter

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

### A765 Protective Rubber Boot

Included with all. See photo on page 3.

### A770 Flue Probe

Flue probe w/ water trap and filter 7.5 foot

### A787 Carrying Case

Soft padded carrying case with shoulder strap

### A794 In-line Water Filter

Replacement water trap for the 707. Includes one A794F particle filter and A794W water filter.

### A796 In-line Water Filter

Replacement water trap for 708, 709, 709R 712, 714, 715 and 716. Includes one A794F particle filter and A762F water filter.

### GK11M K-type Thermocouple

Fiberglass insulated multi-purpose beaded thermocouple probe.

## Popular Optional Accessories

Infrared Printer	A740
Replacement Printer Paper(2 rolls)	A746
Replacement CO Sensor	A760
Replacement Oxygen Sensor	A761
20 Foot Flue Gas Analyzer Probe	A770-20
PC Software (for 712 only)	A772
Oil Filter	A773 (except 716N)
Silicone Tubing 6'	A774
Static Pressure Tip	A776
Adapter Tubing	A791
Replacement Filter for Water Trap	A794F
Filter for In-line Water Trap	A794W
Natural Draft Probe	A797
USB Cable and Software for 716	A807
Hard Carrying Case	A917
Magnetic Hanging Strap	A124
Magnetic Hanging Strap with Hook	A125
Threaded Pipe Plug	TP1

## Add Value to Your Service Calls

**Minimize call-backs** by using TPI analyzers to verify and document combustion efficiency, before and after service. This provides evidence of an effective tune-up, or evidence of the need for equipment replacement. Documented, accurate and reliable, combustion efficiency data helps deliver peace-of-mind to your client - helping in the decision making process.

## Quick & Simple Setup Saves Time

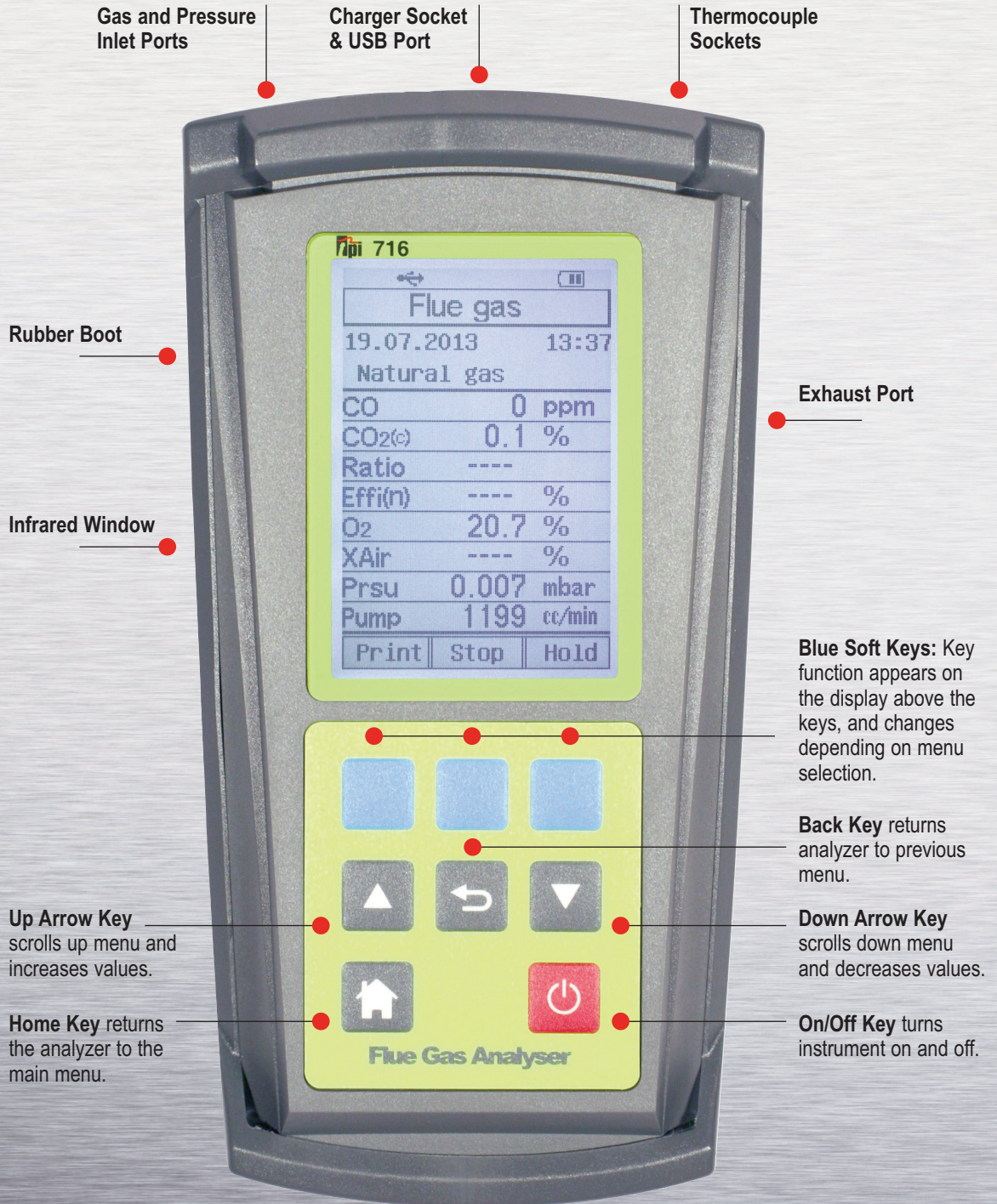
**Fast-purge** and the ability to perform fuel selection during start-up enables tests to be performed quickly without requiring extra set-up time after initial start-up. TPI analyzers also use the last selected fuel as the default setting, alleviating the need to perform fuel selection each time the analyzer is used for the same fuel. **The DC710 (on cover) saves even more time, as printer setup is not necessary.**

### Types of Combustion

- **Perfect Combustion:** complete burning of the fuel with the **exact amount of air.** (This is rare and something technicians never see in analysis.)
- **Complete Combustion:** complete burning of the fuel. However, excess air (O) is found in the flue gases. Excess air is added to ensure there is enough air present to avoid incomplete combustion.
- **Incomplete Combustion:** the incomplete burning of fuel due to an excess or lack of one side of the combustion triangle (fuel, air, ignition).

**Learn more about using Combustion Analyzers in a TPI Combustion Training Seminar.**

**Ask your distributor about hosting a training in your area, or please call 1-800-368-5719 for more information on training options.**



# Carbon Monoxide (CO) Meters, Monitors & Detectors



**706 Advanced High CO Meter**



**707 Advanced CO Meter**



**770 Carbon Monoxide Monitor**



**775 Ambient CO & Combustible Gas Leak Detector**



**A771 Carbon Monoxide Adapter for DMMs**

Measurement & Ranges	CO: 0 to 9,999 ppm, over 9,999 ppm readout in % 1.0 to 9.9 (9.9% = 99,999 ppm)	CO: 0 to 9,999 ppm	CO: 0 to 9,999 ppm	CO: 0 to 2,000 ppm <b>Methane: &gt;50 ppm</b>	CO: 2,000 ppm
Quick & Easy Operation	Yes	Yes	Yes	Yes	Yes
Display	Easy-to-read, 3-line LCD	Easy-to-read, 3-line LCD	Easy-to-read LCD	Easy-to-read LCD	N/A
Printing Capability	Use Optional A740 IR Printer for real-time, date stamp	Use Optional A740 IR Printer for real-time, date stamp	N/A	N/A	N/A
Alarm	N/A	N/A	Visual & Audible	Visual & Audible	Visual & Audible
Other	Pump-driven for fast response. Push-on fittings for fast and easy use.	Pump-driven for fast response. Push-on fittings for fast and easy use.	Tilt-stand on back.	Visual & audible tic rate to pinpoint leak. 16" goose-neck probe.	Use with any DMM with 2 1/2 digit LCD, 2 or 4 V DC range, and 10 M OHM or greater input impedance.
Applications	Test forklift exhaust gasses for the presence and location of CO leaks.	Measure CO levels in the flue, and test ambient CO levels in homes, offices, and other confined spaces.	Measure and monitor ambient CO levels in homes, offices, and other confined spaces.	Measure ambient CO levels. Check for CO in and around combustion sources; locate combustible gas leaks.	Measure ambient CO levels in residential and commercial areas.

## Air CO Concentration Exposure Time & Toxic Symptoms

## Carbon Monoxide (CO) is a Silent Killer!

9 ppm	The maximum allowable concentration for short term exposure in a living area according to ASHRAE.
25 ppm	The maximum allowable concentration for continuous exposure in any 8 hour period, according to federal law (US Federal Law).
200 ppm*	Maximum concentration allowable at any time according to OSHA. Slight headaches, fatigue, dizziness, nausea after 2-3 hours.
400 ppm*	Frontal headaches within 1-2 hours, life threatening after 3 hours. Maximum allowable limit in flue gas according to EPA & AGA.
800 ppm*	Headache, dizziness, nausea and convulsions within 45 minutes. Unconscious within 1 hour. Death within 2-3 hours.
1600 ppm*	Headache, dizziness, and nausea with 20 minutes. Death within 1 hour.
3200 ppm*	Headache, dizziness, and nausea with 5-10 minutes. Death within 30 minutes.
6400 ppm*	Headache, dizziness, and nausea with 1-2 minutes. Death within 10-15 minutes.
12,800 ppm*	Death within 1-3 minutes.

\*NOTE: With exposure to this concentration and higher, effects can vary depending on weight, age, sex, and health.



**719 Combustible Gas Leak Detector**



**720B Combustible Gas Leak Detector**



**721 Combustible Gas Leak Detector with LCD Display**



**725A Pocket Size Combustible Gas Leak Detector**



**725L Combustible Gas Leak Detector**

<b>Measurement &amp; Ranges</b>	Combustible Gas: > 30 ppm Methane  (Natural Gas, Methane, Propane (LPG), Gasoline, Diesel, Kerosene, etc.)	Combustible Gas: > 10 ppm Methane  (Natural Gas, Methane, Propane (LPG), Gasoline, Diesel, Kerosene, etc.)	Combustible Gas: > 10 ppm Methane  (Natural Gas, Methane, Propane (LPG), Gasoline, Diesel, Kerosene, etc.)	Combustible Gas: > 40 ppm Methane  (Natural Gas, Methane, Propane (LPG), Gasoline, Diesel, Kerosene, etc.)	Combustible Gas: > 40 ppm Methane  (Natural Gas, Methane, Propane (LPG), Gasoline, Diesel, Kerosene, etc.)
<b>Quick &amp; Easy Operation</b>	Yes	Yes	Yes	Yes	Yes
<b>Display</b>	N/A	N/A	Two-line LCD display with bargraph and backlight. Provides readings in real ppm, stepped ppm and % LEL (Lower Explosive Limit).	N/A	N/A
<b>Leak Confirmation</b>	Visual & Audible, with adjustable tic rate	Visual & Audible, with adjustable tic rate	Visual & Audible, with adjustable tic rate	Visual & Audible	Visual & Audible
<b>Alarm</b>	N/A	N/A	Visual & Audible, user adjustable settings	N/A	N/A
<b>Other</b>	16" Gooseneck Probe. Optional earphone attachment.	16" Gooseneck Probe. Optional earphone attachment.	16" Gooseneck Probe. Optional earphone attachment.	Pocket Size	7.5" sensor probe
<b>Applications</b>	Trace gas lines and fittings for leaks. Check gas operated equipment for leaks.	Trace gas lines and fittings for leaks. Check gas operated equipment for leaks.	Test areas for lower explosive limit (%LEL) concentration of combustible gases. Trace gas lines and fittings for leaks. Check gas operated equipment for leaks.	Trace gas lines and fittings for leaks. Check gas operated equipment for leaks.	Trace gas lines and fittings for leaks. Check gas operated equipment for leaks.

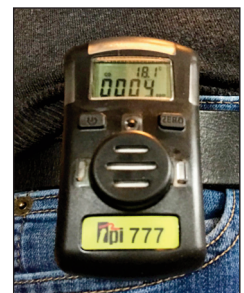


## 777 Personal Carbon Monoxide Monitor

### Durable, Always-On, CO Monitor

Easy, one-button operation with audible, visual and vibrating alarm for STEL and TWA. Two-year battery life. Designed for personal safety, and useful in these areas and more:

**Oil & Gas; Fire Departments; Industrial Workers; Home Inspectors; HVACR; Residential Appliance Repair, Property Management and Housekeeping**



# Manometers & IAQ

## 621C3 Pressure Kit

Everything you need to test air flow, static pressure drop, and take draft pressure measurements. **\$259.95**

- Temperature compensated for improved accuracy
- Adjust appliance regulators; set delivery pressures; perform leakage "shut-in" tests; test pressure switch operation on 2-stage gas furnaces in both positive and negative pressures
- Regulator adjustments for pressure and lock-up tests
- When setting up a high efficiency gas hot water heater, you need to check the static pressure in the exhaust stack. Do this by using the static tip and firing up the gas hot water heater, then capture the min and max readings. If not enough pressure out the exhaust, wind can blow down the exhaust and extinguish the pilot light.

**Kit Includes:** 621 Dual Input Digital Manometer; A774 6' silicone tubing; A776 (2) static tips; A605 (2) 1/4" tapered "T"; A791 Adapter tubing; A603 (2) brass fittings, 1/4" NPT to 1/4" barb; A901CP Shoulder strap carrying case; A612 Protective rubber boot



Dual Input Digital Manometer & Accessories

## 623 Dual-Input Digital Manometer

Dual-input, autoranging digital manometer with three decimal place resolution.

- Check for positive building pressures; perform room to room pressure diagnostics
- Test duct pressure and perform static pressure checks; test pressure switch on two-stage gas furnace in both positive and negative pressures.
- 0.001 inH2O/KPa resolution, with +/- 0.02 accuracy less than 2 inH2O
- Temperature compensated; and overpressure protection +/- 50 inH2O



## 608 Single-Input Manometer

Measures pressure or vacuum in four units of measure.

- +/- 60 inH2O range, with backlit display
- Built in hanging hook and magnets
- 4 PSI over pressure
- Temperature compensated

**Applications:** • Regulator adjustments • Tankless hot water heaters • Boilers • Gas furnaces • Air Handlers including HRV (Heat, Recovery, Ventilation)



## 1010A Indoor Air Quality Meter

Measure CO, Humidity & Temperature

Use the 1010A to determine air quality in commercial buildings and facilities. Measure air control system performance

**Applications:**

- Facility air quality
- Air control system performance

**Ranges:**

- CO2: 0 to 5,000ppm; CO: 0 to 500ppm
- Temp: -5°F to 140°F (-20°C to 60°C)
- Relative Humidity: 5 to 95%
- Dew Point: -47°F to 135°F (-44°C to 57°C)
- Wet Bulb: 3°F to 135°F (-16°C to 57°C)
- Calculated % Outside Air: 0 to 100%



## 665 Tuffman™ Digital Manometer

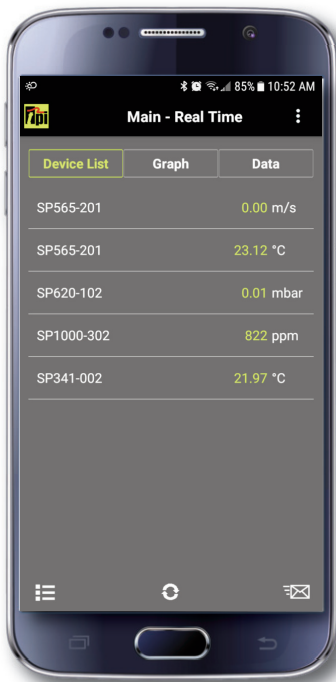
Rugged aluminum housing; and high-resolution: 0.001 PSI up to 99.999 PSI.

- Push button zero for altitude correction
- Seven selectable units of measure to choose from: mmHg, inHg, kPa, Bar, PSI, inH2O, and mmH2O
- Large easy-to-read LCD, with backlight (auto shut off after 10 seconds)
- Auto-off after 20 minutes (except REC mode or data logging to save battery life)
- Record minimum and maximum readings; and data hold
- Datalog 5000 readings with adjustable interval of from 1 second to 24 hours.
- Use the OPTIONAL IR to USB cable to connect to computer

**665L:** Dual input with differential range +/- 100 psi that can be used in non-corrosive liquid applications.

**A665:** Software USB cable data logging station for 665.





**Put Your Smartphone to Work!**

## TPI Smart Probes & Free TPI App

**Wireless Smart Probes** work conveniently with your smartphone or tablet to make measurement of airflow/speed, temperature, pressure and even CO2 easy and affordable.

Smart Probes and the TPI Smart Probe App provide remote access to data using Bluetooth technology. Measurement data is sent to your smart device, and can then be managed electronically. Email reports, store data, and reduce your paperwork.



**SP341 K-Type Thermometer** measures temperature with any sub-mini K-type probe. Calculate temperature differential, and record min/max & average. Auto-field calibrate. Measure temperatures in ducts and at vents or registers, as well as room temperatures. Range: -58° to 2462°F (-50° to 1350°C)

- Measure temperature of ambient air, and at registers and vents
- Measure temperature differential
- Calibrate thermostats

**SP565 Hot Wire Air Velocity Probe** measures air velocity & temperature in air vents with telescoping hot-wire probe. Record m/s, km/h, ft/m, knots, mile/h.

- Air velocity measurements in HVAC systems
- Air duct analysis to balance commercial and residential HVAC systems

**SP620 Pressure Probe** with +/-60 in H2O input range to measure gas manifold pressure, duct pressure, and perform static pressure checks.

- Test duct pressure & perform static pressure checks
- Adjust appliance regulators
- Test pressure switch on a 2-stage gas furnace in both positive and negative pressures

**SP1000 CO2 Probe** measures ambient CO2 up to 6000 ppm.

- Measure CO2 in the work place or other at-risk environments.
- Monitor performance of air control systems.

Download the free TPI App by scanning the QR code. For information on all Smart Probe accessories, please visit our web site: [testproductsintl.com](http://testproductsintl.com).

**Connect to Smartphone!**



## DC580 Airflow Meter

Hot-wire & Vane Anemometer

Measure Air Velocity & Temperature Simultaneously

- Field replaceable smart hot wire and vane probes
- Send data to your smartphone to save time with documentation and data management.
- Record minimum, maximum & average
- Measuring units: m/s, km/h, ft/min, knots, mile/h

### Applications:

- Air velocity measurements in HVAC systems
- Air duct analysis to balance commercial and residential HVAC systems
- Fume hoods, floor registers, and exhaust grills

### Ranges:

#### Air Velocity

Vane: 1.3 to 80 fps; 0.4 to 25 m/s  
 Hot Wire: 0.7 to 65 fps; 0.2 to 20 m/s

#### Temperature

-5°F to 175°F (-20°C to 80°C)



## TPI Analyzer Warranty & Service

TPI (Test Products International, Inc.) offers a full calibration and repair service for all TPI branded equipment.

TPI recognizes the importance of fast service for combustion gas analyzers and typical turnaround time is 3 to 5 days. Combustion 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.

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. For service or repair out of warranty, TPI provides a complete estimate of charges for approval prior to performing any service work.

For more information visit [www.testproductsintl.com](http://www.testproductsintl.com)



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