

# The ALL NEW testo 350 Emission Analyzer

For compliance testing and troubleshooting your combustion process



O<sub>2</sub>

CO

CO<sub>low</sub>

NO / NO<sub>2</sub>

NO<sub>low</sub>

NO<sub>x</sub>

CO<sub>2</sub> Infrared

SO<sub>2</sub>

HC

H<sub>2</sub>S

Temperature

Pressure

Flow, Velocity

Efficiency

Mass

# NEW! testo 350...

## Raises the Bar in Emission Testing and Combustion Analysis

Whether you are testing for compliance or troubleshooting your combustion process, the new testo 350 has everything you need. The **ultra-rugged construction**, coupled with a simple **intuitive operation** and **innovative measurement technology**, sets the new standard in emission testing and combustion analysis.

The testo 350's new exclusive sensor design, patented gas paths, active sample conditioning, advance data logging and reporting, work together seamlessly providing a lightweight and simple-to-use emission monitoring solution.

### 1. Control Unit

Docked or remote operation via Bluetooth (up to 300 feet) or wired (up to 1,000 feet)



### 2. HD Color Graphic Display



The testo 350 is built with rugged cam-lock connections and a simple USB interface.



### 3. Analyzer Box

Superior rugged construction



**Use it for testing:**

EPA methods • CTM's - 030, 034 • ASTM - D6522 • State and Local Protocols

## Built With Everything You Wanted...

Emission testing relies on proper hardware coupled with accurate measurements. It's critical how the sensors are integrated, flow rate is controlled, and exhaust gas is conditioned. The new testo 350 takes care of all these critical items and **provides the high performance and rugged portability** you require.

The 350's **new housing, bump protection and industrial connectors** enable it to **stand up to any field condition**. Simply click on the application icon and the analyzer automatically begins its setup process. The proper parameters, correct calculations, and real diagnostics are displayed in HD color. These features, coupled with the **intelligent automatic data logging and testing programs**, makes emission testing easier than ever before!

### 1. Control Unit

#### Small in size, but big in capability

- Measurement interface provides a multitude of field configurations so testing is faster to set up and easier to perform
- Use the control unit as your data storage device and download data at your convenience
- Use the fresh air button to purge instead of climbing a ladder to pull the probe
- With remote control, increase accuracy by eliminating long sample lines and long response times
- Click face down in the analyzer box for protection and added security
- Integrated magnets for mounting to steel surfaces



Control unit is simply clicked in place

### 2. Brilliant HD Color Display

#### A better view of combustion dynamics

- Real-time color graphics
- Intuitive operation lets you view collected data in a graph or numeric values
- See the measurements while standing at the control panel via a cabled connection or sitting in your car up to 300 feet away using the optional wireless Bluetooth

### 3. Analyzer Box

#### Where the measurement action begins

- Contains the pumps, sample conditioning, electronics, and up to six sensors
- Sensor temperature monitoring and compensation complement each other for increased accuracy
- Thermoelectric (peltier) chiller (optional) conditions the gas as required by regulatory agencies.
- Protection in many forms, from rubber bumpers to components mounted in shock-resistant material



Control unit turned over for safe transport

## Built for Superior Job Site Performance

*Proven technologies, coupled with clever designs, provide more testing versatility and the assurance the measurements are of the highest quality.*

- Testo's new digital sensors, with integrated circuitry provide numerous site benefits. For example, the sensor memory contains: calibration history, temperature compensation and information on the interference filter.
- Sensing technologies, such as electrochemical and infrared, combine to offer long-term measurement stability and superior response.
- Advanced temperature monitoring combined with new thermal control strategies result in unwavering results and confidence in the measurement.
- Smarter diagnostics provide more information. When conditions or analyzer configurations are not correct messages explain the next steps to better sensor protection.
- New quick change sensor filters increase sensor life and result in better accuracy.

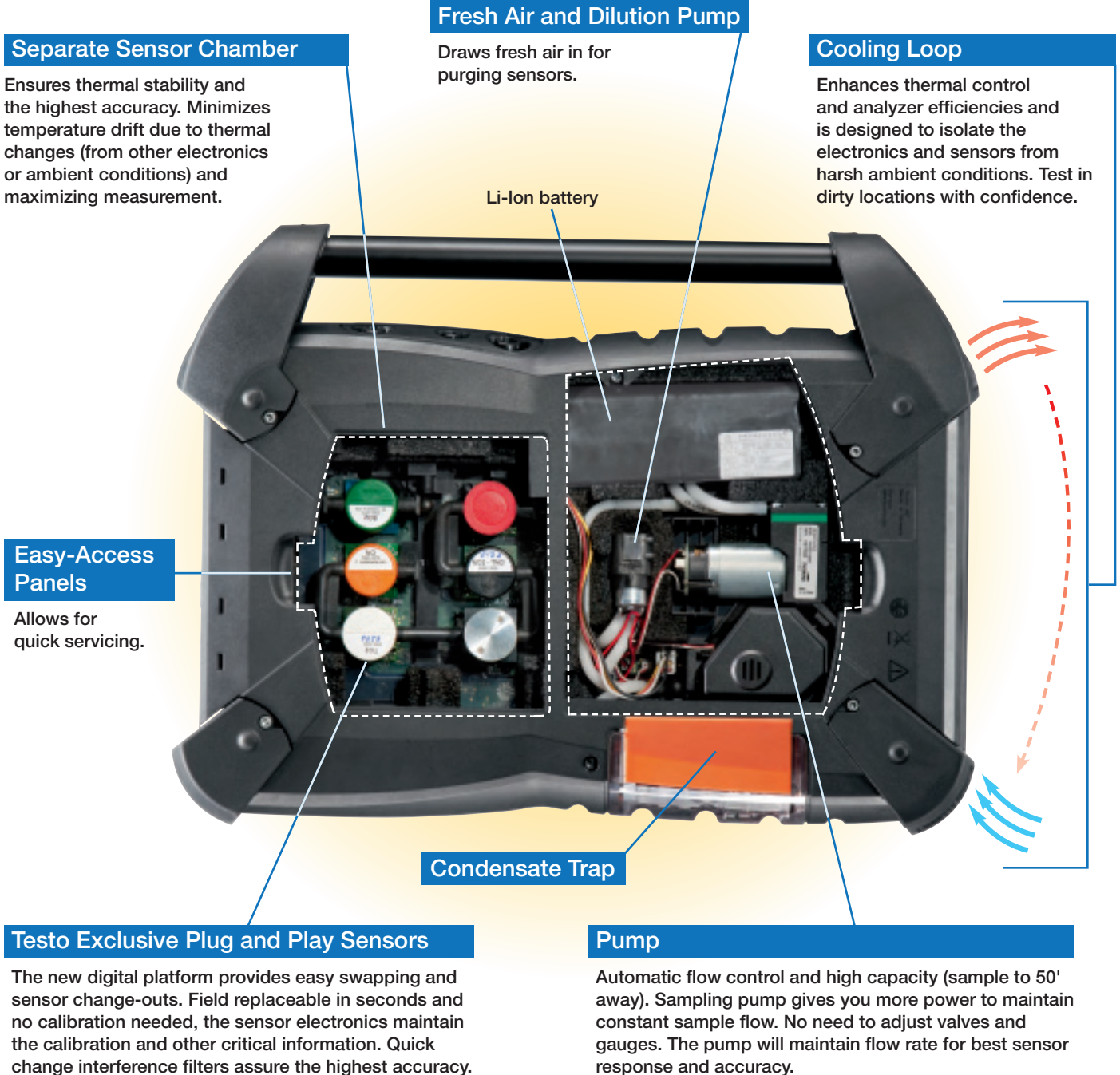


*Designed for the rugged demands of the job site with features to make testing easier.*

- The optional dilution system has proven to be essential in many applications where standard sensors cannot perform. Testing extreme concentration in automatic or the user-defined mode gives you the greatest flexibility.
- The new flow-controlled pump and gas paths (built with non-reactive materials) sets a new standard in sampling. No need to fumble with valves and flow meters because the 350 automatically corrects for positive or negative pressure. Combine these with sample hoses that utilize high-velocity sample transport and you get faster response and better sample integrity.
- The thermoelectric (Peltier-type) sample conditioner and peristaltic pump automatically removes moisture and provides a dry sample for more accurate results.

## testo 350 – Offers a New Level in Serviceability

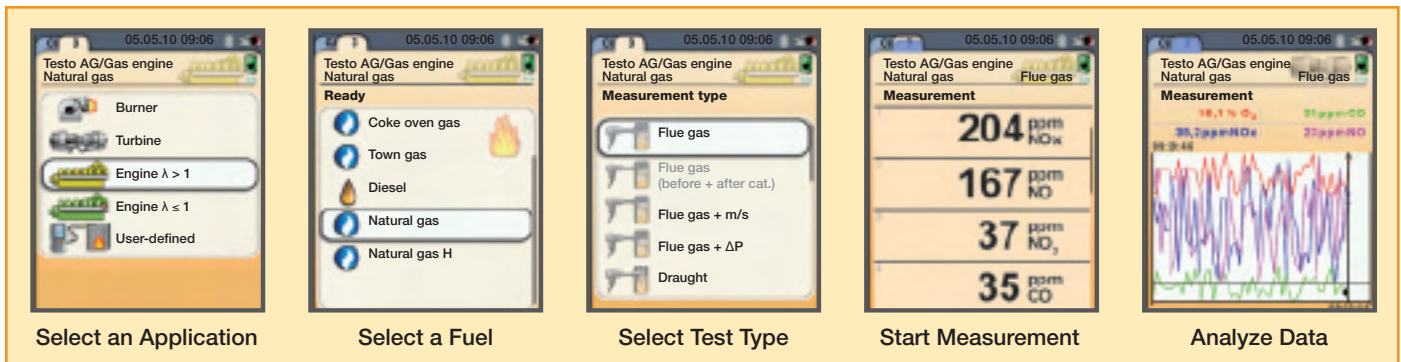
The testo 350 provides a new level in serviceability that will keep you testing day after day. The new design lets you perform routine service with plug and play convenience - and no tools are needed. Simply click out the sensors, or battery, or pumps - it's that simple.



## Built for the Most Important Application – Yours...

Knowing what you need, and what to expect, before the test can challenge the most experienced professional. But now, the new **testo 350** removes much of the guess work with its new intuitive application setup.

To start testing, simply select the icon for your application and the analyzer will set up the dilutions system and the measurement parameters that you need automatically. **The 350 makes testing easier in just five simple steps!**



### Better engine testing



Rich-burn engine exhaust, when uncontrolled, can have wide concentration ranges and both CO and NO<sub>x</sub> can fluctuate significantly. **The on-board CO dilution system will automatically set-up for optimum testing, perfect for a rich burn engine.** Lean-burn engines have different exhaust characteristics, but NO<sub>2</sub> can make up a significant portion of the total NO<sub>x</sub> measurement. **The 350 measures both NO and NO<sub>2</sub> for proper lean-burn engine set-up.**

Due to high concentration, replaceable interference filters keep the sensors stable and your readings accurate. High exhaust pressures and heavy particulate loading are easily controlled with the **special pressure relief valve (standard) on the engine probe configuration.**



### Better boiler and burner tuning



Industrial boilers and burners have their own unique characteristics. When an unexpectedly high CO is detected, **the testo 350 will automatically adjust to the situation**, keeping the sensor protected at all times.

Don't worry about climbing and removing the probe from the stack, just hit the fresh air button. The measurements of O<sub>2</sub>, CO, NO and SO<sub>2</sub>, combined with automatic calculations (CO<sub>2</sub>, efficiency, excess air), provide fast tuning solutions. The 350's **compact design is better for working on a platform or small space.** The automatic zero pressure measurement is **ideal to monitor flow or draft induction.** With a pitot tube you can quickly measure velocity and determine mass flow even during long term testing.



## Emission and Combustion Testing... Made Easier

### Better turbine testing



High horsepower but low emissions are typical of the turbines and as a result, you need an analyzer that is **especially equipped to handle low thresholds and still deliver the highest accuracy.** When you need to make critical control or warranty decisions, the 0.1 ppm resolution will provide the highest accuracy. The low NO<sub>x</sub> and low CO sensors are ideal for the accuracy today's turbines demand.



### Better industrial processes testing



Combustion analyses in industrial processes vary widely. O<sub>2</sub> and CO measurements are critical for proper combustion; NO<sub>x</sub> or SO<sub>2</sub> measurements are important for today's pollution control devices. Sometimes extreme concentrations are also encountered and unexpected. The testo 350's dilution system provides the protection and accuracy to continue working.

High temperature sampling in kilns can be easily achieved with the wide array of probes and hose options for the testo 350. **The testo 350 is truly an analyzer designed to be your industrial workhorse.**



### Better combustion testing and tuning

Sometimes a single sample location is just not enough for an optimum measurement. Sometimes you need information before the catalyst, or want more information to give you better SCR performance, or maybe more data to help you design or troubleshoot a system. Whatever the requirement, **the unique multi-unit capability provides unlimited testing configurations.**

**Connect multiple analyzer boxes (up to 16 total) through the testo BUS to better understand your process.** The graphing display of real time NO<sub>x</sub> or CO gives you information in real-time. For additional flexibility, a six channel analog output box can be looped in the system to provide a (user selected) 4-20 mA output.



## More Features for Superior Performance

- Test up to six gases simultaneously, or swap sensors out for additional parameters:  $\text{NO}_{\text{low}}$ ,  $\text{CO}_{\text{low}}$ ,  $\text{SO}_2$ ,  $\text{H}_2\text{S}$ ,  $\text{CO}_2$ ,  $\text{C}_x\text{H}_y$
- Innovative dilution systems for the widest testing ranges and greatest sensor protection: (CO to 400,000 ppm) ( $\text{NO}$ ,  $\text{NO}_2$ ,  $\text{SO}_2$ ,  $\text{H}_2\text{S}$  to five times the sensor range)
- Advanced sample conditioning utilizes a thermoelectric chiller for moisture drop-out and a peristaltic hose pump for controlled water removal
- Automatic flow-controlled pump with high strength sampling to over 50 feet away
- Proven sample gas path with Teflon® lined hoses
- Continuous temperature compensation for assured accuracy
- Flow rate and sensor temperature monitoring for US EPA CTM-030, -034 and ASTM D6522 requirements
- User defined programs with onboard memory to 250,000 values
- Integrated pressure measurement for draft,  $\Delta\text{P}$ , velocity and mass emission



- AC and rechargeable battery operation with optional DC connection operation
- Comprehensive calculations including  $\text{O}_2$  corrections for  $\text{NO}_x$ , CO, and  $\text{SO}_2$ , mass measurement with pitot and stack dimension input
- User defined  $\text{O}_2$  reference for EPA and state reporting

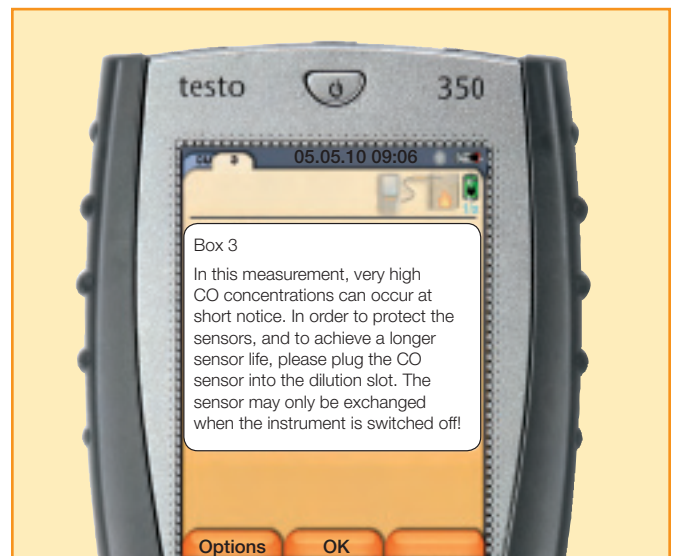
## And Better Diagnostics for More Control

Onboard diagnostics keeps you testing

Press the "i" button for:

- Sensor status
- Battery life
- Pump hours and pump flow rate (liters/min)
- Error reports, and more

The analyzer will automatically alert you when servicing is needed and provides you up to the minute information about the "Health" of your analyzer and its components.



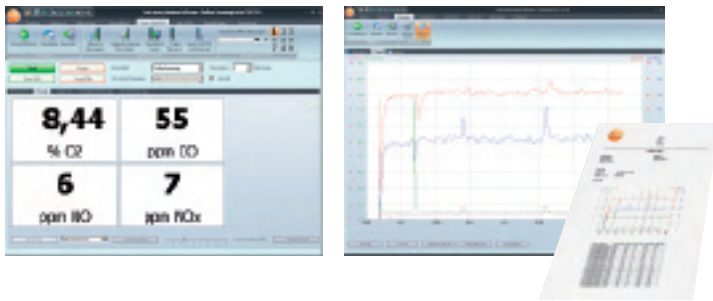
**Diagnostic function alerts you with text message on the display.**



# easyEmission Software – Convenient Powerful Data Management

## A powerful and efficient software tool

Have total control of the 350 with the easyEmission software package. This software provides extraordinary data management by giving you the power to import/export data in a variety of formats. easyEmission has the intuitive user interface of today's common Windows® based applications so you can easily prepare custom reports and documents.



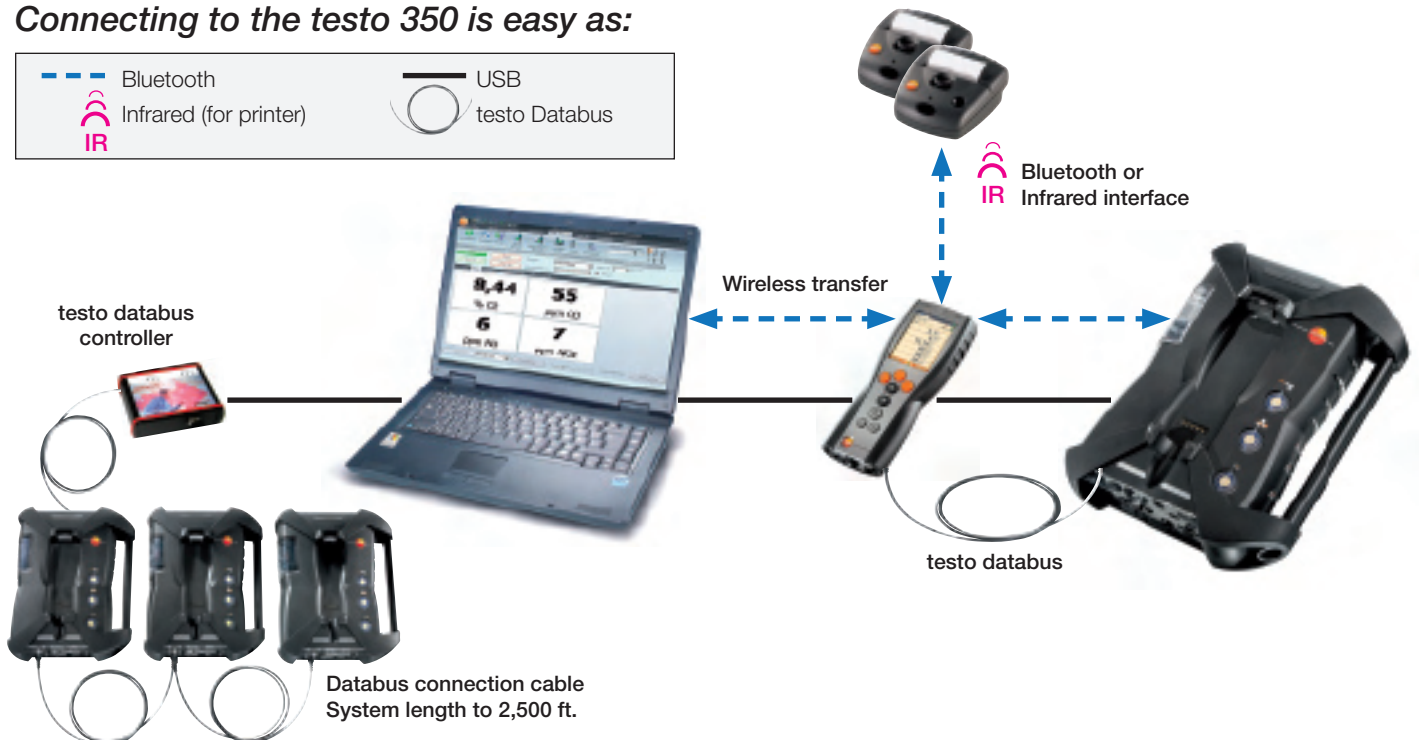
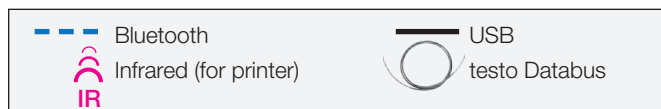
Some popular user-defined capabilities include:

- Real-time analyzer control with a PC, showing tabular, graphical and picture box results
- Logging intervals 1/sec to 1/hr
- Real-time analyzer control with a PC, showing tabular and graphical results
- Custom formulas for specific report calculations
- Custom report generation
- Quick data transfer into Microsoft EXCEL® and PDF file formats
- Extensive customer/location management functions
- Calculations of maximum, minimum, and average values

**Download our 30-day test version at [www.testo350.com](http://www.testo350.com)**

**Take your pick.**

**Connecting to the testo 350 is easy as:**



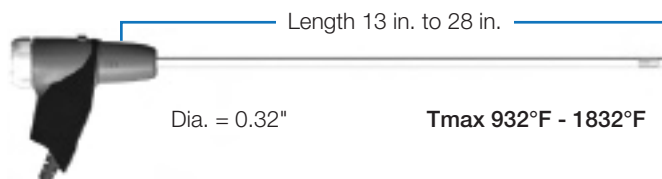
# Sampling Probes for Every Application

The standard stainless steel probes are available in 13" or 28" lengths and are equipped with integrated thermocouples. Each can be upgraded with a sintered pre-filter for high particulate loading. The powerful pumps are uniquely engineered to combine both high velocity transport and minimal surface area contact to all but eliminate sample absorption. Our patented hoses offer high performance sampling at a fraction of the price. Hoses are available in 7 ft. lengths. Add 9 ft. extensions for additional length.

With our wide selection of industrial thermocouples, adapters, and heated sample lines, testo is able to provide a sampling solution for your specific needs. Additional hoses and probes are available:

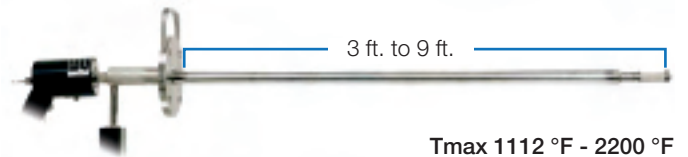
- For engine testing and high pressure applications
- For high particulate loading
- For compliance or cold weather sampling with heated lines

## Standard gas sampling probe



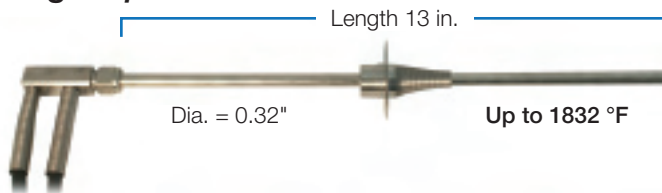
Material probe shaft stainless steel Tmax 932°F - 1832°F  
 Hose length: Standard 7 ft.; Teflon lined  
 Nine foot hose extensions for lengths up to 50 feet  
 Modular flue gas probes, available in two lengths, incl. probe stop, NiCr-Ni thermocouple, sintered filter options.

## Industrial gas sampling probes



The industrial sampling probes are specifically designed for the rigors of industrial stack gas sampling. The industrial probe shafts come in lengths of 39 inches (one meter) long with rugged screw connections. Three probe shafts can be connected for a probe length of nearly 10 feet. The probe shafts are available in two materials - stainless steel for temperatures to 1112°F or Inconel for temperatures to 2192°F. Ceramic pre-filters can be quickly added for high particulate loading. The Al-oxide ceramic probe can withstand enormous thermal loads to 3272°F.

## Engine probe



Material probe shaft stainless steel Tmax 1832°F  
 Hose length: Standard 7 ft.; Teflon lined  
 Nine foot hose extensions for lengths up to 50 feet  
 Thermocouple and sintered filter kits available



## PART NUMBERS

testo 350 Control unit	Part no.	testo 350 analyzer box testo 350	Part no.
testo 350 Control Unit, displays measurement values and controls analyzer box, incl. rech. battery, measurement data store, USB interface and connection for testo databus	0632 3511	testo 350 analyzer box, equipped with O <sub>2</sub> , incl. differential pressure sensor, temperature probe input Type K NiCr-Ni and Type S Pt10Rh-Pt, connection testo databus, rech. battery, integrated combustion air probe (NTC), trigger input, measurement data store, USB interface, updatable to max. 6 gas sensors selected from CO, CO <sub>low</sub> , NO, NO <sub>low</sub> , NO <sub>2</sub> , SO <sub>2</sub> , CO <sub>2</sub> NDIR, C <sub>x</sub> H <sub>y</sub> , H <sub>2</sub> S	0632 3510
<b>testo 350 Option for control unit testo 350</b>			
Option BLUETOOTH® wireless transmission			
<b>testo 350 Accessories for control unit testo 350</b>			
Power supply for testo 350 Control Unit, 230V / 8V / 1A	0554 1096		

## OPTIONS

At least one additional sensor is needed for analyzer to operate. Up to 5 additional sensors can be installed.

- CO (H<sub>2</sub>-compensated) sensor, 0 to 10000 ppm, resolution 1 ppm
- CO<sub>low</sub> (H<sub>2</sub>-compensated) sensor, 0 to 500 ppm, resolution 0.1 ppm
- NO sensor, 0 to 4000 ppm, resolution 1 ppm
- NO<sub>low</sub> sensor, 0 to 300 ppm, resolution 0.1 ppm
- NO<sub>2</sub> sensor, 0 to 500 ppm, resolution 0.1 ppm
- SO<sub>2</sub> sensor, 0 to 5000 ppm, resolution 1 ppm
- CO<sub>2</sub> (NDIR) sensor, 0 to 50 Vol %, resolution 0.01 Vol %, infrared measurement principle, incl. absolute pressure measurement, condensate container filling level monitoring and CO<sub>2</sub> absorption filter with filler pack
- C<sub>x</sub>H<sub>y</sub> sensor, methane 100 to 40000 ppm, propane 100 to 21000 ppm, butane 100 to 18000 ppm, resolution 10 ppm.
- H<sub>2</sub>S sensor, 0 to 300 ppm, resolution 0.1 ppm

### More options:

- BLUETOOTH® wireless transmission
- Peltier gas preparation incl. peristaltic pump for automatic condensate evacuation
- Fresh air valve for long-term measurement, incl. measuring range extension with dilution factor 5 for all sensors
- Measuring range extension for individual slot with the following selectable dilution factors: 0, 2, 5, 10, 20, 40
- DC voltage input 11V to 40V
- Special gas pump for long-term measurements with extended guarantee. For measurements >2 hours, the option Peltier gas preparation is additionally recommended.
- Automatic zeroing of pressure sensor for continuous flow velocity / differential pressure measurement

## ACCESSORIES

For testo 350 analyzer box and transport case	Part no.
Cable with battery terminals to connect to DC voltage input	0554 1337
Interchangeable filter NO sensor, blocks cross-gas SO <sub>2</sub>	0554 4150
Transport case for analyzer probe and accessories, dimensions 22.5" x 18.5" x 8.5"	0516 3510
Carrying strap set for analyzer box	0554 0434
Spare dirt filter for analyzer box (20 per box)	0554 3381
Exhaust hose kit to remove gas from breathing space, length 16 feet	0554 0451
Wall holder for analyzer, lockable	0554 0203
Current/voltage cable (0 to 1000 mV, 0 to 10 V, 0 to 20 mA)	0554 0007

## PART NUMBERS

PC software and testo databus	Part no.
Software "easyEmission," incl. USB connection cable instrument-PC.	0554 3334
Software "easyEmission," incl. testo Databus Controller with USB-connection cable instrument-PC, cable for testo databus. For example, if several testo 350 flue gas analyzers are connected to the testo databus, they can be controlled via a PC (possible measurement interval in databus from 1 measurement per second)	0554 3336
Multiple software license "easyEmission" for flue gas analyzer testo 350	0554 3337
6.5 ft. Connection cable	0449 0075
16 ft. Connection cable	0049 0076
65 ft. Connection cable	0049 0077
Other cable lengths up to 3000 feet on request	

Printers and accessories	Part no.
Testo fast printer with wireless infrared interface, 1 roll of thermal paper and 4 batteries	0554 0549
BLUETOOTH® printer kit with wireless Bluetooth interface, incl. 1 roll of thermal paper, rech. battery and power supply	0554 0553
Spare thermal paper for printer (6 rolls), 10 years legibility	0554 0568
Spare thermal paper for printer (6 rolls)	0554 0569
Other cable lengths up to 3000 feet on request	
Analog output box set, 6 channels, 4 to 20mA, to transfer values (i.e. analog recorder). Kit includes: analog output box, 6.5 ft. connection cable	0554 3149

*Contact testo for standard probes, engine probes, industrial probes, pitot tubes and more*

## TECHNICAL DATA

### Control Unit

<b>Operating temperature</b>	20 °F to 115 °F
<b>Storage temperature</b>	-4 °F to 122 °F
<b>Battery type</b>	Li-Ion
<b>Battery life</b>	5 hrs. (without wireless connection)
<b>Memory</b>	2 MB (250,000 measurement values)
<b>Weight</b>	0.97 lbs.
<b>Dimensions</b>	10 x 4.5 x 2.3 in.
<b>Warranty</b>	2 years
<b>Protection class</b>	IP 40

TECHNICAL DATA

**Analyzer Box testo 350**

Measurement	Measurement range	Accuracy	Resolution	Reaction time	Reaction type
O <sub>2</sub>	0 to +25 Vol. % O <sub>2</sub>	±0.8% of fsv (0 to +25 Vol. % O <sub>2</sub> )	0.01 Vol. % O <sub>2</sub> (0 to +25 Vol. % O <sub>2</sub> )	20 s	t <sub>95</sub>
CO <sub>low</sub> (H <sub>2</sub> compensated)*	0 to +10000 ppm CO	±5% of mv (+200 to +2000 ppm to +2000 ppm CO) ±10% of mv (+2001 to +10000 ppm CO) ±10 ppm CO (0 to +199 ppm CO)	1 ppm CO (0 to +10000 ppm CO)	40 s	t <sub>90</sub>
CO <sub>low</sub> (H <sub>2</sub> compensated)*	0 to +500 ppm CO	±5% of mv (+40 to +500 ppm CO) ±2 ppm CO (0 to +39.9 ppm CO)	0.1 ppm CO (0 to +500 ppm CO)	40 s	t <sub>90</sub>
NO	0 to +4000 ppm NO	±5% of mv (+100 to +1999.9 ppm NO) ±10% of mv (+2000 to +4000 ppm NO) ±5 ppm NO (0 to +99 ppm NO)	1 ppm NO (0 to +3000 ppm NO)	30 s	t <sub>90</sub>
NO <sub>low</sub>	0 to +300 ppm NO	±5% of mv (+40 to +300 ppm NO) ±2 ppm NO (0 to +39.9 ppm NO)	0.1 ppm NO (0 to +300 ppm NO)	30 s	t <sub>90</sub>
NO <sub>2</sub>	0 to +500 ppm NO <sub>2</sub>	±5% of mv (+100 to +500 ppm NO <sub>2</sub> ) ±5 ppm NO <sub>2</sub> (0 to +99.9 ppm NO <sub>2</sub> )	0.1 ppm NO <sub>2</sub> (0 to +500 ppm NO <sub>2</sub> )	40 s	t <sub>90</sub>
SO <sub>2</sub>	0 to +5000 ppm SO <sub>2</sub>	±5% of mv (+100 to +2000 ppm SO <sub>2</sub> ) ±10% of mv (+2001 to +5000 ppm SO <sub>2</sub> ) ±5 ppm SO <sub>2</sub> (0 to +99 ppm SO <sub>2</sub> )	1 ppm SO <sub>2</sub> (0 to +5000 ppm SO <sub>2</sub> )	30 s	t <sub>90</sub>
CO <sub>2</sub> (IR)	0 to +50 Vol. % CO <sub>2</sub>	±0.3 Vol. % CO <sub>2</sub> + 1% of mv (0 to 25 Vol. % CO <sub>2</sub> ) ±0.5 Vol. % CO <sub>2</sub> + 1.5% of mv (>25 to 50 Vol. % CO <sub>2</sub> )	0.01 Vol. % CO <sub>2</sub> (0 to 25 Vol. % CO <sub>2</sub> ) 0.1 Vol. % CO <sub>2</sub> (>25 Vol. % CO <sub>2</sub> )	10 s	t <sub>90</sub>
H <sub>2</sub> S	0 to +300 ppm H <sub>2</sub> S	±5% of mv (+40 to +300 ppm) ±2 ppm (0 to +39.9 ppm)	0.1 ppm (0 to +300 ppm)	35 s	t <sub>90</sub>
Efficiency	0 to +120 %		0.1 % (0 to +120%)		
Exhaust gas loss	0 to +99.9 % qA		0.1 % qA (-20 to +99.9 % qA)		
CO <sub>2</sub> calculation	0 to CO <sub>2</sub> max Vol. % CO <sub>2</sub>	Calculated from O <sub>2</sub> ±0.2 Vol. %	0.01 Vol. % CO <sub>2</sub>	40 s	t <sub>90</sub>
Differential pressure 1	-16 to +16 "H <sub>2</sub> O	±1.5% of m.v. -16 to -1 "H <sub>2</sub> O ±1.5% of m.v. 1.2 to +16 "H <sub>2</sub> O 0.1 "H <sub>2</sub> O -1.20 to 1.20 "H <sub>2</sub> O	0.004 "H <sub>2</sub> O (-16 to +16 "H <sub>2</sub> O)		
Differential pressure 2	-80 to +80 "H <sub>2</sub> O	±1.5% of m.v. (-80 to +20 "H <sub>2</sub> O) ±1.5% of m.v. (+20 to +80 "H <sub>2</sub> O) 0.2 "H <sub>2</sub> O (-20 to +20 "H <sub>2</sub> O)	0.004 "H <sub>2</sub> O (-80 to 80 "H <sub>2</sub> O)		
Flow velocity	0 to 131 ft/sec		0.1ft/sec to 131 ft/sec		
Absolute pressure (opt. if IR sensor equipped)	-240 to 461 "H <sub>2</sub> O	± 4 "H <sub>2</sub> O	0.4 "H <sub>2</sub> O		
Flue gas dewpoint calculation	32 to 212 °F		0.18 °F (32 to 212 °F)		

\* H<sub>2</sub> display only as an indicator \*\*Accuracy can be increased with an on-site calibration. Contact testo for details.

**TECHNICAL DATA**

**Individual dilution with selectable dilution factor (x2, x5, x10, x20, x40)**

Measurement	Measurement range	Accuracy	Resolution
CO (H <sub>2</sub> compensated)	dilution factor-dependent	±2 % of m.v. (additional error)	1 ppm
CO <sub>low</sub> (H <sub>2</sub> compensated)	dilution factor-dependent	±2 % of m.v. (additional error)	0.1 ppm
NO	dilution factor-dependent	±2 % of m.v. (additional error)	0.1 ppm
NO <sub>low</sub>	dilution factor-dependent	±2 % of m.v. (additional error)	0.1 ppm
SO <sub>2</sub>	dilution factor-dependent	±2 % of m.v. (additional error)	1 ppm
HC-Pellistor	dilution factor-dependent	±2 % of m.v. (additional error)	10 ppm

**Dilution of all sensors (Factor 5)**

Measurement	Measurement range	Accuracy	Resolution
CO (H <sub>2</sub> compensated)	2500 to 50000 ppm	±5 % of m.v. (additional error) Pressure range -40 to 0 in H <sub>2</sub> O at probe tip	1 ppm
CO <sub>low</sub> (H <sub>2</sub> compensated)	500 to 2500 ppm	±5 % of m.v. (additional error) Pressure range -40 to 0 in H <sub>2</sub> O at probe tip	0.1 ppm
NO	1500 to 20000 ppm	±5 % of m.v. (additional error) Pressure range -40 to 0 in H <sub>2</sub> O at probe tip	1 ppm
NO <sub>low</sub>	300 to 1500 ppm	±5 % of m.v. (additional error) Pressure range -40 to 0 in H <sub>2</sub> O at probe tip	0.1 ppm
SO <sub>2</sub>	500 to 25000 ppm	±5 % of m.v. (additional error) Pressure range -40 to 0 in H <sub>2</sub> O at probe tip	1 ppm
NO <sub>2</sub>	500 to 2500 ppm	±5 % of m.v. (additional error) Pressure range -40 to 0 in H <sub>2</sub> O at probe tip	0.1 ppm
H <sub>2</sub> S	200 to 1500 ppm	±5 % of m.v. (additional error) Pressure range -40 to 0 in H <sub>2</sub> O at probe tip	0.1 ppm

**Technical data HC Sensor**

Measurement	Measurement range <sup>1</sup>	Accuracy	Resolution	Min. O <sub>2</sub> requirement in flue gas	Response time t90	Response-Factor <sup>2</sup>
Methane	100 to 40,000 ppm	< 400 ppm (100 to 4000 ppm) < 10 % of m.v. (> 4000 ppm)	10 ppm	2% + (2 x m.v. methane)	< 40 sec.	1
Propane	100 to 21,000 ppm	< 400 ppm (100 to 4000 ppm) < 10 % of m.v. (> 4000 ppm)	10 ppm	2% + (5 x m.v. propane)	< 40 sec.	1.5
Butane	100 to 18,000 ppm	< 400 ppm (100 to 4000 ppm) < 10 % of m.v. (> 4000 ppm)	10 ppm	2% + (6.5 x m.v. butane)	< 40 sec.	2

<sup>1</sup> Lower explosion limit must be adhered to.

<sup>2</sup> The HC sensor is adjusted to methane in the factory. It can be adjusted to another gas (propane or butane) by the user.

## TECHNICAL DATA

### *Other technical data*

Dimensions	13" x 5" x 17.2"
Weight	10.58 lbs.
Storage temperature	-4°F to 122°F
Operating temperature	22 to 113°F
Housing material	ABS
Memory	250,000 measurement values
Power supply	AC power supply 90V to 260V (47 to 65 Hz)
DC voltage supply	11V to 40V
Maximum dust load	20 g/m <sup>3</sup> dust in flue gas
Dewpoint calculation	32 to 212 °F
Maximum positive pressure flue gas	20 "H <sub>2</sub> O
Maximum negative pressure	-120 "H <sub>2</sub> O
Pump flow rate	1 l/min. with flow rate monitoring
Hose length	max 53 ft. (corresp. to 5 probe hose extensions)
Maximum humidity load	+158°F at gas input of analyzer box
Trigger input	Voltage 5 to 12 Volt (rising or falling flank) Impulse width > 1 sec Load: 5 V/max, 5 mA, 12 V/max. 40 mA
Protection class	IP40
Battery life	Maximum load approx. 2.5 h

## WARRANTY

Instrument*	2 years (except for replaceable parts, i.e. gas sensors...)
Gas sensors	CO/NO/NO <sub>2</sub> /SO <sub>2</sub> /H <sub>2</sub> S/C <sub>x</sub> H <sub>y</sub> ; 1 year
O <sub>2</sub> sensor	1 1/2 years
CO <sub>2</sub> -IR sensor	2 years
Rechargeable battery	1 year

\*Warranty applies for average sensor load.

## Other measuring solutions from testo



330-2 LL Graphic  
**3-Gas Analyzer**

With new instrument functions, the testo 330-LL graphic series combustion analyzer now offers you more versatility for commercial combustion applications.



882  
**Thermal Imager**

The testo 882 Thermal Imager is an industry leader with its 320x240 array, allowing for precise infrared images and 76,800 measurement points.



340  
**The Ultimate Tuner  
4-Gas Analyzer**

The testo 340 is equipped with a standard O<sub>2</sub> sensor. Three additional gas sensors can be individually configured at any time so your analyzer is perfect for your job. Compact design, combined with reliable engineering, makes testo 340 the ideal analyzer for engine tuning, commissioning, service and maintenance.



6381  
**Transmitter**

The testo 6381 differential pressure transmitter provides a rugged instrument for industry for monitoring differential pressure in the measuring range from .04 "H<sub>2</sub>O to 401.4 "H<sub>2</sub>O. Configure with or without the display to satisfy your application.



### CONTACT INFORMATION

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