Combustion Analyzers

327 Oxygen Analyzer
Troubleshoot coal-fired systems, perform engine tuning and adjust burners in industrial kilns with the new 327 single gas analyzer. Comes with a 3 year O₂ sensor warranty!

330-2 LL Combustion Analyzer
Ideal for commercial / industrial burner-boiler service. Automatically measures O₂, CO, Temperature, Draft, Pressure, Efficiency, Excess air and critical CO₂ calculations. An integrated CO dilution system expands high range CO testing to 30,000 ppm. Optional NO sensor for High NOx or Low NOx testing.

335 Three Gas Industrial Analyzer
More powerful, with increased sensor ranges for the most demanding combustion analysis. Ideal for engine tuning, boiler maintenance and process management. Measures oxygen and up to two other user selected gases such as CO, CO₂, NO, NOₓ, O₂, CO, and SO₂, for the greatest testing flexibility.

Pressure

510 Digital Manometer
Perform system diagnostic tests with a single meter including total external static pressure (TESP), differential pressure duct velocities (cfm with optional pitot tube) and manifold pressures.

511 Absolute Pressure Meter
Perform pressurization risk assessments for combustion air zones as well as room-to-room pressurization tests without running a reference hose.

IR - Non-Contact Temperature

880 Thermal Imager
High performance thermal imaging at an affordable price. Perform inspections and reduce risks and costly downtimes on industrial machinery, switchgears, process equipment and much more. Professional software, high resolution images and easy joystick navigation make it easy to use and practical to own.

845 Infrared Thermometer with Switchable Optics
Use the 845 to measure points as close as 1/4 inch, then simply slide switch for measurements across the room. Whether close up or at a long distance, the 845 gives you exact readings in seconds plus it can also log the data points for analysis.

318 Video PRO Borescope
318-V features powerful optics for easier examination of areas normally hidden from sight. Comfortable handle grip, convenient on/off light switch; 0.4” diameter shaft (10 mm); and video output for recording. Ideal for internal inspections during industrial applications.

For More Information visit www.testo350.com

For more information:
testo, Inc., 40 White Lake Road, Sparta, NJ 07871
800-227-0729 • Fax 862-364-5020

Committing to the Future!
The 350 emission analyzer - the world’s most advanced - provides compliance level accuracy, extreme testing flexibility, and the highest performance. It’s no wonder why the testo 350 is chosen by more professionals for emission testing and process monitoring. Simply put, for every combustion application, the 350 analyzer offers a solution. The 350 helps meet the ever increasing demands of regulations and the needs of process efficiency and optimization. Exclusive sensor design, patented sample gas paths, active sample conditioning all come together for a perfect, lightweight, simple-to-use emission monitoring solution. So, whether you are testing for state or EPA compliance, or to troubleshoot and tune your combustion process, the testo 350 will do it with ease.

Control Unit
- Simple handheld operation provides greater testing flexibility
- Display and print the values you want
- Operate docked or remotely with wire or Bluetooth 2.0

Analyzer Box
- Greater accuracy with testo exclusive Low NOx and Low CO sensors
- Continuous temperature compensation and sensor temperature control
- Wide testing ranges with integrated sample dilution systems
- Advanced NDIR technology for accurate CO2 measurement
- Superior sample conditioning for True NOx results
- Powerful pumps for fast response

Recommended for testing using:
- EPA test methods
- CTM’s - 030, 034
- ASTM - D6522
- State & Local Protocols: CA, TX, OK, PA, etc.

Sampling probes
The widest and most complete line available

Standard gas sampling probes
13” & 28” lengths with or without pre-filtering

Modular industrial gas sampling probe
3 ft. lengths (from 1200 to 2200°F) with optional pre-filtering, thermocouples, and heated lines

Pitot tubes
for stack flow and velocity measurements. Simply attach for real time display of mass emissions (lbs./hr., etc.)

Temperature controlled thermal module extends ambient testing range for increased accuracy

Plug and play smart sensors are field replaced in seconds. Delivered factory-calibrated for immediate accuracy

Simple rugged technology for optimum versatility. High-velocity sample transport and the integrated thermo-electric cooler make sampling - hassle free! Remote control convenience makes it easy. Application configured kits make the testo 350 perfect for you.

- The most accurate sensors for low range NOx (NO & NOx) and CO (0.1 ppm) or swap out for higher range testing
- Superior sample conditioning proven to be effective, convenient, and vital for ultimate accuracy
- Integrated dilution system for extended testing ranges, greater sensor protection and unlimited testing possibilities
- Easy data logging with on-board, user defined, automatic testing programs that can last for minutes or months
- Powerful software options that provide a wealth of information and complete control from your keyboard

The 350’s modular design provides vast opportunities to configure an analyzer system for your specific testing requirement. Plug and play sensors give you optimum versatility. High-velocity sample transport and the integrated thermoelctric cooler make sampling - hassle free! Remote control convenience makes it easy. Application configured kits make the testo 350 perfect for you.

The testo 350 - the total solution for emission testing and combustion analysis

Designed for the most important application - yours!

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Sampling probes
The widest and most complete line available

Pitot tubes
for stack flow and velocity measurements. Simply attach for real time display of mass emissions (lbs./hr., etc.)

Temperature controlled thermal module extends ambient testing range for increased accuracy
The Control Unit - “S” or “XL” model

The “S” version control unit is a handheld device that communicates with the analyzer while either docked securely in the analyzer box for standard testing or removed and placed remotely (i.e., truck, control room or thousands of feet away). Have total control of the system at your fingertips during engine or boiler tunings and display real time measurements on the large backlit display. You can also print the results of your testing on the integrated thermal printer or use the RS 232 computer interface for immediate software display.

The XL control unit is an upgrade from the “S” version. It offers multi-unit data bus capability, a differential pressure sensor and an additional socket for many other measurement probes. A touch screen option is available on the XL version only. Both versions can be upgraded with wireless Bluetooth 2.0 communication. Now you can communicate up to 330 feet away. The wireless option eliminates cables and makes set-up easy!

Control unit testo 350-S  Control unit testo 350-XL

Control unit testo 350-S, control unit testo 350-XL

The Analyzer Box - “S” or “XL” model

The analyzer box is the “heart” of the measuring system and is available in two different versions:

The basic 350-S model

The testo 350-S comes standard with an O₂ cell and one other module of your choice. However, up to five additional modules (CO₂, SO₂, NO(ox), CO, CO₂(ox), H₂S, CH₄ or CO₂) can also be retrofitted for a maximum of six cells. Temperature and differential pressure are standard while efficiency and excess air are calculated. Upgrades to the “S” model include a sample conditioning system, dilution system and/or fresh air valve for long-term monitoring.

The advanced 350-XL model

All of the “S” model upgrades are standard in the “XL” version.

- Test up to six gases simultaneously or swap them for additional parameters with convenient plug and play sensors (CO₂, NO(ox), CO₂(ox), SO₂, H₂S, CO₂, CO₂)
- Advanced sample conditioning utilizes an integrated Pelteir chiller for moisture drop-out, a peristaltic hose pump for controlled water removal, and quick-change particulate filters
- Proven sample gas path with Tellor® lined hoses
- Continuous temperature compensation for assured accuracy
- Innovative dilution systems for the widest testing ranges and greatest sensor protection. CO to 400,000 ppm, NO, NO, SO₂, H₂S to 5 times the sensor range
- User defined programs with onboard memory to 250,000 values
- Integrated pressure measurement for draft, ΔP, velocity and mass emission
- Rechargeable battery with outboard DC connection and AC operation
- Flow rate and sensor temperature monitoring for US EPA CEM 300 – 034 and ASTM D6522 requirements
- Comprehensive calculations including O₂ corrections for NO₂, CO, and SO₂, mass measurement with pilot and stack dimension input
- Simple on-site sensor calibration capability including diagnostics and sensor output (0 – 1000)

Compare Analyzer Box Models S and XL

<table>
<thead>
<tr>
<th>Parameter</th>
<th>testo 350 S</th>
<th>testo 350 XL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Built-in printer</td>
<td>■</td>
<td>■</td>
</tr>
<tr>
<td>Differential pressure measurement (-16” to +16” H₂O / -80” to +80” H₂O)</td>
<td>–</td>
<td>■</td>
</tr>
<tr>
<td>1 user defined probe socket (for i.e. temperature, relative humidity measurement, etc.)</td>
<td>–</td>
<td>■</td>
</tr>
<tr>
<td>Touchscreen</td>
<td>–</td>
<td>○</td>
</tr>
<tr>
<td>Connection from a flow gas analyzer to the control unit</td>
<td>■</td>
<td>■</td>
</tr>
<tr>
<td>Connection of several flow gas analyzers (testo data bus)</td>
<td>–</td>
<td>■</td>
</tr>
<tr>
<td>NAMUR rechargeable battery pack</td>
<td>–</td>
<td>■</td>
</tr>
<tr>
<td>Internal memory for 250,000 readings</td>
<td>–</td>
<td>■</td>
</tr>
<tr>
<td>Bluetooth® 2.0</td>
<td>○</td>
<td>○</td>
</tr>
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</table>

■ = Standard  ○ = Upgrade Option  – = Not Available
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Control unit testo 350-S  Control unit testo 350-XL

- Additional DP sensor
- Additional probe socket for a wide range of parameters
- Remote cable connection
- RS 232 connection

The Analyzer Box - “S” or “XL” model

The analyzer box is the “heart” of the measuring system and is available in two different versions:

The basic 350-S model

The testo 350-S comes standard with an O₂ cell and one other module of your choice. However, up to five additional modules (NO₂, SO₂, NO, NO₂/NO, CO, CO₂, H₂S, CH₄ or CO) can also be retrofitted for a maximum of six cells. Temperature and differential pressure are standard while efficiency and excess air are calculated. Upgrades to the “S” model include a sample conditioning system, dilution system and/or fresh air valve for long-term monitoring.

The advanced 350-XL model

All of the “S” model upgrades are standard in the “XL” version.

- Test up to six gases simultaneously or swap them for additional parameters with convenient plug and play sensors (CO, NO₂, NO, SO₂, H₂S, CO)
- Advanced sample conditioning utilizes an Integrated Pellet chiller for moisture drop-out, a peristaltic hose pump for controlled water removal, and quick-change particulate filters
- Proven sample gas path with TecTorr™ lined hoses
- Continuous temperature compensation for assured accuracy
- Innovative dilution systems for the widest testing ranges and greatest sensor protection. CO to 400,000 ppm, NO, NO₂, SO₂, H₂S to 5 times the sensor range
- User defined programs with onboard memory to 250,000 values
- Integrated pressure measurement for draft, ΔP, velocity and mass emission
- Rechargeable battery with onboard DC connection and AC operation
- Flow rate and sensor temperature monitoring for US EPA CTM-300, -034 and ASTM D6522 requirements
- Comprehensive calculations including O₂ corrections for NOx, CO, and SO₂, mass measurement with pilot and stack dimension input
- Simple on-site sensor calibration capability including diagnostics and sensor output (0 – 1000)

<table>
<thead>
<tr>
<th>Compare Analyzer Box Models S and XL</th>
<th>testo 350-S</th>
<th>testo 350 XL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum no. of sensors</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>O₂</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CO (ppm)</td>
<td>0 – 10,000 ppm</td>
<td></td>
</tr>
<tr>
<td>CO₂ (ppm)</td>
<td>0 – 500 ppm</td>
<td></td>
</tr>
<tr>
<td>NO</td>
<td>0 – 3,000 ppm (0.1 ppm resolution)</td>
<td></td>
</tr>
<tr>
<td>NO₂</td>
<td>0 – 320 ppm (0.1 ppm resolution)</td>
<td></td>
</tr>
<tr>
<td>NO₃</td>
<td>0 – 590 ppm (0.1 ppm resolution)</td>
<td></td>
</tr>
<tr>
<td>SO₂</td>
<td>0 – 5,000 ppm</td>
<td></td>
</tr>
<tr>
<td>O₃</td>
<td>0 – 4 Vol. % (0.001 Vol. % resolution)</td>
<td></td>
</tr>
<tr>
<td>CH₄</td>
<td>0 – 320 ppm (0.1 ppm resolution)</td>
<td></td>
</tr>
<tr>
<td>ΔP</td>
<td>0 – 50 Vol. %</td>
<td></td>
</tr>
<tr>
<td>Built-in gas preparation unit (a recommend for compliance testing, high humidity levels and long-term measurements &gt;2 hrs measuring time)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Automatic fresh air rinse with valve (incl. measurement range extension with dilution factor 5 for all sensors)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Measurement range extension for ΔP measuring module (with selectable dilution factors)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ΔP measuring module switch-off via adjustable switch-off threshold</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trigger input – steps and start measurement externally</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Differential pressure measurement (16” to +16” [80-80º] to +80º [N])</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Built-in rechargeable battery</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 temperature probe socket (Types K/NCr-Ni)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Data logger (250,000 readings)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Testo data bus connection</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bluetooth® 2.0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- = Standard  ○ = Upgrade Option  – = Not Available

Control unit testo 350-S  Control unit testo 350-XL
Sampling probes for every application

Our hose and probe options cover virtually every sampling requirement. 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.

Our patented hoses offer high performance reference sampling at a fraction of the price. The powerful pumps are uniquely engineered to combine both high velocity transport and minimal surface area contact. Hoses are available in 7 ft. and 16 ft. lengths.

The industrial sampling probes incorporate rugged sample transport lines and handles 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.

With our ample selection of industrial thermocouples, thermocouple 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

Exclusive testo 350 XL data bus system (max 16)

4-20mA analog output box

Ideal for:
- SCR optimizing, determining catalyst efficiency and performing overall trend analysis.

Sampling probe

Material probe shaft Tmax 900°F or 1823°F
Hose length: Standard 7 ft.; teflon lined
Material probe shaft: stainless steel

Length 13"/28"
Ø 0.32”
Up to 1832 °F

Outer pipe with sensor pre-filter (optional)
Option: Outer pipe with filter for dusty flue gases
Pore size: 3 µm
Material probe shaft: stainless steel

Length 13”/28”
Ø 0.32”
Up to 1832 °F
Ø 0.51”
(hole required = 9/16”)

Industrial gas sampling probes
Option: Outer pipe with filter for dusty flue gases
Pore size: 3 µm
Material probe shaft: stainless steel

3 ft. to 9 ft.
Ø 0.32”
Tmx 2200 °F
350 Data Bus System for Multi-Unit, Simultaneous Testing

Understand your process inside and out with multiple 350 XL analyzer boxes. Real-time, user-defined measurements are displayed individually from each analyzer or simultaneously as a graph or table in our software package. Six channel analog output boxes can be looped in the bus system to provide a user scaled 4-20mA output.

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Industrial gas sampling probes

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Pore size: 3 µm
Material probe shaft: stainless steel

Option: Outer pipe with sensor pre-filter

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Option: Outer pipe with filter for dusty flue gases
Pore size: 3 µm
Material probe shaft: stainless steel

Up to 1832 ºF

ø 0.32"
Ordering Information

testo 350 S Control unit  Part no.
Control unit displays data and controls system, includes built-in printer, connection for testo data bus and terminal plug 0563 0369
Spare thermal paper for printer (2 rolls) 0545 0688

testo 350 XL Control unit  Part no.
Control unit displays data and controls the system, incl. built-in printer, pressure measurement 16’’/80” (400), 1 user defined probe socket, programmable measurements and memory connection for testo data bus, incl. terminal plug 0563 0353
Additonal options for 350 XL control unit model only:
- Touch screen with pen (available only with original order, for easy input of text and values) 0440 0059
- testo rechargeable battery pack (AAA for control unit, logger) 0515 0997

Call for specific application kits

EasyEmission, the powerful software tool for the testo 350

The EasyEmission software package allows the user to control every function of the 350 S/XL. The software provides extraordinary data management capability and the ability to import/export data from a number of different formats, effectively increasing the versatility and flexibility of the 350 S/XL to meet the user’s testing and data management needs.

EasyEmission has the intuitive user interface of today’s common Windows® based applications. Display screens can be customized to match the most commonly used functions. Prepare custom reports and documents with the powerful data management features. (i.e. site name/location/measurement/field comment, etc.).

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 & graphical results
- Custom formulas for specific report calculations
- Custom report generation
- Quick data transfer into Microsoft Excel® and PDF file formats
- User defined Oxygen (O2) reference values
- Extensive customer/location management functions
- Calculations of Maximum, Minimum, and Mean values

EasyEmission software with RS 232 cable

EasyEmission software allows for PC based controlled operations of the 350. This versatile software application is described above in detail.

Part no. 0554 3335

Data bus and RS 232 software options

The testo data bus system allows for operating up to 16 analyzers simultaneously. This has proven to be an extremely important feature for 350 users in many different industries. From manufacturing to power generation markets, this tests exclusive feature has proven itself time and again. For any environment that requires multiple sampling points this is an ideal solution. RS 232 to USB connectivity.

Part no. 0554 3336

Accessories

AG Battery Charger/Adaptor For continuous operation and easy AC charging using a car port terminal.
Part no. 0554 1336

Cigarette lighter 0554 1327

Cases

Transport case for analyzer, probes and accessories
Part no. 0516 0351

System case (aluminum), for analyzer, probes, incl. drawer for accessories
Part no. 0516 0352

Pelican Order Case

Sturdy plastic case for safe storage and transportation of analyzer, probes, filters, sensors and hoses. Foam sections have been customized to fit items exactly.
Part no. 400516 3511

Storm Case

Extra long case with sturdy wheels for transporting 26” probes, analyzer and accessories.
Part no. 400516 3512

Analog output box (mA out) Only for 350 XL Control Unit

Analog output boxes can be doped into the system and used to display, log, archive, or use the data bus to output the measurement data as an analog signal (4 – 20 mA). Each box has 6 user defined channels which can be scaled according to application.
Part no. 0554 0485
Ordering Information

Ordering Information

Call for specific application kits

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- Custom report generation
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Data bus and RS 232 software options

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- Calculations of Maximum, Minimum, and Mean values
- Quick data transfer into Microsoft EXCEL® and PDF file formats
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- Calculations of Maximum, Minimum, and Mean values

Accessories

AG Battery Charger/Adapter

For continuous operation and easy AC charging using a car port terminal.

Part no. 0554 1336 to cigarette lighter

Part no. 0554 1337 to battery clamps

Cases

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Part no. 0516 0351

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Only for 350 XL Control Unit

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Part no. 0554 0845
### testo 350 Technical Data

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Unit</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimensions</td>
<td></td>
<td>16&quot; x 11&quot; x 4&quot;</td>
</tr>
<tr>
<td>Weight</td>
<td></td>
<td>9 lbs</td>
</tr>
<tr>
<td>Storage temperature</td>
<td></td>
<td>40 to +120 °F</td>
</tr>
<tr>
<td>Operating temperature</td>
<td></td>
<td>23 to +113 °F</td>
</tr>
<tr>
<td>Housing material</td>
<td></td>
<td>ABS</td>
</tr>
<tr>
<td>Memory</td>
<td></td>
<td>250,000 readings</td>
</tr>
<tr>
<td>Power supply</td>
<td></td>
<td>Via built-in power supply (9V in 260 V, 47 to 53 Hz) or rechargeable batteries or external 12 V cables</td>
</tr>
<tr>
<td>Electrical power consumption</td>
<td></td>
<td>0.5 A (110 V AC), 0.3 A (230 V AC)</td>
</tr>
</tbody>
</table>

### testo 350 Supplemental Technical Data

#### CO dilution with selectable dilution factor (option)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Meas. range</th>
<th>Accuracy</th>
</tr>
</thead>
<tbody>
<tr>
<td>CO measurement (H₂-compensated)</td>
<td>depending on factor selected</td>
<td>±2% of m.v. (additional error)</td>
</tr>
<tr>
<td>CO₂ measurement (H₂-compensated)</td>
<td>Manual user selectable factors 5-40 or auto 5x dilution</td>
<td></td>
</tr>
</tbody>
</table>

#### Dilution of all sensors by factor 5 (standard testo 350 XL)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Meas. range</th>
<th>Accuracy</th>
</tr>
</thead>
<tbody>
<tr>
<td>O₂ measurement</td>
<td>Reading is not shown in display</td>
<td></td>
</tr>
<tr>
<td>CO₂R measurement</td>
<td>Reading is not shown in display</td>
<td></td>
</tr>
<tr>
<td>CO₂ measurement (H₂-compensated)</td>
<td>2500 to 50000 ppm</td>
<td>±5% of rdg. (additional error)</td>
</tr>
<tr>
<td>CO₂ measurement (H₂-compensated)</td>
<td>Pressure range -60 to 0° H₂O at probe tip</td>
<td></td>
</tr>
<tr>
<td>NO measurement</td>
<td>1500 to 15000 ppm</td>
<td>±5% of rdg. (additional error)</td>
</tr>
<tr>
<td>NO₂ measurement</td>
<td>300 to 1500 ppm</td>
<td>±5% of rdg. (additional error)</td>
</tr>
<tr>
<td>NO₂ measurement</td>
<td>Pressure range -60 to 0° H₂O at probe tip</td>
<td></td>
</tr>
<tr>
<td>SO₂ measurement</td>
<td>500 to 2500 ppm</td>
<td>±5% of rdg. (additional error)</td>
</tr>
<tr>
<td>SO₂ measurement</td>
<td>Pressure range -60 to 0° H₂O at probe tip</td>
<td></td>
</tr>
<tr>
<td>H₂S measurement</td>
<td>200 to 1500 ppm</td>
<td>±5% of rdg. (additional error)</td>
</tr>
<tr>
<td>H₂S measurement</td>
<td>Pressure range -60 to 0° H₂O at probe tip</td>
<td></td>
</tr>
</tbody>
</table>

#### Technical Data for HC module

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Methane</th>
<th>Propane</th>
<th>Butane</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean, range</td>
<td>100 to 40000 ppm</td>
<td>100 to 21000 ppm</td>
<td>100 to 18500 ppm</td>
</tr>
<tr>
<td>Accuracy</td>
<td>less than 400 ppm (100 to 4000 ppm)</td>
<td>less than 10% of rdg (greater than 4000 ppm)</td>
<td>less than 10% of rdg (greater than 4000 ppm)</td>
</tr>
<tr>
<td>Resolution</td>
<td>10 ppm</td>
<td>10 ppm</td>
<td>10 ppm</td>
</tr>
<tr>
<td>Min. O₂ in flue gas</td>
<td>2% (2 x methane reading)</td>
<td>2% (5 x propane reading)</td>
<td>2% (5 x butane reading)</td>
</tr>
<tr>
<td>Reaction time 100</td>
<td>less than 40 s</td>
<td>less than 40 s</td>
<td>less than 40 s</td>
</tr>
<tr>
<td>Response factor</td>
<td>1</td>
<td>1.5</td>
<td>2</td>
</tr>
</tbody>
</table>

¹ Lower explosion limit must be adhered to. ² The HC module is adjusted to methane in the factory; it can be adjusted to another gas by the user.
### testo 350 Technical Data

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimension</td>
<td>16&quot; x 11&quot; x 4&quot;</td>
</tr>
<tr>
<td>Weight</td>
<td>9 lbs</td>
</tr>
<tr>
<td>Storage temperature</td>
<td>-40 to +120 °F</td>
</tr>
<tr>
<td>Operating temperature</td>
<td>23 to +113 °F</td>
</tr>
<tr>
<td>Housing material</td>
<td>ABS</td>
</tr>
<tr>
<td>Memory</td>
<td>250,000 readings</td>
</tr>
<tr>
<td>Power supply</td>
<td>9V built-in power supply (9V to 260V 47 to 53 Hz) or rechargeable rechargeable batteries or external 12 V cables</td>
</tr>
<tr>
<td>Electrical power consumption</td>
<td>0.5 A (110 V AC), 0.3 A (230 V AC)</td>
</tr>
</tbody>
</table>

### CO2, CO Calculated

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range</td>
<td>0 to 50% vol.</td>
</tr>
<tr>
<td>Accuracy</td>
<td>±0.3% vol. + 1% of m.v. + 0.5% vol. + 1.5% of m.v. (&gt;) 25 to 50% vol.</td>
</tr>
<tr>
<td>Calculated from O2</td>
<td>&lt; 1% m.v. -20 to -80 °C 1.5% m.v. &gt; 20% to +80 °C 0.5% -18° to +18° H2O</td>
</tr>
</tbody>
</table>

### Drip point calculation: 32 to 210 °F td

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum positive pressure/Flue gas</td>
<td>20° H2O</td>
</tr>
<tr>
<td>Maximum negative pressure</td>
<td>80° H2O</td>
</tr>
<tr>
<td>Pump flow: acceptable range 0.5 - 1.2 l/min (depending upon application)</td>
<td></td>
</tr>
<tr>
<td>Max. dust load: 20 g/m³ dust in flue gas</td>
<td></td>
</tr>
<tr>
<td>Max. humidity load: 150 °F Driepoint temperature at sample gas inlet of analyzer box</td>
<td></td>
</tr>
</tbody>
</table>

### Testo 350 Supplemental Technical Data

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>CO dilution with selective dilution factor (option)</td>
<td></td>
</tr>
<tr>
<td>CO measurement (H2 compensated)</td>
<td>Meas. range: depending on factor selected</td>
</tr>
<tr>
<td>CO2, NO measurement (H2 compensated)</td>
<td>Accuracy: ±2% of m.v. (additional error) Manual user selectable factors 5-40 or auto 5x dilution</td>
</tr>
</tbody>
</table>

### Dilution of all sensors by factor 5 (standard testo 350 XL)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>O2 measurement</td>
<td>Reading is not shown in display</td>
</tr>
<tr>
<td>NO measurement</td>
<td>Reading is not shown in display</td>
</tr>
<tr>
<td>CO2, NO measurement</td>
<td>Reading is not shown in display</td>
</tr>
</tbody>
</table>

### CO dilution with selective dilution factor (option) | Meas. range: 2500 to 6000 ppm |
| CO2, NO measurement (H2 compensated) | Accuracy: ±5% of reading (additional error) Pressure range -60 to 0° H2O at probe tip |
| CO2, NO measurement (H2 compensated) | Accuracy: ±5% of reading (additional error) Pressure range -40 to 0° H2O at probe tip |
| NO measurement | Meas. range: 1500 to 15000 ppm |
| NO measurement | Accuracy: ±5% of reading (additional error) Pressure range -40 to 0° H2O at probe tip |
| NO measurement | Meas. range: 300 to 1500 ppm |
| NO measurement | Accuracy: ±5% of reading (additional error) Pressure range -60 to 0° H2O at probe tip |
| NO measurement | Meas. range: 500 to 2500 ppm |
| NO measurement | Accuracy: ±5% of reading (additional error) Pressure range -20 to 0° H2O at probe tip |
| NO measurement | Meas. range: 500 to 2500 ppm |
| NO measurement | Accuracy: ±5% of reading (additional error) Pressure range -40 to 0° H2O at probe tip |
| NO measurement | Meas. range: 200 to 1500 ppm |
| NO measurement | Accuracy: ±5% of reading (additional error) Pressure range -40 to 0° H2O at probe tip |

### Technical Data for HC module

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methane</td>
<td>100 to 4000 ppm</td>
</tr>
<tr>
<td>Propane</td>
<td>100 to 21000 ppm</td>
</tr>
<tr>
<td>Butane</td>
<td>100 to 18000 ppm</td>
</tr>
<tr>
<td>Accuracy</td>
<td>less than 400 ppm (100 to 4000 ppm)</td>
</tr>
<tr>
<td>Accuracy</td>
<td>less than 15% of reading (greater than 4000 ppm)</td>
</tr>
<tr>
<td>Resolution</td>
<td>10 ppm</td>
</tr>
<tr>
<td>Min. O2, max. Flue gas</td>
<td>2% + (2 x methane reading)</td>
</tr>
<tr>
<td>Reaction time</td>
<td>less than 40 s</td>
</tr>
</tbody>
</table>

*Lower explosion limit must be adhered to.*  
*The HC module is adjusted to methane in the factory. It can be adjusted to another gas by the user.
Combustion Analyzers

327 Oxygen Analyzer
Troubleshoot coal-fired systems, perform engine tuning and adjust burners in industrial kilns with the new 327 single gas analyzer. Comes with a 3 year O₂ sensor warranty!

330-2 LL Combustion Analyzer
Ideal for commercial / industrial burner-boiler service. Automatically measures O₂, CO, Temperature, Draft, Pressure, Efficiency, Excess air and critical CO₂ calculations. An integrated CO dilution system expands High range CO testing to 30,000 ppm. Optional NO sensor for High NOx or Low NOx testing.

335 Three Gas Industrial Analyzer
More powerful, with increased sensor ranges for the most demanding combustion analysis. Ideal for engine tuning, boiler maintenance and process management. Measures oxygen and up to two other user selected gases such as CO, CO₂, NO, NO₂, NOₓ, NOx, and SO₂ for the greatest testing flexibility.

IR - Non-Contact Temperature

880 Thermal Imager
High performance thermal imaging at an affordable price. Perform inspections and reduce risks and costly downtimes on industrial machinery, switchgears, process equipment and much more. Professional software, high resolution images and easy joystick navigation make it easy to use and practical to own.

845 Infrared Thermometer with Switchable Optics
Use the 845 to measure points as close as ¼ inch, then simply slide switch for measurements across the room. Whether close up or at a long distance, the 845 gives you exact readings in seconds plus it can also log the data points for analysis.

318 Video PRO Borescope
318-V features powerful optics for easier examination of areas normally hidden from sight. Comfortable handle grip, convenient on/off light switch; 0.4” diameter shaft (10 mm); and video output for recording. Ideal for internal inspections during industrial applications.

Pressure

510 Digital Manometer
Perform system diagnostic tests with a single meter including total external static pressure (TESP), differential pressure duct velocities (fpm with optional pitot tube) and manifold pressures.

511 Absolute Pressure Meter
Perform pressurization risk assessments for combustion air zones as well as room-to-room pressurization tests without running a reference hose.

For More Information visit www.testo350.com

For more information: testo, Inc., 40 White Lake Road, Sparta, NJ 07871
800-227-0729 • Fax 862-354-5020
Committing to the Future!