testo 340
Speed, power & precision in industrial combustion analysis.
The testo 340 Portable Combustion Analyzer
Speed, power & precision in combustion & emissions analysis.

Optimizing the combustion process and increasing fuel efficiency are necessary to compete in today's market. The testo 340 is the ideal tool to confirm proper set-up and to identify emission problems before they get serious.

The Ultimate Portable Combustion Tuner
• 4-gas flexibility in a rugged, compact handheld design
• Multi sensor capability, equipped to handle extreme concentrations
• Automatic CO-dilution sensor protections keep your analyzer working longer
• Designed for simple, fast operation and constructed for daily rugged use!

Built to Last
Testo analyzers are known for their reliability and staying power in the industry. The testo 340 is no exception with its simple to use interface, and durability that can withstand the most rugged field environments. All testo 340s are equipped with:
• Widest testing range in its class
• Easy to read, back-lit displays
• User-defined option to see only the parameters that matter
• Simple function keys to navigate throughout the menu
• Rubberized shock-resistant housing
• Integrated magnets for hands-free operation
• Durable transport case

Replaceable Sensors and Filters
Plug and play sensor technology lets you change or add sensors within seconds in the field, eliminating costly down-time and giving you maximum tuning flexibility. Replaceable sensor filters on the CO and NO sensors eliminate the interferences.

To assure filter readiness, advanced analyzer diagnostics show filter lifetime in PPM hours. This lets you know when to change out the filter. This simple change-out increases accuracy and extends sensor lifetime.
Get the job done right...

Improved Dilution System increases testing range and protects sensors

The testo 340 is built to measure high concentration with its unique dilution system. When the concentration set-point is reached, precise amounts of dilution air (factor 5x) are added automatically thereby lowering the concentration applied to the sensor. For high concentration applications, activate the manual dilution mode. In either mode, the analyzer automatically computes and displays the correct values.

If you need more testing flexibility select "dilution overall" to extend the range of all sensors by a factor of 2.

- CO concentrations up to 50,000 ppm
- NO up to 15,000 ppm
- NO₂ up to 1,000 ppm
- SO₂ up to 25,000 ppm

The dilution system, combined with replaceable filters maximize your tuning capabilities and reduce the cost of ownership.

Combustion Analysis that you can count on

Oxygen comes standard. Add one or up to three additional sensors for your job.

Select from:
- CO or CO (low range)
- NO or NO (low range)
- NO₂
- SO₂

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Onboard Diagnostics

**The information button is knowledge at your fingertips.**
Simply push the “i” button and scroll to the diagnostics screen to see instrument status.
For example:
- Perform an automated quick leak check before your test
- See the rechargeable lithium battery status (lasts approximately 6 hours with pump on)
- Review the pump flow rate (liters/min)
- Show error status with description and diagnosis and last service/maintenance date
- Display graphic representation of sensor calibration data
- Shows status of water in condensate trap

**More features**

**Integrated pressure sensor**
- Measure draft or differential pressure
- Simultaneously measure exhaust gas and flow velocity

**18 fuels to choose from, plus...**
10 – custom fuel options for better measurement accuracy (input from easyEmission)

**Infrared printing**
- Display and print calibration record with sensor graphics
- Print records to infrared printer (10 year thermal paper)

Data Management

**Internal data logging – automatic programs**
Take your testo 340 to a new level of efficiency with on-board logging programs. Select from 5 user-defined measurement data logging programs. Log every second for up to 2 hours!

**Internal Memory Management**
- Up to 100 folders (customers/systems) can be saved
- Up to 10 sites can be saved in every folder
- USB Interface
- Transmit data via infrared or Bluetooth

**easyEmission**
Have total control of your 340 with the easyEmission software package. Display screens can be customized to match commonly used functions. Prepare custom reports. With dynamic graphing features, it provides trending analysis like no other instrument in its class.
- Real-time analyzer control with a PC, showing tabular, graphical and picture box results
- Logging intervals from 1/sec to 1/hr
- Custom report generation
- Import/export data into a variety of formats
- Connect via USB or Bluetooth
The Ultimate Combustion Tuner

Better engine tuning
Stationary engine exhaust, when uncontrolled, can have very wide concentration ranges. As a result both CO and NO\textsubscript{2} can fluctuate significantly. For rich burn testing, the on-board dilution system and the replaceable interference filters keep the sensors secure and your readings accurate. The analyzer can measure both NO and NO\textsubscript{2} for perfect lean burn and diesel testing. Use the 340 for setup, commissioning, pre-compliance, and tuning.

Better boiler and burner tuning
The automatic dilution feature will reduce the CO concentrations when your system spikes and CO goes through the roof. The analyzer will automatically adjust to the situation. Don’t worry about climbing and removing the probe from the stack, just hit the fresh air button. Automatic calculations (CO\textsubscript{2}, efficiency, excess air) provide fast tuning data. The standard differential pressure measurement is ideal to monitor or set up draft or draft induction or velocity for the calculation of mass emissions.

Better combustion analysis for industrial processes
Combustion analyses in industrial processes vary widely. With the optional dilution system, the measurement of extreme concentration (i.e. SO\textsubscript{2} or NO\textsubscript{x}) is easily measured. High temperature sampling or with long industrial probes can easily be added. The testo 340 is truly an analyzer designed as your industrial workhorse.

Probes for every application
The probe and hose assemblies are made from the highest quality materials. The standard hoses (Teflon lines) are heat-resistant. The cam-lock securely attaches the sample line to the analyzer. Probe length vary from 12 inches to 28 inches with temperatures to 1800 °F and hoses that can extend to 25 feet.

- **Standard probes** are specially designed for:
  - Engine applications
  - Burner / boiler applications

- **Industrial probes** with lengths to 9 feet and temperatures to 3,200 °F give you extreme tuning flexibility
  - 3 foot long probe extensions
  - Sintered Ceramic filters for high particulate loading
**Technical data**

<table>
<thead>
<tr>
<th>Measurement</th>
<th>Measurement range</th>
<th>Accuracy</th>
</tr>
</thead>
<tbody>
<tr>
<td>( \text{O}_2 )</td>
<td>0 to 25 Vol.%</td>
<td>±0.2 Vol.%</td>
</tr>
<tr>
<td>( \text{CO} )</td>
<td>0 to 10,000 ppm</td>
<td>±10 ppm or ±10% of mv (0 to 200 ppm)</td>
</tr>
<tr>
<td>( \text{CO}_{\text{low}} )</td>
<td>0 to 500 ppm</td>
<td>±3 ppm (0 to 39.9 ppm)</td>
</tr>
<tr>
<td>( \text{NO} )</td>
<td>0 to 3,000 ppm</td>
<td>±5 ppm (0 to 99 ppm)</td>
</tr>
<tr>
<td>( \text{NO}_{\text{low}} )</td>
<td>0 to 300 ppm</td>
<td>±3 ppm (0 to 39.9 ppm)</td>
</tr>
<tr>
<td>( \text{NO}_2^* )</td>
<td>0 to 500 ppm</td>
<td>±10 ppm (0 to 199 ppm)</td>
</tr>
<tr>
<td>( \text{SO}_2^* )</td>
<td>0 to 5,000 ppm</td>
<td>±10 ppm (0 to 99 ppm)</td>
</tr>
<tr>
<td>Temperature</td>
<td>-40° to 2,192 °F</td>
<td>±0.9 °F (32 to 210.2 °F)</td>
</tr>
<tr>
<td>Probe Type K (NiCr-Ni)</td>
<td>-16° to 16° H(_2)O</td>
<td>0.0004 psi (-0.043 to 0.043 hPa)</td>
</tr>
<tr>
<td>Draft</td>
<td>-80° to 80° H(_2)O</td>
<td>0.007 psi (-0.724 to 0.724 psi)</td>
</tr>
<tr>
<td>Differential pressure</td>
<td>-240° to 461.5° H(_2)O</td>
<td>±3.87° H(_2)O</td>
</tr>
<tr>
<td>Absolute pressure</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Calculated parameters: Efficiency</td>
<td>0 to 120%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Flue gas loss</td>
<td>0 to 99.9%</td>
</tr>
<tr>
<td></td>
<td>Flue gas dewpoint</td>
<td>0° to 211 °F</td>
</tr>
<tr>
<td>( \text{CO}_2 ) measurement (calculation from ( \text{O}_2 ))</td>
<td>0 to ( \text{CO}_2 ) max.</td>
<td>±0.2 Vol. %</td>
</tr>
</tbody>
</table>

Data Logging Note: *To avoid drift, a maximum measurement duration of 2 hours should not be exceeded.
### General technical data

| Memory | Maximum: 100 folders, Per folder: Max. 10 sites, Per site: Max. 200 logs, The max. number of logs is determined by the number of folders or sites |
| Sample pump | Pump flow: 1.0 l/min  
Hose length: max. 25 feet (2 hose extensions and 1 probe hose)  
Max. pos. pressure/flue gas: 20" H₂O  
Max. neg. pressure/flue gas: -80" H₂O |
| Weight | 2.12 lbs |
| Dimensions | 11.14 x 4.05 x 2.56" |
| Storage temp. | -4° to 122 °F |
| Oper. temp. | 23° to 122 °F |
| Power supply | Battery 3.7 V/2.4 Ah, AC Power Supply 6.3 V/2 A |
| Protection class | IP40 |
| Warranty | Analyzer: 2 years (excluding working parts, e.g. sensors, sensor replacement filter)  
Rech. batt.: 1 year  
Sensors: CO, NO, COlow, NOlow, NO₂, SO₂: 1 year, O₂: 1.5 years |

### Measuring range extension

#### Single dilution, factor 5 (standard)

<table>
<thead>
<tr>
<th>Sensor</th>
<th>Meas. range</th>
<th>Accuracy</th>
<th>Additional error</th>
</tr>
</thead>
<tbody>
<tr>
<td>CO (H₂ compensated)</td>
<td>700 ppm to 50,000 ppm</td>
<td>±10 % of mv (additional error)</td>
<td></td>
</tr>
<tr>
<td>COlow (H₂ compensated)</td>
<td>300 ppm to 2,500 ppm</td>
<td>±10 % of mv (additional error)</td>
<td></td>
</tr>
<tr>
<td>NO</td>
<td>500 ppm to 15,000 ppm</td>
<td>±10 % of mv (additional error)</td>
<td></td>
</tr>
<tr>
<td>NO₂</td>
<td>150 ppm to 1,500 ppm</td>
<td>±10 % of mv (additional error)</td>
<td></td>
</tr>
<tr>
<td>NOlow</td>
<td>150 ppm to 1,500 ppm</td>
<td>±10 % of mv (additional error)</td>
<td></td>
</tr>
<tr>
<td>SO₂</td>
<td>500 ppm to 25,000 ppm</td>
<td>±10 % of mv (additional error)</td>
<td></td>
</tr>
</tbody>
</table>

#### Dilution of all sensors, factor 2 (Option - Part no. 0440 3350)

<table>
<thead>
<tr>
<th>Sensor</th>
<th>Meas. range</th>
<th>Accuracy</th>
<th>Additional error</th>
</tr>
</thead>
<tbody>
<tr>
<td>O₂ (With dilution over all sensors)</td>
<td>0 to 25 vol.%</td>
<td>±1 vol.% additional error (0 to 4.99 vol.%), ±0.5 vol.% additional error (5 to 25 vol.%)</td>
<td></td>
</tr>
<tr>
<td>CO (H₂ compensated)</td>
<td>700 ppm to 20,000 ppm</td>
<td>±10 % of mv (additional error)</td>
<td></td>
</tr>
<tr>
<td>COlow (H₂ compensated)</td>
<td>300 ppm to 1,000 ppm</td>
<td>±10 % of mv (additional error)</td>
<td></td>
</tr>
<tr>
<td>NO</td>
<td>500 ppm to 6,000 ppm</td>
<td>±10 % of mv (additional error)</td>
<td></td>
</tr>
<tr>
<td>NOlow</td>
<td>150 ppm to 600 ppm</td>
<td>±10 % of mv (additional error)</td>
<td></td>
</tr>
<tr>
<td>NO₂</td>
<td>200 ppm to 1,000 ppm</td>
<td>±10 % of mv (additional error)</td>
<td></td>
</tr>
<tr>
<td>SO₂</td>
<td>500 ppm to 10,000 ppm</td>
<td>±10 % of mv (additional error)</td>
<td></td>
</tr>
</tbody>
</table>

*mv = measured value*
Other measurement solutions from Testo

**Emissions Analysis**
- testo 350 - Multi-Gas Emissions Analyzer

**Industrial Pressure**
- testo 6381 - DP Transmitter

**Temperature**
- testo 922 - Type K Temperature Meter

**Combustion Analysis**
- testo 300 - Combustion Analyzer

**Differential Pressure**
- testo 510i - Smart Probe Pressure Meter

**IR Temperature**
- testo 830 - IR Thermometer

Find out more at: www.testo.com