Model 6200T
Total Sulfur Analyzer
UV-Fluorescence Technology

FEATURES

• Large color touch-screen provides large, luminescent interface

• Two ranges, 0-50 ppb to 0-20 ppm, user-selectable

• USB ports on front panel for peripheral devices and firmware upgrades

• Adaptive signal filtering optimizes response time

• Temperature and pressure compensated

• Internal data-logging of most operating parameters, user-configurable
The need to continuously detect for sulfur in carbon dioxide has become increasingly important within the food and beverage market.

Gas suppliers must ensure that the CO₂ they provide for use in the preservation of food and drink related products meet today's exacting standards. The contamination of carbon dioxide can emanate from many sources and therefore it is essential that the CO₂ used for such purposes be monitored at the CO₂ generator facility, at the beverage producer facility, or both.

**PRINCIPLE OF OPERATION**

The Model 6200T Total Sulfur Analyzer utilizes proven UV fluorescent technology to continuously detect sulfur found in inert gas streams. An internal, quartz catalytic converter is employed to convert the sulfur, when mixed with scrubbed ambient air, into SO₂ via high temperature oxidation.

An internal vacuum pump is employed to draw both the sample and the ambient air into the converter. The converted sample gas is fed to the fluorescence chamber where it is then exposed to ultra-violet radiation.

The measurement process in the reaction cell is described by the following equation:

\[
SO₂ + hu₁ \rightarrow SO₂^*\]

\[
SO₂^* \rightarrow SO₂ + hu₂
\]

Where hu₁ is the incident UV energy at 214nm and hu₂ is the resultant fluorescence, which is directly proportional to the SO₂ concentration in the reaction cell.

The fluorescence emission is in turn sensed by the photomultiplier tube (PMT) and amplified to provide an analog output. The result is a continuous measurement of total sulfur (i.e. H₂S, CS₂, COS, mercaptans, etc.) as SO₂ from 0-50 ppb to 0-20 ppm.
ELECTRONICS PLATFORM

The 6200T combines the proven UV fluorescence principle with state of the art microprocessor technology to provide accurate and dependable measurement of trace levels of total sulfur. Long term stability is obtained by the use of an optical shutter to compensate for zero drift, coupled with lamp reference detector to correct for lamp drift.

The multi-tasking microprocessor allows easy field ranging from 50 ppb to 20 ppm as well as providing on-line indication of instrument status. The 6200T continuously checks operating parameters and provides alarms on out-of-specification conditions, including electrical and optical parameters.

The T-series utilizes a capacitive, color touch-screen with menu-driven functionality and large interface for ease of use. The upgraded electronics also offer a variety of electrical I/O including Ethernet, USB ports, 4 configurable analog outputs, two RS-232 channels and several digital inputs and outputs, with additional I/O optionally available. Data-acquisition capability is included as standard.

THE COMPONENTS

The 6200T comes complete with three 19 inch relay rack modules - the Sample Converter Module, the Analysis Module, and a Calibration Module.

- The Sample Converter Module comes with an SO2 scrubber, sample / ambient air filters, high temperature dilution control orifice box, and Total Reduced Sulfur (TRS) converter.

- The Analysis Module consists of the UV fluorescence analyzer, pressure and flow transducers, and vacuum pump.

- The optional Calibration Module consists of restrictor / orifice flow regulators and flow control system, all provided in a temperature controlled setting to ensure accurate performance. The two inlet ports allow use of two independent calibration gases which may be diluted to provide the required span gas concentration. Dilution ratios from 20:1 to 300:1 are manually set from the front panel.

### I/O

- 4 x settable voltage or 4-20mA analog outputs
- 2 x RS-232 digital outputs
- Ethernet port
- USB ports
- 8 opto-isolated digital outputs
- 6 opto-isolated digital inputs
- Optional USB communications, RS-485, analog input channels, multidrop RS-232

Ask Teledyne...

about analyzers to measure other trace impurities in carbon dioxide.

- Benzene
- Acetaldehyde
- Hydrocarbons
- Moisture
- Carbon Monoxide
- NOx
- Ammonia
- Oxygen
- Methanol

Or we can make you a turnkey CDQC system to measure some or all impurities!
## MODEL 6200T - TOTAL SULFUR ANALYZER

### SPECIFICATIONS

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
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<tbody>
<tr>
<td><strong>Ranges</strong></td>
<td>Min: 0-50 ppb Full scale Max: 0-20,000 ppb Full scale (selectable, dual ranges and auto ranging supported)</td>
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<tr>
<td><strong>Measurement Units</strong></td>
<td>ppb, ppm, μg/m³, mg/m³ (selectable)</td>
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<tr>
<td><strong>Zero Noise</strong></td>
<td>&lt; 0.2 ppb (RMS)</td>
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<tr>
<td><strong>Span Noise</strong></td>
<td>&lt; 0.5% of reading (RMS) above 50 ppb</td>
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<tr>
<td><strong>Lower Detectable Limit</strong></td>
<td>0.4 ppb</td>
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<tr>
<td><strong>Zero Drift</strong></td>
<td>&lt; 0.5 ppb/24 hours</td>
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<tr>
<td><strong>Span Drift</strong></td>
<td>&lt; 0.5% of full scale/24 hours</td>
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<tr>
<td><strong>Lag Time</strong></td>
<td>20 seconds</td>
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<tr>
<td><strong>Rise and Fall Time</strong></td>
<td>&lt; 100 seconds to 95%</td>
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<tr>
<td><strong>Linearity</strong></td>
<td>1% of full scale</td>
</tr>
<tr>
<td><strong>Precision</strong></td>
<td>0.5% of reading above 50 ppb</td>
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<tr>
<td><strong>Sample Flow Rate</strong></td>
<td>650 cm³/min ±10%</td>
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<tr>
<td><strong>Power Requirements</strong></td>
<td>100V-120V, 220V-240V, 50/60 Hz</td>
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<tr>
<td><strong>Analog Output Ranges</strong></td>
<td>10V, 5V, 1V, 0.1V (selectable)</td>
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<tr>
<td><strong>Recorder Offset</strong></td>
<td>±10%</td>
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<tr>
<td><strong>Operating Temperature Range</strong></td>
<td>5 - 40°C</td>
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<tr>
<td><strong>Dimensions (H x W x D)</strong></td>
<td>Analyzer: 7” x 17” x 23.5” (178 x 432 x 597 mm)  Converter: 7” x 17” x 22” (178 x 432 x 559 mm)</td>
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<tr>
<td><strong>Weight</strong></td>
<td>Analyzer: 35.7 lbs (16.2 kg) Converter: 24 lbs (10.8 kg)</td>
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### Warranty

Instrument is warranted for one year against defects in material or workmanship.

**NOTE:** Specifications and features will vary with application. The above are established and validated during design, but are not to be construed as test criteria for every product. All specifications and features are subject to change without notice.