TELEDYNE
ANALYTICAL INSTRUMENTS

MODEL 6200E

FOR CO2 PURITY QUALITY MONITORING

Total Sulphides Analyzer

The need to continuously detect for sulfides 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 6200E Total Sulfides Analyzer utilizes proven UV fluorescent technology to continuously detect sulfides found in inert gas streams. An internal, quartz catalytic converter is employed to convert the sulfides, 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.

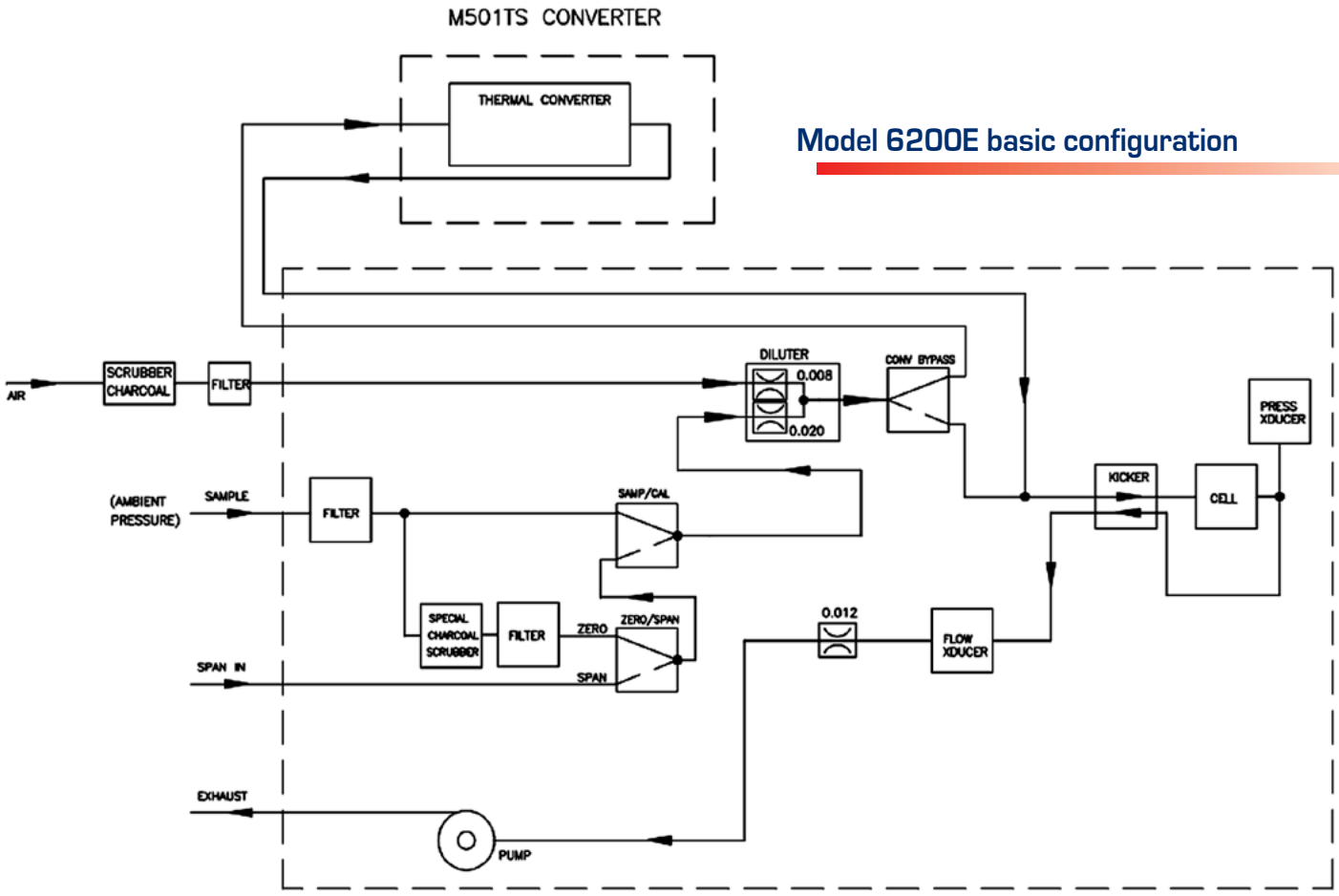
The measurement process in the reaction cell is described by the following equation:

$$SO2 + hu1 \Rightarrow SO2^*$$

$$SO2^* \Rightarrow SO2 + hu2$$

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 photo-multiplier tube (PMT) and amplified to provide an analog output. The result is a continuous measurement of total sulfides (i.e. H2S, CS2, COS, mercaptans, etc.) as SO2 from 0-50 ppb to 0-20 ppm.



Model 6200E basic configuration

ELECTRONICS PLATFORM

The 6200E combines the proven UV fluorescence principle with state of the art microprocessor technology to provide accurate and dependable measurement of trace levels of total sulfides. 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 6200E is continuously checking operating parameters and provides alarms on out of specification conditions, including electrical and optical parameters.

The easy to read display, intuitive menu structure, and ease of operation combine to make the 6200E the instrument of choice for Total Sulfides applications.

The instrument includes a built-in data acquisition capability, utilizing the analyzers internal RAM. This allows logging of the measured variable concentration as well as other parameters such as calibration data, flow rates, lamp intensities or a variety of other configurable parameters.

This provides the operator the ability to perform predictive diagnostics by tracking parameters over time. This stored data is available through an RS-232C port on either an automatic timed or manual manner.

THE COMPONENTS

The 6200E 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 **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.

FEATURES

- High sensitivity with user selectable ranges from 0-50 ppb to 0-20 ppm
- Microprocessor controlled, providing advanced user interface capabilities
- Built-in data acquisition capability using the analyzer's own RAM
- Extremely high-end self diagnostic capability providing continuous self checking with continuous warning alarms
- Bi-directional RS-232C for remote operation
- Critical orifices provide flow sensitivity
- High temperature TRS converter
- Digital status outputs provide instrument condition
- Easy to read display
- Proven UV fluorescence technique

6200E Total Sulphides Analyzer

SPECIFICATIONS

Ranges:	0 - 50 ppb to 0 - 20,000 ppb full-scale, user selectable
	Dual ranges and auto-ranging supported
Zero noise:	< 0.2 ppb
Span noise:	< 0.5% of reading (above 50 ppb)
LDL:	0.4 ppb
Zero drift**:	< 0.5 reading / 24hrs; 1 ppb / 7 days
Span drift**:	< 0.5% reading / 24 hrs; 1% of reading / 7 days
Lag time:	20 secs
Rise time (95%):	< 120 secs
Linearity:	1% of full scale
Sample flow rate:	700 cc/min ± 10%
Converter temperature:	1000°C
Converter efficiency:	> 98% above 0°C dewpoint
Converter life:	3000 ppm hours
SOx scrubber efficiency:	> 98%
SOx scrubber life:	> 1000 ppm hours
Operating temperature:	5 to 40°C
Power:	100 VAC – 240 VAC, 50/60 Hz (user specified)
Outputs:	Analog: 10 V, 5 V, 1 V, 100 mV (selectable) (4-20mA isolated output optional)
	RS232 (I/O): Standard DB9
	Digital status: 12 contact closure outputs
Size (H x W x D):	Model 6200E analyzer: (7” x 17” x 23.5”) (177.8 x 432 x 596.9 mm)
	Dilutor / Converter module: (7” x 17” x 23.5”) (177.8 x 432 x 596.9 mm)
	Calibration module: (5.25”x 17” x 23.5”) (133.3 x 432 x 596.9 mm)

**At constant conditions

ADDITIONAL OPTIONS

- Fluorocarbon zero / span valves
- 19” rack mount brackets
- 19” rack mount with chassis sliders
- 2 to 5 year warranty

Contact Teledyne for details on our Carbon Dioxide Quality Control (CDQC), which is a turn-key system capable of detecting:

- Total Sulphides (UV
- Total Hydrocarbons
- Trace Moisture (AI2 O3)
- Trace Oxygen (Electrochemical)
- CO2 Purity (NDIR)

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Warranty

Instrument is warranted for 1 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.

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