MOD-6400S TOTAL SULFUR ANALYZER

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Modcon Systems ***MOD-6400S*** Total Sulfur Analyzer utilizes field-proven ultraviolet (UV) fluorescence technology to continuous monitor the Total Sulfur content present in gasoline, diesel and other liquid petroleum products. UV-Fluorescence technology is a non-consuming method of detection, eliminating the hassles associated with replacing tape cartridges, and enables detection as low as 10 ppb, depending on application, with stable, reproducible results.

PRINCIPLE OF OPERATION

The analyzer is designed to meet the technical requirements of ASTM D5453. The undesirable available sulfur compounds (i.e. H2S, DMS, COS, CH3SH, CS2, etc.) are converted into sulfur dioxide (SO2) under precisely controlled temperature and flow conditions.

SO2 + hv1 → SO2* → SO2 + hv2

When SO2 is exposed to UV light energy, hv1, it creates an "excited" form of sulfur dioxide, SO2*. A molecule in a high, vibrational level of the excited state, SO2*, will quickly fall to its lowest vibration level by losing energy to other molecules through collision. Fluorescence occurs when the molecule returns to its electronic ground state. The intensity of the emitted light, hv2, is directly proportional to the total Sulfur content found in the sample.

A sample of the liquid is heated with gas in quartz tube to evaporate the liquid and to oxidize the Sulphur to SO2

The converted sample gas is passed through a dryer for water removal, and then directly into the UV Fluorescence Analyzer where the SO2 Analysis takes place.

SYSTEM ADVANTAGES

The Series MOD-6400S is a single or multi-stream analysis system solution which provides the end-user with a wide variety of links to ensure effective system operation. In addition to conventional 4-20mA outputs for tracking the Total Sulfur concentration, the MOD-6400S can also provide a number of discrete I/O's as well as a bidirectional RS-232/RS-485 and Ethernet communication capability. This enhanced system communication capability allows the end-user to maintain an online status of how the system is functioning and allow for a remote calibration or range change, should process changes so dictate.

Superior flow and temperature control of liquid-phase samples via Quartz Tube Converter Module Pyrolysis Technology ensuring high reliability and repeatability. A Wide range of analyzer diagnostic capabilities to continuously provide plant operators with system status conditions.

Results are conveniently displayed, as Total Sulfur, for the operator to view.

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SPECIFICATIONS

Converter Method	Quartz-Tube Module (QTM)
Analysis	Semi-continuous with updates every 2-6 minutes
Compliance	Designed to meet requirements of ASTM D5453
Area Classification	Zone 2 version with approved purge
Range	Total Sulfur: 0-30 ppm to percent levels - to be specifid at time of
Repeatability	±2% of full-scale, optionally ±1%
Response Time	90% of full-scale in less than 8 minutes
Operating Temperature	5-40°C
Zero and Span Noise	Less than 1% of full-scale
Zero and Span Drift	2% of full-scale per week, optionally 1%
Alarms	One system alarm and two concentration alarms. Form-C relays rated @ 3A 125VAC
Supply Voltage	110 or 220 VAC 50/60 Hz
Maximum Power Consumption	1900 W
Outputs	4-20 mADC (isolated) RS-232
	TCP/IP Ethernet (optional)
Maximum Load Impedance of 4-20	500 ohms
Flow Rate	60 ml standard
Utility Gases	•Air (1 liter/min, 2.78 bar) • Nitrogen or air for purge •Zero and span calibration liquids.
Options	•Enhanced computer with diagnostic capabilities •ATEX Zone 1 approval •Enclosure air-conditioning for outdoor installations •ANACON software for remote diagnostics, validation, maintenance

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