H2S-220

H_2S ANALYZER

HIGH & LOW CONCENTRATIONS OF HYDROGEN SULFIDE

The **H2S-220** is a diode array UV fiber optics process spectrometer. It is designed to address on-line applications that require reliable, accurate, rugged and maintenance-free monitoring of H_2S concentration. Either a fiber optics insitu probe or flow cell can be used.

NO MOVING PARTS

In contrast to a filter-based instrument, which measures at a few discrete wavelengths, the H2S-220 processes absorbance signals obtained from a complete high resolution spectrum. The H2S-220 is a solid state analyzer adhering to the principle of no-moving parts in process applications.

HIGH & LOW H_2S CONCENTRATIONS IN ONE ANALYZER

Using the user-defined wavelength settings, the need to replace any components when moving from one concentration range to another is eliminated. The wavelength range to monitor can be set to shift automatically upon change in concentration range, either by receiving a signal from the DCS or in an auto detection mode. Figure 1 shows the absorbance spectra of H_2S at different concentration levels

ENCLOSURES

The H2S-220 is offered in two different enclosures: A general purpose A 316 Stainless Steel enclosure and a Class I Division I Groups B, C &D NEMA 4X / 7 Cenelec approved enclosure.

PROBE

A bifurcated fiber optics cable is used to conduct light to and from the probe or flow cell. The insitu probe is inserted into a sintered metal filter to protect it.

FEATURES

- Instantaneous reading of H_2S
- No consumable reagents
- Diode array detection
- Unattended operation--very low maintenance
- No analyzer house
- Fiber optics probe--remote sensing
- Measures and correct for COS and mercaptans
- Wide wavelength range for a variety of concentration ranges
- No need to concentrate or dilute
- Direct measurement
- Output signals: 4-20mA, RS232 and Modbus (TCP/IP, Ethernet, serial)

FLOW CELL

The flow cell path length depends on the H_2S concentration range and ranges from 2 mm to 1 meter.

SAMPLING SYSTEM

While a variety of flow cells optical paths and materials of construction are offered two basic standard sampling system designs are offered: an extractive aspirated system with a manual or automatic zero for gases and liquids and a closed coupled extractive stack sampler with flow indication and automatic zero capability.

THE ANALYSIS

An industrial PC is used for data processing and user interface. The H2S-220's user-friendly interface allows for modification of operational parameters including sampling system's relays (no need for a PLC). All the parameters can be modified through a touch screen interface.

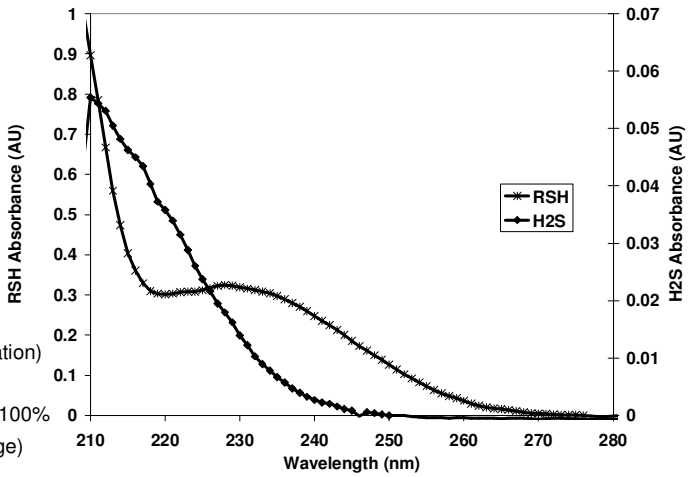
APPLICATIONS

- H_2S in natural gas
- SRU Acid Feed gas analyzer
- Feed forwards control
- Acid gas
- Well head gas
- Sour gas pipelines
- Amine based tail gas
- High concentration H2S in feed gas streams
- H_2S in amine analyzers in rich amine and in lean amine

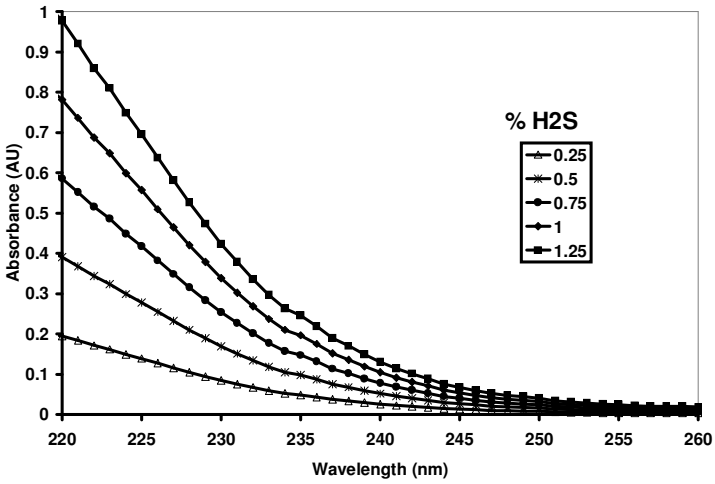
Applied Analytics, Inc.

H2S-220 SPECIFICATIONS

Measurement principle	UV absorbance
Detector	1024 elements diode array
Light source	Long life Xe lamp
Analysis method	Multi wavelength
	(allows for correction due to MeSH COS)
Other components	Measures and corrects for MeSH and COS
Flow cell	Fiber optics transmit light to and from cell
	(Fiber length depending on installation)
	(flow cell length depending on H2S concentration)
Repeatability	±0.5% of scale
Measurement range	0-10PPM; 0-100PPM; 0-1000PPM; 0-1%; 0-100%
Accuracy	±1% of scale (for low PPM range ±2% of range)
Zero drift	2% for 24 hour (5% for low PPM range)
Response time	10sec (20 sec for low PPM scale)
Ambient Temperature	0-55C(32 to130F) standard
	-20C to 55C (-4 to 131 F) optional
Flow cell	
Temperature	-50 to 300C (-60 to 570F)
Pressure	200 bar (3000 psig)
I/O	
Analog outputs	two galvanically isolated 4-20mA
	(additional channels are optional)
Digital communication	RS232 Modbus, TCP/IP Modbus
PLC	OPC server included
Fault relay	One SPDT alarm relay
Spectromter	
Wavelength range	190-800nm
	400-1100nm
Slit Width	1nm
EP resolution	>1.6 toluene in hexane,
	ratio absorbance at 269nm / 266nm
Wavelength Accuracy	<±0.5nm (NIST 2034)
Wavelength reproducibility	<±0.04nm (NIST 2034)
Photometric accuracy	±0.005 (NIST '930e)
Photometric noise	<0.002AU 32 scans at 0 AU at 250nm
Photometric stability	<0.002AU/h at 0AU at 340nm +-10C
Power	80 to 240 Volts AC 40 to 60 Hz, 20 Watts
Analyzer Dimensions	16"(H)x14"(W)x8"(D)(41x36x20cm)
Area Classifications	
General purpose NEMA-4X IP 65	Standard
US Class I Div. 2 Groups C&D	Optional (Z purged)
Zone 2(22) Category G D3	
US Class I Div. 1 Groups B,C&D	Optional (X purged)
EEx d II C T6 Category G D2	
NEMA 6 Class 1 div 1 B,C,D	Optional (Enclosure)
EMC and LVD	Complies with all relevant European directives



Absorbance spectra H2S &RSH



Absorbance spectra H2S

DUAL METHOD OPTION

H_2S: 10PPM to 10%. Zero on air. The program switches automatically depending on concentration range to a method where the wavelengths to monitor are optimized for maximum signal to noise, allowing for one system to cover a very wide concentration dynamic range.

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