

# Hydrogen Sulphide Analyzers

## **GPR-7500 & GPR-7100**

The GPR-7500 analyzer utilizes the low-power electro-chemical sensor technology to provide a cost-effective and easy to maintain online-installation hydrogen sulfide measurement in a small package. The GPR-7100 is a portable H<sub>2</sub>S analyzer version preferably used for spot checking the process or temporary usage during servicing or commissioning of an permanent installation gas analyzer. These advanced instruments from AII are agency approved for use in flammable gas streams.



### **Highlights**

- ATEX & UL certified variants
- Accurate to < 2% (FS) with an LDL of 0.1 ppm H<sub>2</sub>S
- Dedicated sample handling systems are included
- Optional liquid drain system (for entrained liquids)
- 24 month typical sensor life (simple to exchange)
- Easy to use HMI for set-up, operation and field calibration

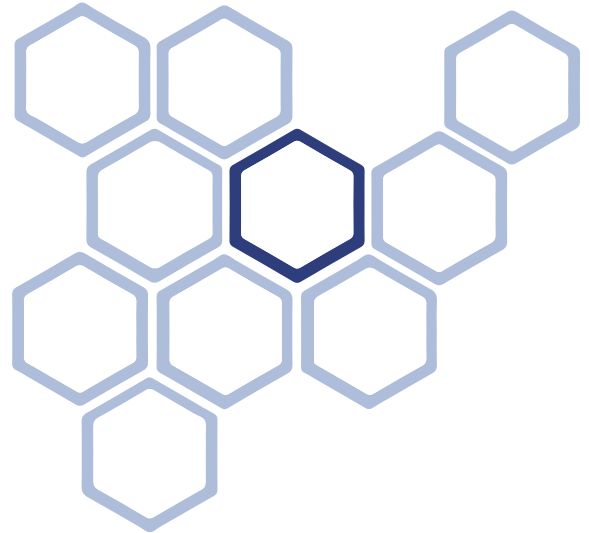
### **Applications**

- Natural gas quality
- Biogas before and after the H<sub>2</sub>S scrubber

## Sensor technology

The electrochemical sensors for hydrogen sulphide combine small size, very good sensitivity and easy maintenance making the handling of an H<sub>2</sub>S analyzer easy. Their main advantage is however the low power consumption which makes them perfectly suitable for battery-powered personal safety devices or portable instruments.

Like most of the toxic gas sensors Analytical Industries H<sub>2</sub>S sensors require a small amount of oxygen to function properly and provide a signal. The output from the sensor is inherently linear, but has some cross-sensitivity to other gases, which must be accounted for when utilising the data from the analyzer.



## Cross Sensitivity

Gas	Concentration	7HH	Gas	Concentration	7HH
Carbon monoxide:	300ppm	≤1.5ppm	Hydrogen:	10,000ppm	<5ppm
Sulphur dioxide:	5ppm	<1ppm	Hydrogen cyanide:	10ppm	0ppm
Nitric oxide:	35ppm	<2ppm	Hydrogen chloride:	5ppm	0ppm
Nitrogen dioxide:	5ppm	≤-1ppm	Ethylene:	100ppm	0ppm
Chlorine:	1pp	≈0.2ppm			

## Analyzer features and H<sub>2</sub>S scrubber options

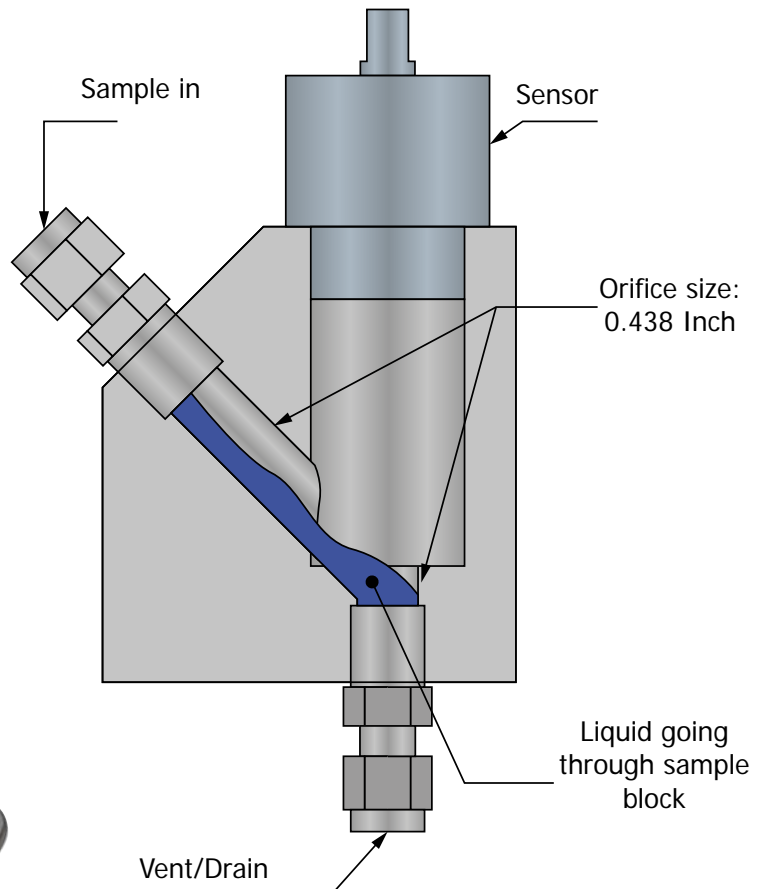
The analyzers are supplied as standard with an air pump for dilution of the sample (to provide the oxygen required for the measurement). Alternatively, a regulated supply of compressed air can be used instead, if convenient for the customer. A range of H<sub>2</sub>S scrubbers are available to allow safe venting to atmosphere of the sample.



## Liquid Drain

Samples (such as biogas) with entrained liquids can damage the sensor and cause analyzer and system upset. With the proprietary Analytical Industries' Liquid Drain System the problem can be easily handled. The sample gas enters the system from the top of the panel and flows down towards the sample block. The unique design allows the gas present in the sample to diffuse up to the sensor, while the unwanted liquids will flow out the vent/drain, protecting the sensor from liquid damage.

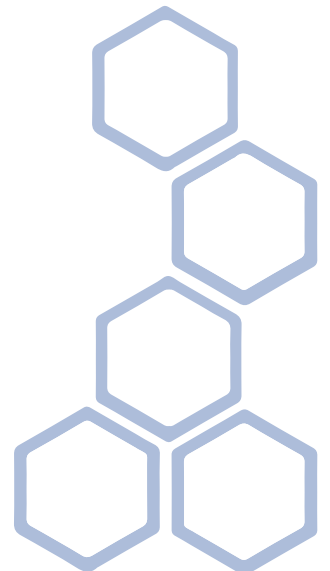
Note: This feature may impact the response time but is comparable to other sample systems designed to remove liquid carry over. Users selecting the Liquid Drain System are effectively protecting their process and reducing the cost of ownership and maintenance costs.



Detail view of sample Block



GPR-7100 Portable H<sub>2</sub>S analyzer



## Technical Specifications

	7100	7500 IS	7500 IS -LD	7500 AIS	7500 AIS LD	7500 AIS-S	7500 IS-S	
Measurement range	0-20, 0-50, 0-100 ppm	0-20, 0-50, 0-100 ppm (standard ranges) 0-500, 0-1000, 0-2000 ppm (optional ranges)					0-20, 0-50, 0-100 ppm	
Accuracy	±2% of selected range at constant conditions							
Response time	T90 < 60 seconds							
Sensitivity (LDL)	0.1 ppm							
Linearity	<2% of scale							
Sensor model	OSV-72-7HH-LM (standard ranges)	OSV-72-7HH (standard ranges), OSV-72-7HH-LD OSV-72-7H (up to 2000 ppm), OSV-72-7H-LD				OSV-72-7HH-LM (standard ranges)		
Sensor life at 25°C (77°F) and 1 atm	24 months							
Calibration interval	1-3 months - see manual for individual models							
Inlet pressure	0.34-2 barg (5-30 psig); vent - atmospheric					atmospheric		
Sample flow rate	0.5 NI/m (1 SCFH)					None, measures H <sub>2</sub> S in ambient air		
Auxiliary air flow rate	0.5 l/m (1 SCFH) 1.5 NI/m (3 SCFH) for high range sensor Instrument air required: regulated to 1 barg if internal pump not supplied							
Gas connections	1/8" Compression Type Fittings	1/4" Sample/Span; 3/8" Vent line.				None		
Wetted parts	Stainless steel							
Display	Graphical LCD 7 x 3.5cm (2.75 x 1.375"); resolution 0.1 ppm							
Enclosure	Painted aluminum NEMA 4X, 10.1 x 22.9 x 7.6cm (4 x 9 x 3")	NEMA Type 3R for rain in outdoor applications				Type 3R		
Weight	3.6kg (8 lbs)	10 Kg (22 lbs)						
Signal output	0-1V	4-20 mA or 1-5 V DC						
Alarms	None			Two user configurable alarms: magnetic coil relays rated 3A at 100 V AC, programmable alarm delays, alarm bypass for calibration and system fail alarm			None	
LED indicators	LOW BATT Warning; CHARGE mode	NA						
Operating temperature	-10° to 45°C (14°F to 113°F)							
Power	Rechargeable battery, 8 hours day duty cycle	18-28 V DC Transmitter, 12 V DC Pump		12-28 V DC (UL or ATEX Certified) 110-220 V AC (ATEX Certified) Transmitter, 12 V DC optional PUMP		12-28 V DC (UL or ATEX Certified) 110-220 V AC (ATEX Certified)	18-28 V DC	
Area classification	ATEX: II 2 G Ex ib IIB T4 Gb T <sub>amb</sub> +5°C to +45°C		UL: United States: UL 1203, UL 913, UL 508					
			ATEX: ATEX: II 2 G Ex ib IIB T4 Gb T <sub>amb</sub> -20°C to +50°C					

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Please note: Analytical Industries Inc. adopts a continuous development program which sometimes necessitates specification changes without notice. Please contact us for the latest version. Issue No: Hydrogen Sulphide Analyzers\_partnumber\_V2\_US\_1018