



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 H₂S 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 H₂S
- 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

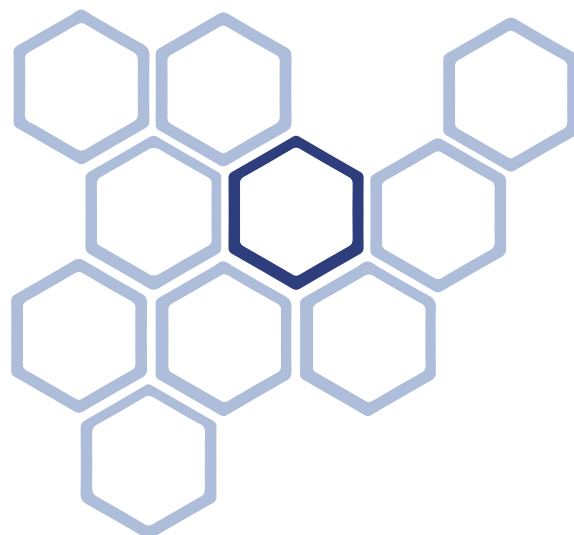
Applications

- Natural gas quality
- Biogas before and after the H₂S scrubber

Sensor technology

The electrochemical sensors for hydrogen sulphide combine small size, very good sensitivity and easy maintenance making the handling of an H₂S 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 H₂S 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 |
|-------------------|---------------|---------|
| Carbon monoxide: | 300ppm | ≤1.5ppm |
| Sulphur dioxide: | 5ppm | <1ppm |
| Nitric oxide: | 35ppm | <2ppm |
| Nitrogen dioxide: | 5ppm | ≤-1ppm |
| Chlorine: | 1pp | ≈0.2ppm |

| Gas | Concentration | 7HH |
|--------------------|---------------|-------|
| Hydrogen: | 10,000ppm | <5ppm |
| Hydrogen cyanide: | 10ppm | 0ppm |
| Hydrogen chloride: | 5ppm | 0ppm |
| Ethylene: | 100ppm | 0ppm |
| | | |

Analyzer features and H₂S scrubber options

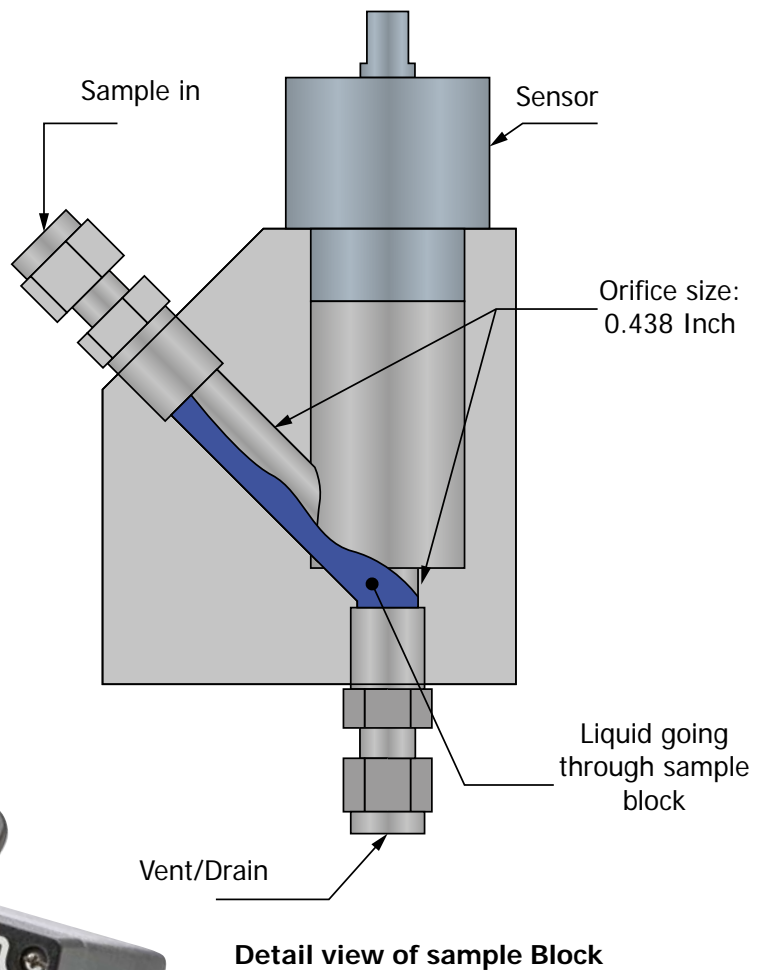
The analyzers are supplied as standard with an air pump for dilution of the sample (to provide the oxygen required for the measurement). Alternatively, a regulated supply of compressed air can be used instead, if convenient for the customer. A range of H₂S scrubbers are available to allow safe venting to atmosphere of the sample.



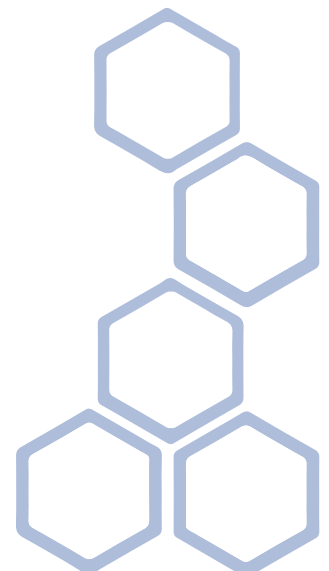
Liquid Drain

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.



GPR-7100 Portable H₂S 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 ₂ 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 _{amb} +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 _{amb} -20°C to +50°C | | | | | |