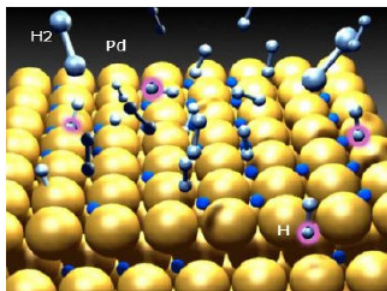


BAGGI BA-H2A Process Hydrogen Analysis System

The BAGGI BA-H2A is part of the **BAGGI BASE® Instruments Series**. They are the result of combining the latest state-of-the-art-technology with over 50 years of industry experience.

The BA-H2A is an online real-time hydrogen process analyzer. The sensor is a solid state design based on a thin film of palladium alloy. The presence of H₂ (down to 15 ppm concentration) changes the electrical resistance and capacitance of this film. The measured electrical signals are processed by software and the hydrogen level is displayed in real time. The system maintains the sensor element at a constant temperature, therefore its operation is unaffected by the gas and ambient temperatures. The system can be specially built for installation in areas with an explosive atmosphere.



Molecular hydrogen (H₂) adsorbs on palladium and dissociates into atomic hydrogen (2H)

The sensor is able to operate in process gas streams with up to 95% relative humidity and temperatures up to 100°C. It is ideal for hydrogen production and petrochemical applications where real time measurements of hydrogen can increase process plant efficiencies and improve diagnostics.

Several versions are available to meet specific applications. All of these versions use the same electronics and enclosures; the only difference is in the sensor element and/or calibration gasses:

- ✓ Standard process monitor (calibration: H₂ in N₂)
- ✓ Process monitor for air background (calibration: H₂ in Air)
- ✓ CO tolerant process monitor (calibration: H₂ in N₂)
- ✓ H₂S tolerant process monitor (calibration: H₂ in N₂)
- ✓ Corrosion resistant process monitor (calibration: H₂ in N₂)

The BASE® Series embedded computer is the heart of the system.

The figure shows an ATEX certified version, contained within a Stainless Steel 316L enclosure provided with a protective air purge system and a Vortex cooler (connected to the plant instrument air). Magnetic push buttons allow controlling the system without opening the cabinet.

ATEX compliance:

- II 2 G Ex px II T6
- II 3 G Ex pz II T6

The BA-H2A system performs automatically the sensor verification and the in field calibration without removal from the enclosure. The calibration interval is 90 days.

The system can be equipped with a vacuum pump, regulator and flow meter to control the process stream to the sensor. It is able to measure gases from two different sources.

The computer, besides displaying the actual readings on its LCD screen, offers a GUI for configuring the system, for archiving the historical data in Excel compatible format and for displaying the measurement in graphical format and for generating alarms. Finally, it can transmit remotely the measurements by means of 4...20 mA analogue outputs and the alarms by means of digital (relay) outputs.

In short the embedded computer, together with its circuitry, acts as a PLC to operate the Process Hydrogen Analyzer during normal operation, start-up and shut-down.

Note: the BAGGI BASE® Instruments Series includes also H₂ analysis through gas chromatography (GC) and thermal conductivity detector (TCD).



Main advantages

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| Hydrogen detection against virtually any background gas | The specific sensing system is uniquely able to detect hydrogen against virtually any background gas without false readings or the expensive support equipment typically required. |
| Operation with or without the presence of Oxygen | There is a choice of sensor models and calibration procedures to operate with or without the presence of Oxygen. |
| Fast response time | T ₉₀ (the time taken for the output to reach 90% of its final value) is less than 30 seconds. |

Specifications

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|---------------------------------------|--|
| Sensitivity range | 0.5% to 100% hydrogen by volume at 1 atm. |
| Accuracy | ± (0.03 x indication + 0.2) percent hydrogen by volume Example: accuracy at 1% H ₂ is ±0.23% H ₂ |
| Response time | T ₉₀ less than 30 sec |
| Sample gas flow rate to sensor | 0 to 50 slpm |
| Temperature | - Gas stream: from -20 °C to +100 °C - Sensor operating: from -20 °C to +40 °C - Sensor storage: from -40 °C to +50 °C |
| Calibration period | Three months |
| Sensor life expectancy | 10 years |
| Power | 90-264 VAC, 47-63 Hz; 6A max |
| External input/output | - Analog input: four inputs filtered with transient protection - Analog output: three isolated outputs, 4 – 20 mA (standard) - Analog output: three additional isolated outputs (optional) - Digital input: six digital inputs (optional) - Digital output: four isolated relay signals (alarm and warning) - Digital output: four additional relay signals (optional) - Serial line: RS-232/RS-422/RS-485 with Modbus/Profibus/FieldbusFoundationProtocol - Ethernet card: two 10/100 mbps with RJ-45 port - One integrated WiFi card 11 Mbit/s |
| Dimensions/Weight | - Wall Mount: 500mm H x 400mm W x 250mm D (19.68" H x 15.74" W x 9.84" D) - Weight: 15 Kg approx. |
| Environmental conditions | - 0 °C to 40 °C (32 °F to 104 °F) - 0 °C to 55 °C (32 °F to 131 °F) with vortex cooler |
| Enclosure protection | IP66 |
| Compliances | - EN 61326, EN 61010-1, EN60079-2 - ATEX (optional) II 2 G Ex px II T6 II 3 G Ex pz II T6 |



All the specifications subject to change without notice

TDSCS90925AR1_BAH2A page 2