

**Category:** Sensors & Measurement Techniques

**Reference:** TD-DE-1009

### Hydrogen Sensor

The hydrogen sensor is a development based on a miniaturized sensor system which flow on the International Space Station ISS.

The special know-how from space in combination with modern production techniques led to a sensor system, which is particularly suitable for measurements below 1.000 ppm H<sub>2</sub>. The working principle of the sensor system is the solid state electrolysis in the Non-Nernst version. This allows H<sub>2</sub>-measurements starting from even 1 ppm e.g. for leak detection or for monitoring the lower explosive limit of fuel cells.

To do justice to the high demands regarding quality and quantity are used a multi-layer procedure which uses screen printing, sensors for various configurations are constructed so that they can be reproduced.

#### Technical Data

principle of measurement: solid state electrolysis (Non-Nernst)  
sensor dimensions: (w x l x t) 3,5 x 20,0 x 0,6 mm  
measurement range: 0... 20.000 ppm H<sub>2</sub> (50% of the lower explosive limit)  
sensor temperature: approx. 580 °C  
response time: < 1 s  
required power supply: approx. 3 W  
temperature range in application: 200 °C (dependent on housing)  
output: analog 0... 10 V  
housing, electronics: customized

#### Innovative Aspects:

The exceptional advantages of this hydrogen sensor are:

- High resolution
- Fast response
- Mechanical, chemical and thermal robust
- Small dimensions
- Wide range of application

#### Application Areas:

The sensor is applicable for measurement and monitoring duties in a wide range of hydrogen application.

#### Cooperation:

The company is interested in for selling the hydrogen sensor incl. measurement electronic. Furthermore, interest exist in all kind of co-operations to develop and adapt sensor systems for different hydrogen applications.

