



## SM\_H2\_LC

### Hydrogen Gas Detector Kit

*For battery charging rooms and other areas where hydrogen gas may be present*

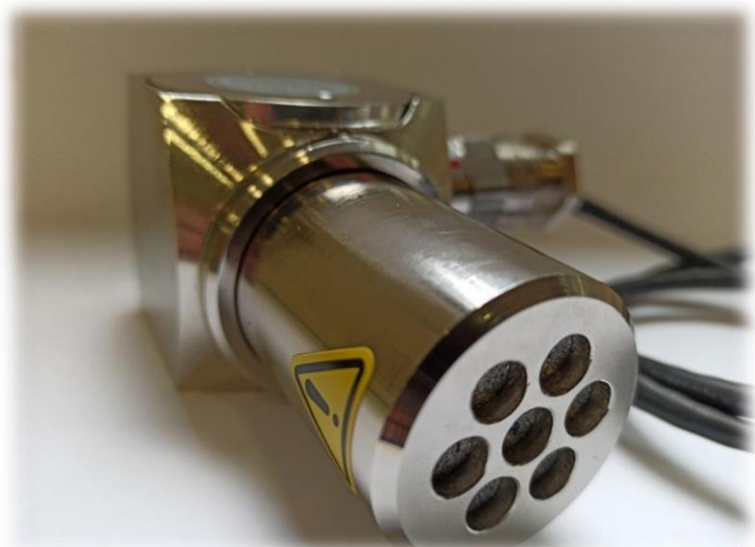
#### SM\_H2\_LC Standard Edition

- Quick installation
- Easy maintenance
- Reliable
- Flexible
- External Relays available



#### SM\_H2\_LC EX-i (Explosion Protected)

- Encapsulated sensors
- Sealed electrical parts
- Designed for explosive vulnerable environments
- Flexible
- Reliable
- Customizable sensor heads on request





## Overview

Caused by an internal chemical process, batteries gas out hydrogen during a charging cycle. As soon as the saturation of air with at least 4.1% hydrogen to 75% air is reached, a highly explosive gas mixture is formed - Sparks or hot surfaces can ignite the hydrogen gas.

Since hydrogen is colorless and odorless, battery rooms should be secured by additional hydrogen sensors

The SM\_H2\_LC hydrogen detector is a monitoring device that provides a visual and audible alarm when hydrogen is detected:

The device provides a

- 20 % LEL warning level
- 40 % LEL concentration alarm level

## How the SM H2 sensor works

Each SM\_H2\_LC Hydrogen sensor can be combined with a daisy with up to 5 devices – the devices can be placed individually to monitor hydrogen level in the air.

Should the concentration of hydrogen gas in the air surrounding the sensor probe reach warning levels, the sensor reacts as followed:

### *“20 % LEL - Warning”*

- Warning LED will light up on the according unit.
- The 1% internal relay will be triggered for advanced alarm notification

Should the concentration of hydrogen gas in the air surrounding the sensor probe reach critical values, the sensor reacts as followed:

### *“40 % LEL - Alarm”*

- Alarm LED will light up,
- The internal alarm relay will be triggered for advance alarm notification

## Applications

The SM\_H2\_LC hydrogen sensor can be used for

- Substations
- Battery rooms
- Uninterruptible power supply (UPS)
- Battery cabinet systems
- Battery charging areas
- Hydrogen fueled back-up power systems



## Technical Data

Supply Voltage	9-12V DC (stabilized)
Supply Current	300 mA max
Operating Temperature	0 – 40 °C
Operating Humidity	< 90%
Dimension , Weight	120mm x 80mm x 60mm , 0.25 kg
Alarm Thresholds A1, A2	A1 – 20% LEL, A2- 40% LEL (100 % LEL – 4% VOL)
Relay - Rated Load	0.50A 125 VAC, 1 A 24 VDC
Communication Interface	Outputs with Open Emitter, maximum current 40 mA per output, High state – min. 0.8*VCC Low state – high impedance state (HiZ)
Sensor interference gases	Chlorine, nitrogen oxides, significant oxygen deficiency (<18% vol.), rapid increase in humidity
Factors limiting sensor durability	Silicone compounds, long-term operation in the concentration above 3.5% LEL, constant presence of strongly reducing gases such as acetylene, hydrogen sulphide, hydrogen, carbon sulphide, etc.
Response time	T <sub>P50</sub> 15 – 120 s. (without diffusion time to the detector), metrological readiness from 0.5h to 12h - depending on the time of power failure
Thresholds accuracy	+/- 20 % under calibration conditions (20 °C, 1013 hPa, hum. 65%)
Stability of alarm thresholds	+/- 20 % long-term in 1 year, but not worse than +/-30% in 3 years
Max. instantaneous hydrogen concentration H <sub>2</sub>	100% LEL( <1min/30min)
Calibration period	recommended – 1 year / max. 3 year
MTBF SM_H2_LC Main Board	90000
MTBF SM_H2_LC Sensor	26300

## Storage conditions

Max. storage time	36 months
Storage packaging	Packaging should be a tightly closed polyethylene bag
Storage room condition	The place should be free from moisture, dust, fumes, vibrations and any chemically active substances
Storage environment	-20°C up to +50°C

## Optional parts: EX-i und IP-52 / ATEX approved



- Special membrane protects against spark formation during switching processes.
- Screwed housing protects against accidental opening when the sensor is running.
- Adaptable sensor heads: on request, characteristic data for the Sensor detection and the gas type can be changed



- EX-i und IP-52 / ATEX approved