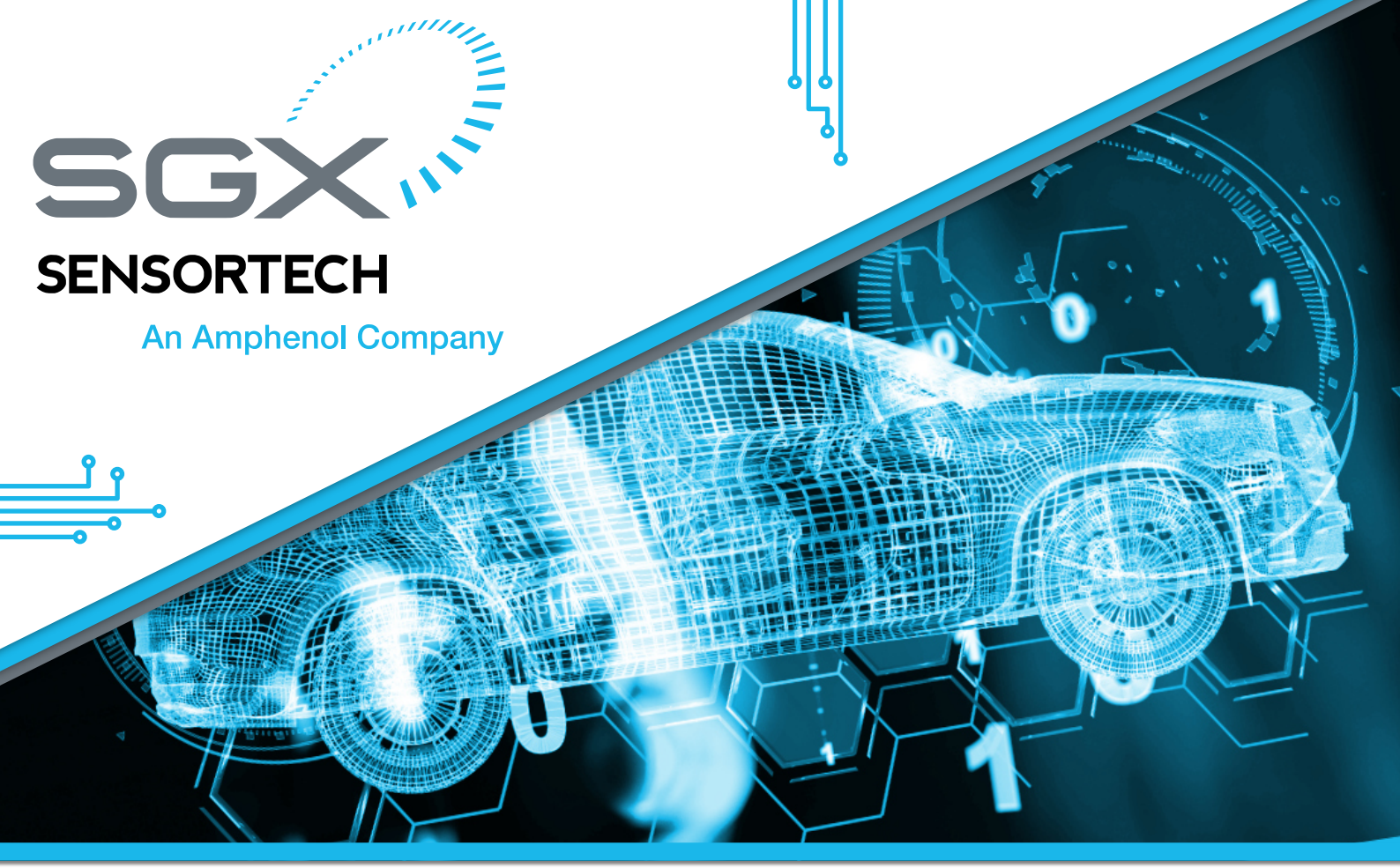
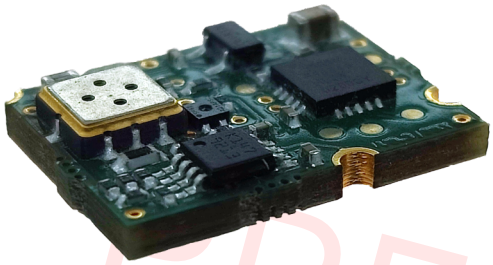
SGX SENSORTECH

An Amphenol Company





BLD1A-Compact

Hydrogen and Battery Leakage Detection Sensor

Datasheet

BLD1A-Compact is a Battery Failure Detection sensor that measures Hydrogen, Temperature and Humidity level when different battery leakage occur.
The module has to be placed in the battery enclosure allowing to detect a failure mode.

BLD1A-Compact is a solution to allow Battery Management System (BMS) monitor the safe operation of the battery and send an Early Warning Signal when a Thermal Runaway event occurs to give time to passengers to leave the vehicle safely.

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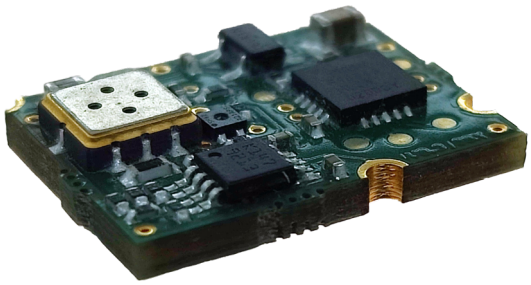
Functional specifications

Features

- Small size
- Fast response time (< 1s)
- MEMS sensor technology for Hydrogen
- High sensitivities to gases Hydrogen
- Analog output
- PCBA that can be soldered



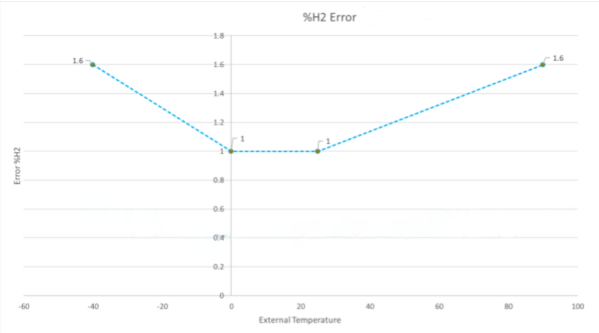
Principle

There are different failure mode during the battery life time that could occur.To prevent any injury to the passengers, one solution is to send an alarm as soon as possible to the passenger to leave the car when there is any leakage detection. Our sensor is able to detect different hydrogen before a thermal runway.

Main technical characteristics

Temperature and humidity range	0~95% RH -40°C to +85°C
IP level	To be insured by customer
Fixing	PCB soldered
External dimensions	17 mm x 13 mm x 2.5 mm
Weight	< 10 g
Power supply operating range	3.3V
Power consumption	<25 mA for A sample
Output signal	Analog 0.3 – 3.3V Corresponds to 0-6% Hydrogen
H_2 detection	Accuracy: 1.0 - 1.6% (in accordance with the table below[1]) Equivalent in Voltage: ± 0.5-0.8V Resolution: 0.23%
On board temperature sensor	Range: -40/+85°C Resolution: 1°C Accuracy: ±3%
On board humidity sensor	Range: 0 to 100% Resolution: 0.0019% Accuracy:± 3% RH (max), 0–80% RH
Start-up time	< 400ms
Lifetime	10 years or 13'000h [2]

[1] Under 500mL/s airflow and stable condition point
[2] Can be higher with a lower measurement frequency and depend on detection time target



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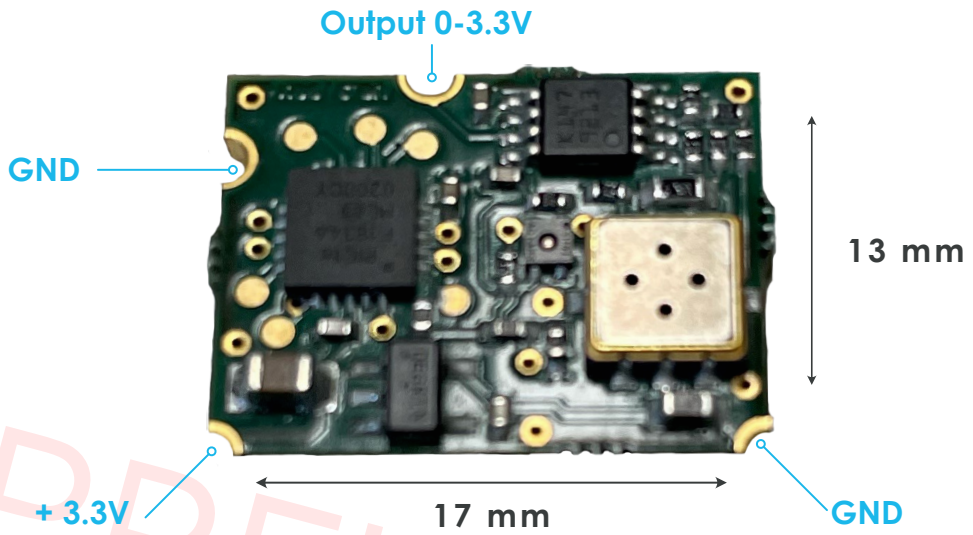
Interface and integration

Principle

Soldering is done by the 4 fixation point.

3 of those points are connexions to GND, +3.3V, and analog output



Recommendation for integration

The sensor must be exposed to measure the air from the **battery pack only**.