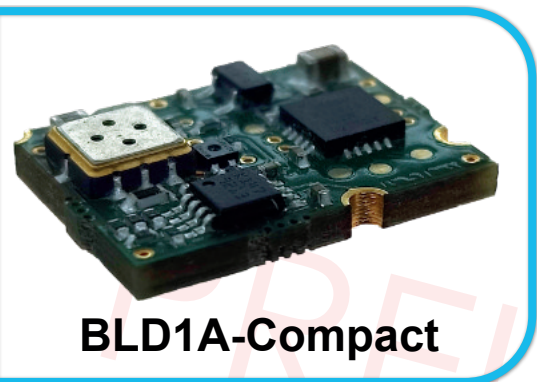
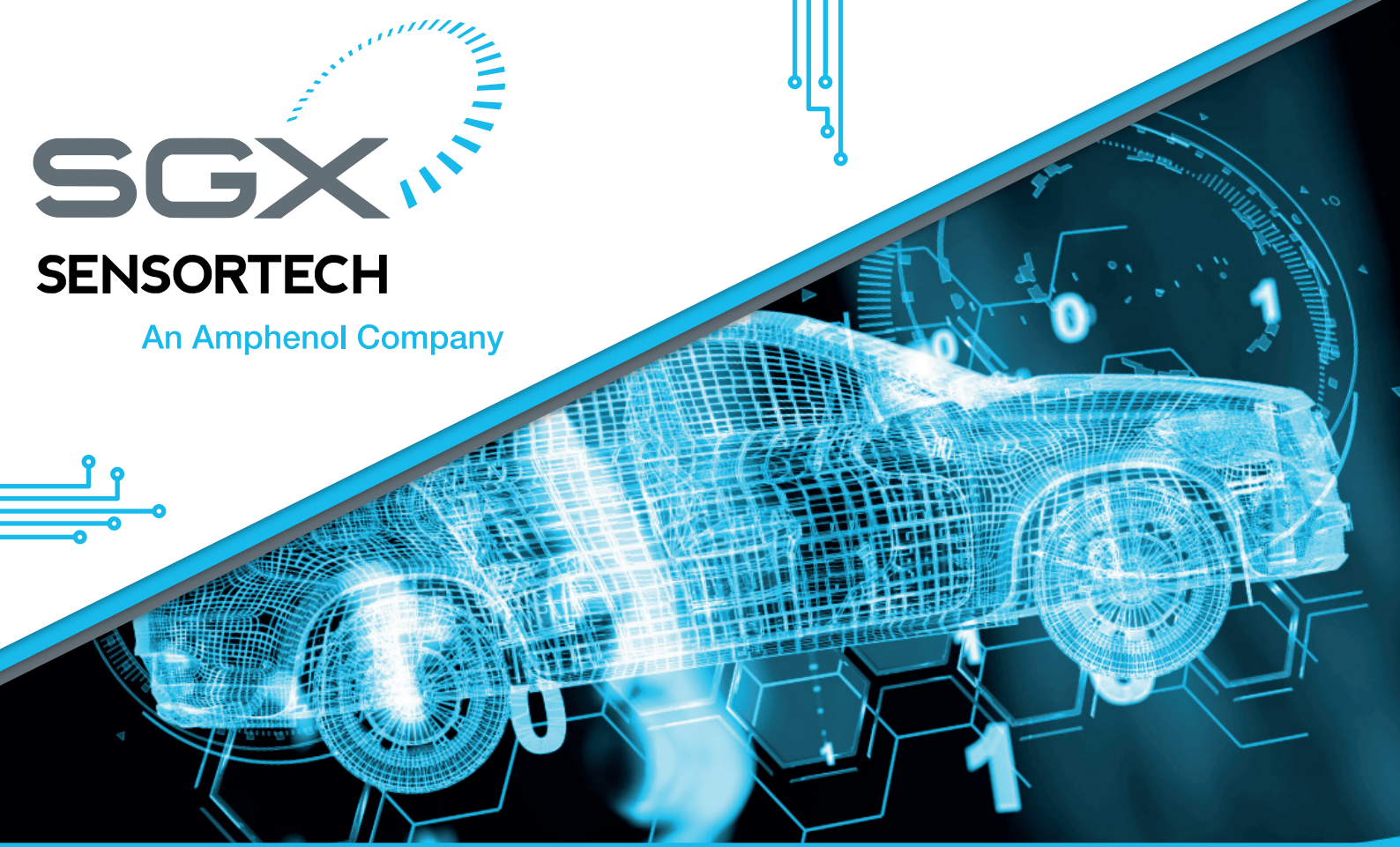


SGX

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.



Quality, Safety, Responsibility

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 runaway.

Main technical characteristics

Temperature and humidity range	0~95% RH -40°C to +85°C
Temperature storage	-40°C to 120°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 – 3.3V Corresponds to 0-6.6% Hydrogen
H ₂ detection	Accuracy ¹ tested below inflammability level, 4% H ₂ in the air at an ambient temperature H ₂ < 4% (Accuracy ± 0.2% H ₂) Resolution 0.4% H ₂ 0% H ₂ --> 0.3V (kind of baseline) 1% H ₂ --> 0.3V (baseline) + 0.5V (0.1V for 0.2% hydrogen) = 0.8V
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 in stable hydrogen concentration / this will increase if the life time need to be higher

² Can be higher with a lower measurement frequency and depend on detection time target

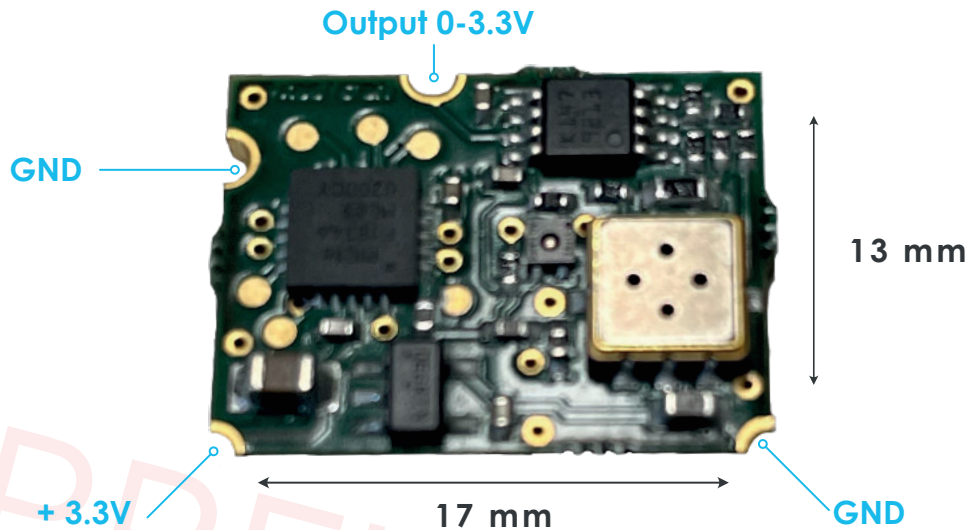
BLD1A-Compact

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**.

DISCLAIMER:

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SGX Europe Sp. z o.o. sensors are designed to operate in a wide range of harsh environments and conditions. However, it is important that exposure to high concentrations of solvent vapours is to be avoided, both during storage, fitting into instruments and operation. When using sensors on printed circuit boards (PCBs), degreasing agents should be used prior to the sensor being fitted. SGX Europe Sp. z o.o. makes every effort to ensure the reliability of its products. Where life safety is a performance requirement of the product, we recommend that all sensors and instruments using these sensors are checked for response to gas before use.

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