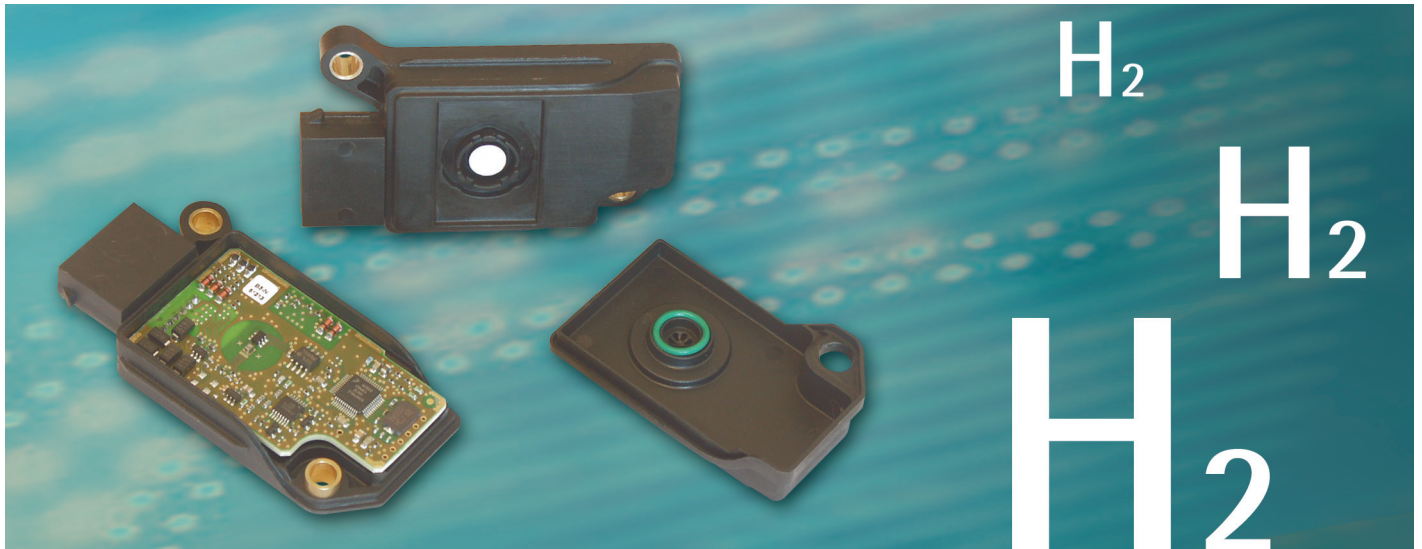


# Hydrogen Leak Sensor



## HLS-440

### Fast and highly selective

The AppliedSensor HLS-440 Hydrogen Leak Sensor is an accurate, fast-responding sensor designed for installation in vehicles and hydrogen fueling stations. Unlike sensors that can be extremely cross sensitive to a variety of combustible gases, AppliedSensor's HLS-440 sensor was developed using advancements in Field Effect (FE) technology. This enables it to be highly selective to hydrogen gas without interference from background gases or water vapor.

### Low power and flexible packaging

The HLS-440 Hydrogen Leak Sensor features reduced power consumption, provides increased packaging flexibility, and includes a CAN bus electrical interface with standard MQS six-pin connector. Self testing at start up and advanced error handling ensure reliable operation. In addition, a short start up time enables an intermitted mode of operation that minimizes current drain.

### Uniquely designed for superior sensing over wide detection range

The HLS-440 incorporates a heated field-effect transistor with a catalytic metal gate stack as the gas-sensing layer. Hydrogen molecules interact with the gate, thereby changing characteristics of the transistor. The heated transistor also measures the thermal conducting properties of the gas complementing the field effect signal. Sensor signals are processed in a microprocessor to provide hydrogen concentration output.

AppliedSensor's unique design and careful processing of the gate stack result in superior sensor properties, including high-response speed and excellent selectivity, as well as a detection range that covers the lower explosion limit of hydrogen gas.

## Key Benefits

- High sensitivity to hydrogen gas
- Low cross sensitivity
- Fast response time
- Low power consumption
- Long-term stability and reliability
- Long lifetime

## Applications

- Detection of hydrogen gas leaks in the cabin ceiling, under the hood of the engine compartment, or beneath the trunk lid of hydrogen-powered vehicles
- Detection of hydrogen gas in and around hydrogen fueling stations

# Hydrogen Leak Sensor

## HLS-440 Specifications

Target gas	Hydrogen
Concentration range	0-4.4% H <sub>2</sub> in air
Accuracy	+/- 3000 ppm
Speed of response (t90)	< 2 seconds
Speed of recovery	< 10 seconds
Cross-sensitivity	No detection towards HC, H <sub>2</sub> S, N <sub>2</sub> , CO, CO <sub>2</sub> , NO <sub>x</sub> , H <sub>2</sub> O Humidity influence, not detectable
Start-up time	1 second
Self test/Error handling	Developed in accordance to IEC 61508 (SIL2)

### Electrical

Supply voltage	9V – 16V
Supply current	75mA typical
Can Interface	Version 2.0 ISO 11898
Programmable CAN ID	Yes
Connector	MQS 6-pin
ESD/Reverse polarity	Yes

### Environmental

Operation temperature range	-40 -> +110° C
Storage temperature range	-50 -> +125° C
Humidity	5% – 95%
Pressure	70-130 kPa
EMC	Automotive
ATEX	Zone 2
Shock	Automotive
Vibration	Automotive

### Mechanical

Dimensions (LxWxH)	82.2 mm x 42 mm x 17.3 mm
Weight	50g
Material	PBT +30% GF
Gas filter membrane	Pall SUPOR 450R, 0.45 µm
IP code	IP67

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