

CAPSULE Series Hydrogen Gas Detectors

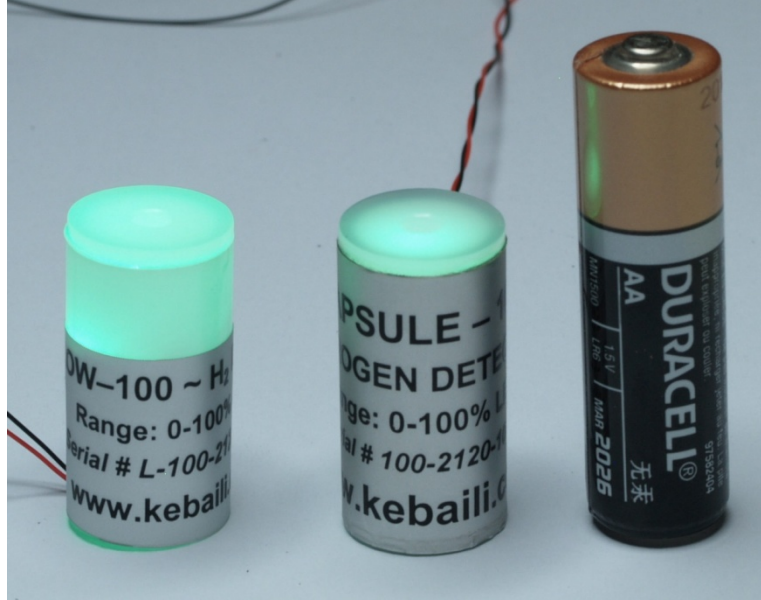


Figure 1 CAPSULE & GLOW Series Hydrogen Detectors

The CAPSULE Series consists of three miniature hydrogen detectors (CAPSULE-100, CAPSULE-50 and CAPSULE-25) with audible and visual alarms that can be used as complete stand-alone hydrogen gas detectors for monitoring hydrogen gas levels and potential hydrogen gas leaks in industrial and commercial facilities. The CAPSULE Series compact form factor allows it to be used in many challenging applications where it's not possible to use existing hydrogen detectors because of their weight, size and cost.

- CAPSULE-100 detects hydrogen gas in the linear range of 0 to 100% LEL (0 to 40,000 PPM or 0 to 4% hydrogen by volume in air).
- CAPSULE-50 detects hydrogen gas in the linear range of 0 to 50% LEL (0 to 20,000 PPM or 0 to 2% hydrogen by volume in air).
- CAPSULE-25 detects hydrogen gas in the linear range of 0 to 25% LEL (0 to 10,000 PPM or 0 to 1% hydrogen by volume in air).

These hydrogen detectors allow early warning detection of highly flammable hydrogen gas and prevention of hazardous and unsafe conditions from potential hydrogen gas buildup.

VISUAL ALARM	CAPSULE-25	CAPSULE-50	CAPSULE-100
GREEN	0% LEL = 0% H ₂	0% LEL = 0% H ₂	0% LEL = 0% H ₂
BLUE	6.25% LEL = 0.25% H ₂	12.5% LEL = 0.5% H ₂	25% LEL = 1% H ₂
YELLOW	12.5% LEL = 0.5% H ₂	25% LEL = 1% H ₂	50% LEL = 2% H ₂
ORANGE	18.75% LEL = 0.75% H ₂	37.5% LEL = 1.5% H ₂	75% LEL = 3% H ₂
RED	25% LEL = 1% H ₂	50% LEL = 2% H ₂	100%LEL = 4% H ₂
FLASHING RED	Sensor Fault	Sensor Fault	Sensor Fault

The audible alarm is also activated when hydrogen gas is detected.

Hydrogen Gas Sensor

The CAPSULE Series integrates MEMS micropellistor hydrogen gas sensors, based on Kebaili's proprietary 1mm² MEMS chip micro-hotplate platform technology.

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The MEMS hydrogen gas sensor detection principle is micro-catalytic oxidation reaction of hydrogen gas. It is highly sensitive and selective to hydrogen gas with no cross-sensitivity to carbon monoxide or methane.

FEATURES

- Intelligent microcontroller-based design, with continuous self-testing operation.
- User initiated automatic and nonintrusive digital calibration with no trimpots or potentiometers user adjustment.
- Four factory preset audible and visual gas level alarms.
- Audible and visual sensor fault alarm.

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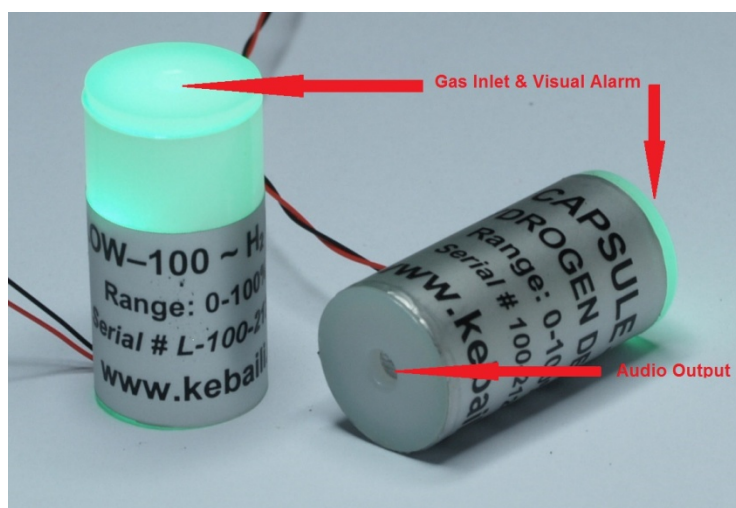


Figure 2 CAPSULE Series Gas Inlet & Visual/Audible Alarms Output

SPECIFICATIONS

- Sensor Type: Hydrogen gas specific MEMS micropellistor sensor.
- Sensor Life: Typical 5+ years.
- Detection Range: 0-100% LEL, 0-50% LEL and 0-25% LEL
- Detection Accuracy: +/- 0.5% LEL
- Zero Drift: < +/- 0.1 mV/month
- Linearity: Linear response from 0 to 100% LEL
- Response Time: T50 = 1 sec & T90 = 3 sec
- Recovery Time: 2 sec
- Input Power: 60 mA @ 5 VDC
- Temperature Range: -20°C to 55°C (-4°F to 131°F)
- Humidity Range: 0% to 100% RH (non-condensing) during continuous operation.
- Dimensions: (32 x 16) mm, (1.25 x 5/8)".
- Weight: 5 g (0.17 oz)

CAPSULE Series Hydrogen Gas Detectors

APPLICATIONS

- Battery rooms
- Laboratory monitoring
- Process gas leak detection
- Uninterruptible power supplies (UPS)
- Battery charging systems
- Hydrogen gas carrier for gas chromatography
- Electrolyzers and hydrogen generators
- Hydrogen powered fuel-cell applications
- Industrial and commercial applications

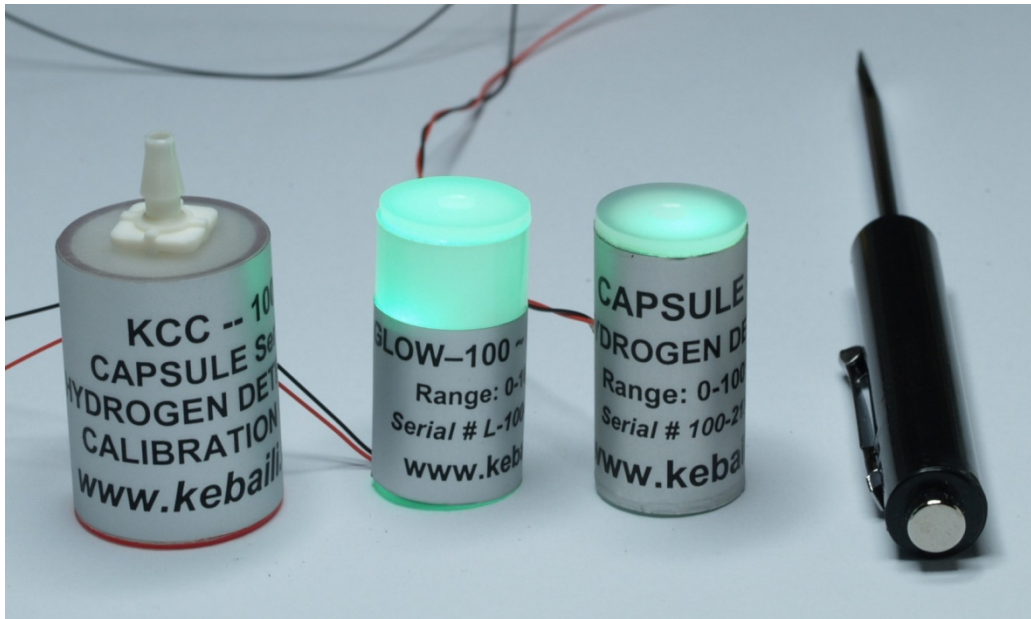


Figure 3 CAPSULE and GLOW Series with Calibration Kit

ACCESSORIES

- KCC-100 calibration cap
- Screwdriver with magnet

Like any other catalytic bead sensors, the MEMS micropellistor hydrogen gas sensor is susceptible to a variety of poisoning compounds including silicone, lead, chloro-fluoro carbons (CFC's) and high concentrations of hydrogen sulfide (H₂S).

WARRANTY INFORMATION

Kebaili Corp. warrants its products to be free of defects in materials or workmanship and will repair or replace without charge any hydrogen gas detector that is found to be defective for three years for the electronics and one year for the hydrogen gas sensor after the date of purchase. Hydrogen gas sensors that are damaged by exposure to poisoning contaminants such as silicones, chlorine, halogenated compounds, hydrogen sulfide (H₂S),

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or any polymerizing gas are not covered by this warranty. Further, hydrogen gas sensors that have failed due to incorrect hookup are not covered by this warranty.

Kebaili Corp. reserves the right to make the final determination of the nature of and responsibility for defective or damaged equipment. Equipment that has been repaired or modified by the user, damaged as the result of an accident, incorrectly installed, or used in an application or environment for which it was not intended is not covered by this warranty.

Kebaili Corp. responsibility under this warranty shall be limited to the repair or replacement of the defective equipment at its option when it is returned to the factory transportation prepaid. The defective unit will be repaired or replaced free of charge to the customer and returned transportation prepaid. In all cases, this warranty is limited to the cost of the equipment.