



## H<sub>2</sub> sensors for transformer dissolved gas monitoring using our proven DGA platform



Gridscan™ chip-based technology uses palladium-nickel alloys with an advanced proprietary materials coating to protect the sensor, enabling it to measure hydrogen in oil or gas phase of power transformers and ancillary equipment.

This solid-state sensing element is hydrogen specific, insensitive to other transformer gases and can be immersed directly in the transformer oil during normal operation to measure hydrogen levels continuously. The Gridscan™ platform has no consumable components or any degradation of the sensor, does not require carrier or calibration gases to maintain accuracy and has a theoretically unlimited useful life.

# GRIDSCAN™

AN H2SCAN PATENTED TECHNOLOGY

- Major OEM partners
- Installed Worldwide
- Low Cost

# GRIDSCAN™ 5000

## H<sub>2</sub> Sensor Specifications

Parameter	Oil Phase	Gas Phase
Measurement Range	25 - 5,000 ppm	500 - 100,000 ppm
Accuracy <sup>1</sup>	20% of reading or 25 ppm†	20% of reading or 500 ppm
Repeatability <sup>2</sup>	10% of reading or 15 ppm†	10% of reading or 300 ppm
Response Time	< 60 minutes	< 60 minutes
Operating Temperature (Ambient)	-40°C to +70°C	-40°C to +70°C
Storage Temperature	-40°C to +85°C	-40°C to +85°C
Oil Temperature Range <sup>3</sup>	-40°C to +105°C	n/a
Data Log Storage	1 Year	1 Year
Cross-sensitivity to H <sub>2</sub> O, CO <sub>2</sub> , C <sub>2</sub> H <sub>2</sub> , C <sub>2</sub> H <sub>4</sub> , CO, etc.	<1%	<1%
Serial Communications	RS485, MODBUS RTU	RS485, MODBUS RTU
Power Supply	9-48 VDC, 10 Watt	9-48 VDC, 10 Watt

† whichever is greater

## Physical Specifications

### Wetted Materials:

316SS, 40% mineral filled Nylon, polyimide, glass

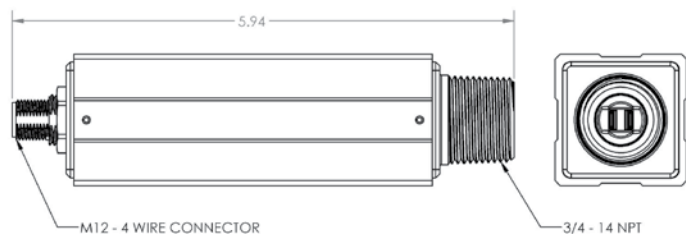
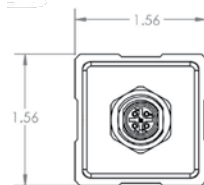
### Sealing:

Hermetic glass-to-metal feedthrough, Buna-N gaskets

### Housing:

Hard Anodized 6061 Aluminum

### DIMENSIONS (inches)



### Ratings:

CE Mark (IEC 61000)

ROHS 2011/65/EU compliant

EMC/RFI and Other Electrical Certification

- IEC 55022 IFCC Part 15
- IEC 55024
- IEC 55011
- IEC 61000-4-2 through 61000-4-6, and 61000-4-8
- IEC 61010-1
- IEC 60255-5
- IEC 61326

### Humidity and Corrosion Resistance:

Class C5M Marine rated; salt-water condensing  
(IEC 60068-2-11 & DIN EN ISO 12944)

**Ingress Protection:** IP68; 25 feet water for 14 days  
(IEC 60529)

**Vibration:** 3-axis Sinusoidal, Wideband and Random  
[Simulated Long-Life] (IEC 60068-2-6 table C.2, IEC 60068-2-64 paragraph A.2, category no. 2, IEC 61373: 2010 Cat 1B section 9)

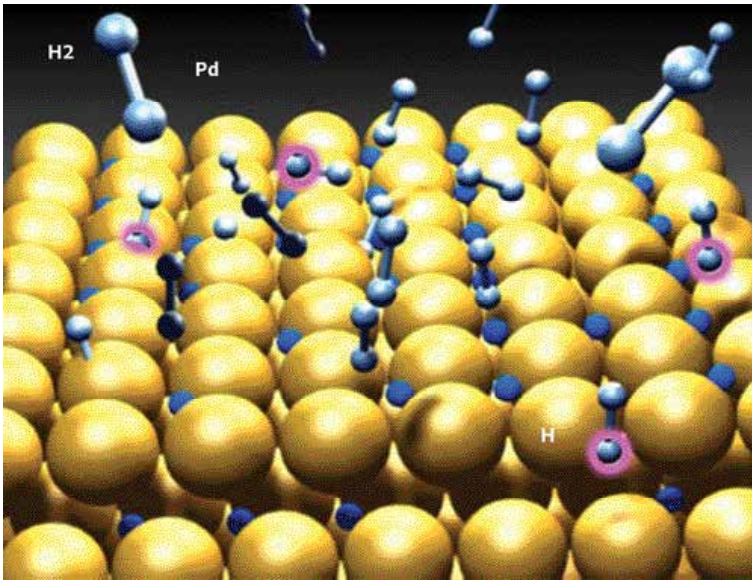
**Shock:** 30g, shock duration 18ms (IEC 60068-2-27)

<sup>1</sup> Errors are in addition to any introduced by the measurement standard

<sup>2</sup> For consecutive measurements to an identical hydrogen concentration

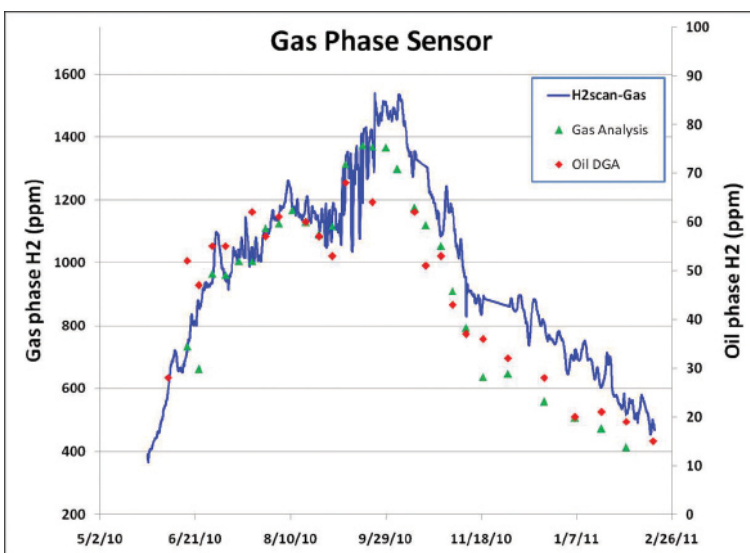
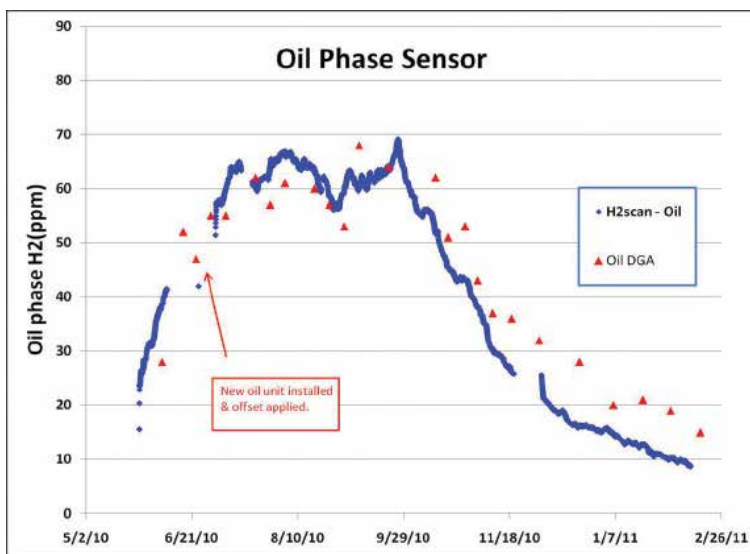
<sup>3</sup> Main tank bulk oil temperature

## H<sub>2</sub> Sensor Key Features and Benefits



H2scan's proprietary Sensor on a Flex™ technology brings many years of research, experience and commercial success in various industries, including petroleum refineries, chemical production, nuclear power plants, fuel cells and more to the Gridscan™ platform developed specifically for monitoring hydrogen in electric power transformers and other oil filled apparatus.

Gridscan™ models can be retrofitted onto active transformers without having to de-energize them. Unlike other technologies, H2scan's sensor technology does not suffer from signal saturation at high hydrogen concentrations. The sensor continuously measures oil temperature and provides an oil-temperature corrected hydrogen signal that can be used to activate relays and provide early warnings of a transformer failure.



- Low cost solution for key incipient fault marker that is easy to install and maintain
- Operates immersed directly in transformer oil or headspace
- Continuous hydrogen monitoring reveals potential faults to ensure timely action and avoid downtime
- Reduced dependence on costly oil sample based DGA diagnostics
- No membrane, consumables, moving parts or reference gas
- Life expectancy is 10-15 years

# H<sub>2</sub> Sensor for Transformers and Other Oil Filled Assets

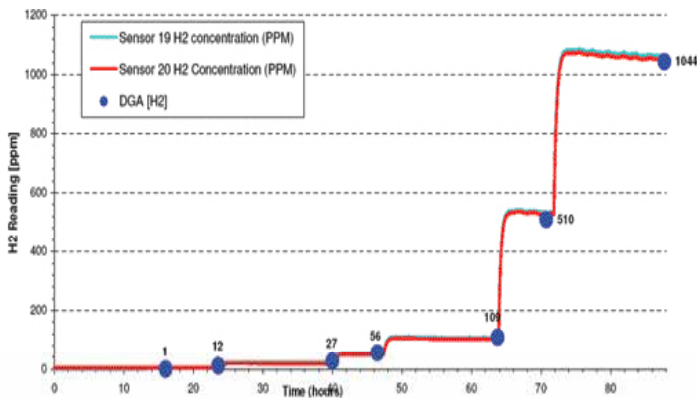
May be installed on New and Retrofit Applications

- Any class of oil filled transformer (Transmission/Distribution/Commercial/Industrial)
- Instrument Transformers
- Load Tap Changers and other oil-filled assets

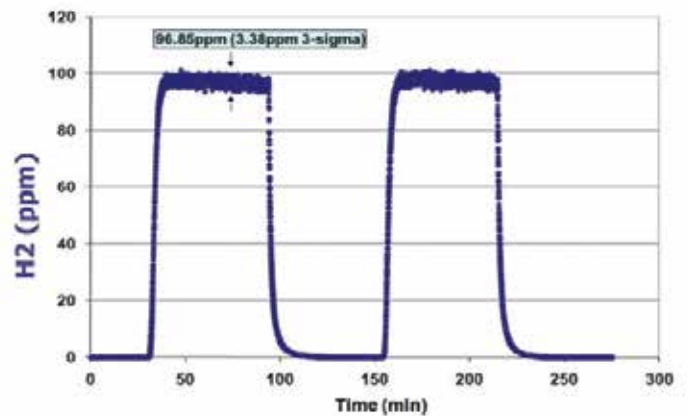


Transformer Installation

## H<sub>2</sub> Sensor Performance



Sensor matches DGA readings in Oil Phase



Sensor performance in Gas Phase

If you have any questions, please contact us at the address below:

H2scan Corporation Headquarters:  
27215 Turnberry Lane, Unit A  
Valencia, CA 91355 USA

Leon White, P.E.  
VP Transformer Sales & Business Development

Phone: 661-775-9575  
Fax: 661-775-9515  
E-mail: sales@h2scan.com  
Website: www.h2scan.com

