H₂-SENSOR

SIM
Scientific Instruments Manufacturer GmbH

Reset

Agilent Technologies
7890A GC System

```
                    OVEN
Temperature        34.4      Off<
Initial time             10.000
Rate  1 (off)             0.000
```
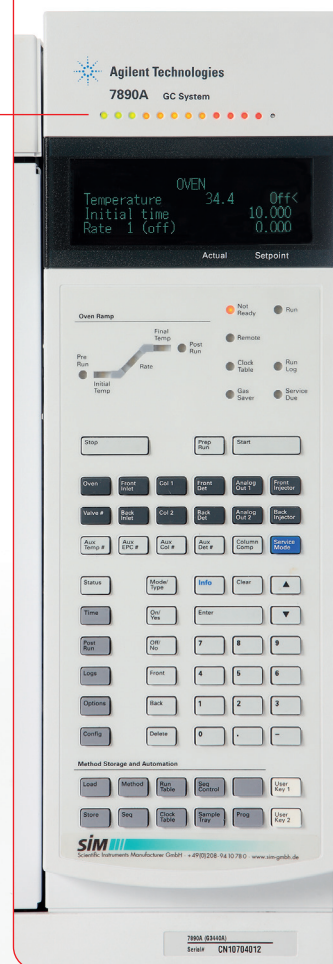Actual   Setpoint

SIM HYDROGEN SENSOR

fully integrated in • Agilent 6890/7890 GC
• Shimadzu 2010/2014 GC
external device for • Agilent 6850/7820 GC
• Perkin Elmer Clarus GC and other GC-Systeme

• eliminates any risk of explosion

• continuous monitoring of the oven air

• catalytic pellistor sensor for long term stability

• optical and acoustic alarms

• automatic switching to inert gas

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SIM Hydrogen Sensor

Within the scientific community, there is broad agreement that hydrogen is the best carrier gas for capillary GC applications. But in spite of many advantages, the gas has one disadvantage: In case of a leakage, there is the possibility of an explosion in the GC oven!

To eliminate this possibility, SIM has developed a hydrogen sensor that is fully integrated into the Agilent gas chromatograph. By constantly detecting the gas concentration in the GC oven and switching over to inert gas in case of alarm, any risk can be eliminated. For use with most other GCs, an external device with sensor control board and carrier gas switching is available. The related gas sensor head is installed in the GC oven.
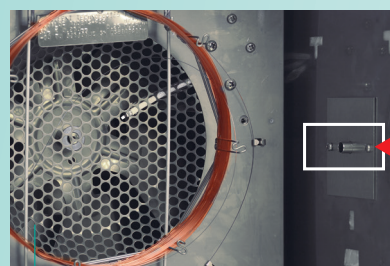
Mode of operation

The hydrogen sensor consists of a sensor head with catalytic pellistor, a control unit with LEDs, optical and acoustic alarms as well as a gas switching module.
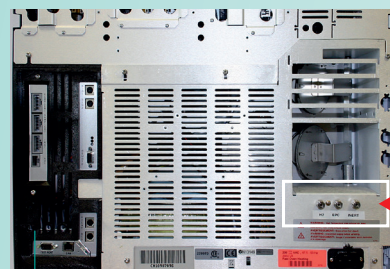
- The gas sensor is installed in the GC oven (see fig. on the right) for continuous monitoring of the oven air. The measured gas concentration is shown on the LED indicator band on the GC front panel or the external controller.
- One green LED shows the ready status of the hydrogen sensor with no hydrogen in the GC oven.
- As soon as hydrogen appears, several of the LEDs will light up depending on the gas concentration.
- If hydrogen concentration is above a threshold level of 10 % of the lower explosion limit (LEL), the first red LED will light up and an acoustic signal will be transmitted.
- At a detected hydrogen limit of 25 % LEL (equals 1 % by vol. H_2), an alarm signal will sound and the carrier gas will automatically be switched to an inert gas.

GC oven with gas sensor head

7890 GC rear panel with module for carrier gas switching (see arrow)

rear panel of external sensor box with module for carrier gas switching

Specifications

integrated device:	gas sensor, carrier gas switch with check valves and LED display together with power supply integrated in GC
external device:	gas sensor integrated in GC oven, carrier gas switch with check valves and LED display are in external controller (13 cm (w) x 11,5 cm (d) x 4 cm (h); 100-240 V, 50/60 Hz, 1.0 A)
detection range:	0 – 25 % LEL ($\triangleq$0 – 1.0 % by vol. H_2)
0.4 % by vol. H_2:	optical alarm: first red LED, acoustic alarm: starts with intermittent beep
1.0 % by vol. H_2:	optical alarm: 4 red LEDs, acoustic alarm continues, carrier gas is switched to inert gas (N_2, He)

Article	Order No.
Integrated H_2-Sensor with optical/acoustic alarms (for Agilent/Shimadzu GC)	HS 2000 10 00
External H_2-Sensor incl. carrier gas switch (for most other GCs)	HS 1000 10 00

Note: Installation Kit (for all versions) and Carrier Gas Switch (for integrated versions only) have to be ordered separately.

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