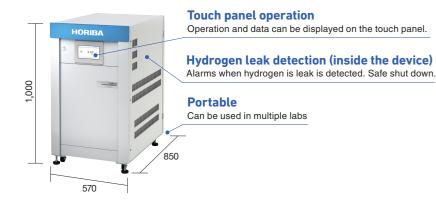
Overview

| Measuring principles | Mass spectrometry |
|----------------------|--------------------------------------|
| Measuring component | Hydrogen |
| Measuring range | 0-5% |
| Sampling condition | Direct |
| Response time | t ₁₀₋₉₀ ≦ 1 s |
| Repeatability | Zero : ≤0.2%F.S. Span : ≤0.4%F.S. |

| Accuracy | Within ±0.3% F.S. |
|-------------------------|-------------------------------|
| Sample gas flow rate | 3.5 L/min |
| Sample line temperature | 113±6°C |
| Environment temperature | 5-35°C |
| Warm-up time | 3 h |
| Dimensions | 570(W) × 850(D) × 1,000(H) mm |
| | |

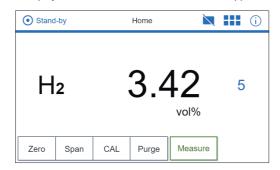
Dimensions/Operation panel

■ Dimensions/System configuration



Operation panel

- Easy to use HOME screen
- Simple to operate
- Display can be switched between vol% and volppm.





The HORIBA Group adopts IMS (Integrated Management System) which integrates Quality Management System IS09001. Environmental Management System IS014001. and Occupational Health and Safety Management System ISO45001 We have now integrated Business Continuity Management System ISO22301 in order to provide our products and services in a stable manner, even in emergencies.



Please read the operation manual before using this product to assure safe and proper handling of the product.

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HORIBA



High-accuracy, fast-response hydrogen gas analyzer designed to support the development of the hydrogen supply chain

Essential for the development of technologies necessary to produce, transport and use hydrogen and hydrogen related materials such as ammonia.



Bulletin:HRE-4026Bb

 $850\ /\ 7$ Soi Lat Krabang 30 / 5, Lat Krabang Road, Lat Krabang,

Phone: 66 (0) 2734 4434 Fax: 66 (0) 2734 4438

Rings Rezidans D:23, PK: 34885, Sancaktepe / Istanbul, Turkey Phone: (90) 216 572 1166 Fax: (90) 216 572 1167

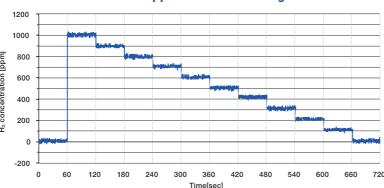
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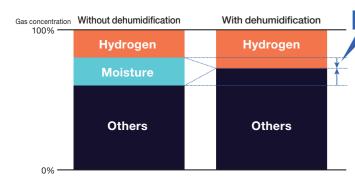
High resolution and accuracy at low concentration levels < ±0.2%F.S.

Edd 4000 45000 25000 3000 35000 45000 5000 45000 5000 Generated H₂ concentration [ppm]

Capable of measuring hydrogen concentration differences of 100 ppm in the 0-5% range.



Direct measurement of hydrogen without needing to remove moisture from exhaust gas



Dehumidification increases hydrogen concentration

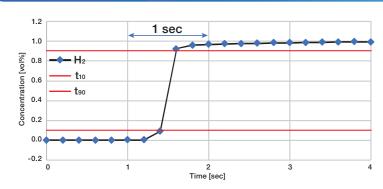
Key Issue

Hydrogen concentration becomes higher when moisture is removed. Therefore, it is necessary to correct the data using the moisture concentration data before the removal. However, when the moisture concentration fluctuates, it is difficult to make accurate corrections.

HORIBA Solution

HyEVO does not need to remove moisture from the exhaust gas and can therefore measure hydrogen concentrations accurately.

Fast response even with low-flow gases



Sample gas flow rate: 3.5L/min.
Response time (T₁₀₋₉₀) within 1 second for both rise and fall even at low flow rates.

The data output frequency is 5Hz, which enables precise measurement of transient responses.

FEATURES

- High-accuracy, high-resolution hydrogen concentration measurement
- Direct measurement of gases with moisture concentrations up to 35% without removing moisture*1
- Response time ≤ 1 sec, Output frequency 5Hz
- Can respond to transient changes in gas concentration
- Warm-up time of 3 hours (approx. 1/3 compared to conventional models) *2
- Power saving function during standby operation
- *1 : Use a dehumidification cooler (optional) when measuring with dehumidification or when measuring gases with a moisture concentration of more than 35%.
- *2 : Comparison with our conventional product (MSHA-1000)

Applications

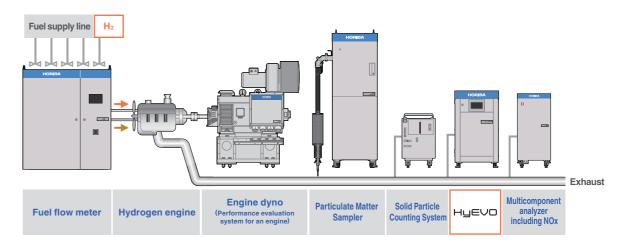
HyEVO can be used for many applications in combination with other measurement devices.

| Field | Application example |
|----------------------|--|
| Environment / Energy | Hydrogen combustion in hydrogen gas turbines, hydrogen boilers Hydrogen production through electrolyzer Development of fuel cells as power generation devices Production of synthetic fuels made from hydrogen and carbon dioxide |
| Mobility | Hydrogen measurement for fuel cells, hydrogen engines, gasoline engines |
| Medical | Measurement of hydrogen in exhaled air for health monitoring |

Application example

Measurement solution for hydrogen combustion (100% or mixed)

· Confirmation of the behavior of unburned hydrogen emitted and the evaluation of combustion efficiency



Measurement solutions in fuel cells

- Evaluation of fuel cell performance by measuring unreacted hydrogen permeating (cross-leaking) through the electrolyte membrane
- Evaluating the degradation of fuel cells by measuring water quality in exhausted condensate and CO2 in exhaust gas

