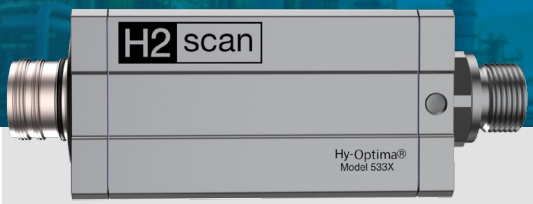
# HY-OPTIMA® 5330 Series

## INTRINSICALLY SAFE HYDROGEN IN-LINE PROCESS ANALYZER

H2scan®
Advanced Hydrogen Sensing




## Revolutionary Self-Calibrating Hydrogen Measurement for Industrial Applications

The intrinsically safe HY-OPTIMA® 5330 series delivers unparalleled reliability, robustness, and durability to hydrogen in-line monitoring across various industrial applications, from chemical facilities and refineries to the burgeoning green hydrogen economy. Built on H2scan's zero maintenance and patented solid-state hydrogen sensing technology, it is the only hydrogen sensor capable of providing ten plus years of drift-correcting auto-calibration operation. The sensor's real-time, hydrogen-specific measurements enhance process efficiencies, improve yields, reduce maintenance costs, and support the green hydrogen economy.

## Intrinsically Safe HY-OPTIMA Analyzer Enhances H2scan's Patented Hydrogen Sensing Technology

The new Intrinsically safe HY-OPTIMA 5330 series provides continuous, hydrogen-specific monitoring without cross-sensitivity to other gases. Its compact design allows for easy installation, whether standalone or integrated into existing analyzer systems. The unit's self-calibrating capability does not require any consumables, and delivers long-term accuracy for 10-plus years, significantly reducing the total cost of ownership as well as enhancing the reliability of the hydrogen monitoring solution.

**Long-Term Reliability:** Enjoy 10 plus years of maintenance-free operation from H2scan's hydrogen process analyzer

**Versatile Integration:** Easily installed as a stand-alone hydrogen measurement device or integrates seamlessly into existing OEM systems

**Broad Applicability:** Ideal for a wide range of industries, including refineries, petrochemical facilities, gas manufacturing, hydrogen-based process lines, hydrogen production and distribution, fuel cells, electrolyzers, and many more hydrogen economy applications

**Cost-Effective:** Achieve comprehensive coverage while reducing the total cost of ownership by more than 40% over its 10+ year lifespan

**Improved Safety:** Enhance safety during hydrogen production or use with accurate hydrogen measurement

**Easy In-line Integration:** Compact form factor fits seamlessly into processing gas streams

**Green Operations:** No consumables required, supporting environmentally friendly operations & maintenance practices

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# HY-OPTIMA® 5330 Series

INTRINSICALLY SAFE HYDROGEN IN-LINE PROCESS ANALYZERS

## Key Features and Benefits

- Auto-calibration eliminates drift and maintains accuracy
- No consumables such as calibration gases are needed
- Zero reference or carrier gases are required
- Reliable lifespan of over 10 years
- No cross-sensitivity to other gases preventing false H2 issues
- Continuous, real-time, accurate monitoring without process downtimes
- Tolerance of various harsh background contaminants
- Accessible serial communication via integrated digital and analog capabilities
- Relays to trigger alarms in any safety system
- Compact design allows for versatile installation options

## Accuracy/Repeatability Specifications

| Model | Hydrogen Range | Accuracy | Repeatability |
|---|---|---|---|
| 5331 | LDL-0.5% | 0.06% | 0.06% |
| | 0.5%-2% | 0.15% | 0.15% |
| | 2%-5% | 0.25% | 0.25% |
| | 5%-10% | 0.5% | 0.5% |
| **Model** | **Hydrogen Range** | **Accuracy** | **Repeatability** |
| 5332 | LDL-5% | 0.3% | 0.3% |
| **Model** | **Hydrogen Range** | **Accuracy** | **Repeatability** |
| 5333[1] 5334[1] | LDL-10% | 0.4% | 0.2% |
| | 10%-30% | 0.7% | 0.3% |
| | 30%-70% | 1.0% | 0.4% |
| | 70%-100% | 1.2% | 0.5% |

## Product Selection

| Model | Hydrogen Range | | CO Limit | H2S Limit | T90 Response Time (sec) | Process Gas Temperature |
|---|---|---|---|---|---|---|
| | Low | High | | | | |
| 5331 | 0.03% | 10% | 100 ppm | 0 | <90 | -20°C to 60°C (-4°F to 140°F) |
| 5332 | 0.4% | 5% | 0 | 0 | <60 | -20°C to 60°C (-4°F to 140°F) |
| 5333[1] | 0.5% | 100% | 100 ppm | 1000 ppm | <60 | -20°C to 60°C (-4°F to 140°F) |
| 5334[1] | 0.5% | 100% | 20% | 3% | <90 | -20°C to 50°C (-4°F to 122°F) |

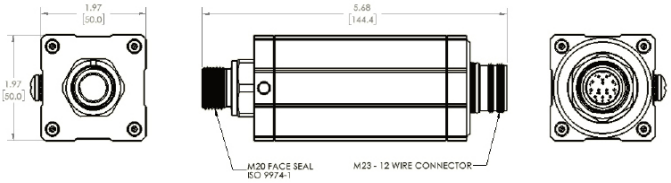
*1. Release pending. Specifications subject to change*

## Product Specifications

| | |
|---|---|
| **Operating Conditions** | |
| Operating Pressure (Hazardous Location) | 0.95 - 1.1 ATM Absolute |
| Survival Pressure | 0.1 to 10 ATM Absolute |
| Process Gas Temperature | See Product Selection Table Below |
| Flow Rate | 0.1 to 10 slpm (1/4" Tube) |
| Operating Humidity | < 95% RH (non-condensing) |
| **Input/Output Signal** | |
| Digital Communication | Modbus over RS-485, three-wire, half-duplex |
| Relays | 2 optically isolated open-collector switch circuits |
| Analog | 4–20 mA |
| **Power** | |
| Input Voltage | 10 to 15.6 VDC |
| Input Power | 2W |
| **Physical** | |
| Dimensions | 144.4 x 50 x 50 mm (5.68 x 1.97 x 1.97 in) |
| Weight | 748.43 g (1.65 lbs) |
| Electrical Fitting | Twelve-Pin, M23 |
| Sensor Fitting | M20 face seal, ISO 9974-1 |
| **Environmental** | |
| Ingress Protection | IP66 |
| Operating Temperature | -40°C to 70°C (-40°F to 158°F) |
| Storage Temperature | -40°C to 85°C (-40°F to 185°F) |
| **Certifications** | |
| US/CAN | Class I, Div. 1 & Class I, Div. 2, Groups B,C, D |
| ATEX | Ex II 1G + $H_2$Ga |
| IECEx | Ex ia ($H_2$) Ga |

**Note: Analyzers are factory calibrated at 1 ATM Absolute*

## HY-OPTIMA 5330 IS Gen 5 Sensor Series Dimensions




Specifications subject to change without notice