

# HY-OPTIMA™ 1700 Intrinsically Safe Process Hydrogen Monitor

## Description

H2scan's HY-OPTIMA™ 1700 in-line, real time hydrogen-specific process monitors are designed for ease of use, interface flexibility and true process control. The HY-OPTIMA™ 1700 is an intrinsically safe, solid state sensor that is configured to operate in process gas streams with up to 95% relative humidity and temperatures up to 100°C. It is ideal for hydrogen production and petrochemical applications where real time measurements of hydrogen can increase process plant efficiencies, improve diagnostics and enhance maintenance management translating into higher profitability.

## Performance

Hydrogen Sensitivity Range:  
0.5% to 100% hydrogen by volume at 1 ATM  
Typical Response Time: T90 less than 30 sec  
Ingress Protection: IP64 capable  
Calibration Interval: 90 days  
Product Life Expectancy: 10 years  
Accuracy:  $\pm (0.03 \times \text{indication} + 0.2)$  percent  
hydrogen by volume

## Interface Options

Power Barrier Input Voltage: 24 VDC nominal  
Power Barrier Input Voltage Range: 20 VDC to 28 VDC  
Intrinsically Safe Sensor Input Voltage: 10 VDC  
Sensor Input Voltage Range: 5 VDC to 28 VDC  
Input Power: 10 W  
Analog Output: 4 mA to 20 mA  
Serial Communication: RS422

## Adapter Fittings

½ in. MNPT thread  
½ in. FNPT thread  
-8 SAE/MS thread size  
... and many other industry standards.



## Certification

CE 0359 Ex  
II 1 G, Ex ia II H2, d+d IIB T3  
II 2 G, Ex ib II H2, ib d IIB T3  
ITS07ATEX25634X

Figure 1 shows the hazardous area designations for this apparatus. Note that the sensor probe tip is rated for Category 1 (Zone 0) and the electronics assembly is rated for Category 2 (Zone 1).

## Operating Conditions

Operating Humidity: 0% to 95% RH  
Flow Rate: 0.1 slpm to 50 slpm  
Pressure: 0 to 7 bar gauge, 0 to 100 psi gauge  
Process Gas Temperature Range: -20°C to 100°C  
Operating Temperature Range: -20°C to 40°C  
Storage Temperature Range: -40°C to 50°C  
Calibration Background Gas: Nitrogen

## Included Accessories

Intrinsically Safe Power Barrier  
Armored Power / Analog Cable: 4 m  
Calibration Cup

## Optional Accessories

Single Channel Intrinsically Safe Analog Output Barrier  
(with or without relays)  
Single Channel Intrinsically Safe RS422 Serial Interface  
Barrier  
Serial Interface Cable: 4 m (custom lengths available)  
Armored Power / Analog Cable (custom lengths  
available)

## Dimensions

Total Length: 10.3 in.  
Length of Enclosure: 6.8 in.  
Length of Tube: 2.9 in.  
Width: 3.4 in.  
Depth: 1.4 in.

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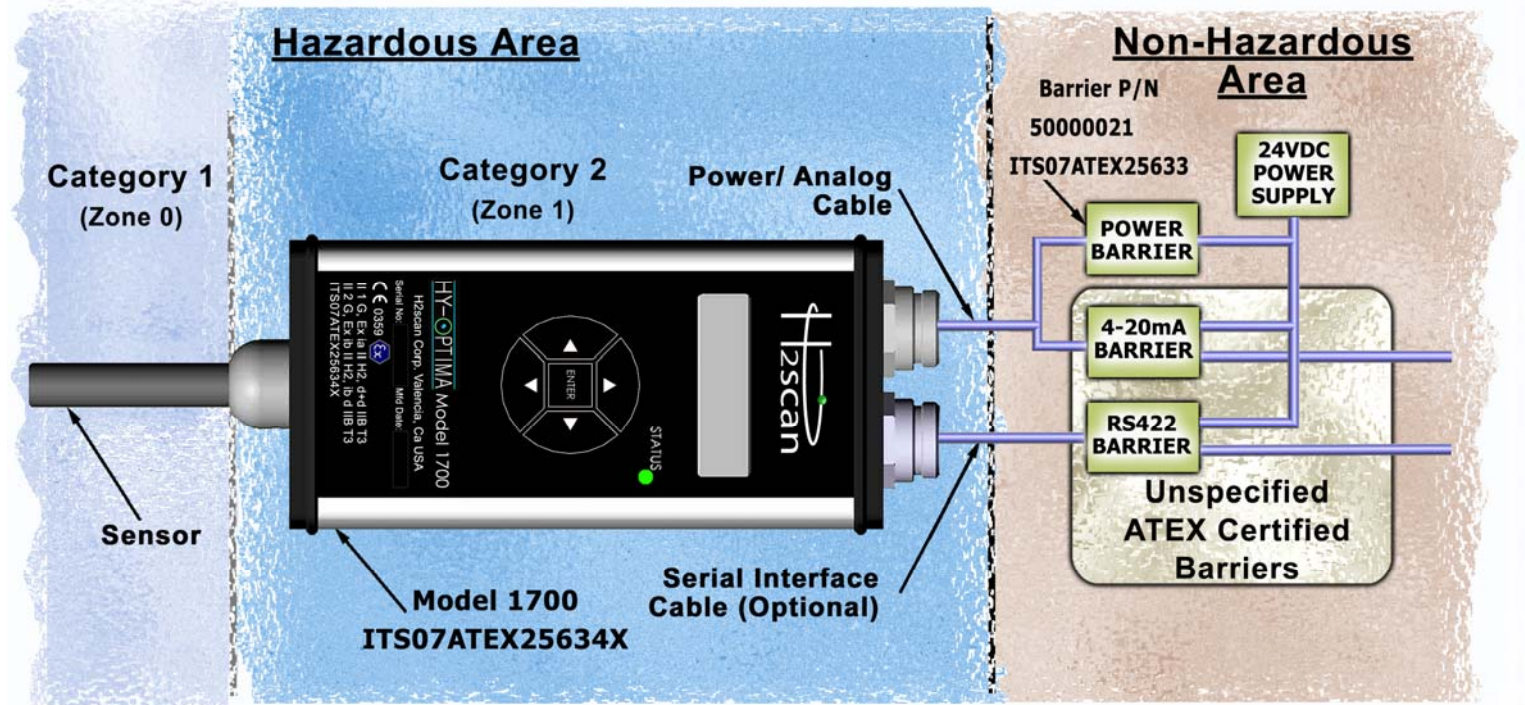


Figure 1: Hazardous Area Installation and Attachment

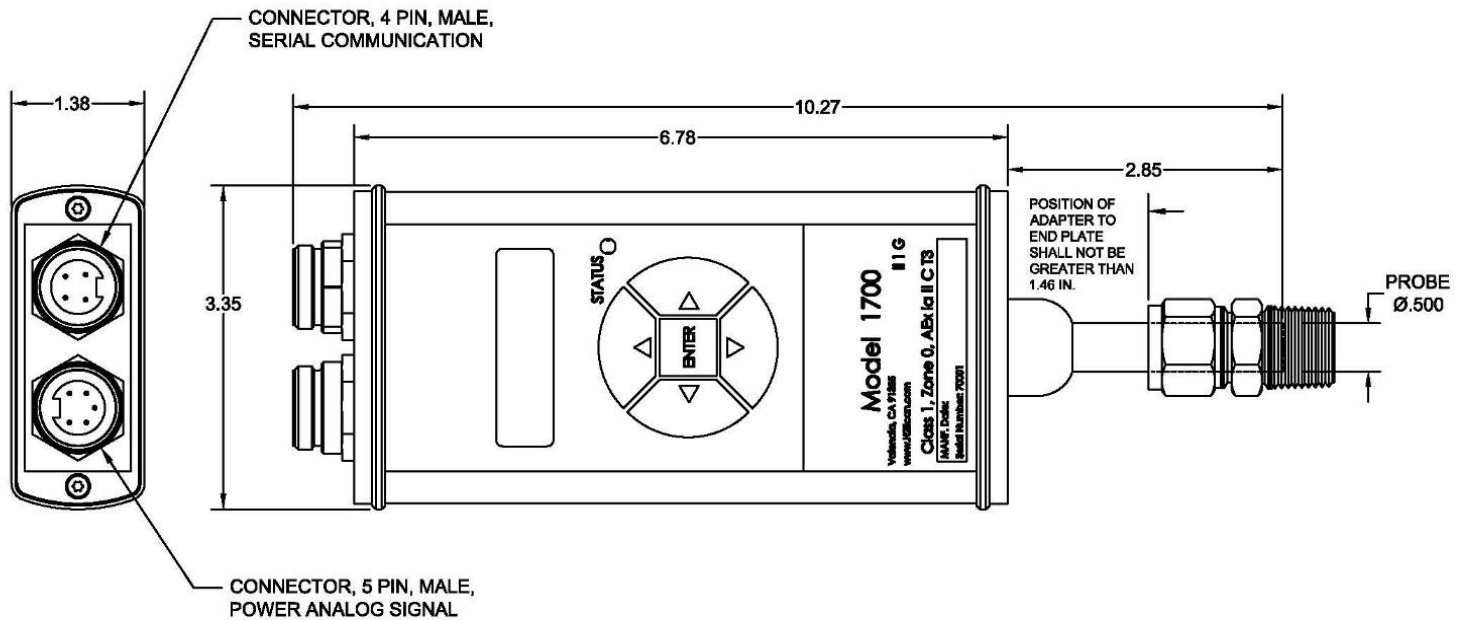


Figure 2: Dimensions (inches)