# Model DM-701-H2

Hydrogen Sensor (4% Range)

GAS DETECTION SENSORS

INTEGRATED CONTROL SYSTEMS

■ SMARTWIRELESS®

PIPELINE ANALYZERS

# Description

Detcon Model DM-701-H2 is a non-intrusive "Smart" sensor designed to detect and monitor Hydrogen in air over the range of 0-4% by volume using electrochemical sensor technology. The intelligent plug-in, field replaceable cell provides automatic recognition of gas type and range, and features over-sized gold-plated connections that help prevent corrosion. The Model 700's rugged framework includes an intrinsically safe electro-polished 316 stainless steel housing with fully encapsulated electronics and dual layer surge protection. This innovative design virtually eliminates sensor failure due to water ingress, corrosion, vibration, and transient spikes. A primary feature of the Model 700 is embedded intuitive software that simplifies oper-ator interface by guiding the user through routine calibration, configuration, and fault diagnostic functions using a built-in alpha/numeric display. The Model 700 is equipped with standard analog 4-20mA, and Modbus<sup>TM</sup> RS-485 outputs. Among its unique features is a wireless option that can be used with Detcon's SmartWireless product line. Additional integration options include a Remote Alarm Module (RAM), HART, and Foundation Fieldbus. Detcon's toxic gas sensors have a long shelf life and are supported by an industry-leading warranty.

## **Features**

## Failsafe User-Friendly Interface

- ► LED Display (With Antiglare Cover)
- ► Full Text Display Method
- ► Non-intrusive Interface
- Auto Zero/Auto Span
- ► Pre-emptive Fault Diagnostics

## **Environmentally Bulletproof**

- ▶ Electropolished 316SS Construction
- ▶ 100% Epoxy Encapsulated Circuitry
- ▶ Bulletproof I/O Protection
- ▶ Water-Proof, Corrosion-Proof, Vibration-Proof

## Modular and Serviceable

- Modular Design
- ► Plug and Play Components
- Quick Thread Release (For Sensor Replacement)
- Integral Calibration Port

# **Applications** Oil & Gas

- Chemical Plants
- ► Food and Beverage
- Steel Mills
- Pulp and Paper
- Refineries
- **Wastewater Treatment Plants**
- Utilities

## Electrochemical Fuel Cell

(shown as PN 967-050594-04P in SS junction box)



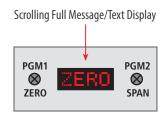












# Model DM-701-H2 • Hydrogen Sensor

R091217

## **System Specifications**

Sensor Type

Continuous diffusion/adsorption 3-electrode electrochemical cell Plug-in field replaceable Intelligent Type

**Measurement Range** 

0-4% by volume, Other ranges available

Accuracy/Repeatability

±2% FS

Response/Clearing Time

T90 <60 seconds

Span Drift

<2% signal loss per month

Outputs

Linear 4-20 mA DC RS-485 MODBUS-RTU

**Electrical Classification** 

Explosion proof

CSA and US (NRTL)

Class I, Division 1, Groups B, C, D (Tamb =  $-40^{\circ}$ C to  $+50^{\circ}$ C) Class I, Zone 1, Group IIC

ATEX

II 2 G Ex d ib IIC T4 Gb ( $Tamb = -40^{\circ}C$  to  $+50^{\circ}C$ )

**Ingress Protection** 

NEMA 4X, IP66

**Safety Approvals** 

c**CSA**us

ATEX CE Marking

SIL2 Certified to IEC 61508

Sensor Life/Warranty

Plug-in cell - 2 years; Transmitter - 2 Years

## **Environmental Specifications**

**Operating Temperature Range** 

-40°F to +104°F; -40°C to +40°C

Storage Temperature Range

-31°F to +131°F; -35°C to +55°C (typical)

Operating Humidity Range

5% to 95% RH non-condensing

**Operating Pressure Range** 

Atmospheric ±10%

Specifications subject to change without notice

## Order Guide Specify junction box options (below)

PN 967-050590-04P DM-701-H2 Sensor Assembly (no junction box)
PN 967-050591-04P DM-701-H2 Sensor Assembly with Aluminum J-Box
PN 967-050594-04P DM-701-H2 Sensor Assembly with 316 SS J-Box

## **Mechanical Specifications**

#### **Dimensions**

7"H x 2.2" Dia.; 178mmH x 65mm Dia. (sensor assembly only) 11"H x 6.1"W x 3.75"D; 280mmH x 155mmW x 96mmD (with junction box) Mounting holes (J-box) 5.5"; 140mm center to center

Weiaht

2 lbs; 0.907kg (sensor only) 6 lbs; 2.72kg (w/aluminum j-box) 9 lbs; 4.08kg (w/stainless steel j-box)

## **Electrical Specifications**

## **Power Input**

11-30 VDC

#### **Power Consumption**

Normal operation = 30mA (<0.75 watt) Maximum = 50mA (1.2 watts)

#### **Inrush Current**

500mA @ 24V (typical)

#### **RFI/EMI Protection**

Complies with EN61000

#### **Analog Output**

Linear 4-20mA DC (1,000 ohms max loop load @ 24VDC)

0mA All Fault Diagnostics 2mA In-Calibration 4-20mA 0-4% by volume 22mA Over-range condition

#### Serial RS-485 Output

RS-485 Modbus<sup>™</sup> RTU

#### **Baud Rate**

9600 BPS (9600,N,8,1 Half Duplex)

#### **Status Indicators**

4-digit LED display with gas concentration Full-script menu prompts for AutoSpan, Set-up Options, and Fault Reporting

### **Faults Monitored**

Loop, Input Voltage, Missing Sensor, Zero,

Processor, Memory, Calibration

#### **Cable Requirements**

Power/Analog

3-wire shielded cable

Maximum distance is 13,300 feet with 14 AWG

Serial Output

2-wire twisted-pair shielded cable specifically for use with RS-485 installations Maximum distance is 4,000 feet to last sensor

#### I/O Protection

Over-voltage, Miswiring, EMI/RFI Immunity

# **Integration Options**

Remote Alarm Module (Remote Operation and 2 Alarm Relays plus Fault)
Hart Integration Module (Hart Communication Protocol version 7.0, HART Registered)
Foundation Fieldbus Integration Module (Foundation Fieldbus version 5.01)
Wireless Integration Module (Detcon Model RXT-320 SmartWireless® Transceivers)



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<u>ISO 9001: 2015</u> Certified