Oil & Gas
Chemical Plants
Food and Beverage
Steel Mills
Pulp and Paper
Refineries
Wastewater Treatment Plants
Utilities

**Description**
Detcon Model DM-100-SiH4 is a gas detection sensor designed to detect and monitor Silane in air over the range of 0-50 ppm using electrochemical sensor technology. Method of detection is by diffusion adsorption. Air and gas molecules diffuse through a porous membrane contacting an electrolyte solution which creates a change in electrical conductance between a reference and measure electrode. This change in conductance is conditioned by internal electronic circuitry to provide a linear 4-20 milliamp signal proportional to the gas concentration.

Model DM-100 Series sensors feature intelligent electronics, non-intrusive operator interface and comprehensive fault diagnostics. The sensor is packaged in an electro-polished 316 stainless steel housing fitted with a ¾ inch NPT thread. The plug-in, field replaceable sensor cell features large surface area gold-plated pins that reduce the effects of corrosion in harsh industrial environments. Signal conditioning electronics are completely encapsulated in the sensor housing adding a high level of durability to the design. The packaging is XP-intrinsically safe. This innovative design marks a return to a simple, more affordable, and durable gas detection sensor without compromising quality.

Model DM-100 sensors provide a 2-wire loop powered 4-20 mA current signal equivalent to the sensor range of detection. Upper enclosure options are aluminum and stainless steel (includes a transient protection terminal board). Additional accessories include wireless communications, a loop powered digital display, Remote Alarm Module (RAM), HART, and a current to RS-485 converter. The standard serial converter is Modbus RTU. Each sensor is shipped with a splash guard with integral calibration port. Detcon's toxic gas sensors have a long shelf life and are supported by an industry-leading warranty.

**Features**
- XP-intrinsically Safe
- NEMA 4X Weatherproof & NEMA 7 Explosion Proof
- Class I, Div. 1, Groups A, B, C, & D
- 2 Wire Loop-powered
- Field Replaceable Electrochemical Sensor
- Non-intrusive Magnetic Interface
- Built-in Diagnostics
- Fully Encapsulated Electronics
- Electropolished 316SS Construction
- 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
**Model DM-100-SiH4  •  Silane Sensor**

**System Specifications**

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

**Measurement Range**
0-50 ppm, Other ranges available

**Accuracy/Repeatability**
±2% FS

**Response/Clearing Time**
T90 <60 seconds

**Span Drift**
<1% signal loss per month

**Outputs**
Linear 4-20 mA DC

**Electrical Classification**
Explosion proof
CSA and US (NRTL)
Class I, Division 1, Groups A, B, C, D (Tamb = -40°C to +50°C)
Class I, Zone 1, Group IIC
ATEX
II 2 G Ex d [ib] IIC T4 (Tamb = -40°C to +50°C)
II 1 G Ex ia II C T4 (with IS barrier installed)

**Ingress Protection**
NEMA 4X, IP66

**Safety Approvals**
CCSAus
ATEX
CE Marking

**Sensor Life/Warranty**
Plug-in cell - 1 1/2 years; Transmitter - 2 Years

**Environmental Specifications**

**Operating Temperature Range**
-4°F to +104°F; -20°C to +40°C

**Storage Temperature Range**
31°F to +131°F; -35°C to +55°C (typical)

**Operating Humidity Range**
20% to 95% RH non-condensing (continuous)
5%-100% RH (intermittent)

**Operating Pressure Range**
Atmospheric ±10%

Specifications subject to change without notice

**Order Guide**

<table>
<thead>
<tr>
<th>Order Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>961-230025-050</td>
<td>DM-100-SiH4 (no junction box)</td>
</tr>
<tr>
<td>961-230021-050</td>
<td>DM-100-SiH4 with aluminum j-box</td>
</tr>
<tr>
<td>961-230023-050</td>
<td>DM-100-SiH4 with 316 SS j-box</td>
</tr>
<tr>
<td>961-230022-050</td>
<td>DM-100-SiH4 with alum j-box &amp; loop powered display</td>
</tr>
<tr>
<td>961-230024-050</td>
<td>DM-100-SiH4 with 316 SS j-box &amp; loop powered display</td>
</tr>
</tbody>
</table>

**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)

**Mechanical Connection:**
3/4” male NPT threaded connection with locking nut

**Electrical Connection:**
Four 18 gauge wire leads - 5.5” long
Mounting holes (with J-box) 5.5” (140mm) center to center

**Weight**
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**
10-28 VDC

**Power Consumption**
Normal operation = 4mA (0.1 watts @ 24VDC)
Maximum = 20mA (0.5 watts @ 24VDC; 0.23 watts @ 11.5VDC)

**RFI/EMI Protection**
Complies with EN61362

**Analog Output**
Linear 4-20mA DC (750 ohms max loop load @ 24VDC)
1.2mA All Fault Diagnostics (without display)
3mA All Fault Diagnostics (with display)
4-20mA 0-100% full-scale
22mA Over-range condition

**Serial RS-485 Output (optional)**
RS-485 Modbus™ RTU

**Baud Rate (optional)**
9600 BPS (9600,N,8,1 Half Duplex)

**Status Indicators**
4-digit LED display with gas concentration & fault (optional)

**Faults Monitored**
Missing Sensor, Zero, Calibration, Temperature

**Cable Requirements**

- **Power/Analog**
  - 2-wire shielded cable
  - Maximum distance is 13,300 feet with 14 AWG

- **Serial Output (optional)**
  - 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

**Accessories**

- **Junction Box** (aluminum or 316-SS with Transient Protection Terminal Board)
- **Loop Powered Digital Display** (Provides a Direct Display of Sensor Readings)
- **Remote Alarm Module** (Remote Operation and 2 Alarm Relays plus Fault)
- **Hart Integration Module** (Hart Communication Protocol version 7.0, HART Registered)
- **Current to RS-485 Converter** (Modbus RTU)
- **Wireless Communications** (Detcon Model RXT-320 SmartWireless® Transceivers)

**Houston  •  Odessa  •  Shanghai  •  Dammam  •  Del Carmen  •  Europe**