

# NATURAL GAS PIPELINE ANALYZERS

## H<sub>2</sub>S & CO<sub>2</sub>

MODEL SERIES 1000

### Simple, Accurate, Repeatable . . .

- Continuous Measurement with Superior Uptime
- H<sub>2</sub>S Ranges from 10 ppm to 5% by Volume
- CO<sub>2</sub> Ranges from 3,000 ppm up to 100%
- Readily Field Replaceable Sensors
- Simple Field Calibration
- Single and Dual (H<sub>2</sub>S/CO<sub>2</sub>) Configurations

NEMA 4X Weatherproof  
Enclosure Options  
(316-SS or Painted Steel)



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# MODEL SERIES 1000

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## DESCRIPTION

Detcon Model Series 1000 H<sub>2</sub>S and CO<sub>2</sub> gas analyzers are designed to provide accurate and continuous measurement of target gas concentrations in natural gas treating plants, gas production wells and at custody transfer points along gas transmission pipelines. The application flexibility of this family of analyzer products is based on utilization of proven sensor technologies and the ability to customize according to the application.

In the Model 1000, Detcon's long history of gas monitoring sensor research and manufacturing is combined with a field tested and proven pedigree in sampling system design and operation. The result is a simple and economical yet powerful analytical tool offering capabilities equivalent to analyzer technologies costing much more. Long sensor life, easy operator interface and embedded intuitive maintenance scripts help to maintain high quality analysis of H<sub>2</sub>S and CO<sub>2</sub> content in natural gas processes.

## FEATURES

- ▷ Continuous Measurement with Superior Uptime
- ▷ Simple to Operate
- ▷ Standard Outputs: 4-20 mA, RS-485, 3 Relays
- ▷ Class I, Div. 1 Groups B, C, D rated

## APPLICATIONS

- ▷ Gas Well Testing & Analysis
- ▷ Gas Well Production Sites
- ▷ Gas Treatment Plants
- ▷ Gas Transmission Custody Transfer Compliance

## SENSOR TECHNOLOGY



### Electrochemical - H<sub>2</sub>S

- ▷ High Level of Accuracy and Repeatability
- ▷ Ranges from 10 ppm to 5% by Volume
- ▷ Long Sensor Life (2 - 5 years)
- ▷ Readily Field Replaceable Sensor
- ▷ 2 Year Warranty



### Non-Dispersive Infrared - CO<sub>2</sub> (NDIR)

- ▷ Highly Accurate CO<sub>2</sub> Gas Measurement
- ▷ Ranges from 3,000 ppm to 100%
- ▷ Long Sensor Life (3 - 5 years)
- ▷ Readily Field Replaceable Sensor
- ▷ 2 Year Warranty

## DESIGN APPROACH

The Model 1000 design is based on three factors: High accuracy, simple field serviceability, and fail-safe operation.

### Accuracy

Detcon's field proven MicroSafe™ sensor technologies have been combined with high-precision gas conditioning and flow control components to achieve accurate and repeatable measurement.

### Serviceability

The Model 1000 uses a very simple and accessible modular design. All components are assembled on a flat panel following a simple flow pattern, making easy work of service and trouble-shooting.

### Fail-safe Operation

All Model 1000s are equipped with liquid-rejection membrane filters and over-pressure relief protection. Flow fault detection and alarms are available as options. The entire assembly is both explosion proof and weatherproof.

# NATURAL GAS PIPELINE ANALYZERS

## MODEL 1000-H2S



## MODEL 1000-CO2



## MODEL 1000-H2S-CO2



## OVERVIEW

Detcon Model 1000 Series analyzer are available in three packaging options: H2S (hydrogen sulfide), CO2 (carbon dioxide), and Dual H2S/CO2. The analyzers feature a microprocessor-based signal-conditioning transmitter with local digital display, fault supervision, calibration mode indicator, alarm relays and an RS-485 serial port. The instrument package is rated for use in electrically classified areas: Class I; Division 1; Groups B, C, and D. Standard power inputs are 117-220VAC and 12-24VDC.

## Common Specifications

### Operating Pressure Requirements

Inlet: 10 ±2 psig  
Vent: Atmospheric ±1 psig

### Outputs

Linear 4-20 mA DC  
RS-485 Modbus™  
3 Relays (alarm 1, alarm 2, & fault)  
Contacts rated 5 amps

### Power Input

117/220 VAC  
18-36 VDC, optional 9-18 VDC

### Electrical Classification

Explosion proof  
Class 1, Division 1, Groups B, C, D

### Transmitter Warranty

2 years

### Analyzer Weight

80 lbs.

### Shipping Weight

140 lbs

### Dimensions

29" x 29" x 8"

## H2S Specifications

### Sensor Type

3-Electrode Electrochemical

### Measurement Range - Low Range

0-10 ppm up to 0-100ppm

### Measurement Range - High Range

0-1,000 ppm  
0-2%  
0-5%  
Other ranges available on request

### Accuracy/Repeatability

±10% of reading  
or ±2.5% of range  
whichever is greater

### Response/Clearing Time

T50 <30 seconds  
T90 <1 minute  
Max output to over-range gas: <10 seconds

### Operating Temperature Range

-40°F to +122°F; -40°C to +50°C

### Sensor Warranty

2 years

## CO2 Specifications

### Sensor Type

Non-dispersive Infrared for CO2

### Measurement Range

0-0.3%  
0-1.0%  
0-3.0%  
0-5.0%  
0-10%  
0-20%  
0-25%  
0-50%  
0-100%  
Other ranges available on request

### Accuracy/Repeatability

The greater of: ±10% of reading  
or ±2.5% of range

### Response/Clearing Time

T50 <30 seconds  
T80 <60 seconds

### Operating Temperature Range

-40°F to +167°F; -40°C to +75°C

### Sensor Warranty

2 years



# MODEL SERIES 1000 **Natural Gas Pipeline Analyzers**

## SAMPLE CONDITIONING

Model 1000 Analyzers require a  $10 \pm 2$  psig dry sample gas. Every Model 1000 Analyzer has standard built-in protection against condensed liquids and over-pressurization. Also standard is a bypass valve for fast-loop sampling. In some applications, these standard features are not adequate to provide a properly conditioned gas sample. In these cases, external gas sample conditioning components are required. These components and their associated packaging can be provided by the customer using technical guidance from Detcon. However, Detcon also provides turn-key sampling system design services. Sample conditioning components include but are not limited to:

- ▷ Pressure Regulators
- ▷ In-situ Pipeline Sample Probe Membrane Filters
- ▷ In-line Membrane Filters
- ▷ Heat Tracing Tape and Controllers
- ▷ Ex-Proof Sample Pressure Boosting Pump

## MODEL P-1000-H2S PORTABLE H2S ANALYZER

Detcon Model P-1000-H2S is a portable gas analyzer designed to provide accurate measurement of Hydrogen Sulfide gas. The P-1000 utilizes advanced electrochemical sensor technology and microprocessor based electronic control circuitry that includes an LCD display and a built-in portable data logger. Stored data can be downloaded to a spreadsheet and used to create trend graphs, average readings and peak values. The analyzer is mounted in a weatherproof enclosure with a built-in battery supply and secondary sample conditioning components. Model P-1000-H2S is capable of continuous operation for a period of approximately 30 days before battery recharge is required.



### Sensor Type

Advanced Electrochemical Cell

### Response Time

T-90 <60 Seconds

### Enclosure Rating

NEMA 4X, IP 66

### Measurement Range

0-20 PPM, 0-100 PPM or 0-1,000 PPM

### Operating Temperature Range

0°C to +50°C; 32°F to +122°F

### Dimensions

21.5"W x 17.5"H x 9"D

### Accuracy-Repeatability

$\pm 2.5\%$  of Full Scale Range

### Electrical Classification

Class I; Division 2

### Weight

26 lbs

## ORDERING INFORMATION

Detcon requires that an application data sheet be completed and submitted to the engineering department prior to quotation and or order confirmation. This process assures that each customer's use of Detcon Model Series 1000 analyzers is reviewed and approached with confidence that the product will perform as specified.

The analyzer application data sheet can be accessed on line at [www.detcon.com](http://www.detcon.com) or you may request a copy by contacting [sales@detcon.com](mailto:sales@detcon.com) via email.

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