SpectraSensors

Overview

SpectraSensors J22 Gas Analyzer for H_2O is extremely reliable and tailored for the needs of the natural gas industry. The sensor measures gas using a patented tunable diode laser absorption spectroscopy (TDLAS) to determine the concentration of the gas without coming into physical contact with the stream.

Rapid Response Time

The J22 analyzer takes four measurements per second with a laser and detector and immediately averages the results. Because there is no contact with the gas, real-time measurements are not hampered by wet-up or dry-down times as with surfaced-based sensors.

Reliable

Trustworthy measurements are vital to a natural gas pipeline and processing companies. Uncertain measurements can be extremely costly. Additional processing of dehydration costs, upset conditions, shut-ins, and inconsistent process results may be caused by sensors that do not perform properly.

The highly developed algorithms of the TDLAS measurement plus the sophisticated diagnostics, monitoring, and verification concept of Endress+Hauser Heartbeat Technology offer a comprehensive process monitoring that cannot be found anywhere else.

Long Life

The TDLAS sensor does not come into contact with the sample gas stream. The result is a sensor that does not suffer from contamination or drift due to vapor impurities such as glycol, methanol, or amines.

Low Cost of Ownership

Operating costs are dramatically reduced by eliminating the cost of consumables, extra sensor heads, labor, and overhead associated with excessive maintenance.

The J22 dramatically reduces intangible but real costs associated with unreliable gas measurements. By eliminating added processing steps, detecting poor gas quality, and the possibility of costly damage to equipment that can result from sensors that produce incorrect data.

Thermo Scientific

Prima PRO Process Mass Spectrometer

Maximize product yield and increase profits with the Thermo Scientific™ Prima PRO Process Mass Spectrometer. This process gas analyzer is engineered to meet a number of challenging process applications in the petrochemical, iron and steel, and biotechnology industries. Highly reliable and easy-to-own, the Prima PRO delivers faster, more complete, lab quality online gas composition analysis. It features a rugged, fault-tolerant design that ensures availability.

The Prima PRO Online Mass Spectrometer Features:

- Significantly enhanced analyzer control, giving increased sensitivity, precision, accuracy and mass range.
- Completely redesigned electronics, incorporating higher specification components.
- Fast online process gas analysis (1 to 20 seconds per point) for accurate tracking of process dynamics.
- Comprehensive measurement with more data provided to advanced process control (APC) models
- Stable with 30- to 90-day automated calibration interval.
- Reliable, fault-tolerant design for availability of greater than 99.7%.
- Complete service access from the front of the system, reducing the effective footprint.
- Small footprint with no large shelter required.
- Minimal maintenance requirements.
- Enhanced connectivity to DCS systems and off-line data manipulation packages.
- Thermo Scientific™ GasWorks Software.

Sentinel PRO Environmental Mass Spectrometer

Ensure plant safety by enabling leak detection and correction before any toxic hazard is created with the Thermo Scientific™ Sentinel PRO Environmental Mass Spectrometer. This next-generation environmental mass spectrometer is engineered to help plants monitor fugitive emissions of toxic organic vapors, protecting workers and surrounding environment from hazardous exposure.

Prima BT Bench Top Process Mass Spectrometer

Achieve high scanning speeds and reproducible measurements with the Thermo Scientific™ Prima BT Bench Top Process Mass Spectrometer. Specifically designed for process development laboratories, this real-time process gas analyzer is a highly precise, multi-port magnetic sector analyzer.

The Prima BT Process Mass Spectrometer offers robust performance in the presence of off-gases and vapors that have the potential to contaminate internal vacuum components. As the ions are extracted from the ion source at high energy, excellent stability is achieved for low molecular weight compounds such as hydrogen and helium.

Key Features

- Scanning magnetic-sector technology.
- 16-port Rapid Multistream Sampler (RMS).
- Six-port automatic calibration manifold.
- High analytical precision, accuracy and stability.
- Thermo Scientific™ GasWorks Software.

SOLA iQ On-line Sulfur Analyzer

The SOLA iQ On-line Sulfur Analyzer replaces expensive and time consuming laboratory sampling for measuring total sulfur concentration in refinery products including gasoline, diesel, kerosene, and jet fuel as well as many process gas samples such as Natural Gas, NGL and SynGas. The SOLA iQ analyzer offers an online adaption of ASTM D5453, D6313, D6222 & ISO 20846.

Features

- Measurement ranges from 2ppm to100%
- Limits of detection as low as 25ppb
- Intuitive color touchscreen user interface
- Pure O2 is not required, eliminating the risks associated with oxygen use in a process environment
- Semi-continuous operation; change in sulfur concentration indicated at every injection cycle
- Automatic density compensation for ppm sulfur wt/wt measurements
- Easy access for maintenance and >99%uptime
- Continuous control of UV light intensity ensures calibration is maintained over a long period of time

SOLA iQ Applications

Clean Fuels
The superior stability and precision of the SOLA iQ enables refiners to make timely process adjustments to enhance the economic efficiency of desulfurization and fuel blending operations.

- SOLA iQ Liquid & SOLA iQ Liquid Trace

Flare Gas & Condensable Vapors

The highly accurate SOLA iQ Flare analyzer features a dynamic measuring range from 10 ppm to 100% S by volume with fast high-to-low response time, enabling reliable flare stack sulfur emission reporting.

- SOLA iQ Condensible Vapors (CV)
- SOLA iQ Condensible Vapors (CV) Trace
- SOLA iQ Flare

Multi-Calibration/Multi-Stream
The SOLA iQ analyzer enables multiple streams of different sulfur concentrations (i.e., batch processing, inlet/outlet of reactors, etc.) to be measured by a single analyzer.

- SOLA iQ Liquid
- SOLA iQ Vapor
- SOLA iQ Condensible Vapors (CV)
- SOLA iQ Flare
- SOLA iQ Trace

Gas density measurement

Sarasota Gas Density Meters - FD900, ID900 and PD900

Features:

Continuous, online density monitoring

Measurement at true process conditions

Insertion, sample by-pass and pocket options

Compact design

Hazardous area approvals

Converter electronics to suit application

Sarasota FD900 Density Meter:

Provides high accuracy density and density related measurement of gases, liquefied gases and low viscosity fluids

Can be installed via sample by-pass or direct in-line

Is ideal for analyzer applications

Sarasota ID900 Insertion Density Meter:

Gives accurate, continuous density measurement of liquefied gases and low viscosity fluids in true process conditions with direct insertion into the pipeline or vessel by a choice of methods

Is ideal for process quality and control

Sarasota PD900 Pocket By-Pass Density Meter:

Provides high accuracy measurement of gases specifically

Provides continuous on-line density measurement at process conditions by directly mounting the thermowell into the pipeline

Recommended for:

Fiscal/custody transfer gas metering

Ethane cracking and ethylene production

Energy management systems

Stack emissions analysis and control

LNG metering and control

Calorific value estimation

Specific gravity measurement

Sarasota RTR900 Instrument Retractor

Features:

- Safe insertion and removal of Thermo Scientific™ Sarasota ID900
- Wide operating temperature range
- Rugged construction
- Interlock vent valve for safe operation
- Integral seal housing
- Suitable for use with pipelines or vessels
- Dual vent valve option for in-situ calibration check

Compatible with:

- Thermo Scientific™ ID900 Gas Density Meter

Sarasota SG901 (formerly SG900) Specific Gravity **Analyzer**

The rapid response of the SG901 ensures effective burner, furnace and flare gas monitoring and control. It is recommended in applications where specific gravity (SG) or molecular weight (MW) can be used to infer density elsewhere in the plant and where the gas is dirty or wet and requires filtering prior to the measurement. The SG901 is available in three configurations: a basic system, a dry gas system and a wet gas system. It comprises of a Thermo Scientific™ FD900 gas density assembly, temperature element and flow control valve. Built to endure harsh environments, the SG901 requires minimal maintenance and on-site calibration is not necessary.

Features:

User-selectable reference conditions

Integral sample conditioning

Options to suit dry or wet gas applications

Hazardous area use

Rugged construction for harsh environments

No on-site calibration required

Compatible with:

Thermo Scientific™ FD900, ID900 and PD900 Gas Density Meters

Recommended for:

Gas blending control

Standard volume flow control

Refinery fuel gas monitoring (CV estimate)

Oven/furnace gas monitoring (CV estimate)

Flare control systems (MW monitoring)

Liquid density measurement

Sarasota Liquid Density Meters--FD910 and FD950

Measure density or density-related variables with Thermo Scientific™ Sarasota Liquid Density Meters--FD910 and FD950*. These meters are for use within the oil and gas, petrochemical, chemical, food and beverage, and general process industries.

- Continuous, online density monitoring
- Measurement at process conditions
- Straight through flow path
- Materials to suit applications
- Compact and lightweight, easy to install
- Hazardous area approvals
- Converter electronics to suit application

Sarasota FD910 Industrial Density Meter:

- Provides high accuracy measurement of general process liquids and slurries
- Delivers continuous online density or density related measurement with straight-through flow
- Built to be insensitive to plant/pipelinevibrations
- Wide operating temperature span and options to suit an extensive range of applications

Sarasota FD950 Chemical Density Meter:

- Provides high accuracy measurement of aggressive liquids and slurries
- Provides continuous online density measurement
- Delivers straight-through flow in a compact and lightweight design
- Accurate to 0.1kg/m

Recommended for:

- Blending
- Product identification
- Interface detection
- Dilution measurement
- Process/quality control
- SG measurement
- Process efficiency
- Waste minimization
- Product consistency
- Volumetric to mass flow metering systems

CM515 and HME900 Density Converter Electronics

Thermo Scientific™ HME900:
The durable HME900 head-mounted density converter may be included with any Thermo Scientific liquid or gas density meter or specific gravity analyzer. This unit conditions the output signal to provide a HART compatible 4-20mA signal that can be connected directly to the user's DCS or it can be read digitally. An optional local display enables viewing of the prime variable value either in engineering units alone or with an alternating display of percent of chosen span. The HME900 is ideal for most general density measurement applications and where HART communications are required.

Thermo Scientific CM515 (formerly CM200):
The versatile CM515 density converter accepts inputs from Thermo Scientific density meters. This easy-to-use device derives density at reference conditions, calculates density derived parameters and is compatible with a wide range of density meter pulse outputs. Parameters and calibration data can be monitored using either the RS-232 or RS-485 interface option. The CM515 is best suited to applications that require a greater degree of input/output flexibility than offered by the HME900 or when HART compatibility is not required.

Features:

- High accuracy calculations
- Choice of field or control room installation
- Flexible input into user DCS
- Extensive range of standard calculations
- Customer-defined function (CDF) for non-standard calculation

Inputs:
Pressure (4 to 20mA)

- Resolution: better than 0.01%
- Accuracy at 20°C (68°F) reference: better than 0.1% point
- Drift -20°C to +50°C (-4°F to +122°F): ±0.1% typical, ±0.2% max

Period (current pulse 6 to 18mA)

- Range: 10ms to 250µs (100Hz to 4000Hz)
- Standard range: 2500µs to 250µs (400Hz to 4000Hz)
- Resolution: ±2ns
- Accuracy at reference +20°C (+68°F): as resolution
- Drift -20°C to +50°C (-4°F to +122°F): ±25 ppm typical; ±50 ppm max

Temperature (PT100 RTD)

- Range: -200° to +200°C (-328° to 392°F)
- Resolution: better than 0.0015%
- Accuracy at +20°C (+68°F) reference: ±0.1°C (±0.18°F); -200° to +200°C (-328° to +392°F) ±0.05°C (±0.09°F); 0° to +200°C (+32° to +392°F)
- Drift -20° to +50°C (-4° to +122°F): ±0.05°C (±0.09°F) typical, ±0.01°C (±0.018°F) max

Compatible with:

- Thermo Scientific FD910, FD950 and FD960 Liquid Density Meters
- Thermo Scientific FD900, ID900 and PD900 Gas Density Meters
- Thermo Scientific SG901 Specific Gravity Analyzer

SUNSHADE provides protection for single or multiple instruments, preventing instrument calibration drift due to temperature changes caused by solar radiation.

Mechanical protection.
SUNSHADE will shield instruments from the sun and provide partial protection from falling objects, rain, snow, and wind blown sand.

UV and corrosion resistant.
The blended ABS material has excellent UV and corrosion resistance.

Easy access to instruments.
SUNSHADE mounts to a standard 2" pipe stand and can be removed easily for full instrument access.

Enclosure Heaters

T-Series Enclosure Heater

T-Series enclosure heaters are designed with standard redundant internal protection for long trouble free operation. The T-Series heater provides approved hazardous area heaters for a wide range of applications from instrument freeze protection to temperature maintenance for analytical applications. The system is highly configurable and includes redundant internal protection for long trouble free operation. Standard temperature ratings and operating voltages are listed below.

The T-Series heater can be configured for vertical and horizontal installation with maximum efficiency. It is available in two base sizes and variable fin area depending upon wattage and maintain temperature.

This heater series is available in T2, T3 and T4 temperature ranges to meet the needs of your area classification. It can be supplied with a factory set tamper proof temperature switch or connected to an existing or customer supplied controller. The standard junction box volume can be increased to accommodate other wiring connections such as impulse line heater cables.

Process Oxygen Analyzer

Measures oxygen in either the gas or liquid phase.

In terms of performance, OXYvisor has no equal in the marketplace for trace level ppm O2 gas phase measurements. In the gas phase, the analyzer measures from trace (0.5 ppmv)

to % level oxygen, and in the liquid phase, it measures dissolved oxygen from 1 ppb to ppm.

The OXYvisor can be used for continuous oxygen measurement for a wide range of industrial process and laboratory applications. It detects oxygen in flare gas, nitrogen headers, and hydrocarbon and other process streams. It is commonly used to detect oxygen to prevent the corrosion of capital equipment and to ensure product quality. Typical applications include vapor recovery systems, annealing furnaces, produced water, enhanced oil recovery waterfloods, tank blanketing systems, and upstream to midstream natural gas processes.

The analyzer uses a proven optical luminescence technique that offers high accuracy, dependability and low maintenance. Its optical technology contains no membranes, which are susceptible to fouling, or electrolyte, which can poison or fail. The unique, industrialized optical oxygen sensing technology is based on proven quenched luminescence measurement principles.

Online Vapor Pressure Testing

ERAVAP Online is the process solution for the already well-proven laboratory vapor pressure tester ERAVAP ensuring lab-grade results. It measures according to the latest standards such as ASTM D6378, D6897, and D6377 including its CCQTA modification. Communication protocols include analog and digital I/Os and Modbus. Multiple sample input streams make it a versatile tool for refineries, blending stations and terminals.

Standard Compliant Online Vapor Pressure Testing

ERAVAP ONLINE fully complies with latest vapor pressure standards such as ASTM D6377 for the measurement of crude oil, ASTM D6378 for the measurement of gasoline and ASTM D6897 for the measurement of LPG. All three standards are based on the Mini-Method measurement principle where a piston, containing a pressure sensor, is used to expand the headspace above the liquid. Heating the sample to the measurement temperature at a specified vapor to liquid ratio gives you the vapor pressure of the liquid.

ASTM D6378 offers the advantage over the commonly used ASTM D5191 method, that no sample preparation at all is needed. This fact makes the online vapor pressure testing of gasoline easier and therefore more reliable.

The very same methods are used in our laboratory vapor pressure testers. Therefore no correlation between the online vapor pressure tester and the lab-instrument needs to be established. Both are giving the same results.

Emergency Valve Shutoff System

Design Features

Air Supply

- Recommend standalone air receiver/compressor is used dedicated to ChlorGuard

- Sufficient Air for two closures

- System designed and approved to PED(97/23/EC) Module-H

Control Panel

- Standard panel uses Normally Closed Solenoid Vales (NC). This avoids plant shutdown when mains power fails and battery drains.

- Fail-Safe panel uses Normally Open Solenoid Vales (NO) to avoid potential plant shutdown when mains power fails and battery drains.

- One to four banks available for shutting down up to twenty cylinder valves or twelve drum valves

- For use with nitrogen or compressed air

- Battery back-up available for Standard and Fail-Safe

- Solenoid valves are activated by gas detection alarm or remote stop signal to the

electrical control panel

- During closure compressed air supplied for up to 30 seconds

- Key Test function available

Gas Detector

Fixed Gas Detection

Flammable Gas Detectors

Dräger PIR 7000

The Dräger PIR 7000 is an explosion proof point infrared gas detector for continuous monitoring of flammable gases and vapours. With its stainless steel SS 316L enclosure and drift-free optics this detector is built for the harshest industrial environments, e.g. offshore installations.

Technical Data

Power Supply:	13 to 30 VDC
Temperature (operation):	-40°C - 77°C
Humidity:	0 to 100% r.h.
Pressure:	700 - 1300
Dimensions (H × W × D):	0.16x0.09x0.09 m
Weight:	4.85 lb
Housing Material:	Stainless steel SS 316L
Degree of protection (IP class):	IP66/67

Dräger Polytron® 8700 IR

The Dräger Polytron® 8700 IR is an advanced explosion proof transmitter for the detection of combustible gases in the lower explosion limit (LEL). It uses a high performance infrared Dräger PIR 7000 sensor, which will quickly detect most common hydrocarbon gases. Besides a 3 wire 4 to 20 mA analogue output with relays, it also offers Modbus and Fieldbus making it compatible with most control systems.

Technical Data

Power Supply:	10 to 30 V DC, 3-wire
Temperature (operation):	-40°C - 77°C
Humidity:	0 to 100 % r.h., non-condensing
Pressure:	700 - 1300
Dimensions (H × W × D):	0.28x0.15x0.13 m
Weight:	12.57 lb
Housing Material:	Epoxy coated copper-free aluminum or stainless steel SS 316L
Degree of protection (IP class):	IP65/66/67

Dräger Polytron® 5700 IR

The Dräger Polytron® 5700 IR is a cost effective explosion-proof transmitter for the detection of flammable gases in the lower explosive limit (LEL). It uses a high performance infrared Dräger PIR 7000 sensor that will quickly detect most common hydrocarbon gases. A 3-wire 4 to 20-mA analogue output with relays makes it compatible with most control systems.

Technical Data

Power Supply;	10 to 30 V DC
Temperature (operation):	-40°C - 77°C
Humidity:	0 to 100 % r.h., non-condensing
Pressure:	700 - 1300
Dimensions (H × W × D):	0.28x0.15x0.13 m
Weight:	12.57 lb

Housing Material:	Epoxy coated copper-free aluminum or stainless steel
	SS 316L
Degree of protection (IP class):	IP65/66/67

Dräger Polytron® 5310 IR

The Dräger Polytron® 5310 IR is a cost effective explosion-proof transmitter for the detection of flammable gases in the lower explosion limit (LEL). It uses an infrared DrägerSensor® IR that can be configured for methane, propane, or ethylene. A 3-wire 4 to 20-mA analogue output with relays makes it compatible with most control systems.

Technical Data

Power Supply:	10 to 30 VDC, 3-wire
Temperature (operation):	-40°C - 65°C
Humidity:	0 to 100 % r.h., non-condensing
Pressure:	700 - 1300
Dimensions (H × W × D):	0.3x0.15x0.13 m
Weight:	8.82 lb
Housing Material:	Epoxy coated copper-free aluminum or stainless steel
	SS 316L
Degree of protection (IP class):	IP65/66/67

Dräger Polytron® 5200 CAT

The Dräger Polytron® 5200 CAT is a cost-effective explosion-proof transmitter for the detection of flammable gases in the lower explosion limit (LEL). It uses a catalytic bead

DrägerSensor® Ex ... DD that will detect most flammable gases and vapours. A 3-wire 4 to 20 mA analogue output with relays makes it compatible with most control systems.

Technical Data

Power Supply:	10 to 30 V, 3-wire
Temperature (operation):	-40°C - 80°C
Humidity:	0 to 100 % r.h., non-condensing
Pressure (hPa):	700 - 1300
Dimensions (H × W × D):	0.28x0.15x0.13 m
Weight:	8.82 lb
Housing Material:	Epoxy coated copper-free aluminum or stainless steel SS 316L
Degree of protection (IP class):	IP65/66/67

Dräger Polytron® 8310 IR

The Dräger Polytron® 8310 IR is an advanced explosion proof transmitter for the detection of combustible gases in the lower explosion limit (LEL). It uses an infrared DrägerSensor® IR that can be configured for methane, propane or ethylene. Besides a 3 wire 4 to 20 mA analogue output with relays, it also offers Modbus and Fieldbus protocols making it compatible with most control systems.

Technical Data

Power Supply:	10 to 30 V DC, 3-wire
Temperature (operation):	-40°C - 65°C
Humidity:	0 to 100 % r.h., non-condensing
Pressure:	700 - 1300
Dimensions (H × W × D):	0.28x0.15x0.13 m
Weight:	8.82 lb
Housing Material:	Epoxy coated copper-free aluminum or stainless steel

SS 316L

Degree of protection (IP class):   IP65/66/67

Dräger Polytron® 8200 CAT

The Dräger Polytron® 8200 CAT is an advanced explosion-proof transmitter for the detection of flammable gases in the lower explosion limit (LEL). It uses a catalytic bead DrägerSensor® Ex … DD that will detect most flammable gases and vapours. In addition to a 3-wire 4 to 20-mA analogue output with relays it also offers Modbus and Fieldbus protocols, making it compatible with most control systems.

Power Supply: 10 to 30 V, 3-wire

Temperature (operation):   -40°C - 80°C

Humidity: 0 to 100 % r.h., non-condensing

Pressure (hPa):   700 - 1300

Dimensions (H × W × D):   0.28x0.15x0.13 m

Weight: 8.82 lb

Housing Material: Epoxy coated copper-free aluminum or stainless steel

                                      SS 316L

Degree of protection (IP class):   IP65/66/67

Dräger VarioGard® 2300 IR

In many fields of work, quick and reliable gas detection is a must. This is why we offer the Dräger VarioGard® stationary gas detector range. The Dräger VarioGard® 2300 IR monitors possible gas leaks of methane or LPG.

Technical Data

Power Supply: 16 to 32 V DC, 3-wire

Temperature (operation):   -20°C - 50°C

Humidity: 10 to 95 % r.h., non-condensing

Pressure: 700 - 1300

Dimensions (H × W × D):   0.12x0.11x0.06 m

Weight:	0.88 lb
Housing Material:	Plastic ABS
Degree of protection (IP class):	IP65

Dräger PIR 3000

The Dräger PIR 3000 is an explosion proof infrared gas detector for continuous monitoring of combustible gases and vapors. Based on a stainless steel SS 316 enclosure as well as on a good echnical Data

Power Supply:	10 to 30 VDC
Temperature (operation)ʊ	-40°C - 65°C
Humidity:	0 to 100% r.h.
Pressure:	700 - 1300
Dimensions (H × W × D):	0.17x0.04x0.04 m
Weight:	1.21 lb
Housing Material:	Stainless steel SS 316
Degree of protection (IP class):	IP65/66/67measuring performance, this transmitter offers an excellent price-performance-ratio.

Dräger PointGard 2700

The Dräger PointGard 2700 is a self-contained gas detection system for the continuous area monitoring of flammable hydrocarbon gases and vapors in ambient air. PointGard 2700's rugged, water-resistant housing comes complete with a horn and strobes, a built-in power supply, and external relays. It is compatible with a remotely mounted Dräger PIR 7000 Type 334 or Type 340 infrared gas sensor.

Dräger Pulsar 7000 Series

The Dräger Pulsar 7000 Series are stationary open path gas detectors for the detection of explosive hydrocarbons in gases and vapours. The robust design and the extremely rapid

response time make the Dräger Pulsar 7000 Series a dependable solution for your requirements in the oil and gas industry, as well as the chemical industry.

Dräger PEX 3000

The transmitter Dräger PEX 3000 detects flammable gases and vapours in concentrations below their lower explosive limit (100 %LEL). It increases the explosion protection of your plant. Its catalytic bead sensor provides a long-term stable measuring signal and responds to gas within a few seconds.

Technical Data

Power Supply:	12 to 30 V DC
Temperature (operation):	-40°C - 65°C
Humidity:	5 to 95 % r.H.
Pressure (hPa):	700 - 1300
Dimensions (H × W × D):	0.15x0.08x0.06 m
Weight:	1.32 lb
Housing Material:	Glass fiber reinforced polyester (GFRP)
Degree of protection (IP class):	IP66

Toxic Gases and Oxygen Detectors

Dräger Polytron® 7000

The Dräger Polytron® 7000 is a gas detector that can satisfy all toxic and oxygen gas measurement applications on a single platform. It is meeting the requirements of the compliance market as well as the high specification requirements of customized solutions.

Technical Data

Power Supply:	16.5 to 30 V DC 2-wire
Temperature (operation):	-40°C - 65°C
Humidity:	0 to 100% r.h., non-condensing

Pressure (hPa):	700 - 1300
Dimensions (H × W × D):	0.17x0.14x0.13 m
Weight:	1.98 lb
Housing Material:	Glass fibre reinforced polyester (GFRP)
Degree of protection (IP class):	IP66/67

Dräger Polytron 2000

Robust, precise, safe – the Dräger Polytron 2000 is a stationary gas detector for measuring standard gases (O2, H2S, NH3, Cl2, CO). With the new, pre-calibrated DrägerSensor MEC and robust design, this gas transmitter is a reliable and economic solution for non-explosion proof areas.

Technical Data

Power Supply:	12 to 30 V DC, 2-wire
Temperature (operation):	-40°C - 65°C
Humidity:	0 to 100% r.h., non-condensing
Pressure (hPa) 700 – 1300:	Dimensions (H × W × D) 0.17x0.14x0.12 m
Weight:	1.98 lb
Housing Material:	Glass fibre reinforced polyester (GFRP)
Degree of protection (IP class):	IP54

Dräger Polytron® 8720 IR

The Dräger Polytron® 8720 IR is an advanced explosion proof transmitter for the detection of carbon dioxide in percent volume or ppm. It uses a high performance infrared Dräger PIR 7200 sensor, which can be submerged in water without damage. Besides a 3 wire 4 to 20 mA analogue output with relays, it also offers Modbus and Fieldbus making it compatible with most control systems.

Technical Data

Power Supply 10 to 30 VDC, 3-wire

Temperature (operation) -40°C - 77°C

Humidity   0 to 100% r.h., non-condensing

Pressure (hPa)   700 - 1300

Dimensions (H × W × D)   0.28x0.15x0.13 m

Weight   12.57 lb

Housing Material: Epoxy coated copper-free aluminum or stainless steel SS316 L

Degree of protection (IP class) : IP65/66/67

Dräger PointGard 2100

The Dräger PointGard 2100 series is a self-contained gas detection system for the continuous area monitoring of toxic gases in ambient air. PointGard 2100's rugged, water-resistant housing comes complete with a horn and strobes, a built-in power supply, and reliable DrägerSensor®.

Technical Data

Power Supply: 100 - 240 V AC 50 - 60 Hz or 8 - 30 V DC

Temperature (operation): -20°C - 50°C

Humidity: 0 to 95% r.h., non-condensing

Pressure (hPa): 700 - 1300

Dimensions (H × W × D): 0.26x0.28x0.12 m

Weight: 12.13 lb

Housing Material: Glass fibre reinforced polyester (GFRP)

Degree of protection (IP class): IP66 (pending)

Dräger Polytron® 3000

The Dräger Polytron® 3000 is an intrinsically safe gas detector for the continuous monitoring of more than 60 toxic gases and oxygen in ambient air. It is the part of a new generation of gas detectors developed on a modular platform. Communication to the central control system is done via a 4 to 20 mA signal.

Technical Data

Power Supply: 12 to 30 V DC, 2-wire

Temperature (operation):	-40°C - 65°C
Humidity:	0 to 100% r.h., non-condensing
Pressure (hPa):	700 - 1300
Dimensions (H × W × D):	0.17x0.14x0.13 m
Weight:	1.98 lb
Housing Material:	Glass fiber reinforced polyester (GFRP)
Degree of protection (IP class):	IP66

Dräger VarioGard® 2320 IR

In many fields of work, quick and reliable gas detection is a must. This is why we offer the Dräger VarioGard® stationary gas detector range. Dräger VarioGard® 2320 IR monitors possible gas leaks or work place exposure limits of carbon dioxide.

Technical Data

Power Supply:	16 to 32 VDC, 3-wire
Temperature (operation):	-20°C - 50°C
Humidity:	10 to 95% r.h., non-condensing
Pressure (hPa):	700 - 1300
Dimensions (H × W × D):	0.11x0.12x0.06 m
Weight :	0.88 lb
Housing Material:	Plastic ABS
Degree of protection (IP class):	IP65

Dräger Polytron® 5720 IR

The Dräger Polytron® 5720 IR is a cost-effective explosion proof transmitter for the detection of carbon dioxide in volume percentage or ppm. It uses a high-performance

infrared Dräger PIR 7200 sensor that can be submerged in water without damage. A 3-wire 4-to-20 mA analogue output with relays makes it compatible with most control systems.

Technical Data

Power Supply:	10 to 30 VDC, 3-wire
Temperature (operation):	-40°C - 77°C
Humidity:	0 to 100% r.h., non-condensing
Pressure (hPa):	700 - 1300
Dimensions (H × W × D):	0.28x0.15x0.13 m
Weight:	12.57 lb
Housing Material:	Epoxy coated copper-free aluminum or stainless steel SS316 L
Degree of protection (IP class):	IP65/66/67

Dräger Polytron® 8100 EC

The Polytron® 8100 EC is Dräger's top of the line explosion proof transmitter for the detection of toxic gases or oxygen. It uses a high performance plug and play electrochemical DrägerSensor® to detect a specific gas. Besides a 3 wire 4 to 20 mA analogue output with relays, it also offers Modbus and Fieldbus protocol making it compatible with most control systems.

Technical Data

Power Supply:	10 to 30 V DC, 3-wire
Temperature (operation):	-40°C - 65°C
Humidity:	0 to 100% r.h., non-condensing
Pressure (hPa):	700 - 1300
Dimensions (H × W × D):	0.28x0.15x0.13 m
Weight:	11.02 lb
Housing Material:	Epoxy coated copper-free aluminum or stainless steel SS316 L

Degree of protection (IP class):	IP65/66/67

Dräger PIR 7200

The Dräger PIR 7200 is an explosion proof point infrared gas detector for continuous monitoring of carbon dioxide. Designed for the industrial use, the transmitter offers drift-free optics. And due to its robust product design the PIR 7200 can be operated even in harsh environments.

SafEye™ Quasar 950/960

The highly specialised open-path UV gas detection systems Quasar SafEye™ 950 and 960 provide reliable gas leak monitoring: The Quasar 950 model detects the toxic gases hydrogen sulphide and sulphur dioxide. The Quasar 960 model warns of toxic ammonia.

Dräger PointGard 2720

The Dräger PointGard 2720 is a self-contained gas detection system for the continuous area monitoring of carbon dioxide (CO_2) in ambient air. PointGard 2720's rugged, water-resistant housing comes complete with a horn and strobes, a built-in power supply, and is compatible with a remotely mounted Dräger PIR 7200 infrared CO_2 sensor.

Technical Data

Power Supply:	16 to 32 V DC
Temperature (operation):	-20°C - 50°C
Humidity:	10 to 95% r.h., non-condensing
Pressure (hPa):	700 - 1300
Dimensions (H × W × D):	0.12x0.12x0.06 m
Weight:	2.2 lb
Housing Material:	Plastic ABS or aluminum
Degree of protection (IP class):	IP65

Wireless gas detectors

GS01

Truly wireless, the GasSecure GS01 combines single-beam triple-wavelength infrared (IR) technology with extremely low power consumption, to provide fast hydrocarbon gas detection in the most demanding and hazardous of settings. The GS01 creates value for the

customer with dramatically reduced installation cost and time, reliable infrared operation, and calibration-free design.

Features

- Truly wireless, no cables

- No recalibration required

- Fail-safe IR detection with triple wavelength including heated optics

- Suitable for SIL 2 systems – 3rd party verification of detector and wireless communication for safety applications

- Fast gas detection response of ≤5 seconds

- Hazardous area intrinsically safe design

- Low power, lightweight gas detector with intrinsically safe field replaceable battery pack

- Up to 2 years battery life*

    *depending on environmental conditions

Polytron® 6100 EC WL

The Dräger Polytron 6100 EC WL is a wireless transmitter for continuous monitoring of toxic gases and oxygen. The instrinsically safe and SIL2-rated transmitter features completely wireless signal transmission and power supply. The internal battery pack allows the transmitter to operate continually for up to 24 month. This makes the Polytron 6100 a flexible and cost efficient solution for plant expansions, upgrades, and new installations.

Technical Data

Power Supply:	Lithium-Thionyl Chloride Battery
Temperature (operation):	-40°C - 65°C
Humidity:	0 to 100% r.h., non-condensing
Pressure (hPa):	700 - 1300
Dimensions (H × W × D):	0.32x0.15x0.17 m
Weight:	7.05 lb

Housing Material: Stainless steel

Degree of protection (IP class):   IP66/67

Ultrasonic Leak Detection

Dräger Polytron® 8900 UGLD

Dräger Polytron® 8900 UGLD

The Dräger Polytron® 8900 UGLD transmitter is an early warning area monitor for detecting high-pressure gas leaks in outdoor industrial process environments. Thanks to an ultrasonic acoustic sensor, it responds earlier than conventional gas detectors because it registers the sound of leaking gas instead of measuring the concentration of accumulated gas clouds. As gas escapes, leaks are immediately detected in the surrounding area, regardless of the wind direction.

https://www.draeger.com/en_sea/Productselector/Fixed-Gas-Detection/Toxic-Gases-and-Oxygen-Detectors?page=1&i=safety

Chromatotec

H2S measurement in process reactor effluent for H2 recycle in the petrochemical industry

Propane dehydrogenation (PDH) is used to produce polymer-grade propylene from propane. Propane feed enters the reactors, where a catalyst dehydrogenates the hydrocarbon molecules. The H_2 gas produced is sent to a separator where hydrogen is recovered. If the propane feedstock is not completely desulfurized, unwanted H_2S in the H_2 recycle gas could poison the catalysts or damage the equipment. Therefore, on-line H_2S measurement of the reactor effluent gas is required.

Chromatotec®'s H2S MEDOR analyzer measures real-time H_2S concentration in the hydrogen recycle gas stream, composed of up to 60% of H_2, and also propane and propylene, for a H_2S concentration range of 0-1 ppm.

Chromatotec®'s H2S MEDOR analyzer consists of an automatic process Gas Chromatograph (autoGC) equipped with Sulfur Specific Electrochemical wet cell Detector (ED) which only reacts with sulfur compounds and providing excellent results down to 1ppb. All compounds have a linear response with the ED, with R2 > 0.995. Moreover, the MEDOR® detector is not affected by the moisture in the sample.

It is available with dedicated configuration for safe and hazardous areas (ATEX, IECEx, CSA and CSA international certifications). including an integrated N2 generator : no Hydrogen is required. The H2S MEDOR includes and embedded internal calibration for automatic data validation.

Liquid phase analysis

Integrated solution for the monitoring of impurities in liquid matrices by Gas Chromatography using a simplified and enhanced headspace sampling system.

Chromatotec® presents a headspace sampling system designed to extract representative samples from the liquid phase. The vaporized sample can be preconcentrated using a trap to achieve quantification at very low concentration levels (ppb and/or ppm). Then, it is injected automatically and in continuous mode

into the auto-GC analyzer. Speciation of sulfur compounds or VOCs is done with a MEDOR® sulfur specific electrochemical detector or an FID respectively.

The complete system allows online analysis without human intervention and without gas cylinders thanks to gas generators.

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Siemens

The MAXUM Ed. II is used to measure the chemical composition in gases and evaporable liquids in all stages of production and in all areas of refineries, oil refining, and chemical industries. The device was particularly developed for installation in harsh processing environments, to operate either directly online at the process or nearby. The application flexibility of the MAXUM Ed. II allows for the analysis of feedstock, by-products and end products, for quality measurement, and for the determination of waste products. Its versatile features offer the best possible analytical results at low operating costs thanks to a wide selection of components such as injectors, ovens, detectors, and separation columns, as well as components for column switching. Liquid samples can be optimally dosed by the use of a liquid injection valve. Highly sensitive detectors ensure a reliable trace analysis

through precise sensors. Additional benefits lie in its particular economic efficiency resulting from the single and double-oven concept plus the modular oven. In addition, networked devices can be monitored in real time by the workstation.

Modular oven

The perfect match of high performance and minimal maintenance requirements

The MAXUM Ed. II is the leading gas chromatograph in the process industry. It is used worldwide and has proven itself by its high degree of precision and reliability in the analysis of gases. We have now combined these excellent features with a simplified handling, culminating in the MAXUM Ed. II type modular oven.

Technical specifications

Detector types:Thermal conductivity (TCD/4 cells)

Number of detectors: Max. 4 TCD detector modules

Ovens: Individual or two independent ovens; optionally a small oven for one small analytics module, a large oven for two small analytics modules, or a large analytics module;Two small or two large ovens or any desired combination;The dual-oven version

Temperature ranges: +60 to 80°C

Benefits at a glance:

- Reduction of installation costs due to lower installation requirements
- High degree of availability due to perfect Plug&Play principle of the analytic modules
- High level of standardization and low operating costs result in a high level of economic efficiency

- Intelligent electronics, local operation via touch screen and central workstation for user-friendly operation
- Powerful software for excellent analysis results
- Comprehensive network options for central maintenance and secure data transmission
- Global Service and Support organization

Airbath/Airless

Special analytical tasks require stable temperatures in the oven to optimize separating performance of the components. The requirements for optimum separation performance are met with our two oven types. The airless oven provides extremely stable isothermal temperatures with high control accuracy, completely without the use of air. The airbath oven offers both isothermal and temperature-programmed operation with air supply.

Technical specifications

Detector types: Thermal conductivity (TCD/8 or 2 cells),

flame ionization (FID);

flame photometry (FPD),

plasma discharge (BID),

electron capture (ECD)

Number of detectors: Max. 3x detector modules

Ovens Single isothermal airbath oven or dual airbath oven with two

separate isothermal zones

Single oven or two separate airless ovens in separate oven space

Temperature ranges: +50 to 260°C (airless)

+5 to 225°C (airbath, isothermal mode)

+5 to 330°C (PTGC)

Benefits

- Specific system adaptation to optimally fulfill measurement tasks
- Time and cost savings through parallel chromatography
- Low operating costs: Flexible oven concept optimizes the air and energy consumption of the analytical solution
- Versatility through different detector types such as FID, TCD, FPD, PDD (HID, PID and ECD mode) as well as multi-detectors
- Valveless live column switching with electronic pressure regulators
- Intelligent electronics, local operation and central workstation for user-friendly operation
- Powerful software for excellent analysis results
- Comprehensive network options for central maintenance and secure data transmission
- Global Service and Support organization

SIPROCESS GA700

Overview

The SIPROCESS GA700 range is the latest generation of Siemens gas analyzers, and features a modular design. Up to two modules can be used per basic unit.

Basic unit

The basic unit is available in three models: As a 19" rack unit with 3 height units, in an enclosure for wall mounting, and as an Ex-d field device. The communication interfaces present in the basic units can be adapted to the respective process environment or the process control system using additional optionally available electronics modules.

Modules

Depending on the measuring task, the SIPROCESS GA700 can be individually adapted to the respective analytical or process requirements by fitting selectable modules.

Module	Measuring task
ULTRAMAT 7	The ULTRAMAT 7 module is used for highly-selective measurement of infrared-active components such as CO, CO_2, NO, CH_4 or SO_2. In general, the field of application ranges from all types of emission measurements to use in processes. These are used to control production processes and ensure product quality, even in the presence of highly corrosive gases.
OXYMAT 7	The OXYMAT 7 module is used to measure oxygen between 0 to 0.5% (smallest measuring range) and 0 to 100% (largest measuring range). It is designed for use at ambient temperatures up to 50 °C and allows highly exact measurements through application of the paramagnetic alternating pressure principle. Thanks to the modular design, the OXYMAT 7 module can be combined with an additional module.
CALOMAT 7	For determining the concentration of hydrogen and inert gases in binary mixtures by measuring the thermal conductivity. The CALOMAT 7 module features a high dynamic measuring range (e.g. 0 ... 0.5% and 0 ... 100% H_2, configurable) and a short T_{90} time.

Field control unit

The field control unit with Ex-d explosion protection and flameproof enclosure is approved for use in Zone 1 (ATEX / IECEx approval). Together with the OXYMAT 7 analyzer module it can be used for measuring the oxygen content of flammable or non-flammable gases.

Benefits

The basic unit provides:

- Transmission and evaluation of measurement results
- Display and transmission of device parameters
- Operation (parameterization, configuration)

In addition to the modules, the basic unit contains the interfaces for the peripherals.