

SERVOMEX PRODUCT GUIDE 2018

OUR INDUSTRY-LEADING GAS ANALYZER RANGE AND
SYSTEMS, MATCHED TO YOUR INDUSTRY REQUIREMENTS

UTILIZING HUMMINGBIRD SENSING TECHNOLOGY

WINNERS OF THE QUEEN'S
AWARD FOR ENTERPRISE



POWER GENERATION

HYDROCARBON
PROCESSING

METALS & MINING

INDUSTRIAL GASES



SERVOMEX.COM

SERVOMEX 
A MEASURABLE ADVANTAGE

> GAS MEASUREMENT GUIDE

SERVOTOUGH	NH ₃	Ar	CO	CO ₂	He	C1-C6	NMHC	H ₂	HCl	HF	H ₂ S	CH ₄	NO	NOx	NO ₂	N ₂
Oxy 1800																
Oxy 1900																
OxyExact 2200																
SpectraScan 2400			%CV	%CV		%CV					%CV					
SpectraExact 2500	%		%ppm	%ppm		%			%ppm			%	%ppm			
FluegasExact 2700			ppm													
Laser 3 Plus Ammonia	ppm															
Laser 3 Plus Combustion			ppm									%				
Laser 3 Plus Process			ppm													
LaserSP 2930				%ppm					ppm	ppm	ppm					
LaserCompact 2940				%ppm					ppm	ppm	ppm					
LaserExact 2950	ppb		ppm	ppm					ppb	ppb	ppm					
DF-140E																
DF-320E																
DF-340E																
H2Scan								%								

SERVOPRO	NH ₃	Ar	CO	CO ₂	He	C1-C6	NMHC	H ₂	HCl	HF	H ₂ S	CH ₄	NO	NOx	NO ₂	N ₂
AquaXact 1688																
AquaXact 1688 Controller																
MonoExact DF150E																
MonoExact DF310E																
4200/4210			%ppm	%ppm								%ppm				
4900 Multigas			%ppm	%								ppm	ppm			
FID																
Chroma		%ppm/b	%ppm/b	%ppm/b	%ppm/b		ppm	%ppm/b				%ppm/b				%ppm/b
Plasma																ppm
MultiExact 4100		%	%ppm	%ppm	%							ppm				%
MultiExact 5400			ppm	ppm												
NanoChrome		ppb/t	ppb/t	ppb/t			ppb/t	ppb/t				ppb/t				ppb/t
MonoExact TCD		%			%			%								%
NOx													ppm	ppm	ppm	
SO ₂																
HFID							ppm					ppm				

GAS DETECTION	NH ₃	Ar	CO	CO ₂	He	C1-C6	NMHC	H ₂	HCl	HF	H ₂ S	CH ₄	NO	NOx	NO ₂	N ₂
OxyDetect																

SERVOFLEX	NH ₃	Ar	CO	CO ₂	He	C1-C6	NMHC	H ₂	HCl	HF	H ₂ S	CH ₄	NO	NOx	NO ₂	N ₂
Micro i.s 5100			%	%												
MiniMP 5200				%												
MiniHD 5200			%	%												
MiniFoodPack 5200				%												

DELTA F	NH ₃	Ar	CO	CO ₂	He	C1-C6	NMHC	H ₂	HCl	HF	H ₂ S	CH ₄	NO	NOx	NO ₂	N ₂
DF-500 Range																
DF-700 Range																

MEASUREMENT TYPE: PERCENT/PARTS PER MILLION/PER BILLION/PER TRILLION/BY VOLUME/DEW POINT

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N ₂ O	O ₂	C ₃ H ₆	THC	H ₂ O	SO ₂	KEY APPLICATIONS	PAGE
	%					■ Waste water treatment ■ Food storage ■ Marine inerting applications ■ Inert blanketing	5
	%					■ Process control ■ Flare stack analysis ■ Vapor recovery ■ Safety-critical oxidation	5
	%					■ Oxidation control reactions ■ EQ, PTA and EDC manufacturing ■ Catalyst regeneration ■ Solvent recovery	5
						■ BTU/Wobbe content measurement ■ Gas turbine, engines, fuel cells ■ Flare stack monitoring	6
%ppm		%	%	%		■ Water in EDC/solvents ■ Ethylene production ■ TDI production ■ Chlorine production	6
	%					■ Process heaters ■ Utility boilers ■ Thermal crackers ■ Crematoria & incinerators	6
						■ Process heaters ■ Incinerators ■ Power stations ■ Furnaces	7
	%					■ Process heaters ■ Incinerators ■ Power stations ■ Furnaces	7
	%					■ Oxidation control ■ Inerting ■ Safety monitoring ■ Flare gas monitoring ■ Combustion control (<500°C) ■ Coal to chemical	7
				% ppm		■ Emission control systems for CEMS ■ Combustion control systems for process heaters and crackers ■ Ammonia slip control in DeNOx plants	8
				% ppm		■ Chemical reactor – inert gas control ■ Moisture in VCM ■ Natural gas contaminants – H ₂ O, CO ₂ , H ₂ S	8
	ppm			ppm		■ HF and HCl impurity monitoring in process gas ■ Monitoring H ₂ S during biogas production ■ H ₂ O and H ₂ S in natural gas	8
	ppm					■ Reactor process control ■ Pressure swing absorber nitrogen skids ■ Blanketing and inerting	9
	ppm/b					■ Hydrogen production ■ Polypropylene production ■ Polyethylene production ■ Oil refining ■ Petrochemical applications	9
	ppm/b					■ Pressure swing absorber N ₂ skids ■ Reactor process control ■ Blanketing and inerting ■ Petrochemical process monitoring	9
						■ Refinery ■ Petrochemical ■ Manufacturing ■ Industrial gas supply	10

N ₂ O	O ₂	C ₃ H ₆	THC	H ₂ O	SO ₂	KEY APPLICATIONS	PAGE
				ppmvdip		■ Glove boxes ■ Solder reflow ovens ■ Compressed air generation ■ Ethylene production	10
				ppmvdip		■ Glove boxes ■ Solder reflow ovens ■ Compressed air generation ■ Ethylene production	10
	ppm/b					■ Glove boxes ■ Heat treating ■ Solder reflow ovens ■ Industrial gas production	11
	% ppm					■ Air separation units ■ Medical/industrial gases ■ Specialty gas blending	11
ppm	%					■ Product quality validation in hydrogen plants ■ HyCO process control ■ Bottling/filling plants producing flammable gas blends	11
ppm	%				ppm	■ Utility boilers ■ Clinical waste incinerators ■ Chemical incinerators ■ Mobile labs	12
			ppm			■ Cryogenic air separation ■ Process control ■ Food gas manufacture ■ Product validation	12
	%ppm/b					■ Medical gas production ■ Air separation unit ■ Cryogenic truck loading station ■ High purity gas production	12
						■ Argon production ■ Track loading ■ Pure gas bottling ■ Specialty gas laboratories	13
ppm	% ppm			ppm		■ Product purity on air separation unit ■ Validation of medical O ₂ , N ₂ , air and He ■ Process control on air separation unit	13
ppm	% ppm					■ Validation of medical O ₂ , N ₂ , and air ■ Process control on air separation unit	13
	ppb/t					■ Semiconductor production – Stationary analytical systems ■ UHP gas production – Quality control measurements	14
						■ Validation on industrial processes ■ Hydrogen purity ■ Bottling/filling plant applications	14
						■ Scrubber efficiency ■ Turbine/generator feedback control ■ SCR/SNCR feedback control	14
					ppm	■ Continuous emissions monitoring (CEMS) ■ Ambient air monitoring	15
			ppm			■ Compliance monitoring and testing ■ VOC abatement ■ Scrubber efficiency	15

N ₂ O	O ₂	C ₃ H ₆	THC	H ₂ O	SO ₂	KEY APPLICATIONS	PAGE
	%					■ Pharmaceutical plants ■ Helium production and storage ■ Semiconductor facilities ■ Laboratories & universities	15

N ₂ O	O ₂	C ₃ H ₆	THC	H ₂ O	SO ₂	KEY APPLICATIONS	PAGE
	%					■ Refineries – catalytic cracker regeneration ■ Process monitoring ■ Inerting applications	16
	%					■ Laboratories and research ■ Air separation and gas bottling plants ■ Transfilling ■ Combustion analysis	16
	%					■ Physiology studies ■ Universities ■ Combustion optimization ■ Medical gas verification	16
	%					■ Equilibrium Modified Atmosphere Packaging (EMAP) fresh consumable produce testing ■ Laboratory and research	17

N ₂ O	O ₂	C ₃ H ₆	THC	H ₂ O	SO ₂	KEY APPLICATIONS	PAGE
	ppb/b/t					■ Continuous quality control monitoring ■ Post purifier quality certification ■ Leak detection for electronics grade gases	17
	ppb/b/t			ppb/b/t		■ Continuous quality control monitoring ■ Bulk gas cylinder quality control ■ Trace moisture analysis	17

MEASUREMENT TYPE: PERCENT/PARTS PER MILLION/PER BILLION/PER TRILLION/BY VOLUME/DEW POINT

> WELCOME TO SERVOMEX

THE WORLD'S LEADING MANUFACTURER OF GAS ANALYZERS AND GAS ANALYSIS SYSTEMS.

Developed and manufactured in our UK and Americas Technical Centers, Servomex analyzers are hand-built to precise requirements. This ensures every product we make provides performance optimized to the needs of each customer process.

Built around the stable, accurate and reliable gas measurements provided by our world-leading Hummingbird sensing technologies, our analyzers incorporate the latest advances in hardware design and software control into resilient designs optimized for hazardous or safe area use.

Once manufactured, our analyzers can integrate into existing systems or be designed into a complete system manufactured to equally high standards in our global network of System Integration facilities.

We build every analyzer to deliver a long lifetime of performance. This ethos is maximized through our global Service offer, which provides a complete support service for your analyzer, from commissioning to regular maintenance.



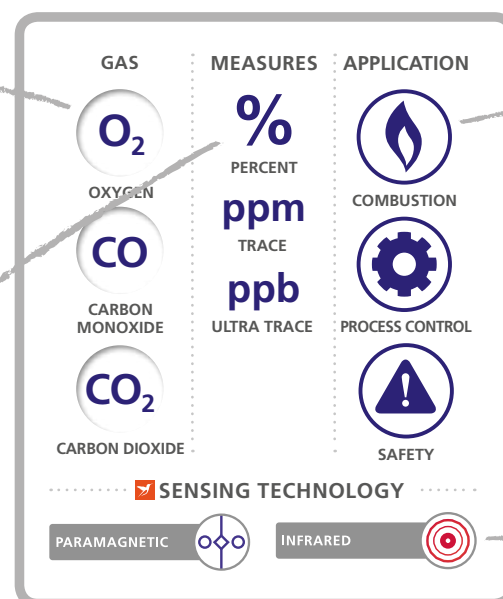
FIND YOUR PRODUCT NOW

> 'HOW TO' GUIDE

HOW TO USE AND GET THE MOST OUT OF THIS PRODUCT GUIDE.

Some analyzers are optimized for single gas measurements while others monitor multiple gas types.

We offer all measurement ranges from percentage to ultra-trace parts per trillion analysis.



We identify which application types the analyzer is suitable for operating in.

The Hummingbird sensing technologies used are listed.

SERVOTOUGH Oxy 1800

SAFE AREA

ACCURATE AND STABLE SAFE AREA O₂ ANALYZER

Designed to reliably measure percent O₂ in many safety-critical industrial applications, the Oxy 1800 is a stable, accurate and highly specific O₂ analyzer for safe area use.

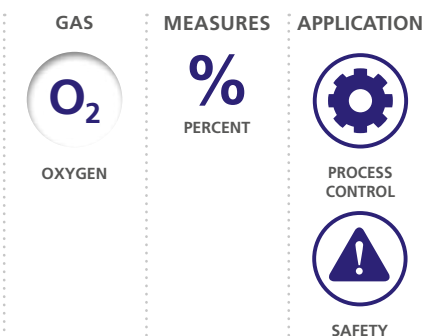


FEATURES AND BENEFITS

- Internal/external use (IP66/NEMA 4X rated)
- Special version for solvent-bearing samples
- Range of alarm outputs aids integration with other systems

APPLICATIONS

- Waste water treatment
- Food storage
- Marine inerting applications
- Inert blanketing



SENSING TECHNOLOGY



SERVOTOUGH Oxy 1900

HAZARDOUS AREA

AWARD-WINNING PARAMAGNETIC DIGITAL O₂ ANALYZER DESIGNED FOR HAZARDOUS AREA USE

Offering industry-standard features alongside revolutionary, value-added options, the Oxy 1900 O₂ gas analyzer sets new standards of flexibility, stability and reliability from a single, cost-effective unit.

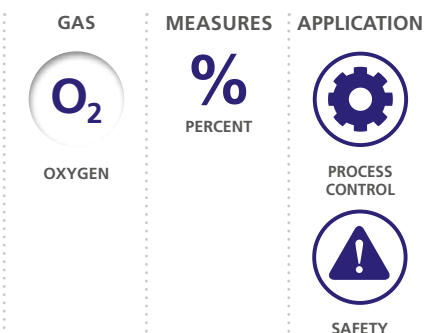


FEATURES AND BENEFITS

- Can be used in Safe Area to Zone 1/Div 1 hazard-rated locations
- Heated sample cell allowing simplified sample system requirements
- Unique Servomex Flowcube flow sensor technology for improved safety

APPLICATIONS

- Process control
- Safety-critical oxidation, such as ethylene oxide and propylene oxide purity
- Flare stack analysis
- Vapor recovery



SENSING TECHNOLOGY



SERVOTOUGH OxyExact 2200

HAZARDOUS AREA

HIGH-SPEC PROCESS O₂ ANALYZER OFFERS SAFE OR HAZARDOUS AREA CONTROL WITH UP TO SIX TRANSMITTERS

The OxyExact 2200 high-specification O₂ analyzer offers an unrivaled combination of precision, flexibility and performance for optimum process and safety control. The OxyExact can be configured with a safe or hazardous area control unit with up to six transmitters.

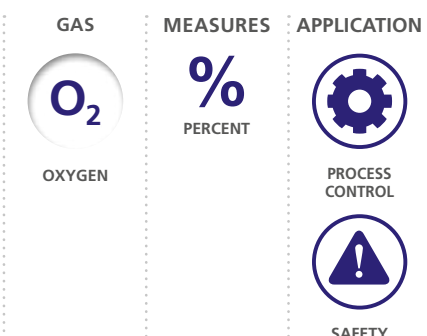


FEATURES AND BENEFITS

- Zone 1 certified to ATEX Cat 2, IECEx and FM/CSA Class 1 Div 1
- Three enclosure systems allow sampling of any flammable gas up to 100% O₂ and pressures of up to 40psi
- High-temperature version eliminates the need to condense hot sample prior to analysis

APPLICATIONS

- Oxidation control reactions
- EO, PTA and EDC manufacturing
- Catalyst regeneration
- Solvent recovery



SENSING TECHNOLOGY



SERVOTOUGH SpectraScan 2400

HAZARDOUS AREA

REVOLUTIONARY INLINE REAL-TIME ANALYSIS OF HYDROCARBON COMPONENTS C1-C6

A real time optical analyzer utilizing the Precise field-proven optical bench, the SpectraScan 2400 delivers a breakthrough capability in the continuous analysis of light hydrocarbons C1-C6.

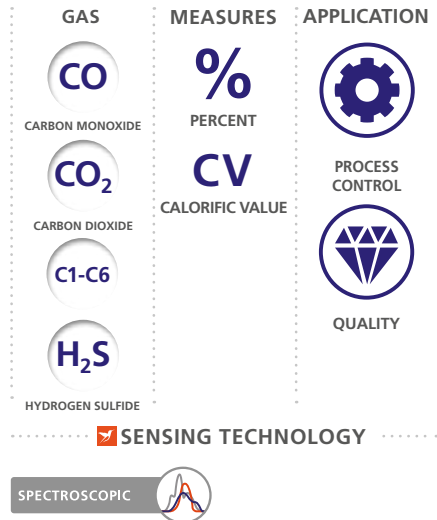


FEATURES AND BENEFITS

- North American Cat 1, Div 2 ATEX Cat 3 IECEx Zone 2
- Tunable band-pass filter enables simultaneous scanning of selected wavelength bands for gases including methane, ethane, propane and iso-butane
- Unique tunable filter process with Infrared photometer technology delivers industry-leading interference compensation

APPLICATIONS

- BTU/Wobbe content measurement
- Gas turbine, engines, fuel cells
- Flare stack monitoring



SERVOTOUGH SpectraExact 2500

HAZARDOUS AREA

RUGGED PHOTOMETRIC GAS ANALYZER FOR DEMANDING PROCESS APPLICATIONS

Servomex's iconic industry-leading Photometric analyzer delivers flexible single and multi-component gas analysis capability for corrosive, toxic and flammable sample streams. The SpectraExact 2500's reliable, accurate and stable real-time online process analysis makes it ideal for a range of process, combustion and emissions gas analysis applications.

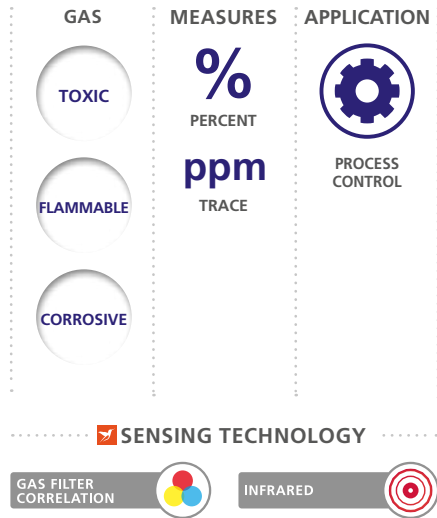


FEATURES AND BENEFITS

- IECEx and North American hazardous area approvals
- Easy integration with DCS – from 4-20mA to Modbus TCP
- Sample cell and electronics segregated – for easy maintenance and safe operation

APPLICATIONS

- Water in EDC/solvents
- Ethylene production
- TDI production
- Chlorine production



SERVOTOUGH FlueGasExact 2700

HAZARDOUS AREA

ADVANCED FLUE GAS ANALYZER FOR HIGH-TEMPERATURE MEASUREMENT OF O₂ AND COMBUSTIBLES

Designed to measure O₂ and CO_e in flue gases for improved combustion efficiency and reduced emissions, the FlueGasExact 2700 gas analyzer is designed to suit the most demanding needs of combustion efficiency applications in the power generation and process industries.

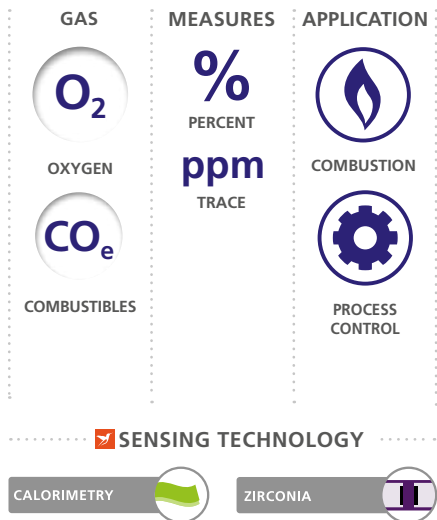


FEATURES AND BENEFITS

- ATEX Cat. 3, IECEx Zone 2 & North America Class I, Div 2
- Unique Flowcube flow sensor technology enables positive flow conditions to be validated
- Sulfur-resistant combustibles sensor enables sensor to operate at elevated sulfur levels

APPLICATIONS

- Process heaters
- Utility boilers
- Thermal crackers
- Crematoria & incinerators



SERVOTOUGH Laser 3 Plus Ammonia

HAZARDOUS AREA

WORLD-LEADING NH₃ MEASUREMENT, OPTIMIZED FOR AMMONIA SLIP DeNOx APPLICATIONS

This TDL analyzer specifically optimized for ammonia slip measurement provides all the benefits of Servomex's TDL technology in a compact, light unit, offering unparalleled installation flexibility plus cost and performance benefits.

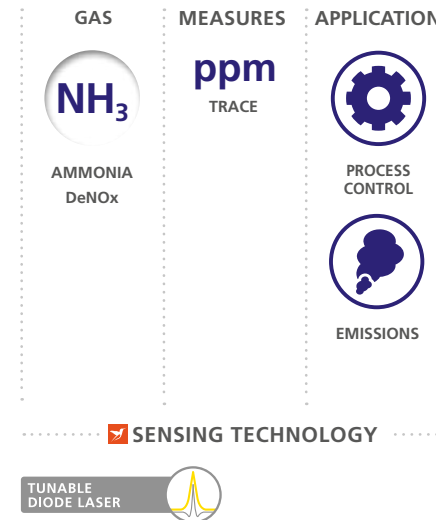


FEATURES AND BENEFITS

- High measurement reliability utilizing Servomex's own line lock cuvette technology
- ATEX, IECEx and North American hazardous area approvals
- A compact analyzer specifically optimized for the fast, accurate and responsive measurement of NH₃
- Ideal for slip ammonia application on power plants and fired heaters

APPLICATIONS

- Process heaters
- Incinerators
- Power stations
- Furnaces



SERVOTOUGH Laser 3 Plus Combustion

HAZARDOUS AREA

THE REVOLUTIONARY COMPACT COMBUSTION ANALYZER OPTIMIZED FOR CO, O₂, OR CO + CH₄ MEASUREMENTS

Containing all the benefits of Servomex's TDL technology in a light, compact unit, with unmatched installation flexibility plus cost and performance benefits, this analyzer is optimized for fast, accurate and responsive measurements in combustion and process control, making it a must for safety applications.

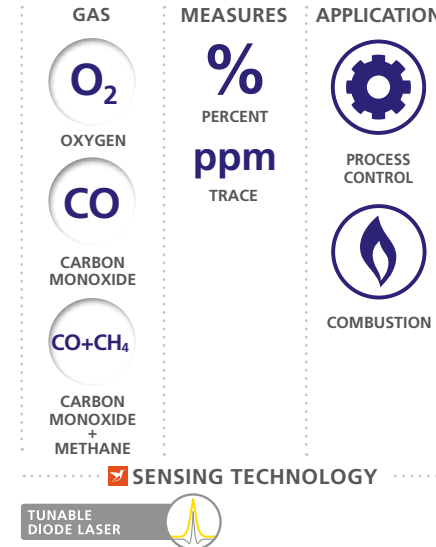


FEATURES AND BENEFITS

- High safety integrity utilizing Servomex's own line lock cuvette technology
- Compact size means quick and easy installation by one person with on-board display negating the need for laptop configuration
- ATEX, IECEx and North American hazardous area approvals. Approved for process Zone 2. SIL 2 assessed and CE marked
- Optimized for combustion processes

APPLICATIONS

- Process heaters
- Incinerators
- Power stations
- Furnaces



SERVOTOUGH Laser 3 Plus Process

HAZARDOUS AREA

THE WORLD'S SMALLEST TDL GAS ANALYZER, OPTIMIZED FOR PROCESS O₂ AND CO MEASUREMENTS

All the benefits of Servomex's TDL technology in a small, light unit offering unparalleled installation flexibility plus cost and performance benefits. Optimized for the fast, accurate and responsive measurement of process oxygen in hot or hazardous conditions.

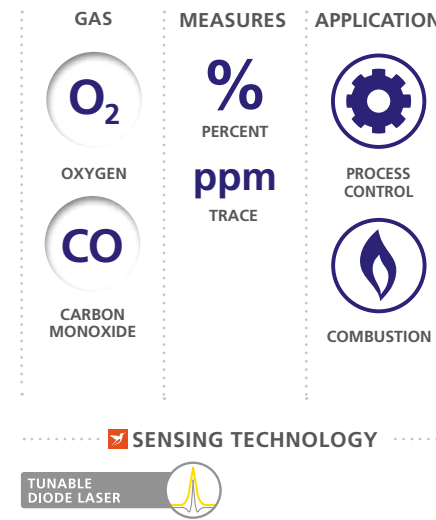


FEATURES AND BENEFITS

- High safety integrity utilizing Servomex's own line lock cuvette technology
- ATEX, IECEx and North American hazardous area approvals. Approved for process Zone 2. SIL 2 assessed and CE marked
- Quick and easy installation by one person with on-board display negating the need for laptop configuration
- Suitable for a range of combustion and process control applications

APPLICATIONS

- Oxidation control
- Inerting
- Safety monitoring
- Flare gas monitoring
- Combustion control (<500°C)
- Coal to chemical



SERVOTOUGH LaserSP 2930

HAZARDOUS AREA

HIGH-SENSITIVITY CROSS-STACK TDL ANALYZER

A high-performance gas analyzer designed for continuous in-situ monitoring, the LaserSP 2930 delivers a fast response time and highly stable performance. Suitable for measuring a range of gases including HCl, HF, H₂O, H₂S, HCN, and other hydrocarbons, the LaserSP is ideal for a wide range of process, combustion control and emissions applications.

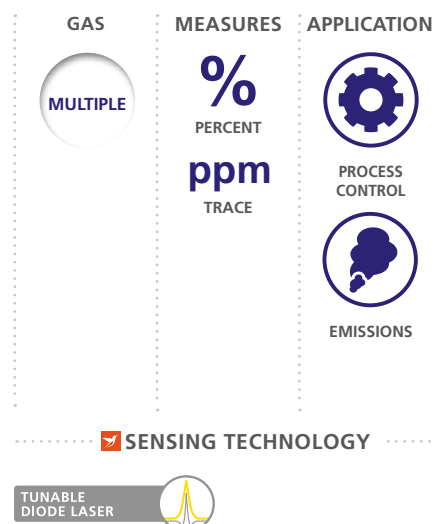


FEATURES AND BENEFITS

- Designed for Zone 1 and Zone 2 hazard rated (gas/dust) locations
- In-situ with no sample conditioning delivers reliable operation
- Wavelength Modulated Spectroscopy provides wide dynamic range and lowest cross-interference

APPLICATIONS

- Emission control systems for CEMS
- Combustion control systems for process heaters and crackers
- Ammonia slip control in DeNOx plants



SERVOTOUGH LaserCompact 2940

HAZARDOUS AREA

SHORT PATH LENGTH TDL ANALYZER

Optimized for measurement across pipes and along short measurement cells and able to measure through very thin nozzles, reducing or even eliminating consumption of purge gas, the LaserCompact 2940 delivers the fast response time, highly stable performance and minimum sample conditioning advantages of TDL technology.

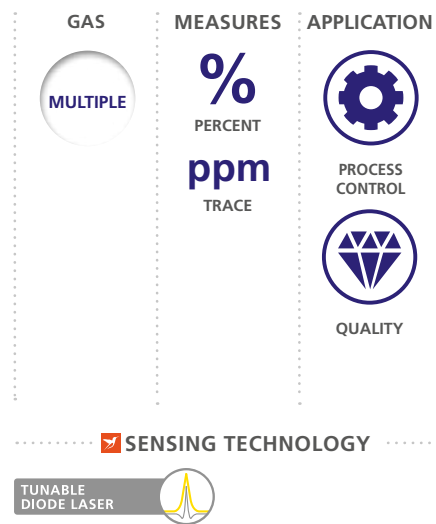


FEATURES AND BENEFITS

- ATEX, IECEx and North American hazardous area approvals. ATEX Cat 3 (Gases) and Cat 2 (Dusts) IECEx Zone 2 and Zone 21. CSA Divisions and Zones (Gas and Dust)
- Line width correction delivers accurate measurement with variations in matrix
- In-situ with low purge gas consumption

APPLICATIONS

- Chemical reactor – inert gas control
- Moisture in VCM
- Natural gas contaminants – H₂O, CO₂, H₂S



SERVOTOUGH LaserExact 2950

HAZARDOUS AREA

EXTRACTIVE TDL TRACE MULTI-GAS ANALYZER, DESIGNED FOR MEASURING TRACE GASES OFFLINE

Specifically designed for extractive trace analysis applications, the LaserExact 2950's TDL technology offers unsurpassed low ppb detection limits for most gases, making it ideal for the measurement of trace gases offline.

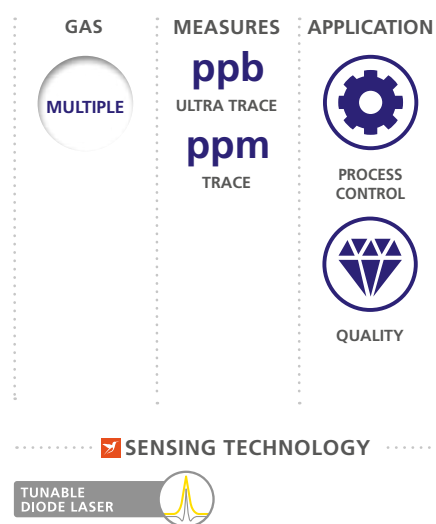


FEATURES AND BENEFITS

- Zone 2/Div 2 hazard-rated locations and use without purge
- Advanced multipass cell delivers ppb or low ppm detection limits
- Innovative PeakLock pattern recognition line tracking eliminates drift over extended operational periods

APPLICATIONS

- Refinery monitoring: H₂S and CO₂ (during natural gas refinement)
- HF and HCl impurity monitoring in process gas
- Monitoring H₂S during biogas production
- H₂O and H₂S in natural gas



SERVOTOUGH DF-140E

HAZARDOUS AREA

RELIABLE RESULTS IN A TESTING RANGE OF ENVIRONMENTS

The DF-140E allows for reliable oxygen measurement in a wide variety of environments, including outdoors and in explosive environments with a NEMA 7 remote sensor enclosure. Using the revolutionary non-depleting E-Sensor, the DF-140E delivers reliable readings without frequent recalibration and periodic sensor replacement.



FEATURES AND BENEFITS

- Long-term reliability and stability with minimal maintenance
- Durability – can be used in Class 1, Div 1 or 2 areas
- STAB-EL option allows for accurate measurement in the presence of acid gases

APPLICATIONS

- Reactor process control
- Pressure swing absorber nitrogen skids
- Blanketing and inerting



SERVOTOUGH DF-320E

HAZARDOUS AREA

HIGH-RELIABILITY TRACE AND PERCENT O₂ MEASUREMENTS IN HAZARDOUS AREA LOCATIONS

Designed for use in harsh and hazardous areas, the DF-320E uses Servomex's unique, non-depleting Coulometric sensor technology to give highly stable O₂ measurements, making it ideal for applications including hydrogen, propene and polyethylene production, oil refining and petrochemical process monitoring.

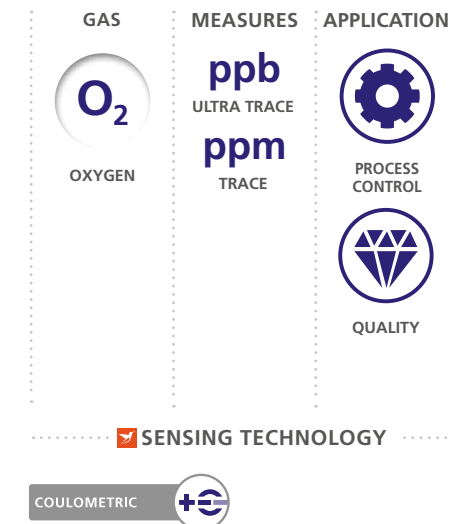


FEATURES AND BENEFITS

- Ideal analytical solution for applications including H₂, C₃H₆ and PE production, oil refining, and petrochemical process monitoring
- Microprocessor-driven for easy configuration and maintenance
- Coulometric sensor delivers accurate results with no sensor drifting, false low readings, or frequent calibration requirements

APPLICATIONS

- Hydrogen production
- Polypropylene production
- Polyethylene production
- Oil refining
- Petrochemical applications



SERVOTOUGH DF-340E

HAZARDOUS AREA

HIGH-SENSITIVITY TRACE/PERCENT COULOMETRIC OXYGEN ANALYZER CERTIFIED FOR HAZARDOUS AREA USE

Designed for heated or external locations, the DF-340E remains stable in changing sample and flow rate conditions, and is designed to provide measurements of trace or percent level oxygen in pure gas streams and multi-gas backgrounds. It is ideal for upset-prone conditions.

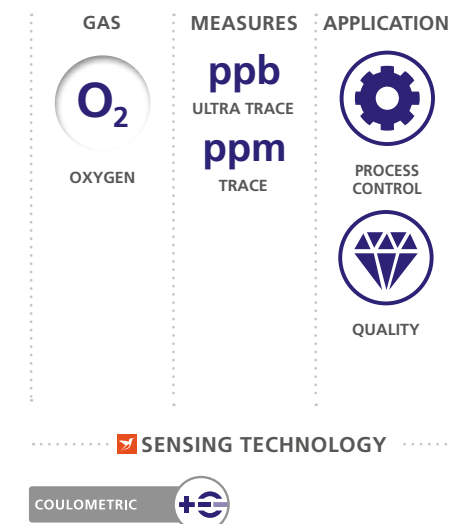


FEATURES AND BENEFITS

- Coulometric sensing ideal for upset-prone applications and compensates for sample and flow rate fluctuations
- Suitable for outdoor installation, with NEMA 4-rated sensor enclosure options
- Multiple background gas stream monitoring, with simplified ongoing maintenance requirements

APPLICATIONS

- Pressure swing absorber N₂ skids
- Reactor process control
- Blanketing and inerting
- Oil refinery monitoring
- Petrochemical process monitoring



H2Scan

HAZARDOUS AREA

EXPLOSION-PROOF IN-LINE
HYDROGEN PROCESS ANALYZER,
USING A SOLID-STATE, NON-
CONSUMABLE SENSOR
CONFIGURED TO OPERATE IN
PROCESS GAS STREAMS

The H2Scan hydrogen process analyzer features thin film technology that provides a direct hydrogen measurement that is not cross-sensitive to other gases.



FEATURES AND BENEFITS

- UL Class 1, Div 1, Groups B, C, D, ATEX & CSA certifications
- Easily configurable alongside SERVOTOUGH SpectraScan 2400
- Simple system integration

APPLICATIONS

- Refinery
- Petrochemical
- Manufacturing
- Industrial gas supply

GAS	MEASURES	APPLICATION
<div><div>H₂</div><div>HYDROGEN</div></div>	<div><div>%</div><div>PERCENT</div></div>	<div><div></div><div>PROCESS CONTROL</div></div> <div><div></div><div>QUALITY</div></div>

SENSING TECHNOLOGY

H2Scan thin film

SERVOPRO AquaXact 1688

SAFE AREA

A FAST, ACCURATE AND
RESILIENT MOISTURE
MEASUREMENT SOLUTION

The AquaXact 1688 is a rugged ultra-thin film Aluminum Oxide moisture sensor that enables the measurement of moisture in a wide variety of gas phase process applications, such as glove boxes, air separation units, natural gas processing, transportation, and instrument air, with no calibration required after sensor replacement or dry-out.



FEATURES AND BENEFITS

- Functions as a standalone 4-20 mA transmitter or remotely interfaces with SERVOPRO MonoExact DF310E multichannel gas analyzer system
- High-performance field-replaceable sensor element unaffected by condensation and liquid water
- Stainless steel, weatherproof casing (which is Class 1 Div 2) enables operation in ambient temperatures ranging from -10°C to +70°C

APPLICATIONS

- Glove boxes
- Solder reflow ovens
- Compressed air generation
- Ethylene production

GAS	MEASURES	APPLICATION
<div><div>H₂O</div><div>WATER</div></div>	<div><div>DEW POINT</div><div>ppmv</div></div>	<div><div></div><div>PROCESS CONTROL</div></div>

SENSING TECHNOLOGY



SERVOPRO AquaXact 1688 Controller

SAFE AREA

DIGITAL CONTROLLER PLATFORM
FOR THE AQUAXACT 1688

Built specifically to work in harmony with the AquaXact 1688 ultra-thin film Aluminum Oxide moisture transmitter, this digital controller provides a high-clarity color touchscreen display, alarms, relays and advanced communications protocols, and allows easy sensor tip replacement in the field.



FEATURES AND BENEFITS

- Seamless integration with the AquaXact 1688 moisture sensor for advanced digital control of dew point and ppmv H₂O measurements
- Compact footprint for easy integration into your system
- Advanced digital communications including Ethernet, Modbus TCP/IP and PROFIBUS

APPLICATIONS

- Air separation units
- Glove boxes
- Instrument air units
- Refining gases

GAS	MEASURES	APPLICATION
<div><div>H₂O</div><div>WATER</div></div>	<div><div>DEW POINT</div><div>ppmv</div></div>	<div><div></div><div>PROCESS CONTROL</div></div>

SENSING TECHNOLOGY



SERVOPRO MonoExact DF150E

SAFE AREA

TOUCHSCREEN PPM OXYGEN
ANALYZER FOR GENERAL
INDUSTRIAL APPLICATIONS

With a brand new digital, programmable touchscreen and easier navigation, the MonoExact DF150E combines the reliability of Servomex's tried and tested Coulometric oxygen sensor with a more user-friendly package.



FEATURES AND BENEFITS

- Advanced touchscreen GUI for intuitive hands-on setup and operation
- Back-compatible with DF-150E platform, including hardware wiring inputs and gas inlets
- Servomex proprietary software makes reporting and parameter control simple

APPLICATIONS

- Glove boxes
- Heat treating
- Solder reflow ovens
- Industrial gas production

GAS	MEASURES	APPLICATION
<div><div>O₂</div><div>OXYGEN</div></div>	<div><div>ppm</div><div>TRACE</div></div> <div><div>ppb</div><div>ULTRA TRACE</div></div>	<div><div></div><div>PROCESS CONTROL</div></div> <div><div></div><div>QUALITY</div></div>

SENSING TECHNOLOGY



SERVOPRO MonoExact DF310E

SAFE AREA

NEXT-GENERATION DIGITAL
OXYGEN ANALYZER DESIGNED
FOR INDUSTRIAL GAS
APPLICATIONS

Designed specifically to accurately measure oxygen in industrial gas applications, the MonoExact DF310E is a next-generation digital oxygen analyzer that combines precision trace-level measurement with new performance benefits and extended digital communications compatibility.



FEATURES AND BENEFITS

- Advanced touchscreen GUI for intuitive hands-on setup and operation
- Back-compatible with DF-310E platform, including hardware wiring inputs and gas inlets
- Field-proven Servomex Coulometric electrochemical performance and reliability

APPLICATIONS

- Air separation units
- Medical/industrial gases
- Specialty gas blending

GAS	MEASURES	APPLICATION
<div><div>O₂</div><div>OXYGEN</div></div>	<div><div>%</div><div>PERCENT</div></div> <div><div>ppm</div><div>TRACE</div></div> <div><div>ppb</div><div>ULTRA TRACE</div></div>	<div><div></div><div>PROCESS CONTROL</div></div> <div><div></div><div>QUALITY</div></div>

SENSING TECHNOLOGY



SERVOPRO 4200/4210

SAFE AREA

GAS ANALYZER SUITABLE FOR
FLAMMABLE GAS MIXTURES

The 4200/4210 multi-gas analyzer is designed to monitor flammable gas samples including H₂/CO, 'HyCO' or 'Syngas' mixtures for trace level contaminants and percent level components. The 4200/4210 offers oxygen control using Servomex's unique Paramagnetic cell, trace level measurement of CO, CO₂, N₂O and CH₄ and percent levels of CO, CO₂, CH₄ using Photometric sensor technology.



FEATURES AND BENEFITS

- Meets the requirements of EN 61010-1:2010 and EN 61326-1:2013
- Measures up to four gases simultaneously
- RS232/RS485 and Modbus communications

APPLICATIONS

- Product quality validation in hydrogen plants
- HyCO process control
- Bottling/filling plants producing flammable gas blends

GAS	MEASURES	APPLICATION
<div><div>MULTIPLE</div></div>	<div><div>%</div><div>PERCENT</div></div> <div><div>ppm</div><div>TRACE</div></div>	<div><div></div><div>PROCESS CONTROL</div></div> <div><div></div><div>QUALITY</div></div>

SENSING TECHNOLOGY



SERVOPRO 4900 Multigas

SAFE AREA

AN ADVANCED DIGITAL MULTI-GAS CEMS ANALYZER

Specifically designed for Continuous Emissions Monitoring (CEMS) of flue gas, the SERVOPRO 4900 Multigas provides up to four simultaneous gas stream measurements. It combines Servomex's leading-edge sensing technologies with a modern digital platform for next-generation performance.

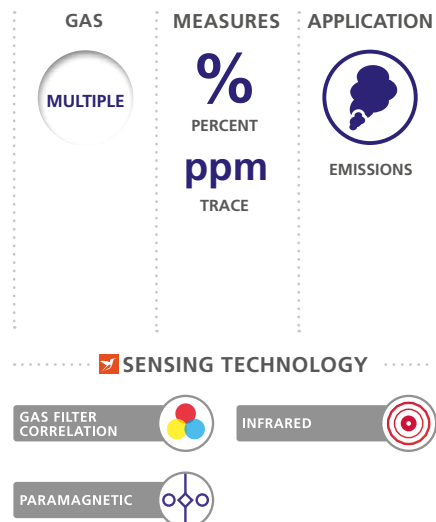


FEATURES AND BENEFITS

- A comprehensive solution for CEMS analysis of multiple flue gas components
- Low maintenance and cost of ownership
- Advanced digital communications including Ethernet, Modbus TCP/IP and PROFIBUS

APPLICATIONS

- Utility boilers
- Chemical incinerators
- Crematoria
- Mobile labs



SERVOPRO Plasma

SAFE AREA

RELIABLE MONITORING OF NITROGEN IN ARGON AND HELIUM, OPTIMIZED FOR AIR SEPARATION UNIT (ASU) PLANT OPERATIONS

Specifically designed for the continuous monitoring of N₂ in Ar or He or both, the Plasma's unique plasma emission detector provides an accurate, highly stable and reliable measurement ideal for the requirements of ASU plant operators.



FEATURES AND BENEFITS

- Electrical safety to IEC 61010-1: Ed 3. In compliance with Low Voltage, EMC and applicable Directives
- Wide measurement range – 0-1ppm, 0-10ppm, 0-100ppm (higher on request)
- Electronic flow control system for low flow consumption and reading stability

APPLICATIONS

- Argon production
- Track loading
- Pure gas bottling
- Specialty gas laboratories



SERVOPRO FID

SAFE AREA

TRACE HYDROCARBON ANALYZER IDEAL FOR AIR SEPARATION UNITS (ASU) SAFETY AND QUALITY CONTROL APPLICATIONS

A Flame Ionization Detector analyzer designed to assure safe operation for cryogenic ASU, the FID ensures the level of Total Hydrocarbons (THC) is maintained below flammable limits, as well as providing quality control in pure O₂, N₂, Ar, air, He and CO₂.

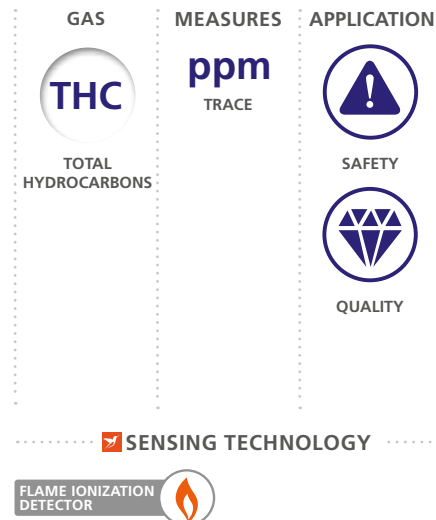


FEATURES AND BENEFITS

- Electrical safety to IEC 61010-1. In compliance with Low Voltage, EMC and applicable Directives
- Excellent output resolution over three operating ranges
- Electronic flow controllers for air, fuel and sample for no dependency to atmospheric pressure variations and inlet pressure variation

APPLICATIONS

- Cryogenic air separation
- Process control
- Food gas manufacture
- Product validation



SERVOPRO MultiExact 4100

SAFE AREA

A SOPHISTICATED, NEXT-GENERATION MULTI-GAS ANALYZER PROVIDING A HIGHLY ADAPTABLE ANALYSIS SOLUTION

The MultiExact 4100 is a high-performance multi-gas analyzer designed to provide up to four simultaneous gas stream measurements including: O₂ (trace, control, and purity), CO₂, CO, N₂O, CH₄ (trace), Ar in O₂, N₂ in Ar, O₂ or air, and He in Ar, O₂ or N₂.

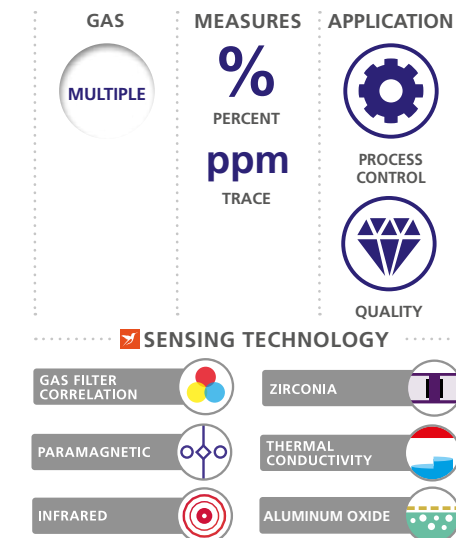


FEATURES AND BENEFITS

- Comprehensive solution for industrial and medical gas manufacture and for pharmacopeia applications
- Integrated support for the AquaXact 1688 Aluminum Oxide moisture transmitter
- Uses ultra-stable, non-depleting digital sensing technologies that help extend maintenance intervals

APPLICATIONS

- Product purity on air separation plant
- Process control on air separation plant
- Monitor trace CO₂ on scrubbed air inlet to air separation process
- Validation of medical O₂, N₂, air and He



SERVOPRO Chroma

SAFE AREA

HIGHLY VERSATILE TRACE GAS ANALYZER PLATFORM CONFIGURABLE TO A WIDE RANGE OF APPLICATIONS

Offering a unique, non-depleting plasma emission detector, the Chroma analyzer is one of the most versatile gas analyzers for trace gas measurement available. Most applications will be satisfied by a single 4U rack analyzer configuration, making the Chroma a compact, cost-effective solution for continuous process control or quality monitoring.

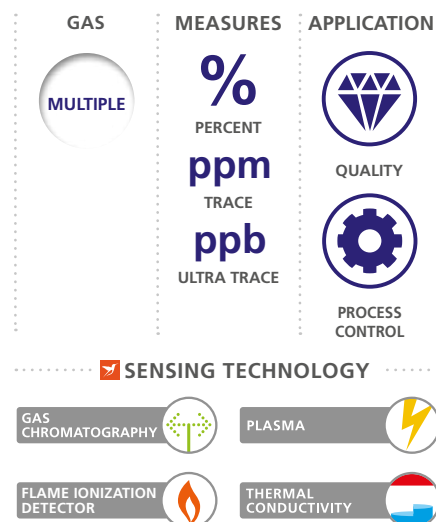


FEATURES AND BENEFITS

- PlasmaHC measurement system requires no FID for THC measurement
- Fully automated – tune to the application – system for unique simplicity of use
- Standalone systems requires no third-party software or computer to operate

APPLICATIONS

- Medical gas production
- Air separation plants
- Cryogenic truck loading station
- High purity gas production



SERVOPRO MultiExact 5400

SAFE AREA

DIGITAL MULTI-GAS ANALYZER, OPTIMIZED FOR WIDE RANGE OF AIR SEPARATION UNIT (ASU) MEASUREMENTS

Combining industry-leading performance and a range of new and enhanced functions as standard, the MultiExact 5400 offers air separation plants a multi-gas analyzer specifically optimized to industry requirements – with GFx, Zirconia and Paramagnetic measurements now augmented by Servomex's revolutionary TCD measurement sensing technology.

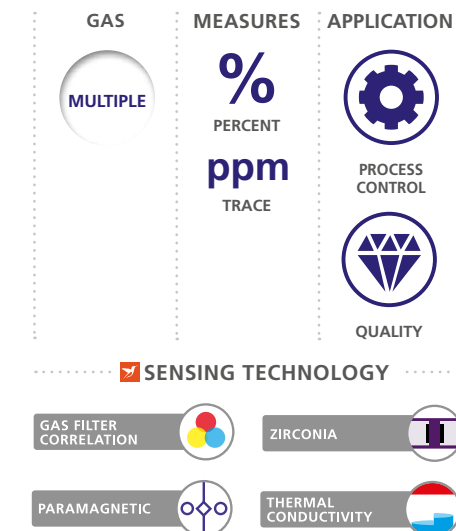


FEATURES AND BENEFITS

- IEC 61010-1. European Pharmacopeia compliant. US Pharmacopeia compliant (O₂). In compliance with Low Voltage, EMC and applicable Directives
- TruRef technology offers class leading measurements for Ar, He and N₂
- Options include digital communication options, an integrated valve block function and unique Servomex Flowcube flow sensor technology

APPLICATIONS

- Product purity on air separation plant
- Process control on air separation plant
- Monitor trace CO₂ on scrubbed air inlet to air separation process
- Validation of medical O₂, N₂, air and He



SERVOPRO NanoChrome

SAFE AREA

SUB-PPB TRACE MEASUREMENT OF H₂, CH₄, CO, CO₂, N₂, Ar AND NMHC FOR THE SEMICONDUCTOR INDUSTRY

Incorporating the latest advances in gas sensing technology and signal processing methodology, the NanoChrome revolutionizes ultra-trace purity measurements for the semiconductor industry.

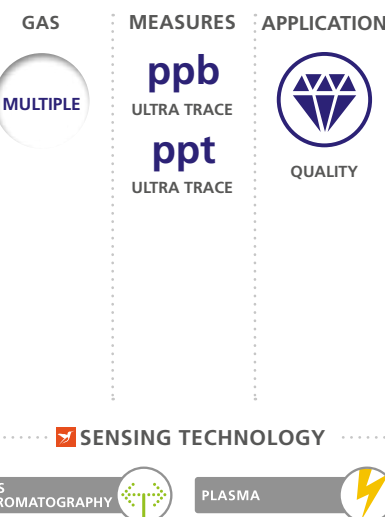


FEATURES AND BENEFITS

- In compliance with Low Voltage, EMC and applicable Directives
- New PED Sensor technology enables sub-ppb measurements of H₂, CH₄, CO, CO₂, N₂, Ar and NMHC
- Enables unique total Servomex solution for UHP gas analysis

APPLICATIONS

- Semiconductor production – quality control measurements
- Semiconductor production – stationary analytical systems
- UHP gas production – quality control measurements



SERVOPRO MonoExact TCD

SAFE AREA

DIGITAL SINGLE-GAS ANALYZER WITH TCD MEASUREMENTS

The MonoExact gas analyzer brings Servomex's acclaimed TruRef Thermal Conductivity (TCD) technology to air separation unit (ASU) operators in a compact, single-component analyzer, offering class-leading measurements for Ar, He, N₂ and H₂.

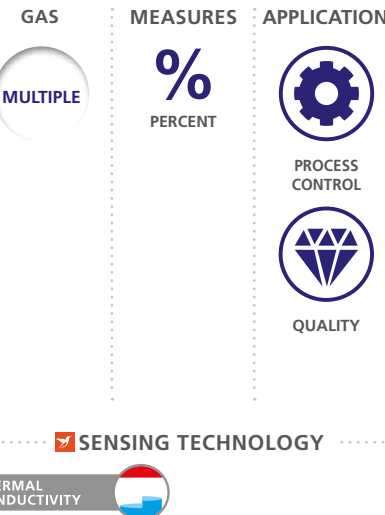


FEATURES AND BENEFITS

- In compliance with Low Voltage, EMC and applicable Directives
- TruRef offers ASU operators truly industry-leading measurements for drift accuracy, linearity and repeatability
- Cost of ownership optimized by longer calibration intervals and no reference gas requirements

APPLICATIONS

- Validation on industrial processes
- Hydrogen purity
- Process control on air separation plants
- Bottling/filling plant applications



SERVOPRO NO_x

SAFE AREA

CHEMILUMINESCENCE DETECTOR (CLD) ANALYZER FOR KEY EMISSIONS APPLICATIONS INVOLVING ULTRA-LOW NO, NO₂ AND NO_x

Utilizing Chemiluminescence detection technology to measure NO or NO/NO₂/NO_x concentrations in industrial gas and vehicle emission applications, the versatile SERVOPRO NO_x can be calibrated for four measurement ranges starting from ultra-low to high ppm and is easy to install and operate.

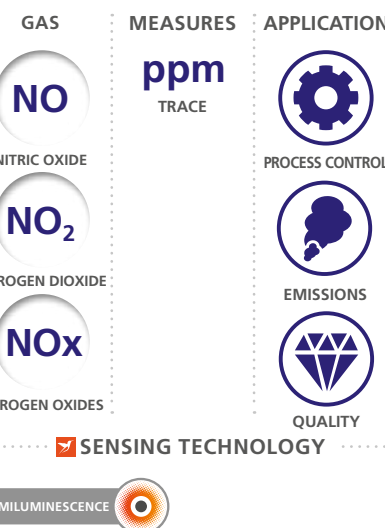


FEATURES AND BENEFITS

- Multiple-range NO_x emissions monitoring solution with a fast response
- Non-depleting light-based measurement and electronic flow control keeps costs low
- Heated version available for wet to dry conversion option
- EPA 1065/1066 and LD Euro 6, HD Euro V1 compliant

APPLICATIONS

- Continuous emissions monitoring (CEMS)
- Scrubber efficiency
- Turbine/generator feedback control
- SCR/SNCR feedback control



SERVOPRO SO₂

SAFE AREA

USES PROVEN PULSED UV FLUORESCENCE TECHNOLOGY TO DELIVER A PRECISE AND RELIABLE MEASUREMENT OF ULTRA-LOW SULFUR DIOXIDE IN EMISSIONS AND AMBIENT AIR

For industrial applications that require ultra-low emissions monitoring of sulfur dioxide, this robust analyzer is designed to slot seamlessly into rack systems, making it easy to integrate with existing emissions monitoring systems to provide unrivaled performance.

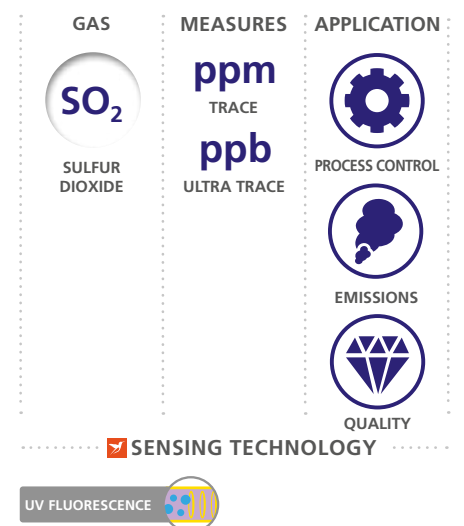


FEATURES AND BENEFITS

- Ultra-long-lasting UV light source
- Removable flash memory stores up to 10 years of data
- Operation over wide temperature range reduces cost of ownership

APPLICATIONS

- Continuous emissions monitoring (CEMS)
- Ambient air monitoring



SERVOPRO HFID

SAFE AREA

HIGH-PERFORMANCE FAST ANALYSIS OF TOTAL HYDROCARBONS, METHANE AND NON-METHANE HYDROCARBONS

Using a highly sensitive Flame Ionization Detector (FID) for measuring volatile hydrocarbon concentrations in industrial or vehicle emission applications, the HFID utilizes an internally heated oven set to 190°C to maintain the sample gas above its dew point, for optimum performance in total hydrocarbon analysis (THC). Can be equipped with a non-methane cutter for additional CH₄ and non-methane hydrocarbon (NMHC) reporting.

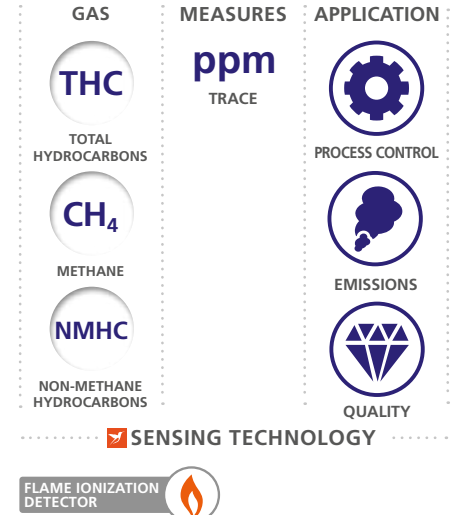


FEATURES AND BENEFITS

- Four user-definable measurement ranges, reconfigurable in the field
- High-accuracy, gas-selective FID technology for maximized uptime
- Heated oven for maximum stability and "hot/wet" sampling
- EPA Method 25A compliant
- EPA 1065/1066 and LD Euro 6, HD Euro V1 compliant

APPLICATIONS

- Continuous emissions monitoring (CEMS)
- VOC abatement
- Scrubber efficiency
- Compliance monitoring and testing



GAS DETECTION OxyDetect

SERVOMEX

NON-DEPLETING PARAMAGNETIC OXYGEN MONITOR DESIGNED FOR LIFE SAFETY APPLICATIONS

Life safety monitor designed for safe area or hazardous area environments, utilizing superior performance of non-depleting Hummingbird Paramagnetic O₂ sensing technology.

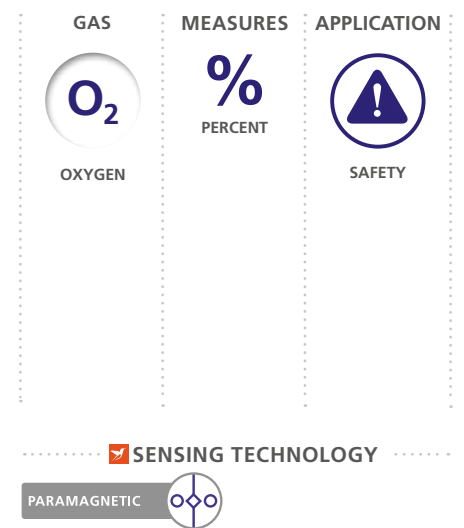


FEATURES AND BENEFITS

- IP66 (indoor use only)
- The most reliable O₂ detector on the market
- No more false readings or false alarms caused by depleting cell technologies
- SIL 2 approval

APPLICATIONS

- Pharmaceutical plants
- Helium production and storage
- Semiconductor facilities
- Laboratories & universities



SERVOFLEX Micro i.s. 5100

PORTABLES

INTRINSICALLY SAFE ANALYZER MEASURES OXYGEN, CARBON MONOXIDE OR CARBON DIOXIDE

Designed for the measurement of toxic and flammable gas samples, the intrinsically safe Micro i.s. 5100 is a unique analyzer certified to Zone 0 and Zone 1 and suitable for measuring percent levels of O₂, CO and CO₂.

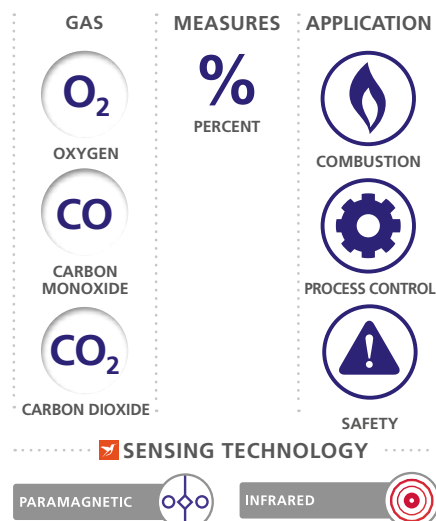


FEATURES AND BENEFITS

- Intrinsically safe design to ATEX and IEC standards ensures safety operation in hazardous environments
- Ergonomic design ensures easy operation on the move
- Available in non-pump or pump versions with optional sample conditioning kit

APPLICATIONS

- Hazardous area combustion optimization
- Refineries – catalytic cracker regeneration
- Process monitoring
- Inerting applications



SERVOFLEX MiniMP 5200

PORTABLES

BENCHTOP ANALYZER OFFERING SINGLE OR DUAL MEASUREMENTS OF OXYGEN AND CARBON DIOXIDE

The only truly portable battery-powered gas analyzer with MCERTS certification, the MiniMP 5200 is designed to offer single or dual measurement of O₂ and CO₂ by utilizing Servomex's advanced Paramagnetic and Infrared sensing technologies.

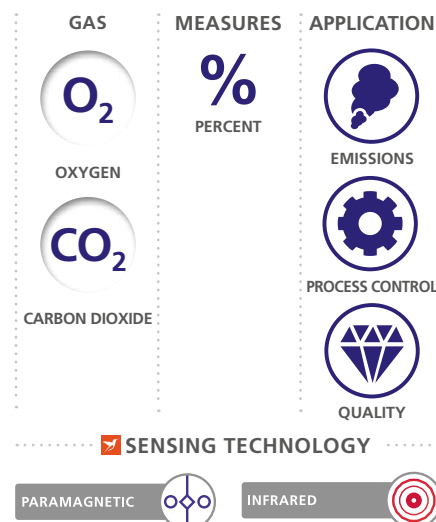


FEATURES AND BENEFITS

- EN15267-3 (MCERTS V3.3, Annex F) makes the MiniMP ideal for source testers that require reference O₂ analysis for CEMS verification
- Li-ion battery system offers unique true portability
- Non-depleting sensor design ensures long service with minimal calibration

APPLICATIONS

- Laboratories and research
- Air separation and gas bottling plants
- Transfilling
- Combustion analysis



SERVOFLEX MiniHD 5200

PORTABLES

PORTABLE GAS ANALYZER FOR MEASUREMENT OF COMMON GAS MIXTURES

Designed for use in field locations or light industrial applications, the MiniHD 5200 portable gas analyzer is a rugged, heavy duty analyzer designed to accurately measure the levels of O₂, CO and CO₂ within common gas mixtures. The MiniHD 5200 utilizes Servomex's non-depleting Paramagnetic and Infrared sensors to give dependable and accurate results.

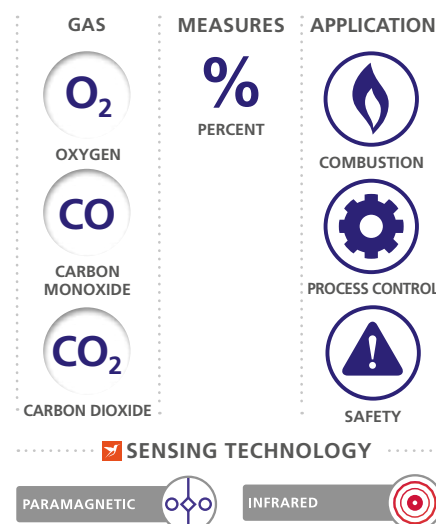


FEATURES AND BENEFITS

- Robust IP65 construction meets the demanding needs of field location analysis
- Long life Li-ion rechargeable batteries and range of sampling options ensure ease of use
- Accurate measurement of O₂, CO and CO₂ levels with no background interference

APPLICATIONS

- Physiology studies
- Universities
- Combustion optimization
- Medical gas verification



SERVOFLEX MiniFoodPack 5200

PORTABLES

BENCHTOP ANALYZER FOR QUALITY CONTROL/CHECKS IN MODIFIED ATMOSPHERE PACKAGING

A small sample volume portable benchtop analyzer designed specifically for the checking and quality control of gas mixtures in Modified Atmosphere Packaging (MAP) used in the food and pharmaceutical industries, the MiniFoodPack 5200 enables single or dual measurements for percent levels of O₂ and CO₂.

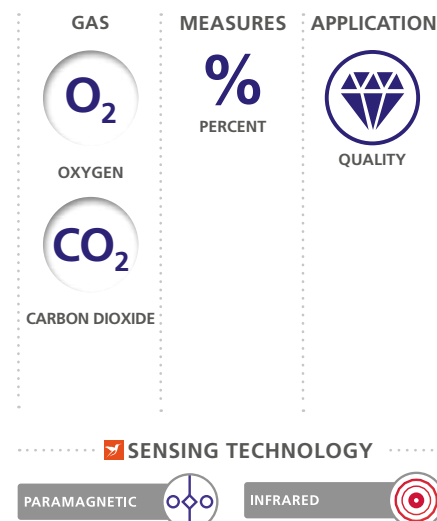


FEATURES AND BENEFITS

- CE marked and in compliance with EEC, EMC and WEEE Directives. UL approved and CE marked 100-240V/43-70Hz AC power supply
- Range of sampling accessories is available for taking measurement from rigid or flexible pack
- Rechargeable battery option enables complete portability for flexible operation

APPLICATIONS

- Modified Atmosphere Packaging (MAP) quality testing for food and beverage products
- Modified Atmosphere Packaging (MAP) for packaged pharmaceuticals
- Equilibrium Modified Atmosphere Packaging (EMAP) fresh consumable produce testing
- Laboratory and research



DELTA F DF-500 Range

HIGH PURITY

LEADING ULTRA-TRACE PPT O₂ ANALYZER RANGE

Verified by independent experts as measuring O₂ to the lowest ppt levels available, the DF-500 analyzer range delivers the premium performance in ultra-trace oxygen measurement. Consisting of the DF-550E NanoTrace and DF-560E NanoTrace II, the NanoTrace series delivers exceptional O₂ measurements at trace and ultra-trace ppt levels.

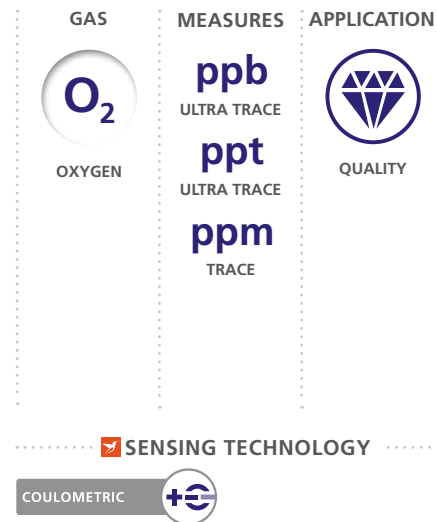


FEATURES AND BENEFITS

- The industry standard for the reliable measurement of oxygen in semiconductor manufacture
- Fast response and quick upset recovery ensures ultimate performance
- Options include flexible configurations and hand-carry portable option

APPLICATIONS

- Continuous quality control monitoring
- Inert gases control checks for electronics grade gases
- Post purifier quality certification
- Leak detection for electronics grade gases



DELTA F DF-700 Range

HIGH PURITY

TUNABLE DIODE LASER (TDL) TRACE MOISTURE ANALYZER RANGE

A sophisticated process moisture analyzer range which offers users the comprehensive solution for trace and ultra-trace moisture measurement, the DF-700 series combines the latest TDL Absorption Spectroscopy technology, a robust measuring cell and a true baseline reference for highly accurate moisture measurement.

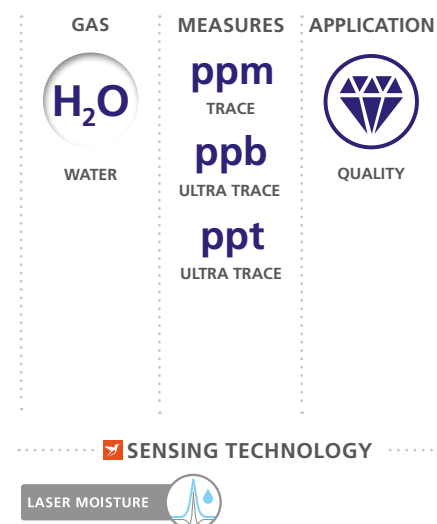


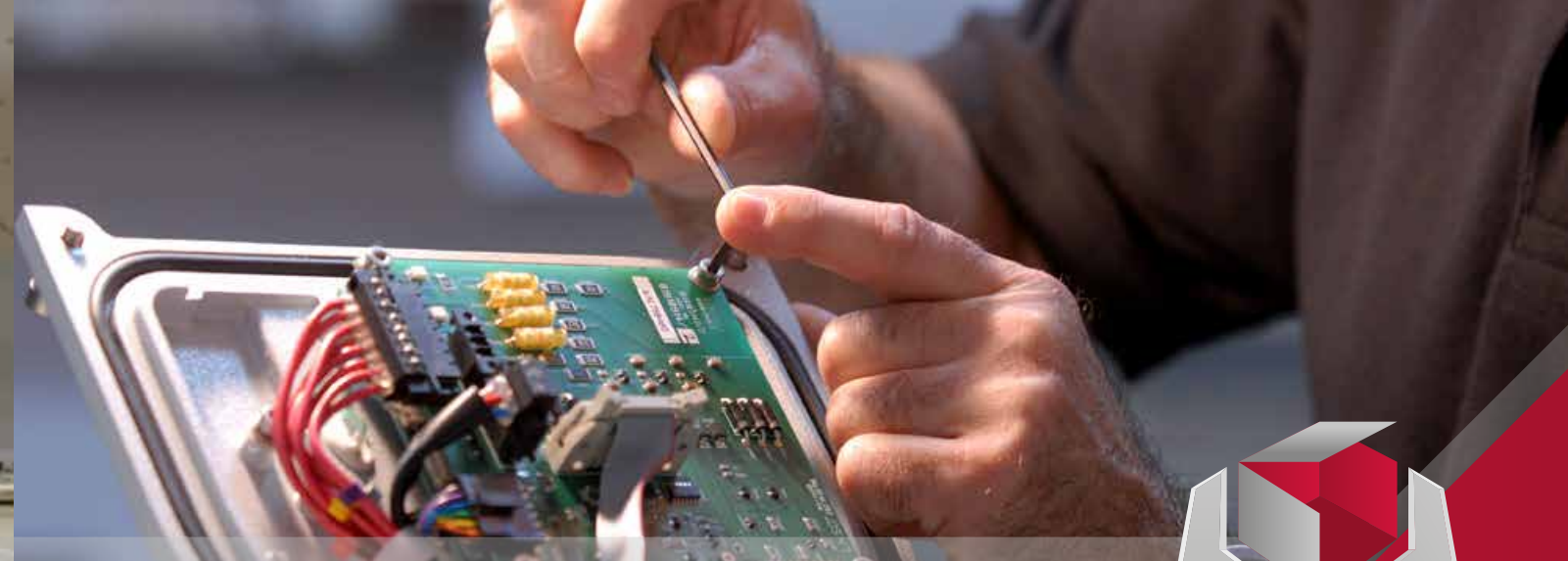
FEATURES AND BENEFITS

- Exceptional sub-ppb moisture level readings which exceed current UHP moisture measurement requirements
- Models include DF-730 (moisture in HCl); DF-740 (moisture in ammonia); DF-745 (high sensitivity 2ppb LDL); DF-745 SGMax (specialty gas trace moisture analyzer); DF-750 NanoTrace (base model); DF-760E dual oxygen and moisture measurement
- 2F TDL detection technology for robustness to particulates contamination

APPLICATIONS

- 730: Quality control of HCl gas in semiconductor fabs
- 740: Trace moisture analysis for quality control of electronics-grade NH₃ specialty gas used in microelectronics production
- 745 SGMax: Specialty gas cylinder quality control checks
- 749: Leak detection checks for UHP bulk gases used semiconductor applications
- 750: Bulk UHP gas quality control checks for high-end semiconductor fabs
- 760E: Leak detection checks for UHP bulk gases used semiconductor applications





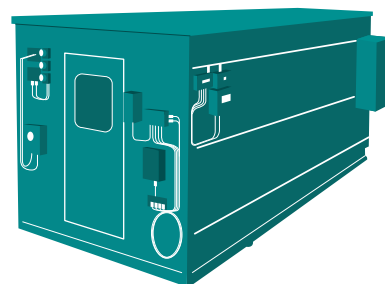
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- Based locally for fast response



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