SERVOPRO

4900 Multigas

Product overview

Safe area

Gas	Measures	Application
Multiple	Percent Trace ppm	Emissions

SENSING TECHNOLOGY

Gas Filter Correlation

Infrared

Paramagnetic

Key applications

- Utility boilers
- Chemical incinerators
- Crematoria
- Mobile labs

An advanced digital multi-gas CEMS analyzer

Unrivalled performance

- Non-depleting sensors for ultra-stable, accurate and selective measurements
- Manufactured by Servomex - over 70 years' experience innovating and pioneering gas analysis and thousands of units used in the field every year

Flexible

- Provides a complete continuous emissions monitoring solution for flue gas analysis
- Ideal for criterion pollutant and greenhouse gas monitoring: % level O_2, CO_2 and CO, plus ppm level SO_2, NO, CO, CH_4 and N_2O
- Continuous multi-gas monitoring
- Digital communications for remote access: RS232/RS485 Modbus, PROFIBUS and Ethernet (Modbus TCP/IP)

Easy to use

- Small and compact: designed for simplified integration into existing systems and easy fit into a cabinet
- Auto-calibration functionality
- Intuitive-use icon-driven color touchscreen for easy device interaction and configuration
- USB serial port for data logging and software upgrades

Low cost of ownership

- Reduced ongoing operational needs facilitated by auto-calibration function
- Extended calibration periods from ultra-stable, industry-leading Paramagnetic, SBDW IR and GFx IR sensing technologies

Benchmark compliance

- In compliance with Low Voltage, CSA, EMC and applicable EU directives
- Certified to MCERTS (EN 15627-3) - O_2, SO_2, CO and NO

For more information visit **servomex.com/contact**

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A complete monitoring solution for CEMS gas analysis

For industries and processes including power generation, petrochemical, refining, waste incineration, iron and steel, pulp and paper, and cement manufacture, continuous emissions monitoring is a regulatory requirement. The solution must be capable of offering the highest sensitivity and accuracy when dealing with multiple measurements for pollutants and greenhouse gases. No matter what your application needs, you'll want a solution that's easy to install and operate, while delivering attractive affordability. And we don't believe you should have to compromise.

A no compromise solution

The 4900 Multigas meets all your CEMS requirements through a specific design and feature set optimized to continuous flue gas emissions monitoring applications. This compact, small-footprint analyzer integrates effortlessly into your established systems and, when used with the correct sampling system, delivers high grade multi-gas monitoring of criterion pollutant and greenhouse gases (% O_2, CO_2 and CO, plus ppm SO_2, NO, CO, CH_4, and N_2O). The 4900 Multigas combines three sensitive and highly stable non-depleting technologies to deliver unsurpassed measurements you can rely on – Paramagnetic, Single Beam Dual Wavelength NDIR, and Gas Filter Correlation NDIR. In addition to its performance, the 4900 Multigas also comes with analog/serial outputs, with digital communications protocols Serial Modbus, PROFIBUS, and Ethernet (Modbus TCP/IP) for added flexibility in configuration and set-up. An external NOx converter can be used to analyze and speciate NOx, NO and NO_2.

Simple maintenance and reduced ongoing costs

Added to its considerable measurement performance and stability, the 4900 Multigas delivers highly attractive cost reductions over product life. Not only is this device optimized for easy set-up and flexible integration, but an auto-calibration function permits easy, low-cost remote calibration. The 4900 Multigas allows diagnostic values to be exported for early detection of problems for preventative, or even predictive maintenance.

Useful links:

SERVOMEX SERVICE NETWORK

servomex.com/**service**

SERVOMEX SYSTEMS

servomex.com/**systems**

SERVOMEX EXPERT

servomex.com/**expert-guidance**

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PBTDS 4900MG Rev. 4 Date:10/24

Technical data sheet

SERVOPRO 4900 Multigas

Specifications

Gas measured	Multiple - see below
Technology	Paramagnetic for O_2, Infrared (SBDW), Infrared (GFx) for other gases
Performance	

Gas	% O_2	SO_2 (high range)	SO_2 (standard sensitivity)	SO_2 (high sensitivity)	NO (high range)	NO (standard range)	N_2O
Technology	Paramagnetic	Infrared (GFx)	Infrared (GFx)	Infrared (GFx)	Infrared (GFx)	Infrared (GFx)	Infrared (GFx)
Range	0-25%	0-1,000/ 0-10,000 ppm	0-(200‡) 500 / 0-2,500 ppm	0-100 0-1,000 ppm	0-200/ 0-2,000 ppm	0-100/ 0-1,000 ppm	0-50/ 0-500 ppm
Linearity	<0.05% O_2	1% of reading or 20ppm*	1% of reading or 5ppm*	1% of reading or 2ppm*	1% of reading or 3ppm*	1% of reading or 2ppm*	1% of reading or 0.5ppm*
Accuracy (intrinsic error)/repeatability	<±0.1% O_2	1% of reading or 20ppm*	1% of reading or 5ppm*	1% of reading or 2ppm*	1% of reading or 3ppm*	1% of reading or 2ppm*	1% of reading or 0.5ppm*
Lower detection limit (LDL)†	0.02% O_2	0.41% of reading or 8.20ppm*	0.41% of reading or 2.10ppm*	0.41% of reading or 0.82ppm*	0.41% of reading or 1.2ppm*	0.41% of reading or 0.82ppm*	0.41% of reading or 0.21ppm*
Output fluctuation (peak to peak)	±0.05% O_2	1% of reading or 20ppm*	1% of reading or 5ppm*	1% of reading or 2ppm*	1% of reading or 3ppm*	1% of reading or 2ppm*	1% of reading or 0.5ppm*
Zero drift/week	<±0.05% O_2	40ppm	10ppm	4ppm	5ppm	2ppm	1ppm
Span drift/week	<±0.1% O_2	2% of reading or 40ppm*	2% of reading or 10ppm*	2% of reading or 4ppm*	2% of reading or 5ppm*	2% of reading or 2ppm*	2% of reading or 1ppm*
T_{90} in secs @1500ml/min	<15	<30	<30	<30	<30	<30	<30
Interference effects	n/a	20% CO_2 ~ +5ppm 0.5% H_2O ~ -15ppm		20% CO_2 ~ +5ppm 0.5% H_2O ~ -15ppm	20% CO_2 ~ +2ppm 0.5% H_2O ~ +2ppm		20% CO_2 ~ +3.0ppm 100 ppm CO ~ -2.4ppm 2% H_2O ~ -0.3ppm

Gas	CH_4 (high range)	CH_4 (standard range)	CO (high range)	CO (standard sensitivity)	CO (mid sensitivity)	CO (high sensitivity)	IR MB1520 % CO_2 & MB1522 % CO
Technology	Infrared (GFx)	Infrared (GFx)	Infrared (GFx)	Infrared (GFx)	Infrared (GFx)	Infrared (GFx)	Infrared (SBDW)
Range	0-100/ 0-1,000 ppm	0-50/ 0-500 ppm	0-500/ 0-5,000 ppm	0-200/ 0-3,000 ppm	0-100/ 0-1,000 ppm	0-50/ 0-500 ppm	See table 1 on next page
Accuracy (intrinsic error)/linearity/ repeatability	1% of reading or 1ppm*	1% of reading or 0.5ppm*	1% of reading or 5ppm*	1% of reading or 2ppm*	1% of reading or 1ppm*	1% of reading or 0.5ppm*	<1% FSR
Output fluctuation (peak to peak)	1% of reading or 1ppm*	1% of reading or 0.5ppm*	1% of reading or 5ppm*	1% of reading or 2ppm*	1% of reading or 1ppm*	1% of reading or 0.5ppm*	0.5% of range or 1% of reading*
Zero drift/week	2ppm	1ppm	10ppm	4ppm	2ppm	1ppm	<2% FSR
Span drift/week	2% of reading or 2ppm*	2% of reading or 1ppm*	2% of reading or 10ppm*	2% of reading or 4ppm*	2% of reading or 2ppm*	2% of reading or 1ppm*	<2% FSR
T_{90} in secs @1500ml/min	<30	<30	<30	<30	<30	<30	<30
Interference effects	10% CO_2 ~ +1.2ppm 10ppm CO ~ +0.5ppm 2% H_2O ~ +2.6ppm		20% CO_2 ~ +1ppm 2% H_2O ~ +0.5ppm			20% CO_2 ~ 1ppm 2% H_2O ~ +0.5ppm	Consult Servomex

* Whichever is the greater.
† Stated at a confidence interval of 95%.
‡ TÜV validated range

The performance specification has been written and verified in accordance with the international standard IEC 61207-1:1994 "Expression of performance of gas analyzers"

Table 1	SBDW % IR MB1520 Series table of ranges									
Gases measured	Full scale measurement range (%)									
	0.2	0.5	1.0	2.0	5	10	20	30	50	100
IR MB1520 CO_2	•	•	•	•	•	•	•	•	•	•
IR MB1522 CO			•	•	•	•				

Signal outputs/inputs	
Analog output	Per measurement: 1 x 4-20mA (standard), 1 x 0-10V (optional)
Analog input	Up to 4 x 4-20mA inputs
Digital input	Up to 8 digital inputs
Relays	4 relays as standard, up to 32 relays, 30V (dc or ac) / 1A
Alarms	2 alarms as standard, up to 32 alarms
Digital communications	RS232/RS485 Modbus, PROFIBUS, Ethernet (Modbus TCP/IP)
Physical	
Size	132.5mm (5.2”) high x 481.6mm (19”) wide x 544.2mm (21.4”) deep With expansion chassis, height is 265.5mm (10.5”)
Weight	Main unit: approx 14kg (30.9lb) Expansion chassis: approx 13.7kg (30.2lb) (dependent on number and type of sensors used)
Sample gas	
Condition	Clean, oil free, non-condensing
Particulates	<1µm (micron)
Vent	Each gas outlet should be connected to a separate atmospheric vent, free from any back pressure
Sample flow	500-1,500 ml/min - nominal flowrate 1,000ml/min
Connection	Sample inlet is 1/8” NPT female Sample outlet is 1/4” NPT female
Operating environment	
Operating temperature	+5°C to +45°C (+41°F to +113°F)
Storage temperature	0°C to +50°C (+32°F to +122°F)
Relative humidity	10-90% RH, non-condensing
Altitude	-500m (below sea level) to 2,000m (above sea level)
Warm-up time	Warm up time is typically 24 hours from cold start at 20°C (68°F), may be longer for the higher sensitivity measurements
Utilities	
Power	100-240V ac, 50-60 Hz (±10% maximum fluctuation)
Max power consumption	500VA

Sample wetted materials

	Paramagnetic % O_2 Transducer	1210 Series GFx NDIR Transducer	1520 Series SBSW NDIR Transducer**	MB1520 Series SBDW NDIR§
Stainless Steel 303	•	•	•	
Stainless Steel 316	•	•	•	•
Aluminium alloy 6063				•
Viton®	•	•	•	•
Nitrile Rubber				•
Borosilicate glass	•			•
Platinum	•			
Platinum Iridium alloy	•			
Electroless Nickel	•			
Polyphenylene sulphide (PPS) carbon / PTFE filler				•
Gold		•		•
Calcium Fluoride		•		
Nickel		•		•
Sapphire			•	•
Epoxy resin			•	•
Alumina				•

Additional materials

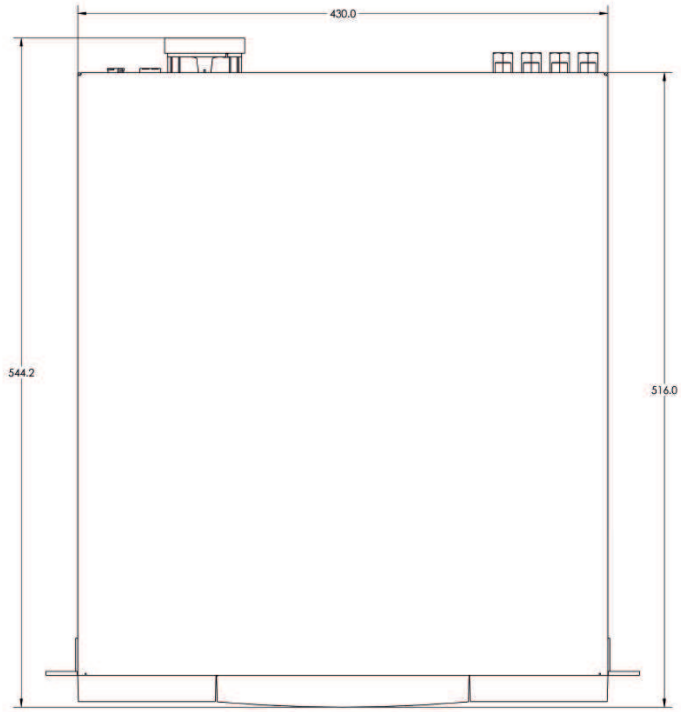
Feature	Additional materials
Stream systems	Polysulphone Polypropylene Nylon (not in sample systems with a GFX)
Flowmeters	Borosilicate glass Duralumin
Needle valves	Brass Fomblin grease (suitable for oxygen service)
Flow alarm (Chemtec type)**	Glass Nylon Silicon rubber Aluminum
Flow alarm (Dwyer type)§	Polycarbonate Polyurethane PTFE

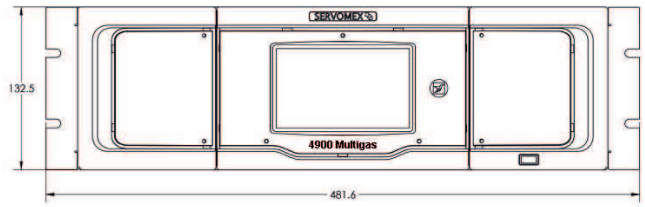
** Discontinued from June 2021 (Analyzer S/N <200000)
§ Supplied as standard from June 2021 (Analyzer S/N >200000 onwards)

Compliance

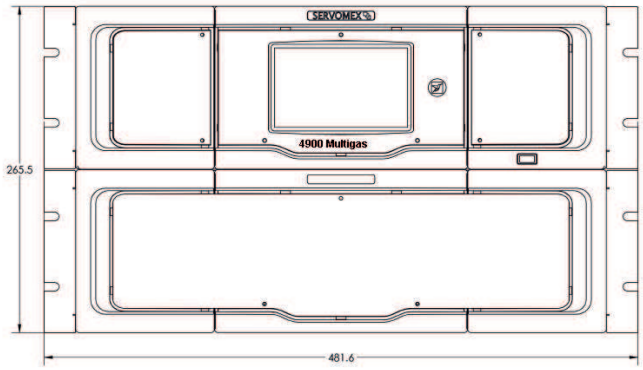
EC directives	This product complies with the EMC Directive, the Low Voltage Directive, and all other applicable directives
Electrical safety	Electrical safety to IEC 61010-1, CSA Electrical Certification Rated for “Overvoltage Category II” and “Pollution Degree 2”

Dimensional drawings





Standard chassis with mounting ears



Extended chassis with mounting ears

Dimensions shown in millimetres

Options

Analyzer		
Sample system	Flow driven	■
Background calibration gas	Standard N_2 background	■

Module 1		
Measurement	0-25% O_2	☐
	100% CO_2	☐
	50% CO_2	☐
	30% CO_2	☐
	20% CO_2	☐
	10% CO_2	☐
	5% CO_2	☐
	1% CO_2	☐
	5,000vpm CO_2	☐
	2,000vpm CO_2	☐
	10% CO	☐
	5% CO	☐
	2% CO	☐
	1% CO	☐
	0-50/500vpm CO	☐
	0-100/1,000vpm CO	☐
	0-200/3,000vpm CO	☐
	0-500/5000vpm CO	☐
	0-50/500vpm N_2O	☐
	0-50/500vpm CH_4	☐
	0-100/1,000vpm CH_4	☐
	0-100/1,000vpm SO_2	☐
	0-200/2,500vpm SO_2	☐
	0-1000/10,000vpm SO_2	☐
	0-100/1,000vpm NO	☐
	0-200/2,000vpm NO	☐
Module in	Stream 1	☐
Flowmeter	Not required	☐
	2,500ml/min	☐
	5,000ml/min + valve	☐
Configurable alarms	Two alarms (standard)	☐
	Four alarms	☐
	Eight alarms	☐
Isolated analog output	Isolated 4-20mA (standard)	☐
0-10 V dc output	Not required	☐
	0-10 V dc	☐
Digital input	Not required	☐
	2 digital	☐
Isolated analog input	Not required	☐
	Isolated 4-20mA	☐

Please tick the box for required Module 1 options

Module 2		
Measurement	0-25% O_2	☐
	100% CO_2	☐
	50% CO_2	☐
	30% CO_2	☐
	20% CO_2	☐
	10% CO_2	☐
	5% CO_2	☐
	1% CO_2	☐
	5,000vpm CO_2	☐
	2,000vpm CO_2	☐
	10% CO	☐
	5% CO	☐
	2% CO	☐
	1% CO	☐
	0-50/500vpm CO	☐
	0-100/1,000vpm CO	☐
	0-200/3,000vpm CO	☐
	0-500/5000vpm CO	☐
	0-50/500vpm N_2O	☐
	0-50/500vpm CH_4	☐
	0-100/1,000vpm CH_4	☐
	0-100/1,000vpm SO_2	☐
	0-200/2,500vpm SO_2	☐
	0-1000/10,000vpm SO_2	☐
	0-100/1,000vpm NO	☐
	0-200/2,000vpm NO	☐
Module in	Stream 1 or	☐
	Stream 2	☐
Flowmeter	Not required	☐
	2,500ml/min	☐
	5,000ml/min + valve	☐
Configurable alarms	Two alarms (standard)	☐
	Four alarms	☐
	Eight alarms	☐
Isolated analog output	Isolated 4-20mA (standard)	☐
0-10 V dc output	Not required	☐
	0-10 V dc	☐
Digital input	Not required	☐
	2 digital	☐
Isolated analog input	Not required	☐
	Isolated 4-20mA	☐

Please tick the box for required Module 2 options

Options

Module 3		
Measurement	0-25% O_2	☐
	100% CO_2	☐
	50% CO_2	☐
	30% CO_2	☐
	20% CO_2	☐
	10% CO_2	☐
	5% CO_2	☐
	1% CO_2	☐
	5,000vpm CO_2	☐
	2,000vpm CO_2	☐
	10% CO	☐
	5% CO	☐
	2% CO	☐
	1% CO	☐
	0-50/500vpm CO	☐
	0-100/1,000vpm CO	☐
	0-200/3,000vpm CO	☐
	0-500/5000vpm CO	☐
	0-50/500vpm N_2O	☐
	0-50/500vpm CH_4	☐
	0-100/1,000vpm CH_4	☐
	0-100/1,000vpm SO_2	☐
	0-200/2,500vpm SO_2	☐
	0-1000/10,000vpm SO_2	☐
	0-100/1,000vpm NO	☐
	0-200/2,000vpm NO	☐
Module in	Stream 1 or	☐
	Stream 2	☐
Flowmeter	Not required	☐
	2,500ml/min	☐
	5,000ml/min + valve	☐
Configurable alarms	Two alarms (standard)	☐
	Four alarms	☐
	Eight alarms	☐
Isolated analog output	Isolated 4-20mA (standard)	☐
0-10 V dc output	Not required	☐
	0-10 V dc	☐
Digital input	Not required	☐
	2 digital	☐
Isolated analog input	Not required	☐
	Isolated 4-20mA	☐

Please tick the box for required Module 3 options

Module 4		
Measurement	0-25% O_2	☐
	100% CO_2	☐
	50% CO_2	☐
	30% CO_2	☐
	20% CO_2	☐
	10% CO_2	☐
	5% CO_2	☐
	1% CO_2	☐
	5,000vpm CO_2	☐
	2,000vpm CO_2	☐
	10% CO	☐
	5% CO	☐
	2% CO	☐
	1% CO	☐
	0-50/500vpm CO	☐
	0-100/1,000vpm CO	☐
	0-200/3,000vpm CO	☐
	0-500/5000vpm CO	☐
	0-50/500vpm N_2O	☐
	0-50/500vpm CH_4	☐
	0-100/1,000vpm CH_4	☐
	0-100/1,000vpm SO_2	☐
	0-200/2,500vpm SO_2	☐
	0-1000/10,000vpm SO_2	☐
	0-100/1,000vpm NO	☐
	0-200/2,000vpm NO	☐
Module in	Stream 1 or	☐
	Stream 2	☐
Flowmeter	Not required	☐
	2,500ml/min	☐
	5,000ml/min + valve	☐
Configurable alarms	Two alarms (standard)	☐
	Four alarms	☐
	Eight alarms	☐
Isolated analog output	Isolated 4-20mA (standard)	☐
0-10 V dc output	Not required	☐
	0-10 V dc	☐
Digital input	Not required	☐
	2 digital	☐
Isolated analog input	Not required	☐
	Isolated 4-20mA	☐

Please tick the box for required Module 4 options

Options

General configuration		
Power cord	Not required USA Europe UK	☐ ☐ ☐ ☐
Left Flowmeter (Stream 1)	Not Required 2,500ml/min 2,500ml/min + valve	☐ ☐ ☐
Right Flowmeter (Stream 2)	Not Required 2,500ml/min 2,500ml/min + valve	☐ ☐ ☐
Flow alarm	Not required Fitted in stream 1	☐ ☐
Serial communications	Not required RS232 communication RS485 communication w/Modbus RS232 & RS485 comm combo Profibus	☐ ☐ ☐ ☐ ☐
Modbus	Not required Required	☐ ☐
Mounting	Bench top Rack mount with ears Rack mount with slides	☐ ☐ ☐
Autocal	Not required Required	☐ ☐
Relay contacts	4 relay contacts (standard) 8 relay contacts w/connectors 16 relay contacts w/connectors 24 relay contacts w/connectors 32 relay contacts w/connectors	☐ ☐ ☐ ☐ ☐
Operator manual	English	☐

Please tick the box for required options

We're ready to help

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Representantes / Distribuidores Exclusivos

Argentina
Tel: (+54 11) 5352 2500
Email: info@dastecsrl.com.ar
Web: www.dastecsrl.com.ar

Uruguay www.dastecsrl.com.uy

Paraguay www.dastecsrl.com.py

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Analysis that **empowers**

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