SERVOPRO 4900 Multigas

SAFE AREA



| GAS | MEASURES | APPLICATION |
|----------|-----------|-------------|
| MULTIPLE | PERCENT | EMISSIONS |
| | TRACE PPM | |













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 60 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 O₂, CO₂ and CO, plus ppm level SO₂, NO, CO, CH₄ and N₂O
- 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, industryleading Paramagnetic, SBSW IR, 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) and QAL 1 (EN 14181) O₂, SO₂, CO and NO

For more information please contact us

Visit servomex.com/contact















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 (% O₂, CO₂ and CO, plus ppm SO₂, NO, CO, CH₄, and N₂O). The 4900 Multigas combines three sensitive and highly stable non-depleting technologies to deliver unsurpassed measurements you can rely on – Paramagnetic, Single Beam Single Wavelength NDIR, 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 NO₂.

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.





These analyzers are not intended for any form of use on humans and are not medical devices as described in the Medical Devices Directive 93/42EEC.

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TECHNICAL DATA SHEET

SERVOPRO 4900 Multigas



SPECIFICATIONS

| GAS MEASURED | MULTIPLE - se | e below | | | | | |
|---|------------------------------|--|--|---|--|--|---|
| TECHNOLOGY | Paramagnetic fo | or O ₂ , Infrared (Gf | x) 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 ₂ O |
| 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 0.5% H ₂ O | ~ +5ppm ~ -15ppm | 20% CO ₂ ~ +5ppm 0.5% H ₂ O ~ -15ppm | 20% CO ₂ 0.5% H ₂ O | | 20% CO ₂ ~ +3.0ppm 100 ppm CO ~ -2.4ppm 2% H ₂ O ~ -0.3ppm |
| Gas | CH₄ (high range) | CH₄ (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 read- ing* |
| 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 | 10ppm CÔ | ~ +1.2ppm ~ +0.5ppm ~ +2.6ppm | | 20% CO ₂ ~ +1ppr % H ₂ O ~ +0.5ppi | | 20% CO ₂ ~ 1ppm 2% H ₂ O ~ | Consult Servomex |













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



| TABLE I | | | S | BDW % IF | MB1520 | Series tab | le of range | es | | |
|---------------------------|-----|-----|-----|----------|------------|------------|-------------|----|----|-----|
| Coses management | | | | Full sca | ıle measuı | ement ra | nge (%) | | | |
| Gases measured | 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 PROFIRIS 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 | |

| 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 |

| | 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 |

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" |







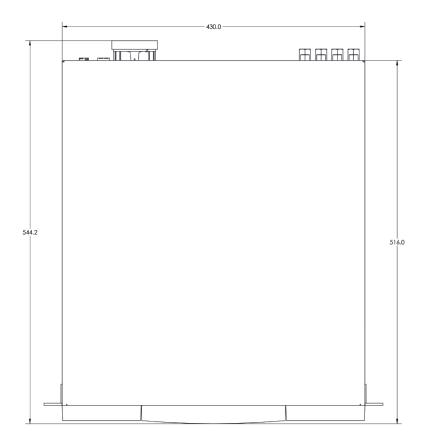


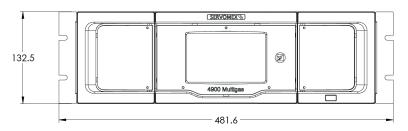


^{**} Discontinued from June 2021 (Analyzer S/N <200000) § Supplied as standard from June 2021 (Analyzer S/N >200000 onwards)

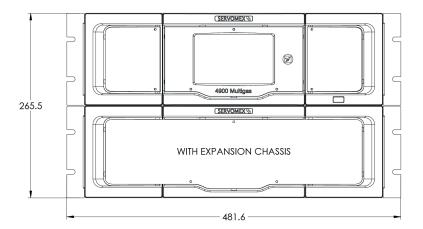


DIMENSIONAL DRAWINGS





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 2,000vpm CO 5% CO 2% CO 1% CO 0-50/500vpm CO 0-100/1,000vpm CO 0-50/500vpm CO 0-100/1,000vpm CO 0-100/1,000vpm SO 0-200/2,500vpm SO 0-100/10,000vpm SO 0-100/10,000vpm 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

| N | 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 2,000vpm CO 5% CO 2% CO 1% CO 0-50/500vpm CO 0-100/1,000vpm CO 0-50/500vpm CO 0-100/1,000vpm CO 0-100/1,000vpm CO 0-100/1,000vpm CO 0-100/1,000vpm SO ₂ 0-100/10,000vpm SO ₂ 0-100/10,000vpm 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 | |
|--|--|
| 5,000vpm CO ₂ 2,000vpm CO ₂ 10% CO 5% CO 1% CO 1% CO 0-50/500vpm CO 0-200/3,000vpm CO 0-50/500vpm CO 0-100/1,000vpm SO 0-100/1,000vpm SO 0-200/2,500vpm SO 0-1000/10,000vpm SO 0-1000/10,000vpm SO 0-1000/10,000vpm SO | |
| 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 | |

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 2,000vpm CO 5% CO 2% CO 1% CO 0-50/500vpm CO 0-100/1,000vpm CO 0-50/500vpm CO 0-50/500vpm CO 0-50/500vpm CO 0-50/500vpm CO 0-50/500vpm CO 0-50/500vpm CO 0-100/1,000vpm CO 0-100/1,000vpm CO 0-100/1,000vpm SO ₂ 0-100/1,000vpm SO ₂ 0-100/1,000vpm 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

WHATEVER YOUR GAS ANALYSIS REQUIREMENTS, WHEREVER YOU ARE

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