## **SERVOPRO Chroma**

**SAFE AREA** 



GAS	MEASURES	APPLICATION
MULTIPLE	PERCENT	QUALITY
	TRACE	PROCESS CONTROL
	ULTRA TRACE	











#### **KEY APPLICATIONS**

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

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

#### **UNRIVALLED PERFORMANCE**

- Uses ultra-sensitive and highly selective patented
   PED sensing technology, delivering the highest reliability and performance currently available
- PlasmaHC measures methane and NMHC without the use of a FID, eliminating the need for maintenance and fuel. ArgonSep separates Ar from O<sub>2</sub> without the need for scrubbers, providing a sensitive, maintenance-free measurement

#### **FLEXIBLE**

- Comprehensive solution for ultra-trace H<sub>2</sub>, Ne, O<sub>2</sub>, N<sub>2</sub>, Ar, CH<sub>4</sub>, CO, CO<sub>2</sub> and NMHC in a number of background gases; H<sub>2</sub>, O<sub>2</sub>, N<sub>2</sub>, Ar, He and CO<sub>2</sub>
- Plasma, FID and TCD technologies used depending on application
- Compact design that fits into a single 4U rack
- Flexible communication options including Ethernet, RS232 and 4-20 mA output

#### **EASY TO USE**

- Comprehensive device interaction and monitoring via intelligent software
- Remote configuration via Ethernet/Internet
- Electronic carrier and sample flow PID control system
- Remote range I.D. contact per impurity

#### LOW COST OF OWNERSHIP

- Simplified reporting functions facilitated by the software
- PED sensing technology does not require a separate methanizer

#### **BENCHMARK COMPLIANCE**

- Class B digital apparatus requirements of ICES-001 of Canada through the application of EN 61000-6-3:2007
- Part 15 of the US FCC rules for Class B equipment
- IEC 61010-1 for electrical safety
- EC "Low Voltage Directive" by application of EN 61010-1 and rated for Over Voltage Category II, Pollution Degree 2

For more information please contact us

Visit servomex.com/contact















#### HIGH VERSATILITY FOR DIVERSE APPLICATION NEEDS

Applications that depend on the very highest levels of product purity depend on trace analysis of exceptional sensitivity and performance. Impurities requiring measurement are both diverse in nature and found in a number of background gas streams, so high flexibility is also a must. Measurements need to be reliable, so a technology that can provide stability is essential. No matter what your application monitoring requirements, you'll also want a solution that is easy to use and has a low lifetime cost-of-ownership. We don't believe you should have to compromise.

#### A NO COMPROMISE SOLUTION

The Chroma's flexible ultra-trace analysis is delivered through a smart combination of cutting-edge sensing technology and intelligent control software. Benefiting from the fast, accurate, sensitive and selective response of Servomex's non-depleting Plasma Emission Detector (PED) cell, Flame Ionization Detector (FID) or Thermal Conductivity (TCD) technologies, the Chroma offers sophisticated configuration and performance options which are far ahead of the competition.

#### **EASY AND INTUITIVE TO USEW**

Added to the Chroma's measurement performance is its ability to provide an easy-to-use solution with added flexibility. Feature-rich software permits full device interaction remotely via Ethernet/Internet, while a full range of reporting options provide simplified statistical data analysis. The Chroma also features a user-friendly high resolution TFT color LCD for easy local configuration and interaction.



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.

**Please note:** Whilst every effort has been made to ensure accuracy, no responsibility can be accepted for errors and omissions.

Data may change, as well as legislation, and you are strongly advised to obtain copies of the most recently issued regulations, standards and guidelines. This document is not intended to form the basis of a contract.

Servomex has a policy of constant product improvement and reserves the right to change specifications without notice. © Servomex Group Limited. 2022. A Spectris company. All rights reserved.



## **TECHNICAL DATA SHEET**

## **SERVOPRO Chroma**



### **SPECIFICATIONS**

TECHNOLOGY

Plasma Emission Detector (PED), Flame Ionization Detector (FID), Thermal Conductivity Detector (TCD)

#### PERFORMANCE

PLASMA EMISSION DETECTOR (PED)							
Limit of Detection (LOD)  Background Gas							
Lillit of Detec	tion (LOD)	H <sub>2</sub>	O <sub>2</sub>	N <sub>2</sub>	Ar	He	CO <sub>2</sub>
	H <sub>2</sub>	-	25ppb or 1% FR*			7.5ppb or 0.75% FR*	100ppb or 1% FR*
	Ne	-	-	-	-	5ppb or 0.5% FR*	-
	O <sub>2</sub>	-	-	25ppb or 1% FR*		7.5ppb or 0.75% FR*	100ppb or 1% FR*
	N <sub>2</sub>	5ppb or 0	).5% FR*	-	5ppb or 0.5% FR*		
Impurities	Ar	5ppb or 0.5% FR* -				5ppb or 0.5% FR*	
	CH <sub>4</sub>		25ppb or	7.5ppb or 0.75% FR*	100ppb or 1% FR*		
	СО		25ppb or	7.5ppb or 0.75% FR*	100ppb or 1% FR*		
	CO <sub>2</sub>		25ppb or	7.5ppb or 0.75% FR*	-		
	NMHC		25ppb or	7.5ppb or 0.75% FR*	-		

FLAME IONIZATION DETECTOR (FID)								
Limit of Detection (LOD)		Background Gas						
Limit of Detec	tion (LOD)	$O_2$ $N_2O$ $CO_2$						
	CH₄	1ppm or 1% FR*	-	-				
Impurities	C <sub>2</sub> - C <sub>4</sub>	100-150ppb <sup>†</sup> or 1%-1.5% <sup>†</sup> FR*	-	-				
	NMHC	100-150ppb <sup>†</sup> or 1%-1.5% <sup>†</sup> FR*	-	-				

THERMAL CONDUCTIVITY DETECTOR (TCD)							
Background Gas							
Limit of Detection (LOD)		N <sub>2</sub>	N <sub>2</sub> O				
lua ma aviái a a	N <sub>2</sub> (assay)	Complies with US or European Pharmacopeia	-				
Impurities	CO <sub>2</sub>		Complies with European Pharmacopeia				

CICNIA	L OUTP	ITC/IN	DITE
SIGNA	LUUIP	9	PUIS

SIGNAL OUTPUTS/INPUTS	
Analog output	1 x 4-20 mA output per peak - up to 8 outputs
Digital outputs	1 x Remote range identification output per peak - up to 8 2 x Alarm dry contact outputs - user pre-settable limited 1 x System status dry contact output
Digital inputs	1 x digital isolated input - remote initiation of analysis
Serial comms	Remote interaction via RS232 ASCII protocol and ethernet/internet

OPERATING ENVIRONMENT	
Temperature	+5°C - +40°C/41°F - 104°F
Relative humidity	0-95% RH non-condensing
Altitude	2000m (max)
Ingress Protection	IP20

<sup>\*</sup> Whichever is the greater. FR = Full Range † Dependent on impurity

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















SAMPLE GAS	
Condition	Sample must be oil free, non-corrosive, non-condensing and non-flammable mixtures
Sample flow	Typically 25-150ml/min (application dependent)
Sample pressure	10-20psig (application dependent)
CARRIER GAS	
Carrier gas	Argon or helium (or both)
Carrier gas flow	Typically 30-350ml/min
Carrier gas pressure	100psig (PED, TCD), 120psig (FID)
PHYSICAL	
Size	482mm (18.9") Wide x 177mm (7") High x 600mm (23.6") Deep
Weight	11-27kg (25-60lb) (application dependent)
UTILITIES	
Supply voltage	100-120Vac or 220-240Vac**, 50/60Hz

<sup>\*\*</sup> The analyzer is supplied configured with one of these voltage ranges; specify range at time of order

## **COMPLIANCE**

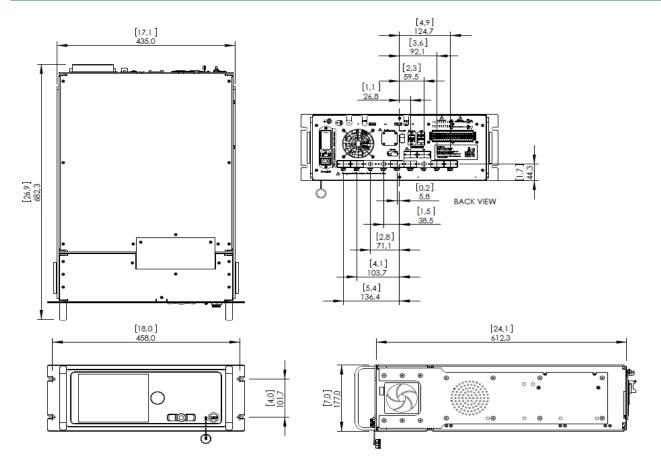
**EC DIRECTIVES** 

This product complies with the EMC Directive, the Low Voltage Directive, and all other applicable directives.

**ELECTRICAL SAFETY** 

Electrical safety to IEC 61010-1: Ed 3.
Rated for "Overvoltage Category II" and "Pollution Degree 2"

## **DIMENSIONAL DRAWINGS**



Dimensions shown in millimetres (dimensions in square brackets are in inches)















## **APPLICATION CONFIGURATIONS**

CRUDE ARGON   N, in 10% Ar and 90% O,   0-50ppm   0-500ppm   0-500ppm   4401A1   8ack 1A   Plasma   MC		Background gas	Application	Min Range	Max Range	Product variant	Packages	Detector	Form factor
C_C_C_NMHC    0-10ppm   0-200ppm   4402A1   Pack 18   Plasma   MC	_	CRUDE ARGON	N <sub>2</sub> in 10% Ar and 90% O <sub>2</sub>	0-50ppm	0-5000ppm	4401A1	Pack 1A	Plasma	MC
C_C_C_NMHC    0-10ppm    0-200ppm    4402A1   Pack 1A   Plasma MC   0-10ppm    0-200ppm    4402A1   Pack 2A   Plasma MC   0-10ppm    0-200ppm    4403A1   Pack 1B   Plasma MC   0-10ppm    0-200ppm    4403A1   Pack 1B   Plasma MC   0-10ppm    0-200ppm    4403A1   Pack 1B   Plasma MC   0-10ppm    0-200ppm    4403A1   Pack 1C   Plasma MC   0-10ppm    0-200ppm    4403A1   Pack 1C   Plasma MC   0-10ppm    0-200ppm    4403A1   Pack 2B   Plasma MC   0-10ppm    0-200ppm    4403A1   Pack 2B   Plasma MC   0-10ppm    0-200ppm    4403A1   Pack 2B   Plasma MC   0-10ppm    0-200ppm    4403A1   Pack 3B   Plasma MC   0-10ppm    0-200ppm    4403A1   Pack 3B   Plasma MC   0-10ppm    0-200ppm    4403A1   Pack 3B   Plasma MC   0-10ppm    0-200ppm    4403A1   Pack 1B   Plasma MC   0-10ppm    0-200ppm    4403A1   Pack 1B   Plasma MC   0-10ppm    0-200ppm    4403A1   Pack 1B   Plasma MC   0-10ppm    0-200ppm    4404A1   Pack 1D   Plasma MC   0-10ppm    0-200ppm    4404A1   Pack 1D   Plasma MC   0-10ppm    0-200ppm    4404A1   Pack 1D   Plasma MC   0-10ppm    0-200ppm    4404A1   Pack 2D   Plasma MC   0-10ppm    0-200ppm    4404A1   Pack 3D   Plasma MC   0-10ppm    0-200ppm    4404A1   Pack 3D   Plasma MC   0-10ppm    0-200ppm    4404A1	ATION	OXYGEN	CH <sub>4</sub> , NMHC	0-10ppm/0-5ppm		4405A1	Pack 2A	Plasma	MC
C_C_C_NMHC    0-10ppm    0-200ppm    4402A1   Pack 1A   Plasma MC   0-10ppm    0-200ppm    4402A1   Pack 2A   Plasma MC   0-10ppm    0-200ppm    4403A1   Pack 1B   Plasma MC   0-10ppm    0-200ppm    4403A1   Pack 1B   Plasma MC   0-10ppm    0-200ppm    4403A1   Pack 1B   Plasma MC   0-10ppm    0-200ppm    4403A1   Pack 1C   Plasma MC   0-10ppm    0-200ppm    4403A1   Pack 1C   Plasma MC   0-10ppm    0-200ppm    4403A1   Pack 2B   Plasma MC   0-10ppm    0-200ppm    4403A1   Pack 2B   Plasma MC   0-10ppm    0-200ppm    4403A1   Pack 2B   Plasma MC   0-10ppm    0-200ppm    4403A1   Pack 3B   Plasma MC   0-10ppm    0-200ppm    4403A1   Pack 3B   Plasma MC   0-10ppm    0-200ppm    4403A1   Pack 3B   Plasma MC   0-10ppm    0-200ppm    4403A1   Pack 1B   Plasma MC   0-10ppm    0-200ppm    4403A1   Pack 1B   Plasma MC   0-10ppm    0-200ppm    4403A1   Pack 1B   Plasma MC   0-10ppm    0-200ppm    4404A1   Pack 1D   Plasma MC   0-10ppm    0-200ppm    4404A1   Pack 1D   Plasma MC   0-10ppm    0-200ppm    4404A1   Pack 1D   Plasma MC   0-10ppm    0-200ppm    4404A1   Pack 2D   Plasma MC   0-10ppm    0-200ppm    4404A1   Pack 3D   Plasma MC   0-10ppm    0-200ppm    4404A1   Pack 3D   Plasma MC   0-10ppm    0-200ppm    4404A1	AR.		CH <sub>4</sub> , C <sub>2</sub> H <sub>2</sub> , C <sub>2</sub> H <sub>4</sub> , C <sub>2</sub> H <sub>6</sub> , C <sub>3</sub> H <sub>6</sub> , C <sub>3</sub> H <sub>8</sub>		0-600ppm CH <sub>4</sub> ,	4409A1	Pack 1A	FID	PC + SC
C_C_C_NMHC    0-10ppm    0-200ppm    4402A1   Pack 1A   Plasma MC   0-10ppm    0-200ppm    4402A1   Pack 2A   Plasma MC   0-10ppm    0-200ppm    4403A1   Pack 1B   Plasma MC   0-10ppm    0-200ppm    4403A1   Pack 1B   Plasma MC   0-10ppm    0-200ppm    4403A1   Pack 1B   Plasma MC   0-10ppm    0-200ppm    4403A1   Pack 1C   Plasma MC   0-10ppm    0-200ppm    4403A1   Pack 1C   Plasma MC   0-10ppm    0-200ppm    4403A1   Pack 2B   Plasma MC   0-10ppm    0-200ppm    4403A1   Pack 2B   Plasma MC   0-10ppm    0-200ppm    4403A1   Pack 2B   Plasma MC   0-10ppm    0-200ppm    4403A1   Pack 3B   Plasma MC   0-10ppm    0-200ppm    4403A1   Pack 3B   Plasma MC   0-10ppm    0-200ppm    4403A1   Pack 3B   Plasma MC   0-10ppm    0-200ppm    4403A1   Pack 1B   Plasma MC   0-10ppm    0-200ppm    4403A1   Pack 1B   Plasma MC   0-10ppm    0-200ppm    4403A1   Pack 1B   Plasma MC   0-10ppm    0-200ppm    4404A1   Pack 1D   Plasma MC   0-10ppm    0-200ppm    4404A1   Pack 1D   Plasma MC   0-10ppm    0-200ppm    4404A1   Pack 1D   Plasma MC   0-10ppm    0-200ppm    4404A1   Pack 2D   Plasma MC   0-10ppm    0-200ppm    4404A1   Pack 3D   Plasma MC   0-10ppm    0-200ppm    4404A1   Pack 3D   Plasma MC   0-10ppm    0-200ppm    4404A1	IR SEF	HCs in LOX/AIR	CH <sub>4</sub> , C <sub>2</sub> H <sub>2</sub> , C <sub>2</sub> H <sub>4</sub> , C <sub>2</sub> H <sub>6</sub> , C <sub>3</sub> H <sub>6</sub> , C <sub>3</sub> H <sub>8</sub> , C <sub>4</sub> H <sub>6</sub> , C <sub>4</sub> H <sub>10</sub>		0-300ppm other C <sub>2</sub>	4409A1	Pack 2A	FID	PC + SC
ARGON   CO,   D-10ppm   D-200ppm   A402A1   Pack 1B   Plasma   MC   D-200ppm   A402A1   Pack 2A   Plasma   MC   D-200ppm   A402A1   Pack 2A   Plasma   MC   Ar   D-10ppm   D-200ppm   A402A1   Pack 2A   Plasma   MC   Ar   D-10ppm   D-200ppm   A402A1   Pack 1B   Plasma   MC   Ar   D-10ppm   D-200ppm   A402A1   Pack 1C   Plasma   MC   Ar   D-10ppm   D-200ppm   A402A1   Pack 1C   Plasma   MC   Ar   D-10ppm   D-200ppm   A402A1   Pack 1C   Plasma   MC   Ar   D-10ppm   D-200ppm   A402A1   Pack 2B   Plasma   MC   D-10ppm   D-200ppm   A402A1   Pack 2B   Plasma   MC   D-10ppm   D-200ppm   A402A1   Pack 3B   Plasma   MC   D-10ppm   D-200ppm   A402A1   Pack 1D   Plasma   MC   D-10ppm   D-200ppm   A402A1   Pack 1B   Plasma   MC   D-10ppm   D-200ppm   A402A1   Pack 1A   Plasma   MC   D-10ppm   D-200ppm   A402A1   Pack 1B   Plasma   MC   D-10ppm   D-200ppm   A402A1   Pack 2D   Plasma   MC   D-10ppm   D-200ppm   A402A1   Pack 3B   Plasma   MC   D-10ppm   D-200ppm   A	⋖		C <sub>1</sub> -C <sub>3</sub> , NMHC			4409A1	Pack 2B	FID	PC + SC
NTROGEN   NTRO			O <sub>2</sub> , H <sub>2</sub> , N <sub>2</sub> , CH <sub>4</sub> , CO	0-10ppm	0-200ppm	4402A1	Pack 1A	Plasma	MC
NITROGEN   O_H_C, Ch_C, Co_O - 0.10ppm   O_200ppm   0.200ppm   0		ARGON	$CO_2$	0-10ppm	0-200ppm	4402A1	Pack 1B	Plasma	MC
Ar			O <sub>2</sub> , H <sub>2</sub> , N <sub>2</sub> , CH <sub>4</sub> , CO, CO <sub>2</sub>	0-10ppm	0-200ppm	4402A1	Pack 2A	Plasma	MC
HELIUM			O <sub>2</sub> ,H <sub>2</sub> ,N <sub>2</sub> ,CH <sub>4</sub> ,CO	0-10ppm	0-200ppm	4403A1	Pack 1A	Plasma	MC
HELIUM			Ar	0-10ppm	0-200ppm	4403A1	Pack 1B	Plasma	MC
HELIUM			CO	0-10ppm	0-200ppm	4403A1	Pack 1C	Plasma	MC
CO, N <sub>J.</sub> CH <sub>y</sub> . CO, Ar, Ne			N <sub>2</sub> , Ar	0-10ppm	0-200ppm	4403A1	Pack 2A	Plasma	MC
NITROGEN   O <sub>2</sub> , H <sub>2</sub> , Ch <sub>2</sub> , CO <sub>2</sub> , Ar, Ne O-10ppm   O-200ppm   A403A1   Pack 18   Plasma   MC + SC		HELIUM	CO, N <sub>2</sub> , CH <sub>4</sub> , CO <sub>2</sub>	0-10ppm	0-200ppm	4403A1	Pack 2B	Plasma	MC
1990   1990			O <sub>2</sub> , H <sub>2</sub> , N <sub>2</sub> , CH <sub>4</sub> , CO, Ar, Ne	0-10ppm	0-200ppm	4403A1	Pack 3A	Plasma	PC + SC
NITROGEN			O <sub>2</sub> , H <sub>2</sub> , N <sub>2</sub> , CH <sub>4</sub> , CO <sub>2</sub> , Ar, Ne	0-10ppm	0-200ppm	4403A1	Pack 3B	Plasma	PC + SC
NITROGEN			2 2 2 7 2	0-10ppm	0-200ppm	4403A1	Pack 4A	Plasma	MC + SC
NITROGEN   Ar				0-10ppm	0-200ppm	4404A1	Pack 1A	Plasma	MC
NITROGEN   NITROGEN   O.   O.   O.   O.   O.   O.   O.   O			2 2 7	0-10ppm	0-200ppm	4404A1	Pack 1B	Plasma	MC
NITROGEN   NITROGEN   O_2, H_2, CH_4, Ar   O-10ppm   O-200ppm			CO,	0-10ppm	0-200ppm	4404A1	Pack 1C	Plasma	MC
OXYGEN			CO	0-10ppm	0-200ppm	4404A1	Pack 1D	Plasma	MC
OXYGEN	ess	NITROGEN	O <sub>2</sub> , H <sub>2</sub> , CH <sub>4</sub> , Ar	0-10ppm	0-200ppm	4404A1	Pack 2A	Plasma	MC
OXYGEN	o			0-10ppm	0-200ppm	4404A1	Pack 2B	Plasma	MC
OXYGEN	<u>e</u> 5			0-10ppm	0-200ppm	4404A1	Pack 2C	Plasma	MC
OXYGEN	irao			0-10ppm	0-200ppm	4404A1	Pack 3A	Plasma	PC + SC
OXYGEN	·		2 2 4	0-10ppm	0-200ppm	4404A1	Pack 3B	Plasma	PC + SC
OXYGEN			2 2 7 2	0-10ppm	0-200ppm	4404A1	Pack 3C	Plasma	PC + SC
OXYGEN	I A		2 2 7 2	0-10ppm	0-200ppm	4404A1	Pack 4A	Plasma	MC + SC
OXYGEN	S		2 2 4 2	0-10ppm	0-200ppm	4405A1	Pack 1A	Plasma	MC
OXYGEN	δ		_	0-10ppm	0-200ppm	4405A1	Pack 1B	Plasma	MC
OXYGEN	I <sub>A</sub> L		N <sub>2</sub> , H <sub>2</sub> , CH <sub>4</sub>	0-10ppm	0-200ppm	4405A1	Pack 2B	Plasma	MC
H <sub>2</sub> , CO, CH <sub>4</sub> , CO <sub>2</sub>   0-10ppm   0-200ppm   4405A1   Pack 3B   Plasma   PC + SC			2 2 7			4405A1	Pack 2C	Plasma	MC
H <sub>2</sub> , CO, CH <sub>4</sub> , CO <sub>2</sub>   0-10ppm   0-200ppm   4405A1   Pack 3B   Plasma   PC + SC	2	OXYGEN	-			4405A1			
N <sub>2</sub> , H <sub>2</sub> , CH <sub>4</sub> , CO <sub>2</sub> , CO         0-10ppm         0-200ppm         4405A1         Pack 4A         Plasma         MC + SC           N <sub>2</sub> , H <sub>2</sub> , CH <sub>4</sub> , CO <sub>2</sub> , CO, Ar         0-10ppm         0-200ppm         4405A1         Pack 5A         Plasma         MC + SC           N <sub>2</sub> , H <sub>2</sub> , CH <sub>4</sub> , CO <sub>2</sub> , CO, Ar, NMHC         0-10ppm         0-200ppm         4405A1         Pack 6A         Plasma         PC + SC +           N <sub>2</sub> 0-10ppm         0-200ppm         4407A1         Pack 1A         Plasma         MC           N <sub>2</sub> , CO <sub>2</sub> , CH <sub>4</sub> , CO         0-10ppm         0-200ppm         4407A1         Pack 1B         Plasma         MC           HYDROGEN         CO, CO <sub>2</sub> , CH <sub>4</sub> 0-10ppm         0-200ppm         4407A1         Pack 2A         Plasma         MC           N <sub>2</sub> , Ar         0-10ppm         0-200ppm         4407A1         Pack 2C         Plasma         MC           N <sub>2</sub> , CO <sub>2</sub> , CH <sub>4</sub> , CO         0-10ppm         0-200ppm         4407A1         Pack 3A         Plasma         PC + SC           N <sub>2</sub> , CO <sub>2</sub> , CH <sub>4</sub> , CO, Ar         0-10ppm         0-200ppm         4407A1         Pack 4A         Plasma         MC + SC	=								
N <sub>2t</sub> H <sub>2t</sub> CH <sub>4t</sub> CO <sub>2t</sub> CO, Ar         0-10ppm         0-200ppm         4405A1         Pack 5A         Plasma         MC + SC           N <sub>2t</sub> H <sub>2t</sub> CH <sub>4t</sub> CO <sub>2t</sub> CO, Ar, NMHC         0-10ppm         0-200ppm         4405A1         Pack 6A         Plasma         PC + SC +           N <sub>2</sub> CO <sub>2t</sub> CH <sub>4t</sub> CO         0-10ppm         0-200ppm         4407A1         Pack 1A         Plasma         MC           N <sub>2t</sub> CO <sub>2t</sub> CH <sub>4t</sub> CO         0-10ppm         0-200ppm         4407A1         Pack 2B         Plasma         MC           HYDROGEN         CO, CO <sub>2t</sub> CH <sub>4t</sub> 0-10ppm         0-200ppm         4407A1         Pack 2B         Plasma         MC           N <sub>2t</sub> Ar         0-10ppm         0-200ppm         4407A1         Pack 2C         Plasma         MC           N <sub>2t</sub> CO <sub>2t</sub> CH <sub>4t</sub> CO         0-10ppm         0-200ppm         4407A1         Pack 3A         Plasma         PC + SC           N <sub>2t</sub> CO <sub>2t</sub> CH <sub>4t</sub> CO, Ar         0-10ppm         0-200ppm         4407A1         Pack 4A         Plasma         MC + SC									
N <sub>2</sub> , H <sub>2</sub> , CH <sub>4</sub> , CO <sub>2</sub> , CO, Ar, NMHC         0-10ppm         0-200ppm         4405A1         Pack 6A         Plasma         PC + SC + Plasma           N <sub>2</sub> 0-10ppm         0-200ppm         4407A1         Pack 1A         Plasma         MC           N <sub>2</sub> , CO <sub>2</sub> , CH <sub>4</sub> , CO         0-10ppm         0-200ppm         4407A1         Pack 1B         Plasma         MC           HYDROGEN         CO, CO <sub>2</sub> , CH <sub>4</sub> 0-10ppm         0-200ppm         4407A1         Pack 2A         Plasma         MC           N <sub>2</sub> , Ar         0-10ppm         0-200ppm         4407A1         Pack 2C         Plasma         MC           N <sub>2</sub> , CO <sub>2</sub> , CH <sub>4</sub> , CO         0-10ppm         0-200ppm         4407A1         Pack 3A         Plasma         PC + SC           N <sub>2</sub> , CO <sub>2</sub> , CH <sub>4</sub> , CO, Ar         0-10ppm         0-200ppm         4407A1         Pack 4A         Plasma         MC + SC			2 2 4 2						
N2         0-10ppm         0-200ppm         4407A1         Pack 1A         Plasma         MC           N2, CO2, CH4, CO         0-10ppm         0-200ppm         4407A1         Pack 1B         Plasma         MC           N2, CO2, CH4         0-10ppm         0-200ppm         4407A1         Pack 2A         Plasma         MC           HYDROGEN         CO, CO2, CH4         0-10ppm         0-200ppm         4407A1         Pack 2B         Plasma         MC           N2, Ar         0-10ppm         0-200ppm         4407A1         Pack 2C         Plasma         MC           N2, CO2, CH4, CO         0-10ppm         0-200ppm         4407A1         Pack 3A         Plasma         PC + SC           N2, CO2, CH4, CO, Ar         0-10ppm         0-200ppm         4407A1         Pack 4A         Plasma         MC + SC									PC + SC + SC
N <sub>2</sub> , CO <sub>2</sub> , CH <sub>4</sub> , CO       0-10ppm       0-200ppm       4407A1       Pack 1B       Plasma       MC         N <sub>2</sub> , CO <sub>2</sub> , CH <sub>4</sub> 0-10ppm       0-200ppm       4407A1       Pack 2A       Plasma       MC         HYDROGEN       CO, CO <sub>2</sub> , CH <sub>4</sub> 0-10ppm       0-200ppm       4407A1       Pack 2B       Plasma       MC         N <sub>2</sub> , Ar       0-10ppm       0-200ppm       4407A1       Pack 2C       Plasma       MC         N <sub>2</sub> , CO <sub>2</sub> , CH <sub>4</sub> , CO       0-10ppm       0-200ppm       4407A1       Pack 3A       Plasma       PC + SC         N <sub>2</sub> , CO <sub>2</sub> , CH <sub>4</sub> , CO, Ar       0-10ppm       0-200ppm       4407A1       Pack 4A       Plasma       MC + SC									
N <sub>2</sub> , CO <sub>2</sub> , CH <sub>4</sub>			-						
HYDROGEN  CO, CO <sub>2</sub> , CH <sub>4</sub> 0-10ppm 0-200ppm 4407A1 Pack 2B Plasma MC  N <sub>2'</sub> Ar 0-10ppm 0-200ppm 4407A1 Pack 2C Plasma MC  N <sub>2'</sub> CO <sub>2'</sub> CH <sub>4'</sub> CO 0-10ppm 0-200ppm 4407A1 Pack 3A Plasma PC + SC  N <sub>2'</sub> CO <sub>2'</sub> CH <sub>4'</sub> CO, Ar 0-10ppm 0-200ppm 4407A1 Pack 4A Plasma MC + SC									
N <sub>2r</sub> Ar         0-10ppm         0-200ppm         4407A1         Pack 2C         Plasma         MC           N <sub>2r</sub> CO <sub>2r</sub> CH <sub>4r</sub> CO         0-10ppm         0-200ppm         4407A1         Pack 3A         Plasma         PC + SC           N <sub>2r</sub> CO <sub>2r</sub> CH <sub>4r</sub> CO, Ar         0-10ppm         0-200ppm         4407A1         Pack 4A         Plasma         MC + SC		HYDROGEN							
N <sub>2</sub> , CO <sub>2</sub> , CH <sub>4</sub> , CO 0-10ppm 0-200ppm 4407A1 Pack 3A Plasma PC + SC N <sub>2</sub> , CO <sub>2</sub> , CH <sub>4</sub> , CO, Ar 0-10ppm 0-200ppm 4407A1 Pack 4A Plasma MC + SC			2 4						
N <sub>2r</sub> CO <sub>2r</sub> CH <sub>4r</sub> CO, Ar 0-10ppm 0-200ppm 4407A1 Pack 4A Plasma MC + SC			-						
21 · 21 · 21 · 14				11					
CARRON Ar 0-10ppm 0-200ppm 4408A1 Pack 1B Plasma MC		CARRON	2 2 2 4						
CARBON Ar 0-10ppm 0-200ppm 4408A1 Pack 18 Plasma MC  DIOXIDE O <sub>2</sub> , H <sub>2</sub> , N <sub>2</sub> , CH <sub>4</sub> , CO 0-10ppm 0-200ppm 4408A1 Pack 2A Plasma MC									
O <sub>2</sub> , H <sub>2</sub> , N <sub>2</sub> , CH <sub>4</sub> , CO, Ar 0-10ppm 0-200ppm 4408A1 Pack 3A Plasma PC + SC			2 2 2 7						
NOTES MC = MASTER CHASSIS, SC = SECONDARY CHASSIS, PC = STAND-ALONE COMPUTER	NOTES	MC = MASTER CHA	2 2 2 4			1.00/11		. idollid	

For higher ranges, or other applications, please contact Servomex















	Background gas	Application	Min Range	Max Range	Product variant	Packages	Detector	Form factor
		O <sub>2</sub> , H <sub>2</sub> , N <sub>2</sub> , CH <sub>4</sub>	0-1ppm	0-10ppm	4402A1	Pack 1A	Plasma	MC
	ARGON	O <sub>2</sub> , H <sub>2</sub> , N <sub>2</sub> , CH <sub>4</sub> , CO	0-1ppm	0-10ppm	4402A1	Pack 2A	Plasma	MC
		O <sub>2</sub> , H <sub>2</sub> , N <sub>2</sub> , CH <sub>4</sub> , CO, CO <sub>2</sub>	0-1ppm	0-10ppm	4402A1	Pack 3A	Plasma	PC + SC
		O <sub>2</sub> , H <sub>2</sub> , N <sub>2</sub> , CH <sub>4</sub>	0-1ppm	0-10ppm	4403A1	Pack 1A	Plasma	MC
		Ar	0-1ppm	0-10ppm	4403A1	Pack 1B	Plasma	MC
		CO	0-1ppm	0-10ppm	4403A1	Pack 1C	Plasma	MC
		O <sub>2</sub> , H <sub>2</sub> , N <sub>2</sub> , CH <sub>4</sub> , CO	0-1ppm	0-10ppm	4403A1	Pack 2A	Plasma	MC
	HELIUM	O <sub>2</sub> , H <sub>2</sub> , N <sub>2</sub> , CH <sub>4</sub> , Ar	0-1ppm	0-10ppm	4403A1	Pack 2B	Plasma	MC
	TILLIONI	O <sub>2</sub> , H <sub>2</sub> , N <sub>2</sub> , CH <sub>4</sub> , Ar, CO	0-1ppm	0-10ppm	4403A1	Pack 3A	Plasma	PC + SC
		O <sub>2</sub> , H <sub>2</sub> , N <sub>2</sub> , CH <sub>4</sub> , Ar, CO <sub>2</sub>	0-1ppm	0-10ppm	4403A1	Pack 3B	Plasma	PC + SC
		O <sub>2</sub> , H <sub>2</sub> , N <sub>2</sub> , CH <sub>4</sub> , CO, Ar, Ne	0-1ppm	0-10ppm	4403A1	Pack 4A	Plasma	MC + SC
		O <sub>2</sub> , H <sub>2</sub> , N <sub>2</sub> , CH <sub>4</sub> , CO <sub>2</sub> , Ar, Ne	0-1ppm	0-10ppm	4403A1	Pack 4B	Plasma	MC + SC
		O <sub>2</sub> , H <sub>2</sub> , N <sub>2</sub> , CH <sub>4</sub> , CO, Ar, Ne, CO <sub>2</sub>	0-1ppm	0-10ppm	4403A1	Pack 5A	Plasma	MC + SC
		O <sub>2</sub> , H <sub>2</sub> , CH <sub>4</sub>	0-1ppm	0-10ppm	4404A1	Pack 1A	Plasma	MC
ē		Ar	0-1ppm	0-10ppm	4404A1	Pack 1B	Plasma	MC
pett		CO <sub>2</sub>	0-1ppm	0-10ppm	4404A1	Pack 1C	Plasma	MC
or k		CO	0-1ppm	0-10ppm	4404A1	Pack 1D	Plasma	MC
2S	NITDOCENI	O <sub>2</sub> , H <sub>2</sub> , CH <sub>4</sub> , Ar	0-1ppm	0-10ppm	4404A1	Pack 2A	Plasma	MC
ade	NITROGEN	O <sub>2</sub> , H <sub>2</sub> , CH <sub>4</sub> , CO	0-1ppm	0-10ppm	4404A1	Pack 2B	Plasma	MC
j.		O <sub>2</sub> , H <sub>2</sub> , CH <sub>4</sub> , CO <sub>2</sub>	0-1ppm	0-10ppm	4404A1	Pack 2C	Plasma	MC
Ė		O <sub>2</sub> , H <sub>2</sub> , CH <sub>4</sub> , Ar, CO	0-1ppm	0-10ppm	4404A1	Pack 3A	Plasma	PC + SC
ALI		O <sub>2</sub> , H <sub>2</sub> , CH <sub>4</sub> , Ar, CO <sub>2</sub>	0-1ppm	0-10ppm	4404A1	Pack 3B	Plasma	PC + SC
ÓΠ		O <sub>2</sub> , H <sub>2</sub> , CH <sub>4</sub> , CO, CO <sub>2</sub>	0-1ppm	0-10ppm	4404A1	Pack 3C	Plasma	PC + SC
INDUSTRIAL GAS QUALITY - Grade 5N or better		O <sub>2</sub> , H <sub>2</sub> , CH <sub>4</sub> , Ar, CO, CO <sub>2</sub>	0-1ppm	0-10ppm	4404A1	Pack 4A	Plasma	MC + SC
- U		N <sub>2</sub>	0-1ppm	0-10ppm	4405A1	Pack 1A	Plasma	MC
RIA		Ar	0-1ppm	0-10ppm	4405A1	Pack 1B	Plasma	MC
LSO		CH <sub>4</sub> , NMHC	0-1ppm	0-10ppm	4405A1	Pack 2A	Plasma	MC
<u> </u>		N <sub>2</sub> , H <sub>2</sub> , CH <sub>4</sub>	0-1ppm	0-10ppm	4405A1	Pack 2B	Plasma	MC
	OXYGEN	Ar, N <sub>2</sub>	0-1ppm	0-10ppm	4405A1	Pack 2C	Plasma	MC
	OXIGEN	N <sub>2</sub> , H <sub>2</sub> , CH <sub>4</sub> , CO <sub>2</sub>	0-1ppm	0-10ppm	4405A1	Pack 3A	Plasma	PC + SC
		H <sub>2</sub> , CO, CH <sub>4</sub> , CO <sub>2</sub>	0-1ppm	0-10ppm	4405A1	Pack 3B	Plasma	PC + SC
		N <sub>2</sub> , H <sub>2</sub> , CH <sub>4</sub> , CO <sub>2</sub> , CO	0-1ppm	0-10ppm	4405A1	Pack 4A	Plasma	MC + SC
		N <sub>2</sub> , H <sub>2</sub> , CH <sub>4</sub> , CO <sub>2</sub> , CO, Ar	0-1ppm	0-10ppm	4405A1	Pack 5A	Plasma	MC + SC
		N <sub>2</sub> , H <sub>2</sub> , CH <sub>4</sub> , CO <sub>2</sub> , CO, Ar, NMHC	0-1ppm	0-10ppm	4405A1	Pack 6A	Plasma	PC + SC + SC
		$N_2$	0-1ppm	0-10ppm	4407A1	Pack 1A	Plasma	MC
		N <sub>2'</sub> CO <sub>2'</sub> CH <sub>4</sub>	0-1ppm	0-10ppm	4407A1	Pack 2A	Plasma	MC
	HYDROGEN	CO, CO <sub>2</sub> , CH <sub>4</sub>	0-1ppm	0-10ppm	4407A1	Pack 2B	Plasma	MC
	TITOROGEN	N <sub>2</sub> , Ar	0-1ppm	0-10ppm	4407A1	Pack 2C	Plasma	MC
		$N_{2'}$ $CO_{2'}$ $CH_{4'}$ $CO$	0-1ppm	0-10ppm	4407A1	Pack 3A	Plasma	PC + SC
		N <sub>2</sub> , CO <sub>2</sub> , CH <sub>4</sub> , CO, Ar	0-1ppm	0-10ppm	4407A1	Pack 4A	Plasma	MC + SC
	CARBON	$N_2$	0-1ppm	0-10ppm	4408A1	Pack 1A	Plasma	MC
	DIOXIDE	Ar	0-1ppm	0-10ppm	4408A1	Pack 2A	Plasma	MC
CAL	NITROUS OXIDE	CO <sub>2</sub>	0-300ppm	0-300ppm	4415A1	-	TCD	MC
MEDICAL	NUTEOGE	0-100% N <sub>2</sub> matrix	0-100%	0-100%	4415A1	Pack 1	TCD	MC
≥ ਹ	NITROGEN	0-100% N <sub>2</sub> matrix + 0-30% O <sub>2</sub>	0-100%/0-30%	0-100%/0-30%	4415A1	Pack 2	TCD	MC
NOTES	MC = MASTER C	HASSIS, SC = SECONDARY CHASSIS, PC	= STAND-ALONE CO	MPUTER				

For higher ranges, or other applications, please contact Servomex













## > WE'RE READY TO HELP

WHATEVER YOUR GAS ANALYSIS REQUIREMENTS, WHEREVER YOU ARE

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.

**Please note:** Whilst every effort has been made to ensure accuracy, no responsibility can be accepted for errors and omissions. Data may change, as well as legislation, and you are strongly advised to obtain copies of the most recently issued regulations, standards and guidelines. This document is not intended to form the basis of a contract.

Servomex has a policy of constant product improvement and reserves the right to change specifications without notice. © Servomex Group Limited. 2022. A Spectris company. All rights reserved.

