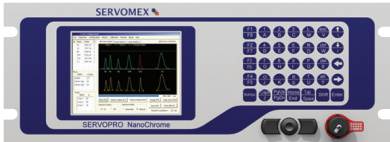


SERVOPRO NanoChrome

ULTRA-TRACE MEASUREMENTS OF UHP GASES INCLUDING HYDROGEN, METHANE, CARBON MONOXIDE, CARBON DIOXIDE, ARGON, NITROGEN AND NON-METHANE HYDROCARBONS



SERVOPRO NanoChrome

The NanoChrome is a high performance analyzer specifically designed for the semiconductor manufacture industry, offering ultra-trace, highest reliability monitoring of H₂, CH₄, CO, CO₂, N₂, Ar and NMHC impurities in a wide range of common background gases including He, H₂, N₂, Ar and O₂.

Using advanced new Plasma Emission Detector (PED) sensing technology and sensitive ProPeak software, both specially developed by Servomex, the NanoChrome provides considerable advantages over traditional Flame Ionization Detector (FID) and Reduction Gas Detector (RGD) sensing technologies in terms of performance, stability, safety and ability to reduce on-going costs.

Servomex's advanced signal recovery uses patented ProPeak filtering methods to deliver a highly sensitive and selective measurement you can rely on. With no need for a methaniser or requirement flammable fuel gas, the NanoChrome also delivers appreciable cost benefits. When used with the Servomex DF-500 ultra-trace oxygen and DF-700 moisture series analyzers, the NanoChrome fulfils a unique total analysis solution for UHP gas monitoring.

FLEXIBLE

- Comprehensive solution for ultra-trace H₂, CH₄, CO, CO₂, N₂, Ar and NMHC in a wide range of common background gases including He, H₂, N₂, Ar and O₂
- A complete stand-alone UHP gas analysis solution when combined with DF-500 and DF-700 analyzers
- Digital communications for remote access: Internet/Ethernet and RS232

EASY TO USE

- Comprehensive report monitoring software for full access to chromatograms, process results, statistics and historical values
- Internal dilution system option
- No requirement for flammable fuel gas, improving safety and simplifying installation

LOW COST OF OWNERSHIP

- Non-depleting sensor and intelligent software extends calibration intervals
- No need for methaniser or consumable fuel gas
- Cost-effective and simplified ongoing maintenance

UNRIVALLED PERFORMANCE

- Innovative high-sensitivity Plasma Emission Detector (PED) enables ultra-trace measurements of Ar, N₂, H₂, CH₄, CO and CO₂, and NMHC
- ProPeak peak detection technique enables unprecedented measurement sensitivity
- Direct Analysis Methodology removes uncertainties of FID and RGD measurements

BENCHMARK COMPLIANCE

- In compliance with Low Voltage, EMC and applicable Directives

Learn more about the SERVOPRO NanoChrome
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SERVOMEX
ANALYZERS
HIGH-PERFORMANCE GAS ANALYSIS

STANDARD CONFIGURATIONS: NanoChrome

BACKGROUND GASES	PACKAGES	MEASUREMENTS	CONSTRUCTION
ARGON	Pack 1	N ₂	MC
	Pack 2	H ₂ , CO, CO ₂ , CH ₄	MC + SC
	Pack 3	H ₂ , CO, CO ₂ , CH ₄ , NMHC	MC + SC
	Pack 4	N ₂ , H ₂ , CO, CO ₂ , CH ₄	MC + SC
	Pack 5	N ₂ , H ₂ , CO, CO ₂ , CH ₄ , NMHC	PC + MC + SC
NITROGEN	Pack 1	Ar	MC
	Pack 2	H ₂ , CO, CO ₂ , CH ₄	MC + SC
	Pack 3	H ₂ , CO, CO ₂ , CH ₄ , NMHC	MC + SC
	Pack 4	Ar, H ₂ , CO, CO ₂ , CH ₄	PC + SC + SC
	Pack 5	Ar, H ₂ , CO, CO ₂ , CH ₄ , NMHC	PC + SC + SC
OXYGEN	Pack 1	Ar, N ₂	PC + SC
	Pack 2	H ₂ , CO, CO ₂ , CH ₄	MC + SC
	Pack 3	H ₂ , CO, CO ₂ , CH ₄ , NMHC	PC + SC + SC
	Pack 4	Ar, N ₂ , H ₂ , CO, CO ₂ , CH ₄	MC + SC + SC
	Pack 5	Ar, N ₂ , H ₂ , CO, CO ₂ , CH ₄ , NMHC	MC + SC + SC
HYDROGEN	Pack 1	Ar, N ₂	PC + SC
	Pack 2	CO, CO ₂ , CH ₄	PC + SC
	Pack 3	CO, CO ₂ , CH ₄ , NMHC	PC + SC
	Pack 4	Ar, N ₂ , CO, CO ₂ , CH ₄	PC + SC + SC
	Pack 5	Ar, N ₂ , CO, CO ₂ , CH ₄ , NMHC	PC + SC + SC
HELIUM	Pack 1	Ar, N ₂	PC + SC
	Pack 2	H ₂ , CO, CO ₂ , CH ₄	MC + SC
	Pack 3	H ₂ , CO, CO ₂ , CH ₄ , NMHC	MC + SC
	Pack 4	Ar, N ₂ , H ₂ , CO, CO ₂ , CH ₄	PC + SC + SC
	Pack 5	Ar, N ₂ , H ₂ , CO, CO ₂ , CH ₄ , NMHC	PC + SC + SC
NOTES	MC = MASTER CHASSIS, SC = SECONDARY CHASSIS, PC = STANDALONE COMPUTER		

KEY APPLICATIONS

- Semiconductor Production - Quality Control Measurements
- Semiconductor Production - Stationary Analytical Systems



PRODUCT DATA: NanoChrome

OPTIONS	DESCRIPTION	SPECIFICATION
Analog outputs	1 x 4-20mA (High Resolution Chromatogram) 1 x 4-20mA per impurity (up to 8)	Supplied as standard
Alarms	3 x volt free single pole relays	Alarms for: dry contacts, system status and 2 additional alarms
Digital communications	RS232 Ethernet (RJ45)	Remote interaction: status and commands Remote interaction via internet
Digital input	Permits remote system start-up	One Digital Isolated Input/24V DC, 1A
Digital output	Range ID per impurity	Up to 8 digital outputs/24V DC, 1A
Sample dilution	Options for an internal, integrated system	Enables calibration with 5ppm Cal Gas
PC software	Adds additional dimensions of reporting and analysis	Facilitates full device access including chromatograms and process results obtained via Ethernet or Internet. Can also be used to generate statistics and historical values
ACCESSORIES	ACCESSORIES AVAILABLE FOR SPECIFIC APPLICATIONS – CONTACT YOUR LOCAL SERVOMEX BUSINESS CENTER	

MONITORING PERFORMANCE							
Background Gases	He, H ₂ , N ₂ , Ar and O ₂						
Impurities	H ₂	CO	CH ₄	CO ₂	NMHC	N ₂	Ar
Technology	Plasma Emission Detector (PED)						
Range	0-250ppb *						
Limit of Detection (LOD) ppb †	0.5 *	0.5	0.5	0.5	0.5	0.3	0.5
Accuracy (intrinsic error) FS	The greater of ±2% of reading or LOD						
Repeatability	The greater of ±2% of reading or LOD						

† LOD: 3 sigma 95% confidence limit
 * Background O₂: LOD = 0.8ppb
 • Other ranges available on request

SAMPLE FOR MEASUREMENTS	
Sample for measurement	Sample must be oil free, non-corrosive, non-condensing
Sample pressure	30psig (application dependent)
Flow rate	50-300ml/min. (application dependent)

PRODUCT DATA: NanoChrome

DEVICE SPECIFICATION

Size:

- 482mm (18.9") Wide x 117mm (4.6") High x 600mm (23.6") Deep

Weight:

- 11-27kg (25-60lb) applications dependent

Operating temperature:

- 5°C - 40°C/41°F - 104°F

Certifications:

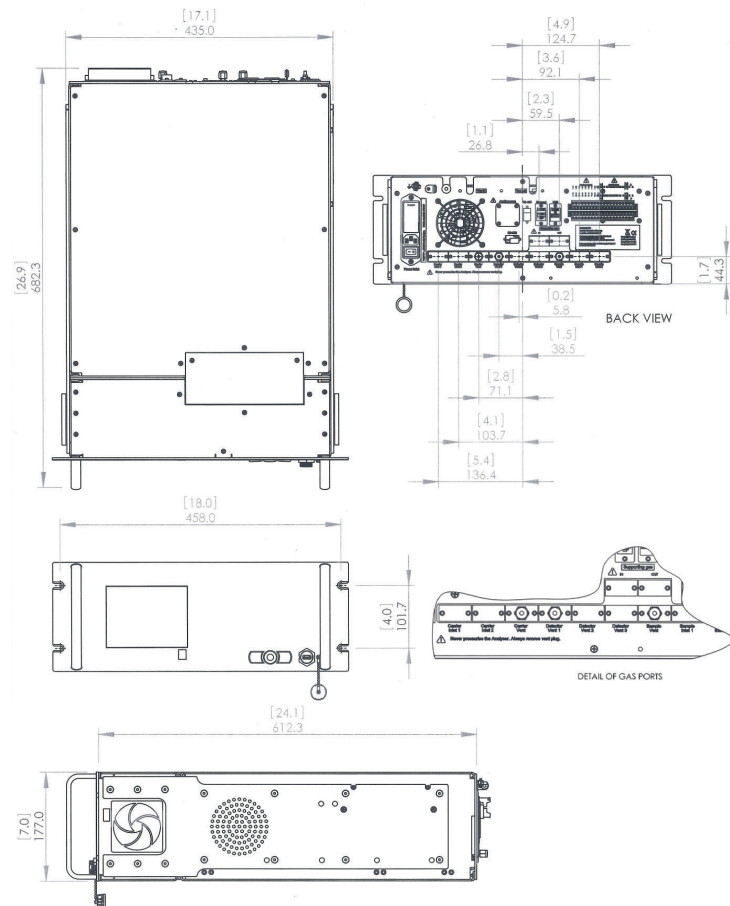
- In compliance with EMC Directives, rated for Overvoltage Category II and Pollution Degree 2

Notes:

1. He carrier gas must be free of Ar (<1ppb)
2. Carrier gas inlet pressure
For O₂ background gas = 85psig
All other background gases = 80psig

DEVICE SCHEMATIC

Notes: 1. Dimensions in square brackets are in inches (Master Chassis)



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: This document was updated in June 2018. While every effort has been made to ensure accuracy, no responsibility can be accepted for errors or 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.

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