

SERVOTOUGH MiniLaser Oxy

NEXT-GENERATION TUNABLE DIODE LASER (TDL) PROCESS OXYGEN MONITOR COMBINES UNIQUE FEATURES, LEADING PERFORMANCE AND REDUCED COST-OF OWNERSHIP IN A REVOLUTIONARY COMPACT DESIGN.



SERVOTOUGH MiniLaser Oxy

The SERVOTOUGH MiniLaser Oxy is a revolution in TDL Absorption Spectroscopy analysis: a highly compact gas monitor for in-situ cross stack applications, which delivers exceptional performance benefits in a revolutionary compact design.

Servomex's pioneering approach to design has produced an analyzer that occupies a footprint up to 1/10th the size of the competitors products. This provides instant benefits in terms of installation ease and flexibility.

The SERVOTOUGH MiniLaser Oxy delivers exceptional TDL performance, with a fast response to measuring O₂ in a wide range of applications. Utilizing the latest Wavelength Modulated Spectroscopy (WMS) measurement techniques with unique Servomex signal processing, the MiniLaser provides the most stable, repeatable results with minimal cross interference from other gases.

FLEXIBLE

- Revolutionary compact design
- Performs in high particulate environments
- WMS minimizes cross interference from background gases
- Diverse mounting: ideal for ducts, stacks and reactor installations

EASY TO USE

- Simple to install and operate
- Robust, reliable TDL measurement
- Ethernet and 4-20mA connectivity as standard
- Easy to configure via user friendly keypad or TCP/IP ethernet

LOW COST OF OWNERSHIP

- Small, light intuitive alignment for easy installation and maintenance
- Non-depleting TDL technology requires no replacement
- No moving parts, no consumables
- No sampling system reduces maintenance costs
- Low window purge flow reduces costs
- No Hazardous Area Purge required

UNRIVALLED PERFORMANCE

- WMS improves S/N ratio
- Process temperatures up to 500°C and pressures up to 16 bar abs
- Fast response time <1 sec for in-situ applications
- Low detection limit
- No zero drift

BENCHMARK COMPLIANCE

- ATEX, IECEx and North American hazardous area approvals
- Approved for process Zone 1
- SIL2 approved
- CE approved

Learn more about the SERVOTOUGH MiniLaser Oxy
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PRODUCT OVERVIEW: MiniLaser Oxy

A REVOLUTIONARY APPROACH TO TDL GAS ANALYSIS

By combining the latest advances in hardware with leading-edge software processing, the SERVOTOUGH MiniLaser is a revolutionary step forward for TDL gas analysis. Servomex has approached TDL analysis fresh, creating an analyzer a fraction of the size without compromising performance. The result is TDL analysis that is easy and fast to install, both saving valuable space while enabling much greater installation flexibility.

LOW MAINTENANCE, LOW COST-OF-OWNERSHIP

The next-generation ethos of the MiniLaser works hard to reduce costs at all stages. In addition to the immediate advantages of TDL technology – a non-depleting measurement which requires no sampling systems or sensor replacement - the MiniLaser compact design greatly reduced installation time, with small, light intuitive alignment for easy installation and maintenance. In addition, the MiniLaser requires a fraction of the window purge gas flow required by competitor analyzers. Full ethernet communications for commissioning, diagnostics and trouble shooting.

HIGH PERFORMANCE MONITORING

The hardware advances of the MiniLaser are matched by an advanced WMS processing laser measurement, augmented by unique drift elimination software which eliminates drift over extended operational periods by automatically tracking on the measured gas absorption line. This robust tracking mechanism ensures a highly reliable and accurate operation over long periods, with calibration frequencies extended beyond twelve months for many applications.

The result is a sturdy, hazardous area optimized design which ensures MiniLaser can handle the most challenging of locations; including particulate-rich environments.

ALTERNATIVE PRODUCTS

The SERVOTOUGH product range features a number of options designed to meet your application needs.

LaserCompact 2940



When you need to monitor across pipework, short distance extractive applications or short sample cell applications, choose LaserCompact. This device can even measure through very thin nozzles.

LaserExact 2950



The LaserExact brings same industry leading TDL technology in an extractive TDL trace analysis format, meeting ultra-low ppb or low ppm measurement requirements.

OxyExact 2200



The SERVOTOUGH OxyExact high specification oxygen analyzer offers an unrivalled 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.

KEY APPLICATIONS

- Oxidation Control
- Inerting
- Safety Monitoring
- Process Control
- Flare Gas Monitoring
- Combustion (500°C)



Zirconia

Gas Filter
Correlation

Calorimetry

Thermal
Conductivity

Paramagnetic



Infra-Red

Tunable Diode
LaserFlame Ionisation
Detector

PRODUCT DATA: MiniLaser Oxy

SPECIFICATIONS	DETECTION LIMIT	MIN. MEASURING RANGE	MAX. PRESSURE MEASUREMENT	MAX. SAMPLE TEMPERATURE/°C
O ₂	0.01%	0 - 1%	16 bar abs.	500
NOTES	1. Detection limits are specified as the 95% confidence interval for 1m optical path and gas temperature/pressure = to 25°C/1 bar abs. Pressures quoted are spectroscopic limits for the MiniLaser ATEX and IEC certified products will be limited to 1.1bar abs maximum process pressures for flammable samples.			

MONITORING PERFORMANCE	
Technology	Single Line Tunable Diode Laser Spectroscopy
Optical path	0.1 - 40 meters
In - situ response time	1 second
Drift	Negligible (<1% of measured range between recommended maintenance interval)
Repeatability	+/- Detection Limit or +/- 1% of Reading, whichever is greater
Linearity	<1% Full Span Range
Calibration	Check recommended every 6-12 months in-situ with flow through cell (application dependent), or using optional external calibration cell.
Maintenance	Recommended every 12 months. Remote instrument check possible via Ethernet

OPTIONS	DESCRIPTION	SPECIFICATION
Pathlength Specific Optics	<2M Collimated Beam, 2M – 12M Standard Optics >12M Long Pathlength	Optics are specified to ensure optimal transmission intensity
Outputs and Alarms	Standard: 1 x 4-20 mA output, 1 x Status Relay Additional option Card: Additional 1 x 4-20mA output Additional 2 x Status Relays, Additional 2 x 4-20mA inputs	4-20 mA output: Isolated current loops, 500 Ω maximum 4-20 mA input: Maximum current 22mA input impedance 50 Ω Status Relays: 1A at 30V Vdc/ac
Digital Communications	TCP/IP Ethernet	Optional PC based s/w available for commissioning, diagnostics and service support. 10 or 100 base Ethernet and Modbus TCP
Flange Sizes	DN25, DN50, ANSI 1", 2" and 3"	Available as standard
Sample wetted seals	Fluorocarbon (Viton 70), Chemraz (505)	
Power Supply	The analyzer is powered by 24V dc.	An external mains rated power supply (85-264 VAC, 50/60 Hz) is available for US and ATEX/IECex (Gas) hazardous areas
In-Line Span cell	Available to allow analyzer performance to be checked with live reference gas	Validation of reading

ACCESSORIES ACCESSORIES SUCH AS ALIGNMENT TOOLS, CALIBRATION CELL KITS, PURGE PANELS AND INSERTION TUBES, ISOLATION FLANGES AND THERMAL SPACERS ARE AVAILABLE FOR SPECIFIC PROCESS OXYGEN APPLICATION APPLICATIONS – CONTACT YOUR LOCAL SERVOMEX BUSINESS CENTER

PRODUCT DATA: MiniLaser Oxy

DEVICE SPECIFICATION

Size:

- TRANSMITTER:
131mm width (5¹/₈"")
164mm high (6¹/₂"")
277mm deep (10⁷/₈"")

- RECEIVER:
110mm width (4⁵/₁₆"")
146mm high (5³/₄"")
244mm deep (9³/₄"")

Weight:

- TRANSMITTER: 3.0 kg (6.6 lbs)
- RECEIVER: 2.0 kg (4.4 lbs)

Operating temperature:

- -20°C to +65°C (standard)

Certifications:

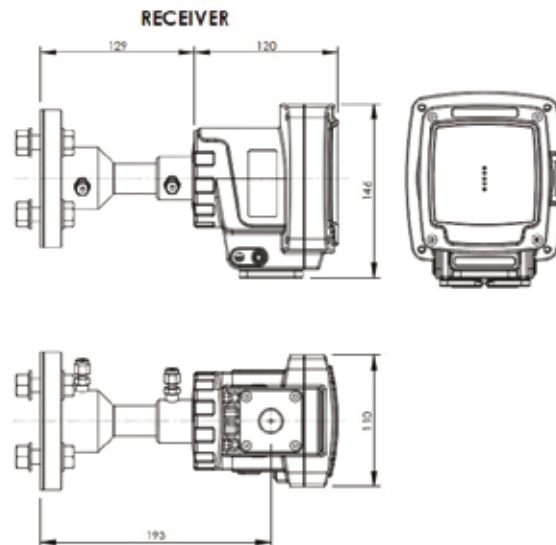
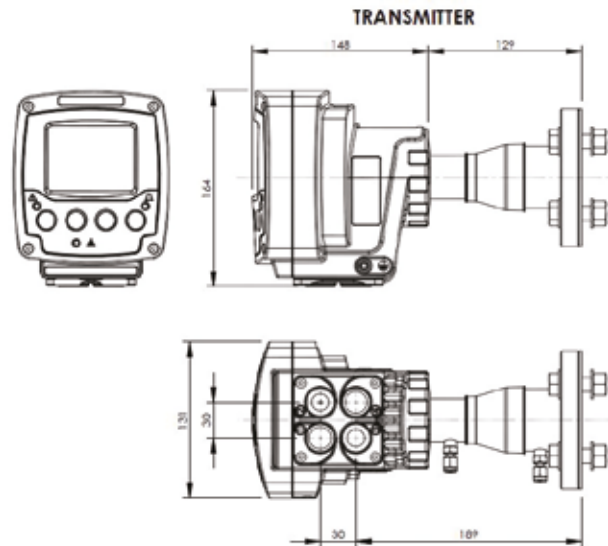
- ATEX Cat 3 (Gases)
- IECEx Zone 2 and Zone 21
- North American Class 1 Division 2 and Zone 2 (Gas and Dust)
- ATEX Cat 2 (Dust)
- Safe Area / General Purpose
- CE marked in compliance with ATEX, EMC, LVD and all other applicable directives

Protection Class:

- IP66
- NEMA 4X

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.

DEVICE SCHEMATIC



Please note: This document was updated in December 2014. 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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AMERICAS BUSINESS CENTER
Tel: +1 281 295 5800
Email: americas_sales@servomex.com

ASIA PACIFIC BUSINESS CENTRE
Tel: +86 (0)21 6489 7570
Email: asia_sales@servomex.com

EUROPEAN BUSINESS CENTRE
Tel: +31 (0) 79 330 1580
Toll Free: 00800 7378 6639 (NL, D, GB, F)
Email: europe_sales@servomex.com

LATIN AMERICA BUSINESS CENTER
Tel: +55 11 5188 8166
Email: brazil_sales@servomex.com

INDIA BUSINESS CENTRE
Tel: +91 22 3934 2700
Email: MEI_sales@servomex.com

MIDDLE EAST BUSINESS CENTRE
Tel: +971 6552 8073
Email: MEI_sales@servomex.com

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