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ExxonMobil

Augusta, 05 Febbraio 2016

MINISTERO DELL'AMBIENTE E DELLA TUTELA
DEL TERRITORIO E DEL MARE
Direzione Generale per le Valutazioni e le Autorizzazioni Ambientali

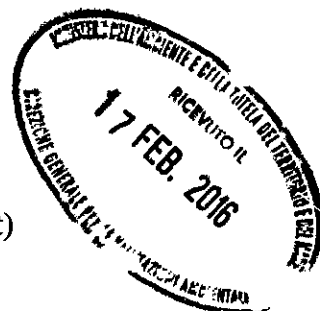
REGISTRO UFFICIALE - INGRESSO
Prot. 0004146 DVA del 18/02/2016

Spett.le

**MINISTERO DELL'AMBIENTE E
DELLA TUTELA DEL TERRITORIO E DEL MARE**
Direzione Generale Valutazioni Ambientali
Divisione IV
Via Cristoforo Colombo, 44
00147 ROMA
(PEC – aia@pec.minambiente.it)

Cc: Spett.le

ISPRA
Via Vitaliano Brancati, 48
00144 ROMA
(PEC – protocollo.ispra@ispra.legalmail.it)



Raccomandata A/R (anticipata via PEC)

OGGETTO: CONTROLLI AIA – ESSO – SR - AUGUSTA – OTTEMPERANZA – Decreto (prot. DEC-MIN-0000250 del 25/11/2015) di riesame dell'Autorizzazione Integrata Ambientale – Prescrizione relativa all'installazione e alle caratteristiche dell'analizzatore in continuo per la determinazione dell'H2S al camino dove sono convogliati gli effluenti gassosi in uscita dagli impianti di recupero dello zolfo.

Facendo seguito a quanto prescritto a pag. 43 di 45 del decreto di riesame dell'Autorizzazione Integrata Ambientale, (prot. n. DEC-MIN-0000250 del 25/11/2015) ricevuto via PEC in data 10/12/2015, relativamente all'analizzatore in continuo per la determinazione dell'H2S da installare al camino dove sono convogliati gli effluenti gassosi in uscita dall'impianto di recupero dello zolfo, si comunica che:

- Da un'indagine di mercato effettuata, presso alcuni tra i principali produttori, al fine di scegliere la tecnologia più adeguata a quanto prescritto è stato rilevato che la strumentazione disponibile in commercio è in grado di rispettare il requisito del limite di rivelabilità di 0,5 mg/Nm³ ma non quello della certificazione UNI EN 15267-1,2,3. A riscontro di quanto affermato si allegano le risposte dei fornitori (allegato 2).
- L'analizzatore, che quindi è stato installato in data 7 gennaio 2016 al camino dell'impianto di recupero zolfo (del quale si riportano in allegato 1 le caratteristiche tecniche), soddisfa il requisito del limite di rivelabilità di 0,5 mg/Nm³ ma non la certificazione UNI EN 15267-1,2,3. Le misure da esso ricavate, così come anticipato durante le CdS e come previsto dal decreto AIA, sono pertanto da intendersi gestionali e non ai fini del rispetto del limite.
- Essendo stato installato l'analizzatore entro un mese dalla pubblicazione del decreto, non è stato ritenuto necessario procedere con le misure, a cadenza mensile, della concentrazione di H₂S fino all'entrata in servizio dell'analizzatore in continuo.

Restando a disposizione per eventuali chiarimenti, si coglie l'occasione per porgerVi i più cordiali saluti.

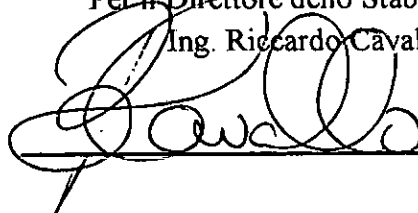
Allegato 1 - SERVOTOUGH LaserExact_uk 220512 della società SERVOMEX

Allegato 2 - Risposta dei fornitori SIEMENS e SICK

Esso Italiana S.r.l. - Raffineria di Augusta

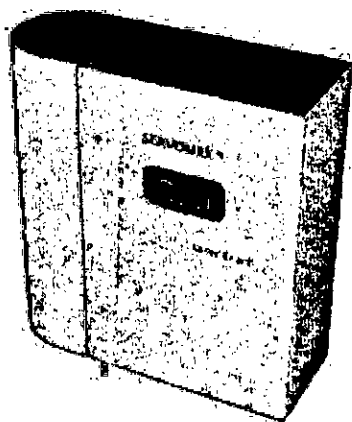
Per il Direttore dello Stabilimento

Ing. Riccardo Cavallo

A handwritten signature in black ink, appearing to read 'Riccardo Cavallo', is written over a horizontal line.

ALLEGATO 1

SERVOMEX PROCESS ANALYSERS



SERVOTOUGH **LaserExact**

The SERVOTOUGH LaserExact monitor combines a multipass long path length cell with a compact analyser design. The combination of the long path length and Wavelength Modulated Spectroscopy (WMS) signal processing technique delivers very low detection limits for measurement of trace gases, offline in a controlled environment.

FEATURES

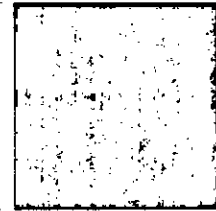
- Extractive installation with a multipass cell to achieve extremely low detection limits (ppb for most gases)
- Fast response time (typically 2-10 sec)
- WMS limits interference from background gases
- Utilises proven Tuneable Diode Laser (TDL) technology
- Stable calibration with no zero drift minimises maintenance costs
- No moving parts and no consumables minimise operating costs
- Ethernet connectivity option
- ATEX and North American hazardous area approvals
- Low cost of ownership

KEY APPLICATIONS

- Natural gas - H_2S and CO_2
- Flare gas recovery system - O_2
- Process gas - HF and HCl impurities
- Refineries - monitoring H_2S
- Industrial Gas - impurities in pure gas
- Biogas production - monitoring H_2S
- Glove box - trace O_2

SERVOMEX 

SERVOTOUGH LaserExact

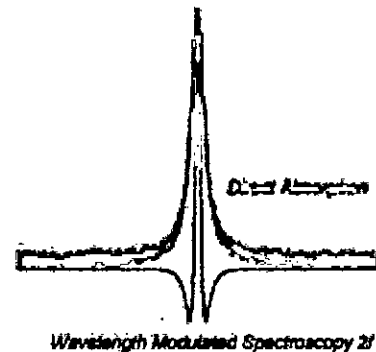


KEY FEATURES

The LaserExact comprises a laser source whose light is reflected multiple times by the highly reflective mirrors in the multipass cell before passing to the photodetector. The gas concentration is calculated based on the absorption of laser light for the selected spectral line. A Liquid Crystal Display (LCD) continuously displays the gas concentration, laser beam transmission and instrument status.

Tunable Diode Laser (TDL) technology is a non-contact optical measurement method employing stable solid-state laser sources. The sensor is unaffected by contaminants and corrosive gases, so does not require regular maintenance.

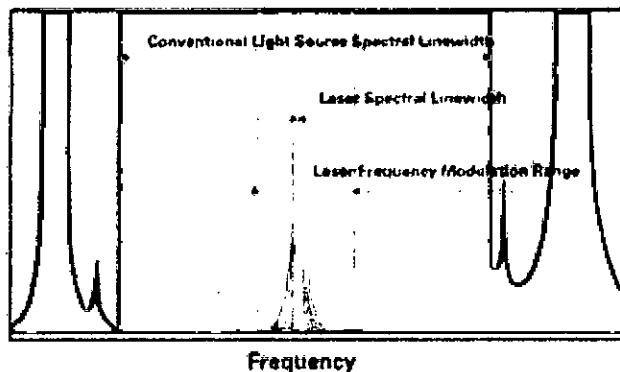
Servomex uses Wavelength Modulated Spectroscopy (WMS) with a high frequency carrier providing a second harmonic of the gas absorption peak. This provides a much greater resolution between the target gas absorption and possible interference, in addition to improved signal to noise performance when compared to first generation laser direct absorption measurement. This core technology reduces interference from other gases and provides the most stable, repeatable results.



WMS technology combined with the LaserExact multipass cell, which reflects the laser beam multiple times between two concave mirrors, achieves very low detection limits.

Servomex have been delivering TDL solutions to the harsh environments of the process industry for nearly 10 years and with an extensive application database, the application teams select a spectral absorption of the target gas which minimises interference from other gases that may be present in the process stream.

The laser line width is very narrow, much less than the target gas absorption line width and the laser scans over a range monitoring the zero baseline and peak. As the laser scans typically 20 times/second, correcting the baseline zero, this method ensures no zero drift



- ☐ Gas under test, typical absorption line width 0.05nm
- ☐ Absorption lines from other (background) gases
- ☐ Laser scan range, typically 0.2 -03nm, note Laser spectral line width is about 0.0001nm
- ☐ UV/IR absorption spectroscopy line width >2nm

The LaserExact utilises advanced PeakLock technology, which eliminates drift over extended operational periods by automatically tracking on the measured gas absorption line, or in applications where the measured gas is not normally present, tracking the line of another gas present in the stream (e.g. H₂O). This robust tracking mechanism ensures a highly reliable and accurate operation by the LaserExact over long periods, with calibration frequencies extended beyond twelve months for many applications.

The SERVOTOUGH LaserExact monitor is a turn-key instrument and installation simply requires connection of power, sample gas and optional purge. To avoid contamination of the optical components, filtering of the sample gas with an appropriate extractive system may be required for some applications.

SERVOTOUGH

LaserExact

SPECIFICATIONS

GAS MEASURED:

O₂
H₂O
H₂S
CO
CO₂
NH₃
HCl
HF

PERFORMANCE:

Optical path length
Response time
Averaging time
Repeatability
Linearity
Operating temperature
Storage temperature
Protection
classification

INPUTS/OUTPUTS:

Analogue output(s)
Digital output
Relay output(s)
Analogue input
Input power supply unit
Output power supply unit
Input transmitter unit
4-20mA output
Relay output

INSTALLATION AND OPERATION:

Gas inlet/outlet
Sample gas flow
Sample inlet pressure
Purging of laser
chamber (optional)
Purge flow

MAINTENANCE:

Visual inspection

Calibration

SECURITY:

Laser class
CE
EMC

EXPLOSION PROTECTION (OPTIONAL):

ATEX Zone 2
North American CSA

WEIGHT

Detection Limits

3ppm *
10ppb *
0.3ppm
50ppb
50ppb
20ppb
5ppb
2ppb

NOTE:

Detection limits are specified as the 95% confidence interval for the standard 11m cell and gas temperature/pressure = 25°C/ 1 bar abs.

Also available HCN

Dual Gas: NH₃+H₂O, HCl+H₂O, HF+H₂O, CO+CO₂, CO+H₂O

* Application dependent (consult Servomex)

0.6-12m (2-39ft)- depends on cell version
Typically 2-10sec (depending on cell and sample gas flow)
Rolling average from 2 seconds to 24 hours (exp. decay)
+/- Detection limit or +/- 1% of reading, whichever is greater
< 1%
-20°C to +55°C (-4°F to +131°F)
-20°C to +55°C (-4°F to +131°F)

IP65

4-20mA current loop
RS-232 format, optional 10 or 10/100 Base T Ethernet, optional fibre optic (ASCII - format)
High gas, Maintenance, Warning and Fault relays (normally closed-circuit relays)
4-20mA process temperature and pressure reading
100-240v ac, 50/60Hz, 0.36-0.26 A
24v dc, 900-1000mA
18-36v dc, max. 20W
500 Ohm max. isolated
1 A at 30v dc/ac

6mm or 1/4" Swagelok (other dimensions on request)
Recommended 5-10l/min
0.2-2.0 Bar abs (2.9-29psia)

Dry and oil-free pressurised air or gas, Nitrogen for O₂ and H₂O applications
Maximum 0.5l/min (1 CuFt/hr)

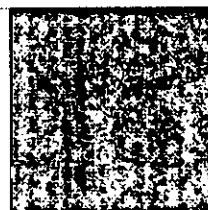
Recommended every 6-12 months (no consumables needed)
Remote instrument check by Ethernet connection or external modem possible
Check recommended every 12 month

Class 1 according to IEC 60825-1
Certified
Conformant with LVD 73/23/EEC, including 93/68/EEC

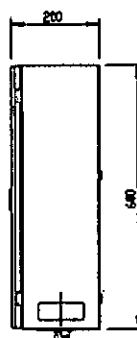
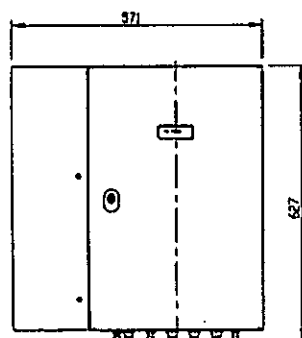
II 3 G Ex nA nC op is Gc IIC T4, II 3 D Ex td A22 IP65 T100°C
Class 1, Div. 2, Groups A, B, C and D, Temp. Code T4; non-incendive

28kg (62lbs)

SERVOTOUGH LaserExact



DIMENSIONS



All dimensions shown in millimetres

SERVICE & SUPPORT

For new installations and replacement of older Servomex and competitor products, we will work with you to develop a bespoke service and support package, ensuring full measurement availability and plant operation within your timescales and budget.

SYSTEMS

Innovative sampling systems are custom designed to meet process stream requirements including:

- Hydrogen sulphide in natural gas
- Trace oxygen in flare gas

Systems options to simplify installation:

- Standard instrument purge flow control panels
- Auto validation and auto calibration systems

BUSINESS CENTRES

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Tel: +31 (0)79 330 1580
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www.hummingbirdsensing.com

Servomex has a policy of constant product improvement and reserves the right to change specifications without notice.
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PB2950 Rev.1 05/12 E

ALLEGATO 2

SIEMENS

Siemens S.p.A. V.le Piero e Alberto Pirelli, 10 - I-20126 Milano

Messer

Esso Italiana S.r.l. Raffineria di Augusta,
CP-101 - 96011 "SR"

Att.

Mr. Gentile, Sebastiano
I/A Maintenance Area Head

Reference: **H2S analysis for emission**

Date: **October 13th, 2015**

Dear Sir,

With reference to your request for on line measure of H₂S on a chimney stack, we regret to inform you that Siemens does not have a continuous technology available at low level application. The only technology that we can use is the Gas Chromatograph but with no UNI EN 15267-1,2,3 (QAL1) certification

If you have any questions or require additional information, please feel free to contact us.

Best Regards

Corrado Mestroni



SIEMENS S.p.A.



SICK S.p.A. Via Cadorna, 66 – 20090 Vimodrone (MI) - Tel. 02/274341

Spett.le
Dipietro Group S.r.l.
Via Capuana 11
96010 Città Giardino - Melilli (SR)

Att. Ing. Ivan Drago

Oggetto : richiesta fattibilità analizzatore H2S su camino

Egregio Ing. Drago,

da una verifica eseguita dal ns ufficio tecnico, mi comunicano che non possiamo soddisfare la richiesta in quanto è richiesto un' analizzatore per montaggio al camino e certificato per emissioni ;
QAL1 14181- EN15267 1-2-3

Non abbiamo un analizzatore in-situ che soddisfi le condizioni richieste (e siamo certi che non esista sul mercato un analizzatore con queste caratteristiche).

Una nostra soluzione alternativa potrebbe essere un analizzatore estrattivo UV in esecuzione ATEX zona 2 con queste limitazioni:

--> Il campo minimo è 40 mg/m3

--> Servono chiare indicazioni delle matrici di gas con relative concentrazioni di NO,
NO2, mercaptani, SO2, composti a base di zolfo (anche in tracce), aromatici, idrocarburi insaturi

Resto a disposizione per ulteriori chiarimenti.

Cordiali saluti

Vimodrone lì, 14/10/2015

SICK SpA

Ing. Salvatore Squillaci
Product Manager Analyzers & Flow Solutions

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