Stack Gas Analyzer

SG750

Bulletin 11G04G01-01E

www.yokogawa.com/an/

vigilantplant.®
The clear path to operational excellence

YOKOGAWA

Simultaneous Measurement of 5 Components NO_X, SO_2, CO, CO_2 and O_2 in Flue Gas

Continuously measures and monitors concentrations of flue gases generated from boilers or garbage incinerators

Dual Beam NDIR Stack Gas Analyzer

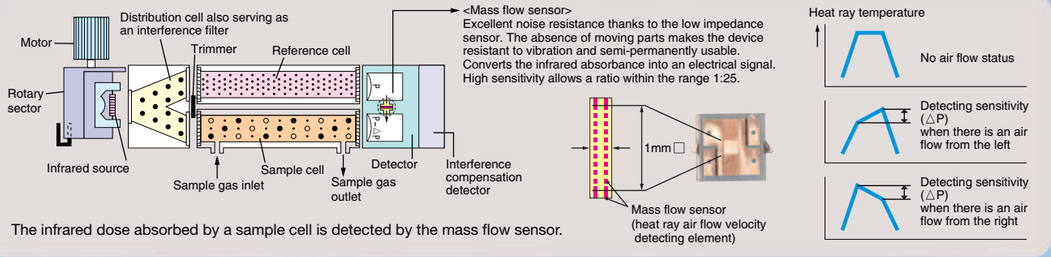
SG750

Features

- Simultaneously and continuously measures concentrations of up to 5 gas components NO_X, SO_2, CO, CO_2 and O_2.
- The use of interference compensation in the analyzing section virtually eliminates the effect of concentration of any gas component on the concentration readings of others.
- Adopts a double beam infrared analyzer, a Zirconia oxygen analyzer meter or paramagnetic oxygen meter with high sensitivity and excellent long-term stability.
- The maintenance type on the front saves space.
- High sensitivity and wide dynamic range, allowing for switched ranging of up to 1:25 and range can be changed.

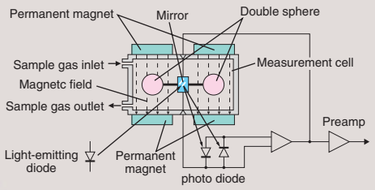
■ Principle

Measures NO_X, SO_2, CO and CO_2 concentrations via an infrared method



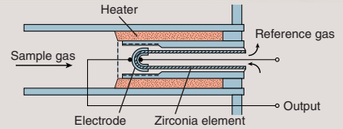
The infrared dose absorbed by a sample cell is detected by the mass flow sensor.

Paramagnetic Oxygen Analyzer (Built-in)



When sample gas enters the measurement cell, the oxygen molecule is attracted to a field where there is considerable magnetic field strength, so that a force corresponding to the oxygen concentration is applied to the double sphere, where it is then converted into an electrical signal.

Zirconia Oxygen Analyzer (External)

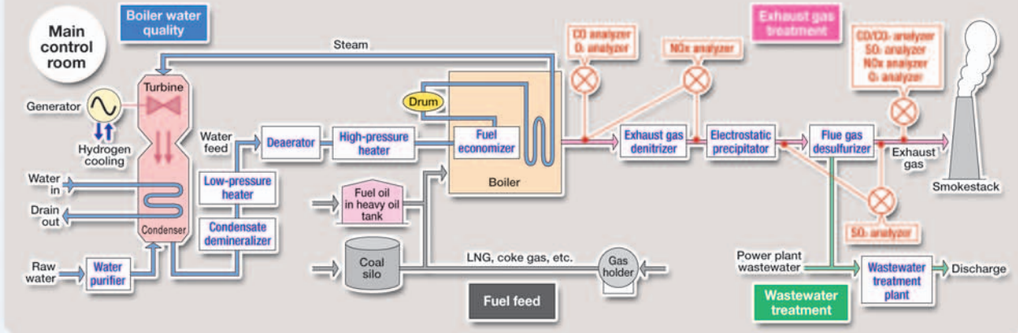


Detects the EMF (electromotive force) of an oxygen concentration cell generated on electrodes on the front and rear of the Zirconia element.

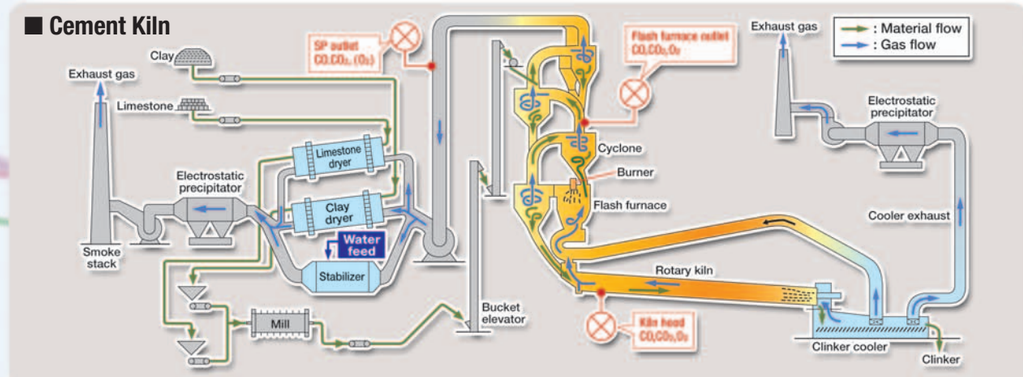
Applications

Applicable to garbage and industrial refuse incinerators, gas boilers, sludge burning and oil/coal boilers, iron and steel heating furnaces, etc.

■ Power Plant

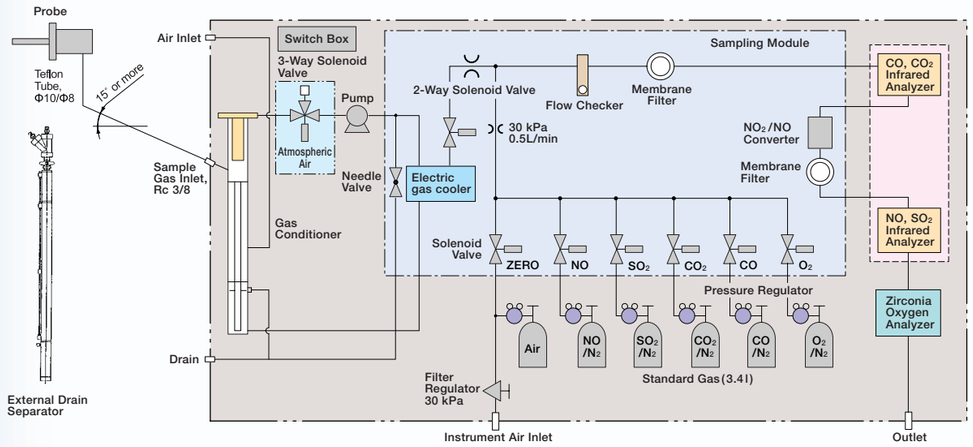


■ Cement Kiln



■ Sampling System Configuration

Example : Five-Component Gas Sampling System Configuration (Standard type)
SO_2 1st range: less than 500 ppm and sample gas pressure is -1 to 5 kPa or -3 to 3 kPa



■ Standard Specifications

Measurement object	Up to 4 components (NO_x, SO_2, CO_2, CO) and O_2 in flue gases
Measuring method	NO_x, SO_2, CO_2, CO: Non-dispersive infrared method O_2: Zirconia or paramagnetic method
Measuring range	NO_x: 0-50 ppm to 0-5000 ppm SO_2: 0-100 ppm to 0-1000 ppm CO_2: 0-10 vol% to 0-20 vol% CO: 0-50 ppm to 0-5000 ppm O_2: 0-10/0-25 vol% Each is 2 range types. Maximum range ratio is 1:25, except O_2 measurement.
Output signal	4-20 mA DC or 0-1 V DC 5 outputs for instantaneous values (NO_x, SO_2, CO_2, CO, O_2), 3 outputs for O_2 correction instantaneous values (NO_x, SO_2, CO), 3 outputs for O_2 correction average values (NO_x, SO_2, CO), 1 output for average O_2 value, permissible load resistance: 550Ω max. (750Ω max. for isolated output)
Contact output	(1) Each 1a contact (contact capacity 250V AC/2A, or 30V DC/3A) •Each component range identification, analyzer failure, calibration failure, calibration status, maintenance status. •CO peak count alarm (2) Each 1c contact (contact capacity 250 V AC/1A or 30 V DC/1A) •Each instantaneous value alarm (H/L/HL,configurable) •Analyzer power shutdown
Contact input	Auto calibration start, average reset, range switching, output hold, remote pump off
Automatic calibration function	Zero, span are auto calibrated (calibration cycle settable) •Interval range;1 to 99 hours (1 hour increments) or 1 to 40 days (1 day increments) •Time of calibration gas flow: 60 to 599 seconds (1 second increments)
Power supply	100/110/115/200/230 V AC ±15%, 50/60 Hz ±0.5 Hz
Power consumption	Approx. 600 VA (excluding probe and heating sample tube)
Construction	Outdoor/indoor stand-alone system, non-explosion proof, rainproof, single swing front door, standard plate thickness of 2.3 mm (both housing and door)
Installation conditions	Avoid direct sunlight and vibration Ambient temperature: -5 to 40°C -15 to 40°C (cold district version: specify "/T1") -10 to 40°C (cold district version: specify "/T2") Ambient humidity: 90%RH or less
Weight	Approx. 300 kg (without standard gases)
Sample gas conditions	Temperature: 1400°C or less Dust: 500 mg/Nm3 or less Pressure: -1 to 5 kPa, -3 to 3 kPa, -5 to 1 kPa Flow rate: Approx. 2 L/min

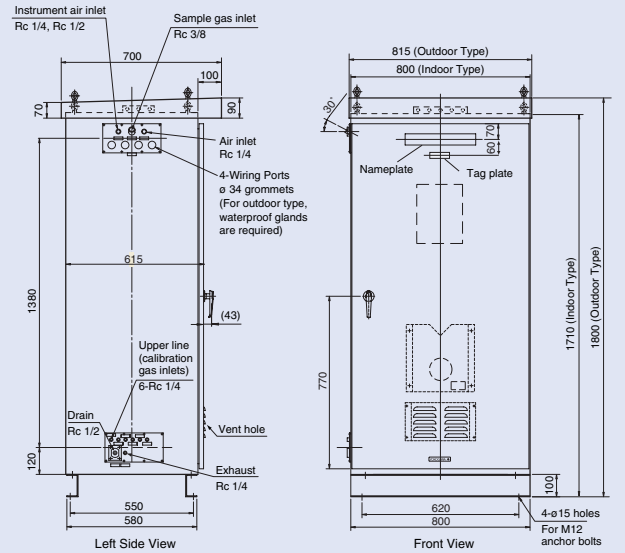
■ Characteristics

Repeatability	± 0.5 % of FS
Linearity	± 1.0 % of FS
Stability	Zero drift : ± 1% of FS/week (± 2% of FS/week for the range of 200 ppm or less) ± 2% of FS/month for zirconia oxygen analyzers Span drift : ± 2% of FS/week (± 2% of FS/month for zirconia oxygen analyzer)
90% response time	(From the inlet of the system) Approx. 4 minutes for SO_2 Approx. 2 minutes for others
Warm-up time	Approx. 4 hrs. (after power on)

Note: Fluctuation in the operation period of 4 hours from the end of warm-up time is within ± 2% of FS.

■ External Dimensions

Unit: mm



vigilantplant.®
The clear path to operational excellence

SEE CLEARLY | KNOW IN ADVANCE | ACT WITH AGILITY

VigilantPlant is Yokogawa's automation concept for safe, reliable, and profitable plant operations. VigilantPlant aims to enable an ongoing state of Operational Excellence where plant personnel are watchful and attentive, well-informed, and ready to take actions that optimize plant and business performance.

YOKOGAWA ELECTRIC CORPORATION

World Headquarters
9-32 Nakacho 2-chome, Musashino-shi,
Tokyo 180-8750, JAPAN
Tel: +81-422-52-6316 Fax: +81-422-52-6619
http://www.yokogawa.com/an/

North America
YOKOGAWA CORPORATION OF AMERICA
Georgia, U.S.A
http://www.yokogawa.com/us/

South America
YOKOGAWA AMERICA DO SUL LTDA.
BRAZIL
http://www.yokogawa.com.br/

Europe
YOKOGAWA EUROPE B.V.
European Headquarters
THE NETHERLANDS
http://www.yokogawa.com/eu/
YOKOGAWA ELECTRIC CIS LTD.
RUSSIAN FEDERATION
http://www.yokogawa.ru/

Middle East
YOKOGAWA MIDDLE EAST B.S.C.(C)
http://www.yokogawa.com/bh/

Singapore
YOKOGAWA ENGINEERING ASIA PTE.LTD.
http://www.yokogawa.com/sg/

Korea
YOKOGAWA ELECTRIC KOREA CO., LTD.
http://www.yokogawa.com/kr/

China
YOKOGAWA CHINA CO., LTD.
http://www.yokogawa.com/cn/
YOKOGAWA SHANGHAI INSTRUMENTATION CO., LTD.
http://www.ysi.com.cn/
YOKOGAWA SICHUAN INSTRUMENT CO., LTD.
http://www.cys.com.cn/

Taiwan
YOKOGAWA TAIWAN CORPORATION
http://www.yokogawa.com.tw/

India
YOKOGAWA INDIA LTD.
http://www.yokogawa.com/in/

Australia
YOKOGAWA AUSTRALIA PTY. LTD.
http://www.yokogawa.com/au/

Represented by:

Vig-PMK-G·NL-10E
Printed in Japan, 312(KP) [Ed : 01/b]

YOKOGAWA