



OpreX™ Analyzers

Integrated Emissions & Oxygen Monitoring for Power Plants

Ensuring compliance, optimizing performance —
with reliable gas and O₂ analysis

Comprehensive Infrared Gas Analyzer Solution for Environmental Compliance

IR800G/IR810G Infrared Gas Analyzer Designed for ease of maintenance and reliability.



Active Zero-drift Compensation

- Measuring cell contamination causing zero-drift is automatically corrected through alternative sampling of sample and reference gases.
- Reduces overall maintenance expense.

Intuitive HMI

- Full-color HMI allows for intuitive operation.
- Single touch calibration capabilities.

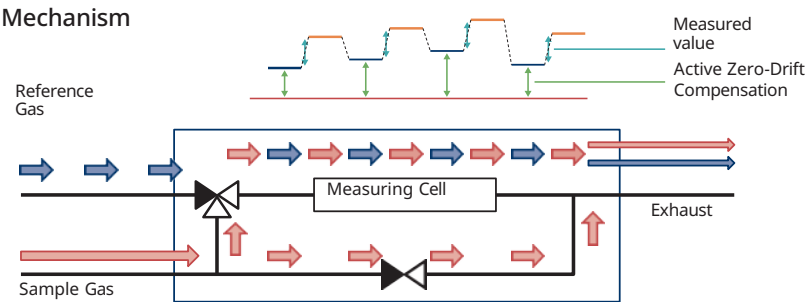
Ability to measure up to 5 gas components

- O₂ (built-in or 4-20mA) and up to 4 other components can be measured from NO, SO₂, CO, CO₂, and CH₄.

Active zero-drift cancellation mechanism

IR gas analyzers are susceptible to zero-drift due to various factors such as built-up sample dirt or debris requiring increased cleaning and calibration.

With Yokogawa's IR800G/810G analyzer a built-in active-drift mechanism corrects for this drift through alternative sampling of sample and reference gases.



OpreX™ Analyzers IR800G/IR810G Infrared Gas Analyzer

“With Yokogawa's IR800G/810G analyzer a built-in active-drift mechanism corrects for this drift through alternative sampling of sample and reference gases.”

Specification

Rack Type Infrared Gas Analyzer IR800G / Wall and Panel Mount Type Infrared Gas Analyzer IR810G

Measurement principle	NO/SO ₂ /CO/CO ₂ /CH ₄	Non-dispersive infrared method (Single light source-single beam)
Measurement range	O ₂	Built-in paramagnetic type or external analyzer (4-20 mA)
	NO	0-50 ppm to 0-5000 ppm (Optional range: 0-50 to 0-199 ppm)
	SO ₂	0-50 ppm to 0-5000 ppm, 0-2 vol% to 0-10 vol% (Optional range: 0-50 to 0-199 ppm)
	CO	0-50 ppm to 0-5000 ppm, 0-2 vol% to 0-100 vol% (Optional range: 0-50 to 0-199 ppm, 0-51 vol% to 0-100 vol%)
	CO ₂	0-1000 ppm to 100 vol% (Optional range: 0-1000 to 0-4999 ppm, 0-26 to 0-100 vol%)
	CH ₄	0-2 to 0-100 vol% (Optional range: 0-51 to 0-100 vol%)
	O ₂	0-5 to 0-100 vol% *0-25 to 0-100 vol% for hydrogen background
Sample gas / Reference gas conditions	Flow rate: 0.5 to 1.0 L/min Temperature: 0 to 50°C Pressure: 4.9 to 9.8 kPa Moisture: Below a level where saturation occurs at 5°C (No condensation) *Sample gas: No other corrosive gas *Reference gas: Atmosphere, Instrument air or N ₂ Impurities other than CO ₂ should be 0.1% of minimum measurement range or less When the measurement range of CO ₂ is 5 vol% or less, N ₂ must be used as the reference gas.	
Analog output signal	Number of outputs: 4 Isolated output: 4-20 mA DC (Max load capacity 550 Ω) Output range: any range in selected specification	
Analog input signal	Number of input points: 1 point for connection to external oxygen analyzer Input signal: 4-20 mA DC	
Contact output	Output points: 11 points (1a), 6 points (1c) Function: Instrument error, Calibration error, Automatic calibration in progress, Solenoid valve drive CH1 to CH5 for automatic calibration, Range identification CH1 to CH5, Blowback, alarms 1 to 6, Peak alarm output, Maintenance in progress, Power status	

Contact input	Input points: 8 points (No-voltage or Voltage contact input) Functions: Remote hold, average value reset, automatic calibration start, simple zero calibration start, automatic validation start, remote range changeover, blowback, contact for ZR802G, calibration error for ZR802G
Digital communications	RS-485 (Modbus RTU)
Functions	Output signal hold, Range changeover, Range identification signal, Blowback, Auto calibration, Auto zero calibration, Auto validation, Contact output during auto-calibration/validation, High/low limit alarm, Instrument error contact output, Calibration error contact output
Enclosure	Steel casing, for indoor use
Ambient temperature	IR800G: 0 to 40°C IR810G: 0 to 45°C
Dimensions (W x D x H)	IR800G: 483 x 492 x 177 mm IR810G: 412 x 240 x 615 mm
Weight	IR800G: Approx. 16 kg IR810G: Approx. 17 kg
Supply voltage	100 to 240V AC 50/60 Hz

Characteristics

IR800G / IR810G		
Repeatability	NO/SO ₂ /CO/CO ₂ /CH ₄	±0.5% F.S. (±1% F.S. when the optional range is included)
	O ₂	±0.5% F.S.
Linearity		±1.0% F.S.
Zero drift	NO/SO ₂ /CO/CO ₂ /CH ₄	±1.0% F.S./week (±2% F.S. when the optional range is included)
	O ₂	±2.0% F.S./week
Span drift		±2.0% F.S./week
Response time (90% F.S. response)		30 sec. or less

Meet regulations. Minimize drift.
Maximize uptime.

Zirconia O₂ Monitoring for Power Sector Emissions Control

ZR802G Zirconia Oxygen/Humidity Analyzer, Converter

Enhance productivity while reducing operational expenses.

Delivers continuous oxygen and humidity monitoring under high temperatures—without a sampling device—helping reduce OPEX and enhance operational efficiency.



ZR802G

Sensor Self-diagnosis

- Auto/Semi-auto diagnosis of sensor deterioration without calibration gas.

Intuitive Operation

- Interactive HMI LCD touchscreen for easy operation.

Enhancement

- Digital communications (HART 7, MODBUS), Data logging.

Reliability

- Trend-graph proves measurement stability at calibration

OpreX™ Analyzers ZR802G

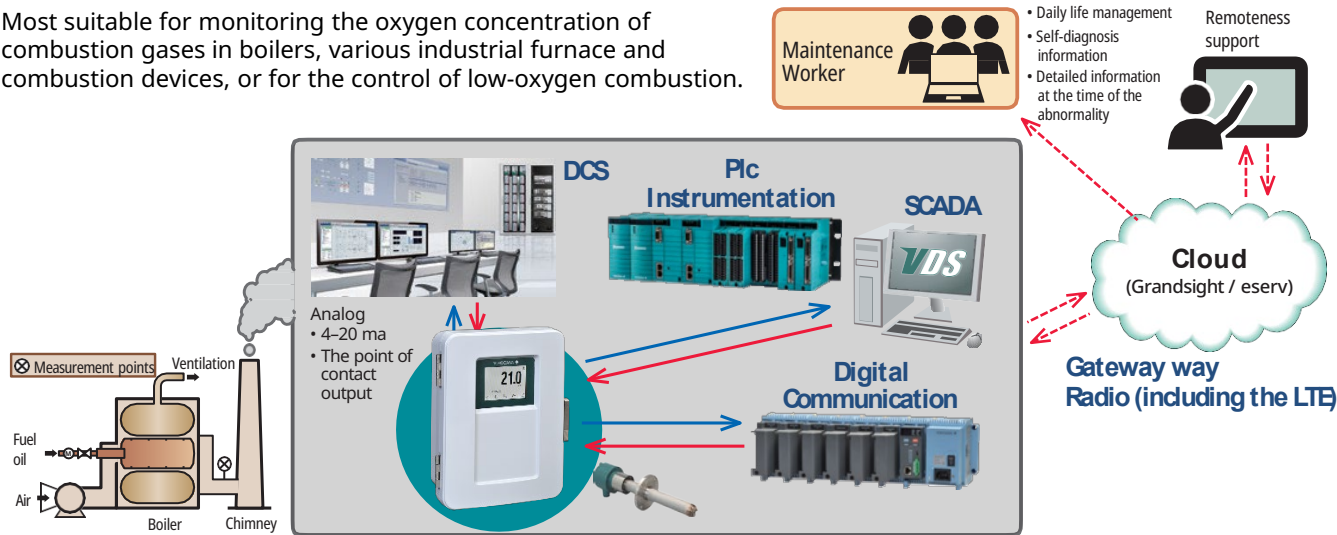
Zirconia Oxygen/Humidity Analyzer, Converter

“ Supports OPEX reduction by continuously measuring oxygen concentration and humidity at high temperatures without the need for a sampling device. ”

Specification			
Measurement Object	Oxygen analyzer: Oxygen concentration in combustion exhaust gas and mixed gas Humidity Analyzer: Water vapor (in vol%) in mixed gases (air and water vapor)	Calibration	Calibration method; Zero/Span calibration (Either zero or span can be skipped) Calibration mode; Auto, Semi-auto, Manual
Measurement System	Zirconia System (Detector ZR22G)	Construction	Waterproof construction, NEMA/CSA TYPE 4X
Measurement Range	O ₂ : 0.01–100 vol% H ₂ O: 0–100 vol% Mixture ratio: 0–1,000 kg/kg	Ambient Temperature	-20 to +55°C
Analog Output	Out put points; Two points (input-output isolation) Out put signal; 4 to 20 mA DC linear or log can be selected (maximum loadresistance 550 Ω) Out put range; O ₂ : Any setting between 0 to 5 through 0 to 100 vol% O ₂ H ₂ O: Any setting between 0 to 25 through 0 to 100 vol% H ₂ O	Power Supply Voltage	100 to 240 VAC 50/60 Hz
Analog Input	Input points; one point (for pressure compensation of O ₂ or temperature input of high temp humidity) Input signal; 4 to 20 mA DC (input resistance 250 Ω)	Characteristics	
Contact Output	Contact output points; Four points (one is fail-safe, normally open) Contact capacity; 30 VDC 3 A or 250 VAC 3 A (load resistance) Action; Fault, High-high alarm, High alarm, Low-low alarm, Low alarm, Maintenance, etc.	Repeatability	O ₂ : ± 0.5% F.S. (0 to 5 vol% O ₂ or more and less than 0 to 25 vol% O ₂ range) O ₂ : ± 1% F.S. (0 to 25 vol% O ₂ or more and up to 100 vol% O ₂ range) H ₂ O: ± 1 vol%H ₂ O (Sample gas pressure 2kPa or less)
Contact Input	Contact input points; Two points Contact capacity; Off-state leakage current 3 mA or less Action; Calibration gas pressure decrease alarm, Range switching, External calibration start, etc.	Linearity	O ₂ : ± 1% F.S. (0 to 5 vol% O ₂ or more and less than 0 to 25 vol% O ₂ range) O ₂ : ± 3% F.S. (0 to 25 vol% O ₂ or more and less than 0 to 50 vol% O ₂ range) O ₂ : ± 5% F.S. (0 to 50 vol% O ₂ or more and up to 100 vol% O ₂ range) H ₂ O: ± 2 vol%H ₂ O (sample gas pressure: within ± 0.49 kPa) H ₂ O: ± 3 vol%H ₂ O (sample gas pressure: 2 kPa or less)
Digital Communication	HART7 (AO1, 250 to 550 Ω) Ethernet (Modbus TCP) RS-485 (Modbus RTU)	Drift	O ₂ : Both zero and span ± 2% F.S. /month H ₂ O: Both zero and span ± 3 vol%H ₂ O /month
		Response Time	Response of 90% within 5 seconds.

Creating new value with industrial IOT (IIOT)

Most suitable for monitoring the oxygen concentration of combustion gases in boilers, various industrial furnace and combustion devices, or for the control of low-oxygen combustion.



Accurate measurement. Compliance assurance.
Operational confidence.

Ready to go from solving emissions to efficiency?

Get a free consultation and estimate from industry experts yca-salessupport@yokogawa.com

Visit our website at:

<https://www.yokogawa.com/us/industries/power/>



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