AMETEK®
PROCESS INSTRUMENTS

MEASURES: O_2

PRODUCT DATA SHEET

WDG-V Flue Gas Oxygen Analyzer

Safe operation of the burner management system

The WDG-V provides an additional layer of safety when measuring excess oxygen (O_2) in the burner management system. It has a close-coupled extractive design for fast response in a wide range of flue gas applications up to 1648°C (3000°F).

Reliability
The WDG-V is designed with measurement redundancy and continual diagnostic functions that assess the health of the analyzer and validate the proper combustion measurements.

Safety
The WDG-V is SIL 2 compliant for O_2 and is capable for use in SIS combustion safety systems. Onboard diagnostics provide low probability of undetected analyzer faults. Communication through Modbus RTU or Fast Ethernet allows remote communication for diagnostics, calibration, verification, and error notification for the safety system.

Maintenance
This completely field-serviceable analyzer also has Ethernet connectivity which enables remote performance monitoring for maintenance LANs or asset management systems (AMS).

KEY BENEFITS

- SIL-2 certified for SIS implementation with predictive diagnostics & proactive alarms
- Ultra-accurate measurement of O_2 with industry-proven zirconium oxide sensor
- Integral flow sensor to verify sample system integrity
- Versatile flange mounting options
- Digital communications via Modbus and Ethernet
- Completely field-serviceable

APPLICATIONS

- Process heaters
- Steam boilers
- Thermal oxidizers

KEY MARKETS

- Refining and petrochemical
- Power and steam generation
- Furnace and kilns

PERFORMANCE SPECIFICATIONS

Sensor specifications

Principle of operation	Zirconium oxide for net oxygen (O_2) measurement
Output range	Oxygen: From 0-1% to 0-100%
Accuracy	Oxygen: ±0.75% of measured value or ±0.05%, whichever is greater
Response	Oxygen: 90% of a step change < 11 seconds with flame arrestors
Aspirator air requirements	3 SCFH typical at 3 to 6 psig, instrument air or nitrogen (N_2)
Analog output	3 isolated linear current outputs for oxygen. Each output can be 4-20 mA, 0-20 mA, 20-4 mA or 20-0 mA and is fully scalable. NAMUR configurable. Hold or track during calibration. Max. load 1200 ohms
Alarms	5 independent, NO alarms. Set relays to energize or de-energize on alarm
Contact rating	0.5A, 30V, 10VA max. non-inductive load, AC or DC
Digital communication	2-wire Modbus RTU, 57.6 KBaud
Configuration	Modbus RTU, AMETEK configuration software, or AMEVision HMI. HART® option available
Diagnostics	Low sample flow, cell and detector age tracking, cell resistance, calibration required, analog current verification
Calibration	Calibrate or verify calibration. Stored calibration and verification data. Selectable calibration gas run time and process recovery time Timed automatic calibration with optional Remote Calibration Unit
Sample pressure	±6 in. water gauge
Max sample dew point	200°C (392°F)
Max flue gas temp / probe type / length	704°C (1300°F) / 316 SS / 910 to 2740 mm (36 to 108 in.); 1024°C (1875°F) / 310 SS / 910 to 2740 mm (36 to 108 in.); 1648°C (3000°F) / Hexoloy® / 600 to 1820 mm (24 to 72 in.)
Environment	Ambient temperature: -25 to 65°C (-13 to 149°F) Relative humidity: 5 to 95%, non-condensing
Enclosure	Hinged IP65 (NEMA 4X), weather-resistant, stainless steel, explosion-proof, purged, and floor mount versions available UL Class I, Div II, Gp B, C, D or ATEX Zone 2, T3 with Purge
Power requirement	115 VAC, ±10%, 47 to 63 Hz, 740 VA max 230 VAC, ±10%, 47 to 63 Hz, 740 VA max
Calibration gas requirement	Use calibration gases @ 10 psig, 1.5 SCFH (0.7 L/min.), O_2 span gas: air or from 1.0% to 100% O_2, balance N_2; O_2 zero gases: from 0.1 to 10% O_2, balance N_2

AMEVision HMI specifications

Display	4.2" color 1/4W VGA with graphical user interface. Password-protected
Keypad	18-key membrane
Input	Two-wire Modbus RTU (19200 Baud rate, even parity, 1 stop bit) from analyzer. Host capable of up to eight analyzers
Digital outputs	Two or four-wire Modbus RTU, TCP/IP Ethernet with embedded web server (RJ45 connection), USB port for data collection or software update
Analog outputs	Optional
Environment	Ambient temperatures from -20 to 55°C (-4 to 131°F)
Power requirements	Nominal 115 to 230 VAC ±10%, 47 to 63 Hz, 75 VA max
Enclosure	IP65 (NEMA 4X)
System compliance	EMC Directive 2004/108/EC; Low Voltage Directive 73/23/EEC. Two hazardous area configurations: NEC/CEC Class 1, Div 2 and ATEX Zone 2

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One of a family of innovative process analyzer solutions from AMETEK Process Instruments.
Specifications subject to change without notice.