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 (O₂) 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 O₂ 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 O₂ 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

To find out more or request a quote visit our website ametekpi.com
**WDG-V Flue Gas Oxygen Analyzer**

**PRODUCT DATA SHEET**

**PERFORMANCE SPECIFICATIONS**

**Sensor specifications**

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Principle of operation</td>
<td>Zirconium oxide for net oxygen (O\textsubscript{2}) measurement</td>
</tr>
<tr>
<td>Output range</td>
<td>Oxygen: From 0-1% to 0-100%</td>
</tr>
<tr>
<td>Accuracy</td>
<td>Oxygen: ±0.75% of measured value or ±0.05%, whichever is greater</td>
</tr>
<tr>
<td>Response</td>
<td>Oxygen: 90% of a step change &lt; 11 seconds with flame arrestors</td>
</tr>
<tr>
<td>Aspirator air requirements</td>
<td>3 SCFH typical at 3 to 6 psig, instrument air or nitrogen (N\textsubscript{2})</td>
</tr>
<tr>
<td>Analog output</td>
<td>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</td>
</tr>
<tr>
<td>Alarms</td>
<td>5 independent, NO alarms. Set relays to energize or de-energize on alarm</td>
</tr>
<tr>
<td>Contact rating</td>
<td>0.5A, 30V, 10VA max. non-inductive load, AC or DC</td>
</tr>
<tr>
<td>Digital communication</td>
<td>2-wire Modbus RTU, 57.6 Kbaud</td>
</tr>
<tr>
<td>Configuration</td>
<td>Modbus RTU, AMETEK configuration software, or AMEVision HMI. HART® option available</td>
</tr>
<tr>
<td>Diagnostics</td>
<td>Low sample flow, cell and detector age tracking, cell resistance, calibration required, analog current verification</td>
</tr>
<tr>
<td>Calibration</td>
<td>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</td>
</tr>
<tr>
<td>Sample pressure</td>
<td>±6 in. water gauge</td>
</tr>
<tr>
<td>Max sample dew point</td>
<td>200°C (392°F)</td>
</tr>
<tr>
<td>Max flue gas temp / probe type / length</td>
<td>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.)</td>
</tr>
<tr>
<td>Environment</td>
<td>Ambient temperature: -25 to 65°C (-13 to 149°F) Relative humidity: 5 to 95%, non-condensing</td>
</tr>
<tr>
<td>Enclosure</td>
<td>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</td>
</tr>
<tr>
<td>Power requirement</td>
<td>115 VAC, ±10%, 47 to 63 Hz, 740 VA max 230 VAC, ±10%, 47 to 63 Hz, 740 VA max</td>
</tr>
<tr>
<td>Calibration gas requirement</td>
<td>Use calibration gases @ 10 psig, 1-3 SCFH (0.7 L/min), O\textsubscript{2} span gas: air or from 1.0% to 100% O\textsubscript{2}, balance N\textsubscript{2}; O\textsubscript{2} zero gases: from 0.1 to 10% O\textsubscript{2}, balance N\textsubscript{2}</td>
</tr>
</tbody>
</table>

**AMEVision HMI specifications**

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Display</td>
<td>4.2&quot; color 1/4W VGA with graphical user interface. Password-protected</td>
</tr>
<tr>
<td>Keypad</td>
<td>18-key membrane</td>
</tr>
<tr>
<td>Input</td>
<td>Two-wire Modbus RTU (19200 baud rate, even parity, 1 stop bit) from analyzer. Host capable of up to eight analyzers</td>
</tr>
<tr>
<td>Digital outputs</td>
<td>Two or four-wire Modbus RTU, TCP/IP Ethernet with embedded web server (RJ45 connection), USB port for data collection or software update</td>
</tr>
<tr>
<td>Analog outputs</td>
<td>Optional</td>
</tr>
<tr>
<td>Environment</td>
<td>Ambient temperature from -20 to 55°C (-4 to 131°F)</td>
</tr>
<tr>
<td>Power requirements</td>
<td>Nominal 115 to 230 VAC ±10%, 47 to 63 Hz, 75 VA max</td>
</tr>
<tr>
<td>Enclosure</td>
<td>IP65 (NEMA 4X)</td>
</tr>
<tr>
<td>System compliance</td>
<td>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</td>
</tr>
</tbody>
</table>

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