Model 9060Z

Zirconium Oxide Oxygen Analyzer



- Microprocessor-based electronics with membrane keypad
- Enhanced electronic heater control for optimal performance
- Easy set up and calibration with self-diagnostic features

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Model 9060Z

Optimizing combustion efficiency and minimizing exhaust emissions are important for proper operation of nearly every industrial process that burns fuel. From cleaning burning natural gas to dirty coal fired kilns, the Model 9060Z provides reliable and efficient O_2 monitoring capabilities by combining field proven zirconium oxide technology with a powerful and versatile microprocessor-based controller.

Control Unit

The Model 9060Z analyzer/transmitter provides in-situ analysis capability which can accept signals from up to two zirconia probes for averaging or backup purposes in furnaces, kilns and boilers with sample temperatures ranging from ambient up to 1,400°C. This unit is provided within a compact, steel and easily installed IP-54 (IP-65 without internal air reference pump) gasketed enclosure suitable for wall mounting. Purged or explosion proof design enclosures rated for hazardous areas can also be supplied.



Easy Calibration/Self-Diagnostic Features

The 9060Z provides standard programmable automatic calibration and auto-purge outputs. The user can program the cal/purge sequence to an alarm relay for external indication. The 9060Z has also been designed with a probe diagnostic loop to continuously monitor for probe impedance to ensure the sensor is functioning properly. The electronics self-calibrates all inputs every minute.

Easy Interface

The 9060Z provides two isolated 4-20 mADC linearized control signal outputs. One is dedicated to the O_2 signal and the other is user selectable from thirteen other variables. In addition, an RS-232/RS-485 printer/computer interface capability is provided. One general diagnostic alarm and three field selectable alarms with switching are provided standard.

Easy Set Up

Analyzer functions and adjustments are easily accessed via a membrane keyboard by using the prompting keys and following the display codes from the 2 line alphanumeric LCD screen. This makes it so that the user can easily interface with and set up the 9060Z for field operation

Automatic Reference Pump

An integral automatic reference pump is provided as standard. This pump draws atmospheric air and delivers it to the zirconium sensor as reference air in lieu of customer supplied instrument air. If the operator desires, the pump can be bypassed and instrument air, at a flow of 50 cc/min, can be delivered to the sensor as required.

9060Z Probe Specifications

Temperature Range	32° to 1,650°F (0° to 900°C)
Standard Length	10", 14", 20", 30", 40", 60"
Process Connection	1.5" NPT
Sheath OD	1.34" (34 mm)
Heater	Yes
Power	100 watts max, 110 VAC, 100% duty cycle 530 watts max, 240 VAC, 25% duty cycle
Internal Thermocouple	Type "K"
Response Time (T90)	Typically < 4 seconds
Head Temperature	212°F (100°C) max
Reference Gas	Air @ 50 sccm nominal flow (integral air reference pump available with controller)
Check Gas Flow	4 SCFH (2 SLPM) nominal
Check Gas Connection	1/8" NPT female
Ref. Air Connection	1/4" tube
Particulate Filter (optional)	Removable titanium 30 µm standard, 15 µm optional



Applications

- Gas, oil, pulverized coal and black liquor boilers
- Cement, lime and ceramic kilns
- Refinery process heaters and furnaces
- Asphalt processes
- Utility boilers
- Blast furnace ovens
- Soaking pit and heat treating furnaces
- Thermal cracking furnaces
- Catalyst regeneration

Inputs	One or two zirconia oxygen probes or sensors One zirconia sensor & auxiliary thermocouple type J, K R or S Burner "On" signal (dry contact) Purge air flow switch
Output	Four programmable alarm relays Two isolated 4-20 mA or 0-20mA SSR outputs to purge & calibration check gas solenoid valves Settable parameters
Configurable Output Parameters	• Linear oxygen sensor 1 • Linear oxygen sensor 2 • Average oxygen • Very low oxygen • Logarithmic oxygen • Reducing oxygen • Oxygen deficiency • Carbon dioxide • Probe EMF • Auxiliary temperature • Combustibles • Burner efficiency
Alarms	Normally open failsafe, 2A/240VAC and 30 VDC Common alarm relay with 20 user selectable alarm functions Three programmable process alarm relays (multiple selections can be made for all relays) • Very low oxygen • Low oxygen • High oxygen • Oxygen deviation • Probe temperature low • Cal check in progress • Purge in progress • Any alarms that were not selected for the common alarms
Range of Local Indication	0.01 ppm to 100% - automatically defaults to exponential format below 0.01 ppm, ppm reading up to 10,000 ppm and percent above that
Serial/Network Interface	RS-232 RS-485 MODBUS™
Accuracy	± 1% of the actual oxygen reading with a repeatability of 0.5%
Operational Temperature	-13° to 131°F (-25° to 55°C), 5-95% RH (non-condensing)
Secondary Parameter Display	Any or all of the following can be selected for display on the lower line: • Probe #1 temperature • Probe #2 temperature • Probe #1 EMF • Probe #2 EMF • Probe #1 impedance • Probe #2 impedance • Oxygen % probe #2 • Average oxygen % • Auxiliary temperature • Ambient temperature • Ambient RH% • Carbon dioxide • Combustibles • Oxygen deficiency • Burner efficiency
Power Requirements	85-265 VAC, 50/60 Hz, 5W power
Degree of Protection	IP65 IP54 (with internal reference air pump)
Dimensions	10.24"W x 6.30"H x 3.54"D (260 x 160 x 90 mm) Approximately 6.6 lbs (2.99 kg)

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