



COSA fast response BTU Analyser 9610

Wobbe Index,
Heating Value and Combustion Air Requirement Index (CARI).

Provides a Fast and Accurate Measurement

The COSA9610 BTU Analyzer's measuring principle is based on the analysis of the oxygen content in the flue gas after combustion of the sample. A continuous gas sample is mixed with dry air at a precisely maintained constant ratio, which depends on the BTU range of the gas to be measured. The fuel air mixture is oxidized in a combustion furnace in the presence of a catalyst at 800 °C and the oxygen concentration of the combusted sample is measured by a zirconia oxide cell. The residual oxygen provides an accurate measurement for the Combustion Air Requirement of the sample gas, which can be correlated accurately to the Wobbe Index of the gas



ADVANTAGES

Key advantages of this method are its insensitivity to changes in ambient temperature, a very fast response with the ability to measure gases with BTU values down to zero and the measurement of the Combustion Air Requirement Index besides Wobbe Index and Heating Value.

WOBBE INDEX VS. COMBUSTION AIR REQUIREMENT INDEX

The COSA9610 provides a direct measurement of the Combustion Air Requirement Index (CARI) of a fuel, which is ideally suited for the precise control of the fuel-air ratio of a combustion process.

In applications where the amount of energy introduced to the burner is to be controlled, the Wobbe Index can be closely correlated to the CARI Index and differences between the two measurements can be cancelled out by the use of suitable calibration gases. In natural gas applications the instrument accuracy of the COSA9610 in terms of Wobbe Index is better than $\pm 0.4\%$ of reading. In flare gas applications, accuracy can be maintained within $\pm 3\%$, even when hydrogen concentrations in the sample vary between 0% and 100%.

The stability, accuracy, speed of response, and reliability of the residual oxygen measurement represent significant advantages over traditional flame calorimeters and more than compensate for the small theoretical error in calculating Wobbe. It should be noted, that other calorimeters including flame type are not primary standards either, and they also depend on the use of suitable calibration gases.

HEATING VALUE

For applications requiring the measurement of the Heating Value, a precision specific gravity cell with an accuracy of $\pm 1\%$ of reading is integrated into the COSA9610 and the processor computes the heating value. In applications, where the fuel-air ratio is to be optimized based on the CARI, the measurement of specific gravity is not required.

Omloopstraat 15, 1760 Roosdaal, Belgium

Tel: +32 (0) 54 587800

e-mail: info@IMAC-engineering.be Website: www.IMAC-engineering.be



more *FEATURES*

- High Accuracy
- Fast Response
- Large Measurement Range
- Measures Low BTU Gases
- Low Maintenance
- Flameless / No Flameouts
- Measures Wobbe and CARI
- CSA Approval Optional
- Direct Measurement Method
- (ASTM D-4891 Compliant)
- Gross or Net Heating Values

Analyzer Performance

Sample gas:	Natural gas, fuel gas, refinery gases, biogas etc.
Ranges:	Wobbe Index: 0-3000BTU/SCF, span 1150 BTU/SCF (selectable)
CARI Index:	0-20, span 0-10
Accuracy (Wobbe):	±0.4% of reading for natural gas ±2.0% of reading for refinery gases with large variations of constituents and BTU values
Repeatability:	±0.7 BTU/SCF
Drift:	0.4 BTU/SCF/24 hours
Response time:	T90 < 5 seconds (Wobbe)
Ambient temperature:	Standard: 10-40° C Extended range: -40°C to +50°C
Outputs:	2 x isolated 4-20mA, with programmable span
Backlit LCD screen	
Malfunction relay	
RS-485 MODBUS RTU (option)	
with programmable span:	Wobbe, Calorific Value
CARI, plus 2 additional outputs available	
Relay Contacts: up to 9 channels (digital)	
Optional Measurement: Specific Gravity	
Total Sulfur	
Dew Point	

APPLICATIONS

- Turbine Control
- Flare Stack Control
- Fuel Optimization
- Gas Blending
- Custody Transfer

Utilities:

Power supply:	110 VAC, 50/60 Hz or 220 VAC, 50/60 Hz
Amps:	8-16 amps Option Dependent
Power consumption:	430 VA typical
Instrument air:	20 SCFH (analyzer) at 42 PSIG 40 SCFH (z-purge) at 80 PSIG
Sample:	2 SCFH at 28 PSIG

Measured Gas Streams:

- 1 stream standard
- 2 stream optional
- 4 stream optional

Sample System:

50°C standard, for most applications.
100°C optional, for hydrocarbons or components with a high dew point
Optional Hastelloy® and Kalrez® sample system component materials

Certifications:

ATEX- 2010
CSA Approval Optional

ORDERING INFORMATION:

Application
Range
Process conditions
Wall mounting or free standing frame
Power supply

REPRESENTED BY:

Rev 10 09.12