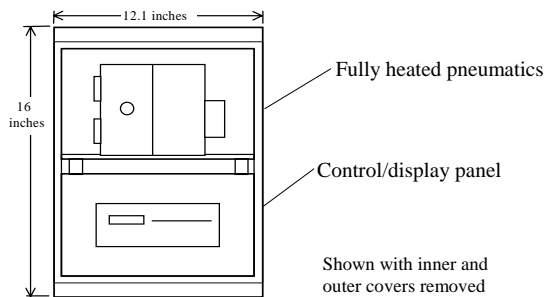




CalorVal BTU Analyzer



Specifications

Range:	0 to 1300 BTU/ft ³ as Methane
Operating Temperature	Sensor heated up to 120°C (248°F)
Accuracy	± 3% of full scale reading or 10% of applied gas whichever is greater
Repeatability	Within 1% of measurement range
Zero Stability	± 1% in 30 days
Span Stability	± 5% per year
Cell Response Time	Less than 4 seconds
Ambient Temperature	-40°C (-40°F) to 65°C (140°F)
Power Requirement	120 VAC +10% -15% 50/60 Hertz 400 Watts maximum, 230 VAC optional
Oxygen	0-21% O ₂ in sample
Compressed Nitrogen	25 PSIG, regulated, clean, dry
Compressed Air	700 - 800 ccpm, 15 PSIG
Humidity Range	0% to 100% Relative Humidity
Relays	Three (3) SPDT 60 Watt contacts Three (3) SPST 60 Watt contacts
Relay functions	Six relays for: Low Limit Alarm; High Limit Alarm; Fault; Horn; Calibration-in-Progress and Service needed
Fuel Requirements	99.99% Hydrogen
Fuel Consumption	25 cc/min, 40-45 PSIG
Alarm Function	Adjustable alarm ranges
Analog Output	4-20mA, 275 Ω max. (includes line length)
Digital Output	RS-485 Serial, Modbus protocol
Sensor Cell Material	Hard-coat aluminum
Sample Train Material	Hard-coat aluminum & stainless steel
Hazardous Area Rating	General Purpose (Div 1 & Div 2 optional)
Enclosure Rating	NEMA 12/13, indoor NEMA 4X (optional)
Assembly Dimensions	16" H x 12.1" W x 8.5" D
Weight	Approx. 18Kg (40 Lbs)

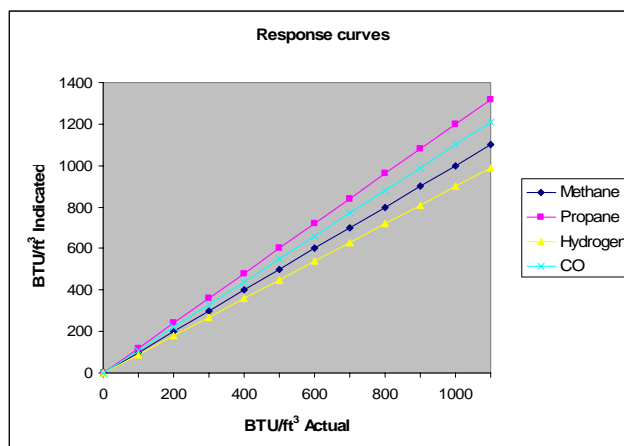
Assembly Design

The CalorVal is an industrial strength assembly consisting of a heated flame cell and integrated controller that continuously measures calorific values from 0 to 1300 BTU/ft³ of gaseous streams of industrial processes.

The sample is drawn into the flame cell and mixed with Hydrogen fuel before introduction to the burner. Directly above the burner is a thermocouple used to sense the heat produced by the burning gases and vapors. A temperature detector converts this temperature rise into an electrical signal that is proportional to the concentration of gas from 0 to 1300 BTU/ft³ Methane or equivalent.

Uniform Response

The analyzer displays a uniform response to a wide range of combustible gases. It measures continuously over the entire measurement range from 0 BTU/ft³ up to the full scale of a variety of substances.



Heated Sampling System

To avoid condensation during sampling, the entire analyzer pneumatic assembly is heated up to 120°C (248°F). This eliminates both inaccurate readings as well as excessive maintenance time due to condensation and clogging.

It is suitable for monitoring many common gases and vapors. The analyzer is unaffected by the temperature of the process and can sample streams above 1500°F.

The analyzer employs customer-supplied compressed nitrogen to drive its integrated air-aspirated sampling system. This method is simple, has no moving parts and requires very little maintenance. Autocalibration solenoids which allow remote activation of calibration tests are standard.

Outputs

The system includes six relays: single-pole, double-throw relays for Low Limit Alarm, High Limit Alarm, Fault; and single-pole, single-throw relays for Horn, Calibration-in-Progress and Service Needed. Other standard outputs include a 4-20mA analog output and an RS-485 serial port with Modbus protocol. Digital remote access and control is available.