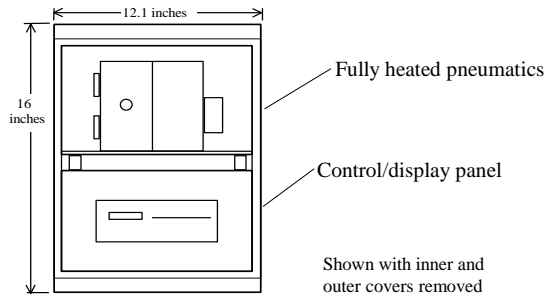




25 Law Drive, Fairfield, NJ 07004-3295 USA  
 Telephone 973-575-9114 Fax 973-575-0013  
 Email: sales@controlinstruments.com  
 Internet: www.controlinstruments.com

## CalorVal BTU Analyzer



### Specifications

Range:	0 to 1300 BTU/SCF as Methane 0 to 2500 BTU/SCF as Methane (optional)
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	T <sub>90</sub> 3.5 seconds
Ambient Temperature	-20°C (-4°F) to 65°C (150°F)
Power Requirement	120 VAC +10% -15% 50/60 Hertz 400 Watts maximum, 230 VAC optional
Oxygen	0-21% O <sub>2</sub> in sample
Compressed Nitrogen	20 PSIG, regulated, clean, dry
Nitrogen Consumption	50 SCFH, 25 LPM, bulk source
Support 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	Class 1, Div 2, Groups B, C, D Class 1, Div 1 (optional)
Enclosure Rating	NEMA 12, indoor NEMA 4X (optional)
Assembly Dimensions	16" H x 12.1" W x 8.5" D
Weight	Approx. 18Kg (40 Lbs)
Approvals	FM (standard) FMc, CE, ATEX (optional)

### Assembly Design

The CalorVal is an industrial strength assembly consisting of a heated flame cell and integrated controller that continuously measures the heating value (Calorific Value) of gaseous streams of industrial processes.

A carefully metered flame burns at a constant reference temperature inside an explosion proof measuring cell. A sample, drawn from the atmosphere to be monitored, is passed through the flame cell. A thermocouple measures changes in flame temperature. An increase in temperature is directly proportional to the heating value.

Autocalibration solenoids which allow remote activation of calibration tests are standard.

### 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/SCF up to the full scale of a variety of substances.

### Heated Sampling System

The entire analyzer pneumatic assembly is heated up to 120°C (248°F). This prevents condensation of water vapor and other heavier less volatile hydrocarbons eliminating the need for sample conditioning.

The analyzer collects the sample using an aspirator-driven system. There is no pump or other moving parts. This simple and extremely effective design requires very little maintenance, and its performance is unaffected by corrosives or other compounds in the sample stream.

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.

### 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.