

# Envent Model 131S

## BTU Gas Chromatograph

The Model 131S Natural Gas Chromatograph (GC) is a simple approach to energy measurement, created and designed for the custody transfer metering of Natural Gas as well as many other BTU applications. Envent provides a Natural Gas platform that is efficiently manufactured to ensure industry leading delivery, while providing a GC that allows for ease of serviceability.

### Features

- Standard: 4-minute C6+ repeatability +/- .25 BTU / 1,000 SCF
- Optional: 2-minute Fast BTU C6+ repeatability +/- .5 BTU / 1,000 SCF
- Optional: 5-minute BTU C9+ repeatability +/- .5 BTU / 1,000 SCF (heated sample system enclosure required)
- High performance GC columns packed in our Envent GC Lab
- Reduced carrier usage due to efficient column design
- Environmental chamber tested prior to shipment

### Field-Serviceability

- Easy access Electronics Enclosure with single board technology
- Easy access GC Detector/Column Oven for easy GC valve diaphragm replacement and column change
- Typical downtime for diaphragm and column change: approx. 30 minutes
- No modules to maintain or un-planned downtime due to non-serviceability and high cost of competitor's module technology
- Returns ownership to the measurement technician rather than the GC manufacturer

### Standard Configuration

- One custody-transfer stream and one auto-calibration stream (up to 3 additional custody streams)
- Atmospheric reference valve for repeatable, precise sample injections
- Sample conditioning instrumentation mounted on a common plate

### Electronics

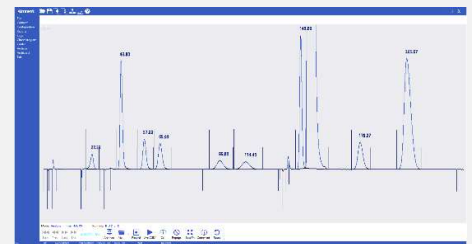
- Non-incendive electronic circuit design approved for Class I Division 1 electrical areas
- Includes all CPU, Memory, and I/O functions on a single board that operates together with the Envent Gas Chromatograph software
- Low-cost, simplified electronic troubleshooting approach

### Software

- Archived custody stream chromatogram/chart storage
- Auto-storage of most recent calibration chromatogram/chart
- 18 months of archived analysis reports
- 6 months of archived calibration reports



131S BTU Configuration

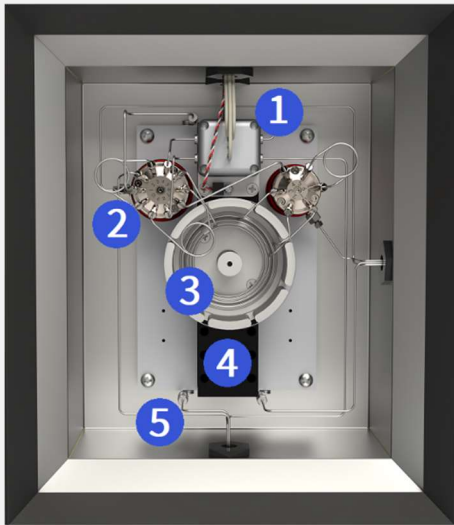


Envent Gas Chromatograph Software (GCS)



High performance micro-packed GC columns manufactured at our Envent GC Lab in Houston, TX

Easily Accessible GC Oven



1. Thermal Conductivity Detector
2. GC Valve
3. Column Dish
4. GC Oven Heater
5. Sample Pre-Heat Coils

Measurement Ranges

Methane	65 to 100 mol%
Ethane	0 to 20 mol%
Propane	0 to 10 mol%
N-Butane	0 to 5 mol%
Iso-Butane	0 to 5 mol%
N-Pentane	0 to 1 mol%
Iso-Pentane	0 to 1 mol%
Neo-Pentane	0 to 1 mol%
Hexane+	0 to 1 mol%
Nitrogen	0 to 20 mol%
Carbon Dioxide	0 to 20 mol%

Specifications

<b>Environmental Temperature</b>	-18° to 54°C (0° to 130°F) Quoted per application
<b>Dimensions</b>	Standard Configuration: 48" H x 24" W x 9" D (122cm H x 61cm W x 23 cm D)
<b>Mounting</b>	Wall mount or floor mount
<b>Enclosure</b>	NEMA 4X
<b>Electrical Classification</b>	Class I, Division 1, Groups B, C, D
<b>Power</b>	120 +/- 10% VAC 50/60 Hz Standard 240 +/- 10% VAC 50/60 Hz Available
<b>Power Consumption</b>	Start up: 150 watts Steady State: 60 - 80 watts nominal
<b>Oven</b>	Airless Heat Sink
<b>GC Valves</b>	Six-port and ten-port diaphragm chromatograph valves Thermal Conductivity Detector (TCD) Single or Dual TCD Capabilities (2-min application)
<b>Stream Valves</b>	Double Block and Bleed
<b>Repeatability</b>	<b>C6+ 4-minute Controlled Temperature</b> ±0.25 BTU / 1,000 SCF (±0.025%) at ambient ±0.4 BTU / 1,000 SCF (±0.04%) over temp range of -18° to 54°C (0° to 130°F)  <b>C6+ 2-minute Controlled Temperature</b> ±0.5 BTU / 1,000 SCF (±0.05%) at ambient ±1 BTU / 1,000 SCF (±0.1%) over temp range of -18° to 54°C (0° to 130°F)
<b>Carrier Gas</b>	UHP Helium (99.999%) or UHP Hydrogen (99.999%)
<b>Actuation Gas</b>	Helium, Nitrogen, Instrument Air (GC Valves/Stream Valves Regulated to 65 psig)
<b>Detector</b>	Thermal Conductivity Detector: Single or Dual TCD capabilities Single TCD (4-minute C6+) Dual TCD (2-minute C6+ Fast BTU Option)
<b>Peak Gating</b>	Auto-Slope detection
<b>Streams</b>	Up to 4 Custody streams (plus auto-calibration stream)
<b>Input/Output</b>	2 analog outputs 4 dry contact relay outputs 4 digital inputs 4 solenoid outputs
<b>Communications</b>	SIM 2251 Modbus mapping User Modbus mapping 1 RS-232 serial communication ports (Modbus capable) 2 RS-485 serial communication ports (Modbus capable) 1 Ethernet communication port RJ-45 (Modbus capable)
<b>Measurement Calculations</b>	Latest GPA 2145, GPA 2172, AGA 8, and ISO 6976 calculations