

Portable Natural Gas Chromatograph

Model 292 Portable Natural Gas Chromatograph

Features And Benefits

- ▶ Stores 32 calibrations in memory, which can be retrieved as active calibrations. Stores 256 24-hour average reports of all components and values. Stores 128 complete analyses. Repeatability better than +/- 0.5 BTU/1000 BTU. Uninterrupted access to data and controls, even during an analysis. LCD Display and printed report in English or metric units. Can be configured for use as a temporary on-line analyzer.
- ▶ FM and CSA approved for Class I, Div 2, Groups C&D
- ▶ Compliance with industry standards: GPA, ATMS, ISO, AGA
- ▶ Calculations based on AGA-8 Direct Method
- ▶ Built-in data protection and diagnostics
- ▶ Repeatable to 1/2 BTU ($\pm .05\%$)
- ▶ RS-232 data port; parallel printer port
- ▶ Field-rugged, compact, water-resistant, and easy-to-carry package
- ▶ Weighs 37 pounds with carrying handles
- ▶ No external devices are required to perform an analysis
- ▶ High performance; lower costs
- ▶ No routine maintenance
- ▶ Simple to operate

Easy Operation

The Model 292 portable Natural Gas Chromatograph is truly "operator friendly." Sophisticated software does all the work. Results are available on the digital display and can be printed or transferred to a computer. It just requires a sample line connection and then pressing the START TEST button.

After twelve minutes, you will see the results on the LCD display. You'll be able to determine immediately if there are any gas stream deviations from the norm. You'll also be able to read the relative density (specific gravity), mole percent of each constituent of the gas stream, and compressibility on an unsaturated and saturated basis.

Proven Performance

Chandler's 25 years' experience manufacturing the CARLE[™] Laboratory Gas Chromatograph and related Carle GC valves and columns, gives the Model 292 a distinct advantage over other brands. Our proprietary manufacturing process ensures that the Model 292 will maintain superior

repeatability over its entire service life. Our experience in GC valve design assures you reliable and trouble-free operation.

Advanced software with two on-board computers allows the Model 292 to calculate heating value, relative density, and compressibility using the AGA -8 method. The system also analyzes composition with exceptional accuracy. Oven temperature is precisely controlled to within $\pm 0.01^{\circ}\text{C}$, eliminating errors caused by ambient temperature fluctuations. Analysis repeatability is better than ± 0.5 BTU/1000 BTU. In addition, our Thermal Conductivity Detectors (TCD) provide extremely high sensitivity to low concentrations of components. To ensure peak performance and repeatability at all times, the TCD bridge is balanced automatically before each analysis.

Calibration

The Model 292 is fully calibrated to a gas of a known composition. You may want to recalibrate it periodically to ensure repeatability. This can be done using standard calibration gas, the keypad, and software programmed into the unit. If no other calibration data is entered, the unit defaults to the original factory input.



The Model 292 was designed around field-proven chromatographic techniques defined by ASTM, GPA, AGA, and ISO.

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Specifications

Performance:

Range: 0-2,000 BTU/scf and 0-74,500 kJ/m³

Repeatability: ±0.05% or ±0.5 BTU/1000 BTU

Standards: Meets applicable GPA, ASTM, AGA-8 (direct method) and ISO standards.

Approved for: Custody Transfer by Industry Canada, California Public Utility Commission and GOSSTANDART of Russia.

Environmental:

Operating Temp: -10° to 130°F (-25-55°C), non-condensing

Rating: Approved by Factory Mutual Corporation, Canadian Standards Assoc. and GOSSTANDART of Russia for use in Class I, Div 2, Groups C&D locations. European EMC approved.

Enclosure: NEMA 4

Power Requirements:

115 or 230 VAC ± 10%, 50/60 Hz
250 VA startup, 40 VA operating
Can be operated with inverter from 12 VDC

Sample Gas:

Analyzes liquid-free natural gas that contains nitrogen, methane, carbon dioxide, ethane, propane, I-butane, N-butane, I-pentane, neo-pentane, N-pentane, C₆ and heavier components.

Max Inlet Pressure: 3,500 psig (24,132 kPa)

Min Inlet Pressure: 7-10 psig (48-69 kPa).

Connection: 1/8" stainless steel tube

Carrier Gas:

Zero-grade helium (99.995% pure)

Pressure: 150 psig (1135 kPa)

Connection: 1/8" SS tube (metric adapter kit available)

Supply Gas (GC valve):

Nitrogen, helium, or instrument air

Pressure: 80 psig (552 kPa)

Connection: 1/4" flared tubing

Calibration Gas:

Certified natural gas standard in 14-liter bottle (240 psig) consisting of 11 components: approximately 90% methane (1050 BTU value). Special handling for hazardous material is required for shipment. Part #292-00342

Analog Output Signals:

Chromatogram: 0-10 VDC, 1000 Ohm impedance.

Oven temperature: 0-10 VDC, 1000 Ohm impedance.

4-20 mA Outputs: Model 298 transmitter option provides four 4-20 mA outputs per stream. Connects to serial port.

Printer Interface:

Parallel Port: Epson-compatible interface to dot-matrix, laserjet or inkjet printer.

Serial Port: RS-232C, 300-9600 baud, non/even/odd parity, 7 or 8 word length, 1 or 2 stop bits, modem compatible, DTE.

Accessories/Options

Inverter

Provides operating power from a truck or auto battery: - Part #300-27404 (12 VDC to 120 VAC); Part #300-28656 (12 VDC to 220 VAC).

Transmitter

Part #298-0001

Four-channel, 4-20 mA current transmitter in NEMA 4-case, 115/230 VAC. Permits transfer of any 4 of 43 parameters measured during a test (e.g., heating value, %N₂, %CO₂, %CH₄, relative density, etc.) to an external recording or storage device.

Portable Bottle Option

Part #292-00371

Includes two regulators, gauges, bracket, carrying case, and two DOT-approved bottles with a capacity of 195 liters (6.9 cubic feet), 99.995% helium and industrial grade nitrogen.

BTUCOMM Software

Part #292-00375

BTUCOMM-MS Windows®-based program providing automatic retrieval and storage of analysis data, off-site data acquisition, diagnostics and control. Uses Modbus® ASCII Protocol for data transfer.

Parallel Printers

Fixed Installations

Dot matrix parallel printer. Includes paper and cable. Part #292-00353 (120 VAC 50/60 Hz); Part #292-00354 (220 VAC 50/60 Hz).

Field Use

BuRed Barle Portable Inkjet Printer, with cable and battery with charger. Part #292-00355 (120 VAC 60 Hz); Part #292-00356 (220 VAC 50 Hz).

Helium and Nitrogen Gas Kit

Includes regulators and carrying cart.

Serial Port Extender

RS-232C - for distances up to 3 miles (5 km).

Short Haul Modem

For printer output up to 5 miles (8.5 km).



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