

Model 8800 TCA

Total Carbon Analyzer

Baseline - MOCON, Inc.™

ANALYZER

The Model 8800 TCA is a specialized member of the extraordinary Series 8800 family of gas analyzers. The Series 8800 is the candidate of choice whenever accurate, reliable hydrocarbon and VOC analysis is required. Series 8800 analyzers provide nearly limitless flexibility and offer continuous, fully automated gas analysis over a broad range of concentrations.

With a dynamic range from less than 0.1 to 100 ppm, the Model 8800 TCA is designed to measure total hydrocarbon content and provide a combined carbon monoxide (CO) and carbon dioxide (CO₂) reading. The analyzer has a generous complement of analog, digital, and logic output capabilities with room to expand. These features place the instrument well ahead of the competition in performance, automation, and configurability.

The analyzer is based on an electronically flow controlled flame ionization detector (FID) and a reduction catalyst that is switched in and out of a portion of the sample stream. Total hydrocarbons are measured first, and then the catalyst switches in. The catalyst converts the CO & CO₂ to methane, and leaves the hydrocarbons unchanged for a total carbon measurement. The total hydrocarbon value is then automatically subtracted from the total carbon concentration to determine the combined CO/CO₂ reading.

The Model 8800 TCA can be configured with internal components for a single or multipoint analysis of non-condensing, oxygen-free, inert gases. The automatic calibration feature enhances the long-term analytical stability of the instrument.

Baseline, the reference point from which all things are measured.



Applications

The Model 8800 TCA is designed to continuously monitor total hydrocarbons and trace levels of CO/CO₂ in order to provide a total carbon reading.

This specialized analyzer is configured for the detection of hydrocarbon and CO/CO₂ impurities in pure and ultrapure inert gases such as argon, helium, hydrogen, and nitrogen. Samples must be free of oxygen.

Features

- Hydrocarbon detection from sub-ppm to 100 ppm levels
- Automatic calibration at user-defined intervals
- Electronic flow control of fuel, air, and sample provides easier, more precise flow regulation
- Virtual analog ranges programmable from 1.0 - 100 ppm full scale
- Programmable relays for alarms, events and diagnostics
- Operating modes include catalyst inline, offline, and automated-switchover
- Automatic FID ignition, with automatic shut-off of fuel and combustion air
- Remote operation via RS-485, RS-232
- Internal multipoint option
- Discrete, multilevel concentration & fault alarms

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INSTRUMENT CONSOLE

The Series 8800 front panel features a bright vacuum fluorescent display and keypad. All operating parameters are set via the keypad, eliminating the need for additional meters during setup or maintenance procedures.

The display identifies all sample locations and specifies the unit of concentration & reference equivalent.

Flashing alarm codes report the active alarm location, while flashing fault codes report flame, flow or temperature anomalies.

Represented by:

Specifications

SAMPLING	Internal single or multipoint modules, with or without sample pump(s), for prefiltered (≤ 0.1 microns), non-condensing samples
CALIBRATION	Programmable automatic, or manual (with internal selection valves)
DETECTOR	Flame ionization detector (FID)
CATALYST	Methanizer, which converts low levels of CO & CO ₂ to methane
MDQ	Minimum detectable quantity: 0.1 ppm (100 ppb).
RANGE	
<i>Analog</i>	Virtual range with software selectable endpoints provides full-scale ranges from 1.0 – 100 ppm
<i>Digital</i>	Display auto-ranges from 0.01 ppm to 100 ppm (as methane)
LINEARITY	$\pm 1\%$ Full-scale response
DRIFT	Zero: < 0.1 ppm over 24 hours. Span: $< \pm 1\%$ over 24 hours, at 10 ppm full-scale.
RESPONSE TIME	Fixed mode: < 30 seconds to 90% of final reading. Switching: < 3 minutes.
OUTPUT	
<i>Analog</i>	1 (standard) to 15 analog 0-20 mA or 4-20 mA loop power supplied, isolated outputs or optional 0-1V, 0-5V or 0-10V isolated outputs. Selectable for concentration, temperature or flow (fuel, air or sample).
<i>Digital</i>	Standard: RS-485 output (RS-232 option)
RELAYS	5 (standard) to 15 programmable (Latched/Not, NO/NC) contact closures (1A@30V max). Selectable for: alarm thresholds or events (calibration, fault, or sample location).
ALARMS	Multilevel concentration, average concentration, and fault
<i>Audible</i>	Horn: Sounducer, generating 85 dB @ 10 cm. Selectively en-/disabled for keypad input, fault, and alarms.
PHYSICAL	Dimensions: 19.00" W x 8.75" H x 16.00" D (48.26 cm W x 22.23 cm H x 40.64 D). Nominal weight: 30 lb (13.64 kg).
CONFIGURATION	Bench-top or rack-mount (19" panel)
DISPLAY	Digital vacuum fluorescent, 20 characters x 2 lines
POWER	90-120 VAC or optional 210-230 VAC, 50/60Hz
OPERATING CONDITIONS	Temperature: 32-104 °F (0-40 °C). Humidity: 0-95%, non-condensing.
GAS SPECIFICATIONS	
<i>Support</i>	Hydrocarbon content: < 1 ppm required. Air ≈ 200 cc/min, hydrogen ≈ 40 cc/min. (Options: H ₂ /N ₂ or H ₂ /He @ 100 cc/min.)
<i>Sample</i>	Background gas must be hydrogen, helium, nitrogen or argon @ 20 PSIG. *Combined CO/CO ₂ concentration of sample may not exceed 100 ppm.
<i>Span</i>	Methane with CO or CO ₂
<i>Connections</i>	1/4" O.D. Tube fitting connectors (1/8", 4 mm, and other options)

Options & Accessories

SAMPLERS	Internal multipoint module, with or without sample pump(s), available in 4-point or 8-point configurations
ENCLOSURES	General purpose, X-purged or Z-purged
EXPANSION BOARDS	
<i>Analog</i>	Provides 4 or 10 additional programmable 4-20 mA outputs, with sample read & hold.
<i>Relay</i>	Provides up to 10 additional programmable relays

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