

TELEDYNE ANALYTICAL INSTRUMENTS



MODEL MAX5 *Combustion Efficiency Analyzer*

Teledyne's Max 5 Combustion Efficiency Analyzer is the quick and easy way to fine tune boilers, furnaces, fireboxes and any commercial or industrial combustion process. With the Max 5's logical design and simple controls, it's easy to obtain money saving combustion efficiency.

At the push of a button, this unit calculates efficiency and displays the results of burner adjustments without the need for charts or tables. In addition, the unit is compact and completely portable, making it convenient to spot check in the most difficult locations.

Comprehensive Displays and Output

The Max 5 analyzes six combustion parameters:

- Oxygen (O₂)
- Total combustibles
- Carbon monoxide (CO)
- Temperature
- Carbon dioxide (CO₂)*
- Net combustion efficiency*

Color coded buttons allow the user to select which three parameters to simultaneously display on a liquid crystal display (LCD).

An RS-232C serial port provides a continuous output of all six parameters, and up to 20 sets of stored data

and a short-form version of the operating manual can be output to the printer (optional) or a personal computer.

Reduce Fuel Usage and Emissions

Enter the type of fuel being burned and the Max 5 automatically calculates net combustion efficiency. This makes it easy to correctly and precisely adjust combustion, leading to minimizing fuel use and saving money. In addition, improved efficiency reduces unwanted exhaust emissions.

Compu-Cents™

With the Compu-Cents feature, the Max 5 can display the amount of money saved as parameters change and efficiency improves. By entering the price of fuel, the unit calculates the dollar value of the improved fuel consumption rate.

Maintenance Free Sensors

The Teledyne sensors used in the Max 5 are field proven, reliable and durable. The patented Micro-Fuel cell measures O₂, and a similar electrochemical sensor is used to measure CO. Total combustibles are monitored with a low temperature catalytic bead sensor. Only periodic calibration is required to assure accurate performance.

Calibration of the O₂ sensor is automatically accomplished with the touch of a button. No zero or span gases are required. The Max 5 also includes pushbutton auto zero for CO and combustibles, leaving only the span to be set. And calibration settings remain in memory even when the power is off.

Portable and Self Contained

The Max 5 comes complete with a sample probe which includes a linearized Type K thermocouple for temperature measurement between 32° - 2192°F (0° - 1200°C). A rugged sampling pump in the unit pulls gas through the sample probe, while a coalescing filter and scrubber remove condensables and corrosives. Flowmeters provide nominal flow control, and an integral AC-rechargeable NiCad battery pack provides up to eight hours of continuous operation.

Advantages

- Optimizes combustion efficiency with minimal effort
- Low maintenance, field proven
- Lightweight, durable

*Based on calculations from oxygen and temperature data, used for trend only

MODEL MAX5 COMBUSTION EFFICIENCY ANALYZER

STANDARD FEATURES

- Measures O₂, CO, combustibles, temperature; calculates CO₂ and net efficiency
- NiCad battery powered with built-in AC charger
- 15 foot (4.5 meter) sampling hose
- Auto calibration of O₂ sensor
- Auto zero of combustible and CO sensor
- RS-232C serial data output
- Storage capability for 20 sets of data
- Low battery indicator

OPTIONS

- Printer
- 220 VAC recharge circuit
- Carrying case
- Special hose length (standard is 15 feet/4.5 meters)
- Special measuring ranges
- Type J thermocouple
- Special CO range (up to 0 - 2.5% CO)

SPECIFICATIONS

Ranges: Combustibles: 0-5% (CH₄ equivalent)
CO: 0-1000 ppm
O₂: 0-25%
Efficiency: 0-99.9%*
CO₂: 0-20%*
(between 32° and 2192°F / 0°-1200°C)

Resolution: Combustibles: 0.1%
CO: 1ppm
O₂: 0.1%
Efficiency: 0.1%
CO₂: 0.1%

Accuracy:

Combustibles: $\pm 0.2\%$ at constant temperature
 $\pm 0.5\%$ over operating temperature range
CO: $\pm 2\%$ at constant temperature
 $\pm 6\%$ over operating temperature range
O₂: $\pm 2\%$ at constant temperature
 $\pm 5\%$ over operating temperature range
(once temperature equilibrium has been achieved)
Temperature: $\pm 2\%$ of full scale over operating temperature

Response time:

Combustibles: 90% of final reading in <20 seconds
CO: 90% of final reading in <30 seconds
O₂: 90% of final reading in <20 seconds
Temperature: Full scale in <10 seconds

System operating temperature: 0°-50°C

Signal output: RS-232C serial data output (unidirectional)

System power requirements: 100-240 VAC, 50/60Hz
(user specified)

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Warranty

Instrument is warranted for 1 year against defects in material or workmanship

NOTE: Specifications and features will vary with application. The above are established and validated during design, but are not to be construed as test criteria for every product. All specifications and features are subject to change without notice.

