ENERAC™ 3000E

Reliable Data For Periodic Monitoring

NEW HYDROCARBONS (EPA Method 25B-NDIR)

Advanced SEM™ Sensors

With Velocity Probe

The ENERAC™ 3000E portable emissions analyzer offers you the capabilities and systems support required to meet your periodic monitoring needs with low-cost, defensible data that can be used to reduce operational and compliance risks.

The 3000E analyzer meets the performance specifications of EPA's:

- ***CTM-022*** ***Test Method for NO, NO_2, NO_X***
- ***Method 2*** ***Stack Gas Velocity***
- ***Method 7E.5.1.1*** ***Sample Conditioning***
- ***Method 25B*** ***Hydrocarbons***

ENERAC™ 3000E analyzers have been successfully used for:

- ***Compliance Testing***
- ***Title V Periodic Monitoring***
- ***CAM/Plan Development***
- ***Emissions Trading***
- ***Quarterly Testing***
- ***Energy Efficiency Programs***
- ***Equipment Maintenance***
- ***"Credible Defense" for ACE***

ENERAC's automatic/documented quality control features will reduce compliance risks, assure data accuracy, simplify operator training, increase productivity and reduce costs.

- ***Meets requirements of all EPA and state electrochemical sensor technology protocols: i.e. CTM-030.***

For continuous technical updates, visit our web site at: www.enerac.com

The ENERAC™ 3000E portable emissions analyzer provides you with the most comprehensive package of capabilities in the industry.

Advanced SEM™ sensor technology provides the assured data accuracy required for a broad range of monitoring needs. Built-in "Quality Assurance" features document proper sensor and equipment performance before each test, which truly simplifies operator training.

Performance features include:

- *Advanced SEM sensors (CTM-022 and CTM-030)*
- *Dual-range capability for CO—NO—SO_2*
- *Battery-operated Sample Conditioning (Method 7E)*
- *Stack Gas Velocity (Method 2)*
- *Auto calculation of mass loading, etc.*
- *NDIR-Hydrocarbons (Method 25B)*

These features are backed by a comprehensive framework of supporting services, including:

- *Comprehensive operator training*
- *Regulatory support and interface*
- *Protocol development*
- *Replacement units*
- *Remote two-way communication and support via modem*
- *Integrated data system with standard units*
- *Advanced Windows® based data management software*

ENERAC 3000E Specifications:

QUALITY ASSURANCE:

1. *Temperature Control NO Sensor: < 30º C to eliminate zero drift and the effects of sensor exposure.*
2. *Calibration Certification Protocol: Automatic printout of both auto zero and span calibration test results, including sensor diagnostics and filter operation.*
3. *Operational Flexibility: Unique, single, dual-range sensors: CO–NO–SO_2.*

PHYSICAL:

1. *CASE: 18" x 13" x 6" Aluminum carrying case with lock. Weight: 22 lbs.*
2. *PROBE: 24"L. x 3/8"O.D. inconel probe with Hastelloy X sintered filter and 1/2" deflector mounted on permeation drier housing. Probe housing connects to instrument via a 10 ft. PTFE Teflon hose. Max. continuous temperature: 1800 deg. F. Max. sample dew point (past dryer) 50 deg. F. @ 500 cc/min. (Natural gas fuel @ 0% oxygen).*
3. *VELOCITY: Emissions Probe. Three-part 3/16" stainless steel detachable welded assembly consists of 3/8" O.D. sample probe with sintered filter, two sections of 3/16" S-type pitot tube and inconel-sheathed, Type K thermocouple. Standard length: 17" (Specify desired size of optional length.) Max. continuous temperature: 1700 deg. F.*

ELECTRICAL POWER:

1. *BATTERY: 6V rechargeable, sealed, lead-acid cell. Three hour continuous battery operation. Quick 6 hour recharge.*
2. *AC:120V/60 Hz and 220V/50Hz standard.*
3. *DC: 11-40 VDC/3A and 6V/5A.*

DISPLAY:

1. *0.35" High by 24 Character two line LCD with backlight illumination and adjustable viewing angle. Simultaneous display of any four emission parameters or two messages.*

PRINTER:

SEIKO 4", 40 char. per line thermal printer with form feed and line feed buttons and with end of paper override. Operates in any of four modes:

MEASURED PARAMETERS	Range	Resolution	Accuracy
NEW 1. HYDROCARBONS (NDIR) (CxHx) Nondispersive Infrared Sensor. Life indefinite	0-5.00% OR 0-1.000%	0.001%	+/- 5% of reading OR Meets EPA Method 25B
NEW 2. VELOCITY (V) S-type Pitot tube	0-200 ft/sec (2" WC)	1ft/sec	Meets EPA Method 2
3. SEM NITRIC OXIDE (NO)** Temp Cntrl >30ºC ● Dual Range Electrochemical cell. Life 2 years	0-300, 300-1,000 OR 1,000-3,500	1PPM	2% of reading*
4. SEM NITROGEN DIOXIDE (NO_2) ● Fixed Electrochemical cell. Life 2 years	0-500 PPM**	1PPM	2% of reading*
5. SEM CARBON MONOXIDE (CO)** ● Dual Range Electrochemical cell. Life 2 years	0-500/2,000 PPM OR 0-2,000/20,000 PPM	1PPM	2% of reading*
6. SEM SULFUR DIOXIDE (SO_2) ● Dual Range Electrochemical cell. Life 2 years	0-2,000 2000-Good PPM	1PPM	2% of reading*
7. OXYGEN Electrochemical cell. Life 2 years	0-25%	0.1%	0.2% of reading
8. AMBIENT TEMPERATURE IC sensor. Degrees F or C	00-150°F	1°F or C	3°F
9. STACK TEMPERATURE Type K thermocouple. Degrees F or C	0-2,000°F (1,100º C)	1°F (1°C)	5°F 0.005% Volume (as Propane)
10. COMBUSTIBLES/HYDROCARBONS (HC) (C_xH_x) Catalytic sensor. Life indefinite	0-6%	0.01%	10% of reading in CH_4 gas
11. TIME/DATE	Time in hours, minutes, seconds; Date in month, day, year format.		

COMPUTED PARAMETERS	Range	Resolution	Accuracy
1. COMBUSTION EFFICIENCY Heat loss method. Unique four loss factors computation (dry gas, water vapor, gaseous combustIbles, combustIbles in ash	0-100%	0.1%	(4 loss): 1% (above H_2O condensation) 2% (below H_2O condensation)
2. CARBON DIOXIDE (CO_2)	0-40%	0.1%	5% of reading
3. EXCESS AIR	0-1000%	1%	10% of reading
4. OXIDES OF NITROGEN (NO_X)	0-800 PPM 0-1500 PPM (800-1500) 0-4300 PPM (1500-4300) 0-5500 PPM (request)	1PPM	2% of reading*
5. EMISSIONS 1 (CO, NO, NO_2, NO_X, SO_2)	0-2500 mg/m³	2 mg/m³	5% of reading
6. EMISSIONS 2† (CO, NO, NO_2, NO_X, SO_2)	0.000-99.99 lbs/MMBTU	0.01 lbs/MMBTU	5% of reading
7. EMISSIONS 3 (CO, NO, NO_2, NO_X, SO_2)	0-99.99 grams/ brake hp-hr	0.01 grams/ brake hp-hr	10% of reading
8. EMISSIONS 4 (with velocity option) (CO, NO, NO_2, NO_X, SO_2) (CO_2)	0-99.99 lbs/hr 0-99.99 tons/day	0.01 lbs/hr	10% of reading
9. STACK GAS FLOW RATE (Optional)	0-65000 ft³ /min	1 CFM	Meets EPA Method 2

*When tested according to 40 CFR 60, RAA Test
**Other ranges available on request.
† Oxygen correction factor for emissions adjustable 0-20 1% steps plus true.

1. *TEXT MODE: 25 line printout of instant values of all measured parameters and automatic printout of calibration checks. (Time req: 20 sec.)*
2. *PLOT MODE: Any one parameter vs. time plotted. Three ordinate scales: full, half, quarter. Time scale: Selectable, 1 sec/dot-1 min/dot in 1 sec/dot intervals.*
3. *EXTERNAL PRINT MODE: Prints messages sent via RS-232 port.*

STORAGE:

Internal: Minimum 50 individually selectable buffers hold one complete set of measurements each in non-volatile memory. Buffer contents can be sent to printer or RS-232 port.

COMMUNICATIONS:

1. *RS-232 PORT: RS-232c port (DTE or DCE), 1200 baud default, 300-9600 baud user selectable, half duplex, 1 start bit, 8 data bits, 1 stop bit, no parity.*
2. *TELEPHONE PORT: Internal 1200 baud modem connects to a modular phone line for remote communication.*
3. *SOFTWARE: ENERCOM™ for WINDOWS® software. 3.5" diskette, includes alarms, programming fuels, bar graphs, multiple line plots and cumulative plots of mass emission rates (lbs/hr; tons/yr) .*
4. *ANALOG OUTPUTS: 8 analog outputs, 0-5 VDC, of the following parameters: Stack Temp., Ambient Temp., 0_2, Combustibles, CO, NO, NO_2 and SO_2.*

MISCELLANEOUS:

1. *FUELS: 15 fuels (3 in foreground, 12 in background) are standard. Custom fuels available on request.*
2. *CO ALARM: Selectable 0-2000 PPM in 10 ppm steps.*
3. *COMBUSTIBLES IN ASH: Presettable 0-100% in 5% steps.*
4. *MESSAGES: User friendly diagnostic & help messages.*
5. *CALIBRATION: Auto gas span plus user selectable auto zero on start.*

OPERATOR TRAINING & CERTIFICATION:

SEM™ electrochemical portable instrumentation is an important, cost-effective method to acquire compliance-level emission data. To ensure proper implementation, the operator should be trained as to the instrument's capabilities.

REMOTE OPERATION:

Two-way advanced communication and remote operation includes remote factory check and repair, and remote operation and reporting.

UPGRADEABILITY:

All ENERAC™ 3000E units can be expanded and upgraded at any time to meet your changing environmental requirements.

For more information on how the ENERAC™ 3000E can help simplify your monitoring programs, CALL 1-800-695-3637.

For continuous technical updates, visit our website at www.enerac.com

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