

ENERAC™ 3000

Reliable Data For Periodic Monitoring

MEETS NEW
EPA NO_x
TEST METHOD



Advanced SEM™ Sensors

The ENERAC™ 3000 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 3000 analyzer meets the following EPA performance specifications:

- CTM-022 Test Method for NO, NO₂, NO_x
- Method 7E.5.1.1 Sample Conditioning

ENERAC™ 3000 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™ 3000 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 + CTM-030)
- Dual-range capability for CO—NO—SO₂
- Battery-operated Sample Conditioning (Method 7E)

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 3000 Specifications:

QUALITY ASSURANCE:

1. Temperature Control NO Sensor: < 30° 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—SO₂.

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).

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 standard.

DISPLAY:

0.5" High by 24 Character single line LCD with backlight illumination and adjustable viewing angle.

MEASURED PARAMETERS

	Range	Resolution	Accuracy
1. SEM NITRIC OXIDE (NO)** Temp Cntrl < 30°C • Dual Range Electrochemical cell. Life 2 years	0-300, 300-1,000 OR 1,000-3,500	1PPM	2% of reading*
2. SEM NITROGEN DIOXIDE (NO ₂) • Fixed Electrochemical cell. Life 2 years	0-500 PPM**	1PPM	2% of reading*
3. 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*
4. SEM SULFUR DIOXIDE (SO ₂) • Dual Range Electrochemical cell. Life 2 years	0-2,000 PPM OR 2000/6,000 PPM	1PPM	2% of reading*
5. OXYGEN Electrochemical cell. Life 2 years	0-25%	0.1%	0.2% of reading
6. AMBIENT TEMPERATURE IC sensor. Degrees F or C	0-150°F	1°F or C	3°F
7. STACK TEMPERATURE Type K thermocouple. Degrees F or C	0-2,000°F (1,100° C)	1°F (1°C)	5°F
8. COMBUSTIBLES Catalytic sensor. Life indefinite	0-6%	0.01%	10% of reading in CH ₄ gas
9. 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 ₂ O condensation) 2% (below H ₂ O 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/m ³	2 mg/m ³	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

*When tested according to 40 CFR 60, RAA Test

† Oxygen correction factor for emissions adjustable 0 - 20 1% steps plus true.

**Other ranges available on request.

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:

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) .

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

For more information on how the ENERAC™ 3000 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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