

HORIBA

4000 Series



ENDA-4000 Series multi-gas CEMS

The HORIBA ENDA-4000 Series Multi-gas CEMS is designed specifically for Continuous Emissions Monitoring. The system incorporates the innovative Model XS or XE instrument, which combines measurement of up to five components (NO_x, SO₂, CO, CO₂, O₂) with system control and diagnostics. Both the ENDA-4000 (includes model XS instrument) and the ENDA-E-4000 (with Model XE instrument) are available in a wide variety of pre-engineered configurations to meet most monitoring applications. To meet your specific measurement and control requirements, special systems can be custom ordered.

*Advanced systems
to foster a cleaner
environment for
future generations.*

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features

- ⑤ Incorporates Model XS instrument for easy system operation or Model XE instrument for additional capabilities (see instrument specification sheets).
- ⑤ Both instruments contain an on-board CPU to control analyzer/system functions.
- ⑤ Redundant components are eliminated, reducing the size of the system and reducing maintenance.
- ⑤ Low sample gas flow rate contributes to longer life of filters and consumables.
- ⑤ Designed for minimum maintenance requirements and maximum reliability based on the experience of over 10,000 installations.
- ⑤ Automatic calibration is standard with flow path through the probe filter.
- ⑤ The probe blowback is automatically controlled by the instrument.
- ⑤ Field-modifiable configuration allows the operator to add, remove, or change analyzer modules, auxiliary devices, and outputs.
- ⑤ Standard alarm outputs included for low sample flow, sample line temperature, thermoelectric cooler temperature, analyzer malfunction, power failure, maintenance in progress, calibration in progress, blowback in progress, and calibration fault and range indication by channel.
- ⑤ Standard packages are available for industrial applications--or let Horiba's expert engineers custom configure the system for specialized installations.
- ⑤ Optional probe is available in 316 stainless steel or other materials to suit the application requirements.
- ⑤ Option available to monitor stack flow and opacity with appropriate sensors installed in the stack - no additional controllers required with the XE instrument.
- ⑤ Manufactured under strict ISO 9001 certification.



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ENDA-4000 Series multi-gas CEMS

The ENDA-4000 multi-gas CEMS is a complete system for measurement of up to five gases. Gas analyzer modules, I/O for system control and alarms, and sample conditioning are provided in a single bay cabinet. The elimination of redundant components reduces maintenance requirements and the number of spare parts needed.

The ENDA-4000 incorporates the innovative Model XS or XE CEMS instrument. These instruments include an integrated microprocessor to provide signal processing and data handling. The user-friendly display allows the user to view raw and corrected concentrations and alarm status. Easy-to-use front panel keys allow the user to set system functions such as calibration timing and probe blowback timing and duration. The modular design of the instrument provides flexibility and maximizes uptime by allowing rapid field replacement or upgrade of components. The Model XE instrument provides additional advanced system control and communications capabilities.

The Model XS and XE instruments use Horiba's reliable and field-proven cross-flow modulation detection technology to provide zero drift free measurements with high accuracy and reliability. These instruments require no routine maintenance or optical alignment. For low level measurement of NO_x and SO₂, optional chemiluminescence and ultraviolet technology are available, respectively.

The standard Horiba fully-extractive probe (not included with the system) is constructed of 316 stainless steel and has an external heated filter to separate particulate matter from the sample stream. The filter is easily removed for cleaning or replacement without removing the sample probe from the stack.

The sample handling system is a further enhancement of the field-proven ENDA design. The sample is transported to the analyzer cabinet through a heated sample line to prevent condensation. At the cabinet, the sample passes through a gravity water separator that quickly drops the dewpoint to the ambient temperature. A thermoelectric cooler further dries the sample. Multiple stage filtration and a mist catcher to remove acid mist are also provided before the sample reaches the analyzer modules.

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specifications

4000 Series

Instrument Specifications:	See specification sheet for Model XS or Model XE Instruments, 46S/48S shelters.
Gases/Ranges Available:	
NO _x (NDIR):	0-100 / 5,000 ppm
SO ₂ (NDIR):	0-50 / 5,000 ppm
CO (NDIR):	0-50 / 5,000 ppm, standard or 0-10 / 1,000 ppm, optional
NO _x (CLD option):	0-10 / 5,000 ppm
SO ₂ (UV option):	0-10 / 5,000 ppm
CO ₂ :	0-5 / 50%
O ₂ :	0-10 / 25%
Optional Additional Measurements:	Flow, Opacity, HCl, NH ₃ , Cl ₂ , and THC
Power Consumption:	700 VA for standard model. Additional 300 VA required for CLD (NO _x) or UV (SO ₂) options.
System Output Contacts:	Standard: Low sample flow, thermoelectric cooler temperature, sample line temperature, analyzer malfunction, power failure, maintenance in progress, blowback in progress, and calibration fault and range indication by channel.
Material Exposed to Sample Gas:	304 and 316 stainless steel, Teflon™, Viton™, polypropylene, fluororubber, PVC, Kynar™, and glass
NEMA Rating:	NEMA 12 standard NEMA 4, or 4X optional
Dimensions:	
Height:	72 in (1829 mm)
Width:	24 in (610 mm)
Depth:	30 in (762 mm)
Weight:	Approx. 440 lb (200 kg)
Sample Gas Conditions:	Standard system designed for the following sample gas conditions:
Temperature:	250±4°C
Dust:	0.1 g/Nm ³ (0.04 grains/dscf)
NO:	1000 ppm (max. 5000 ppm)
NO ₂ :	15 ppm
SO ₂ :	1000 ppm (max. 5000 ppm)
SO ₃ :	50 ppm
CO:	500 ppm (max. 5000 ppm)
CO ₂ :	15 vol % (max. 50 vol %)
H ₂ O:	4 to 20 vol %
Others:	Corrosive gases (HF, HCl, Cl ₂) not present; Options: NH ₃ scrubber, CH ₄ compensation.

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