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NO & NO₂ MEASUREMENT

Mustang's MAE-NOx uses Non-Dispersive Ultra-Violet (NDUV) technology to measure the concentrations of NO and NO₂. The analyzer meets the updated 2010 US EPA standards for vehicle emissions measurements, as put forth in CFR40 part 1065, enabling laboratory grade measurements in a package that is rugged enough for both laboratory and in-use emissions data collection.

The system is packaged for use as both a stand-alone analyzer and for use with the entire MAE ECOSTAR product line. In the latter configuration, side handles lock together with those of the MAE-FEM, and the sample ports connect through an intake manifold on the bottom of the MAE-NOx, for a secure system setup that minimizes pneumatic tubing. Quick connect brackets on the back of the unit provide cable management conduits when needed. A full color touch screen displays live data, and enables system setup and basic functions, such as zero and span.

The MAE-NOx was designed to measure NO and NO₂, both on-board and in the test cell. The system is comprised of a Non-Dispersive Ultra Violet (NDUV) gas analyzer, with the following system benefits:

NO and NO₂ measurement: Sensors' proprietary NDUV measures NO and NO₂ separately and simultaneously.

Signal to Noise: The LED light source can be operated at very high frequencies, enabling an excellent signal to noise ratio.

Six Temperature Controlled Zones: Six temperature controlled zones ensure accurate data throughout a wide range of ambient temperatures, and minimize drift.

Optimized Signal Processing: Pre-amplifiers and ADC converters are designed to optimize dynamic range and resolution. This enhances longevity in regards to sample cell contamination and normal UV source aging.

Sample Conditioning: When used in conjunction with the SEMTECH-FEM, the sample is filtered and cooled prior to analysis, minimizing contamination of the analyzers.

Graphical Panel Display: Monitor live data, adjust settings on the fly, and easily perform basic functions such as zero and span, directly from the analyzer front panel's full color touch screen.

Power Supply Monitoring: Power can be either 12 VDC, 110 VAC or 220VAC, with both current and voltage monitoring.

Dual Ports: Sample, air and exhaust ports are located on both the front face of the analyzer, and from the bottom. The bottom ports connect directly to the intake manifold of the SEMTECH-FEM, for a fast, simple connection of the two units. Front ports are available for the stand-alone configuration.





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MAE-NOX SYSTEM SPECIFICATIONS

Power:	12 VDC nominal (10.5 – 14.5 VDC); 110 VAC or 220 VAC
Storage temperature:	Dry –10 to 60 °C ambient
Operating temperature:	0 to 40 °C ambient
Dimensions:	43.6 cm x 30.8 cm x 13.6 cm (WxDxH)
Weight:	13 kg
Data transmission:	RS232, Ethernet, USB
Electromagnetic interference and susceptibility	CE Standards: IEC 61326: 2002-2

NO, NO₂, ANALYZER SPECIFICATIONS (NDUV)

	NO	NO ₂
Range (ppm):	0 to 3000, 0 to 900, or 0 to 300	0 – 500, 0 to 300, 0 to 100
Accuracy¹:	2% of pt. or 2% of meas. ⁴	2% of pt. or 2% of meas. ⁴
Linearity:	Intercept ≤ 0.5 % of range. 0.990 ≤ Slope ≤ 1.01 SEE ≤ 1.0% of range r ² ≥ 0.998	Intercept ≤ 1.0 % of range. 0.985 ≤ Slope ≤ 1.015 SEE ≤ 1.0% of range r ² ≥ 0.998
Repeatability¹:	1% of pt. or 1% of meas. ⁴	1% of pt. or 1% of meas. ⁴
Noise¹:	1% of max.	1% of max.
Zero drift²:	≤ 10 ppm	≤ 10 ppm
Span drift³:	2% of span value	2% of span value
Resolution:	0.1 ppm	
Operating Temperature:	2° to 50° C ambient operating temperature -10° to 60° dry storage temperature	
Warm-up Time:	≤ 1 hour	
Flow Rate:	3 lpm	
T₉₀ Time:	≤ 2 seconds	
Data Rate:	1 Hz	

¹ Per CFR 40 part 1065.305

² Over 1 hour period with ambient temperature $\Delta \leq 10^\circ \text{C}$. Zero gas bottled N₂.

³ Over 8 hour period with ambient temperature $\Delta \leq 10^\circ \text{C}$. Zero gas bottled N₂.

⁴ "pt" refers to the overall flow-weighted mean value expected at the standard.

"meas" refers to the actual flow-weighted mean measured over any test interval