

NOVA

MODEL 300 CLD

CHEMILUMINESCENT NO/NO_x ANALYZER



APPLICATIONS

- Stack Gases (CEM)
- Scrubber Efficiency
- Process Chemical Gas Analysis
- Personnel Safety
- Power Plant Stack De-Nitrification
- Vehicle Emissions

METHOD OF OPERATION

The Nova Model 300 CLD Analyzer utilizes the principle of chemiluminescence for analyzing the NO/NO_x concentration within a gaseous sample. The method is based upon the chemiluminescent reaction between ozone and nitric oxide (NO) to give nitrogen dioxide (NO₂) and oxygen.

Approximately ten percent of the NO₂ produced from this reaction is in an electronically excited state. The transition from this state to a normal state produces light which has an intensity proportional to the mass flow rate of NO₂ into the reaction chamber. The light is measured by means of a photomultiplier tube and associated electronics.

A very small number of the excited NO₂ molecules lose energy by emitting light – the majority of the energy loss is caused by collision with other molecules. The number of molecular collisions vary in direct proportion to pressure.

DESCRIPTION

The Nova Model 300 CLD NO/NO_x analyzer is designed to continuously measure the total concentration of oxides of nitrogen within a gaseous sample. The gaseous sample can be ambient air, exhaust gases from an internal combustion engine, or exhaust gases from a combustion process. The Model 240 CLD version has been designed to meet the specific requirements of the U.S. E.P.A. Enhanced Maintenance Test Procedures (IM-240).

FEATURES

- Sensitivity to 3.0 PPM NO/NO_x full scale
- Automatic high voltage shut down with loss of ozone air
- Complete digital presentation including sample and air pressures (no gauges)
- Critical flow orifice flow control (no capillaries)
- Eight range capability
- Digital diagnostics
- 19 inch rack mount only 5-1/4 inch high

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SPECIFICATIONS

DESCRIPTION	
Analysis Method:	Chemiluminescence (CLD)
Total Ranges:	Specify any 5 consecutive ranges of the following: 0-3, 10, 100, 300, 1,000, 3,000, 10,000, 30,000 PPM NO/NO _x
Operating Ranges:	8 ranges selectable from the front panel
Resolution:	0.01 PPM NO/NO _x
Repeatability:	Better than 1% of full scale
Linearity:	Better than 1% of full scale
CO₂ Effect:	Less than 1% with 10% CO ₂
H₂O Effect:	Less than 1% with 3% H ₂ O
Converter:	Carbon material @200°C; 95-100% efficiency
Ozonizer:	O ₂ / Ultraviolet lamp
Response Time:	90% of full scale in 1.5 sec.
Sample Flow Rate:	4.0 L/min. ±1.0 L/min.
Sample Pressure:	7 to 14 psig
Noise:	Less than 0.5% of full scale
Zero & Span Drift:	Less than 1% of full scale per 24 hours
Zero & Span Adjustment:	Ten turn potentiometer
Flow Control:	Forward pressure regulator & orifices

Air or O₂ Requirements:	Less than 1 PPM NO _x at 210cc/min. @ 25 psig. Note: O ₂ required above 2,000 PPM
Display:	3-1/2 digit panel meter (percent of full scale)
Diagnostics:	3-1/2 digit panel meter with 8 position switch: 1) Sample Pressure 2) Oven Temp. 3) Air Pressure 4) PMT voltage 5) -15 VDC 6) +15 VDC 7) Converter temperature 8) Open
Analog Output:	0-10 VDC & 4-20 MADC (isolated)
O₃ Control:	Manual push button with automatic shutdown with loss of air pressure
Ambient Temperature:	5 to 40°C
Sample Temperature:	0 to 50°C
Warm Up Time:	1 hour
Fittings:	1/4 inch tube
Power Requirements:	115/230 (±10%) VAC 50/60 Hz; 130 watts
Dimensions:	5-1/4"H x 19"W x 20"D
Relative Humidity	Less than 90% RH
Weight:	28 lbs.

CLD OPTIONS

- 19 inch rack mount slides
- Remote range change with ID
- Remote output of diagnostic signals
- Remote control of ozone high voltage
- Industrial purgeable case assembly

Nova reserves the right to specification changes which may occur with advances in design without prior notice.

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