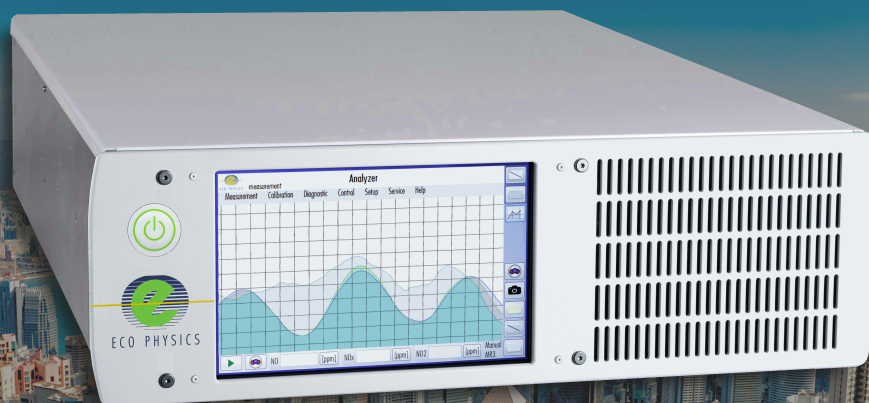




ECO PHYSICS nCLD AL²

APPLICATION EXAMPLES

- Ambient air monitoring
- Outdoor and indoor application
- Certification and calibration
- Research



The nCLD AL² is the next generation in two-channel high precision ambient air monitoring instrumentation. Unique in speed and reliability, the nCLD AL² is modular designed and capable of simultaneously measuring NO, NO₂ and NO_x. Its new user interface also individually displays and connects to other instruments' data.

Measurement of:

- NO
- NO₂
- NO_x

Flexible Ambient Air Monitoring

The nCLD AL² is the ideal instrument for ambient air monitoring, either installed in racks, fixed monitoring stations or mobile laboratories. Besides the ambient air in the open environment, the analyzer is also suitable for air quality monitoring in production plants and offices (TLV = threshold limit value). The nCLD AL² is a two-channel NO_x-detector based on a modular principle. The measurement ranges are individually adjustable, the parameters are NO, NO₂ and NO_x and the instrument's inlet operates at ambient pressure. Calibration of the unit runs quick and automatic while all necessary data is continuously stored and readily available anywhere and at any time.

User Friendliness

The new touch sensitive graphical user interface enables the user to individually adjust the instrument operation and data management according to his/ her needs and applications. The bright 7" monitor gives a clear overview and allows numerical and graphical display of values. Multiple digital in- and outputs guarantee a maximal connectivity and flexibility for the remote operation, control and maintenance of the nCLD AL², ensuring unsurpassed precision and reliability.

Compact, Modular and Intelligent!

The nCLD AL² is manufactured in a new compact and modular layout, in which each essential component of the chemiluminescence analyzer hosts its own CPU and interacts with other CPUs by BUS-communication. This assembly increases accessibility and serviceability by reducing wiring and piping. The measurement principle will conform to the standard method for NO_x-detection in ambient air (EN 14211).

- Rapid system integration and rack mounting
- Compact and modular design
- Virtually maintenance free even in continuous operation
- Four freely selectable measuring ranges

Graphical user interface for individual analyzer operation and data management

NO	634.0 ppb
NOx	644.0 ppb
NO2	10.0 ppb

Measurably better

SPECIFICATIONS

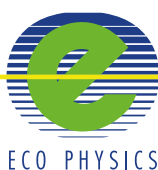
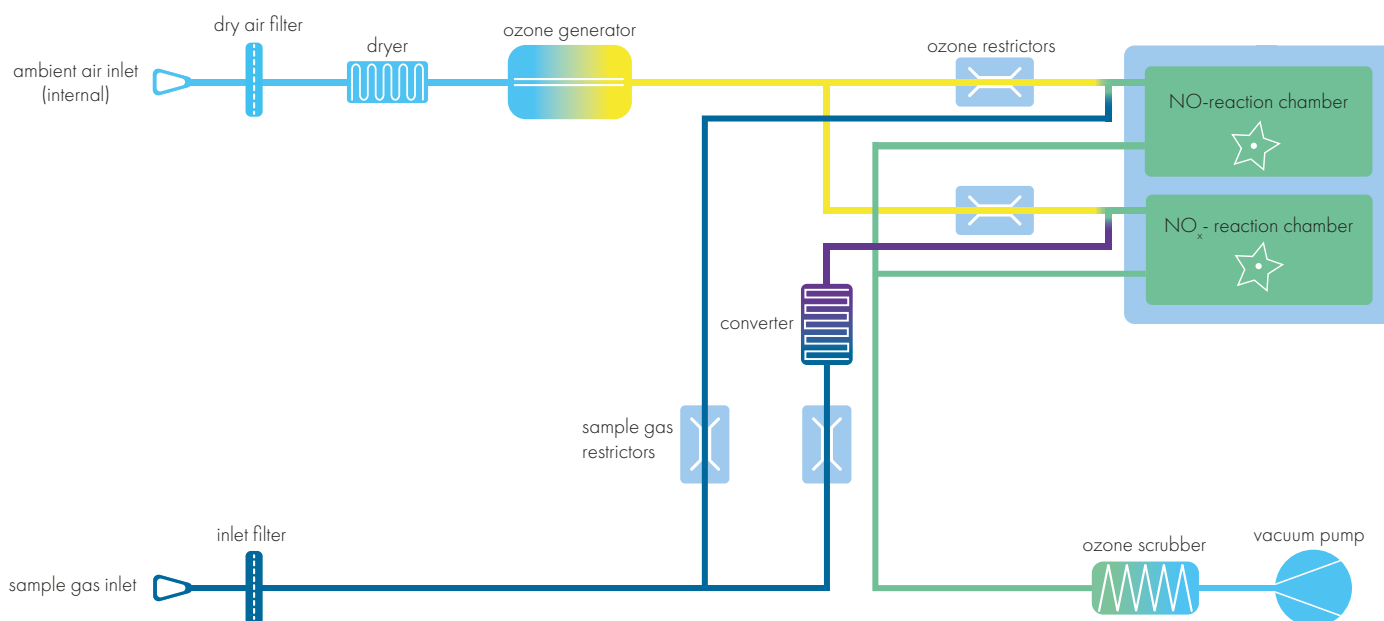
nCLD AL²

Analyzer type	dual chamber CLD with cooled PMT for simultaneous measurement of NO, NO ₂ , NO _x	Power required	350 VA (incl. membrane pump and ozone scrubber)
Measuring ranges	four freely selectable ranges from 100 ppb - 50'000 ppb	Supply voltage	100 - 240 V/50 - 60 Hz
Min. detectable concentration*	0.4 ppb	Interface	USB(3x), HDMI, Bluetooth, RS232 (w/o 9pin connector), LAN, WLAN
Noise at zero point (1σ)*	<0.2 ppb	Dimensions	height: 133 mm (5¼ ") width: 450 mm (19 ") with molding: 495 mm depth: 540 mm (21.2 ")
Lag time	<3 sec	Weight	23 kg (51 lb)
Rise time (0 - 90%)	<1 sec	Delivery includes	nCLD AL ² analyzer, power cable, FTDI-RS232-USB cable, USB-LAN adapter, HDMI adapter
Temperature range	0 - 40 °C	Standard	nCLD AL ² · Y - molybdenum converter
Humidity tolerance	5 - 95% rel. h (non-condensing, ambient air and sample gas)	Options	· USB-RS232 9pin connector · 0 - 10 V · 4 - 20 mA into 500 Ω max.
Sample flow rate	1.0 l/min	Analog output (External Box)	
Input pressure	600 - 1200 mbar abs.		
Dry air use for O ₃ generator	internally generated (no external supply gas required)		

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FLOW DIAGRAM

*Depending on filter setting
Connectivity properties are country-specific
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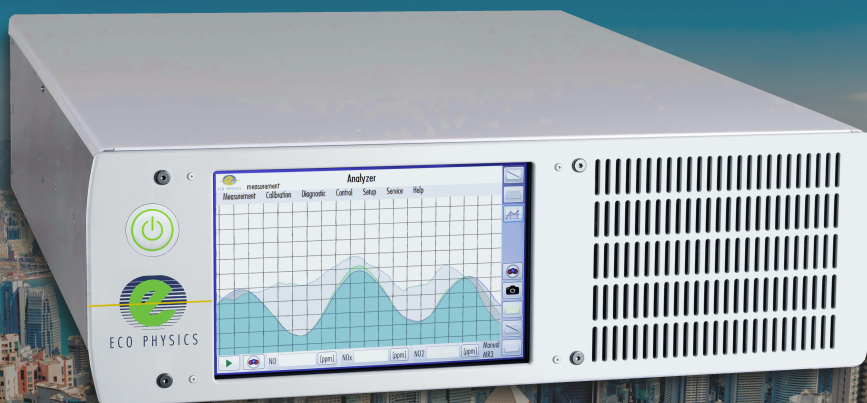
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ECO PHYSICS nCLD AL³/ 8555

APPLICATION EXAMPLES

- Ambient air monitoring
- Outdoor and indoor application
- Certification and calibration
- Research



The nCLD AL³ and 8555 are the world's first three-channel high precision ambient air monitoring and specialty gases instrumentation. Unique in speed and reliability, the nCLD AL³ and 8555 are modular designed and capable of simultaneously measuring NO, NO₂, NO_x and NH₃. Its graphical user interface also individually displays and connects to other instruments' data.

Measurement of:

- NO
- NO₂
- NO_x
- NH₃

Flexible Ambient Air Monitoring

The nCLD AL³/8555 is the ideal instrument for ambient air and specialty gases monitoring, either installed in racks, fixed monitoring stations or mobile laboratories. Besides the ambient air in the open environment, the analyzer is also suitable for gas and air quality monitoring in production plants (TLV = threshold limit value). The measurement ranges are individually adjustable, the parameters are NO, NO₂, NO_x and NH₃. The instrument's inlet operates at ambient pressure. Calibration of the unit runs quick and automatic while all necessary data is continuously stored and readily available anywhere and at any time.

User Friendliness

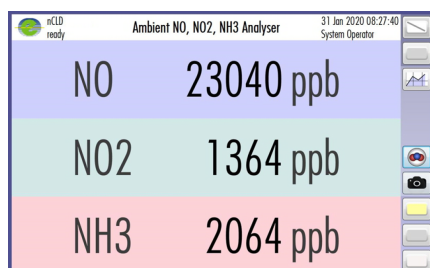
The new touch sensitive graphical user interface enables the user to individually adjust the instrument operation and data management according to his/ her needs and applications. The bright 7" monitor gives a clear overview and allows numerical and graphical display of values. Multiple digital in- and outputs guarantee a maximal connectivity and flexibility for the remote operation, control and maintenance ensuring unsurpassed precision and reliability.

Compact, Modular and Intelligent!

The nCLD AL³/8555 is manufactured in a new compact and modular layout, in which each essential component of the chemiluminescence analyzer hosts its own CPU and interacts with other CPUs by BUS-communication. This assembly increases accessibility and serviceability by reducing wiring and piping. The measurement principle is based on the TuV/ QAL1 certified nCLD AL2 and conforms to ambient air standards (EN 14211).

- Rapid system integration and rack mounting
- Compact and modular design
- Virtually maintenance free even in continuous operation
- Four freely selectable measuring ranges

Graphical user interface for individual analyzer operation and data management



Measurably better

SPECIFICATIONS

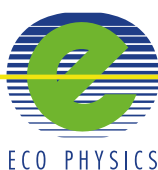
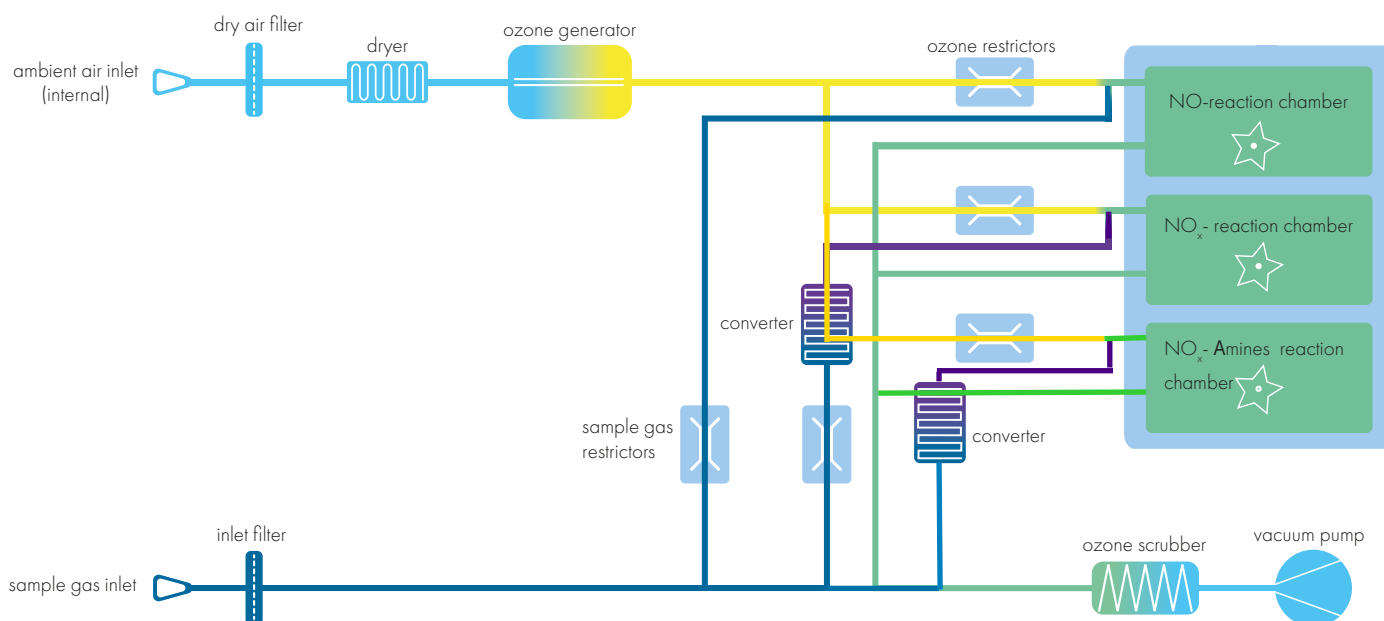
nCLD AL³ / 8555

Analyzer type	three chamber CLD with cooled PMT for simultaneous measurement of NO, NO ₂ , NO _x , NH ₃	Power required	350 VA (incl. membrane pump and ozone scrubber)
Measuring ranges	four freely selectable ranges from 100 ppb - 50'000 ppb NH ₃ - 5'000 ppb	Supply voltage	100 - 240 V/50 - 60 Hz
Min. detectable concentration*	0.4 ppb	Interface	USB(3x), HDMI, Bluetooth, RS232 (w/o 9pin connector), LAN, WLAN
Noise at zero point (1σ)*	< 0.2 ppb	Dimensions	height: 133 mm (5¼ ") width: 450 mm (19 ") with molding: 495 mm depth: 540 mm (21.2 ")
Lag time	< 3 sec	Weight	23 kg (51 lb)
Rise time (0 - 90%)	< 1 sec	Delivery includes	nCLD AL ³ analyzer, power cable, FTDI-RS232-USB cable, USB-LAN adapter, HDMI adapter
Temperature range	0 - 40 °C	Standard	nCLD AL ³ · Y - molybdenum converter · C - catalyst converter
Humidity tolerance	5 - 95% rel. h (non-condensing, ambient air and sample gas)	Options	· USB-RS232 9pin connector · 0 - 10 V · 4 - 20 mA into 500 Ω max.
Sample flow rate	1.0 l/min	Analogue output (External Box)	
Input pressure	600 - 1200 mbar abs.		
Dry air use for O ₃ generator	internally generated (no external supply gas required)		

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FLOW DIAGRAM

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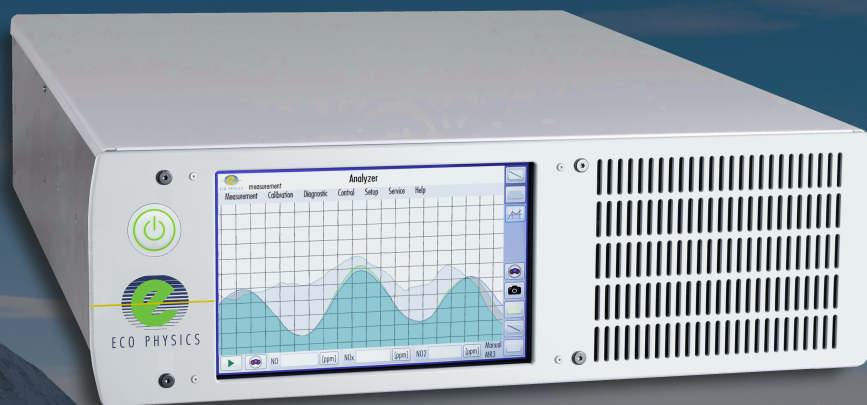
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ECO PHYSICS nCLD 66 Y

APPLICATION EXAMPLES

- Ambient air monitoring
- Clean room monitoring
- Mobile area surveillance
- Surveillance of R&D processes
- Biomed. and pharma research
- Plant physiological research
- Certification and calibration



The nCLD 66 Y is the next generation in single-channel ambient air monitoring instrumentation. Unique in speed and precision, the nCLD 66 Y is modular designed and capable of sequentially measuring NO, NO₂ and NO_x. Its graphical user interface also individually displays and connects to other instrument's data.

Measurement of:

- NO
- NO₂
- NO_x

Flexible Ambient Air Monitoring

The nCLD 66 Y is the ideal instrument for ambient air monitoring, either installed in racks, fixed monitoring stations or mobile laboratories. Besides the ambient air in the open environment, the analyzer is also suitable for air quality monitoring in production plants and offices (TLV = threshold limit value). The nCLD 66 Y is a single-channel NO_x-detector based on a modular principle. The measurement ranges are individually adjustable, the parameters are NO, NO₂ and NO_x and the instrument's inlet operates at ambient pressure. Calibration and adjustment of the unit runs quick and automatic while all necessary data is continuously stored and available anywhere and at any time.

User Friendliness with "GUI"

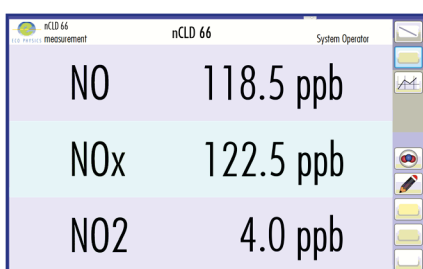
The new touch sensitive graphical user interface "GUI" enables the user to individually adjust the instrument operation and data management according to his/her needs and applications. The bright 8" monitor gives a clear overview and allows numerical and graphical display of values. Multiple digital in- and outputs guarantee a maximal connectivity and flexibility for the remote operation, control and maintenance of the nCLD 66 Y, ensuring unsurpassed precision and reliability.

Compact, Modular and Intelligent!

The nCLD 66 Y is manufactured in a new compact and modular layout, in which each essential component of the chemiluminescence analyzer hosts its own CPU and interacts with other CPUs by BUS-communication. This assembly increases accessibility and serviceability by reducing wiring and piping. The measurement principle will conform to the standard method for NO_x-detection in ambient air (EN 14211).

- Compact and modular design
- Guided touchscreen operation
- Mobile DC operation
- Remote operation, control and maintenance
- Molybdenum converter for NO_x detection
- Four freely selectable measuring ranges

Graphical user interface "GUI" for individual analyzer operation and data management



Measurably better

SPECIFICATIONS

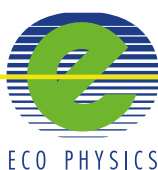
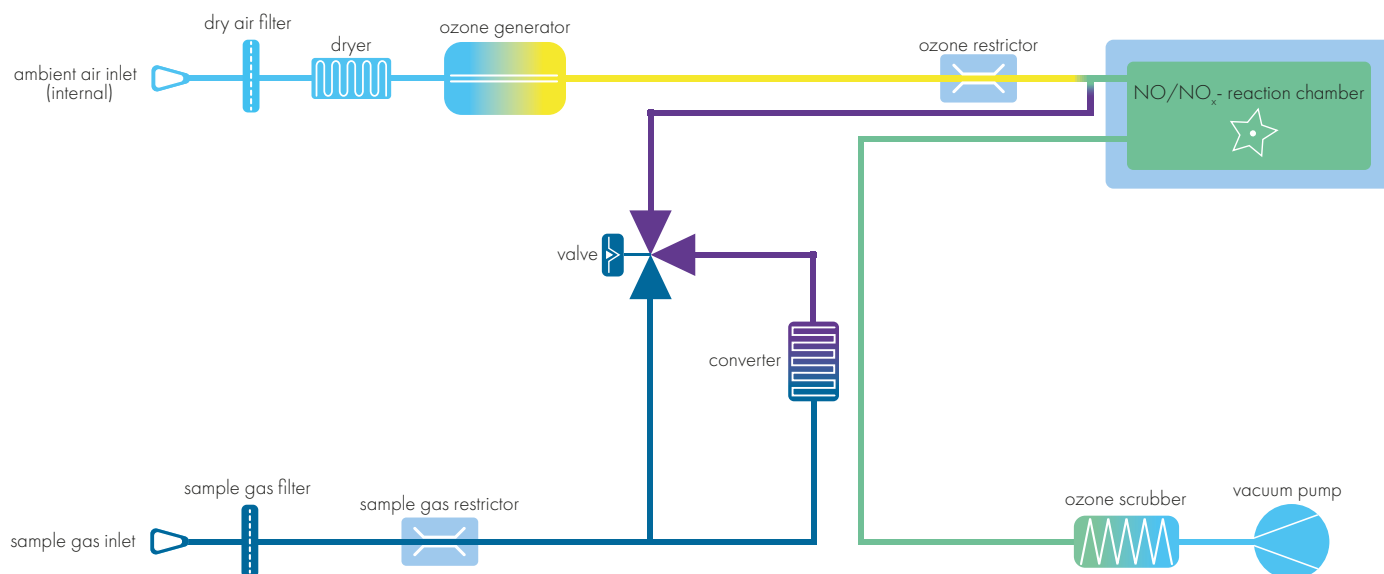
nCLD 66 Y

Analyzer type	single chamber CLD with cooled PMT for sequential measurement of NO, NO ₂ , NO _x	Power required	300 VA 250 VA external membrane pump
Measuring ranges	four freely selectable ranges from 50 ppb - 25'000 ppb	Supply voltage	100 - 240 V/50 - 60 Hz
Min. detectable concentration*	0.5 ppb	Interface	USB(3x), HDMI, Bluetooth, RS232 (w/o 9pin connector), LAN, WLAN
Noise at zero point (1σ)*	0.25 ppb	Dimensions	height: 133 mm (5¼ ") width: 450 mm (19 ") depth: 540 mm (21.2 ")
Lag time	30 sec (min. toggle interval)	Weight	16 kg (35 lb) without pump
Rise time (0 - 90%)	<3 sec (single-channel mode)	Delivery includes	nCLD 66 Y analyzer, power cable, USB-LAN adapter
Temperature range	5 - 40 °C	Standard	nCLD 66 Y · Y - molybdenum converter · toggle mode for NO ₂ measurement
Humidity tolerance	5 - 95% rel. h (non-condensing, ambient air and sample gas)	Options	· 24 V operation incl. DC vacuum pump · inlet filter · rack mount slides · FTDI-RS232-USB cable · HDMI cable · USB-RS232 9pin connector
Sample flow rate	0.1 l/min	Analog output (External Box)	· 0 - 10 V · 4 - 20 mA into 500 Ω max.
Input pressure	ambient ext. stabilized within ±3 mbar		
Dry air use for O ₃ generator	internally generated (no external supply gas required)		

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FLOW DIAGRAM

*Depending on filter setting
Connectivity properties are country-specific
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ECO PHYSICS CLD 780 TR

APPLICATION EXAMPLES

- Measurement aboard aircraft
- Vertical flux measurement
- Ambient measurement
- Background measurement
- Tropospheric research
- Certification and calibration



The NO analyzer for scientific research of the free troposphere. Specially designed to rapidly detect very low NO/NO_x concentrations in the range of parts per trillion, the CLD 780 TR is a tailor-made solution for aircraft and vertical flux measurements.

Performance

Sensitivity	50 ppt in 3 sec./ 10 ppt in 60 sec.
Noise at zero (1 σ)	<25 ppt in 3 sec.
Detection limit	3 ppt
Integration interval	selectable: 0.1 ...999
Rise time (0 - 95%)	<1 sec
Zero drift	non (pre chamber)
Linearity deviation	<1% full-scale
Interferences	HC's, NH ₃ , NO _y non

Operating Specifications

Ranges	5, 10, 50, 100, 500 ppb
Outputs	serial: RS232 analog :1V, 10V, at >500 k Ω 4-20 mA at <600 Ω
Temperature range	5-50°C
Humidity tolerance	5 - 95% rel. humidity
Gas flow	sample: 3 l/min NPT O ₂ : 330 ml/min NPT dry air : <50 ml/min NPT
Reaction chamber pressure	14 mbar
PMT cooling temp.	<-15°C
Sample inlet temp.	60°C regulated
Operating voltage	standard: 28 VDC $\pm$ 1% optional: 24 VDC $\pm$ 1%
Power requirements	200 W max.

Delivery includes

NO/NO_x analyzer with all electrical cables, two silica-gel cartridges.

Delivery excludes

Vacuum pump, vacuum tubing and ozone destroyer

Physical characteristics

Dimensions (mm)	casing: width: 440/height: 225/depth: 420 front: width: 483/height: 264/depth: 4
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Weight (kg)	35
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Material	standard: aluminum · optional: aerospace aluminum
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Connections	all connections situated on front panel 28 VDC 1x RS232 3x analog output Connection for PLC O ₂ inlet (1/4" Swagelok) dry air inlet (1/4" Swagelok) sample inlet (1/4" Swagelok) vacuum outlet (DN 16 ISO KF)
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Options

Pressure regulation	· inlet pres. reg. system (bypass concept)
Increased sensitivity	· 25 ppt in 3 sec. / · 5 ppt in 60 sec.
NO ₂ converter	· PLC 762 SR (photolytic converter)

Measurably better

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ECO PHYSICS nCLD 82 S

APPLICATION EXAMPLES

- Gas manufacturers
- Manufacturers of gas turbines
- Certification and calibration
- DeNOx plants
- Stack gas measurement
- Petrol industry
- Research and development



The nCLD 82 S analyzer is the next generation in high precision single-channel nitrogen oxide measurement. Unique in speed and reliability, the nCLD 82 S is modular designed and capable of measuring NO_x from hot and humid gas sources without additional cooler. The new and intuitive graphical user interface also individually displays and connects to other instruments' data.

Measurement of:

- NO/NO_x

Convenient and Highly Precise

The nCLD 82 S includes everything for measurement of NO or NO_x. The fully revised detector-block, the enhanced gas flow paths and the improved pressure as well as temperature independence of the nCLD 800 Series instruments allow for even lower detection limits. Overall stability and reliability are lifted to a new level. The optional electro-mechanical bypass system balances out even fastest pressure variations occurring in the sample flow. Furthermore, the analyzer is adaptable to numerous non-standardized applications. The calibration of the unit runs quickly and automatically, with all necessary data available anywhere and at any time.

User Friendliness

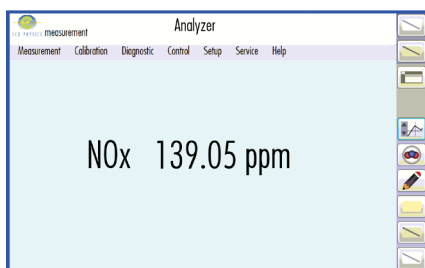
The new touch sensitive graphical user interface enables the user to individually adjust the instrument operation and data management according to his/her needs and applications. The bright 7" monitor gives a clear overview and allows numerical and graphical display of values. Multiple digital in- and outputs guarantee a maximal connectivity and flexibility for the remote operation, control and maintenance of the nCLD 82 S.

Compact, Modular and Intelligent!

The nCLD 82 S is manufactured in a new compact and modular layout, in which each essential component of the chemiluminescence analyzer hosts its own CPU and interacts with other CPUs by BUS-communication. This assembly increases accessibility and serviceability by reducing wiring and piping. The measurement principle will conform to the standard method for NO_x-detection in stationary source emissions (EN 15267).

- Rapid system integration and rack mounting
- Compact and modular design
- Virtually maintenance free even in continuous operation
- Four freely selectable measuring ranges

Graphical user interface
for individual analyzer
operation and data
management



Measurably better

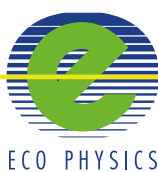
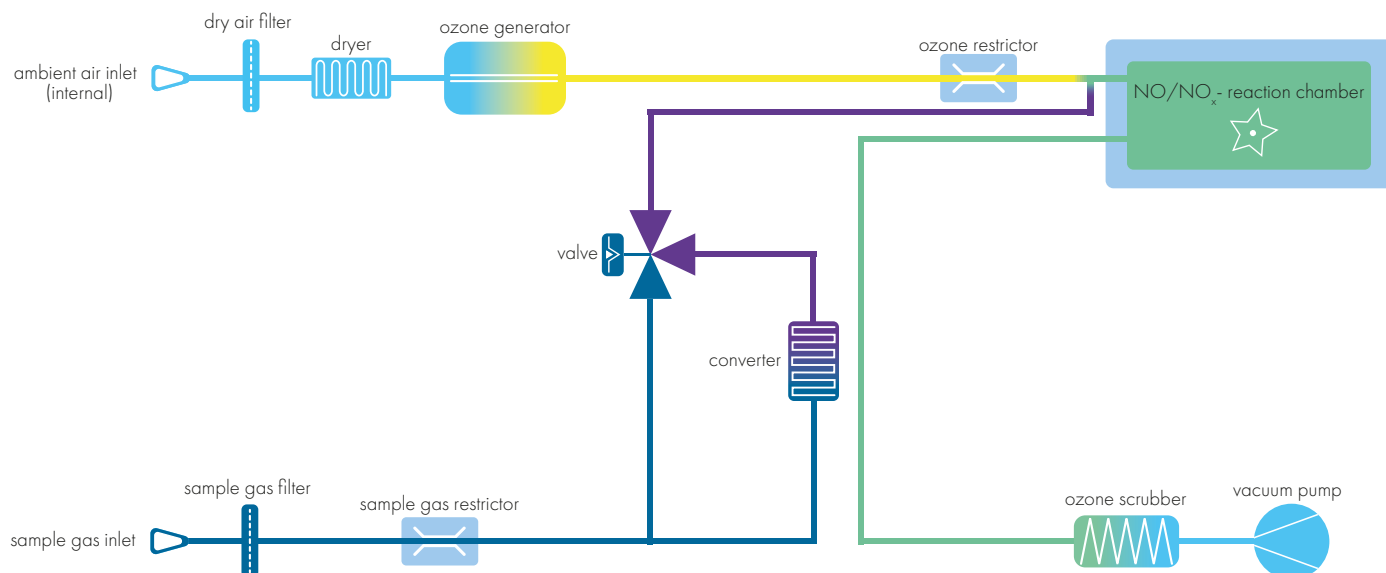
SPECIFICATIONS

nCLD 82 S

Analyzer type	single chamber CLD with cooled PMT for measurement of NO or NO _x	Supply voltage	100 - 240 V / 50 - 60 Hz
Measuring ranges	four freely selectable ranges from 5 ppm - 5'000 ppm	Interface	USB(3x), HDMI, Bluetooth, RS232 (w/o 9pin connector), LAN, WLAN
Min. detectable concentration*	0.12 ppm	Dimensions	height: 133 mm (5¼") width: 450 mm (19") with molding: 495 mm depth: 540 mm (21.2")
Noise at zero point (1σ)*	0.06 ppm	Weight	23 kg (51 lb)
Lag time	<3 sec	Delivery includes	nCLD 82 S analyzer, power cable, FTDI-RS232-USB cable, USB-LAN adapter, HDMI adapter
Rise time (0 - 90%)	<1 sec	Standard	nCLD 82 S
Temperature range	5 - 40 °C	Options	· S - steel converter · V1 - single calibration valve · V2 - two calibration valves for pressurized calibration (zero & span / 2-3 bar) · h - hot tubing · r - electro-mechanical pressure regulation · USB-RS232 9pin connector · 0 - 10 V · 4 - 20 mA into 500 Ω max.
Humidity tolerance	5 - 95% rel. h (non-condensing, ambient air and sample gas)	Analog output (External Box)	
Sample flow rate	1.0 l/min		
Input pressure	600 - 1'200 mbar abs.		
Dry air use for O ₃ generator	internally generated (no external supply gas required)		
Power required	350 VA (incl. membrane pump and ozone scrubber)		

FLOW DIAGRAM

*Depending on filter setting
Connectivity properties are country-specific
ECO PHYSICS reserves the right to change these specifications without notice.





ECO PHYSICS nCLD 82 Mh

APPLICATION EXAMPLES

- Gas manufacturers
- Manufacturers of gas turbines
- Certification and calibration
- DeNOx plants
- Stack gas measurement
- Petrol industry
- Research and development



The nCLD 82 Mh analyzer is the next generation in high precision single-channel nitrogen oxide measurement. Unique in speed and reliability, the nCLD 82 Mh is modular designed and capable of measuring NO_x from hot and humid gas sources without additional cooler. The new and intuitive graphical user interface also individually displays and connects to other instruments' data.

Measurement of:

- NO/NO_x

Straight From the Source

The nCLD 82 Mh includes everything that is needed for measuring NO_x in unpreconditioned gas samples. The integrated hot tubing enables the instrument to analyze hot and moist sources and the optional electro-mechanical bypass system balances out pressure variations occurring in the sample flow. Furthermore, the analyzer is adaptable to numerous non-standardized applications. Dual sample gas inlet is an option that allows the user to measure two sources in parallel, enabling comparison of the samples. Calibration and adjustment of the unit runs quick and automatically, while all necessary data is continuously stored and available anywhere and at any time.

User Friendliness

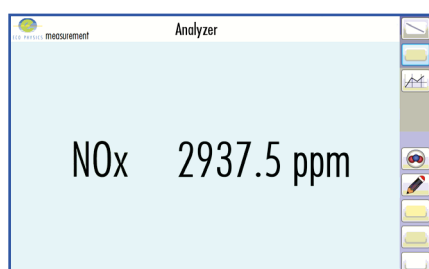
The new and intuitive touch sensitive graphical user interface enables the user to individually adjust the instrument operation and data management according to his/her needs and applications. The bright 7" monitor gives a clear overview and allows numerical and graphical display of values. Multiple digital in- and outputs guarantee a maximal connectivity and flexibility for the remote operation, control and maintenance of the nCLD 82 Mh.

Compact, Modular and Intelligent!

The nCLD 82 Mh is manufactured in a new compact and modular layout, in which each essential component of the chemiluminescence analyzer hosts its own CPU and interacts with other CPUs by BUS-communication. This assembly increases accessibility and serviceability by reducing wiring and piping. The measurement principle will conform to the standard method for NO_x-detection in stationary source emissions (EN 15267).

- Rapid system integration and rack mounting
- Compact and modular design
- Virtually maintenance free even in continuous operation
- Four freely selectable measuring ranges

Graphical user interface "GUI" for individual analyzer operation and data management



Measurably better

SPECIFICATIONS

nCLD 82 Mh

Analyzer type	single chamber CLD with cooled PMT for measurement of NO or NO _x	Supply voltage	100 - 240 V / 50 - 60 Hz
Measuring ranges	four freely selectable ranges from 5 ppm - 5'000 ppm	Interface	USB(3x), HDMI, Bluetooth, RS232 (w/o 9pin connector), LAN, WLAN
Min. detectable concentration*	0.12 ppm	Dimensions	height: 133 mm (5¼") width: 450 mm (19") with molding: 495 mm depth: 540 mm (21.2")
Noise at zero point (1σ)*	0.06 ppm	Weight	23 kg (51 lb)
Lag time	<3 sec	Delivery includes	nCLD 82 Mh analyzer, power cable, FTDI-RS232-USB cable, USB-LAN adapter, HDMI adapter
Rise time (0 - 90%)	<1 sec	Standard	nCLD 82 Mh · M - metal converter · h - hot tubing
Temperature range	5 - 40 °C	Options	· V1 - single calibration valve · V2 - two calibration valves for pressurized calibration (zero & span / 2-3 bar) · r - electro-mechanical pressure regulation · USB-RS232 9pin connector · 0 - 10 V · 4 - 20 mA into 500 Ω max.
Humidity tolerance	5 - 95% rel. h (non-condensing, ambient air and sample gas)	Analogue output (External Box)	
Sample flow rate	1.0 l/min		
Input pressure	600 - 1'200 mbar abs.		
Dry air use for O ₃ generator	internally generated (no external supply gas required)		
Power required	350 VA (incl. membrane pump and ozone scrubber)		

FLOW DIAGRAM

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