System Overview

NO_x Transmitter NT1
Combination Probe KS2DNO$_x$

LAMTEC

Sensors and Systems for Combustion Engineering

www.lamtec.de

LAMTEC measuring system NT1 with $KS2DNO_x$

The innovative comprehensive solution for simultaneous NO_x and O_2 measurement

With the NO_x Transmitter NT1, LAMTEC offers an innovative device for the simultaneous measurement of oxygen (O_2) and nitrogen oxides (NO_x).

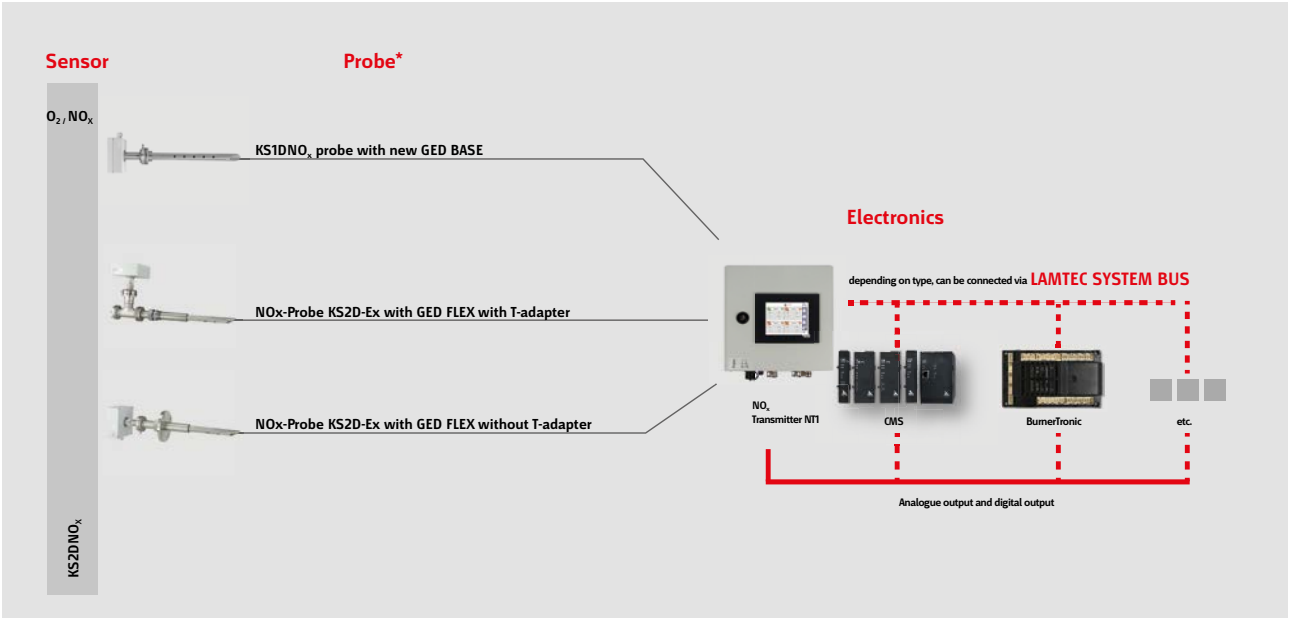
The LAMTEC NO_x Transmitter NT1 in combination with the LAMTEC $KS2DNO_x$ Combination Probe is a microprocessor-based measuring device for universal use. The NO_x Transmitter NT1 was specificially developed for simultaneous measurement of O_2 concentration and nitrogen oxides (NO_x) in flue gases from combustion plants in the over-stoichometric range ($\lambda>1$). The measured NO_x value represents the sum amount of all nitrogen oxides (NO and NO_2).

Benefits:

- Direct (in situ) measurement of oxigen (O_2) and Nitrogen (NO_x)
- O_2 range of measuring: 0 to 25 Vol. %
- NO_x range of measuring: 0-1000 ppm or 0-2000 mg/Nm³
- No gas treatment required, measurement directly in moist flue gas
- Setting time to 60 % value (T_{60})
- O_2 < 10 seconds
- NO_x < 10 seconds
- Simple installation - probe connection via plug/socket arrangement
- Low-maintenance
- Measurement accuracy: NO_x up to ± 3 ppm
  O_2 up to ± 0.2 %

Simultaneous NO_x/O_2 measurement with the LAMTEC NT1 is thus clearly an innovative measurement system, that provides first-class basic values for further control.

System Overview.



Basic system.

NT1 with touch panel

The centerpiece of the LAMTEC NO_x transmitter NT1 is the modern resistive 5, 7“ touch screen panel on the front door, which allows intuitive operation of the transmitter. The following functions are available in the panel:

- Password entry and change
- Reading of NO_x and O_2measurement values and profiles
- Information and settings of the probe, the fuel, the warnings and faults, and the system
- Calibration of the measurement
- Modification of analogue and digital outputs
- Activation of the LSB
- Settings for USB logging

Connections NT1

Connection options to the NT1:

- Power supply
- Depending on the version, up to 4 KS2DNO_x can be connected
- Depending on the version, can be combined with other LAMTEC systems by LAMTEC SYSTEM BUS
- Connection with up to 8 analogue outputs
- Connection with up to 12 digital outputs
- USB connection on the the panel for continuous storage of measurement data

The LAMTEC NO_x Transmitter NT1 is aviable in three different typs:

- For connection of only one probe, including LSB
- For connection of up to two probes, without LSB
- For connection of up to four probes, without LSB

Probes.

The LAMTEC KS2DNO$_x$ probe enables in-situ measurement of O_2, NO and NO_2 concentrations, which are combined as NO_x in the flue gas of combustion plants with excess air (λ >1).

KS1DNO$_x$ probe without GED

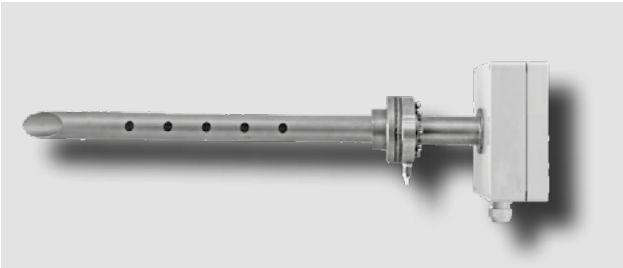
Characteristics:

- Ideal flue gas speed: 1-4 m/sec
- Measurements are made directly in the moist flue gas up to 450 °C/842 °F.
- Degree of protection IP65

Areas of application:

- Natural gas, light fuel oil

KS1DNO$_x$ probe with new GED BASE



Characteristics:

- Ideal flue gas velocity:
  At gas tempatures < 100 °C: 1 < x < 10 m/s
  At gas tempatures > 100 °C: 1 < x < 20 m/s
- Flue gas temperature: ≤ 550 °C
- Dust concentration: ≤ 200 mg /m^3
- Adjustment during operation possible via test gas.
- Protection class: IP65.

Areas of application:

- Natural gas, light fuel oil

NO_x-Probe KS2D-Ex with GED FLEX

Properties:

- Ideal flue gas velocity:
  At gas tempatures < 100 °C: 1 < x < 30 m/s
- Flue gas temperature depending on material:
  ≤ 1400 °C
- Dust concentration: ≤ 1000 mg/m^3
- Adjustment during operation possible via test gas.
- Immersion depth can be adjusted variably
- Using a suitable T-adapter, the GED FLEX can be purged or fitted with an ejector.
- Protection class: IP65.

Application:

- Natural gas, EL heating oil, heavy heating oil, coal, special fuels.

Inputs.

Outputs.

Transmission by LSB connection
(depending on version)

- 1 O_2/NO_x - Measurement value

Analogue outputs

- 1 Sensor 1 - O_2
- 2 Sensor 1 - NO_x
- 3 Sensor 2 - O_2
- 4 Sensor 2 - NO_x
- 5 Sensor 3 - O_2
- 6 Sensor 3 - NO_x
- 7 Sensor 4 - O_2
- 8 Sensor 4 - NO_x

Digital outputs

- 1 Sensor 1 - NO_x too high
- 2 Sensor 1 - O_2 too low
- 3 Sensor 1 - Sensor signal fault
- 4 Sensor 2 - NO_x too high
- 5 Sensor 2 - NO_x too high
- 6 Sensor 2 - Sensor signal fault
- 7 Sensor 3 - NO_x too high
- 8 Sensor 3 - O_2 too low
- 9 Sensor 3 - Sensor signal fault
- 10 Sensor 4 - NO_x too high
- 11 Sensor 4 - O_2 too low
- 12 Sensor 4 - Sensor signal fault

Power supply voltage
+230 V

NT1 NO_x Transmitter

Notes.

Notes.

LAMTEC Meß- und Regeltechnik
für Feuerungen GmbH & Co. KG
Josef-Reiert-Straße 26
D-69190 Walldorf
Telefon: +49 (0) 6227 6052-0
Telefax: +49 (0) 6227 6052-57
info@lamtec.de **www.lamtec.de**

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