



NO_x | NO | NO₂ | CO | CO₂ | SO₂ | HC as CH₄ or C₃H₈ | O₂ | H₂S | H₂

VARIOLuxx

Portable, certified stack gas emission analyser.



Combined NDIR/EC measurement technology for precise measurement results.



VARIOluxx

First choice for smart gas analysis

The combination of infrared measurement technology and electrochemical sensors ensures versatility and reliable analysis even of small measuring ranges. VARIOluxx – portable industrial measurement technology for high requirements!

With VARIOluxx, the simultaneous analysis of up to 9 exhaust gas components is possible:

NO_x | NO | NO₂ | CO | CO₂ | SO₂ | HC as CH₄ or C₃H₈ | O₂ | H₂S | H₂

We offer you these special advantages:

- Automatic measuring program with data recording
- Automatic zero point measurement for long-term measurements
- Lithium-ion battery operation, including gas cooler and measurement technology



acc. DIN EN 50379-1 and 2

The gases and measuring ranges

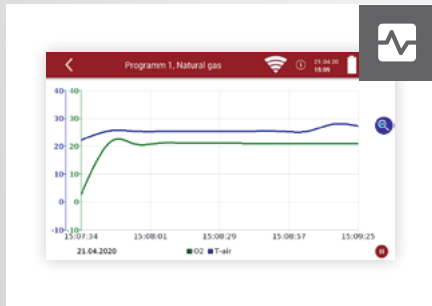
Gas	Method ¹	Measuring range min./max.	Note
O ₂	EC	0 ... 25 %	TÜV certified
O ₂	PM	0 ... 25 %	
CO	EC	0 ... 10,000/20,000	TÜV certified
CO	NDIR	0 ... 3,000 ppm/10.00 %	
CO ₂	NDIR	0 ... 5.00/40.00 %	TÜV certified
CH ₄	NDIR	0 ... 3,000 ppm/4.00 %	
C ₃ H ₈	NDIR	0 ... 1,000/10,000 ppm	
NO	EC	0 ... 1,000/5,000 ppm	TÜV certified
NO ₂	EC	0 ... 200/1,000 ppm	TÜV certified
SO ₂	EC	0 ... 1,000/5,000 ppm	TÜV certified
H ₂ S	EC	0 ... 50/500 ppm	
H ₂	EC	0 ... 1,000/2,000 ppm	

¹EC = electrochemical sensor, PM = paramagnetic sensor, NDIR = non-dispersive infrared spectroscopy



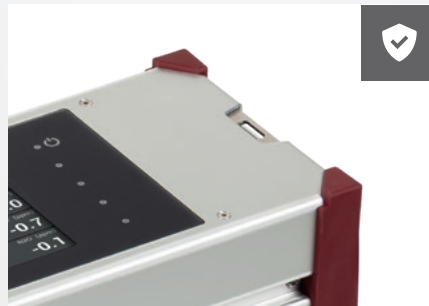
The device in detail

An overview of the special features



Practical touch display

High resolution 7" color display with graphical output of the measured values



Optimal protection

All-metal housing with soft bumper corners for the harsh industrial everyday use



Comfortable size

Very compact dimensions (W x H x D: 430 x 290 x 150 mm) and light weight (8 kg)



On the go

Aluminum transport case with wheels or nylon carrying/protective bags

Operation and interfaces

Simple and clear

Operating options



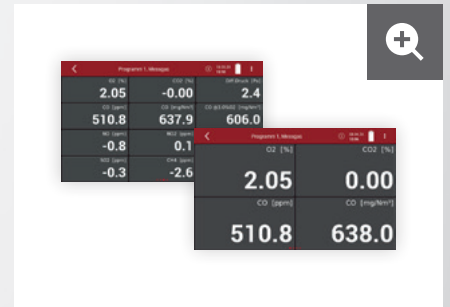
Touchscreen

Device operation via the 7" touch/swipe display, resolution 800 x 480 px, 750 cd/m²



Contactless

Operation via smartphone or PC via VNC connection, mirrored device display on smartphone



Zoom function

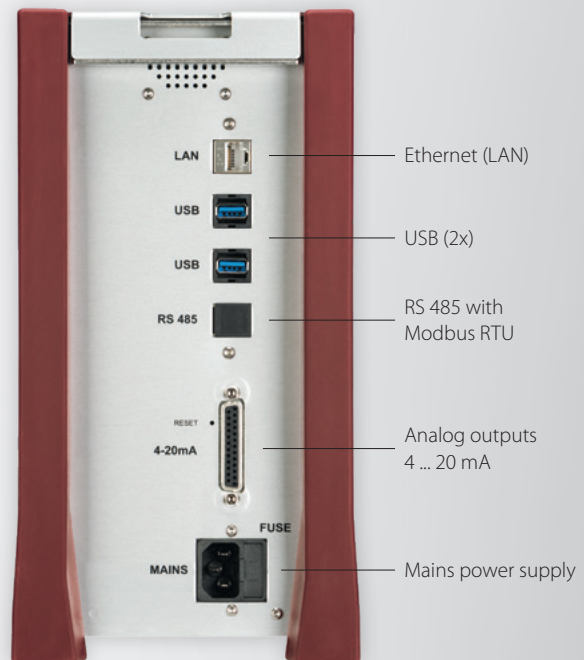
Scalable display mode for the display

Connections and interfaces

Measuring technology



Data communication



The gas conditioning

An overview



Gas sampling probe

- Robust industrial probe with heated hose
- Also possible for flue gas temperatures up to 1,100 °C
- Heated gas sampling line (3 m, 5 m or up to 50 m)
- Exchangeable probe tubes up to 2 m length
- Easy to change filter in the probe head
- Filters can be filled with different material, depending on the amount of dirt



Probe for low dirt applications



Peltier gas cooler

Automatic condensate pumps



Gas pump

Powerful pump for fast response times

Data transmission and measurement

The technology behind

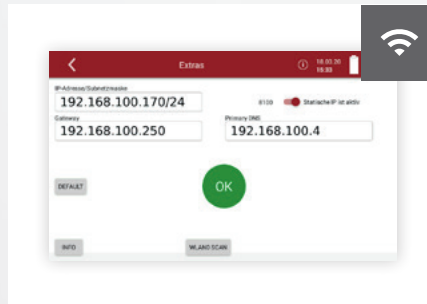
Data transmission

Fully equipped standard device:

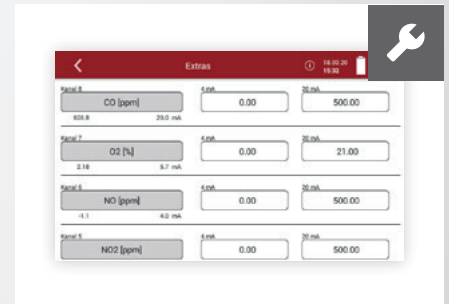
- Ethernet (LAN) TCP/IP
- WiFi
- 8 analog outputs 4 ... 20 mA
- 4 analog inputs
- USB (2x)
- RS 485 (option)

Internal data storage:

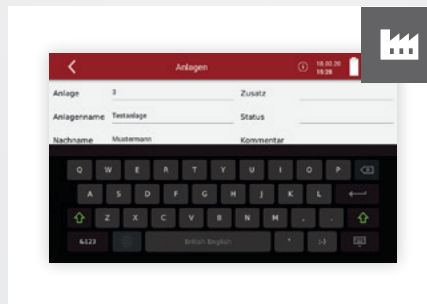
The huge memory with 400 MB offers space for thousands of facilities and data sets.



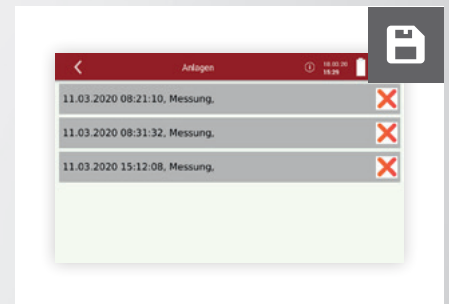
Set LAN



Set analog outputs



Manage facilities

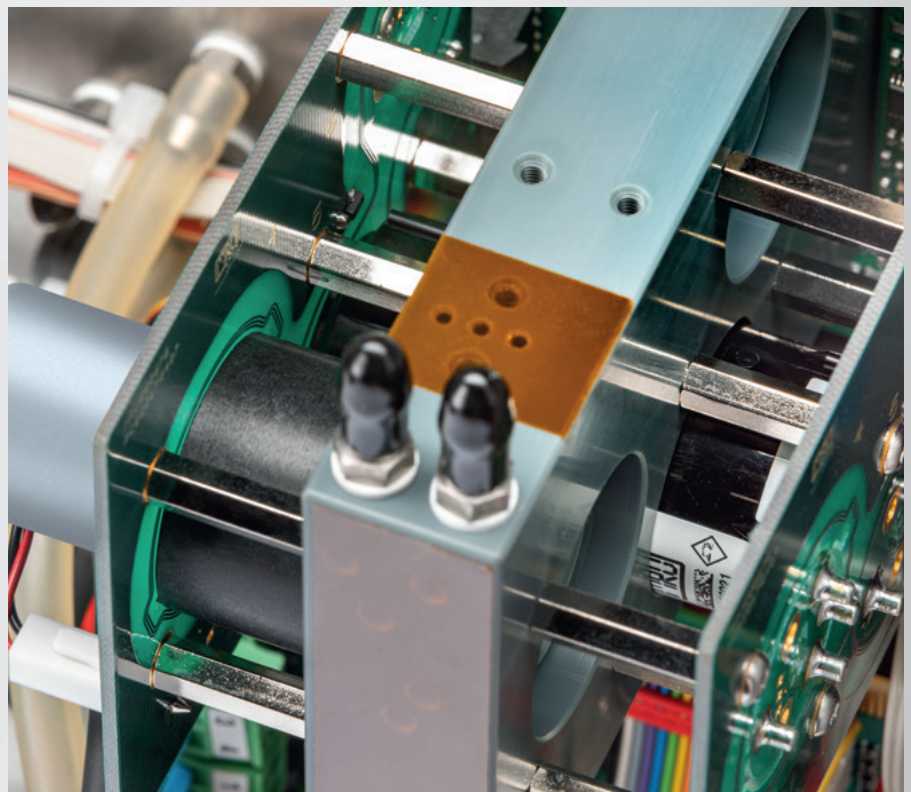


Save measurements by facility

High quality measurement technology

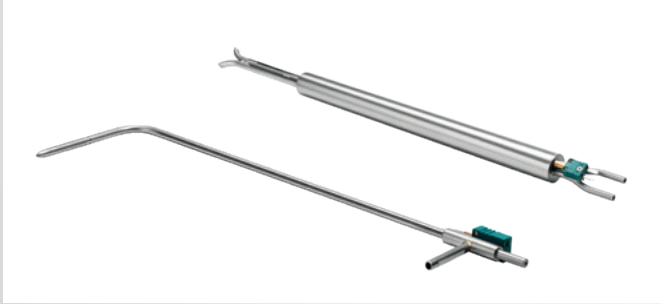
The combination of infrared measurement technology and electrochemical sensors of the VARIOluxx guarantees onereliable analysis of small measuring ranges.

- Infrared sensors (NDIR) for CO₂, CO, CH₄, C₃H₈
- Electrochemical sensors (EC) for CO, NO, NO₂, SO₂, H₂S, H₂, O₂ (max. 6 sensors simultaneously)
- Paramagnetic O₂ analysis
- Differential pressure measurement
- Temperature measurement of flue gas and combustion air
- Flow rate measurement and volume flow calculation



Practical accessories

For more flexibility



Pitot tubes for flow velocity measurement

- L-type or S-type with temperature measurement (up to 1,000 °C), length: 300 ... 1,500 mm
- Measuring ranges from 3 to 100 m/s at a resolution of 0.1 m/s
- Additional calculation of the volume flow (m³/s)



USB WiFi adapter

- For wireless data transmission



NiMH battery

- Practical battery for safe flight transportation, instead of a lithium-ion battery



WiFi printer

- With lithium-ion battery and USB socket
- Suitable for 80 mm paper width



PC software "MRU4Win"

- Software for Windows to visualize measure data, manage, export and print
- Connect multiple devices at the same time and read out live values
- Logging and saving live values
- Database with customer contacts, attachments and manage users
- Export measurement reports as PDF
- Documents with customized logo and print out the address
- Read out data storage, save measurements, print and save as PDF

VARIOluxx – Technical data

Gas measurement	Note	Method ¹	Measuring range min./max.*	Resolution	Accuracy**
Oxygen (O ₂) (long life)	TÜV certified	EC	0 ... 25.00 %	0.01 %	0.2 %
Oxygen (O ₂)		PM	0 ... 25.00 %	0.01 %	0.1 %
Carbon monoxide (CO _{low})		spec. adjustment	0 ... 500.0 ppm	0.1 ppm	± 2 ppm or 5 % reading
Carbon monoxide (CO _{H2komp})	TÜV certified	EC	0 ... 10,000/20,000 ppm	1 ppm	± 10 ppm or 5 % reading
Carbon monoxide (CO _{very high})		EC	0 ... 2.00/10.00 %	0.01 %	± 0.01 % or 5 % reading
Carbon monoxide (CO)		NDIR	0 ... 3,000/30,000 ppm	1 ppm	± 10 ppm or 2 % reading***
Carbon monoxide (CO)		NDIR	0 ... 1.00/10.00 %	0.01 %	± 0.1 % or 2 % reading
Carbon dioxide (CO ₂)	TÜV certified	NDIR	0 ... 5.00/40.00 %	0.01 %	± 0.3 % or 2 % reading
Methane (CH ₄)		NDIR	0 ... 3,000/10,000 ppm	1 ppm	± 20 ppm or 2 % reading
Propane (C ₃ H ₈)		NDIR	0 ... 1,000/10,000 ppm	1 ppm	± 10 ppm or 2 % reading
Methane (CH ₄)		NDIR	0 ... 1.00/4.00 %	0.01 %	± 0.05 % or 2 % reading
Nitric monoxide (NO _{low})		spec. adjustment	0 ... 300.0 ppm	0.1 ppm	± 2 ppm or 5 % reading
Nitric monoxide (NO)	TÜV certified	EC	0 ... 1,000/5,000 ppm	1 ppm	± 5 ppm or 5 % reading
Nitric dioxide (NO _{2low})		spec. adjustment	0 ... 100.0 ppm	0.1 ppm	± 2 ppm or 5 % reading
Nitric dioxide (NO ₂)	TÜV certified	EC	0 ... 200/1,000 ppm	1 ppm	± 5 ppm or 5 % reading
Sulphur dioxide (SO _{2low})		spec. adjustment	0 ... 100.0 ppm	0.1 ppm	± 2 ppm or 5 % reading
Sulphur dioxide (SO ₂)	TÜV certified	EC	0 ... 1,000/5,000 ppm	1 ppm	± 10 ppm or 5 % reading
Hydrogen sulphide (H ₂ S _{low})		spec. adjustment	0 ... 50/500 ppm	1 ppm	± 2 ppm or 5 % reading
Hydrogen sulphide (H ₂ S)		EC	0 ... 2,000/5,000 ppm	1 ppm	± 5 ppm or 5 % reading
Hydrogen (H ₂)		EC	0 ... 1,000 2,000 ppm	1 ppm	± 5 ppm or 5 % reading
Other measurements		Method	Measuring range	Resolution	Accuracy**
Stack gas temperature (T _{gas})		NiCrNi	0 ... 1,100 °C	1 °C	± 1 °C or 2 % reading
Combustion air temperature (T _{air})		NiCrNi	0 ... 500 °C	1 °C	± 1 °C or 2 % reading
Ambient air temperature (T _{amb})		NiCrNi	0 ... 100 °C	1 °C	± 1 °C or 2 % reading
Differential pressure (P-Druck)		Piezoresistive	-120 ... +120 hPa	1 Pa	± 2 Pa or 1 % reading
Flow velocity measurement (v)		DiffDruck	3 ... 100 m/s	1 m/s	± 1 m/s or 1 % reading
Standardized ext. signal (AUX connection)		software	for NiCrNi-thermocouple, 0 ... 10 Vdc, 4 ... 20 mA, RS 485		
Combustion calculations (fuel type depend.)		software	Losses, ExcAir, Air Ratio, dew point, CO ₂		
Emission calculations		software	mg/Nm ³ , reference to O ₂ , g/s, kg/h		
General technical data					
Operating system	LINUX				
Display, operation	7" TFT (800 x 480 px) colour display, backlit, with touch pad				
Data storage type	dynamic, internally 10,000 data sets, external USB stick				
Interface to PC/notebook	Ethernet, WiFi, RS 485				
Cable/wireless communication interface	RS 485, RJ45 (Ethernet), WiFi				
Printer	external USB/WiFi printer				
Analog output/input 4 ... 20 mA	8 channel out, 4 channel in, user configurable				
Universal analog input (AUX)	0 ... 10 Vdc, 4 ... 20 mA, NiCrNi-thermocouple, RS 485				
System warm up time	30 minutes, typical				
Mains free operation time	Li-Ion, 48 Wh, for standby 1 hour (optional additional battery, 48 Wh Li-Ion)				
Operating conditions	+5 ... +45 °C; RH up to 95 % non condensing				
Storage temperature	-20 ... +50 °C				
Power supply	86 ... 265 Vac, 47 ... 63 Hz, 105 W (up to 600 W with heated gas sample line)				
Protection class	IP20 (or IP42 inside transport case, optional)				
Dimensions (W x H x D)	430 x 290 x 150 mm				
Weight	approx. 8 kg only device, approx. 13 kg packed in bag with accessories				

Data subject to change without notice. | ¹ EC = electrochemical sensor, PM = paramagnetic sensor, NDIR = non-dispersive infrared spectroscopy
* overload range of ECS is usable only for short duration | ** which ever is larger | *** with hourly reset to zero | N-12745-K0-10-620-SDE

MRU – Competence in gas analysis. For over 35 years.



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