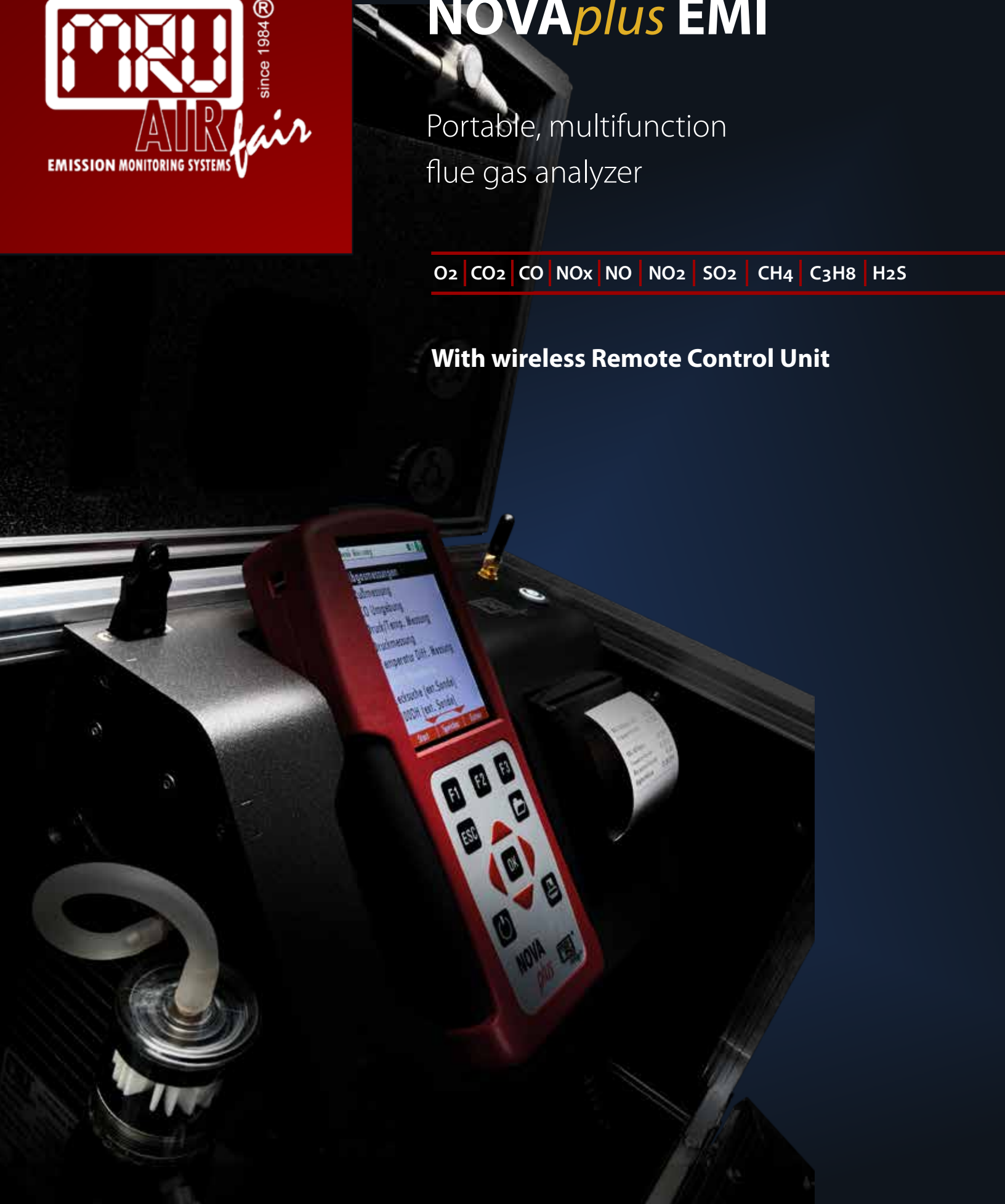
MRU AIR fair since 1984®
EMISSION MONITORING SYSTEMS

NOVA*plus* EMI

Portable, multifunction
flue gas analyzer

O_2 | CO_2 | CO | NOx | NO | NO_2 | SO_2 | CH_4 | C_3H_8 | H_2S

With wireless Remote Control Unit



NOVA*plus* EMI

Your first choice for smart gas analysis

The combination of infrared measurement technology and electrochemical sensors ensures versatility and reliable analysis even for small measuring ranges.
NOVAplus EMI – portable industrial emissions analyzer leading the industry in analysis and price

Simultaneous analysis of up to 8 exhaust gas components:

O_2 | CO_2 | CO | NOx | NO | NO_2 | SO_2 | CH_4 | C_3H_8 | H_2S

We offer you these special advantages:

- Automatic measuring program with data recording
- Automatic zeroing for long-term measurements
- Lithium-ion battery operation

TÜVRheinland CERTIFIED
Tested AMS Regular Surveillance
www.tuv.com ID 0000072196

MCERTS
Sira Certificate No. MC200366/00

TÜV and MCERTS certified by SIRA for „portable systems"

The gases and measuring ranges

Gas	Method1	Measuring range min./max.	Note
O_2	EC	0 ... 25 %	TÜV certified
CO	EC	0 ... 10,000/20,000	TÜV certified
CO	NDIR	0 ... 2,000 ppm/10.00 %	—
CO_2	NDIR	0 ... 40.00 %	TÜV certified
CH_4	NDIR	0 ... 2,000 ppm/4.00 %	—
C_3H_8	NDIR	0 ... 2,000/20,000 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 ... 2,000/5,000 ppm	TÜV certified
H_2S	EC	0 ... 500/2,000 ppm	—

The device in detail

An overview of the special features

Remote Control Unit (RCU)
Slim, lightweight, with bright color 3.5" TFT display, wireless charging

Easy to use interfaces
SD card and Mini USB

High speed printer
built-in, prints graphics as well

Remote control unit in comfort edition also usable as a separate measuring instrument eg. for pressure, temperature, leakage detection and more

attachable compartment for accessories

The gas conditioning and sampling
An overview

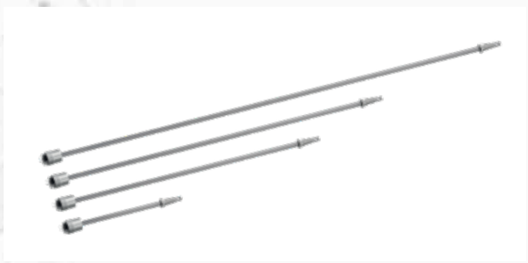
Gas sampling probe for industrial combustions, unheated, without filter for short, complete emission monitoring including NO2/SO2 , probe handle for exchangeable tubes, with 9 foot gas sampling line (VITON)

Heated gas sampling probe with heated sampling line, length 9 foot, 266°F temperature regulated Gas temperature measurement using K-type thermocouple. With heated, easy replaceable quartz wool filter.

Gas sampling probe for industrial combustions, with heated probe handle and easily replaceable quartz glass wool filter for exchangeable tubes

Large, efficient **condensate separator** with PTFE (Teflon) coated filter

Peltier gas cooler (Option) comes with automatic condensate pump



Probe tubes in various lengths and materials for temperature ranges from 1,472 to 3,092°F

Practical accessories and options
For more flexibility and applications

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
- Additional calculation of the volume flow (m3/s)

Automatic soot measurement
- incl. soot probe with heated handle and replaceable probe tube

Detector probe
- with exchangeable sensors for e.g., HC leakage detection, stack moisture test, etc. (Comfort type RCU required)

CO-sensor protection by Purafil filter
- recommended for usage at CHP engines

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

NOVA*plus* EMI

TECHNICAL SPECIFICATIONS

NOVAPLUS Multi purpose analyzer
Fuel types
Instrument with up to 6 electrochemical cells, NDIR multi-gas bench and wireless remote control
RCU natural gas, liquid gas, oil heavy, oil light, pellets, wood, coal, bio diesel, expandable fuel type list

Measurement components		Measuring range	Resolution	Accuracy
O2	Oxygen (Long Life)	0 … 25%	0.1 %	± 0.2 Vol-% abs.
CO	Carbon monoxide (H2 Compensated)	0 … 10,000 / 20,000 ppm *	1 ppm	± 20 ppm or 5 % reading < 10,000 ppm / 10 % reading > 10,000 ppm
CO	Carbon monoxide (low)	0 … 500 **	0.1 ppm	± 2.0 ppm or 5 % reading
CO	Carbon monoxide (high)	0 … 40,000 / 100,000 ppm *	1 ppm	± 0.02% or 5 % reading < 0.4% / 10 % reading > 0.4%
NO	Nitric oxide	0 … 1,000 / 5,000 ppm *	1 ppm	± 5 ppm or 5 % reading < 1,000 ppm / 10 % reading > 1,000 ppm
NO	Nitric oxide (low)	0 … 300 **	0.1 ppm	± 2.0 ppm or 5 % reading
NO2	Nitric dioxide	0 … 200 / 1,000 ppm *	1 ppm	± 5 ppm or 5 % reading up to 200 ppm** or 10 % reading up to 1.000 ppm**
NO2	Nitric dioxide (low)	0 … 300 **	0.1 ppm	
SO2	Sulfur dioxide	0 … 2,000 / 5,000 ppm *	1 ppm	± 10 ppm or 5 % reading up to 2.000 ppm** or 10 % reading up to 5.000 ppm**
SO2	Sulfur dioxide (low)	0 … 300 **	0.1 ppm	
H2S	Hydrogen sulfide	0 … 500 / 2,000 ppm *	1 ppm	± 5 ppm or 5 % reading up to 500 ppm** or 10 % reading up to 2.000 ppm**
H2S	Hydrogen sulfide (low)	0 … 300 **	0.1 ppm	

1-gas NDIR bench		Measuring range	Resolution	Accuracy
CO2	Carbon dioxide	0 … 40 Vol %	0.1 %	± 0.3 % or 5 % of the measured value**www

2-gas NDIR bench		Measuring range	Resolution	Accuracy
CO2	Carbon dioxide	0 … 100 Vol %	0.1 %	± 0.5 % or 5 % of the measured value**
CH4	Methane	0 … 100 Vol %	0.1 %	± 0.5 % or 5 % of the measured value**

3-gas NDIR bench		Measuring range	Resolution	Accuracy
CO	Carbon monoxide	0 … 2,000 ppm up to 10 %	0.1 %	± 0.03 % or 3 % of the measured value**
CO2	Carbon dioxide	0 … up to max 40 %	0.1 %	± 0.5 % or 3 % of the measured value**
CH4	Methane or	0 … 2,000 ppm up to 4 %	0.1 %	± 0.03 % or 3 % of the measured value**
C3H8	Propane	0 … 2,000 ppm up to 20,000 ppm	0.1 %	± 30 ppm % or 3 % of the measured value**

Other measured components	Measuring Range	Resolution	Accuracy
Stack / Flue gas temperature	32 … 1,472°F (0 … 800°C) with stainless steel 32 … 2,012°F (0 … 1100°C) with Inconel	1 °F	± 4°F ... < 392°F / 1 % reading > 392°F ± 4°F ... < 392°F / 1 % reading > 392°F
Primary air / Ambient air temperature	32 … 212°F (0 … 100 °C)	1°F	± 2°F
Differential temperature	Up to 2,012°F (0 … 1100°C) (with suitable material of sampling tube)	1°F	± 4°F ... < 392°F / 1 % reading > 392°F
Stack draft	+/- 40 inH2O (100hPa)	1 Pa	± 0.02 inH2O or 1% reading
Differential pressure	+/- 80 inH2O (200hPa)	1 Pa	± 0.02 inH2O or 1% reading
Gas flow velocity measurement	3 ... 100 m/s (using Pitot tube)	0.1 m/s	

Calculated values	Range	Calculated values	Range
Carbon dioxide	0 ... CO2 max.	Air Ratio (Lambda)	1 ... 9.99
Heat losses qA	0 ... 99.9 %	Excess Air	0 ... 99.9
Efficiency	0 ... 120 %	CO/CO2 ratio	0 ... 10

GENERAL SPECIFICATIONS	
Max suction range gas pump	140 inH2O (350 hPa)
Typical gas flow	23.8 gal/h (90 l/h)
Internal memory	16,000 data sets
Data transmission	via USB, SD Card or Bluetooth
Interfaces	SD card reader, USB, Bluetooth
Display	3.5″ TFT color display
Operation temperature	41°F .... 113°F (5 … 45°C) max. 95 % RH, none condensing
Storage temperature	-4°F ..... 122°F (-20°C … 50°C)
Ambient conditions	not in aggressive, corrosive or high dust ambience, not for use in hazardous areas
Battery operated BASE UNIT	Lithium-Ion battery, 20 h operation time (with gas cooler 10 h)
Battery operated RCU	Lithium-Ion battery, 30 h operation time
Grid power supply	100 - 240 V AC / 50 … 60 Hz 5A
Protection class	IP 30 of base unit / IP 20 of base unit open
Weight	approx. 16.3 lbs.
Dimensions	(W x H x D) 18.5″ x 9″ x 12″ complete unit
TÜV approval	ByRgG 280 acc. 1. BImSchV and EN 50379

Data subject to change without notice. | NDIR = non-dispersive infrared spectroscopy | *overload range of ECS is usable only for short duration | **which ever is larger | N-64098GB-K1-0K-421

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