

**NOVA**  
*plus*  
**BIOGAS**

# MULTIGAS ANALYZER FOR BIOGAS MEASUREMENTS



For biogas and cogeneration CHP  
engine emissions measurements

- O<sub>2</sub>
- CO<sub>2</sub>
- CH<sub>4</sub>
- H<sub>2</sub>S
- CO
- NO
- NO<sub>2</sub>
- NO<sub>x</sub>



since 1984 ®

**AIR**  
*fair*

EMISSION MONITORING SYSTEMS

**DIAMOND**  
SCIENTIFIC  
MRU LABS

# NOVA plus BIOGAS

## COMPACT AND MULTIFUNCTION GAS ANALYZER FOR BIOGAS & EMISSIONS MEASUREMENTS

For long-term biogas and cogeneration heat and power engine emissions testing

### Functions of the NOVAplus

- >> Simultaneous measurements of up to 7 gas components!  
**Biogas measurement:** O<sub>2</sub>, H<sub>2</sub>S, CH<sub>4</sub> and CO<sub>2</sub> (infrared for CO<sub>2</sub>/CH<sub>4</sub>)  
**Emissions measurement:** O<sub>2</sub>, CO\*, NO\*, NO<sub>2</sub>\* and CO<sub>2</sub>
- >> Biogas pressure measurement (or stack pressure)
- >> Standard O<sub>2</sub> measurement with long-life cell (approx. 4-5 years estimated life span)
- >> Super bright, color 3.5" TFT display with LED backlight
- >> Sample preparation with condensate separator and Teflon filter (optional gas cooler)
- >> Intuitive menu guided software and function keys
- >> Internal data storage for up to 16,000 measurements!
- >> High energy Li-Ion battery (up to 20 hours operation time / with gas cooler approx. 10 hrs.)
- >> Customizable screen settings
- >> Durable and dirt resistant keypad
- >> Built-in speed printer with easy paper loading
- >> Integrated SD card reader for additional data storage and data transfer to PC
- >> Compact and robust transport case

### (\*) OPTIONS

### Simultaneous measurement of:

		BIOGAS	EMISSION
O <sub>2</sub>	0...21.0 Vol.-%	X	X
CH <sub>4</sub>	0 ... 100 %	X	
CO <sub>2</sub>	0 ... 100 %	X	X
H <sub>2</sub> S	0 ... 2,000 ppm	X	
CO	0 ... 4,000 ppm		X
NO	0 ... 1,000 ppm		X
NO <sub>2</sub>	0 ... 200 ppm		X

### Calculations \*\*\*

Excess air and air ratio (Lambda)  
 CO/CO<sub>2</sub> proportion  
 Gas flow volume m<sup>3</sup>/h  
 NO<sub>x</sub> emission calculation  
 True NO<sub>x</sub> (NO<sub>x</sub> = NO + NO<sub>2</sub>)  
 \*\*\* depending on the sensor configuration

### Interfaces:

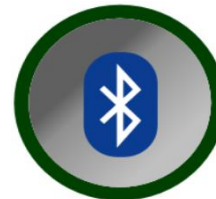


**USB:**  
Data Transfer



**SD Card:**  
4 GB  
Data Memory

### OPTIONAL \*



**Bluetooth\*:**  
Data transfer



**AUX\*:**  
For additional  
external sensors

# NOVA *plus* BIOGAS

## WHENEVER YOUR ANALYZER NEEDS TO ACCOMPLISH MORE

*Customized for your needs*

**FLUE GAS**  
measurement



**TEMPERATURE**  
measurement



**PRESSURE**  
measurement



**SOOT**  
measurement



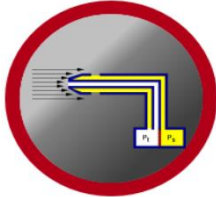
**GAS LEAKAGE**  
detection



**HUMIDITY**  
measurement



**FLOW - SPEED**  
measurement



**SPEED PRINTER**  
built in



**GAS COOLER**  
low energy



**SELF DIAGNOSIS**  
software



The NOVAplus comes in a robust aluminum framed transport case



There is also an additional storage case available which will be attached under the main case



Inductive (wireless) charging of the RCU from the base unit



There are two RCU's available - the BASIC and the COMFORT. Both have a USB port and SD card reader.



Both RCU's communicate with the base unit via Bluetooth.

The COMFORT unit has additional ports at the bottom for Temperature- Pressure measurements and can therefore be used as a stand-alone unit.



An additional Bluetooth module is available for communication to a PC.

# NOVA plus BIOGAS

## TECHNICAL SPECIFICATIONS

DATA SUBJECT TO CHANGE WITHOUT NOTICE

**NOVAplus BIOGAS analyzer**      Portable analyzer with up to 5 electrochemical sensors and DUAL GAS NDIR bench

BIOGAS components		Measuring range	Accuracy
CO2	Carbon dioxide	2 Gas NDIR 0...100%	± 0.3 % or 5% reading
CH4	Methane	2 Gas NDIR 0...100%	± 0.3 % or 5% reading
O2	Oxygen	0 ... 21.0 Vol-%	± 0.2 Vol-% abs.
H2S	Hydrogen sulfide	0 ... 200 ppm overload 2,000ppm *	± 5 ppm or 5 % reading up to 500 ppm 10 % reading up to 2,000 ppm

FLUE GAS components		Measuring range	Accuracy
CO	Carbon monoxide (H2 compensated)	0 ... 4,000 ppm overload 10,000ppm *	± 10 ppm or 5 % reading < 4,000 ppm / 10 % reading > 4,000 ppm
CO	Carbon monoxide low	0 ... 500 ppm with 0.1 ppm resolution **	± 2.0 ppm or * * 5 % reading
NO	Nitric oxide	0 ... 1,000 ppm overload 5,000ppm *	± 5 ppm or 5 % reading < 1,000 ppm / 10 % reading > 1,000 ppm
NO	Nitric oxide low	0 ... 300 ppm with 0.1 ppm resolution **	± 2.0 ppm or * * 5 % reading
NO2	Nitrogen dioxide	0 ... 200 ppm overload 1,000ppm *	± 5 ppm or 5 % reading < 200 ppm / 10 % reading > 200 ppm
NO2	Nitrogen dioxide low	0 ... 100 ppm with 0.1 ppm resolution **	± 2.0 ppm or * * 5 % reading

\*overload range recommend only for short time measurements

\*\*are not separate sensors; selected sensors are used with special calibration

Stack / Flue gas temperature	0 ... 1,200°F / 2,012°F (with stainless steel / Inconel steel tube)	± 4°F ... < 392°F / 1 % reading > 392°F
Primary-air / Ambient temperature	0 ... 212°F	± 2°F
Differential temperature	up to 2,012°F (with suitable material of sampling tube)	± 4°F ... < 392°F / 1 % reading > 392°F
Stack / Differential pressure	+/- 40 inH2O (100hPa)	± 0.01 inH2O or 1% reading
Gas flow velocity measurement	1 ... 30 m/s (using Pitot tube)	

### General specifications

Operation temperature	41°F .... 113°F, max. 95 % RH, non condensing
Storage temperature	-4°F ..... 122°F
Ambient conditions	not in aggressive, corrosive or high dust environments, not for use in hazardous areas
Power supply	- Base Unit Lithium-Ion battery, 20 h operation, (with gas cooler 10 h) - RCU Lithium-Ion battery, 30 h operation
Grid power supply	100 - 240 Vac / 50 ... 60 Hz / 5A
Protection class	IP20
Weight	Complete unit approx. 16.3lbs / RCU 0.88lbs
Dimensions	Complete unit 18.5" x 9" x 12" (W x H x D) RCU 7.36" x 3.54" x 1.5"

Distributed by:



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