

# PRODUCT CONFORMITY CERTIFICATE

This is to certify that the

## ***NOVA plus portable emission monitoring system***

Manufactured by:

### **MRU GmbH**

Fuchshalde 8,  
74172 Neckarsulm-Obereisesheim,  
Germany

has been assessed by CSA Group  
and for the conditions stated on this certificate complies with:

### **MCERTS Performance Standards for Handheld Emission Monitoring Systems, Version 4 dated September 2018**

Certification ranges:

CO	0 to 500 ppm	0 to 1000 ppm
CO <sub>2</sub>	0 to 12 %vol.	0 to 20 %vol.
NO	0 to 300 ppm	0 to 2000 ppm
NO <sub>2</sub>	0 to 200 ppm	
SO <sub>2</sub>	0 to 500 ppm	
O <sub>2</sub>	0 to 21 %vol.	

Project No.: 80185468  
Certificate No: CSA MC130232/03  
Initial Certification: 04 October 2013  
This Certificate issued: 2 October 2023  
Renewal Date: 03 October 2028



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MCERTS is operated on behalf of the Environment Agency by

## **CSA Group Testing UK Ltd**

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*The MCERTS certificate consists of this document in its entirety.  
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## Approved Site Application

Any potential user should ensure, in consultation with the manufacturer, that the monitoring system is suitable for the intended application. For general guidance on monitoring techniques refer to the Environment Agency Monitoring Technical Guidance Notes available at [www.mcerts.net](http://www.mcerts.net)

The measuring system shall only be employed at plants in which the waste gas humidity does not persistently exceed 30 %<sup>vol</sup>.

## Basis of Certification

This certification is based on the following test report(s) and on CSA Group's assessment and ongoing surveillance of the product and the manufacturing process:

TUV Rheinland Report Number 936/21220650/A dated 14 August 2013

## Product Certified

The NOVA plus portable emission monitoring system consists of the following parts:

- Base unit with condensate separator
- Sensor unit
- Data printer
- Remote control unit (RCU)
- Gas sampling probe with exchangeable probe pipe and sampling line

This certificate applies to all instruments fitted with software version 1.08.01 (serial numbers 012055 (Base Unit) & 012043 (Remote Control Unit) onwards).

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## Certified Performance

The instrument was evaluated for use under the following conditions:

Ambient Temperature Range: +5°C to +40°C

Results are expressed as error % certification ranges for CO 0 to 500ppm, CO<sub>2</sub> 0 to 12%vol., NO 0 to 300ppm, NO<sub>2</sub> 0 to 200ppm, SO<sub>2</sub> 0 to 500ppm & O<sub>2</sub> 0 to 21%vol., unless otherwise stated.

Test	Results expressed as % of the certification range				Other results	MCERTS specification
	<0.5	<1	<2	<5		
Response time						
CO (0 to 500 ppm)					67s	<200s
CO (0 to 1000 ppm)					44s	<200s
CO <sub>2</sub> (0 to 12 %vol.)					81s	<200s
CO <sub>2</sub> (0 to 20 %vol.)					71s	<400s
NO (0 to 300 ppm)					17s	<400s
NO (0 to 2000 ppm)					17s	<200s
NO <sub>2</sub> (0 to 200 ppm)					59s	<200s
SO <sub>2</sub> (0 to 500 ppm)					37s	<200s
O <sub>2</sub> (0 to 21 %vol.)					11s	<200s
Repeatability standard deviation at zero point						
CO	0.0					<2.0%
CO <sub>2</sub>	0.02					<2.0%
NO	0.0					<2.0%
NO <sub>2</sub>	0.0					<2.0%
SO <sub>2</sub>	0.0					<2.0%
O <sub>2</sub>	0.0					<0.4%
Repeatability standard deviation at zero point						
CO	0.0					<2.0%
CO <sub>2</sub>	0.02					<2.0%
NO	0.0					<2.0%
NO <sub>2</sub>	0.0					<2.0%
SO <sub>2</sub>	0.0					<2.0%
O <sub>2</sub>	0.0					<0.4%

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Test	Results expressed as % of the certification range				Other results	MCERTS specification
	<0.5	<1	<2	<5		
Lack-of-fit						
CO (0 to 500 ppm)		0.80				<2.0%
CO (0 to 1000 ppm)			-1.1			<2.0%
CO <sub>2</sub> (0 to 12 %vol.)		0.83				<2.0%
CO <sub>2</sub> (0 to 20 %vol.)			-1.0			<2.0%
NO (0 to 300 ppm)			-1.0			<2.0%
NO (0 to 2000 ppm)		-0.50				<2.0%
NO <sub>2</sub> (0 to 200 ppm)				-2.0		<2.0%
SO <sub>2</sub> (0 to 500 ppm)		-0.66				<2.0%
O <sub>2</sub> (0 to 21 %vol.)	-0.11					<0.4%
Influence of ambient temperature - zero point						
CO	0.0					<5.0%
CO <sub>2</sub>	0.0					<5.0%
NO	0.0					<5.0%
NO <sub>2</sub>	0.0					<5.0%
SO <sub>2</sub>	0.0					<5.0%
O <sub>2</sub>	0.06					<0.8%
Influence of ambient temperature - span point						
CO				-2.3		<5.0%
CO <sub>2</sub>		0.80				<5.0%
NO			-1.4			<5.0%
NO <sub>2</sub>			-1.8			<5.0%
SO <sub>2</sub>			-1.5			<5.0%
O <sub>2</sub>	0.10					<0.8%

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Test	Results expressed as % of the certification range				Other results	MCERTS specification
	<0.5	<1	<2	<5		
Cross-sensitivity at zero with interferents: O <sub>2</sub> , H <sub>2</sub> O, CO, CO <sub>2</sub> , CH <sub>4</sub> , N <sub>2</sub> O, NO, NO <sub>2</sub> , NH <sub>3</sub> , SO <sub>2</sub> , HCl						
CO	0.0					<5.0%
CO <sub>2</sub>	0.58					<5.0%
NO			1.3			<5.0%
NO <sub>2</sub>			-1.0			<5.0%
SO <sub>2</sub>	0.0					<5.0%
O <sub>2</sub>	0.0					<0.8%
Cross-sensitivity at reference with interferents: O <sub>2</sub> , H <sub>2</sub> O, CO, CO <sub>2</sub> , CH <sub>4</sub> , N <sub>2</sub> O, NO, NO <sub>2</sub> , NH <sub>3</sub> , SO <sub>2</sub> , HCl					Note 1	
CO			1.4			<5.0%
CO <sub>2</sub>				-3.3		<5.0%
NO				3.8		<5.0%
NO <sub>2</sub>				-4.7		<5.0%
SO <sub>2</sub>				-4.2	Note 2	<5.0%
O <sub>2</sub>	0.1					<0.8%
Zero drift						
CO	0.0					<3.0%
CO <sub>2</sub>	0.0					<3.0%
NO	0.0					<3.0%
NO <sub>2</sub>	0.0					<3.0%
SO <sub>2</sub>	0.0					<3.0%
O <sub>2</sub>	0.0					<0.3%

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Test	Results expressed as % of the certification range				Other results	MCERTS specification
	<0.5	<1	<2	<5		
Span drift						
CO				-2.3		<3.0%
CO <sub>2</sub>			1.0			<3.0%
NO	0.43					<3.0%
NO <sub>2</sub>				2.8		<3.0%
SO <sub>2</sub>			1.0			<3.0%
O <sub>2</sub>	0.1					<0.3%

Note 1: Depending on the degree of frequency and the level of the concentration of the measured components the measuring system NOVA plus must be calibrated frequently by using test gases for the components NO, NO<sub>2</sub>, CO, CO<sub>2</sub> and SO<sub>2</sub>. The O<sub>2</sub> channel has to be calibrated with ambient air. At the same time the cross sensitivities among the sensors have to be checked and if necessary readjusted.

Note 2: The cross sensitivity test at span for SO<sub>2</sub> was conducted with 10 %<sup>vol.</sup> H<sub>2</sub>O rather than 30 %<sup>vol.</sup> prescribed by EN 15267-3. As a result, for the measurement of SO<sub>2</sub> the humidity in the waste gas shall not exceed 10 %vol.

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## Description

The NOVA Plus is a portable emissions and combustion analyser capable of measuring O<sub>2</sub>, CO NO, NO<sub>2</sub>, SO<sub>2</sub>, H<sub>2</sub>S by using electrochemical cells and CO<sub>2</sub>, HC and CO by using NDIR infrared technology.

The MCERTS version measures O<sub>2</sub>, CO, NO, NO<sub>2</sub>, SO<sub>2</sub> and CO<sub>2</sub> and it is certified as per range stated in the first page.

The NOVA PLUS MCERTS has a sophisticated sample conditioning system which includes a sampling line with heated head, an electronic Peltier gas cooler, a peristaltic pump for moisture removal and line filters.

In addition, to support long term measurement, a “fresh air inlet/set to auto zero” user programmable function is supplied as standard.

The unit operates on Li-ION rechargeable batteries or can be powered using mains power. The base unit is also equipped with a built-in printer.

The wireless handheld control unit (RCU) remotely controls and operates all the functions of the analyser and displays the measured value. Data can be saved on an SD card and transferred to a PC directly or via USB port. The communication between the RCU and the analyzer base is established via Bluetooth and it is ensured over long distances. The RCU is powered by Li-ION rechargeable batteries which are charged via induction from the main unit.

The RCU advanced menu offers many features and provides the user with various information and automatic calculations, such as O<sub>2</sub> referencing and emissions conversions.

## General Notes

1. This certificate is based upon the equipment tested. The Manufacturer is responsible for ensuring that on-going production complies with the standard(s) and performance criteria defined in this certificate. The manufacturer is required to maintain an approved quality management system controlling the manufacture of the certified product. Both the product and the quality management system shall be subject to regular surveillance according to ‘Regulations Applicable to the Holders of CSA Group Testing UK Ltd Certificates’.
2. The design of the product certified is held and maintained by TÜV Rheinland for certificate No. CSA MC130232/03.
3. If a certified product is found not to comply, CSA Group should be notified immediately at the address shown on this certificate.
4. The certification marks that can be applied to the product or used in publicity material are defined in ‘Regulations Applicable to the Holders of CSA Group Testing UK Ltd Certificates’.
5. This document remains the property of CSA Group and shall be returned when requested by CSA Group.

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