

PRODUCT CONFORMITY CERTIFICATE

This is to certify that the

PG 250 SRM Portable Gas Analyser

manufactured by:

Horiba Europe GmbH

*Julius Kronenberg Straße 9
42799 Leichlingen
Germany*

has been assessed by Sira Certification Service
and for the conditions stated on this certificate complies with:

MCERTS Performance Standards for Continuous Emission Monitoring Systems, Version 3.4 dated August 2012, Annex F; Transportable Systems

Certification Ranges :

CO 0 to 75 mg/m³
O₂ 0 to 25 %vol (paramagnetic)
NO_x 0 to 130 mg/m³ as NO
SO₂ 0 to 460 mg/m³
CO₂ 0 to 20 %vol

Project No: 16A22076
Certificate No: Sira MC110186/03
Initial Certification: 04 March 2011
This Certificate Issued: 24 August 2012
Renewal Date: 03 March 2016

Technical Director

MCERTS is operated on behalf of the Environment Agency by

Sira Certification Service

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Registered Office: Rake Lane, Eccleston, Chester, UK CH4 9JN*

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

On the basis of the assessment and the ranges required for compliance with EU Directives, this instrument is considered suitable for use as an SRM and for verifying and calibrating installed CEMS, according to the requirements of EN14181. This portable analyser is not suitable for use as a back-up CEM.

Basis of Certification

This certification is based on the following Test Report(s) and on Sira's assessment and ongoing surveillance of the product and the manufacturing process:

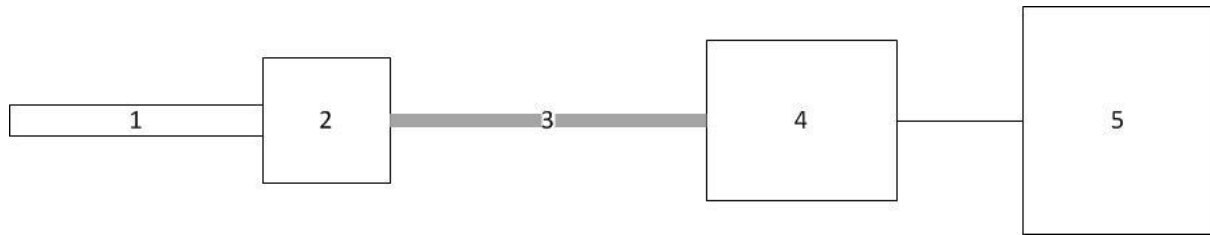
TÜV Rhineland	Report Number 936/21206693/D dated 18/06/2008 (CO)
TÜV Rhineland	Report Number 936/21206693/B dated 06/05/2008 (O ₂ - Paramagnetic)
TÜV Rhineland	Report Number 936/21206693/C dated 18/06/2008 (NO _x)
TÜV Rhineland	Report Number 936/809014 dated 20/01/2001 (SO ₂ & CO ₂)
TÜV Rhineland	Report Number 936/21214175/A dated 05/10/2010 (Audit report)

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Product Certified

The measuring system consists of the following parts:



1. Sample Probe	2. Heated Filter	3. Heated Sample Line	4. Gas Conditioning	5. Analyser
Model: M&C type PSP 4000-H	Model: SP-2K Pore size 2µm	Model: M&C type PSP 4m4/6 Length: 5m	Model: Permeation dryer PD-100 or similar*	Model: PG 250 SRM

* A permeation dryer was used during the field test. A condensation dryer is permitted but only where the NO₂/NO_x ratio is <10%, unless the condensation dryer has been proven through testing and certification to work with higher proportions of NO₂.

This certificate applies to all instruments fitted with software version P1000500001C onwards, manufactured from 06/03/2008 onwards.

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Certified Performance

The instrument was evaluated for use under the following conditions:

Ambient Temperature Range: +5 to +40°C
 Instrument IP rating: IP25 (advised by manufacturer)

Note: If the instrument is supplied with an enclosure then the ambient temperature shall be monitored inside the enclosure to ensure that it stays within the above ambient temperature range.

Unless otherwise stated the evaluation was carried out on the certification range CO 0-75mg/m³, O₂ 0-25%vol, NO_x 0-130mg/m³ as NO, 0-200 mg/m³ as NO₂, SO₂ 0-572 mg/m³, CO₂ 0-20%vol

Test	Results expressed as % of the certification range				Other results	MCERTS specification
	<0.5	<1	<2	<5		
Response time						
CO					111s	<200s
O ₂					110s	<200s
NO _x					117s	<200s
SO ₂					160s	<200s
CO ₂					60s	<200s
Detection Limit						
CO		0.52				<2.0% range
O ₂	0.08					<0.2% range
NO _x	0.08					<2.0% range
SO ₂	0.11					<2.0% range
CO ₂	0.01					<2.0% range
Lack of fit						
CO		0.9				<2.0% range
O ₂	-0.1					<0.3% vol
NO _x			1.4			<2.0% range
SO ₂		0.8				<2.0% range
CO ₂		-0.6				<2.0% range

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Test	Results expressed as % of the certification range				Other results	MCERTS specification
	<0.5	<1	<2	<5		
Zero drift						
CO	0.14					<2.0%/24hr
O ₂	0.03					<0.2%vol/24hr
NO _x	-0.04					<2.0%/24hr
SO ₂			1.9		(over 7 days)	<2.0%/24hr
CO ₂		0.8			(over 7 days)	<2.0%/24hr
Span drift						
CO	-0.12					<2.0%/24hr
O ₂	0.03					<0.2%vol/24hr
NO _x	-0.25					<2.0%/24hr
SO ₂			2.0		(over 7 days)	<2.0%/24hr
CO ₂			1.7		(over 7 days)	<2.0%/24hr
Sensitivity to atmospheric pressure						
CO	0.09					<3.0%/2kPa
O ₂		0.91				<3.0%/2kPa
NO _x	-0.16					<3.0%/2kPa
SO ₂					Note 1	<3.0%/2kPa
CO ₂					Note 1	<3.0%/2kPa
Sensitivity to sample gas flow						
CO	-0.27					Defined by the manufacturer
O ₂	0.08					
NO _x	0.36					
SO ₂	0.00					
CO ₂	0.00					

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Test	Results expressed as % of the certification range				Other results	MCERTS specification
	<0.5	<1	<2	<5		
Sensitivity to ambient temperature at zero						
CO			1.48			<3.0%/10K
O ₂	0.15					<0.3%vol/10K
NO _x	0.11					<3.0%/10K
SO ₂			1.3			<3.0%/10K
CO ₂	0.1					<3.0%/10K
Sensitivity to ambient temperature at span						
CO			-1.33			<3.0%/10K
O ₂	0.19					<0.3%vol/10K
NO _x				-2.43		<3.0%/10K
SO ₂				2.7		<3.0%/10K
CO ₂		0.8				<3.0%/10K
Sensitivity to electrical voltage						
CO	0.33					<2.0%/10V
O ₂	0.05					<0.1%vol/10V
NO _x	-0.10					<2.0%/10V
SO ₂			<2.0			<2.0%/10V
CO ₂			<2.0			<2.0%/10V
Cross sensitivity					Interferents:	
CO	0.08				CO ₂ , N ₂ O, CH ₄ , H ₂ O	<4% range
O ₂	0.19				NO, NO ₂ , CO ₂	<0.2%vol
NO _x	0.50				NH ₃ , CO ₂	<4% range
SO ₂			1.5		CO ₂ , CO, CO ₂ , NO, NO ₂ , NH ₃ , N ₂ O, HCl, CH ₄ , H ₂ O	<4% range
CO ₂	0.00				CO ₂ , CO, CO ₂ , NO, NO ₂ , NH ₃ , N ₂ O, HCl, CH ₄ , H ₂ O	<4% range

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Test	Results expressed as % of the certification range				Other results	MCERTS specification
	<0.5	<1	<2	<5		
Losses and leakages in the sampling system						
CO		0.53				<2.0% measured value
O ₂		0.74				<2.0% measured value
NO _x	-0.18					<2.0% measured value
SO ₂			<2.0		Note 2	<2.0% measured value
CO ₂			<2.0		Note 2	<2.0% measured value
Standard deviation of repeatability at zero						
CO	0.09					<1.0% range
O ₂	0.03					<0.2% range
NO _x	0.03					<1.0% range
SO ₂		1.00			Note 3	<1.0% range
CO ₂	0.22				Note 3	<1.0% range
Standard deviation of repeatability at span						
CO	0.08					<2.0% range
O ₂	0.03					<0.4% range
NO _x	0.09					<2.0% range
SO ₂		0.74			Note 3	<2.0% range
CO ₂		0.98			Note 3	<2.0% range
NOx convertor efficiency					97.6%	>95%

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Test	Results expressed as % of the certification range				Other results	MCERTS specification
	<0.5	<1	<2	<5		
Measurement Uncertainty						
CO					3.51% ELV / 1.76 mg/m ³	Not specified in Annex F
O ₂					5.51% measured value / 0.66 vol%	
NO _x					6.73% ELV / 13.46 mg/m ³	
SO ₂					16.7% ELV / 33.31 mg/m ³	
CO ₂					4.0% measured value / 0.80 vol%	

Note 1: Sensitivity to atmospheric pressure not tested for SO₂ or CO₂ channels.

Note 2: The losses and leakage has been tested on the sampling system (see 'product certified' on page 2), for the parameters CO, O₂ and NO_x. This test has not been conducted on the SO₂ or CO₂ channels, which use the same flow system and optical bench for IR components.

Note 3: The SO₂ and CO₂ repeatability at zero and span have been calculated from field trial results in TÜV Rhineland report 936/809014 dated 20/01/2001.

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Description:

The PG250 SRM is a portable gas analyser that uses an extractive system for measuring CO, NO or NO_x, SO₂, CO₂ and O₂. The analyser uses three measurement principles, chemiluminescence for NO, non-dispersive infrared (NDIR) for the measurement CO, CO₂, SO₂. O₂ is measured using a paramagnetic sensor. The instrument measures a maximum of five gas components.

The PG250 SRM system contains the analyser unit with sampling pump; a built-in electronic cooler for the removal of water vapour where the levels of moisture are low; a condensate separator; an NO₂ to NO converter for NO_x measurement; a heated sample probe; a 5 metre heated line and a supplementary cooler PS200, M & C type PSS 5 or a similar type. A permeation dryer PD-100 (or equivalent quality permeation dryer) with inlet temperature <120°C is also applicable.

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 Sira Certificates'. The design of the product certified is defined in the Sira Design Schedule for certificate No. Sira MC110186/00
2. If certified product is found not to comply, Sira Certification Service should be notified immediately at the address shown on this certificate.
3. The Certification Marks that can be applied to the product or used in publicity material are defined in 'Regulations Applicable to the Holders of Sira Certificates'.
4. This document remains the property of Sira and shall be returned when requested by the company.

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