

PRODUCT CONFORMITY CERTIFICATE

This is to certify that the

SIPROCESS UV600

manufactured by:

Siemens AG

DE-76181

Karlsruhe,

Germany

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

Environment Agency Guidance

“MCERTS for stack emissions monitoring equipment at industrial installations”

- Continuous emissions monitoring systems (CEMS)

Published 20 October 2020

EN 15267-1:2009, EN15267-2:2009, EN 15267-3:2007

& QAL 1 as defined in EN 14181: 2014

Certification ranges:

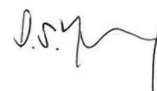
NO : 0 to 50 mg/m³

NO₂ : 0 to 50 mg/m³

SO₂ : 0 to 75 mg/m³

See description for additional measuring ranges

Project number: 80061837
Certificate number: Sira MC120202/03
Initial certification: 21 December 2010
This certificate issued: 18 January 2021
Renewal date: 20 December 2025



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MCERTS is operated on behalf of the Environment Agency by

Sira Certification Service



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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 technical guidance on monitoring, available at www.mcerts.net

This instrument is considered suitable for use on waste incineration and large combustion plant applications. This CEMS has been proven suitable for its measuring task (parameter and composition of the flue gas) by use of the QAL 1 procedure specified in EN14181. The lowest certified range for each determinand shall not be more than 1.5 times the daily average emission limit value (ELV) for incineration plants, and not more than 2.5 times the ELV for other types of application.

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 Rheinland Immissionsschutz und Energiesysteme GmbH test report,
Report No.: 936/21211670/B March 26th 2010

Sira Report 16A23053 Rev 1 dated 19/10/10

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Product certified

The SIPROCESS UV600 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 SP 2000	Model: N/A – Heated filter is integrated with M&C SP 2000 sample probe	Model: Not Stated Length: 50m	Model: MAK 10-2 or CSS-V2SK	Model: SIPROCESS UV600 DEFOR

Allowable variations could include:

- A different brand or model of sampling system of the same type, provided that there is evidence the alternative system works with similar types of CEM.
- Additional manifolds and heated valves used to allow more than one analyser to share a sampling system.

This certificate applies to all instruments fitted with software version T825_090707_1000 onwards.
PC Software - Sopas ET 2.20 Build 2766 onwards, (serial number 10440002 onwards).

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Certified performance

The instrument was evaluated for use under the following conditions:

Ambient Temperature Range: +5 to +45°C with MAK 10-2 Cooler (air conditioned enclosure only)
+10 to +40°C with CSS-V2SK Cooler

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.

Instrument IP rating: IP 54
Cooler IP rating: IP 34

Unless otherwise stated the evaluation was carried out on the following certification range NO (DEFOR) 0 to 50 mg/m³, NO₂ (DEFOR) 0 to 50 mg/m³ & SO₂ (DEFOR) 0 to 75 mg/m³

Test	Results expressed as % of the certification range				Other results	MCERTS specification
	<0.5	<1	<2	<5		
Response time						
NO (DEFOR)					33s	<200s
NO ₂ (DEFOR)					61s	<200s
SO ₂ (DEFOR)					133s	<200s
NO (DEFOR) – (0 to 1000mg/m ³)					43s	<200s
NO (DEFOR) – (0 to 2000mg/m ³)					37s	<200s
NO ₂ (DEFOR) – (0 to 500mg/m ³)					57s	<200s
SO ₂ (DEFOR) – (0 to 287mg/m ³)					51s	<200s
SO ₂ (DEFOR) – (0 to 2000mg/m ³)					41s	<200s
<i>Supplementary test (Cooler CSS-V2SK)</i>					Note 1	
NO (DEFOR)					63s	<200s
NO ₂ (DEFOR)					74s	<200s
SO ₂ (DEFOR)					144s	<200s
Repeatability standard deviation at zero point						
NO (DEFOR)	0.10					<2.0%
NO ₂ (DEFOR)	0.00					<2.0%
SO ₂ (DEFOR)	0.20					<2.0%

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Test	Results expressed as % of the certification range				Other results	MCERTS specification
	<0.5	<1	<2	<5		
Repeatability standard deviation at reference point						
NO (DEFOR)	0.20					<2.0%
NO ₂ (DEFOR)			1.00			<2.0%
SO ₂ (DEFOR)	0.20					<2.0%
Lack of fit						
NO (DEFOR)	0.40					<2.0%
NO ₂ (DEFOR)		-0.80				<2.0%
SO ₂ (DEFOR)		-0.93				<2.0%
NO (DEFOR) – (0 to 1000mg/m ³)	0.48					<2.0%
NO (DEFOR) – (0 to 2000mg/m ³)		-0.65				<2.0%
NO ₂ (DEFOR) – (0 to 500mg/m ³)	0.34					<2.0%
SO ₂ (DEFOR) – (0 to 287mg/m ³)		-0.98				<2.0%
SO ₂ (DEFOR) – (0 to 2000mg/m ³)	0.50					<2.0%
<i>Supplementary test (Cooler CSS-V2SK)</i>					Note 1	
NO (DEFOR)		0.80				<2.0%
NO ₂ (DEFOR)		0.60				<2.0%
SO ₂ (DEFOR)		0.60				<2.0%
Influence of ambient temperature zero and reference point						
NO (DEFOR)		0.60				<5.0%
NO ₂ (DEFOR)			1.80			<5.0%
SO ₂ (DEFOR)				2.40		<5.0%
Influence of sample gas pressure					N/A	<i>Test not applicable to extractive systems</i>

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Test	Results expressed as % of the certification range				Other results	MCERTS specification
	<0.5	<1	<2	<5		
Influence of sample gas flow for extractive CEMS						
NO (DEFOR)		0.60				<2.0%
NO ₂ (DEFOR)	0.40					<2.0%
SO ₂ (DEFOR)	0.10					<2.0%
Influence of voltage variations 190 to 250V					No influence	<2.0% all gases
Influence of vibration (10 to 60Hz (±0.3mm), 60 to 150Hz at 19.6m/s ²)					N/A	<i>Test not applicable to extractive systems</i>
Cross-sensitivity at zero with interferents: O ₂ , H ₂ O, CO, CO ₂ , CH ₄ , N ₂ O, NO, NO ₂ , NH ₃ , SO ₂ , HCl						
NO (DEFOR)				3.72		<4.0%
NO ₂ (DEFOR)				2.46		<4.0%
SO ₂ (DEFOR)			-1.08			<4.0%
<i>Supplementary test (Cooler CSS-V2SK)</i>					Note 1	
Interferent: H ₂ O						
NO (DEFOR)	<0.5				Note 2	<4.0%
NO ₂ (DEFOR)	<0.5				Note 2	<4.0%
SO ₂ (DEFOR)	<0.5				Note 2	<4.0%
Cross-sensitivity at reference with interferents: O ₂ , H ₂ O, CO, CO ₂ , CH ₄ , N ₂ O, NO, NO ₂ , NH ₃ , SO ₂ , HCl						
NO (DEFOR)				-3.40		<4.0%
NO ₂ (DEFOR)				3.86		<4.0%
SO ₂ (DEFOR)				-3.88		<4.0%
<i>Supplementary test (Cooler CSS-V2SK)</i>					Note 1	
Interferent: H ₂ O						
NO (DEFOR)	<0.5				Note 2	<4.0%
NO ₂ (DEFOR)	<0.5				Note 2	<4.0%
SO ₂ (DEFOR)	<0.5				Note 2	<4.0%

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Test	Results expressed as % of the certification range				Other results	MCERTS specification
	<0.5	<1	<2	<5		
Measurement uncertainty						
NO (DEFOR)					11.06%	15%
NO ₂ (DEFOR)					6.99%	15%
SO ₂ (DEFOR)					10.95%	15%
Field Trial						
Calibration function (field)						
NO (DEFOR)					0.9848-0.9983	>0.90
NO ₂ (DEFOR)					0.9405-0.9969	>0.90
SO ₂ (DEFOR)					0.9453-0.9626	>0.90
Response time (field)					Maximum response time recorded was for SO ₂ 0-250 mg/m ³ T ₉₀ = 187 secs	<200s
Lack of fit (field)					Relative residuals do not exceed 2.0% (or 0.2% for O ₂) of the certification range.	<2.0%
Maintenance interval					Note 3	>8 days
Change in zero point over maintenance interval						
NO (DEFOR)			1.30			<3.0%
NO ₂ (DEFOR)				-2.40		<3.0%
SO ₂ (DEFOR)			-1.40			<3.0%
Change in reference point over maintenance interval						
NO (DEFOR)				2.40		<3.0%
NO ₂ (DEFOR)				2.70		<3.0%

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Test	Results expressed as % of the certification range				Other results	MCERTS specification
	<0.5	<1	<2	<5		
SO ₂ (DEFOR)				-2.50		<3.0%
Availability					At least 98.9%	>95%
Reproducibility						
NO (DEFOR)				2.90		<3.3%
NO ₂ (DEFOR)		1.00				<3.3%
SO ₂ (DEFOR)				3.20		<3.3%

Note 1 - The measuring system may be operated with cooler type MAK10-2 by AGT Thermotechnik (original testing done on this model) as well as with cooler type CSS-V2SK by company M&C (Supplementary test).

Note 2 - <0.5% of test gas concentration.

Note 3 – NO and NO₂ have maintenance intervals of 4 weeks. SO₂ has a maintenance interval of 2 weeks.

Automatic calibration of zero point shall be carried out at least once a week for all components by using humidified ambient air. This procedure can be done automatically, controlled by the analyser.

Automatic calibration of reference point shall be carried out at least once a week for all components by using humidified ambient air. This procedure can be done automatically, controlled by the analyser.

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Description

The SIPROCESS UV600 measuring system is a modular, multiple-component measuring system for continuous monitoring of flue gases. The sample gas is taken from the gas duct with the help of a sampling probe for gas and led to the measuring system via a heated sample gas tube. Subsequent analysis of the gas concentrations is carried out by gas analysing modules which can be individually adapted to the purposed application.

The tested measuring system comprised the following analyser modules:

- DEFOR (NO, NO₂ and SO₂),

Additional measuring ranges:

Component	Module	Certification	Additional Ranges		Unit
		Range	1	2	
NO	SIPROCESS UV600 DEFOR for NO	0-50	0-1000	0-2000	mg/m ³
NO ₂	SIPROCESS UV600 DEFOR for NO ₂	0-50	0-500	---	mg/m ³
SO ₂	SIPROCESS UV600 DEFOR for SO ₂	0-75	0-287	0-2000	mg/m ³

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'.
2. The design of the product certified is held and maintained by TUV Rheinland for certificate No. Sira MC120202/03.
3. If a certified product is found not to comply, Sira 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 Sira certificates'.
5. This document remains the property of Sira and shall be returned if requested by Sira.

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