PRODUCT CONFORMITY CERTIFICATE

This is to certify that the

SET CEM CERT

Manufactured by:

Siemens Production Automatisation S.A.S

1 Chemin de la Sandlach
B.P. 189
F – 67506 Haguenau Cedex
France

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 3.5 dated June 2016
EN15267-3:2007,
& QAL 1 as defined in EN 14181: 2014

Certification Ranges:

CO: 0 to 200 mg/m^3 (1), 0 to 250 mg/m^3 (2) and 0 to 1250 mg/m^3 (1) (ULTRAMAT 23)
CO: 0 to 75 mg/m^3 and 0 to 1000 mg/m^3 (ULTRAMAT 6 and ULTRAMAT/OXYMAT 6)
NO_x: 0 to 150 mg/m^3 (1), 0 to 230 mg/m^3 (1), 0 to 400 mg/m^3 (2) and 0 to 613 mg/m^3 (2) (ULTRAMAT 23)
NO: 0 to 50 mg/m^3 (SIPROCESS UV600)
NO: 0 to 600 mg/m^3 (2) (ULTRAMAT 23)
NO: 0 to 100 mg/m^3 and 0 to 1000 mg/m^3 (ULTRAMAT 6 and ULTRAMAT/OXYMAT 6)
NO_2: 0 to 50 mg/m^3 (SIPROCESS UV600)
SO_2: 0 to 75 mg/m^3 (SIPROCESS UV600, ULTRAMAT 6 and ULTRAMAT/OXYMAT 6)
SO_2: 0 to 400 mg/m^3 (3) (ULTRAMAT 23)
CO_2: 0 to 25 Vol-% (1) (ULTRAMAT 23)
$O_{2\ paramagnetic}$: 0 to 25 Vol-% (3) (ULTRAMAT 23, OXYMAT 6 and ULTRAMAT/OXYMAT 6)
$O_{2\ electro\ chemical}$: 0 to 25 Vol-% (3) (ULTRAMAT 23)

(1) : refers to Ultramat 23-7MB2355 and Ultramat 23-7MB2357
(2) : refers to Ultramat 23-7MB2358
(3) : refers to Ultramat 23-7MB2355, Ultramat 23-7MB2357 and Ultramat 23-7MB2358
See description for additional measuring ranges

Project No.	:	70050164
Certificate No	:	MC160288/01
Initial Certification	:	24 March 2016
This Certificate issued	:	22 May 2017
Renewal Date	:	24 March 2021

Emily Alexander
Deputy Certification Manager

MCERTS is operated on behalf of the Environment Agency by

Sira Certification Service
Unit 6, Hawarden Industrial Park
Hawarden, Deeside, CH5 3US
Tel: +44 (0)1244 670 900

Form 1335
Issue 2

Certificate Contents

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 on waste incineration and large coal-fired combustion plant applications. This CEM 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, for LCPD/IED Chapter III and IED Chapter IV applications for the ranges specified. The lowest certified range for each determinand shall not be more than 1.5X the daily average emission limit value (ELV) for IED Chapter IV applications, and not more than 2.5X the ELV for IED Chapter III and other types of application.

There were three field trials. The two initial field trials were conducted over 4 months from 25.11.2014 until 18.03.2015 and from 15.04.2014 until 13.08.14, in clean gas in a waste combustion plant; the third field trial ran from 13.11.2015 to 24.5.2016

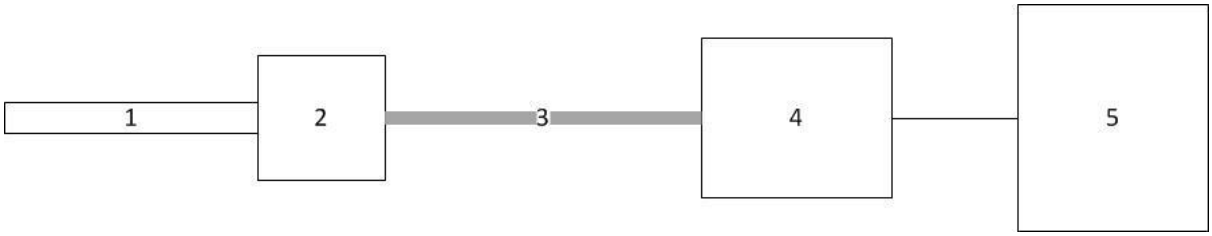
Basis of Certification

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:

TUV Report Number 2219424 – March 2015
TUV Report Number 1797266 – September 2014
TÜV Report Number 1630664-4a – February 2014
TÜV Report Number 1630664-4b – February 2014
TÜV Report Number 936/21230405/E – July 2016

Product Certified

The SET CEM CERT 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 SP2000-H with ceramic filter (180°C)	Model: N/A integrated into probe	Model: 4mm ID PTFE line heated to 180°C (50m field test)	Model: M&C CSS V1-S	Model: Ultramat 23-7MB2355 Ultramat 23-7MB2357 Ultramat 23-7MB2358 SIPROCESS UV600 ULTRAMAT 6 OXYMAT 6 ULTRAMAT OXYMAT 6
Model: Buehler GAS 222.20 with ceramic filter (180°C)	-	-	Buehler EGK 2-19	-

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:

SIPROCESS UV600 – Software version: 9150883_3.003. onwards (Serial No: N1-C2-900101 onwards)

Ultramat 23-7MB2355 – Software version: 2.15.05. onwards (Serial No: N1-E7-928 onwards)
Ultramat 23-7MB2357 – Software version: 2.15.05 onwards (Serial No: N1-B5-208 onwards)
Ultramat 23-7MB2358 – Software version: 2.15.05 onwards(Serial No: N1-E7-261 onwards)

ULTRAMAT 6 – Software version 4.8.5 onwards

OXYMAT 6 – Software version 4.8.5 onwards

ULTRAMAT OXYMAT 6 – Software versions 4.8.5 onwards

Certified Performance

The instrument was evaluated for use under the following conditions:

Ambient Temperature Range: +5°C to +40°C
Instrument IP rating: IP40

Results are expressed as error % of certification range, unless otherwise stated.

Test	Results expressed as % of the certification range				Other results	MCERTS specification
	<0.5	<1	<2	<5		
Response time						
CO ULTRAMAT 6) – (0 to 75mg/m^3)					37s	<200s
CO (ULTRAMAT 23) – (0 to 200mg/m^3)					74s	<200s
CO (ULTRAMAT 23) - (0 to 250mg/m^3)					47s	<200s
CO (ULTRAMAT 6) – (0 to 1000mg/m^3)					30s	<200s
CO (ULTRAMAT 23) - (0 to 1250mg/m^3)					38s	<200s
CO (ULTRAMAT 6) – (0 to 1250mg/m^3)					37s	<200s
CO (ULTRAMAT 6) – (0 to 3000mg/m^3)					45s	<200s
CO (ULTRAMAT 23) - (0 to 6000mg/m^3)					34s	<200s
CO (ULTRAMAT 6) – (0 to 10,000mg/m^3)					24s	<200s
NO_x (ULTRAMAT 23) – (0 to 400mg/m^3)					50s	<200s
NO (SIPROCESS UV600) - (0 to 50mg/m^3)					29s	<200s
NO (ULTRAMAT 6) – (0 to 100mg/m^3)					38s	<200s
NO (ULTRAMAT 23) - (0 to 150mg/m^3)					53s	<200s
NO (SIPROCESS UV600) - (0 to 200mg/m^3)					27s	<200s
NO (ULTRAMAT 23) – (0-400mg/m^3)					48s	<200s
NO (ULTRAMAT 23) – (0 to 600mg/m^3)					49s	<200s
NO (ULTRAMAT 23) - (0 to 750mg/m^3)					53s	<200s
NO (ULTRAMAT 6) – (0 to 1000mg/m^3)					37s	<200s
NO (ULTRAMAT 6) – (0 to 2000mg/m^3)					35s	<200s
NO (SIPROCESS UV600) - (0 to 2000mg/m^3)					31s	<200s

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Test	Results expressed as % of the certification range				Other results	MCERTS specification
	<0.5	<1	<2	<5		
NO (ULTRAMAT 23) - (0 to 2000mg/m^3)					59s	<200s
NO (ULTRAMAT 23) – (0 to 3000mg/m^3)					41s	<200s
NO (ULTRAMAT 6) – (0 to 10,000mg/m^3)					31s	<200s
NO_2 (SIPROCESS UV600) – (0 to 50mg/m^3)					26s	<200s
NO_2 (SIPROCESS UV600) – (0 to 500mg/m^3)					23s	<200s
SO_2 (ULTRAMAT 6) – (0 to 75mg/m^3)					55s	<200s
SO_2 (SIPROCESS UV600) – (0 to 75mg/m^3)					54s	<200s
SO_2 (SIPROCESS UV600) – (0 to 130mg/m^3)					58s	<200s
SO_2 (ULTRAMAT 23) – (0 to 400mg/m^3)					187s	<200s
SO_2 (ULTRAMAT 6) – (0 to 1500mg/m^3)					51s	<200s
SO_2 (ULTRAMAT 23) – (0 to 2000mg/m^3)					146s	<200s
SO_2 (ULTRAMAT 23) – (0 to 7000mg/m^3)					136s	<200s
CO_2 (ULTRAMAT 23) - (0 to 25 Vol-%)					30s	<200s
O_2 (OXYMAT 6) - (0 to 5 Vol-%)					21s	<200s
O_2 (ULTRAMAT 23) - (0 to 5 Vol-%)					46s	<200s
O_2 (ULTRAMAT 23) - (0 to 25 Vol-%)					57s	<200s
O_2 (OXYMAT 6) - (0 to 25 Vol-%)					25s	<200s
Repeatability standard deviation at zero point						
CO (ULTRAMAT 6) – (0 to 75mg/m^3)	0.1					<2.0%
CO (ULTRAMAT 23) – (0 to 200mg/m^3)	0.23					<2.0%
CO (ULTRAMAT 23) – (0 to 250mg/m^3)	0.04					<2.0%
CO (ULTRAMAT 6) – (0 to 1000mg/m^3)	0.1					<2.0%
CO (ULTRAMAT 23) – (0 to 1250mg/m^3)	0.03					<2.0%
NO (SIPROCESS UV600) – (0 to 50mg/m^3)	0.23					<2.0%
NO (ULTRAMAT 6) – (0 to 100mg/m^3)	0.4					<2.0%
NO (ULTRAMAT 23) – (0 to 150mg/m^3)	0.31					<2.0%

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Test	Results expressed as % of the certification range				Other results	MCERTS specification
	<0.5	<1	<2	<5		
NO (ULTRAMAT 23) – (0 to 400mg/m^3)	0.06					<2.0%
NO (ULTRAMAT 23) – (0 to 600mg/m^3)	0.04					<2.0%
NO (ULTRAMAT 6) – (0 to 1000mg/m^3)	0.1					<2.0%
NO_2 (SIPROCESS UV600) – (0 to 50mg/m^3)	0.04					<2.0%
SO_2 (SIPROCESS UV600) – (0 to 75mg/m^3)	0.07					<2.0%
SO_2 (ULTRAMAT 6) – (0 to 75mg/m^3)	0.4					<2.0%
SO_2 (ULTRAMAT 23) – (0 to 400mg/m^3)	0.20					<2.0%
CO_2 (ULTRAMAT 23) - (0 to 25 Vol-%)	0.04					<2.0%
O_2 (ULTRAMAT 23) - (0 to 25 Vol-%)	0.02					<0.2%
O_2 (OXYMAT 6) - (0 to 25 Vol-%)	0.01					<0.2%
Repeatability standard deviation at reference point						
CO (ULTRAMAT 6) – (0 to 75mg/m^3)	0.1					<2.0%
CO (ULTRAMAT 23) – (0 to 200mg/m^3)	0.05					<2.0%
CO (ULTRAMAT 23) – (0 to 250mg/m^3)	0.04					<2.0%
CO (ULTRAMAT 6) – (0 to 1000mg/m^3)	0.1					<2.0%
CO (ULTRAMAT 23) – (0 to 1250mg/m^3)	0.1					<2.0%
NO (SIPROCESS UV600) – (0 to 50mg/m^3)	0.45					<2.0%
NO (ULTRAMAT 6) – (0 to 100mg/m^3)	0.4					<2.0%
NO (ULTRAMAT 23) – (0 to 150mg/m^3)	0.22					<2.0%
NO (ULTRAMAT 23) – (0 to 400mg/m^3)	0.06					<2.0%
NO (ULTRAMAT 23) – (0 to 600mg/m^3)	0.1					<2.0%
NO (ULTRAMAT 6) – (0 to 1000mg/m^3)	0.3					<2.0%
NO_2 (SIPROCESS UV600) – (0 to 50mg/m^3)	0.11					<2.0%
SO_2 (SIPROCESS UV600) – (0 to 75 mg/m^3)	0.32					<2.0%
SO_2 (ULTRAMAT 6) – (0 to 75mg/m^3)	0.4					<2.0%
SO_2 (ULTRAMAT 23) – (0 to 400 mg/m^3)	0.20					<2.0%
CO_2 (ULTRAMAT 23) - (0 to 25 Vol-%)	0.1					<2.0%

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	<0.5	<1	<2	<5		
O_2 (ULTRAMAT 23) - (0 to 25 Vol-%)	0.02					<0.2%
O_2 (OXYMAT 6) - (0 to 25 Vol-%)	0.05					<0.2%
Lack-of-fit						
CO (ULTRAMAT 6) – (0 to 75mg/m^3)		0.53				<2.0%
CO (ULTRAMAT 23) - (0 to 200mg/m^3)	-0.22					<2.0%
CO (ULTRAMAT 23) – (0 to 250mg/m^3)	0.47					<2.0%
CO (ULTRAMAT 6) – (0 to 1000mg/m^3)	-0.30					<2.0%
CO (ULTRAMAT 23) - (0 to 1250mg/m^3)	0.48					<2.0%
CO (ULTRAMAT 6) – (0 to 1250mg/m^3)		0.56				<2.0%
CO (ULTRAMAT 6) – (0 to 3000mg/m^3)		0.50				<2.0%
CO (ULTRAMAT 23) - (0 to 6000mg/m^3)	-0.35					<2.0%
CO (ULTRAMAT 6) – (0 to 10,000mg/m^3)	-0.24					<2.0%
NO_x (ULTRAMAT 23) – (0 to 400mg/m^3)	0.26					<2.0%
NO (SIPROCESS UV600) - (0 to 50mg/m^3)		-0.51				<2.0%
NO (ULTRAMAT 6) – (0 to 100mg/m^3)			-1.60			<2.0%
NO (ULTRAMAT 23) - (0 to 150mg/m^3)		-0.83				<2.0%
NO (SIPROCESS UV600) - (0 to 200mg/m^3)	0.42					<2.0%
NO (ULTRAMAT 23) – (0 to 400mg/m^3)	-0.17					<2.0%
NO (ULTRAMAT 23) – (0 to 600mg/m^3)		0.50				<2.0%
NO (ULTRAMAT 23) - (0 to 750mg/m^3)		-0.51				<2.0%
NO (ULTRAMAT 6) – (0 to 1000mg/m^3)		0.70				<2.0%
NO (ULTRAMAT 6) – (0 to 2000mg/m^3)	-0.45					<2.0%
NO (SIPROCESS UV600) - (0 to 2000mg/m^3)	-0.44					<2.0%
NO (ULTRAMAT 23) - (0 to 2000mg/m3)	-0.20					<2.0%
NO (ULTRAMAT 23) – (0 to 3000mg/m^3)	-0.30					<2.0%
NO (ULTRAMAT 6) – (0 to 10,000mg/m^3)	0.24					<2.0%
NO_2 (SIPROCESS UV600) – (0 to 50mg/m^3)		0.97				<2.0%

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	<0.5	<1	<2	<5		
NO_2 (SIPROCESS UV600) – (0 to 500mg/m^3)	0.32					<2.0%
SO_2 (ULTRAMAT 6) – (0 to 75mg/m^3)			-1.47			<2.0%
SO_2 (SIPROCESS UV600) – (0 to 75mg/m^3)		0.93				<2.0%
SO_2 (SIPROCESS UV600) – (0 to 130mg/m^3)		0.81				<2.0%
SO_2 (ULTRAMAT 23) – (0 to 400mg/m^3)		0.91				<2.0%
SO_2 (ULTRAMAT 6) – (0 to 1500mg/m^3)	0.47					<2.0%
SO_2 (SIPROCESS UV600) – (0 to 2000mg/m^3)		0.95				<2.0%
SO_2 (SIPROCESS UV600) – (0 to 7000mg/m^3)	-0.41					<2.0%
CO_2 (ULTRAMAT 23) - (0 to 25 Vol-%)	0.40					<2.0%
O_2 (OXYMAT 6) - (0 to 5 Vol-%)	-0.02					<0.2%
O_2 (ULTRAMAT 23) - (0 to 5 Vol-%)	0.03					<0.2%
O_2 (ULTRAMAT 23) - (0 to 25 Vol-%)	0.10					<0.2%
O_2 (ULTRAMAT 6) - (0 to 25 Vol-%)	0.02					<0.2%
Influence of ambient temperature zero point (+5°C to +40°C)						
CO (ULTRAMAT 6) – (0 to 75mg/m^3)				2.1		<5.0%
CO (ULTRAMAT 23) – (0 to 200mg/m^3)	0.1					<5.0%
CO (ULTRAMAT 23) – (0 to 250mg/m^3)	-0.3					<5.0%
CO (ULTRAMAT 6) – (0 to 1000mg/m^3)			1.1			<5.0%
CO (ULTRAMAT 23) – (0 to 1250mg/m^3)		0.9				<5.0%
NO (SIPROCESS UV600) – (0 to 50mg/m^3)	-0.33					<5.0%
NO (ULTRAMAT 6) – (0 to 100mg/m^3)			1.8			<5.0%
NO (ULTRAMAT 23) – (0 to 150mg/m^3)	0.4					<5.0%
NO (ULTRAMAT 23) – (0 to 400mg/m^3)	-0.2					<5.0%
NO (ULTRAMAT 23) – (0 to 600mg/m^3)			-1.8			<5.0%
NO (ULTRAMAT 6) – (0 to 1000mg/m^3)		0.9				<5.0%

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	<0.5	<1	<2	<5		
NO_2 (SIPROCESS UV600) – (0 to 50mg/m^3)			1.81			<5.0%
SO_2 (SIPROCESS UV600) – (0 to 75mg/m^3)				-2.42		<5.0%
SO_2 (ULTRAMAT 6) – (0 to 75mg/m^3)				3.3		<5.0%
SO_2 (ULTRAMAT 23) – (0 to 400mg/m^3)				-2.40		<5.0%
CO_2 (ULTRAMAT 23) - (0 to 25 Vol-%)	0.2					<5.0%
O_2 (ULTRAMAT 23) - (0 to 25 Vol-%)	-0.08					<0.5%
O_2 (OXYMAT 6) - (0 to 25 Vol-%)	-0.08					<0.5%
Influence of ambient temperature reference point (+5°C to +40°C)						
CO (ULTRAMAT 6) – (0 to 75mg/m^3)				2.1		<5.0%
CO (ULTRAMAT 23) – (0 to 200mg/m^3)		0.6				<5.0%
CO (ULTRAMAT 23) – (0 to 250mg/m^3)	0.13					<5.0%
CO (ULTRAMAT 6) – (0 to 1000mg/m^3)			1.1			<5.0%
CO (ULTRAMAT 23) – (0 to 1250mg/m^3)			1.5			<5.0%
NO (SIPROCESS UV 600) – (0 to 50mg/m^3)	0.16					<5.0%
NO (ULTRAMAT 6) – (0 to 100mg/m^3)			-1.6			<5.0%
NO (ULTRAMAT 23) – (0 to 150mg/m^3)		0.7				<5.0%
NO (ULTRAMAT 23) – (0 to 400mg/m^3)	-0.08					<5.0%
NO (ULTRAMAT 23) – (0 to 600mg/m^3)				-2.3		<5.0%
NO (ULTRAMAT 6) – (0 to 1000mg/m^3)			1.3			<5.0%
NO_2 (SIPROCESS UV600) – (0 to 50mg/m^3)				2.37		<5.0%
SO_2 (SIPROCESS UV600) – (0 to 75mg/m^3)				3.87		<5.0%
SO_2 (ULTRAMAT 6) – (0 to 75mg/m^3)				3.3		<5.0%
SO_2 (ULTRAMAT 23) – (0 to 400 mg/m^3)	-0.23					<5.0%
CO_2 (ULTRAMAT 23) - (0 to 25 Vol-%)				2.0		<5.0%
O_2 (ULTRAMAT 23) - (0 to 25 Vol-%)	0.21					<0.2%
O_2 (OXYMAT 6) - (0 to 25 Vol-%)	-0.15					<0.2%

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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 (zero)						
CO (ULTRAMAT 6) – (0 to 75mg/m^3)	0.1					<2.0%
CO (ULTRAMAT 23) – (0 to 200mg/m^3)	0.09					<2.0%
CO (ULTRAMAT 23) – (0 to 250mg/m^3)	0.13					<2.0%
CO (ULTRAMAT 6) – (0 to 1000mg/m^3)	0.1					<2.0%
CO (ULTRAMAT 23) – (0 to 1250mg/m^3)	-0.1					<2.0%
NO (SIPROCESS UV600) – (0 to 50mg/m^3)	0.14					<2.0%
NO (ULTRAMAT 6) – (0 to 100mg/m^3)	0.2					<2.0%
NO (ULTRAMAT 23) – (0 to 150mg/m^3)	0.36					<2.0%
NO (ULTRAMAT 23) – (0 to 400mg/m^3)	-0.08					<2.0%
NO (ULTRAMAT 23) – (0 to 600mg/m^3)	0.1					<2.0%
NO (ULTRAMAT 6) – (0 to 1000mg/m^3)	-0.1					<2.0%
NO_2 (SIPROCESS UV600) – (0 to 50mg/m^3)	0.06					<2.0%
SO_2 (SIPROCESS UV600) – (0 to 75mg/m^3)	-0.23					<2.0%
SO_2 (ULTRAMAT 6) – (0 to 75mg/m^3)	0.0					<2.0%
SO_2 (ULTRAMAT 23) – (0 to 400mg/m^3)	-0.23					<2.0%
CO_2 (ULTRAMAT 23) - (0 to 25 Vol-%)	0.0					<2.0%
O_2 (ULTRAMAT 23) - (0 to 25 Vol-%)	0.02					<0.2%
O_2 (OXYMAT 6) - (0 to 25 Vol-%)	0.0					<0.2%
Influence of sample gas flow for extractive CEMS (reference)						
CO (ULTRAMAT 6) – (0 to 75mg/m^3)	-0.3					<2.0%
CO (ULTRAMAT 23) – (0 to 200mg/m^3)	-0.09					<2.0%
CO (ULTRAMAT 23) – (0 to 250mg/m^3)	-0.21					<2.0%
CO (ULTRAMAT 6) – (0 to 1000mg/m^3)	0.2					<2.0%
CO (ULTRAMAT 23) – (0 to 1250mg/m^3)	-0.2					<2.0%
NO (SIPROCESS UV600) – (0 to 50mg/m^3)	-0.47					<2.0%
NO (ULTRAMAT 6) – (0 to 100mg/m^3)	-0.2					<2.0%

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Test	Results expressed as % of the certification range				Other results	MCERTS specification
	<0.5	<1	<2	<5		
NO (ULTRAMAT 23) – (0 to 150mg/m^3)	0.44					<2.0%
NO (ULTRAMAT 23) – (0 to 400mg/m^3)		-0.7				<2.0%
NO (ULTRAMAT 23) – (0 to 600mg/m^3)	0.2					<2.0%
NO (ULTRAMAT 6) – (0 to 1000mg/m^3)	-0.1					<2.0%
NO_2 (SIPROCESS UV600) – (0 to 50mg/m^3)	-0.26					<2.0%
SO_2 (SIPROCESS UV600) – (0 to 75mg/m^3)		-0.61				<2.0%
SO_2 (ULTRAMAT 6) – (0 to 75 mg/m^3)	-0.3					<2.0%
SO_2 (ULTRAMAT 23) – (0 to 400mg/m^3)			-1.0			<2.0%
CO_2 (ULTRAMAT 23) - (0 to 25 Vol-%)	0.0					<2.0%
O_2 (ULTRAMAT 23) - (0 to 25 Vol-%)	0.0					<0.2%
O_2 (OXYMAT 6) - (0 to 25 Vol-%)	0.0					<0.2%
Influence of voltage variations (zero) (196V to 253V)						
CO (ULTRAMAT 6) – (0 to 75mg/m^3)	0.1					<2.0%
CO (ULTRAMAT 23) – (0 to 200mg/m^3)		-0.71				<2.0%
CO (ULTRAMAT 23) – (0 to 250mg/m^3)			-1.1			<2.0%
CO (ULTRAMAT 6) – (0 to 1000mg/m^3)	0.1					<2.0%
CO (ULTRAMAT 23) – (0 to 1250mg/m^3)	0.2					<2.0%
NO (SIPROCESS UV600) – (0 to 50mg/m^3)	0.44					<2.0%
NO (ULTRAMAT 6) – (0 to 100mg/m^3)	-0.4					<2.0%
NO (ULTRAMAT 23) – (0 to 150mg/m^3)			-1.21			<2.0%
NO (ULTRAMAT 23) – (0 to 400mg/m^3)		-0.7				<2.0%
NO (ULTRAMAT 23) – (0 to 600mg/m^3)	0.2					<2.0%
NO (ULTRAMAT 6) – (0 to 1000mg/m^3)		-0.6				<2.0%
NO_2 (SIPROCESS UV600) – (0 to 50mg/m^3)	0.15					<2.0%
SO_2 (SIPROCESS UV600) – (0 to 75mg/m^3)	-0.17					<2.0%
SO_2 (ULTRAMAT 6) – (0 to 75mg/m^3)			1.0			<2.0%
SO_2 (ULTRAMAT 23) – (0 to 400 mg/m^3)			-1.0			<2.0%

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Test	Results expressed as % of the certification range				Other results	MCERTS specification
	<0.5	<1	<2	<5		
CO_2 (ULTRAMAT 23) - (0 to 25 Vol-%)	-0.1					<2.0%
O_2 (ULTRAMAT 23) - (0 to 25 Vol-%)	-0.03					<0.2%
O_2 (OXYMAT 6) - (0 to 25 Vol-%)	-0.03					<0.2%
Influence of voltage variations (reference) (196V to 253V)						
CO (ULTRAMAT 6) – (0 to 75mg/m^3)	0.1					<2.0%
CO (ULTRAMAT 23) – (0 to 200mg/m^3)		-0.73				<2.0%
CO (ULTRAMAT 23) – (0 to 250mg/m^3)			-1.0			<2.0%
CO (ULTRAMAT 6) – (0 to 1000mg/m^3)	0.1					<2.0%
CO (ULTRAMAT 23) – (0 to 1250mg/m^3)	0.0					<2.0%
NO (SIPROCESS UV600) – (0 to 50mg/m^3)	-0.46					<2.0%
NO (ULTRAMAT 6) – (0 to 100mg/m^3)	0.4					<2.0%
NO (ULTRAMAT 23) – (0 to 150mg/m^3)			-1.83			<2.0%
NO (ULTRAMAT 23) – (0 to 400mg/m^3)			1.4			<2.0%
NO (ULTRAMAT 23) – (0 to 600mg/m^3)	0.2					<2.0%
NO (ULTRAMAT 6) – (0 to 1000mg/m^3)		-0.5				<2.0%
NO_2 (SIPROCESS UV600) – (0 to 50mg/m^3)		-0.81				<2.0%
SO_2 (SIPROCESS UV600) – (0 to 75mg/m^3)		0.6				<2.0%
SO_2 (ULTRAMAT 6) – (0 to 75mg/m^3)		0.8				<2.0%
SO_2 (ULTRAMAT 23) – (0 to 400mg/m^3)			1.2			<2.0%
CO_2 (ULTRAMAT 23) - (0 to 25 Vol-%)	0.1					<2.0%
O_2 (ULTRAMAT 23) - (0 to 25 Vol-%)	0.01					<0.2%
O_2 (OXYMAT 6) - (0 to 25 Vol-%)	0.05					<0.2%
Influence of vibration					No effect	To be reported
Cross-sensitivity at zero with interferents: O_2, H_2O, CO, CO_2, CH_4, N_2O, NO, NO_2, NH_3, SO_2, HCl						
CO (ULTRAMAT 6) – (0 to 75mg/m^3)		0.53				<4.0%
CO (ULTRAMAT 23) – (0 to 200mg/m^3)			1.60			<4.0%

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Test	Results expressed as % of the certification range				Other results	MCERTS specification
	<0.5	<1	<2	<5		
CO (ULTRAMAT 23) – (0 to 250mg/m^3)			1.50			<4.0%
CO (ULTRAMAT 6) – (0 to 1000mg/m^3)	0.23					<4.0%
CO (ULTRAMAT 23) – (0 to 1250mg/m^3)	-0.21					<4.0%
NO (SIPROCESS UV600) – (0 to 50mg/m^3)				2.42		<4.0%
NO (ULTRAMAT 6) – (0 to 100mg/m^3)				3.06		<4.0%
NO (ULTRAMAT 23) – (0 to 150mg/m^3)				-4.00		<4.0%
NO (ULTRAMAT 23) – (0 to 400mg/m^3)			1.40			<4.0%
NO (ULTRAMAT 23) – (0 to 600mg/m^3)			1.17			<4.0%
NO (ULTRAMAT 6) – (0 to 1000mg/m^3)	0.33					<4.0%
NO_2 (SIPROCESS UV600) – (0 to 50mg/m^3)				2.29		<4.0%
SO_2 (SIPROCESS UV600) – (0 to 75mg/m^3)				3.67		<4.0%
SO_2 (ULTRAMAT 6) – (0 to 75mg/m^3)				2.67		<4.0%
SO_2 (ULTRAMAT 23) – (0 to 400mg/m^3)				-2.00		<4.0%
CO_2 (ULTRAMAT 23) - (0 to 25 Vol-%)	0.0					<4.0%
O_2 (ULTRAMAT 23) - (0 to 25 Vol-%)	0.28					<0.4%
O_2 (OXYMAT 6) - (0 to 25 Vol-%)	0.24					<0.4%
Cross-sensitivity at reference with interferents: O_2, H_2O, CO, CO_2, CH_4, N_2O, NO, NO_2, NH_3, SO_2, HCl						
CO (ULTRAMAT 6) – (0 to 75mg/m^3)			1.33			<4.0%
CO (ULTRAMAT 23) – (0 to 200mg/m^3)			1.73			<4.0%
CO (ULTRAMAT 23) – (0 to 250mg/m^3)		0.8				<4.0%
CO (ULTRAMAT 6) – (0 to 1000mg/m^3)		0.86				<4.0%
CO (ULTRAMAT 23) – (0 to 1250mg/m^3)			-1.87			<4.0%
NO (SIPROCESS UV600) – (0 to 50mg/m^3)				3.35		<4.0%
NO (ULTRAMAT 6) – (0 to 100mg/m^3)				3.20		<4.0%
NO (ULTRAMAT 23) – (0 to 150mg/m^3)				3.33		<4.0%
NO (ULTRAMAT 23) – (0 to 400mg/m^3)				-3.00		<4.0%
NO (ULTRAMAT 23) – (0 to 600mg/m^3)				-2.84		<4.0%

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Test	Results expressed as % of the certification range				Other results	MCERTS specification
	<0.5	<1	<2	<5		
NO (ULTRAMAT 6) – (0 to 1000mg/m^3)				3.31		<4.0%
NO_2 (SIPROCESS UV600) – (0 to 50mg/m^3)				-3.69		<4.0%
SO_2 (SIPROCESS UV600) – (0 to 75mg/m^3)				-2.13		<4.0%
SO_2 (ULTRAMAT 6) – (0 to 75mg/m^3)				-3.73		<4.0%
SO_2 (ULTRAMAT 23) – (0 to 400mg/m^3)				3.00		<4.0%
CO_2 (ULTRAMAT 23) - (0 to 25 Vol-%)			-1.20			<4.0%
O_2 (ULTRAMAT 23) - (0 to 25 Vol-%)	0.32					<0.4%
O_2 (OXYMAT 6) - (0 to 25 Vol-%)	0.2					<0.4%
Convertor efficiency for NO_x					95.1%	>95%
Measurement uncertainty					Guidance - at least 25% below max permissible uncertainty	
CO (ULTRAMAT 6) – (For an ELV of 50mg/m^3)					6.5	<7.5% (10%)
CO (ULTRAMAT 23) – (For an ELV of 100mg/m^3)					6.4	<7.5% (10%)
CO (ULTRAMAT 6) – (For an ELV of 500mg/m^3)					7.1	<7.5% (10%)
CO (ULTRAMAT 23) – (For an ELV of 600mg/m^3)					6.9	<7.5% (10%)
NO_x (ULTRAMAT 23) – (For an ELV of 130.4mg/m^3)					14.5	<15% (20%)
NO (SIPROCESS UV600) – (For an ELV of 32.6mg/m^3)					9.7	<15% (20%)
NO (ULTRAMAT 6) – (For an ELV of 40mg/m^3)					14.7	<15% (20%)
NO (ULTRAMAT 23) – (For an ELV of 65.2mg/m^3)					14.0	<15% (20%)
NO (ULTRAMAT 23) – (For an ELV of 130.4mg/m^3)					14.8	<15% (20%)
NO (ULTRAMAT 23) – (For an ELV of 40mg/m^3)					13.8	<15% (20%)
NO_2 (SIPROCESS UV600) – (For an ELV of 50mg/m^3)					7.0	<15% (20%)
SO_2 (SIPROCESS UV600) – (For an ELV of 50mg/m^3)					11.5	<15% (20%)
SO_2 (ULTRAMAT 6) – (For an ELV of 40mg/m^3)					11.3	<15% (20%)

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Test	Results expressed as % of the certification range				Other results	MCERTS specification
	<0.5	<1	<2	<5		
SO_2 (ULTRAMAT 23) – (For an ELV of 200mg/m^3)					15.2	<15% (20%) Note 1
CO_2 (ULTRAMAT 23) - (For an ELV of 25Vol-%)					7.3	<7.5% (10%)
O_2 (ULTRAMAT 23) - (For an ELV of 25Vol-%)					2.1	<7.5% (10%)
O_2 (OXYMAT 6) - (For an ELV of 25Vol-%)					2.0	<7.5% (10%)
Calibration function (field)						
CO (ULTRAMAT 6) – (0 to 75mg/m^3)					0.96	>0.90
CO (ULTRAMAT 23) – (0 to 200mg/m^3)					0.97	>0.90
CO (ULTRAMAT 23) – (0 to 250mg/m^3)					0.99	>0.90
CO (ULTRAMAT 6) – (0 to 1000mg/m^3)					0.99	>0.90
CO (ULTRAMAT 23) – (0 to 1250mg/m^3)					0.99	>0.90
NO (SIPROCESS UV600) – (0 to 50mg/m^3)					0.94	>0.90
NO (ULTRAMAT 6) – (0 to 100mg/m^3)					0.99	>0.90
NO (ULTRAMAT 23) – (0 to 150mg/m^3)					0.95	>0.90
NO (ULTRAMAT 23) – (0 to 400mg/m^3)					0.72	>0.90 Note 2
NO (ULTRAMAT 23) – (0 to 600mg/m^3)					0.99	>0.90
NO (ULTRAMAT 6) – (0 to 1000mg/m^3)					0.99	>0.90
NO_2 (SIPROCESS UV600) – (0 to 50mg/m^3)					0.98	>0.90
SO_2 (SIPROCESS UV600) – (0 to 75mg/m^3)					0.95	>0.90
SO_2 (ULTRAMAT 6) – (0 to 75mg/m^3)					0.98	>0.90
SO_2 (ULTRAMAT 23) – (0 to 400mg/m^3)					0.99	>0.90
CO_2 (ULTRAMAT 23) - (0 to 25 Vol-%)					0.93	>0.90
O_2 (ULTRAMAT 23) - (0 to 25 Vol-%)					0.96	>0.90
O_2 (OXYMAT 6) - (0 to 25 Vol-%)					0.96	>0.90
Response time (field)						
CO (ULTRAMAT 6) – (0 to 75mg/m^3)					44s	<200s
CO (ULTRAMAT 23) – (0 to 200mg/m^3)					95s	<200s

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Test	Results expressed as % of the certification range				Other results	MCERTS specification
	<0.5	<1	<2	<5		
CO (ULTRAMAT 23) – (0 to 250mg/m^3)					65s	<200s
CO (ULTRAMAT 6) – (0 to 1000mg/m^3)					42s	<200s
CO (ULTRAMAT 23) – (0 to 1250mg/m^3)					47s	<200s
NO (SIPROCESS UV600) – (0 to 50mg/m^3)					48s	<200s
NO (ULTRAMAT 6) – (0 to 100mg/m^3)					45s	<200s
NO (ULTRAMAT 23) – (0 to 150mg/m^3)					85s	<200s
NO (ULTRAMAT 23) – (0 to 400mg/m^3)					67s	<200s
NO (ULTRAMAT 23) – (0 to 600mg/m^3)					51s	<200s
NO (ULTRAMAT 6) – (0 to 1000mg/m^3)					47s	<200s
NO_2 (SIPROCESS UV600) – (0 to 50mg/m^3)					78s	<200s
SO_2 (SIPROCESS UV600) – (0 to 75 mg/m^3)					85s	<200s
SO_2 (ULTRAMAT 6) – (0 to 75 mg/m^3)					57s	<200s
SO_2 (ULTRAMAT 23) – (0 to 400 mg/m^3)					188s	<200s
CO_2 (ULTRAMAT 23) - (0 to 25 Vol-%)					43s	<200s
O_2 (ULTRAMAT 23) - (0 to 25 Vol-%)					58s	<200s
O_2 (OXYMAT 6) - (0 to 25 Vol-%)					41s	<200s
Lack-of-fit (field)						
CO (ULTRAMAT 6) – (0 to 75mg/m^3)			1.60			<2.0%
CO (ULTRAMAT 23) – (0 to 200mg/m^3)		0.68				<2.0%
CO (ULTRAMAT 23) – (0 to 250mg/m^3)		-0.83				<2.0%
CO (ULTRAMAT 6) – (0 to 1000mg/m^3)			1.10			<2.0%
CO (ULTRAMAT 23) – (0 to 1250mg/m^3)			-1.44			<2.0%
NO (SIPROCESS UV600) – (0 to 50mg/m^3)		0.9				<2.0%
NO (ULTRAMAT 6) – (0 to 100mg/m^3)			-1.70			<2.0%
NO (ULTRAMAT 23) – (0 to 150mg/m^3)	0.23					<2.0%
NO (ULTRAMAT 23) – (0 to 400mg/m^3)		-0.62				<2.0%
NO (ULTRAMAT 23) – (0 to 600mg/m^3)			-1.67			<2.0%
NO (ULTRAMAT 6) – (0 to 1000mg/m^3)			1.00			<2.0%

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Test	Results expressed as % of the certification range				Other results	MCERTS specification
	<0.5	<1	<2	<5		
NO_2 (SIPROCESS UV600) – (0 to 50mg/m^3)			1.0			<2.0%
SO_2 (SIPROCESS UV600) – (0 to 75 mg/m^3)			1.0			<2.0%
SO_2 (ULTRAMAT 6) – (0 to 75 mg/m^3)			-1.87			<2.0%
SO_2 (ULTRAMAT 23) – (0 to 400 mg/m^3)		0.96				<2.0%
CO_2 (ULTRAMAT 23) - (0 to 25 Vol-%)			1.60			<2.0%
O_2 (ULTRAMAT 23) - (0 to 25 Vol-%)	0.10					<0.2%
O_2 (OXYMAT 6) - (0 to 25 Vol-%)	-0.15					<0.2%
Maintenance interval					See Note 3	>8 days
Zero and Span drift requirement	The AMS has a means of automatic checking and as necessary readjustment of the zero point. The deviations are recorded; a status signal is set should the level exceed the permissible limit. The deviations in the indicative drift test in the laboratory were within the permissible tolerance limits.					Clause 6.13 & 10.13 Manufacturer shall provide a description of the technique to determine and compensate for zero and span drift.
Change in zero point over maintenance interval						
CO (ULTRAMAT 6) – (0 to 75mg/m^3)			-1.5			<3.0%
CO (ULTRAMAT 23) – (0 to 200mg/m^3)			1.0			<3.0%
CO (ULTRAMAT 23) – (0 to 250mg/m^3)			1.7			<3.0%
CO (ULTRAMAT 6) – (0 to 1000mg/m^3)		0.6				<3.0%
CO (ULTRAMAT 23) – (0 to 1250mg/m^3)		0.5				<3.0%
NO (SIPROCESS UV600) – (0 to 50mg/m^3)				3.0		<3.0%
NO (ULTRAMAT 6) – (0 to 100mg/m^3)				2.4		<3.0%
NO (ULTRAMAT 23) – (0 to 150mg/m^3)		0.9				<3.0%
NO (ULTRAMAT 23) – (0 to 400mg/m^3)			1.4			<3.0%
NO (ULTRAMAT 23) – (0 to 600mg/m^3)			1.1			<3.0%
NO (ULTRAMAT 6) – (0 to 1000mg/m^3)			1.0			<3.0%
NO_2 (SIPROCESS UV600) – (0 to 50mg/m^3)				2.1		<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 (SIPROCESS UV600) – (0 to 75 mg/m^3)				-2.8		<3.0%
SO_2 (ULTRAMAT 6) – (0 to 75 mg/m^3)				2.2		<3.0%
SO_2 (ULTRAMAT 23) – (0 to 400 mg/m^3)				-2.9		<3.0%
CO_2 (ULTRAMAT 23) - (0 to 25 Vol-%)				-2.0		<3.0%
O_2 (ULTRAMAT 23) - (0 to 25 Vol-%)	-0.09					<0.2%
O_2 (OXYMAT 6) - (0 to 25 Vol-%)	-0.06					<0.2%
Change in reference point over maintenance interval						
CO (ULTRAMAT 6) – (0 to 75mg/m^3)			1.0			<3.0%
CO (ULTRAMAT 23) – (0 to 200mg/m^3)			1.1			<3.0%
CO (ULTRAMAT 23) – (0 to 250mg/m^3)				2.1		<3.0%
CO (ULTRAMAT 6) – (0 to 1000mg/m^3)				-2.3		<3.0%
CO (ULTRAMAT 23) – (0 to 1250mg/m^3)			1.1			<3.0%
NO (SIPROCESS UV600) – (0 to 50mg/m^3)				-2.4		<3.0%
NO (ULTRAMAT 6) – (0 to 100mg/m^3)			1.3			<3.0%
NO (ULTRAMAT 23) – (0 to 150mg/m^3)				2.6		<3.0%
NO (ULTRAMAT 23) – (0 to 400mg/m^3)			1.4			<3.0%
NO (ULTRAMAT 23) – (0 to 600mg/m^3)			1.9			<3.0%
NO (ULTRAMAT 6) – (0 to 1000mg/m^3)			1.9			<3.0%
NO_2 (SIPROCESS UV600) – (0 to 50mg/m^3)				-2.8		<3.0%
SO_2 (SIPROCESS UV600) – (0 to 75mg/m^3)				-2.9		<3.0%
SO_2 (ULTRAMAT 6) – (0 to 75mg/m^3)				2.3		<3.0%
SO_2 (ULTRAMAT 23) – (0 to 400mg/m^3)				<3.0		<3.0%
CO_2 (ULTRAMAT 23) - (0 to 25 Vol-%)			-1.8			<3.0%
O_2 (ULTRAMAT 23) - (0 to 25 Vol-%)	-0.12					<0.2%
O_2 (OXYMAT 6) - (0 to 25 Vol-%)	-0.14					<0.2%
Availability SIPROCESS UV600					96.2%	>95%

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Test	Results expressed as % of the certification range				Other results	MCERTS specification
	<0.5	<1	<2	<5		
ULTRAMAT 23					97.7%	>95%
ULTRAMAT 6					99.2%	>95%
OXYMAT 6					99.2%	>95%
Reproducibility						
CO (ULTRAMAT 6) – (0 to 75mg/m^3)			1.60			<3.3%
CO (ULTRAMAT 23) – (0 to 200mg/m^3)		0.58				<3.3%
CO (ULTRAMAT 23) – (0 to 250mg/m^3)			1.30			<3.3%
CO (ULTRAMAT 6) – (0 to 1000mg/m^3)	0.4					<3.3%
CO (ULTRAMAT 23) – (0 to 1250mg/m^3)	0.3					<3.3%
NO_x (ULTRAMAT 23) – (0 to 400mg/m^3)		0.5				<3.3%
NO (SIPROCESS UV600) – (0 to 50mg/m^3)			1.40			<3.3%
NO (ULTRAMAT 6) – (0 to 100mg/m^3)			1.2			<3.3%
NO (ULTRAMAT 23) – (0 to 150mg/m^3)		0.81				<3.3%
NO (ULTRAMAT 23) – (0 to 400mg/m^3)		0.90				<3.3%
NO (ULTRAMAT 23) – (0 to 600mg/m^3)	0.4					<3.3%
NO (ULTRAMAT 6) – (0 to 1000mg/m^3)			1.2			<3.3%
NO_2 (SIPROCESS UV600) – (0 to 50mg/m^3)			1.5			<3.3%
SO_2 (SIPROCESS UV600) – (0 to 75 mg/m^3)			1.5			<3.3%
SO_2 (ULTRAMAT 6) – (0 to 75mg/m^3)				2.8		<3.3%
SO_2 (ULTRAMAT 23) – (0 to 400 mg/m^3)			1.2			<3.3%
CO_2 (ULTRAMAT 23) - (0 to 25 Vol-%)		0.6				<3.3%
O_2 (ULTRAMAT 23) - (0 to 25 Vol-%)	0.08					<0.2%
O_2 (OXYMAT 6) - (0 to 25 Vol-%)	0.16					<0.2%

Note 1: The measurement uncertainty result for SO_2 (ULTRAMAT 23) – (For an ELV of 200 mg/m^3) meet the requirements of EN14181, but not all the recommendations of EN15267-3.

Note 2: The lowest calibration function/R^2 value is at 0.72 is due to relatively low values and clustered results; however, the CEMS pass the EN14181 criteria for the variability test.

Note 3: The maintenance interval is two weeks for the SIPROCESS UV600 analyser, four weeks for the ULTRAMAT 23 (7MB2355 & 7MB2357), 20 days for SO_2 in the ULTRAMAT 23 (7MB2358) and 3 months for all other measuring components.

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Description

SET CEM Cert is a modular, multi-component continuous emission monitoring system for flue gases. The sample gas is taken from the gas duct by use of a gas sampling and led to the measuring system via a heated sample gas line.

Subsequent analysis of the gas concentrations is carried out by individual gas analyser modules according to desired measuring component and measuring range.
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The tested SET CEM Cert system comprised the following analysers:

- ULTRAMAT 23 – 7MB2355 for 1 measuring component out of 3 (CO, NO, SO_2)
- ULTRAMAT 23 – 7MB2357 for 2 measuring components out of 3 (CO, NO, SO_2)
- ULTRAMAT 23 – 7MB2358 for 3 measuring components (CO, NO, SO_2)
- ULTRAMAT 23 – 7MB235x –Z –T13 (x=5, 7, 8) including paramagnetic O_2 measurement
- ULTRAMAT 23 – 7MB235x –Z –T23 (x=5, 7, 8) including electrochemical. O_2 measurement
- SIPROCESS UV600 for NO, NO_2, and SO_2 measurement
- ULTRAMAT 6 for 1 measuring component out of 3 (CO, NO, SO_2)
- OXYMAT 6 for O_2 measurement
- ULTRAMAT OXYMAT 6 for measuring O_2 and 1 component out of 3 (CO, NO SO_2)

Additional measuring ranges:

Component	Analyser	Certification range	Additional Ranges		Unit
CO	ULTRAMAT 23-7MB2355 ULTRAMAT 23-7MB2357	0 – 200 0 – 1250	0 – 1250 0 - 6000	- -	mg/m³
	ULTRAMAT 23-7MB2358	0 – 250	0 – 1250	-	mg/m³
	ULTRAMAT 6	0 – 75 0 - 1000	0 - 1250 0 – 10,000	0 - 3000 -	mg/m³
	ULTRAMAT/OXYMAT 6	0 – 75 0 - 1000	0 – 1250 0 – 10,000	- -	mg/m³
NO_x	ULTRAMAT 23-7MB2355	0 – 150 [1] 0 – 230 [2]	0 – 750 [1] 0 – 1150 [2]	0 – 2000 [1] 0 – 3067 [2]	mg/m³
	ULTRAMAT 23-7MB2357	0 – 150 [1] 0 – 230 [2]	0 – 400 [1] 0 – 613 [2]	0 – 2000 [1] 0 – 3067 [2]	mg/m³
	ULTRAMAT 23-7MB2358	0 – 400 [1] 0 – 613 [2]	0 – 2000 [1] 0 – 3067 [2]	- -	mg/m³
NO	SIPROCESS UV600	0 – 50	0 – 200	0 – 2000	mg/m³
	ULTRAMAT 23-7MB2355 ULTRAMAT 23-7MB2357	0 - 600	0 - 3000	-	mg/m³
	ULTRAMAT 6	0 – 100 0 – 1000	0 – 2000 0 – 10,000	-	mg/m³
	ULTRAMAT/OXYMAT 6	0 – 100 0 – 1000	0 – 2000 0 – 10,000	-	mg/m³
NO_2	SIPROCESS UV600	0 – 50	0 – 500	-	mg/m³
SO_2	ULTRAMAT 23-7MB235x [3]	0 – 400	0 – 2000	0 – 7000	mg/m³
	SIPROCESS UV600	0 – 75	0 – 130	0 – 2000	mg/m³
	ULTRAMAT 6	0 - 75	0 - 1500	-	mg/m³
	ULTRAMAT/OXYMAT 6	0 - 75	0 - 1500	-	mg/m³
CO_2	ULTRAMAT 23-7MB2355 ULTRAMAT 23-7MB2357	0 - 25	-	-	mg/m³
O_2 paramagnetic	ULTRAMAT 23-7MB235x – Z – T13 [3]	0 – 25	-	-	Vol.-%
	OXYMAT 6	0 – 25	0 – 5	-	Vol.-%
	ULTRAMAT/OXYMAT 6	0 – 25	0 – 5	-	Vol.-%
O_2 electro chem.	ULTRAMAT 23-7MB235x – Z – T23 [3]	0 – 25	0 – 5	-	Vol.-%

[1] denoted as NO
[2] denoted NO_2
[3] 7MB235x = 7MB2355, 7MB2357, 7MB2358

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 V00 for certificate No. Sira MC160288/001
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.