

# PRODUCT CONFORMITY CERTIFICATE

This is to certify that the

## ***MCA 10 Multi Component Analyser***

Manufactured by:

### ***Dr. Födisch Umweltmesstechnik AG***

Zwenkauer Straße 159  
D-04420 Markranstädt  
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 (CEMS), Version 4 dated July 2018  
EN15267-3:2007,  
& QAL 1 as defined in EN 14181: 2014**

#### Certification Ranges :

CO	0 to 75 mg/m <sup>3</sup>	0 to 300 mg/m <sup>3</sup>	0 to 5000 mg/m <sup>3</sup>	
NO	0 to 80 mg/m <sup>3</sup>	0 to 200 mg/m <sup>3</sup>	0 to 400 mg/m <sup>3</sup>	0 to 3000 mg/m <sup>3</sup>
NO <sub>2</sub>	0 to 50 mg/m <sup>3</sup>	0 to 500 mg/m <sup>3</sup>	-	
N <sub>2</sub> O	0 to 50 mg/m <sup>3</sup>	0 to 3000 mg/m <sup>3</sup>	-	
SO <sub>2</sub>	0 to 75 mg/m <sup>3</sup>	0 to 300 mg/m <sup>3</sup>	0 to 2500 mg/m <sup>3</sup>	
HCl	0 to 15 mg/m <sup>3</sup>	0 to 90 mg/m <sup>3</sup>	0 to 5000 mg/m <sup>3</sup>	
NH <sub>3</sub>	0 to 10 mg/m <sup>3</sup>	0 to 50 mg/m <sup>3</sup>	0 to 500 mg/m <sup>3</sup>	
CH <sub>4</sub>	0 to 50 mg/m <sup>3</sup>	0 to 500 mg/m <sup>3</sup>	-	
HF	-	0 to 20 mg/m <sup>3</sup>	-	
CO <sub>2</sub>	0 to 25 %vol.	0 to 50 %vol.	-	
O <sub>2</sub>	0 to 25 %vol.	-	-	
H <sub>2</sub> O	0 to 40 %vol.	-	-	
TOC	0 to 15 mg/m <sup>3</sup>	0 to 30 mg/m <sup>3</sup>		

Project No. : 70007737  
Certificate No : Sira MC140256/04  
Initial Certification : 19 September 2014  
This Certificate issued : 29 May 2019  
Renewal Date : 18 September 2019

Emily Alexander  
Environmental Project Engineer

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



*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)*

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 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.

The field test was conducted from November 2013 to May 2014 and November 2016 to November 2017 in the clean gas of a waste incineration plant.

## 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:

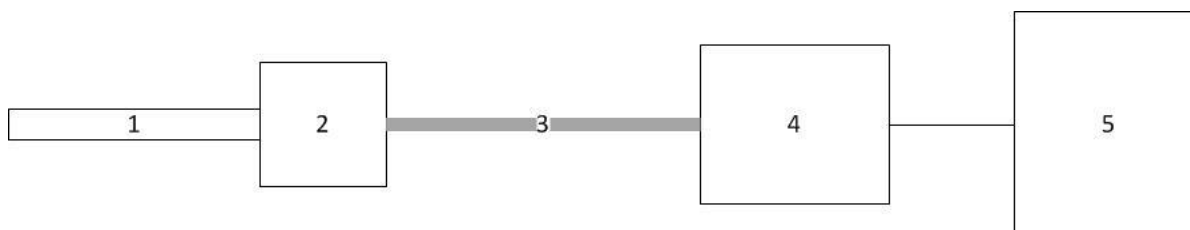
TÜV SUD Report Number 1729865 dated August 2014  
TÜV SUD Report Number 1729865 dated August 2014 V1.0  
TÜV SUD Report Number 1729865 dated April 2015  
TÜV SUD Report Number 2600495 dated November 2017

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## Product Certified

The MCA 10 measuring system consists of the following parts:



1. Sample Probe	2. Heated Filter	3. Heated Sample Line	4. Gas Conditioning	5. Analyser
Model: Dr. Födisch AG ETL 8211 sampling tube	Model: M&C products SP- 2000 sampling probe	Model: Winkler PTFE inner core at 200°C	Model: n.a. (since it is an internal part of the MCA 10 (item 5))	Model: Dr. Födisch AG MCA 10

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 V 3.61|3.61|3.61 (serial number 12002 (MCA) & 1213613 (FID) 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  
Instrument IP rating: IP54

Note: The requirement for the protection class of the enclosure is not fulfilled. The measuring system needs to be installed with an IP65 enclosure to meet the requirements of EN 15267-3. 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. The instrument must be installed in locations protected from precipitation.

Note: If temperatures at the site are below 20°C the measuring cabinet shall be fitted with supplementary heating.

Results are expressed as error % certification range, CO 0 to 75 mg/m<sup>3</sup>, CO<sub>2</sub> 0 to 25 %<sup>vol.</sup>, NO 0 to 200 mg/m<sup>3</sup>, NO<sub>2</sub> 0 to 50 mg/m<sup>3</sup>, N<sub>2</sub>O 0 to 50 mg/m<sup>3</sup>, NH<sub>3</sub> 0 to 10 mg/m<sup>3</sup>, SO<sub>2</sub> 0 to 75 mg/m<sup>3</sup>, HCl 0 to 15 mg/m<sup>3</sup>, H<sub>2</sub>O 0 to 40 %<sup>vol.</sup>, CH<sub>4</sub> 0 to 50 mg/m<sup>3</sup>, TOC 0 to 15 mg/m<sup>3</sup>, O<sub>2</sub> 0 to 25 %<sup>vol.</sup> & HF 0 to 20 mg/m<sup>3</sup> 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 75 mg/m <sup>3</sup> )					182s	<200s
CO (0 to 300 mg/m <sup>3</sup> )					190s	<200s
CO (0 to 5000 mg/m <sup>3</sup> )					199s	<200s
NO (0 to 80 mg/m <sup>3</sup> )					199s	<200s
NO (0 to 400 mg/m <sup>3</sup> )					182s	<200s
NO (0 to 3000 mg/m <sup>3</sup> )					191s	<200s
NO <sub>2</sub> (0 to 50 mg/m <sup>3</sup> )					185s	<200s
NO <sub>2</sub> (0 to 500 mg/m <sup>3</sup> )					189s	<200s
N <sub>2</sub> O (0 to 50 mg/m <sup>3</sup> )					176s	<200s
N <sub>2</sub> O (0 to 3000 mg/m <sup>3</sup> )					190s	<200s
SO <sub>2</sub> (0 to 75 mg/m <sup>3</sup> )					191s	<200s
SO <sub>2</sub> (0 to 300 mg/m <sup>3</sup> )					180s	<200s
SO <sub>2</sub> (0 to 2500 mg/m <sup>3</sup> )					199s	<200s
HCl (0 to 15 mg/m <sup>3</sup> )					209s	<400s
HCl (0 to 90 mg/m <sup>3</sup> )					260s	<400s
HCl (0 to 5000 mg/m <sup>3</sup> )					209s	<400s
NH <sub>3</sub> (0 to 10 mg/m <sup>3</sup> )					190s	<400s
NH <sub>3</sub> (0 to 50 mg/m <sup>3</sup> )					187s	<400s

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Test	Results expressed as % of the certification range				Other results	MCERTS specification
	<0.5	<1	<2	<5		
NH <sub>3</sub> (0 to 500 mg/m <sup>3</sup> )					192s	<400s
CH <sub>4</sub> (0 to 50 mg/m <sup>3</sup> )					184s	<200s
CH <sub>4</sub> (0 to 500 mg/m <sup>3</sup> )					196s	<200s
TOC (0 to 15 mg/m <sup>3</sup> )					12s	<200s
TOC (0 to 30 mg/m <sup>3</sup> )					12s	<200s
CO <sub>2</sub> (0 to 25 %vol.)					189s	<200s
CO <sub>2</sub> (0 to 50 %vol.)					197s	<200s
O <sub>2</sub> (0 to 25 %vol.)					185s	<200s
H <sub>2</sub> O (0 to 40 %vol.)					199s	<200s
HF (0 to 20 mg/m <sup>3</sup> )					293s	<400s
Repeatability standard deviation at zero point						
CO	0.03					<2.0%
NO	0.1					<2.0%
NO <sub>2</sub>	0.0					<2.0%
N <sub>2</sub> O	0.3					<2.0%
SO <sub>2</sub>	0.0					<2.0%
HCl	0.1					<2.0%
NH <sub>3</sub>	0.06					<2.0%
CH <sub>4</sub>	0.11					<2.0%
C <sub>n</sub> H <sub>m</sub>	0.2					<2.0%
TOC	0.17					<2.0%
CO <sub>2</sub>	0.02					<2.0%
O <sub>2</sub>	0.0					<0.2%
H <sub>2</sub> O	0.0					<2.0%
HF (0 to 5mg/m <sup>3</sup> )	0.48					<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						
CO	0.13					<2.0%
NO	0.22					<2.0%
NO <sub>2</sub>	0.05					<2.0%
N <sub>2</sub> O	0.09					<2.0%
HCl	0.06					<2.0%
NH <sub>3</sub>	0.03					<2.0%
CH <sub>4</sub>	0.06					<2.0%
TOC	0.02					<2.0%
CO <sub>2</sub>	0.01					<2.0%
O <sub>2</sub>	0.04					<0.2%
H <sub>2</sub> O	0.12					<2.0%
HF (0 to 5mg/m <sup>3</sup> )	0.02					<2.0%
Lack-of-fit						
CO (0 to 75 mg/m <sup>3</sup> )	0.30					<2.0%
CO (0 to 300 mg/m <sup>3</sup> )			1.1			<2.0%
CO (0 to 5000 mg/m <sup>3</sup> )		-0.79				<2.0%
NO (0 to 80 mg/m <sup>3</sup> )	1.33					<2.0%
NO (0 to 400 mg/m <sup>3</sup> )		-0.61				<2.0%
NO (0 to 3000 mg/m <sup>3</sup> )	0.49					<2.0%
NO <sub>2</sub> (0 to 50 mg/m <sup>3</sup> )			1.31			<2.0%
NO <sub>2</sub> (0 to 500 mg/m <sup>3</sup> )		-0.78				<2.0%
N <sub>2</sub> O (0 to 50 mg/m <sup>3</sup> )		-0.67				<2.0%
N <sub>2</sub> O (0 to 3000 mg/m <sup>3</sup> )	0.44					<2.0%
SO <sub>2</sub> (0 to 75 mg/m <sup>3</sup> )		0.62				<2.0%
SO <sub>2</sub> (0 to 300 mg/m <sup>3</sup> )	-0.21					<2.0%
SO <sub>2</sub> (0 to 2500 mg/m <sup>3</sup> )		0.53				<2.0%
HCl (0 to 15 mg/m <sup>3</sup> )				-2.0		<2.0%

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Test	Results expressed as % of the certification range				Other results	MCERTS specification
	<0.5	<1	<2	<5		
HCl (0 to 90 mg/m <sup>3</sup> )		0.99				<2.0%
HCl (0 to 5000 mg/m <sup>3</sup> )		0.85				<2.0%
NH <sub>3</sub> (0 to 10 mg/m <sup>3</sup> )			-1.6			<2.0%
NH <sub>3</sub> (0 to 50 mg/m <sup>3</sup> )		-0.64				<2.0%
NH <sub>3</sub> (0 to 500 mg/m <sup>3</sup> )			-1.1			<2.0%
CH <sub>4</sub> (0 to 50 mg/m <sup>3</sup> )		-0.97				<2.0%
CH <sub>4</sub> (0 to 500 mg/m <sup>3</sup> )	-0.26					<2.0%
TOC (0 to 15 mg/m <sup>3</sup> )		0.72				<2.0%
TOC (0 to 30 mg/m <sup>3</sup> )			1.1			<2.0%
CO <sub>2</sub> (0 to 25 %vol.)		0.99				<2.0%
CO <sub>2</sub> (0 to 50 %vol.)		0.93				<2.0%
O <sub>2</sub> (0 to 25 %vol.)	0.08					<0.2%
H <sub>2</sub> O (0 to 40 %vol.)		-0.68				<2.0%
HF (0 to 20 mg/m <sup>3</sup> )	-1.59					<2.0%
Influence of ambient temperature zero point						
CO	0.2					<5.0%
NO	-0.8					<5.0%
NO <sub>2</sub>	0.0					<5.0%
N <sub>2</sub> O	-0.1					<5.0%
SO <sub>2</sub>		0.6				<5.0%
HCl		0.7				<5.0%
NH <sub>3</sub>			1.4			<5.0%
CH <sub>4</sub>			-1.0			<5.0%
TOC			1.2			<5.0%
CO <sub>2</sub>	-0.2					<5.0%
O <sub>2</sub>	0.1					<0.50%
H <sub>2</sub> O	0.0					<5.0%
HF (0 to 5mg/m <sup>3</sup> )			1.2			<5.0%

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Test	Results expressed as % of the certification range				Other results	MCERTS specification
	<0.5	<1	<2	<5		
Influence of ambient temperature reference point						
CO			1.4			<5.0%
NO				-2.5		<5.0%
NO <sub>2</sub>			1.6			<5.0%
N <sub>2</sub> O				-2.0		<5.0%
SO <sub>2</sub>				2.0		<5.0%
HCl			-1.9			<5.0%
NH <sub>3</sub>				2.1		<5.0%
CH <sub>4</sub>			-1.1			<5.0%
TOC			-1.3			<5.0%
CO <sub>2</sub>		-0.6				<5.0%
O <sub>2</sub>	-0.03					<0.50%
H <sub>2</sub> O		0.8				<5.0%
HF (0 to 5mg/m <sup>3</sup> )			1.8			<5.0%
Influence of sample gas flow for extractive CEMS						
CO			1.8			<2.0%
NO			-1.3			<2.0%
NO <sub>2</sub>			-1.8			<2.0%
N <sub>2</sub> O			-1.4			<2.0%
SO <sub>2</sub>		-0.98				<2.0%
HCl		0.67				<2.0%
NH <sub>3</sub>		-0.98				<2.0%
CH <sub>4</sub>	-0.44					<2.0%
TOC	0.25					<2.0%
CO <sub>2</sub>	0.13					<2.0%
O <sub>2</sub>	0.14					<0.2%
H <sub>2</sub> O		0.96				<2.0%
HF (0 to 5mg/m <sup>3</sup> )		-0.92				<2.0%

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Test	Results expressed as % of the certification range				Other results	MCERTS specification
	<0.5	<1	<2	<5		
Influence of voltage variations 190 to 250V						
CO		0.52				<2.0%
NO		0.58				<2.0%
NO <sub>2</sub>		0.96				<2.0%
N <sub>2</sub> O		0.64				<2.0%
SO <sub>2</sub>	0.16					<2.0%
HCl			-1.2			<2.0%
NH <sub>3</sub>			1.9			<2.0%
CH <sub>4</sub>			1.01			<2.0%
TOC		-0.79				<2.0%
CO <sub>2</sub>	0.06					<2.0%
O <sub>2</sub>	0.02					<0.2%
H <sub>2</sub> O	0.27					<2.0%
HF (0 to 5mg/m <sup>3</sup> )	0.33					<2.0%
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					<4.0%
NO	<0.4					<4.0%
NO <sub>2</sub>		0.75				<4.0%
N <sub>2</sub> O	0.0					<4.0%
SO <sub>2</sub>	0.0					<4.0%
HCl		-0.62				<4.0%
NH <sub>3</sub>	0.0					<4.0%
CH <sub>4</sub>	0.0					<4.0%
TOC				2.5		<4.0%
CO <sub>2</sub>	0.0					<4.0%
O <sub>2</sub>	0.0					<0.40%
H <sub>2</sub> O	0.0					<4.0%
HF (0 to 5mg/m <sup>3</sup> )				2.92		<4.0%

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Test	Results expressed as % of the certification range				Other results	MCERTS specification
	<0.5	<1	<2	<5		
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						
CO		-0.52				<4.0%
NO				-2.23		<4.0%
NO <sub>2</sub>			1.0			<4.0%
N <sub>2</sub> O			1.3			<4.0%
SO <sub>2</sub>			1.2			<4.0%
HCl				2.7		<4.0%
NH <sub>3</sub>				-2.0		<4.0%
CH <sub>4</sub>			1.8			<4.0%
TOC				2.7		<4.0%
CO <sub>2</sub>			-1.3			<4.0%
O <sub>2</sub>	0.20					<0.40%
H <sub>2</sub> O	0.0					<4.0%
HF (0 to 5mg/m <sup>3</sup> )				3.6		<4.0%
Effect of oxygen for TOC			1.8			<2.0%
Response factors for TOC						
Methane					1.0	0.9 to 1.2
Aliphatic hydrocarbons					1.04 to 1.1	0.9 to 1.1
Aromatic hydrocarbons					0.84 to 1.08	0.8 to 1.1
Dichloromethane					1.09	0.75 to 1.15
Aliphatic alcohols					0.90 to 1.04	0.7 to 1.0
Esters and ketones					0.94 to 0.99	0.7 to 1.0
Organic acids					0.75 to 0.77	0.5 to 1.0
Test gas mixture					13.6%	<15%

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Test	Results expressed as % of the certification range				Other results	MCERTS specification
	<0.5	<1	<2	<5		
Measurement uncertainty					Guidance - at least 25% below max permissible uncertainty	
CO (For an ELV of 50 mg/m <sup>3</sup> )					6.6%	<7.5% (10%)
NO (For an ELV of 32.7 mg/m <sup>3</sup> )					13.7%	<15% (20%)
NO <sub>2</sub> (For an ELV of 130 mg/m <sup>3</sup> )					5.6%	<15% (20%)
N <sub>2</sub> O (For an ELV of 50 mg/m <sup>3</sup> )					5.2%	<15% (20%)
SO <sub>2</sub> (For an ELV of 50 mg/m <sup>3</sup> )					7.7%	<30% (40%)
HCl (For an ELV of 10 mg/m <sup>3</sup> )					12.8%	<30% (40%)
NH <sub>3</sub> (For an ELV of 5 mg/m <sup>3</sup> )					14.2%	<30% (40%)
CH <sub>4</sub> (For an ELV of 50 mg/m <sup>3</sup> )					5.6%	<22.5% (30%)
TOC (For an ELV of 10 mg/m <sup>3</sup> )					9.8%	<22.5% (30%)
					Note 2	
CO <sub>2</sub> (For an ELV of 25 %vol.)					2.9%	<7.5% (10%)
O <sub>2</sub> (For an ELV of 25 %vol.)					1.7%	<7.5% (10%)
H <sub>2</sub> O (For an ELV of 25 %vol.)					3.8%	<22.5% (30%)
HF (For and ELV of 10 mg/m <sup>3</sup> )					10.6%	<30% (40%)
Calibration function (field)						
CO					0.988-0.996	>0.90
NO					0.961-0.999	>0.90
NO <sub>2</sub>					0.973-0.997	>0.90
N <sub>2</sub> O					0.997-0.998	>0.90
SO <sub>2</sub>					0.988-0.997	>0.90
HCl					0.975-0.993	>0.90
NH <sub>3</sub>					0.961-0.984	>0.90
CH <sub>4</sub>					0.998	>0.90
TOC					0.996-0.999	>0.90
CO <sub>2</sub>					0.996-0.999	>0.90
O <sub>2</sub>					0.963-0.986	>0.90
H <sub>2</sub> O					0.959-0.977	>0.90
HF					0.954-0.991	>0.90

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Test	Results expressed as % of the certification range				Other results	MCERTS specification
	<0.5	<1	<2	<5		
Response time (field)						
CO					174s	<200s
NO					178s	<200s
NO <sub>2</sub>					199s	<200s
N <sub>2</sub> O					190s	<200s
SO <sub>2</sub>					194s	<200s
HCl					352s	<400s
NH <sub>3</sub>					395s	<400s
CH <sub>4</sub>					197s	<200s
TOC					43s	<200s
CO <sub>2</sub>					175s	<200s
O <sub>2</sub>					195s	<200s
H <sub>2</sub> O					189s	<200s
HF (0 to 5 mg/m <sup>3</sup> )					286	<400s
Lack of fit (field)						
CO	0.46					<2.0%
NO			-1.44			<2.0%
NO <sub>2</sub>			-1.83			<2.0%
N <sub>2</sub> O		-0.98				<2.0%
SO <sub>2</sub>			-1.4			<2.0%
HCl			-1.91			<2.0%
NH <sub>3</sub>			-1.92			<2.0%
CH <sub>4</sub>		0.69				<2.0%
TOC		0.81				<2.0%
CO <sub>2</sub>			-1.23			<2.0%
O <sub>2</sub>	-0.09					<0.2%
H <sub>2</sub> O		0.58				<2.0%
HF (0 to 5 mg/m <sup>3</sup> )				2.0		<2.0%

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Test	Results expressed as % of the certification range				Other results	MCERTS specification
	<0.5	<1	<2	<5		
Maintenance interval					6 months Note 1	>8 days
Zero and Span drift requirement	<p>The AMS has a feature for automatic checking and if necessary correction of the zero point in the measurement channels for CO, NO, NO<sub>2</sub>, N<sub>2</sub>O, SO<sub>2</sub>, HCl, HF, NH<sub>3</sub>, CH<sub>4</sub>, CO<sub>2</sub> and H<sub>2</sub>O and the span point for O<sub>2</sub>. The TOC system has a feature for automatic checking and if necessary correction of the zero point and span point.</p> <p>Should the maximum permissible drift be exceeded during automatic zero or span point adjustment, the applicable status signal for all components (including TOC) is displayed. The deviations are recorded, a status is set if permissible limits are exceeded.</p> <p>Note 2</p>					<p>Clause 6.13 &amp; 10.13</p> <p>Manufacturer shall provide a description of the technique to determine and compensate for zero and span drift.</p>
Change in zero point over maintenance interval						
CO		0.62				<3.0%
NO			1.6			<3.0%
NO <sub>2</sub>	0.06					<3.0%
N <sub>2</sub> O	-0.19					<3.0%
SO <sub>2</sub>	0.37					<3.0%
HCl			1.7			<3.0%
NH <sub>3</sub>	0.44					<3.0%
CH <sub>4</sub>				-2.3		<3.0%
TOC				-2.8		<3.0%
CO <sub>2</sub>	-0.25					<3.0%
O <sub>2</sub>	0.02					<0.2%
H <sub>2</sub> O	-0.06					<3.0%
HF (0 to 5 mg/m <sup>3</sup> )				2.4		<3.0%
HF (0 to 20 mg/m <sup>3</sup> )		0.59				<3.0%

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Test	Results expressed as % of the certification range				Other results	MCERTS specification
	<0.5	<1	<2	<5		
Change in reference point over maintenance interval						
CO				-2.1		<3.0%
NO			-1.6			<3.0%
NO <sub>2</sub>				-2.9		<3.0%
N <sub>2</sub> O				-3.0		<3.0%
SO <sub>2</sub>				2.4		<3.0%
HCl				2.9		<3.0%
NH <sub>3</sub>				3.0		<3.0%
CH <sub>4</sub>				-3.0		<3.0%
TOC				-2.6		<3.0%
CO <sub>2</sub>		0.75				<3.0%
O <sub>2</sub>	0.06					<0.2%
H <sub>2</sub> O				-2.3		<3.0%
HF			1.2			<3.0%
Availability						
Oxygen					>98.6%	>98%
All other parameter					95.4%	>95%
Reproducibility						
CO		0.9				<3.3%
NO			1.6			<3.3%
NO <sub>2</sub>			1.2			<3.3%
N <sub>2</sub> O	0.4					<3.3%
SO <sub>2</sub>				2.4		<3.3%
HCl				2.8		<3.3%
NH <sub>3</sub>				2.3		<3.3%
CH <sub>4</sub>			1.3			<3.3%
TOC			1.7			<3.3%
CO <sub>2</sub>	0.20					<3.3%
O <sub>2</sub>	0.15					<0.20%

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Test	Results expressed as % of the certification range				Other results	MCERTS specification
	<0.5	<1	<2	<5		
H <sub>2</sub> O	0.30					<3.3%
HF				2.4		<3.3%

Note 1: The measuring device shall operate at intervals of 12 hours for the automatic zero adjustment. TOC automatically adjusts for zero and span at an interval of 24 hours.

Note 2: For applications with NO<sub>2</sub>, HCl, HF or NH<sub>3</sub>, the automatic zero point adjustment is carried out by local zero gas at the injector block. For control and adjustment of the reference points for NO<sub>2</sub>, HCl, HF and NH<sub>3</sub>, the test gas is performed locally on the injector block. The manufacturer's specifications for the instrument air supply must be observed.

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## Description

The multi-component MCA 10 system is an absorption-spectrometric multi-gas sensor for flue gas measurement and can measure up to 12 components.

The MCA 10 analyser extracts sample gas from the stack via the heated probe and heated line to the analyser which is a heated IR analyser. All components of the MCA 10 system are heated to a temperature above the acid dew point to allow monitoring on various applications.

The MCA 10 analyser uses gas filter correlation and a bi-frequency measuring principle depending on the components being measured. For the oxygen measurement a zirconia sensor is used.

## 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 MC140256/03
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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