

PRODUCT CONFORMITY CERTIFICATE

This is to certify that the

UPAS-FID ES

manufactured by:

**SK-Elektronik GmbH
Benzstraße 23-25
51381 Leverkusen
Germany**

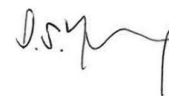
has been assessed by Sira Certification Service
and for the conditions stated on this certificate complies with:

**Environment Agency Guidance
“MCERTS for stack emissions monitoring equipment at industrial installations”
- Continuous emissions monitoring systems (CEMS)
Published 20 October 2020
EN 15267-1, EN 15267-2, EN15267-3
& QAL 1 as defined in EN 14181:2014**

Certification range:
Total organic carbon (TOC) 0 - 15mg/m³

Supplementary ranges:
Total organic carbon (TOC) 0 - 30mg/m³
0 - 100mg/m³
0 - 500mg/m³

Project number: 80058210
Certificate number: Sira MC200362/00
Initial certification: 23 November 2020
This certificate issued: 23 November 2020
Renewal date: 22 November 2025



Andrew Young
Environmental Team Manager

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.

The field test was performed over a period of more than 3 months (115 days) at a cement and cement clinker production plant.

Basis of certification

This certification is based on the following test report and on Sira’s assessment and ongoing surveillance of the product and the manufacturing process:

TÜV SÜD Industrie GmbH, Munich, ref. 2723566, 09.03.2020

Product certified

The SK-Elektronik GmbH UPAS-FID ES measuring system consists of the following parts:

<i>Part</i>	<i>Description</i>
UPAS-FID ES	Analyser
UPAS-FID air valve box	Valve control for ejector controlled by the external Temperature controller
Heated sample gas line	Heated sample gas line (up to 200°C)
External temperature controller	Regulator for heated sample gas line (up to 20m length)
Gas sampling – probe heated	Heated sample filter incl. sampling probe

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1. Sample probe	2. Heated filter	3. Heated sample line	4. Analyser
Model: Bühler Technologies GmbH, 'GAS 222.20-OR', 180°C with PTFE core	Model: Bühler Technologies GmbH GAS 222.20-OR, ceramic filter 3µm	Model: SK-Elektronik GmbH, ELH/2adw with temperature regulator(ELTC/H1- 14)	Model: SK-Elektronik GmbH, UPAS-FID ES

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 CEMS.
- 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 versions; FID-DC 1.01, FID-AD 1.00, FID-PS 1.01, FID-LC 1.01 and UPAS-GUI 1.00 with serial number 1600717 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: IP40

Note: The CEMS with all components fulfilled the protection provided by enclosures level IP40. Therefore, the area of use is restricted to locations with protection from temperatures within the tested temperature range 5 – 40°C.

Results are expressed as error % of certification range 0 to 15mg/m³, unless otherwise stated.

Test	Results expressed as % of the certification range				Other results	MCERTS specification
	<0.5	<1	<2	<5		
Response time						
TOC (0 to 15mg/m ³)					23s	<200s
TOC (0 to 30mg/m ³)					23s	<200s
TOC (0 to 100mg/m ³)					15s	<200s
TOC (0 to 500mg/m ³)					15s	<400s
Repeatability standard deviation at zero point						
TOC (0 to 15mg/m ³)	0.11					<2.0%
Repeatability standard deviation at reference point						
TOC (0 to 15mg/m ³)	0.06					<2.0%
Lack-of-fit						
TOC (0 to 15mg/m ³)	-0.42					<2.0%
TOC (0 to 30mg/m ³)	-0.12					<2.0%
TOC (0 to 100mg/m ³)	-0.48					<2.0%
TOC (0 to 500mg/m ³)		-0.50				<2.0%
Influence of ambient temperature zero point (+5°C to +40°C)						
TOC (0 to 15mg/m ³)			1.1			<5.0%
Influence of ambient temperature reference point (+5°C to +40°C)						
TOC (0 to 15mg/m ³)			1.3			<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 sample gas flow for extractive CEMS TOC (0 to 15mg/m ³)		-0.73				<2.0%
Influence of voltage variations at zero (196V to 253V) TOC (0 to 15mg/m ³)	-0.31					<2.0%
Influence of voltage variations at span (196V to 253V) TOC (0 to 15mg/m ³)	-0.21					<2.0%
Cross-sensitivity at zero with interferents: O ₂ , H ₂ O, CO, CO ₂ , N ₂ O, NO, NO ₂ , NH ₃ , SO ₂ , HCl, TOC (0 to 15mg/m ³)				3.4		<4.0%
Cross-sensitivity at reference with interferents: O ₂ , H ₂ O, CO, CO ₂ , N ₂ O, NO, NO ₂ , NH ₃ , SO ₂ , HCl, TOC (0 to 15mg/m ³)				-3.7		<4.0%
Effect of oxygen for TOC CEMS			-1.98		See note 4.	<2.0%
Response factors for TOC CEMS:						
Methane					1.12 to 1.13	0.9 to 1.2
Aliphatic hydrocarbons					0.96 to 1.09	0.9 to 1.1
Aromatic hydrocarbons					0.94 to 1.01	0.8 to 1.1
Dichloromethane					1.03 to 1.09	0.75 to 1.15
Aliphatic alcohols					0.8 to 1.0	0.70 to 1.0
Ester and ketones					0.7 to 0.7	0.7 to 1.0
Organic acids					0.5 to 0.6	0.5 to 1.0

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Test	Results expressed as % of the certification range				Other results	MCERTS specification
	<0.5	<1	<2	<5		
Measurement uncertainty TOC (for an ELV of 10 mg/m ³)					Guidance - at least 25% below max permissible uncertainty 10.6%	<22.5% (30%)
Calibration function (field) TOC (0 to 15mg/m ³)					0.976	>0.90
Response time (field) TOC (0 to 15mg/m ³)					40s	<200s
Lack of fit (field) TOC (0 to 15mg/m ³)	0.4					<2.0%
Maintenance interval					4 weeks	>8 days
Zero and span drift requirement	The CEMS UPAS-FID ES is aligned at certain intervals and following a re-start at zero and span point as for example contamination in the pipes and filters can result to a rise in the total uncertainty of measurement. The zero and test gas are applied in series at the measurement gas entry point via a probe and deviations to the respective nominal value are corrected and saved. Automatic alignment takes place every 24 hours as standard with synthetic air or internally generated zero gas and with gas corresponding to 70-90% of the measuring range.					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 TOC (0 to 15mg/m ³)			1.7			<3.0%
Change in reference point over maintenance interval TOC (0 to 15mg/m ³)		0.8				<3.0%
Availability					99.7	>95%
Reproducibility TOC (0 to 15mg/m ³)				2.5		<3.3%

Note 1: The UPAS-FID ES has a maintenance interval of 4 weeks.

Note 2: The CEMS should be aligned at an interval of 24 hours using the automatic alignment function at zero and span point.

Note 3: Zero gas can be provided by connecting synthetic air or by the internal zero gas preparation.

Note 4: The requirements for influence of oxygen were not fulfilled in the measurement range 0 to 500mg/m³.

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Description

The UPAS-FID ES combines the use of a flame ionisation detector, driven by the UPAS-communication, and the analytical open platform. With the flame ionisation detector you can measure volatile hydrocarbons of a wide range. The analyser is applied in a variety of applications for all kind of industries, environmental protection and as well for research and development.

The insert can be mounted in any typical industrial system cabinet according to DIN 41494/IEC60297-1/2 on mounting rails with mounting screws with a distance from one height line.

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 TÜV SÜD Industrie Service GmbH for certificate No. Sira MC200362/00.
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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