

PRODUCT CONFORMITY CERTIFICATE

This is to certify that the

UPAS-FID PT

Manufactured by:

SK-Elektronik GmbH

Benzstraße 23-25
51381 Leverkusen
Germany

has been assessed by CSA Group
and for the conditions stated on this certificate complies with:

Environment Agency Guidance
“MCERTS for stack emissions monitoring equipment at industrial installations”
- Transportable Continuous Emissions Monitoring Systems (T-CEMS)
Published 20 October 2020
EN 15267-1:2009, EN 15267-2:2009, EN 15267-4:2017
QAL 1 as defined in EN 14181: 2014

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

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

Project No.: 80109841
Certificate No: Sira MC220398/00
Initial Certification: 21 March 2022
This Certificate issued: 21 March 2022
Renewal Date: 20 March 2027



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MCERTS is operated on behalf of the Environment Agency by

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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

On the basis of the assessment this instrument is considered suitable for use with standard reference methods and for verifying and calibrating installed CEMS, according to the requirements of EN 14181, provided it meets the certified range requirements specified by legislation.

Any potential user should ensure that the monitoring system meets the certified range requirements specified by legislation.

The field testing was carried out during the timeframe 16th March 2021 to 18th August 2021 and conducted at five different locations and is detailed below.

Field Test Reference	Description
Field Test 1	Solvent carbon filter plant
Field Test 2	Biomass thermo power station
Field Test 3	Waste incinerator
Field Test 4	Cement plant
Field Test 5	Pharmaceuticals production 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 SÜD Industrie Service GmbH, Report no.: 3351939, Munich, 13 September 2021
- TÜV SÜD Industrie Service GmbH, Report no.: 2723566, Munich, 9 March 2020

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Product Certified

The UPAS-FID PT measuring system consists of the following parts:

1. Sample probe	2. Heated filter	3. Heated sample line	4. Analyser
Model: M&C, PSP4000- H/C, 0.2-0.7m	Model: M&C, PSP4000- H/C, ceramic filter 3µm, 180°C	Model: eltherm GmbH, ELH/2adw-200°C- NW4/6, PTFE, length 10m, 180°C	Model: SK-Elektronik GmbH, UPAS-FID PT

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 operations instructions version 1.2(07.09.2021) with software versions FID-DC: 1.01, FID-AD: 1.00, FID-PS: 1.01, FID-LC: 1.01 and UPAS-GUI: 1.01 and serial number 16001117 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: IP42

Note: IP degree of protection – IP42 complies with the minimum requirements as the system is designed for mounting at sheltered sites where no more than dripping water at an incline can be expected.

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		
Laboratory Testing - Response time						
TOC (0 - 15 mg/m ³)					24s	≤200s
TOC (0 - 30 mg/m ³)					24s	≤200s
TOC (0 - 100 mg/m ³)					17s	≤200s
TOC (0 - 500 mg/m ³)					16s	≤200s
Repeatability standard deviation at zero point						
TOC (0 - 15 mg/m ³)	0.07					≤2.0%
Repeatability standard deviation at span point						
TOC (0 - 15 mg/m ³)	0.14					≤2.0%
Lack-of-fit						
TOC (0 - 15 mg/m ³)	-0.42					≤2.0%
TOC (0 - 30 mg/m ³)	-0.33					≤2.0%
TOC (0 - 100 mg/m ³)		-0.56				≤2.0%
TOC (0 - 500 mg/m ³)	0.29					≤2.0%
Influence of ambient temperature zero point (+5°C to +40°C)						
TOC (0 - 15 mg/m ³)				-2.4		≤5.0%
Influence of ambient temperature span point (+5°C to +40°C)						
TOC (0 - 15 mg/m ³)				-2.0		≤5.0%
Short-term zero drift						
TOC (0 - 15 mg/m ³)	-0.1					≤2.0%

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Test	Results expressed as % of the certification range				Other results	MCERTS specification
	<0.5	<1	<2	<5		
Short-term span drift TOC (0 - 15 mg/m ³)	-0.2					≤2.0%
Influence of sample gas flow for extractive CEMS TOC (0 - 15 mg/m ³)			-1.19			≤2.0%
Influence of voltage variations (196V to 253V) TOC (0 - 15 mg/m ³)	0.13					≤2.0%
Influence of vibration (10 to 60Hz (+/- 0.35mm), 60 to 150Hz at 19.6m/s ²) TOC (0 - 15 mg/m ³)	-0.40					≤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 - 15 mg/m ³)				3.4		≤4.0%
Cross-sensitivity at span with interferents: O ₂ , H ₂ O, CO, CO ₂ , N ₂ O, NO, NO ₂ , NH ₃ , SO ₂ , HCl TOC (0 - 15 mg/m ³)				-3.7		≤4.0%
Effect of oxygen for TOC CEMS TOC (0 - 15 mg/m ³)			-1.98		Note 4	≤2.0%
Response factors for TOC CEMS						
Methane					1.12 to 1.13	0.9 to 1.2
Aliphatic hydrocarbons					0.95 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	0.7 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		
Field Testing - Calibration function (field) – equivalence with SRM						
Field Test 1 TOC (0 – 15mg/m ³)					0.997 – 0.997	≥0.90
Field test 2 TOC (0 – 15mg/m ³)					0.997 – 0.997	≥0.90
Field test 3 TOC (0 – 15mg/m ³)					1.000 – 1.000	≥0.90
Field test 4 TOC (0 – 15mg/m ³)					0.999 – 0.999	≥0.90
Field test 5 TOC (0 – 15mg/m ³)					0.986 – 0.988	≥0.90
Response time (field)						
Field Test 1 TOC (0 – 15mg/m ³)					30s	≤200s
Field test 2 TOC (0 – 15mg/m ³)					20s	≤200s
Field test 3 TOC (0 – 15mg/m ³)					21s	≤200s
Field test 4 TOC (0 – 15mg/m ³)					18s	≤200s
Field test 5 TOC (0 – 15mg/m ³)					25s	≤200s

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Test	Results expressed as % of the certification range				Other results	MCERTS specification
	<0.5	<1	<2	<5		
Short term zero drift (field)						
Field Test 1 TOC (0 – 15mg/m ³)	0.1					≤5.0%
Field test 2 TOC (0 – 15mg/m ³)	0.2					≤5.0%
Field test 3 TOC (0 – 15mg/m ³)	0.4					≤5.0%
Field test 4 TOC (0 – 15mg/m ³)	0.2					≤5.0%
Field test 5 TOC (0 – 15mg/m ³)			-1.3			≤5.0%
Short term span drift (field)						
Field Test 1 TOC (0 – 15mg/m ³)	0.2					≤5.0%
Field test 2 TOC (0 – 15mg/m ³)		0.9				≤5.0%
Field test 3 TOC (0 – 15mg/m ³)		-0.6				≤5.0%
Field test 4 TOC (0 – 15mg/m ³)	-0.3					≤5.0%
Field test 5 TOC (0 – 15mg/m ³)		-0.9				≤5.0%
Reproducibility (field)						
TOC (0 – 15 mg/m ³)				2.9		≤3.3%

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Test	Results expressed as % of the certification range				Other results	MCERTS specification
	<0.5	<1	<2	<5		
Field and Laboratory – Measurement uncertainty (10mg/m ³ limit value)						Guidance – at least 25% below max permissible uncertainty
Field Test 1 TOC (0 – 15mg/m ³)					6.7	≤22.5% (30%)
Field test 2 TOC (0 – 15mg/m ³)					13.9	
Field test 3 TOC (0 – 15mg/m ³)					10.4	
Field test 4 TOC (0 – 15mg/m ³)					8.9	
Field test 5 TOC (0 – 15mg/m ³)					7.8	

Notes:

1. Recommendations for practical use -

- visual inspection of the entire system including the sampling system.
- check on combustion gas supply and zero and end point gas.
- check on electric heating for the gas sampling probe and the heated sample gas line.
- check on system display status for any disruption reports or maintenance requests.
- check on the FID waste air line.
- T-CEMS alignment through direct adding of zero/test gas before measuring on the system measurement gas inlet using the alignment aid supplied.
- when using the internally generated zero gas care should be taken during the alignment procedure that no external zero gas is connected to the T-CEMS.
- Check for leakage and the purity of the sampling system (by adding zero/test gas to the sampling system).
- Check on the alignment by adding zero/test gas after measurement to the entire sampling system.
- After use, ensure that the system is switched off according to the instruction manual and follow the procedure for rinsing the system when encountering high TOC concentrations.

2. Monitoring in the maintenance interval -

- Check on the catalyst performance when using the internally generated zero gas at regular intervals (at least annually), by comparing with synthetic air (KW-free).

3. Zero gas can be provided by connecting synthetic air (5.0) or the prepared internal zero gas.

4. For the measurement range 0-500 mg/m³ the requirements with regards to the influence of oxygen are not fulfilled.

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Description

The UPAS - FID series instrumentation combines the use of a flame ionisation detector, driven by the UPAS-communication and analytical open platform. With the flame ionisation detector you can measure volatile hydrocarbons over a wide range.

The portable **UPAS-FID PT** is designed for the measuring task as an SRM according to DIN EN 12619. The heated sample gas line can be mounted without tools, so that a quick set-up is possible. Due to its robust housing, the analyser can be used in day-to-day measurement for comparative measurements.

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 CSA Group Testing UK Ltd Certificates'.
2. The design of the product certified is held and maintained by TÜV SÜD Industrie Service for certificate No. Sira MC220398/00.
3. If a certified product is found not to comply, CSA Group 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 CSA Group Testing UK Ltd Certificates'.
5. This document remains the property of CSA Group and shall be returned when requested by CSA Group.

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