

PRODUCT CONFORMITY CERTIFICATE

This is to certify that the

S305QAL Dust Monitor

Manufactured by:

**Sintrol Oy
Ruosilantie 15
00390 Helsinki
Finland**

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”
- Continuous emissions monitoring systems(CEMS)
Published 20 October 2020
EN 15267-1, EN 15267-2, EN15267-3
& QAL 1 as defined in EN 14181**

	Certification range :	Supplementary ranges :
Dust	0 - 7.5 mg/m ³	0 - 15 mg/m ³ 0 - 100 mg/m ³

Project number: 80080275
Certificate number: Sira MC200365/01
Initial certification: 5 November 2020
This certificate issued: 21 May 2021
Renewal date: 4 November 2025



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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 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 measuring system cannot be used in steam saturated flue gases. Droplet emissions also influence the measured dust concentration.

The measuring system cannot be used directly after electric filters.

The measuring system can be used for flue gas flow rates in the range of 3 - 40m/s.

The field test was conducted from November 2019 to June 2020 in clean gas in a coal-fired power station (black coal firing with flue water sludge co-combustion) large combustion 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, Munich, ref.3055767, 16.09.2020
TÜV SÜD Industrie Service GmbH, Munich, ref.3055767-2, 16.02.2021

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Product certified

The S305QAL Dust Monitor measuring system consists of the following parts:

<i>Analyser -</i>	Dust Monitor Model S305QAL
<i>Accessories -</i>	Welded adapter MC900229
	Blind cap MC900033
	Tri-Clamp MC900034
	Tri-Clamp Teflon seal MC900007
	Purge air adapter MC900203
	Probe extension 250, 500mm
<i>Operator software -</i>	DustTool
<i>Interface adapter -</i>	RS 485 USB EC900041
<i>Test device for adjustment monitoring(Optional) -</i>	Sintrol reference signal generator

Allowable variations could include:

- Modifications as stated in the manufacturers manual and the accessories listed above including also custom process connections/adapters.

This certificate applies to all instruments fitted with software version 3.1.8 (serial number P-300-547-654 onwards) and for software version 3.2.4 for the use of modbus interface.

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Certified performance

The instrument was evaluated for use under the following conditions:

Ambient temperature range: -20°C to +50°C
Instrument IP rating: IP66

Note: For outdoor installations the analyser needs to be mounted into an IP65 environment. 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.

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						
Dust 0 to 7.5mg/m ³)					148s	<200s
Dust (0 to 15mg/m ³)					119s	<200s
Dust (0 to 100mg/m ³)					147s	<200s
Repeatability standard deviation at zero point						
Dust	0.06					<2.0%
Repeatability standard deviation at reference point						
Dust	0.37					<2.0%
Lack-of-fit						
Dust (0 to 7.5mg/m ³)			-1.07			<2.0%
Dust (0 to 15mg/m ³)		0.53				<2.0%
Dust (0 to 100mg/m ³)	0.3					<2.0%
Influence of ambient temperature zero point (-20°C to +50°C)						
Dust		-0.6				<5.0%
Influence of ambient temperature reference point (-20°C to +50°C)						
Dust			1.6			<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 voltage variations Dust (196V to 253V AC) Dust (20.4 to 26.4V DC)	0.46	-0.81				<2.0% <2.0%
Influence of vibration (10 to 60Hz (± 0.3 mm), 60 to 160Hz at 4.9m/s ²) Dust	0.23					to be reported
Measurement uncertainty Dust (For and ELV of 5 mg/m ³)					Guidance - at least 25% below max permissible uncertainty 5.3%	<22.5% (30%)
Calibration function (field) Dust					0.968	>0.90
Response time (field) Dust					132s	<200s
Lack of fit (field) Dust			1.47			<3.0%
Maintenance interval					3 months	>8 days
Zero and span drift requirement	<p>The device runs automatic self-diagnosis functions during normal operation to ensure that the measurement zero and span points and the linearity of the measurement response remain correct over time. For this the device has an internal reference signal generator.</p> <p>When automatic zero/span check starts, the internal signal generator disconnects the sensor probe from the measurement chain and induces a computer-generated signal to the processing electronics. The device uses this reference signal to test and compensate for possible drift and non-linearity in zero span and intermediate measuring points.</p>					<p>Clause 6.13 & 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 Dust	-0.06					<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 Dust		-0.63				<3.0%
Availability					95.7	>95%
Reproducibility (for concentrations <20mg/m ³) Dust			1.1			<3.3%

- Notes:
1. The CEMS can be set to zero and span points only by using the automatic zero and span check function.
 2. At a flue gas flow rate in the 3-40m/s range the dependence of the flue gas flow rate is eliminated by the integrated flow rate compensation. To this end the analogue input 4-20mA shall be covered with a signal to represent the flue gas flow rate.
 3. At constant flue gas flow rates a fixed value can also be entered for the flue gas flow rate.
 4. When using a purge air filter, adherence to the stipulated purge air amount should be checked.
 5. The CEMS shall be operated at an interval of 24h for the automatic control cycle.
 6. The Manufacturer's recommendations on probe lengths should be followed. Probe lengths from 250mm to 1750mm can be used.
 7. The power supply can be 230V AC or 24 V DC.
 8. The CEMS has a digital Modbus interface (serial RS 485), corresponding to VDI 4201 page 1 and 3.

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Description

The S305QAL dust monitor is a CEMS designed to measure total suspended particle concentration in a duct or stack. The measurement is based on inductive electrification technology, where particles flowing within the airstream interact with the isolated probe of the S305QAL. These interactions result in electrical charges being passed between the sensor and particles. This signal is further processed within the electronics and firmware to filter out noise and to provide a dust concentration measurement. This technology achieves the sensitivity with a wide measurement range and low drift operation minimising the effect of sensor contamination.

The S305QAL dust monitor provides measurement readouts in inductive electrification units. The results can be calibrated to mg/m³ values using a standard reference method to obtain reference dust concentration values.

The S305QAL has an industry standard 4...20 mA analog output for dust concentration values, two relays for diagnostics information and a Modbus RTU interface. The device can be accessed over USB or RS485 connection with the software "DustTool".-The device is also equipped with a local user interface, consisting of a display and pushbuttons, allowing for modification of settings and device commissioning without the use of additional software.

The S305QAL dust monitor utilizes Sintrol's Auto Setup function for commissioning. Auto Setup is a function where the S305QAL dust monitor automatically sets its measurement range based on actual process conditions.

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 Certificates'.
2. The design of the product certified is held and maintained by TÜV SÜD Industrie Service GmbH for certificate No. Sira MC200365/01.
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 Certificates'.
5. This document remains the property of CSA Group and shall be returned if requested by CSA Group.

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