ZERTIFIKAT ◆ CERTIFICATE ◆ 認証書 ◆ СЕРТИФИКАТ ◆ CERTIFICADO ◆ CERTIFICAT

Umwelt Bundesamt

Certificate number: 3055767-ts

TÜV SÜD Industrie Service

CERTIFICATE

of product conformity (QAL 1)

Certificate number: 3055767-ts

Certified AMS	Dust Monitor S305QAL for dust
Manufacturer	Sintrol Oy Ruosilantie 15 00390 Helsinki Finland

Test institute TÜV SÜD Industrie Service GmbH

This is to certify that the AMS has been tested and found to comply with the standards DIN EN 15267-1 (2009), DIN EN 15267-2 (2009), DIN EN 15267-3 (2008) and DIN EN 14181 (2015).

Certification applies to the conditions listed in this certificate (the certificate consists of 6 pages).

DIN EN 15267 TÜV SÜD Eignungsprüfung Valid until 05/2026 Produktion überwacht

Certificate No.: 3055767-ts

Publication in the German Federal Gazette
(BAnz) of 03 May 2021

This certificate will expire on:
02 May 2026

Umweltbundesamt
Dessau, 05 May 2021

Dr. Marcel Langner
Head of Section II 4.1

TÜV SÜD Industrie Service GmbH
Testing laboratory emission measurement/ calibration
Munich, 04 May 2021

Hans-Jörg Eisenberger

TÜV®

Umwelt Bundesamt

Certificate number: 3055767-ts

TÜV SÜD Industrie Service

Test report	3055767 from 16 September 2020
Initial certification	03 May 2021
Certification validity until	02 May 2026 (5 years)
Publication	BAnz AT 03 May 2021 B9, chapter I, no 1.5

Approved application

The tested AMS is suitable for use at plants requiring authorisation and plants in accordance with the 27. BImSchV, the 30. BImSchV and the 44. BImSchV. The suitability for this application was assessed on the basis of a laboratory test and a field test of the AMS Dust Monitor S305QAL lasting over more than three months at plant according to Directive 2010/75/EU, chapter III (13. BImSchV). The measuring system is approved for ambient temperatures between -20 °C bis +50 °C.

The AMS publication, the suitability test and the performance of the uncertainty calculations were conducted based on the provisions valid at the time of testing. Due to possible amendments to legal foundations, every user should ensure before use of the AMS that it is suitable for monitoring the applicable values.

The operator should consult the manufacturer to ensure that the AMS is suitable for the plant at which it is to be installed.

Certification basis

This certificate is based on:

- TÜV SÜD Industrie Service GmbH test report 3055767 from 16 September 2020
- Suitability announcement by the German Federal Environmental Agency as relevant body
- The ongoing surveillance of the product and the manufacturing process

- Publication in the German Federal Gazette (BAnz AT 03 May 2021 B9, chapter I, no. 1.5, UBA publication from 31 March 2021)

AMS: Dust Monitor S305QAL for dust

Manufacturer: Sintrol Oy
Helsinki, Finland

Suitability: For plants requiring authorisation and plants in compliance with the 27. BImSchV, the 30 BImSchV and the 44. BImSchV

Measurement ranges in the suitability test:

Component	Certification range	Supplementary measurement ranges		Unit
		Measurement range 2	Measurement range 3	
Dust	0 – 7,5	0 – 15	0 – 100	mg/m³

Software version:

Version: 3.2.4

Restrictions:

1. It cannot be used in steam saturated flue gases. Droplet emissions also influence the measured dust concentration.
2. It cannot be used directly after electric filters.
3. It can be used for flue gas flow rates in the range from 3 – 40 m/s

Notes:

1. The maintenance interval is three months.
2. The AMS can only be aligned using the automatic alignment function at zero and span point.
3. At a flue gas flow rate in the 3 – 40 m/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 – 20 mA shall be covered with a signal to represent the flue gas flow rate.
4. At constant flue gas flow rates (± 10 % of the average flow rate) a fixed value can also be entered for the flue gas flow rate.
5. When using a purge air feature, adherence to the stipulated purge air amount should be checked.
6. The AMS shall be operated at an interval of 24 h for the automatic control cycle.
7. The manufacturer's recommendations on probe lengths should be followed. Probe lengths from 250 mm to 1000 mm can be used.
8. The power supply can be 230 V AC or 24 V DC.
9. The AMS has a digital Modbus interface (serial RS 485), corresponding to VDI 4201 page 1 and 3.

Test report: TÜV SÜD Industrie Service GmbH, Munich
Report no.: 3055767 from 16 September 2020

Certified Product

The certificate applies to AMS that comply with the following description:

The entire tested measuring system Dust Monitor S305QAL consists of the probe, the probe extension, the purge air adapter and the electronic unit attached to the probe.

The AMS Dust Monitor S305QAL is used to detect the dust mass concentration in flue and process gases. The measuring system works according to the principle of the triboelectric effect, in which an insulated probe is electrically charged by dust particles that hit it or flow past it in the vicinity, and this charge is detected. The measuring system also has a digital interface of the Modbus type, which is implemented serially as EIA-485.

The entire AMS consist of the following components:

Entire system	
Manufacturer:	Sintrol Oy
Type:	Dust Monitor S305QAL
Software:	3.2.4
Measurement principle:	triboelectric effect
Accessories:	Welded adapter MC900229 Blind cap MC900033 Tri-Clamp damp MC900034 Tri-Clamp Teflon seal MC900007 Purge air dapter MC900203 Probe extension 250, 500 mm User software Dust Tool
Optional accessories:	Interface adapter RS 485 USB EC900041 Sintrol reference signal generator

This certificate is based on the analyser tested. The manufacturer is responsible for the continuous compliance of the production to the DIN EN 15267 requirements. The manufacturer is required to maintain an approved quality management system to control the manufacture of the certified product. Regular monitoring must be conducted on both the product and the quality management systems.

If the product from the current production series no longer comply with the certified product, the Environmental Service Department of TÜV SÜD Industrie Service GmbH must be informed (address see footnote).

A certification mark with an ID-Number that is specific to the certified product is presented on page 1 of this certificate. This can be applied on the product or used in publicity material for the certified product.

This document and the certification mark shall remain the property of TÜV SÜD Industrie Service GmbH.

Should the publication be revoked, this certificate will become invalid. This document must be returned when the period of validity has elapsed and at the request of TÜV SÜD Industrie Service GmbH and the certification mark may no longer be used.

The current version of the certificate and its expiration is also accessible on the internet at **qal1.de**.

The certification of the Dust Monitor S305QAL measuring system is based on the following documents and the regular continuous monitoring of the manufacturer's quality management system:

Initial certification in accordance with DIN EN 15267:

Certificate no. 3055767-ts	03 May 2021
Certificate validity until	02 May 2026 (5 years)

Report no.: 3055767 from 16 September 2020,
TÜV SÜD Industrie Service GmbH
Publication: BAnz AT 03 May 2021 B9, chapter I no. 1.5
UBA publication from 31 March 2021

Calculation of total uncertainty for QAL1 testing according to DIN EN 14181 and DIN EN 15267-3 for the measuring system Dust Monitor S305QAL

Total uncertainty for the measurement component dust in the measuring range 0 – 7,5 mg/m³

Performance characteristic	*Uncertainty*	*Value standard uncertainty mg/m³*	*Quadrat der Standardunsicherheit in (mg/m³)²*
Lack-of-fit	u_{lof}	-0,046	0,0021
Zero drift from field test	$u_{d,z}$	-0,003	0,00001
Span drift from field test	$u_{d,s}$	-0,027	0,00073
Influence of ambient temperature at span	u_t	0,047	0,00221
Influence of sample gas pressure	u_p		
Influence of sample gas flow	u_f		
Influence of voltage supply	u_v	0,019	0,00036
Cross-sensitivity (interference)	u_i		
Repeatability standard deviation at span	$u_r = s_r$	0,028	$u_r < u_d$
Standard deviation from paired measurements under field cond.	$u_d = s_d$	0,042	0,00176
Uncertainty of reference material 3 % at 80% of CR	u_{rm}	0,104	0,0108
Excursion of measurement beam	u_{mb}		
Converter efficiency for AMS measuring NOx	u_{ce}		
Variation of response factors (TOC)	u_{rf}		
		total	0,01799
Combined standard uncertainty	$u_c = \sqrt{\sum (u_i)^2}$	0,134	mg/m³
Total expanded uncertainty	$U_{0,95} = 1,96 \times u_c$	0,263	mg/m³
Relativ expanded uncertainty	U	5,3	% ELV
Permissible uncertainty of EN 15267-3	(of ELV 5 mg/m³)	22,5	% ELV
Complied with requirements relating to the measurement uncertainty		yes	regarding EN 15267-3
Permissible uncertainty 13. / 17. BImSchV	(of ELV 5 mg/m³)	30	% ELV
Complied with requirements relating to the measurement uncertainty		yes	regarding 13. / 17. BImSchV