PRODUCT CONFORMITY CERTIFICATE

This is to certify that the

DUSTHUNTER T200

Manufactured by:

Endress+Hauser SICK GmbH+Co. KG

Bergener Ring 27
01458 Ottendorf-Okrilla
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"
- Continuous emissions monitoring systems (CEMS)
Published 20 October 2020
EN 15267-1:2009, EN15267-2:2009, EN 15267-3:2007
& QAL 1 as defined in EN 14181: 2014

Certification ranges:

Dust	0 to 0.1 Ext.*
	0 to 0.05 Ext.
	0 to 0.2 Ext.
	0 to 0.5 Ext.
	0 to 1.0 Ext.

*0 to 0.1 Ext. ≡ 0-15 mg/m^3 dust at 5m optical path length

Project No.:	80252988
Certificate No:	CSA MC090145/05
Initial Certification:	24 April 2009
This Certificate issued:	24 April 2025
Renewal Date:	23 April 2029

Andrew Young
Environmental Team Manager

MCERTS is operated on behalf of the Environment Agency by

CSA Group Testing UK Ltd
Unit 6, Hawarden Industrial Park
Hawarden, Deeside, CH5 3US
Tel: +44 (0)1244 670 900

Form 1335
Issue 12

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Approved Site Application

Any potential user should make sure, in consultation with the manufacturer, that the monitoring system is suitable for the intended application. For further information on stack emissions monitoring refer to the Environment Agency's guidance available at www.mcerts.net

This instrument is considered suitable for use on waste incineration and large combustion plants. 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 the 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 applications.

The field trial was conducted over 15 months on a municipal waste incinerator.

Basis of Certification

This certification is based on the following test report(s) and on CSA Group's assessment and ongoing surveillance of the product and the manufacturing process:

TÜV Rheinland Report Number 936/2120461/F dated 18.03.2008

Product Certified

The Dusthunter T200 measuring system consists of the following parts:

- Sender/receiver (SR) unit DHT-T21
- Connection cable to connect SR unit to the control unit
- Reflector DHT-R1x
- Connection cable to connect the reflector to the SR unit
- Control unit MCU for data control, evaluation and output
    - With integrated purge air supply, for internal duct pressure -50… +2 mbar
    - Without purge air unit, therefore additionally required:
- Optional external purge air unit, for internal duct pressure -50… 30 mbar

This certificate applies to all instruments fitted with software version 1.026 (MCU) 1.3.04 (sensor) and 02.16 (SOPAS ET operating software), serial number 07478656 (SR unit) 07478637 (MCU) 07478660 (R/SL measuring device) onwards.

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: 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.

Unless otherwise stated the evaluation was carried out on the certification range 0 to 0.1 Ext.

Test	Results expressed as % of the certification range				Other results	MCERTS specification
	<0.5	<1	<2	<5		
Response time					28s (with integration time set to 30s)	<200s
Repeatability standard deviation at zero point	0.1					<2.0%
Repeatability standard deviation at reference point	0.1					<5.0%
Lack-of-fit						
0 to 0.1 Ext.			1.0			<3.0%
0 to 0.2 Ext.		0.8				<3.0%
0 to 0.5 Ext.		0.7				<3.0%
0 to 1.0 Ext.	0.1					<3.0%
Influence of ambient temperature zero point (-20°C to +50°C)		-0.9				<5.0%
Influence of ambient temperature reference point (-20°C to +50°C)		0.7				<5.0%
Influence of voltage variations (190V to 250V)		0.7				<2.0%
Influence of vibration (10 to 60Hz (±0.3mm), 60 to 150Hz at 19.6m/s^2)	0.3					To be reported
Measurement uncertainty (For and ELV of 10 mg/m^3)					Guidance - at least 25% below max permissible uncertainty 8.4%	<<22.5% (30%)
Calibration function (field)					0.89 Note 1	>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)					28s (with integration time set to 30s)	<200s
Lack of fit (field)			1.8			<3.0%
Maintenance interval					6 months Note 2	>8 days
Zero and Span drift requirement	<u>Zero Value measurement</u> The sender diode is switched off for zero point control so that no signal is received. This means possible drifts or zero point deviations are detected reliably in the overall system. An error signal is generated when the 'zero value' is outside the specified range. <u>Control value measurement (span test)</u> Sender beam intensity changes between 10 and 100 % during the determination of the control value the light intensity received is compared against the standard value. The measuring system generates an error signal for deviations greater than ±2%. The error message is cleared again when the next test cycle runs successfully. The control value is determined with high precision through statistical evaluation of a high number of intensity changes. The control value is calculated with the control reflector swivelled in.					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		-0.5				<3.0%
Change in reference point over maintenance interval				-2.9		<3.0%
Availability					99.3%	>95%
Reproducibility				2.9		<3.3%

Note 1: The calibration function result / R2 values are between 0.8 and 0.9 due to low dust levels. The CEMS pass the EN14181 criteria, but not the requirement for EN15267-3.

Note 2: The T200 has a maintenance interval of 6 months. In the case of a new installation the measuring system should be tested by all means in weekly or biweekly intervals via visual inspection.

The work detailed below has to be carried out at regular intervals, depending on local conditions:

- Visual inspection of the CEM
- Examination of the S/R unit and the reflector by swing out and visual inspection. The optical surfaces should be cleaned if necessary.
- Determination of zero and span point
- Examination of the purge air supply
- Check cycle operation including a check of zero and span point and of the contamination signal.

Description

The DUSTHUNTER T200 uses transmission measurement to determine the mass concentration of dust in flowing gases. The measuring system operates as a transmitter with a double beam path, with two-sided detection by a sender/receiver (SR) unit and a reflector.

A high-performance LED sends light in the visible range through the active measuring path containing particles to the reflector where it is bounced back to the receiver. While passing through the measurement path twice, the transmitted light is attenuated by the particles within the path and then captured by the measurement receiver. Continuous monitoring of the sender output registers the smallest changes in brightness of the transmitted light beam which serves to determine the measurement signal.

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 Rheinland for certificate No. CSA MC090145.

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.