

PRODUCT CONFORMITY CERTIFICATE

This is to certify that the

DUSTHUNTER SB100

Manufactured by:

SICK AG

Bergener Ring 27
01458 Ottendorf-Okrilla
Germany

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

**MCERTS Performance Standards for Continuous Emission
Monitoring Systems, Version 3.4 dated July 2012
EN15267-1:2009, EN15267-2:2009, EN15267-3:2007,
& QAL 1 as defined in EN 14181: 2004**

Certification Ranges :

Dust	0 to 100 SE*
	0 to 15 SE
	0 to 50 SE
	0 to 200 SE

*SE= scattered light units (0-100 SE \equiv 0-15 mg/m³ dust)

Project No. : 674/0391B
Certificate No : Sira MC090144/03
Initial Certification : 24 April 2009
This Certificate issued : 12 January 2015
Renewal Date : 23 April 2019

R Cooper | Eng MInst MC
Technical Director

MCERTS is operated on behalf of the Environment Agency by

Sira Certification Service

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*The MCERTS certificate consists of this document in its entirety.
For conditions of use, please consider all the information within.*

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Registered Office: Rake Lane, Eccleston, Chester, UK CH4 9JN

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Certificate Contents

Approved Site Application 2

Basis of Certification 2

Product Certified..... 2

Certified Performance 3

Description..... 6

General Notes 6

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 and the ranges required for compliance with EU Directives this instrument is considered suitable for use on waste incineration and large coal-fired combustion plant applications. This CEM 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, for LCPD and WID applications for the ranges specified. The lowest certified range for each determinand shall not be more than 1.5X the daily average emission limit value (ELV) for WID applications, and not more than 2.5X the ELV for LCPD and other types of application.

The field trial was conducted over 9 months on a lignite-fired power station.

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 Rhineland Report Number 936/21208069/A dated 24.10.2008

Product Certified

The measuring system consists of the following parts:

- Sender/receiver (SR) unit DHSB-T
- Connection cable to connect SR unit to the control unit (Lengths 5m, 10m)
- Control unit MCU connected via the RS485
 - MCU-P with integrated air supply, for internal duct pressure -50... +2 mbar
 - MCU-N 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 1.0.40 (MCU) 01.03.04 (SR unit) and 02.18 (SOPAS ET operating software), serial number 07478658 (SR unit) 07498584 (MCU) onwards.

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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: 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 15 SE

Test	Results expressed as % of the certification range				Other results	MCERTS specification
	<0.5	<1	<2	<5		
Response time					40s (with integration time set to 30s)	<200s
Repeatability standard deviation at zero point	0.39					<2.0%
Repeatability standard deviation at reference point		0.71				<5.0%
Lack-of-fit						
0 to 15 SE		0.6				<3.0%
0 to 50 SE		0.6				<3.0%
0 to 100 SE		0.6				<3.0%
0 to 200 SE		0.6				<3.0%
Influence of ambient temperature zero point		-0.8				<5.0%
Influence of ambient temperature reference point	0.00					<5.0%
Influence of voltage variations 190 to 250V				2.0		<2.0%

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Test	Results expressed as % of the certification range				Other results	MCERTS specification
	<0.5	<1	<2	<5		
Influence of vibration (10 to 60Hz ($\pm 0.3\text{mm}$), 60 to 150Hz at 19.6m/s^2)					No influence	To be reported
Measurement uncertainty (For and ELV of 10mg/m^3)					Guidance - at least 25% below max permissible uncertainty 5.3%	<22.5% (30%)
Calibration function (field)					0.77 Note 1	>0.90
Response time (field)					40s (with integration time set to 30s)	<200s
Lack of fit (field)			1.5			<3.0%
Maintenance interval					3 Months Note 2	>8 days
Zero and Span drift requirement	<p><u>Statement from manufacturer:</u></p> <p>Zero Value measurement 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.</p> <p>Control value measurement (span test) Sender beam intensity changes between 70 and 100 % during check value determination. The light intensity received is compared against the standard value (70%). The measuring system generates an error signal for deviations greater than $\pm 2\%$. 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 value calculated theoretically (70%) is output for very low dust concentrations (less than approx. 1mg/m^3).</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>

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Test	Results expressed as % of the certification range				Other results	MCERTS specification
	<0.5	<1	<2	<5		
Change in zero point over maintenance interval			-1.90			<3.0%
Change in reference point over maintenance interval			-1.88			<3.0%
Availability					99.8%	>95%
Reproducibility			1.4			<3.3%

Note 1: The calibration function result / R^2 values are between 0.7 and 0.8 due to low dust levels. The CEMS pass the EN14181 criteria, but not the requirement for EN15267-3.

Note 2: The SB100 has a maintenance interval of 3 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:

- Zero and reference point checks
- Checking and cleaning of the optical interfaces
- Checking of the purge air supply
- Regular replacement of the air filter

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Description

The DUSTHUNTER SB100 (scattered light backward) consists of a sender/receiver unit that requires one-sided installation onto the stack.

The measuring system works according to the scattered-light measurement principle (backward dispersion). A laser diode illuminates the dust particles in the gas flow with modulated light in the visual range. A highly sensitive detector located next to the emitter at an angle of approx. 15° to the beam axis captures the light scattered by the particles. The received signal is electronically amplified and transmitted to the measuring channel of a microprocessor as a central part of the measuring, control and processing electronics.

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'. The design of the product certified is defined in the Sira Design Schedule for certificate No. Sira MC090144/00
2. If certified product is found not to comply, Sira Certification Service should be notified immediately at the address shown on this certificate.
3. 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'.
4. This document remains the property of Sira and shall be returned when requested by the company.

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