

CERTIFICATE

TUV Approved

Certificate number: 0000072201_00

Manufacturer:	LAND Instruments International Stubley Lane, Dronfield S18 1DJ Derbyshire England
Product:	4400 DUST MONITOR
Components:	Dust
Test Report:	936/ 21247354/A dated 2020-03-02
Valid until:	2025-04-01

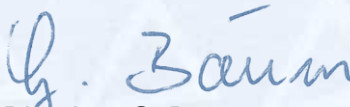
The measuring equipment
was tested and certified
in accordance with the "TUV Approved" Guidelines
of TÜV Rheinland.




Tested AMS
Regular
Surveillance

www.tuv.com
ID 0000072201

Cologne, 2020-03-20


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Test institute accredited to EN ISO/IEC 17025:2005 by DAkkS (German Accreditation Body).
This accreditation is limited to the accreditation scope defined in the enclosure to the certificate D-PL-11120-02-00.

Overview

The performance test of the 4400 DUST MONITOR emission measuring system for the component Dust was performed in accordance with the "TUV Approved" Guidelines based on European regulation EN 15267.

The test was carried out for the following component and ranges:

Component	Measuring range					Unit
Dust	0 - 0,2	0 - 0,1	0 - 0,4	0 - 1,2	0 - 1000	Ext.*

* Ext = extinction

In conformity with the applicable standards, the following performance criteria were assessed in the laboratory:

- Check of general requirements,
- CE labelling,
- Security,
- Output ranges and zero-point,
- Additional data outputs,
- Display of operational status signals,
- Checking of contamination of optical surfaces (for in situ AMS),
- Degrees of protection provided by enclosures,
- Determination of response time,
- Lack-of-fit,
- Repeatability standard deviation at zero and at span point,
- Influence of ambient temperature,
- Influence of voltage variation,
- Influence of sample gas pressure (for in situ AMS),

Minimum requirements of EN 15267-3 for the laboratory tests have been fulfilled during performance testing and assessment.

A field test in accordance to EN 15267-3 was not carried out.

The manufacturing process of the 4400 DUST MONITOR of LAND Instruments International is controlled within the auditing procedure of EN 15267-2. For the validity of the certificate an annual audit of the production process is required.

Field of Application

The 4400 DUST MONITOR is suitable for use at applications according to the certified components and measuring ranges. The tested ranges have been chosen with respect to the wide application range of the AMS.

The AMS is approved for the ambient air temperature range of -20 to +50°C.

Any potential user should ensure, in consultation with the manufacturer, that this AMS is suitable for the applications at which it will be installed.

Description of the AMS tested

This certificate applies to automated measurement systems conforming to the following description:

The measurement device 4400 DUST MONITOR was developed for the determination of the dust concentration at emitting plants. The underlying principle is the measurement of the optical transmission.

The main light source uses three green LEDs in a special configuration (patent pending) to ensure homogeneity over the entire transmitted light beam. The light source is modulated at a frequency of 1 kHz, to reduce electrical noise and eliminate errors due to ambient light. A second light source, the (patented) "Flood LED" is used to reduce the effect of temperature drift in the detectors to an almost immeasurable low level.

The Land Instruments International Model 4400 Continuous Opacity Monitoring System (COMS) measures opacity by shining a light beam through flue gases. An internal microprocessor calculates dust density and other parameters. The instrument comprises the following parts: The Transceiver which contains all of the optical and electro-optic components; the Retro-Reflector and the air purge system.

The air purge system is available in several forms depending upon individual site requirements. Single and dual electric blowers are available, as are compressed-air driven devices. Continuous purge air supply is essential to prevent dust and corrosive gases from affecting the optical system.

The AMS Model 4400 is basically composed of the following components:

Transceiver: Containing all of the major electronic and electro-optic components.

Retro-Reflector: Containing a corner cube reflector.

Air Purge System: A continuous supply of purge air is essential to prevent dust and corrosive gases from affecting the optical system. Single and dual electric blowers or compressed-air driven devices are available to suit individual site requirements.

The tested software version is

Control Software Version: 01.00.02

HI Software Version: 01.00.02