

# PRODUCT CONFORMITY CERTIFICATE

This is to certify that the

## **Dust Sentry PCX/AQS 1 PCX**

Manufactured by:

### **Aeroqual Ltd**

460 Rosebank Road, Avondale  
Auckland, 1026  
New Zealand

has been assessed by CSA Group  
and for the conditions stated on this certificate complies with:

**MCERTS Performance Standards for Indicative Ambient Particulate Monitors, Environment Agency, August 2017, version 4**

Certification ranges:

PM<sub>2.5</sub> 0 - 75 µg/m<sup>3</sup>  
PM<sub>10</sub> 0 - 150 µg/m<sup>3</sup>

Project No.: 80201275  
Certificate No: CSA MC240434/01  
Initial Certification: 28 March 2024  
This Certificate issued: 3 May 2024  
Renewal Date: 27 March 2029



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Environmental Team Manager

MCERTS is operated on behalf of the Environment Agency by

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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 general guidance on monitoring techniques refer to the Environment Agency guidance available at [www.mcerts.net](http://www.mcerts.net)

The indicative dust monitoring analyser(s) can be operated in one of two ways:

For qualitative measurements: Providing qualitative measurement data for the analysis of particulate pollution trends, and source identification studies based for example on pollution roses etc. Such application can rely on instrument factory calibration only.

For quantitative measurements: Providing measurement data with the uncertainty defined for indicative instruments (+/- 50%). This can be achieved on condition that each instrument used for measurement has been calibrated on the specific site where monitoring is taking place against a standard reference method for a period of two weeks and the resulting slope and intercept have been used for instrument calibration. Using non-standard filters and procedures for this purpose is not acceptable. To maintain the validity of data this calibration has to be repeated at least every twelve months or when the instrument is moved to a different site.

They **cannot** be used on national automatic monitoring networks for compliance reporting against the Ambient Air Quality Directives.

The field tests were carried out from the 6 May 2023 to the 18 July 2023 on two candidate 'Dust Sentry PCX' samplers, collocated with a Palas Fidas 200E instrument (the reference method). The field test location was at English Park, Cranford Street, St Albans, Christchurch, New Zealand. The serial numbers of the two 'Dust Sentry PCX' monitors were 'AQS-PCX-3' and 'AQS-PCX-5'.

## 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:

K2 Environmental Ltd, test report ref. 'Y0360', 28 November 2023, Issue 1 - "Dust Sentry MCertification Requirement"

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## Product Certified

The 'Dust Sentry PCX' and 'AQS 1 PCX' measuring systems consists of the following parts:

- 650nm laser OPC (Optical Particle Counter)
- Omni-directional sample inlet with integrated heater
- Pump with active flow control (12V brushless DC diaphragm)
- Lockable IP65 cabinet (dimensions 685mm x 330mm x 187mm) with integrated aluminium solar shield armour and built in temp/RH sensor

### *Sensor type and firmware version*

Sensor model number PCX v1.0 with firmware version v1.0.0

This certificate applies to all instruments fitted with serial number "Instrument Model-Date-2473" onwards.

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**Certified Performance**

Test ( <i>Laboratory</i> )	Results expressed as % of the certification range				Other results	MCERTS specification
	<0.5	<1	<2	<5		
Constancy of the sample volumetric flow			1.5			To remain constant within $\pm 3\%$
Tightness of the sampling system		0.93				Leakage not to exceed 2% of sampled volume

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Test (Field)	Results expressed as % of the certification range				Other results	MCERTS specification
	<0.5	<1	<2	<5		
Intra-instrument uncertainty for the reference method						
PM <sub>10</sub>					0.67 µg/m <sup>3</sup>	≤2.5µg/m <sup>3</sup>
PM <sub>2.5</sub>					0.67 µg/m <sup>3</sup>	≤2.5µg/m <sup>3</sup>
Intra-instrument uncertainty for the candidate method						
PM <sub>10</sub>						
All data (n=74)					1.64 µg/m <sup>3</sup>	≤5µg/m <sup>3</sup> for all data as well as for the subsets: < or ≥ 30 µg/m <sup>3</sup>
≥ 30 µg/m <sup>3</sup> (n=8)					1.31 µg/m <sup>3</sup>	
< 30 µg/m <sup>3</sup> (n=66)					1.68 µg/m <sup>3</sup>	
PM <sub>2.5</sub>						
All data (n=74)					1.00 µg/m <sup>3</sup>	≤5µg/m <sup>3</sup> for all data as well as for the subsets: < or ≥ 30 µg/m <sup>3</sup>
≥ 18 µg/m <sup>3</sup> (n=14)					1.35 µg/m <sup>3</sup>	
< 18 µg/m <sup>3</sup> (n=60)					0.90 µg/m <sup>3</sup>	
Highest resulting uncertainty estimate comparison against data quality objective (Measurement Uncertainty)						
PM <sub>10</sub>						W <sub>CM</sub> ≤50% W <sub>CM</sub> ≤ W <sub>dpo</sub> (W <sub>dpo</sub> Measurement uncertainty defined as 50% for indicative instruments)
All data (n=74)					32.4%	
Slope corrected (n=74, note 1)					13.9%	
≥ 30 µg/m <sup>3</sup> (n=8)					48.3%	
Slope corrected (n=8)					35.4%	
PM <sub>2.5</sub>						
All data (n=74)					36.1%	
Slope corrected (n=74, note 2)					18.5%	
≥ 18 µg/m <sup>3</sup> (n=14)					40.1%	
Slope corrected (n=14)					21.0%	
Maintenance Interval					6 weeks Note 3	≥2 weeks

Note 1 - for PM<sub>10</sub> this data was slope corrected for all data and for the dataset ≥30 µg/m<sup>3</sup>.

Note 2 - for PM<sub>2.5</sub> this data was slope corrected for all data and for the dataset ≥30 µg/m<sup>3</sup>.

Note 3 - Maintenance - the manufacturer recommends a maintenance interval of 6 weeks (although the instrument performed for 10 weeks during the field trial with no maintenance required) and that users following the guidance in the user manual under section "6.5 Scheduled Maintenance" (page 69).

Note 4 - The 'Dust Sentry PCX' and 'AQS 1 PCX' are identical systems with the exception of their respective names which are related to different market sectors.

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## Description

The Dust Sentry PCX/AQS 1 PCX is a laser-based particle monitor that provides continuous and simultaneous measurement of PM<sub>2.5</sub> and PM<sub>10</sub> in a weather-proof, lockable enclosure designed for outdoor monitoring applications.

## 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 defined in the CSA Group design schedule for certificate no. CSA MC240434.
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.

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