

Unit 2, Goldenbridge Industrial Estate,
Tyrconnell Road, Inchicore, Dublin 8

Certificate of Calibration

Certificate No: CertAS10-314

Issue Date: 06-Oct-21

Sensor Serial No.	AS10-00314	OPC Serial No.	177071308
Date Received to laboratory	30-Sep-21	Date Calibrated	30-Sep-21
Standard Operating Procedure	SP205 Performance of Dust Monitor Calibration Version No. 1/11-Mar-21		
Procedure	The SP205 calibration method is an in-house method based on direct comparison of the response of the dust monitor with the Fidas 200 to an aerosol of Arizona Road Dust. The Fidas 200 is an internationally recognised reference instrument which complies with the MCERTS performance standard for continuous ambient air quality monitoring systems and is certified by TÜV Rheinland to comply with 2008/50/EC EN 15627 Regular Surveillance.		
Condition of DM30 upon receipt	New		
Work Carried Out	n/a		
Parts Required	n/a		

The data contained in this certificate relate only to the device calibrated. This calibration certificate shall not be reproduced, except in full, without the written permission for Sonitus Systems Ltd. Calibration certificates without signatures are not valid.

Dust Monitor Measured Flow Rate				
Flow Rate (L/min)	1.69			
Instrument	Model	Inst No.	Date Calibrated (NIST-traceable)	Cal Due
Flow meter	8296	INST-20	12-Jan-18	n/a
Temperature/Relative Humidity Data Logger	THS304	INST-168		
Dust Generator	SAG 410	INST-04		

Calibration Standards

Instrument	Model	Inst No.	Date Calibrated	Cal Due
Reference Instrument	Fidas 200	INST-07	26-Mar-19	25-Mar-24
Sensor Interface Device S/N	DM30 00162			
Reference Material	Lot	Expiry	Density	Refractive Index
Arizona Road Dust (ARD) Sub-fraction 0 to 40 µm	13328B	01-Oct-25	2.65 g/cm ³	1.51
ARD Cumulative Volume % Less Than Indicated Size (µm)				
ISO 17025-accredited particle size distribution analysis by Laser Diffraction*	Dv (10)	Dv (50)	Dv (90)	D (4,3) Mean
	3.05	15.7	31.6	16.8

**Analysis performed by Particle Technology Labs, USA. Report available upon request.*

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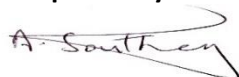
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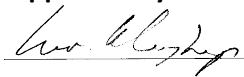
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Fraction	Correction Factor	Calibration Conditions in Test Rig		
PM ₁₀	0.51	Temperature (°C)	Relative Humidity (%)	
PM _{2.5}	0.50	22.9	43.1	
PM _{1.0}	0.69			
Dust Monitor Calibration against the Reference Instrument				
ARD conc. (µg/m ³)	Fraction	Dust Monitor As Found** (µg/m ³)	Dust Monitor As Left** (µg/m ³)	Reference** (µg/m ³)
Zero*	PM ₁₀	0.12	n/a	0.26
	PM _{2.5}	0.10	n/a	0.18
	PM _{1.0}	0.05	n/a	0.09
5.00 ± 8.51	PM ₁₀	10.46	5.38	3.63
	PM _{2.5}	2.59	1.31	1.30
	PM _{1.0}	0.64	0.44	0.45
37.75 ± 8.51	PM ₁₀	37.75	19.43	18.19
	PM _{2.5}	11.58	5.83	5.00
	PM _{1.0}	2.79	1.94	1.70
79.98 ± 14.48	PM ₁₀	84.55	43.51	47.06
	PM _{2.5}	24.55	12.36	13.15
	PM _{1.0}	5.66	3.92	4.12
104.50 ± 18.85	PM ₁₀	125.26	64.46	62.99
	PM _{2.5}	34.97	17.61	17.44
	PM _{1.0}	7.83	5.43	5.41

*Zero results are average 10 readings (µg/m³) for each particulate matter (PM) fraction, prior to introduction of ARD aerosol. **Dust monitor and Fidas 200 Reference results are average of 10 readings (µg/m³) for each PM fraction at each ARD concentration. 'Dust Monitor As Found' are results obtained prior to calibration. 'Dust Monitor As left' are results obtained after applying the correction factor shown above.

Completed By:

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