



# CERTIFICATE OF CALIBRATION

TSI Incorporated, 500 Cardigan Road, Shoreview, MN 55126 USA  
Tel: 1-800-874-2811 1-651-490-2811 Fax: 1-651-490-3824 <http://www.tsi.com>

SIZE CALIBRATION AND VERIFICATION OF SIZE SETTING*		
NOMINAL PARTICLE SIZE	DIGITAL CUTPOINT	EXPANDED UNCERTAINTY
0.1 µm	90	5.4%
0.15 µm	570	4.8%
0.2 µm	128	4.3%
0.25 µm	460	3.8%
0.3 µm	66	4.1%
0.5 µm	350	3.8%
1 µm	70	N/A
5 µm	265	N/A

\* Size setting error is zero (0) at As Left calibration when Channel size thresholds are set.

COUNTING EFFICIENCY			
PARTICLE SIZE	ACTUAL	ALLOWABLE RANGE	PASS/FAIL
0.1 µm	58%	50% ± 20%	Pass
0.15 µm	96%	100% ± 10%	Pass

SIZE RESOLUTION			
PARTICLE SIZE	MEASURED	ALLOWABLE RANGE	PASS/FAIL
0.2 µm	6.3%	≤15%	Pass

FALSE COUNT RATE						
SAMPLE TIME (MIN)	SAMPLED (L)	MEASURED COUNTS (#)	CONCENTRATION (#/M <sup>3</sup> )	95% UCL (#/M <sup>3</sup> )	ALLOWABLE RANGE (#/M <sup>3</sup> )	PASS/FAIL
1510	43035	70	1.63	2.0	≤7.0	Pass

SAMPLING FLOW RATE (L/MIN)				
NOMINAL	ACTUAL	ERROR	ALLOWABLE RANGE	PASS/FAIL
28.3	28.5	0.7 %	± 5%	Pass

SAMPLING TIME †		
MEASURED	ALLOWABLE RANGE	PASS/FAIL
< ± 0.1%	± 1%	Pass

RESPONSE RATE †		
MEASURED	ALLOWABLE RANGE	PASS/FAIL
0%	≤ 0.5%	Pass

MAXIMUM PARTICLE CONCENTRATION †
3500000 #/m <sup>3</sup> @10% Coincidence Loss

† Tested and verified during product development

CALIBRATION INTERVAL	
CALIBRATION DATE	EXPIRATION DATE
January 13, 2023	January 13, 2024





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ENVIRONMENT CONDITION		
TEMPERATURE	75.7 (24.3)	°F (°C)
RELATIVE HUMIDITY	16	%RH
BAROMETRIC PRESSURE	29.43 (996.6)	inHg (hPa)

MODEL	9110-01
SERIAL NUMBER	91102302002
CUSTOMER INST ID	

<input checked="" type="checkbox"/> AS LEFT	<input checked="" type="checkbox"/> IN TOLERANCE
<input type="checkbox"/> AS FOUND	<input type="checkbox"/> OUT OF TOLERANCE

AEROTrak CALIBRATION KIT			
MEASUREMENT VARIABLE	SYSTEM ID	DATE LAST CALIBRATED	CALIBRATION DUE DATE
FLOW METER	E003256	04/14/2022	04/30/2023
CLASSIFIER	E003579	10/12/2022	10/31/2023
FLOW METER	E004848	06/21/2022	06/30/2023
FLOW METER	E005117	09/21/2022	09/30/2023
FLOW METER	E005281	07/22/2022	01/31/2023
CONDENSATION PARTICLE COUNTER	E005743	08/13/2022	08/31/2023
FLOW METER	E010886	08/16/2022	08/31/2023

PARTICLE STANDARDS				
PARTICLE SIZE	STANDARD UNCERTAINTY	STANDARD DEVIATION	LOT NO.	EXPIRATION DATE
0.100 µm	0.002 µm	0.0077 µm	251456	03/31/2025
0.152 µm	0.0025 µm	0.005 µm	228548	07/31/2023
0.203 µm	0.0025 µm	0.0053 µm	227575	06/30/2023
0.244 µm	0.0015 µm	0.010 µm	791898	02/02/2023
0.303 µm	0.003 µm	0.0047 µm	248877	01/31/2025
0.510 µm	0.0035 µm	0.0092 µm	255494	06/30/2025
0.994 µm	0.0075 µm	0.010 µm	258865	09/30/2024
5.040 µm	0.01 µm	0.130 µm	239589	04/30/2024

TSI does hereby certify that the calibration performed on the above described instrument meets the requirements of ISO 21501-4:2018. TSI does hereby certify that the above described instrument conforms to the original manufacturer's specification (not applicable to As Found data) and has been calibrated using standards whose accuracies are traceable to the United States National Institute of Standards and Technology (NIST) or has been verified with respect to instrumentation whose accuracy is traceable to NIST, or is derived from accepted values of physical constants. TSI is registered to ISO-9001:2015.

Chue Yang  
CALIBRATED

January 13, 2023

DATE