



# Calibration Certificate

## Pressure Transducer

Certificate Number: 12411M-4  
Page 1 of 2 Pages  
Issue Date: 2021-11-30  
Final Calibration Date: 2021-11-30

Customer: Canadian Light Source Inc.  
44 Innovation Blvd.  
Saskatoon, SK  
S7N 2V3

The Calibration Laboratory Assessment Service (CLAS) of the National Research Council of Canada (NRC) has assessed and certified specific calibration capabilities of this laboratory and traceability to the International System of Units (SI) or to standards acceptable to the CLAS program. This certificate of calibration is issued in accordance with the conditions of certification granted by CLAS and the conditions of accreditation granted by the Standards Council of Canada (SCC). Neither CLAS nor SCC guarantee the accuracy of individual calibrations by accredited laboratories.

The measurement uncertainties for this pressure range is the larger of +/- 0.5% of R or 0.05 Pa. The uncertainties are expanded using a coverage factor k=2 for a level of confidence of approximately 95%, assuming normal distribution.

CCR Calibration Procedure:	QA-155	Pressure Traceability:	DHI 1500276384/1500292882
CLAS certification number:	93-01	Voltage Traceability:	1-15301674592-1
SCC accreditation number:	103	Accreditation:	ISO 17025

### Standard Equipment Used for this Calibration

Voltmeter:	Agilent 34401A	s/n:	MY45024551	Multimeter for voltage measurements
Vacuum:	KJL IG2200	s/n:	5949	Reference pressure measurement
Ref. Std.:	DHI RPM4	s/n:	665	Pressure monitor with 33 KPa range
Working Std.:	DHI RPM4	s/n:	566	Pressure monitor with 33 KPa range

### Customer Unit Identification

Customer Unit:	627F01TAC1B	s/n:	110747881	Pressure transducer with 1 torr range
	Customer specified ID:		n/a	

### Initial Condition Summary

Equipment Appearance:	OK
Sensor Contamination:	No visual appearance

### Repair Action

Repair Done:	None
Calibration Adjustment:	Yes

Notes

Calibrated by

Authorized by

Joel Hiscock, Service Manager

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Customer Unit Specifications	Calibration Conditions
Accuracy Specification: $\pm 0.12\%$ of Rdg Zero Temperature Coefficient: 20 ppm of FS/ $^{\circ}$ C Span Temperature Coefficient: 200 ppm of Rdg/ $^{\circ}$ C System Check: n/a Sensor Temperature: 45 $^{\circ}$ C Ref. Press. (torr): internal absolute	Ambient Temperature: 23 $^{\circ}$ C $\pm$ 5 $^{\circ}$ C Calibration Gas: nitrogen Zero Pressure: < 1E-6 torr Customer Unit Display: voltmeter Sensor Tube Orientation: port down

Initial As-Received Calibration Results					
Standard	Customer Unit		Customer Unit Error		
Pressure (torr)	Pressure (torr)	Voltage (Volts)	Error (torr)	Error (% of R)	
0.00000	0.00000	0.0000	0.00000	-	
0.10019	0.10021	1.0021	0.00002	0.020%	
0.20011	0.20026	2.0026	0.00015	0.075%	
0.30008	0.30037	3.0037	0.00029	0.097%	
0.40006	0.40049	4.0049	0.00043	0.107%	
0.50005	0.50065	5.0065	0.00060	0.120%	
0.60004	0.60079	6.0079	0.00075	0.125%	
0.70004	0.70070	7.0070	0.00066	0.094%	
0.80003	0.80051	8.0051	0.00048	0.060%	
0.90003	0.90047	9.0047	0.00044	0.049%	
1.00002	1.00021	10.0021	0.00019	0.019%	

Final As-Shipped Calibration Results					
Standard	Customer Unit		Customer Unit Error		
Pressure (torr)	Pressure (torr)	Voltage (Volts)	Error (torr)	Error (% of R)	
0.00000	0.00000	0.0000	0.00000	-	
0.10019	0.10012	1.0012	-0.00007	-0.070%	
0.20011	0.19998	1.9998	-0.00013	-0.065%	
0.30008	0.29994	2.9994	-0.00014	-0.047%	
0.40006	0.39984	3.9984	-0.00022	-0.055%	
0.50005	0.49977	4.9977	-0.00028	-0.056%	
0.60004	0.59976	5.9976	-0.00028	-0.047%	
0.70003	0.69975	6.9975	-0.00028	-0.040%	
0.80003	0.79964	7.9964	-0.00039	-0.049%	
0.90003	0.89950	8.9950	-0.00053	-0.059%	
1.00002	0.99923	9.9923	-0.00079	-0.079%	

TTF The results relate only to the customer unit that is identified in this certificate.