TROEMNER
Henry Troemner LLC

Calibration Certificate

Accredited by the National Voluntary Laboratory Accreditation Program for the specific scope of accreditation under Lab Code 105013

201 Wolf Drive • P.O. Box 87 • Thorofare, NJ 08086-0087 • Phone:856-686-1600 • Fax: 856-686-1601 • www.troemner.com • e-mail: troemner@troemner.com

Temperature-System Calibration

SECTION 1: NAME AND ADDRESS OF CUSTOMER

Troemner

Certificate Number : 123456
Date of Calibration : 16-Dec-2013
Serial Number : 131231

SECTION 2: APPROVED SIGNATORY

Katharine Ellison, Metrologist

SECTION 3: PERSON PERFORMING WORK

Mike O'Toole

SECTION 4: CERTIFICATE INFORMATION

Description of DUT: Heat Block
Order Number : PO#
Manufacturer : VWR
Model : 949608
Serial Number : 131231
Immersion Depth : 150 mm

Date Received : 16-Dec-2013
Condition Received : Pass Visual Inspection
Date of Calibration : 16-Dec-2013
Date of Issue : 18-Dec-2013
Calibration Range : 25 to 120 °C

SECTION 5: ENVIRONMENTAL CONDITIONS DURING TEST

Temperature: 20.2 °C Relative Humidity : 38 %

SECTION 6: PERTINENT INFORMATION

Standards				
Manufacturer	**Model**	**Serial Number**	**Cal Due Date**	**Description**
Isotech	MicroK 400	261712/1	Dec-2013	D/C Bridge
Rosemount	162CE	5257	Feb-2014	SPRT

The DUT calibrated for this report has been calibrated in accordance with Troemner's calibration procedure TMP-CAL. This calibration also meets specifications as outlined in ISO/IEC 17025, ANSI/NCSL Z540-1-1994 and applicable documents.

This comparison calibration was performed in Troemner's Temperature Calibration Laboratory at 201 Wolf Drive, Thorofare, NJ 08086 unless otherwise noted. The temperature scale used in this laboratory is the International Temperature Scale of 1990 (ITS-90). The instrument was compared to a laboratory standard, which is traceable to a National Measurement Institute (NMI).

SECTION 7: CALIBRATION DATA

AS FOUND / AS LEFT DATA

Calibration Point °C	Standard Indicated °C	DUT Indicated °C	DUT Error °C	Uncertainty °C
25	25.01	25.50	0.49	0.12
60	59.97	60.50	0.53	0.12
90	90.05	90.70	0.65	0.12
120	120.05	120.60	0.55	0.12

SECTION 8: DEFINITIONS AND TERMS

UNCERTAINTY- The error in assignment of temperature due to the measurement process. Uncertainty is calculated per NIST Technical Note 1297 using a coverage factor of k = 2 (k = 2 defines an interval having a level of confidence of approximately 95 percent).

DUT- Device Under Test. Item being calibrated.

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Electrical Calibration
Serial Number : 131231
Certificate Number : **123456A**
Date of Calibration : 16-Dec-2013

SECTION 1: NAME AND ADDRESS OF CUSTOMER

End User
Troemner

SECTION 2: APPROVED SIGNATORY

Joseph Moran

SECTION 3: PERSON PERFORMING WORK

Todd Bridges

SECTION 4: CERTIFICATE INFORMATION

Description of DUT	:	VWR Block Heater	Date Received	:	13-Dec-2013
Order Number	:	PO#	Date of Calibration		16-Dec-2013
Manufacturer	:	VWR	Date of Issue	:	17-Dec-2013
Model	:	949608			
Serial Number	:	**131231**			

SECTION 5: ENVIRONMENTAL CONDITIONS DURING TEST

Temperature : 21.1 °C Relative Humidity : 44.1 %

SECTION 6: PERTINENT INFORMATION

This calibration was performed in Troemner's Certification Laboratory at 201 Wolf Drive, Thorofare, NJ 08086
The calibration certificate documents traceability to national standards for the realization of the units of Measurement according to the International System of Units(SI).

The certificate of calibration only applies to the device identified. The device has been calibrated in accordance with Troemner calibration procedures (ECP-CAL)

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Calibration Certificate

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Serial Number : **131231**
Certificate Number : **123456A**
Date of Calibration 16-Dec-2013

As Found/As Left

Nominal Point	Frequency Counter	DUT	Difference	Uncertainty
min	sec	sec	sec	sec
1	60.56	60.00	-0.56	0.60
10	602.28	600.00	-2.28	0.60
60	3601.12	3600.00	-1.12	0.60

Calibration Standards				
Manufacturer	Model	Serial Number	Cal Due Date	Description
Fluke	PM6681/066	SM928908	31-May-2018	Frequency Std
Fluke	5520A	8825008	30-Nov-2014	Multi Product Calibrator

UNCERTAINTY- The standard deviation associated with the results of the measurements process. Uncertainty is calculated per NIST Technical note 1297 using a coverage factor of k = 2 (k = 2 defines a interval having a level of confidence of approximately 95 percent.)