



ESSCO CALIBRATION LABORATORY
DIVISION OF WALSH ENGINEERING SERVICES, INC.

CALIBRATION/REPAIR OF ALL TYPES OF ELECTRONIC / MECHANICAL TEST EQUIPMENT
27 INDUSTRIAL AVE, CHELMSFORD, MA 01824-3618
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CERTIFICATE OF CALIBRATION

ISSUE DATE: 08/08/2018

Certificate #: 1727052

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CUSTOMER / LOCATION MICROTECHNOLOGIES, INC. @ 128 GARDEN ST. FARMINGTON, CT, 06032	EQUIPMENT INFORMATION MANUFACTURER: TEMPERATURE GUARD MODEL NO: VM605E SERIAL NO: 0726180846 CONTROL NO: 1185742 TYPE: TEMPERATURE DATA LOGGER
PURCHASE ORDER: 1880	

AS FOUND	IN TOLERANCE
AS LEFT	IN TOLERANCE

Remarks: IN LAB

METHOD / ENVIRONMENT	
PERFORMED: IN LAB	TEMPERATURE (deg C): 22
METHOD: ECP NO. 1.5.26 Rev. 1 7/7/2003	REL HUMIDITY (%RH): 65

CALIBRATION	
CALIBRATION DATE: 8/8/2018	METROLOGIST:  Brian Rondeau
CALIBRATION DUE: 8/8/2020	

Standards Used To Calibrate Equipment

I.D.	Template	Type Equipment	Report No.	Last Cal. Date	Cal. Due Date
E3750	@ FLUKE 5522A-OPT SC1100	CALIBRATOR	1723901	08/01/2018	08/01/2019

The ESSCO Quality System is accredited to ISO 17025:2005

The results above relate only to the item(s) calibrated. Expanded uncertainties were calculated per ISO "Guide to the Expression of Uncertainty Measurement", (GUM) with 95% confidence level and a coverage factor of $k=2$. This certificate shall not be reproduced, except in full, without written approval of ESSCO. The user should consider the measurement uncertainty when assessing the metrological status of the equipment.

This document certifies that the unit conformed to applicable specifications upon successful completion of the calibration. Any number of factors may cause the calibration item to drift out of calibration before the recommended interval has expired. The standards used are traceable to NIST or a National Measurement Institute.

This calibration was performed in compliance with the ESSCO Quality System manual, ECL1 Rev 39, dtd 6 Feb 2018, ISO/IEC 17025:2005, ISO 9001:2008, ANSI/NCSL Z540-1 part 1, ISO 10012:2003, ISO 13485, TS 16949, and when required contractually, 10CFR21 and 10CFR50 App. B.

This report must not be used to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.

RON WHITE
Releasing Authority

Test Points

Seq.	Description	Nominal	Tolerance	Unit Measure	As Found	As Left	Uncertainty
1	INPUT 1, 1000 Ohm RTD	-70.0	-69.0 -71.0	°F	-69.7	-69.7	0.13°F
2	INPUT 1, 1000 Ohm RTD	-15.0	-14.0 -16.0	°F	-14.6	-14.6	0.13°F
3	INPUT 1, 1000 Ohm RTD	36.0	37.0 35.0	°F	36.3	36.3	0.14°F
4	INPUT 1, 1000 Ohm RTD	46.0	47.0 45.0	°F	46.2	46.2	0.14°F
5	INPUT 1, 1000 Ohm RTD	78.0	79.0 77.0	°F	77.5	77.5	0.14°F
6	INPUT 2, 1000 Ohm RTD	-70.0	-69.0 -71.0	°F	-69.7	-69.7	0.13°F
7	INPUT 2, 1000 Ohm RTD	-15.0	-14.0 -16.0	°F	-14.7	-14.7	0.13°F
8	INPUT 2, 1000 Ohm RTD	36.0	37.0 35.0	°F	36.1	36.1	0.14°F
9	INPUT 2, 1000 Ohm RTD	46.0	47.0 45.0	°F	46.1	46.1	0.14°F
10	INPUT 2, 1000 Ohm RTD	78.0	79.0 77.0	°F	77.5	77.5	0.14°F
11	INPUT 3, 1000 Ohm RTD	-70.0	-69.0 -71.0	°F	-69.6	-69.6	0.13°F
12	INPUT 3, 1000 Ohm RTD	-15.0	-14.0 -16.0	°F	-14.6	-14.6	0.13°F
13	INPUT 3, 1000 Ohm RTD	36.0	37.0 35.0	°F	36.2	36.2	0.14°F
14	INPUT 3, 1000 Ohm RTD	46.0	47.0 45.0	°F	46.1	46.1	0.14°F
15	INPUT 3, 1000 Ohm RTD	78.0	79.0 77.0	°F	77.5	77.5	0.14°F
16	INPUT 4, 1000 Ohm RTD	-70.0	-69.0 -71.0	°F	-69.8	-69.8	0.13°F
17	INPUT 4, 1000 Ohm RTD	-15.0	-14.0 -16.0	°F	-14.7	-14.7	0.13°F
18	INPUT 4, 1000 Ohm RTD	36.0	37.0 35.0	°F	36.2	36.2	0.14°F
19	INPUT 4, 1000 Ohm RTD	46.0	47.0 45.0	°F	46.2	46.2	0.14°F

Test Points

Seq.	Description	Nominal	Tolerance	Unit Measure	As Found	As Left	Uncertainty
20	INPUT 4, 1000 Ohm RTD	78.0	79.0 77.0	°F	77.5	77.5	0.14°F
21	INPUT 5, 1000 Ohm RTD	-70.0	-69.0 -71.0	°F	-69.8	-69.8	0.13°F
22	INPUT 5, 1000 Ohm RTD	-15.0	-14.0 -16.0	°F	-14.7	-14.7	0.13°F
23	INPUT 5, 1000 Ohm RTD	36.0	37.0 35.0	°F	36.1	36.1	0.14°F
24	INPUT 5, 1000 Ohm RTD	46.0	47.0 45.0	°F	46.2	46.2	0.14°F
25	INPUT 5, 1000 Ohm RTD	78.0	79.0 77.0	°F	77.5	77.5	0.14°F
26	INPUT 6, 1000 Ohm RTD	-70.0	-69.0 -71.0	°F	-69.8	-69.8	0.13°F
27	INPUT 6, 1000 Ohm RTD	-15.0	-14.0 -16.0	°F	-14.7	-14.7	0.13°F
28	INPUT 6, 1000 Ohm RTD	36.0	37.0 35.0	°F	36.2	36.2	0.14°F
29	INPUT 6, 1000 Ohm RTD	46.0	47.0 45.0	°F	46.1	46.1	0.14°F
30	INPUT 6, 1000 Ohm RTD	78.0	79.0 77.0	°F	77.5	77.5	0.14°F
31	INPUT 7, 1000 Ohm RTD	-70.0	-69.0 -71.0	°F	-69.7	-69.7	0.13°F
32	INPUT 7, 1000 Ohm RTD	-15.0	-14.0 -16.0	°F	-14.6	-14.6	0.13°F
33	INPUT 7, 1000 Ohm RTD	36.0	37.0 35.0	°F	36.2	36.2	0.14°F
34	INPUT 7, 1000 Ohm RTD	46.0	47.0 45.0	°F	46.2	46.2	0.14°F
35	INPUT 7, 1000 Ohm RTD	78.0	79.0 77.0	°F	77.5	77.5	0.14°F
36	INPUT 8, 1000 Ohm RTD	-70.0	-69.0 -71.0	°F	-69.8	-69.8	0.13°F
37	INPUT 8, 1000 Ohm RTD	-15.0	-14.0 -16.0	°F	-14.6	-14.6	0.13°F
38	INPUT 8, 1000 Ohm RTD	36.0	37.0 35.0	°F	36.2	36.2	0.14°F

Test Points

Seq.	Description	Nominal	Tolerance	Unit Measure	As Found	As Left	Uncertainty
39	INPUT 8, 1000 Ohm RTD	46.0	47.0 45.0	°F	46.2	46.2	0.14°F
40	INPUT 8, 1000 Ohm RTD	78.0	79.0 77.0	°F	77.5	77.5	0.14°F

End of Data

Note: A = Adjusted F = Failed L = Limited