



SOUTHWEST RESEARCH INSTITUTE®

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Institute Quality Systems
Institute Calibration Laboratory
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Calibration Laboratory
Certificate #0972-01

Certificate of Calibration

Cost Center / Customer: DIV20 / DON BANNON

Mail Stop: B51

Manufacturer/Model: FISHER SCIENTIFIC / 15-077-26

Description: TEMPERATURE METER

Serial Number: 51046103

Asset Number: 011674

Procedure: DIGITAL THERMOMETERS (TC/RTD) - 12 JUN 09

Work Order: 303093954

Date Issued: 20-Apr-2010

Date Calibrated: 20-Apr-2010

*** Date Due :** 20-Apr-2011

**** Results:** FOUND-LEFT

Temperature: 77.0 °F

Humidity: 38 %RH

Barometer: N/A

This certificate documents traceability to the National Institute of Standards and Technology (NIST) and the International System of Units (SI). The Laboratory quality system conforms to ISO/IEC 17025, 2005, ANSI/NCSL Z540-1-1994 and relevant requirements of the ISO 9000-2000 standard. This certificate shall not be reproduced, except in full, without the written approval of the Southwest Research Institute Calibration Laboratory. This certificate shall not be used to claim product endorsement by Southwest Research Institute, American Association for Laboratory Accreditation (A2LA) or any agency of the U. S. Government. Results of this calibration relate only to the instrument described above at the time of calibration and does not imply any long term stability of the instrument.

*Determined by the customer, does not imply the instrument will remain within tolerance as any number of factors may cause an out-of-tolerance condition before this date. **Data type found in this certificate or attached measurement report must be interpreted as: Found-left - adjustment and/or repair was not performed, As-found - data is before unit is adjusted and/or repaired, As-left - data is after adjusted and/or repaired was performed. The customer has sole responsibility for determination of in-/out-of-tolerance or compliance/noncompliance.

Measurement uncertainty calculated in accordance with the method described in the ISO "Guide to the Expression of Uncertainty in Measurement" (GUM), for a confidence level of approximately 95 percent using a coverage factor of $k=2$.

Remarks: None

Standards Used

<u>Asset #</u>	<u>Manufacturer</u>	<u>Model</u>	<u>Description</u>	<u>Cal Date</u>	<u>Due Date</u>
010329	FLUKE	525A	TEMPERATURE/PRESSURE CALIBRATOR	12-May-2009	12-May-2010


Walt Hill

Laboratory Manager



Mark Romero

Metrology Technician

Southwest Research Institute
Calibration Laboratory
Measurement Report

Work Order:	303093954	Mfr:	Fisher Scientific	Technician:	Mark Romero
Asset No:	011674	Model:	15-077-26	Type Data:	Found-left
Serial No:	51046103	Type:	Thermocouple Thermometer	Cal Date:	20-Apr-10
Remarks:					

Function/Range	Test Point	TI Reading	Difference	+/- Limit	+/- Uncertainty	Result	% Limit
T1 Input Type K	°C	°C	°C	°C	°C		
	-50.0	-49.6	0.4	1.4	0.24	Pass	29%
	190.0	190.6	0.6	2.4	0.32	Pass	25%
	575	575	0	5	0.66	Pass	0%
	960	961	1	8	0.66	Pass	12%
	1200	1201	1	10	0.75	Pass	10%
T2 Input Type K	°C	°C	°C	°C	°C		
	-50.0	-50.5	-0.5	1.4	0.24	Pass	36%
	190.0	190.0	0.0	2.4	0.32	Pass	0%
	575	574	-1	5	0.66	Pass	19%
	960	960	0	8	0.66	Pass	0%
	1200	1200	0	10	0.75	Pass	0%
T1 Input Type K	°F	°F	°F	°F	°F		
	-58.0	-57.8	0.2	2.4	0.39	Pass	8%
	310	311	1	4	0.80	Pass	23%
	1025	1024	-1	10	0.80	Pass	10%
	1740	1740	0	15	0.80	Pass	0%
	1900	1902	2	16	1.0	Pass	12%
T2 Input Type K	°F	°F	°F	°F	°F		
	-58.0	-59.0	-1.0	2.4	0.39	Pass	41%
	310	310	0	4	0.80	Pass	0%
	1025	1024	-1	10	0.80	Pass	10%
	1740	1742	2	15	0.80	Pass	13%
	1900	1902	2	16	1.0	Pass	12%
Difference T1-T2	°F	°F	°F	°F	°F		
	0.0	0.9	0.9	2.0	0.39	Pass	45%
T1-T2	°C	°C	°C	°C	°C		
	0.0	0.5	0.5	1.0	0.22	Pass	50%

END OF REPORT