

Asset No. **015110**

Work Order No. **303084262**



Manufacturer: DURO-SENSE
 Description: THERMOCOUPLE
 Model: TYPE K
 Serial No. 15110
 Div ID/Loc.
 Interval: 12 M
 Cal. Procedure: TEMPERATURE PROBES - 5 JUN 06
 Cal. Data Sheet:

Charge/Project No. 14003.01.007 1.20
 Div/Client DIV20
 Contact DON BANNON
 Mail Stop B51
 Phone 5118

Special Instructions

Cal at (20°, 40°, 60°, 80°, 100°C)

Requested by: _____

Policy on service to our customers

The Institute Calibration Laboratory (Laboratory) seeks the customer's cooperation to clarify work requests before and during work. Customers may witness calibrations with prior arrangement. The recall interval is determined by the customer. Cost for adjustments or repairs are made where the cost is less than 50 percent of the instrument replacement cost or less than \$500 unless otherwise instructed in Special Instructions above. As-found/As-left measurements are recorded and provided to the customer pass or fail. The customer is responsible for providing the manufacturer manual/information or other proposed method/procedure if not available in the Laboratory. The customer will be notified if the proposed method/procedure is inappropriate or out-dated. Deviations from calibration methods/procedures (Limited Calibration) where technically justified shall be approved by the customer before release

NOV - 3 2008

Date Picked Up

Picked Up By

Work Summary

Date	Emp.	Hours	Remarks
			STD TI
			20° 20.17 20.098
			40° 40.0954 40.03
			60° 60.059 59.92
			80° 80.0447 80.159
			100° 100.0835 100.096

120 --- Q200812190002

Instrument calibration record for DURO-SENSE Thermocouple, Model # Type K, Serial # 15110, Asset No.: 015110 (10/31/2008)



SOUTHWEST RESEARCH INSTITUTE®

6220 Culebra Road, P.O. Drawer 28510
Institute Quality Systems
Institute Calibration Laboratory
Phone: 210-522-5215 Fax 210-522-4834



Calibration Laboratory
Certificate #0972-01

Certificate of Calibration

Cost Center: DIV20

Mail Stop: B51

Customer: DON BANNON

Manufacturer/Model: DURO-SENSE / TYPE K

Description: THERMOCOUPLE

Serial Number: 15110

Asset Number: 015110

Procedure: TEMPERATURE PROBES - 5 JUN 06

Work Order: 303084262

Date Issued: 31-Oct-2008

Date Calibrated: 31-Oct-2008

***Date Due :** 31-Oct-2009

****Results:** FOUND-LEFT

Temperature: 74°F

Humidity: 40 %

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/NCCL 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. **Found/Left = adjustment and/or repair was not required, As Left = adjusted and/or repaired was required. The customer has sole responsibility for determination of in-/out-of-tolerance or compliance/noncompliance. See Remarks or attached Measurement Report with the same Work Order number for data.

Reported uncertainty calculated in accordance with the ISO "Guide to the Expression of Uncertainty in Measurement" (GUM) and represents an expanded uncertainty with a coverage factor of k=2 to approximate a 95% confidence level.

Remarks Cal at 20°, 40°, 60°, 80°, 100°C

Standards Used

<u>Asset #</u>	<u>Manufacturer</u>	<u>Model</u>	<u>Description</u>	<u>Cal Date</u>	<u>Due Date</u>
009137	HART SCIENTIFIC	1575	SUPER THERMOMETER	16-Jun-2008	16-Dec-2008
010814	HART SCIENTIFIC	1529	THERMOCOUPLE THERMOMETER	16-Oct-2007	16-Nov-2008
013908	HART SCIENTIFIC	5628	SPRT	20-Feb-2008	20-Feb-2010

Reviewed By: () srk () mar () wgh

Laboratory Quality Manager

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Calibrated By: Bob Trolling

Metrology Technician

Southwest Research Institute
Calibration Laboratory
Measurement Report

Work Order:	303084262	Mfr:	Duro-Sense	Technician:	blt
Asset No:	015110	Model:	Type K	Cal Date:	31-Oct-08
Serial No:	15110	Type:	Thermocouple		
Remarks:	Limits taken from ASTM E230-02 and are based on brand new unused thermocouples.				

Function/Range	Test Point	TI Read	Difference	+/-Limit	+/-Uncertainty	Found/Left
Temperature	° C	° C	° C	° C	° C	Result
	20.12	20.1	-0.02	2.2	0.47	Pass
	40.10	40.0	-0.10	2.2	0.47	Pass
	60.06	59.9	-0.16	2.2	0.47	Pass
	80.04	80.2	0.16	2.2	0.47	Pass
	100.08	100.1	0.02	2.2	0.47	Pass

END OF REPORT