

Asset No. **015115**

Work Order No. **303084257**



Manufacturer: DURO-SENSE	Charge/Project No. 14003.01.007 1.20
Description: THERMOCOUPLE	Div/Client DIV20
Model: TYPE K	Contact DON BANNON
Serial No. 15115	Mail Stop B51
Div ID/Loc.	Phone 5118
Interval: 12 M	
Cal. Procedure: TEMPERATURE PROBES - 5 JUN 06	
Cal. Data Sheet:	

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

Date Picked Up	NOV - 3 2008	Picked Up By
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**Work Summary**

Date	Emp.	Hours	Remarks
			20 20.116 20.07
			40 40.0945 40.0258
			60 60.06 59.94
			80 80.0436 80.34
			100 100.0387 100.13



# SOUTHWEST RESEARCH INSTITUTE®

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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: 15115

Asset Number: 015115

Procedure: TEMPERATURE PROBES - 5 JUN 06

Work Order: 303084257

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/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. \*\*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

Asset #	Manufacturer	Model	Description	Cal Date	Due Date
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 Trollinger

Metrology Technician

Southwest Research Institute  
Calibration Laboratory  
Measurement Report

Work Order:	303084257	Mfr:	Duro-Sense	Technician:	blt
Asset No:	015115	Model:	Type K	Cal Date:	31-Oct-08
Serial No:	15115	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
	40.09	40.0	-0.09	2.2	0.47	Pass
	60.06	59.9	-0.16	2.2	0.47	Pass
	80.04	80.3	0.26	2.2	0.47	Pass
	100.04	100.1	0.06	2.2	0.47	Pass

END OF REPORT