SOUTHWEST RESEARCH INSTITUTE®

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Institute Quality Systems
Institute Calibration Laboratory
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Certificate of Calibration

ACCREDITED
Calibration Laboratory
Certificate #0972-01

Submitted By: DIV20
Address: B51
Contact: DON BANNON
Manufacturer / Model: DURO-SENSE / TYPE K
Description: THERMOCOUPLE
Serial No: 331
Asset No: 008426
Procedure: TEMPERATURE PROBES - 5 JUN 06

Work Order: 303081002
Date Issued: May 15, 2008
Calibration Date: May 15, 2008
***Calibration Due:** Nov 15, 2008
Calibration Location: Bldg. 64
Environment: Temp. 74.0°F Hum. 40 %RH
****Data Type:** FOUND-LEFT
DivID/Location: 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. **Found/Left = adjustment and/or repair was not required, As Left = adjusted and/or repaired was required. The client 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 0 and 150 °C

Standards Used

Asset No.	Serial No.	Manufacturer	Model	Description	Cal Due
009137	A21208	HART SCIENTIFIC	1575	SUPER THERMOMETER	Jun 17, 08
010814	A44625	HART SCIENTIFIC	1529	THERMOCOUPLE THERMOMETER	Oct 16, 08
013908	1641	HART SCIENTIFIC	5628	SPRT	Feb 20, 10

Reviewed by: (✓) srk ( ) mar ( ) wgh

Measurements by: Bob Trollinger
Metrology Technician

m:\a2la1.rpt Rev date August 15, 2005

Southwest Research Institute
Calibration Laboratory
Measurement Report

Work Order:	303081002	Mfr.	DURO-SENSE	Technician	blt
Asset No:	008426	Model	Type K		
Serial No:	331	Type	Thermocouple	Cal Date	15-May-08
Remarks:	Limits taken from ASTM E230-02 and are based on brand new unused thermocouples. Limited Cal - tested at 0.0 and 150 C				

Function/Range	Test Point	TI Read	Difference	+/-Limit	+/-Uncertainty	Found/Left
Temperature	° C	° C	° C	° C	° C	Result
	0.163	0.57	-0.41	2.2	0.19	Pass
	150.150	150.60	-0.45	2.2	0.30	Pass

END OF REPORT