SOUTHWEST RESEARCH INSTITUTE®

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

Certificate of Calibration

Submitted By: DIV20
Address: B51
Contact: DON BANNON
Manufacturer / Model: DURO-SENSE / TYPE K
Description: THERMOCOUPLE
Serial No: 12402
Asset No: 012402
Procedure: TEMPERATURE PROBES - 5 JUN 06

Work Order: 303082205
Date Issued: Jul 24, 2008
Calibration Date: Jul 24, 2008
***Calibration Due:** Jul 24, 2009
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: Calibrated at 25°, 100° and 200°C

Standards Used

Asset No.	Serial No.	Manufacturer	Model	Description	Cal Due
009137	A21208	HART SCIENTIFIC	1575	SUPER THERMOMETER	Dec 16, 08
010281	0421	HART SCIENTIFIC	5628	SPRT	Dec 21, 09
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

Southwest Research Institute
Calibration Laboratory
Measurement Report

Work Order:	303082205	Mfr.	DURE-SENSE	Technician	blt
Asset No:	012402	Model	Type K		
Serial No:	12402	Type	Thermocouple	Cal Date	24-Jul-08
Remarks:	Limits taken from ASTM E230-02 and are based on brand new unused thermocouples. Limited Cal - tested at 25, 100 and 200 °C				

Function/Range	Test Point	TI Read	Difference	+/-Limit	+/-Uncertainty	Found/Left
Temperature	° C	° C	° C	° C	° C	Result
	25.100	25.07	0.03	2.2	0.30	Pass
	100.041	100.14	-0.10	2.2	0.30	Pass
	198.113	198.25	-0.14	2.2	0.30	Pass

END OF REPORT