

# Certificate of Calibration

Customer: ACCURATE CALIBRATION  
1924 PINNACLE DR.  
AURORA, IL, 60502  
(630)269-1480

P.O. Number:  
**ID Number: R051089**

Description: TEMPERATURE CALIBRATOR	Calibration Date: 08/02/2016
Manufacturer: EUROTHERM	Calibration Due: 11/02/2016
Model Number: MEMOCAL 2000	Procedure: EUROTHERM MEMOCAL 2000
Serial Number: 02.41.002791	Rev: 1/21/2011
Technician: CHASE LOVETTE	Temperature: 70 F
On-Site Calibration: **	Humidity: 48 % RH
Comments: Calibrated in accordance with AMS2750E.	<b>As Found Condition: IN TOLERANCE</b>
	<b>Calibration Results: IN TOLERANCE</b>

**Limiting Attribute:**

This instrument has been calibrated using standards traceable to the National Institute of Standards and Technology, derived from natural physical constants, ratio measurements or compared to consensus standards. Unless otherwise noted, the method of calibration is direct comparison to a known standard.

Reported uncertainties are expressed as expanded uncertainty values at an approximately 95% confidence level using a coverage factor of K=2. Statements of compliance are based on test results falling within specified limits with no reduction by the uncertainty of the measurement.

TMI's Quality System is accredited to ISO/IEC 17025:2005 and ANSI/NCSL Z540-1-1994. ISO/IEC 17025:2005 is written in a language relevant to laboratory operations, meeting the principles of ISO 9001 and aligned with its pertinent requirements. This calibration is within the current A2LA Scope of Accreditation and complies with the requirements of ISO/IEC 17025:2005 and TMI's Quality Manual, QM-1.

Results contained in this document relate only to the item calibrated. Calibration due dates appearing on the certificate or label are determined by the client for administrative purposes and do not imply continued conformance to specifications.

This certificate shall not be reproduced, except in full, without the written permission of Technical Maintenance, Inc.

Measurements not currently on TMI's Scope of Accreditation are identified with an asterisk.



ANTHONY ROGERS, BRANCH MANAGER



Scott Chamberlain, QUALITY MANAGER

### Calibration Standards

<u>Asset Number</u>	<u>Manufacturer</u>	<u>Model Number</u>	<u>Date Calibrated</u>	<u>Cal Due</u>
4610013	FLUKE	5720A/003	6/15/2016	6/15/2017
RFD7526A-156	FLUKE	7526A-156	5/18/2016	6/24/2017
RFD813	HEWLETT PACKARD	3458A	5/10/2016	5/10/2017
RKFD100	FLUKE	9103	6/26/2015	2/26/2017
RKFD101	FLUKE/HART	1502A	2/19/2016	5/6/2017
RKFD102	BURNS ENGINEERING	5615	1/28/2016	1/28/2018



**Technical Maintenance, Inc.**

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ISO/IEC 17025:2005  
CALIBRATION CERT.#1378.07

## Data Sheet

<u>Parameter</u>	<u>Nominal</u>	<u>Minimum</u>	<u>Maximum</u>	<u>As Found</u>	<u>As Left</u>	<u>Uncertainty</u>	<u>Unit</u>	<u>ADJ/FAIL</u>
mV Output Accuracy, -4 to 20 mV range	-4.00000	-4.00360	-3.99640	-4.00059	-4.00059	0.372 uV	mV	
mV Output Accuracy, -4 to 20 mV range	0.00000	-0.00360	0.00360	-0.00039	-0.00039	0.3 uV	mV	
mV Output Accuracy, -4 to 20 mV range	5.00000	4.99640	5.00360	5.00039	5.00039	0.39 uV	mV	
mV Output Accuracy, -4 to 20 mV range	10.00000	9.99640	10.00360	10.00108	10.00108	0.48 uV	mV	
mV Output Accuracy, -4 to 20 mV range	15.00000	14.99640	15.00360	15.00137	15.00137	0.57 uV	mV	
mV Output Accuracy, -4 to 20 mV range	20.00000	19.99640	20.00360	20.00148	20.00148	0.66 uV	mV	
mV Output Accuracy, -40 to 200 mV range	-40.00000	-40.03600	-39.96400	-40.00152	-40.00152	1.02 uV	mV	
mV Output Accuracy, -40 to 200 mV range	0.00000	-0.03600	0.03600	-0.00532	-0.00532	0.3 uV	mV	
mV Output Accuracy, -40 to 200 mV range	50.00000	49.96400	50.03600	49.99675	49.99675	1.2 uV	mV	
mV Output Accuracy, -40 to 200 mV range	100.00000	99.96400	100.03600	100.00091	100.00091	2.1 uV	mV	
mV Output Accuracy, -40 to 200 mV range	150.00000	149.96400	150.03600	150.00147	150.00147	1.95 uV	mV	
mV Output Accuracy, -40 to 200 mV range	200.00000	199.96400	200.03600	200.00191	200.00191	2.5 uV	mV	
mV Output Accuracy, -400 to 2000 mV range	-400.00000	-400.36000	-399.64000	-400.01220	-400.01220	4.7 uV	mV	
mV Output Accuracy, -400 to 2000 mV range	0.00000	-0.36000	0.36000	-0.05745	-0.05745	0.3 uV	mV	
mV Output Accuracy, -400 to 2000 mV range	500.00000	499.64000	500.36000	499.93785	499.93785	5.8 uV	mV	
mV Output Accuracy, -400 to 2000 mV range	1000.00000	999.64000	1000.36000	999.90814	999.90814	11.3 uV	mV	
mV Output Accuracy, -400 to 2000 mV range	1500.00000	1499.64000	1500.36000	1499.89260	1499.89260	17 uV	mV	
mV Output Accuracy, -400 to 2000 mV range	2000.00000	1999.64000	2000.36000	1999.86260	1999.86260	22.5 uV	mV	
mV Output Accuracy, -4 to 20 V range	-4.000000	-4.004800	-3.995200	-3.999911	-3.999911	44.5 uV	V	
mV Output Accuracy, -4 to 20 V range	0.000000	-0.004800	0.004800	-0.000270	-0.000270	0.3 uV	V	
mV Output Accuracy, -4 to 20 V range	5.000000	4.995200	5.004800	5.000125	5.000125	55.5 uV	V	
mV Output Accuracy, -4 to 20 V range	10.000000	9.995200	10.004800	9.999500	9.999500	110.5 uV	V	
mV Output Accuracy, -4 to 20 V range	15.000000	14.995200	15.004800	14.999608	14.999608	225 uV	V	
mV Output Accuracy, -4 to 20 V range	20.000000	19.995200	20.004800	19.999919	19.999919	290 uV	mV	
mV Measurement Accuracy, -20 to 20 mV range	-20.000	-20.006	-19.994	-19.997	-19.997	1.48 uV	mV	
mV Measurement Accuracy, -20 to 20 mV range	0.000	-0.006	0.006	-0.001	-0.001	1 uV	mV	
mV Measurement Accuracy, -20 to 20 mV range	5.000	4.994	5.006	4.999	4.999	1.12 uV	mV	
mV Measurement Accuracy, -20 to 20 mV range	10.000	9.994	10.006	9.999	9.999	1.24 uV	mV	
mV Measurement Accuracy, -20 to 20 mV range	15.000	14.994	15.006	14.999	14.999	1.36 uV	mV	
mV Measurement Accuracy, -20 to 20 mV range	20.000	19.994	20.006	19.999	19.999	1.48 uV	mV	
mV Measurement Accuracy, -200 to 200 mV range	-200.00	-200.06	-199.94	-199.97	-199.97	5.8 uV	mV	
mV Measurement Accuracy, -200 to 200 mV range	0.00	-0.06	0.06	0.00	0.00	1 uV	mV	
mV Measurement Accuracy, -200 to 200 mV range	50.00	49.94	50.06	49.99	49.99	2.7 uV	mV	
mV Measurement Accuracy, -200 to 200 mV range	100.00	99.94	100.06	99.99	99.99	3.4 uV	mV	
mV Measurement Accuracy, -200 to 200 mV range	150.00	149.94	150.06	150.00	150.00	4.6 uV	mV	
mV Measurement Accuracy, -200 to 200 mV range	200.00	199.94	200.06	200.00	200.00	5.8 uV	mV	
mV Measurement Accuracy, -2 to 2 V range	-2.0000	-2.0006	-1.9994	-1.9998	-1.9998	30 uV	mV	
mV Measurement Accuracy, -2 to 2 V range	0.0000	-0.0006	0.0006	0.0000	0.0000	1 uV	mV	
mV Measurement Accuracy, -2 to 2 V range	0.5000	0.4994	0.5006	0.5000	0.5000	9 uV	mV	
mV Measurement Accuracy, -2 to 2 V range	1.0000	0.9994	1.0006	0.9999	0.9999	16 uV	mV	
mV Measurement Accuracy, -2 to 2 V range	1.5000	1.4994	1.5006	1.5000	1.5000	23 uV	mV	
mV Measurement Accuracy, -2 to 2 V range	2.0000	1.9994	2.0006	2.0001	2.0001	30 uV	mV	
mV Measurement Accuracy, -20 to 20 V range	-20.000	-20.008	-19.992	-19.997	-19.997	320 uV	V	
mV Measurement Accuracy, -20 to 20 V range	0.000	-0.008	0.008	0.000	0.000	1 uV	V	
mV Measurement Accuracy, -20 to 20 V range	5.000	4.992	5.008	4.999	4.999	95 uV	V	
mV Measurement Accuracy, -20 to 20 V range	10.000	9.992	10.008	9.999	9.999	170 uV	V	
mV Measurement Accuracy, -20 to 20 V range	15.000	14.992	15.008	14.999	14.999	245 uV	V	



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## Data Sheet

<u>Parameter</u>	<u>Nominal</u>	<u>Minimum</u>	<u>Maximum</u>	<u>As Found</u>	<u>As Left</u>	<u>Uncertainty</u>	<u>Unit</u>	<u>ADJ/FAIL</u>
mV Measurement Accuracy, -20 to 20 V range	20.000	19.992	20.008	19.999	19.999	320 uV	V	
mA Output Accuracy, 0 to 21 mA range	0.0000000	-0.0031500	0.0031500	0.0000071	0.0000071	0.04 uA	mA	
mA Output Accuracy, 0 to 21 mA range	1.0000000	0.9968500	1.0031500	0.9995417	0.9995417	0.075 uA	mA	
mA Output Accuracy, 0 to 21 mA range	5.0000000	4.9968500	5.0031500	4.9991580	4.9991580	0.175 uA	mA	
mA Output Accuracy, 0 to 21 mA range	10.0000000	9.9968500	10.0031500	9.9990760	9.9990760	0.3 uA	mA	
mA Output Accuracy, 0 to 21 mA range	15.0000000	14.9968500	15.0031500	14.9983600	14.9983600	1.145 uA	mA	
mA Output Accuracy, 0 to 21 mA range	21.0000000	20.9968500	21.0031500	20.9973700	20.9973700	1.403 uA	mA	
mA Measurement Accuracy, -20 to 20 mA range	-20.000	-20.006	-19.994	-19.998	-19.998	2.65 uA	mA	
mA Measurement Accuracy, -20 to 20 mA range	0.000	-0.006	0.006	0.001	0.001	0.02 uA	mA	
mA Measurement Accuracy, -20 to 20 mA range	5.000	4.994	5.006	5.000	5.000	0.85 uA	mA	
mA Measurement Accuracy, -20 to 20 mA range	10.000	9.994	10.006	10.000	10.000	1.45 uA	mA	
mA Measurement Accuracy, -20 to 20 mA range	15.000	14.994	15.006	15.001	15.001	2.05 uA	mA	
mA Measurement Accuracy, -20 to 20 mA range	20.000	19.994	20.006	20.002	20.002	2.65 uA	mA	
mA Measurement Accuracy, -130 to 130 mA range	-130.00	-130.05	-129.95	-130.01	-130.01	33.7 uA	mA	
mA Measurement Accuracy, -130 to 130 mA range	0.00	-0.05	0.05	0.00	0.00	0.02 uA	mA	
mA Measurement Accuracy, -130 to 130 mA range	10.00	9.95	10.05	10.00	10.00	1.45 uA	mA	
mA Measurement Accuracy, -130 to 130 mA range	50.00	49.95	50.05	50.00	50.00	14.5 uA	mA	
mA Measurement Accuracy, -130 to 130 mA range	100.00	99.95	100.05	100.01	100.01	26.5 uA	mA	
mA Measurement Accuracy, -130 to 130 mA range	130.00	129.95	130.05	130.02	130.02	33.7 uA	mA	
RTD Pt. 100 Ohm Measurement, 20.68 Ohms	-195.0	-195.2	-194.8	-195.0	-195.0	0.025 Deg C	Deg C	
RTD Pt. 100 Ohm Measurement, 60.26 Ohms	-100.0	-100.2	-99.8	-99.9	-99.9	0.025 Deg C	Deg C	
RTD Pt. 100 Ohm Measurement, 100.00 Ohms	0.0	-0.2	0.2	0.2	0.2	0.025 Deg C	Deg C	
RTD Pt. 100 Ohm Measurement, 138.51 Ohms	100.0	99.8	100.2	100.2	100.2	0.025 Deg C	Deg C	
RTD Pt. 100 Ohm Measurement, 280.98 Ohms	500.0	499.8	500.2	500.2	500.2	0.025 Deg C	Deg C	
RTD Pt. 100 Ohm Measurement, 389.02 Ohms	845.0	844.7	845.3	845.0	845.0	0.025 Deg C	Deg C	
Resistance Measurement Accuracy	0.0	-0.2	0.2	0.0	0.0	0.01 Ohms	Ohms	
Resistance Measurement Accuracy	10.0	9.8	10.2	10.0	10.0	0.01542 Ohms	Ohms	
Resistance Measurement Accuracy	100.0	99.8	100.2	100.1	100.1	0.0183 Ohms	Ohms	
Resistance Measurement Accuracy	300.0	299.8	300.2	300.1	300.1	0.0299 Ohms	Ohms	
Resistance Measurement Accuracy	500.0	499.8	500.2	500.1	500.1	0.0365 Ohms	Ohms	
Resistance Measurement Accuracy	790.0	789.8	790.2	790.2	790.2	0.04607 Ohms	Ohms	
Thermocouple Measurement Accuracy, Type E	-328.0	-328.4	-327.6	-328.4	-328.4	0.288 Deg F	Deg F	
Thermocouple Measurement Accuracy, Type E	-200.0	-200.4	-199.6	-200.4	-200.4	0.288 Deg F	Deg F	
Thermocouple Measurement Accuracy, Type E	0.0	-0.4	0.4	-0.3	-0.3	0.234 Deg F	Deg F	
Thermocouple Measurement Accuracy, Type E	32.0	31.6	32.4	31.7	31.7	0.234 Deg F	Deg F	
Thermocouple Measurement Accuracy, Type E	200.0	199.6	200.4	199.7	199.7	0.234 Deg F	Deg F	
Thermocouple Measurement Accuracy, Type E	400.0	399.6	400.4	399.7	399.7	0.234 Deg F	Deg F	
Thermocouple Measurement Accuracy, Type E	600.0	599.6	600.4	599.9	599.9	0.234 Deg F	Deg F	
Thermocouple Measurement Accuracy, Type E	800.0	799.6	800.4	799.9	799.9	0.234 Deg F	Deg F	
Thermocouple Measurement Accuracy, Type E	1000.0	999.6	1000.4	999.9	999.9	0.234 Deg F	Deg F	
Thermocouple Measurement Accuracy, Type E	1200.0	1199.6	1200.4	1199.8	1199.8	0.252 Deg F	Deg F	
Thermocouple Measurement Accuracy, Type E	1400.0	1399.6	1400.4	1399.7	1399.7	0.252 Deg F	Deg F	
Thermocouple Measurement Accuracy, Type E	1600.0	1599.6	1600.4	1599.7	1599.7	0.252 Deg F	Deg F	
Thermocouple Measurement Accuracy, Type E	1832.0	1831.6	1832.4	1831.9	1831.9	0.252 Deg F	Deg F	
Thermocouple Measurement Accuracy, Type J	-328.0	-328.5	-327.5	-328.2	-328.2	0.396 Deg F	Deg F	
Thermocouple Measurement Accuracy, Type J	-200.0	-200.5	-199.5	-200.2	-200.2	0.396 Deg F	Deg F	
Thermocouple Measurement Accuracy, Type J	0.0	-0.5	0.5	-0.2	-0.2	0.234 Deg F	Deg F	



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## Data Sheet

<u>Parameter</u>	<u>Nominal</u>	<u>Minimum</u>	<u>Maximum</u>	<u>As Found</u>	<u>As Left</u>	<u>Uncertainty</u>	<u>Unit ADJ/FAIL</u>
Thermocouple Measurement Accuracy, Type J	32.0	31.5	32.5	31.8	31.8	0.234 Deg F	Deg F
Thermocouple Measurement Accuracy, Type J	200.0	199.5	200.5	199.8	199.8	0.234 Deg F	Deg F
Thermocouple Measurement Accuracy, Type J	400.0	399.5	400.5	399.8	399.8	0.234 Deg F	Deg F
Thermocouple Measurement Accuracy, Type J	600.0	599.5	600.5	599.9	599.9	0.234 Deg F	Deg F
Thermocouple Measurement Accuracy, Type J	800.0	799.5	800.5	799.9	799.9	0.234 Deg F	Deg F
Thermocouple Measurement Accuracy, Type J	1000.0	999.5	1000.5	999.9	999.9	0.234 Deg F	Deg F
Thermocouple Measurement Accuracy, Type J	1200.0	1199.5	1200.5	1199.9	1199.9	0.234 Deg F	Deg F
Thermocouple Measurement Accuracy, Type J	1600.0	1599.5	1600.5	1600.1	1600.1	0.252 Deg F	Deg F
Thermocouple Measurement Accuracy, Type J	1800.0	1799.5	1800.5	1800.1	1800.1	0.252 Deg F	Deg F
Thermocouple Measurement Accuracy, Type J	2192.0	2191.5	2192.5	2192.1	2192.1	0.252 Deg F	Deg F
Thermocouple Measurement Accuracy, Type K	-328.0	-328.5	-327.5	-328.0	-328.0	0.36 Deg F	Deg F
Thermocouple Measurement Accuracy, Type K	-200.0	-200.5	-199.5	-200.0	-200.0	0.36 Deg F	Deg F
Thermocouple Measurement Accuracy, Type K	0.0	-0.5	0.5	0.0	0.0	0.252 Deg F	Deg F
Thermocouple Measurement Accuracy, Type K	32.0	31.5	32.5	32.0	32.0	0.252 Deg F	Deg F
Thermocouple Measurement Accuracy, Type K	200.0	199.6	200.4	200.0	200.0	0.252 Deg F	Deg F
Thermocouple Measurement Accuracy, Type K	400.0	399.6	400.4	400.1	400.1	0.252 Deg F	Deg F
Thermocouple Measurement Accuracy, Type K	600.0	599.6	600.4	600.1	600.1	0.252 Deg F	Deg F
Thermocouple Measurement Accuracy, Type K	800.0	799.6	800.4	800.0	800.0	0.252 Deg F	Deg F
Thermocouple Measurement Accuracy, Type K	1000.0	999.6	1000.4	1000.1	1000.1	0.252 Deg F	Deg F
Thermocouple Measurement Accuracy, Type K	1200.0	1199.6	1200.4	1200.1	1200.1	0.252 Deg F	Deg F
Thermocouple Measurement Accuracy, Type K	1400.0	1399.6	1400.4	1400.1	1400.1	0.252 Deg F	Deg F
Thermocouple Measurement Accuracy, Type K	1600.0	1599.6	1600.4	1600.2	1600.2	0.306 Deg F	Deg F
Thermocouple Measurement Accuracy, Type K	1800.0	1799.4	1800.6	1800.2	1800.2	0.306 Deg F	Deg F
Thermocouple Measurement Accuracy, Type K	2000.0	1999.4	2000.6	2000.2	2000.2	0.306 Deg F	Deg F
Thermocouple Measurement Accuracy, Type K	2200.0	2199.4	2200.6	2200.3	2200.3	0.306 Deg F	Deg F
Thermocouple Measurement Accuracy, Type K	2498.0	2497.1	2498.9	2498.3	2498.3	0.306 Deg F	Deg F
Thermocouple Measurement Accuracy, Type T	-328.0	-328.5	-327.5	-328.5	-328.5	0.36 Deg F	Deg F
Thermocouple Measurement Accuracy, Type T	-200.0	-200.5	-199.5	-200.5	-200.5	0.36 Deg F	Deg F
Thermocouple Measurement Accuracy, Type T	0.0	-0.5	0.5	-0.5	-0.5	0.27 Deg F	Deg F
Thermocouple Measurement Accuracy, Type T	32.0	31.5	32.5	31.6	31.6	0.234 Deg F	Deg F
Thermocouple Measurement Accuracy, Type T	200.0	199.8	200.2	199.8	199.8	0.234 Deg F	Deg F
Thermocouple Measurement Accuracy, Type T	400.0	399.8	400.2	399.8	399.8	0.234 Deg F	Deg F
Thermocouple Measurement Accuracy, Type T	600.0	599.8	600.2	599.8	599.8	0.234 Deg F	Deg F
Thermocouple Measurement Accuracy, Type T	752.0	751.8	752.2	751.9	751.9	0.234 Deg F	Deg F
Thermocouple Measurement Accuracy, Type R	-50.0	-52.6	-47.4	-51.2	-51.2	1.152 Deg F	Deg F
Thermocouple Measurement Accuracy, Type R	0.0	-2.6	2.6	-0.8	-0.8	0.954	Deg F
Thermocouple Measurement Accuracy, Type R	32.0	29.4	34.6	31.6	31.6	0.828	Deg F
Thermocouple Measurement Accuracy, Type R	200.0	198.4	201.6	199.8	199.8	0.828	Deg F
Thermocouple Measurement Accuracy, Type R	400.0	398.8	401.2	399.8	399.8	0.594	Deg F
Thermocouple Measurement Accuracy, Type R	600.0	599.2	600.8	599.8	599.8	0.594	Deg F
Thermocouple Measurement Accuracy, Type R	800.0	799.2	800.8	799.8	799.8	0.486	Deg F
Thermocouple Measurement Accuracy, Type R	1000.0	999.2	1000.8	999.9	999.9	0.486	Deg F
Thermocouple Measurement Accuracy, Type R	1200.0	1199.2	1200.8	1199.9	1199.9	0.468	Deg F
Thermocouple Measurement Accuracy, Type R	1400.0	1399.2	1400.8	1400.0	1400.0	0.468	Deg F
Thermocouple Measurement Accuracy, Type R	1600.0	1599.2	1600.8	1600.0	1600.0	0.468	Deg F
Thermocouple Measurement Accuracy, Type R	1800.0	1799.2	1800.8	1800.1	1800.1	0.468	Deg F
Thermocouple Measurement Accuracy, Type R	2000.0	1999.2	2000.8	2000.1	2000.1	0.432	Deg F



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## Data Sheet

<u>Parameter</u>	<u>Nominal</u>	<u>Minimum</u>	<u>Maximum</u>	<u>As Found</u>	<u>As Left</u>	<u>Uncertainty</u>	<u>Unit ADJ/FAIL</u>
Thermocouple Measurement Accuracy, Type R	2200.0	2199.2	2200.8	2200.0	2200.0	0.432	Deg F
Thermocouple Measurement Accuracy, Type R	2800.0	2799.2	2800.8	2800.0	2800.0	0.432	Deg F
Thermocouple Measurement Accuracy, Type R	3200.0	3198.8	3201.2	3200.1	3200.1	0.504	Deg F
Thermocouple Measurement Accuracy, Type S	-50.0	-52.0	-48.0	-50.3	-50.3	1.08	Deg F
Thermocouple Measurement Accuracy, Type S	0.0	-2.0	2.0	0.0	0.0	0.9	Deg F
Thermocouple Measurement Accuracy, Type S	32.0	30.0	34.0	31.8	31.8	0.81	Deg F
Thermocouple Measurement Accuracy, Type S	200.0	198.8	201.2	199.8	199.8	0.81	Deg F
Thermocouple Measurement Accuracy, Type S	400.0	398.8	401.2	399.9	399.9	0.63	Deg F
Thermocouple Measurement Accuracy, Type S	600.0	599.2	600.8	600.0	600.0	0.63	Deg F
Thermocouple Measurement Accuracy, Type S	800.0	799.2	800.8	800.1	800.1	0.504	Deg F
Thermocouple Measurement Accuracy, Type S	1000.0	999.2	1000.8	1000.1	1000.1	0.504	Deg F
Thermocouple Measurement Accuracy, Type S	1200.0	1199.2	1200.8	1200.0	1200.0	0.486	Deg F
Thermocouple Measurement Accuracy, Type S	1400.0	1399.2	1400.8	1399.9	1399.9	0.486	Deg F
Thermocouple Measurement Accuracy, Type S	1600.0	1599.2	1600.8	1599.9	1599.9	0.486	Deg F
Thermocouple Measurement Accuracy, Type S	1800.0	1799.2	1800.8	1799.9	1799.9	0.486	Deg F
Thermocouple Measurement Accuracy, Type S	2000.0	1999.2	2000.8	2000.0	2000.0	0.486	Deg F
Thermocouple Measurement Accuracy, Type S	2200.0	2199.2	2200.8	2199.9	2199.9	0.486	Deg F
Thermocouple Measurement Accuracy, Type S	2800.0	2799.2	2800.8	2799.9	2799.9	0.486	Deg F
Thermocouple Measurement Accuracy, Type S	3200.0	3199.2	3200.8	3199.7	3199.7	0.558	Deg F
Thermocouple Measurement Accuracy, Type N	32.0	31.6	32.4	31.8	31.8	0.27	Deg F
Thermocouple Measurement Accuracy, Type N	200.0	199.6	200.4	199.7	199.7	0.27	Deg F
Thermocouple Measurement Accuracy, Type N	400.0	399.6	400.4	399.8	399.8	0.252	Deg F
Thermocouple Measurement Accuracy, Type N	600.0	599.6	600.4	599.7	599.7	0.252	Deg F
Thermocouple Measurement Accuracy, Type N	800.0	799.6	800.4	799.9	799.9	0.252	Deg F
Thermocouple Measurement Accuracy, Type N	1000.0	999.6	1000.4	999.9	999.9	0.252	Deg F
Thermocouple Measurement Accuracy, Type N	1200.0	1199.3	1200.7	1199.9	1199.9	0.252	Deg F
Thermocouple Measurement Accuracy, Type N	1400.0	1399.3	1400.7	1399.9	1399.9	0.252	Deg F
Thermocouple Measurement Accuracy, Type N	1600.0	1599.3	1600.7	1600.0	1600.0	0.288	Deg F
Thermocouple Measurement Accuracy, Type N	1800.0	1799.3	1800.7	1800.0	1800.0	0.288	Deg F
Thermocouple Measurement Accuracy, Type N	2000.0	1999.3	2000.7	2000.0	2000.0	0.288	Deg F
Thermocouple Measurement Accuracy, Type N	2200.0	2199.2	2200.8	2200.1	2200.1	0.288	Deg F
Thermocouple Measurement Accuracy, Type N	2370.0	2369.2	2370.8	2370.1	2370.1	0.288	Deg F
Thermocouple Measurement Accuracy, Type B	150.0	126.3	173.7	156.6	156.6		Deg F
Thermocouple Measurement Accuracy, Type B	200.0	176.3	223.7	204.1	204.1		Deg F
Thermocouple Measurement Accuracy, Type B	400.0	396.2	403.8	400.3	400.3		Deg F
Thermocouple Measurement Accuracy, Type B	600.0	596.2	603.8	600.3	600.3		Deg F
Thermocouple Measurement Accuracy, Type B	800.0	798.0	802.0	800.3	800.3		Deg F
Thermocouple Measurement Accuracy, Type B	1000.0	998.0	1002.0	1000.1	1000.1		Deg F
Thermocouple Measurement Accuracy, Type B	1200.0	1198.0	1202.0	1200.1	1200.1	0.738	Deg F
Thermocouple Measurement Accuracy, Type B	1400.0	1398.7	1401.3	1400.5	1400.5	0.738	Deg F
Thermocouple Measurement Accuracy, Type B	1600.0	1598.7	1601.3	1600.5	1600.5	0.594	Deg F
Thermocouple Measurement Accuracy, Type B	1800.0	1799.2	1800.8	1800.1	1800.1	0.594	Deg F
Thermocouple Measurement Accuracy, Type B	2000.0	1999.2	2000.8	2000.0	2000.0	0.594	Deg F
Thermocouple Measurement Accuracy, Type B	2200.0	2199.2	2200.8	2200.1	2200.1	0.594	Deg F
Thermocouple Measurement Accuracy, Type B	2600.0	2599.2	2600.8	2600.1	2600.1	0.594	Deg F
Thermocouple Measurement Accuracy, Type B	3000.0	2999.2	3000.8	3000.4	3000.4	0.486	Deg F
Thermocouple Measurement Accuracy, Type B	3276.0	3275.2	3276.8	3276.2	3276.2	0.486	Deg F



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# Certificate of Calibration

## Data Sheet

<u>Parameter</u>	<u>Nominal</u>	<u>Minimum</u>	<u>Maximum</u>	<u>As Found</u>	<u>As Left</u>	<u>Uncertainty</u>	<u>Unit ADJ/FAIL</u>
Thermocouple Output Accuracy, Type E	-328.0	-328.4	-327.6	-328.2	-328.2	0.288	Deg F
Thermocouple Output Accuracy, Type E	-200.0	-200.4	-199.6	-200.2	-200.2	0.288	Deg F
Thermocouple Output Accuracy, Type E	32.0	31.6	32.4	31.8	31.8	0.234	Deg F
Thermocouple Output Accuracy, Type E	600.0	599.6	600.4	600.0	600.0	0.234	Deg F
Thermocouple Output Accuracy, Type E	1000.0	999.6	1000.4	1000.0	1000.0	0.234	Deg F
Thermocouple Output Accuracy, Type E	1829.0	1828.6	1829.4	1829.1	1829.1	0.252	Deg F
Thermocouple Output Accuracy, Type J	-328.0	-328.5	-327.5	-328.2	-328.2	0.252	Deg F
Thermocouple Output Accuracy, Type J	-200.0	-200.5	-199.5	-199.9	-199.9	0.252	Deg F
Thermocouple Output Accuracy, Type J	32.0	31.5	32.5	31.9	31.9	0.234	Deg F
Thermocouple Output Accuracy, Type J	800.0	799.5	800.5	800.0	800.0	0.234	Deg F
Thermocouple Output Accuracy, Type J	1600.0	1599.5	1600.5	1600.1	1600.1	0.252	Deg F
Thermocouple Output Accuracy, Type J	2192.0	2191.5	2192.5	2192.2	2192.2	0.252	Deg F
Thermocouple Output Accuracy, Type K	-328.0	-328.5	-327.5	-328.3	-328.3	0.36	Deg F
Thermocouple Output Accuracy, Type K	-200.0	-200.5	-199.5	-199.5	-199.5	0.36	Deg F
Thermocouple Output Accuracy, Type K	32.0	31.5	32.5	32.3	32.3	0.252	Deg F
Thermocouple Output Accuracy, Type K	600.0	599.6	600.4	600.2	600.2	0.252	Deg F
Thermocouple Output Accuracy, Type K	1600.0	1599.6	1600.4	1600.1	1600.1	0.306	Deg F
Thermocouple Output Accuracy, Type K	2498.0	2497.1	2498.9	2498.2	2498.2	0.306	Deg F
Thermocouple Output Accuracy, Type T	-328.0	-328.5	-327.5	-327.8	-327.8	0.36	Deg F
Thermocouple Output Accuracy, Type T	-200.0	-200.5	-199.5	-199.8	-199.8	0.36	Deg F
Thermocouple Output Accuracy, Type T	32.0	31.5	32.5	31.9	31.9	0.27	Deg F
Thermocouple Output Accuracy, Type T	200.0	199.8	200.2	200.0	200.0	0.234	Deg F
Thermocouple Output Accuracy, Type T	400.0	399.8	400.2	400.0	400.0	0.234	Deg F
Thermocouple Output Accuracy, Type T	752.0	751.8	752.2	752.0	752.0	0.234	Deg F
Thermocouple Output Accuracy, Type R	-50.0	-52.6	-47.4	-49.8	-49.8	1.152	Deg F
Thermocouple Output Accuracy, Type R	32.0	29.4	34.6	32.0	32.0	0.828	Deg F
Thermocouple Output Accuracy, Type R	600.0	599.2	600.8	600.1	600.1	0.594	Deg F
Thermocouple Output Accuracy, Type R	1600.0	1599.2	1600.8	1600.0	1600.0	0.468	Deg F
Thermocouple Output Accuracy, Type R	2200.0	2199.2	2200.8	2200.2	2200.2	0.432	Deg F
Thermocouple Output Accuracy, Type R	3200.0	3198.8	3201.2	3199.8	3199.8	0.504	Deg F
Thermocouple Output Accuracy, Type S	-50.0	-52.0	-48.0	-48.9	-48.9	1.08	Deg F
Thermocouple Output Accuracy, Type S	32.0	30.0	34.0	32.7	32.7	0.81	Deg F
Thermocouple Output Accuracy, Type S	600.0	599.2	600.8	600.4	600.4	0.63	Deg F
Thermocouple Output Accuracy, Type S	1600.0	1599.2	1600.8	1600.2	1600.2	0.486	Deg F
Thermocouple Output Accuracy, Type S	2200.0	2199.2	2200.8	2200.1	2200.1	0.486	Deg F
Thermocouple Output Accuracy, Type S	3200.0	3199.2	3200.8	3200.0	3200.0	0.558	Deg F
Thermocouple Output Accuracy, Type N	32.0	31.6	32.4	32.0	32.0	0.27	Deg F
Thermocouple Output Accuracy, Type N	600.0	599.6	600.4	600.2	600.2	0.252	Deg F
Thermocouple Output Accuracy, Type N	1400.0	1399.3	1400.7	1400.0	1400.0	0.252	Deg F
Thermocouple Output Accuracy, Type N	1600.0	1599.3	1600.7	1600.0	1600.0	0.288	Deg F
Thermocouple Output Accuracy, Type N	2000.0	1999.3	2000.7	1999.9	1999.9	0.288	Deg F
Thermocouple Output Accuracy, Type N	2370.0	2369.2	2370.8	2369.8	2369.8	0.288	Deg F
Thermocouple Output Accuracy, Type B	150.0	126.3	173.7	145.8	145.8		Deg F
Thermocouple Output Accuracy, Type B	1200.0	1198.0	1202.0	1199.2	1199.2	0.738	Deg F
Thermocouple Output Accuracy, Type B	1600.0	1598.7	1601.3	1599.8	1599.8	0.594	Deg F
Thermocouple Output Accuracy, Type B	2000.0	1999.2	2000.8	1999.7	1999.7	0.594	Deg F
Thermocouple Output Accuracy, Type B	2600.0	2599.2	2600.8	2599.7	2599.7	0.594	Deg F



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CALIBRATION CERT.#1378.07

# Certificate of Calibration

## Data Sheet

<u>Parameter</u>	<u>Nominal</u>	<u>Minimum</u>	<u>Maximum</u>	<u>As Found</u>	<u>As Left</u>	<u>Uncertainty</u>	<u>Unit ADJ/FAIL</u>
Thermocouple Output Accuracy, Type B	3276.0	3275.2	3276.8	3275.9	3275.9	0.486	Deg F



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