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CERTIFICATE OF CALIBRATION


Certificate No.: 38131
 Date of issue: March 4, 2015
 Manufacturer: Eurotherm Chessell (Sure Controls)
 Model No: 6100A
 Serial No: LJ380153G
 Description: Graphic recorder
 Customer: Red-D-Arc Ltd.


The Calibration Laboratory Assessment Service (CLAS) of the National Research Council of Canada (NRC) has assessed and certified specific calibration capabilities of Miller Instruments Ltd. and its traceability to the International System of Units (SI) or to the standards acceptable to the CLAS program. This certificate of calibration is issued in accordance with the conditions of certification granted by CLAS, Certification number 94-03, and the conditions of accreditation granted by the Standards Council of Canada (SCC), Accreditation number No. 156. The ISO/IEC 17025:2005 Standard was used in the above assessment carried out by CLAS.


Temperature: 23±1 °C
 Relative humidity: 23±10 %RH
 Date Calibrated: March 4, 2015
 Calibration due date: March 4, 2016 (as requested by the customer)

Instrument received: within tolerance
 Instrument returned: within tolerance

For measurement results associated with the conformance to a tolerance, the uncertainty in the measurement system did not exceed 25% (4:1 test uncertainty ratio) of the acceptable tolerance for each characteristic calibrated, unless otherwise noted in the report.

Calibrated by: 
 (Mahkameh Mohsenin, B.Sc.)

Authorized by: 
 (S. Nishie, P.Eng., Calibration Manager)



Calibration Procedure: CP-SP23439

Calibration Equipment Used:

ID #	Model	Description	Serial Number	Calibration Due Date
009	Fluke 5500A	Multi-product calibrator	6460006	Sep 12, 2015
022	Agilent 3458A	DMM	US28031059	Jul 9, 2015

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Certificate No.: 38131

Date of issue: March 4, 2015

Calibration data *(as found and as returned)*

<u>Channel No.</u>	<u>Applied Voltage (VDC)</u>	<u>Expected DUT Reading (°F)</u>	<u>DUT Reading (°F)</u>	<u>Measurement Uncertainty (±)(°F)</u>	<u>Tolerance Limits (±)(°F)</u>	<u>Pass/fail</u>
1	0.000	-51	-50	2	7	p
1	2.787	382	382	2	7	p
1	6.013	882	883	2	7	p
1	9.239	1382	1383	2	7	p
2	0.000	-51	-50	2	7	p
2	2.787	382	382	2	7	p
2	6.013	882	883	2	7	p
2	9.239	1382	1383	2	7	p
3	0.000	-51	-50	2	7	p
3	2.787	382	382	2	7	p
3	6.013	882	883	2	7	p
3	9.239	1382	1384	2	7	p
4	0.000	-51	-50	2	7	p
4	2.787	382	382	2	7	p
4	6.013	882	883	2	7	p
4	9.239	1382	1383	2	7	p
5	0.000	-51	-50	2	7	p
5	2.787	382	382	2	7	p
5	6.013	882	883	2	7	p
5	9.239	1382	1383	2	7	p
6	0.000	-51	-50	2	7	p
6	2.787	382	382	2	7	p
6	6.013	882	883	2	7	p
6	9.239	1382	1383	2	7	p

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Certificate No.: 38131

Date of issue: March 4, 2015

Calibration data (as found and as returned)

Thermocouple Type K

Channel No.	Applied Temperature (°C)	Expected DUT Reading (°F)	DUT Reading (°F)	Measurement Uncertainty (±)(°F)	Tolerance Limits (±)(°F)	Pass/fail
7	-45.0	-49	-49	2	7	p
7	0.0	32	32	2	7	p
7	100.0	212	212	2	7	p
7	400.0	752	752	2	7	p
7	800.0	1472	1472	2	7	p
8	-45.0	-49	-49	2	7	p
8	0.0	32	32	2	7	p
8	100.0	212	212	2	7	p
8	400.0	752	752	2	7	p
8	800.0	1472	1472	2	7	p
9	-45.0	-49	-49	2	7	p
9	0.0	32	32	2	7	p
9	100.0	212	212	2	7	p
9	400.0	752	752	2	7	p
9	800.0	1472	1472	2	7	p
10	-45.0	-49	-49	2	7	p
10	0.0	32	32	2	7	p
10	100.0	212	212	2	7	p
10	400.0	752	752	2	7	p
10	800.0	1472	1473	2	7	p
11	-45.0	-49	-50	2	7	p
11	0.0	32	31	2	7	p
11	100.0	212	211	2	7	p
11	400.0	752	751	2	7	p
11	800.0	1472	1472	2	7	p
12	-45.0	-49	-51	2	7	p
12	0.0	32	31	2	7	p
12	100.0	212	211	2	7	p
12	400.0	752	751	2	7	p
12	800.0	1472	1471	2	7	p

Note 1: DUT: Device under test.

Note 2: The DUT was powered by a 120 V AC (60 Hz) line and was calibrated after a 30-minute warm-up period.

Note 3: The measurement uncertainty of this calibration, assuming normally distributed data, was derived from effective standard deviations and has been expanded to obtain a coverage factor of $k=2$ at a level of confidence of approximately 95%.

Note 4: The calibration due date is shown as requested by the customer.

Note 5: The memory battery was replaced before the above calibration.

Note 6: The tolerance limits were assigned by the customer.