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MILLER

# *CERTIFICATE OF CALIBRATION*

CLAS NRC·CNRC CLAS 94-03

Standards Council of Canada Accredited Laboratory Scope of Accreditation 156 — Conseil canadien des normes Laboratoire accrédité Portée d'accréditation 156 TM



Certificate No.: 38388
Date of issue: April 1, 2015

Manufacturer: Eurotherm Chessell (Sure Controls)
Model No: 6100A
Serial No: MB430143G
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: 31±10 %RH
Calibration date: April 1, 2015
Calibration due date: April 1, 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: M. Mohsenin
(Mahkameh Mohsenin, B.Sc.)

Authorized by:
PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA S. NISHIE # 16928
(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 |

# *CERTIFICATE OF CALIBRATION*



Certificate No.: 38388
Date of issue: April 1, 2015

**Calibration data** *(as found and as returned)*

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

Note 1: DUT: Device under test.

Note 2: The DUT was powered with 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 memory battery was replaced before the above calibration.

Note 5: The tolerance limits were assigned by the customer.

Note 6: The expected DUT readings were calculated using the following equation:

$T = 155V - 50$

Where $V$ is in volts and
$T$ is in °F