CERTIFICATE OF ACCREDITATION

ANSI-ASQ National Accreditation Board
500 Montgomery Street, Suite 625, Alexandria, VA 22314, 877-344-3044

This is to certify that

Electronic & Mechanical
9 Main St., Suite 3A
Sutton, MA 01590

has been assessed by ANAB
and meets the requirements of international standard

ISO/IEC 17025:2005

while demonstrating technical competence in the field of

CALIBRATION

Refer to the accompanying Scope of Accreditation for information regarding the types of calibrations to which this accreditation applies.

AC-1242
Certificate Number

ANAB Approval

Certificate Valid: 11/08/2017-09/05/2019
Version No. 003 Issued: 11/08/2017

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communiqué dated April 2017).

ANSI-ASQ National Accreditation Board

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

Electronic & Mechanical

9 Main St., Suite 3A
Sutton, MA 01590
Paul O'Malley 508-865-1125
www.electronicmechanical.com calservice@em-calibrations.com

CALIBRATION

Valid to: **September 5, 2019** Certificate Number: **AC-1242**

Electrical – DC/Low Frequency

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
Process Controllers, RTD Resistance Simulation	Pt 385 (100 Ω) (-200 to 0) °C (0 to 400) °C (400 to 800) °C Pt 385 (200 Ω) (-200 to 0) °C (0 to 400) °C (400 to 630) °C Pt 385 (500 Ω) (-200 to 0) °C (0 to 400) °C (400 to 630) °C	 0.41 °C 0.62 °C 0.95 °C 0.4 °C 0.61 °C 0.95 °C 0.4 °C 0.61 °C 0.95 °C	Fluke 744/741B Process Calibrator E&M 059 Manufacturers Specifications
Process Controllers Millivolt Thermocouple Simulation	Type B (600 to 800) °C (800 to 1 000) °C (1 000 to 1 820) °C Type C (0 to 800) °C (800 to 1 200) °C (1 200 to 1 800) °C (1 800 to 2 316) °C Type E (-250 to -200) °C (-200 to -100) °C (600 to 1 000) °C Type J (-210 to -100) °C (-100 to 800) °C (800 to 1 200) °C	 1.6 °C 1.2 °C 1.1 °C 0.72 °C 0.94 °C 1.3 °C 2.3 °C 1.6 °C 0.6 °C 0.49 °C 0.72 °C 0.39 °C 0.6 °C	Fluke 744/741B Process Calibrator E&M 059 Manufacturers Specifications

Electrical – DC/Low Frequency

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
Process Controllers Millivolt Thermocouple Simulation	Type K (-200 to -100) °C (-100 to 400) °C (400 to 1 200) °C (1 200 to 1 372) °C Type L (-200 to -100) °C (-100 to 800) °C (800 to 900) °C Type N (-200 to -100) °C (-100 to 900) °C (900 to 1 300) °C Type R (-20 to 0) °C (0 to 100) °C (100 to 1 767) °C Type S (-20 to 0) °C (0 to 200) °C (200 to 1 400) °C (1 400 to 1 767) °C Type T (-250 to -200) °C (-200 to 0) °C (0 to 400) °C Type U (-200 to 0) °C (0 to 600) °C	 0.83 °C 0.39 °C 0.6 °C 0.83 °C 0.72 °C 0.39 °C 0.6 °C 1.2 °C 0.6 °C 0.72 °C 2.7 °C 1.8 °C 1.2 °C 2.7 °C 1.8 °C 1.1 °C 1.3 °C 2 °C 0.72 °C 0.39 °C 0.72 °C 0.39 °C	Fluke 744/741B Process Calibrator E&M 059 Manufacturers Specifications

Length – Dimensional Metrology

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
Micrometers	Up to 12 in	720 µin	Gage Blocks E&M 053 Manufacturers Specifications
Calipers[2]	Up to 12 in	(750 + 16*L*) µin	Gage Blocks E&M 050 Manufacturers Specifications

Mass

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
Pressure	Up to 300 psi	0.35 psi	Druck DPI 705 Pressure Indicator E&M 065 Manufacturers Specifications
Vacuum	(0 to -30) inHg	0.21 inHg	
Timer	(0 to 30) minutes	0.94 seconds	Gralab Timer E&M 055 Manufacturers Specifications

Thermodynamic

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
Uniformity Survey Type J Type K	 (-17 to 871) °C (-17 to 1 370) °C	 0.59 °C 0.82 °C	Yokogawa MV-2000 Data Logger E&M 064 Manufacturers Specifications

Calibration and Measurement Capability (CMC) is expressed in terms of the measurement parameter, measurement range, expanded uncertainty of measurement and reference standard, method, and/or equipment. The expanded uncertainty of measurement is expressed as the standard uncertainty of the measurement multiplied by a coverage factor of 2 (k=2), corresponding to a confidence level of approximately 95%.

Notes:

1. On-site calibration service is available for this parameter, since on-site conditions are typically more variable than those in the laboratory, larger measurement uncertainties are expected on-site than what is reported on the accredited scope.
2. L = length in inches.
3. This scope is formatted as part of a single document including Certificate of Accreditation No. AC-1242.

Vice President