SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017
& ANSI/NCSL Z540-1-1994

HUMANETICS
23300 Haggerty Road
Farmington Hills, MI 48335
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CALIBRATION

Valid To: November 30, 2026 Certificate Number: 2421.03

In recognition of the successful completion of the A2LA evaluation process (including an assessment of the organization's compliance with A2LA's Calibration Program Requirements), accreditation is granted to this laboratory to perform the following calibrations[1, 4]:

I. Mechanical

Parameter/Equipment	Range	CMC[2, 3] (±)	Comments
Rotary Displacement Transducer	+/- 180 º	0.002 % F.S.	CL-PR-00025C
Linear Displacement Transducers	(0 to 140) mm	0.009 % F.S.	CL-WI-00001C CL-PR-00010C CL-PR-00045C SAE J2517: 2016
Force – Load Cells	(5 to 60) lbf (60 to 200) lbf (50 to 500) lbf (500 to 1 000) lbf (1 000 to 2 000) lbf (2 000 to 5 000) lbf (5 000 to 10 000) lbf (10 000 to 25 000) lbf (25 000 to 50 000) lbf (50 000 to 100 000) lbf	0.18 % F.S. 0.07 % F.S. 0.10 % F.S. 0.05 % F.S. 0.05 % F.S. 0.03 % F.S. 0.03 % F.S. 0.03 % F.S. 0.18 % F.S. 0.06 % F.S.	Class F weights Axial load using load cells
Moment – Load Cells	(50 to 1 000) lbf·in (1 000 to 5 000) lbf·in (5 000 to 75 000) lbf·in	0.11 % F.S. 0.06 % F.S. 0.05 % F.S.	Moment load with load cells

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Parameter/Range	Frequency	CMC[2, 3] (±)	Comments
Vibratory Acceleration- Sensitivity Frequency Response $\frac{mV}{m/s^2}$ (1 to 200) m/s^2 $\frac{mV}{g}$ (0.11 to 20.39) g	(10 to 20) Hz (20 to 1000) Hz (1000 to 5000) Hz (5000 to 10 000) Hz (10 000 to 15 000) Hz (15 000 to 20 000) Hz	0.5 % of range 0.31 % of range 0.31 % of range 0.5 % of range 1.0 % of range 1.5 % of range	Comparison system using shaker and accelerometers
Angular Rate- Sensitivity $\frac{mV}{(rad/s)}$ (0.02 to 92.5[5]) rad/s $\frac{mV}{(° / s)}$ (1 to 5300[5]) °/s	(1 to 200) Hz	0.61% of range	Comparison system using rotation exciter and angular rate sensor
Shock- Sensitivity $\frac{mV}{g}$ (5 to 10000) g $\frac{mV}{m/s^2}$ (49.03 to 98066.5) m/s^2	(5 to 20) g (20 to 250) g (250 to 4000) g (4000 to 10000) g	1.5 % of reading 1.0 % of reading 2.0 % of reading 3.0 % of reading	Comparison system using reference accelerometer

[1] This laboratory offers commercial calibration service.

[2] Calibration and Measurement Capability Uncertainty (CMC) is the smallest uncertainty of measurement that a laboratory can achieve within its scope of accreditation when performing more or less routine calibrations of nearly ideal measurement standards or nearly ideal measuring equipment. CMCs represent expanded uncertainties expressed at approximately the 95 % level of confidence, usually using a coverage factor of $k = 2$. The actual measurement uncertainty of a specific calibration performed by the laboratory may be greater than the CMC due to the behavior of the customer's device and to influences from the circumstances of the specific calibration.

[3] In the statement of CMC, F.S. represents "Full Scale".

[4] This scope meets A2LA's *P112 Flexible Scope Policy*.

[5] Maximum excitation without test object.

Accredited Laboratory

A2LA has accredited

HUMANETICS

Farmington Hills, MI

for technical competence in the field of

Calibration

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017 *General requirements for the competence of testing and calibration laboratories*. This laboratory also meets the requirements of ANSI/NCSL Z540-1-1994 and R205 – Specific Requirements: Calibration Laboratory Accreditation Program. 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).

Presented this 12th day of November 2024.

Mr. Trace McInturff Vice President, Accreditation Services
For the Accreditation Council
Certificate Number 2421.03
Valid to November 30, 2026
Revised October 28, 2026

For the calibrations to which this accreditation applies, please refer to the laboratory's Calibration Scope of Accreditation.