



SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

ELEMKO SA, LIGHTNING & HIGH VOLTAGE LABORATORY, THIVA GREECE  
 2<sup>nd</sup> km Old National Road Thiva-Halkida  
 GR 32200 Thiva, GREECE  
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CALIBRATION

Valid To: September 30, 2024

Certificate Number: 3051.02

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory to perform the following calibrations<sup>1,7</sup>:

I. Electrical – DC/Low Frequency

Parameter/Equipment	Range	CMC <sup>2,4,5</sup> (±)	Comments		
Resistance <sup>3</sup> – Measure, Fixed Points	0.1 Ω	0.0008 Ω	Digital micro-ohmmeter		
	0.22 Ω	0.0013 Ω			
	1.1 Ω	0.008 Ω			
	4.7 Ω	0.011 Ω	5½ digit digital multimeter		
	51.1 Ω	0.027 Ω			
	121.1 Ω	0.051 Ω			
	150 Ω	0.061 Ω			
	301 Ω	0.14 Ω			
	1000 Ω	0.30 Ω			
	1820 Ω	0.49 Ω			
	0.30 MΩ	0.23 kΩ			
	1 MΩ	0.56 kΩ			
	5 MΩ	0.015 MΩ			
	Fault Loop Impedance – Measure	(0.95 to 1.05) Ω		0.01 Ω	Digital micro-ohmmeter, 5½ digit digital multimeter
		(4.1 to 4.3) Ω		0.02 Ω	
(7.7 to 7.9) Ω		0.02 Ω			
(180 to 181) Ω		0.07 Ω			

Parameter/Equipment	Range	CMC <sup>2, 4, 5</sup> ( $\pm$ )	Comments
Touch Voltage – Measure, Fixed Points  30 mA, 150 $\Omega$ 10 mA, 1000 $\Omega$ 30 mA, 1000 $\Omega$	4.5 V $\pm$ 10 % 10 V $\pm$ 10 % 30 V $\pm$ 10 %	0.002 V 0.003 V 0.009 V	Digital micro-ohmmeter, 5½ digit digital multimeter. Touch voltage is based on nominal trip current set by DUT.
AC Current (RCD Tripping Current) – Measure, Fixed Points @ 50 Hz	10 mA $\pm$ 10 % 30 mA $\pm$ 10 % 100 mA $\pm$ 10 % 300 mA $\pm$ 10 % 500 mA $\pm$ 10 %	0.049 mA 0.25 mA 0.49 mA 2.5 mA 3.2 mA	5½ digit digital multimeter
AC Voltage – Measure @ 50 Hz	(200 to 250) V	0.97 V	5½ digit digital multimeter
DC Current – Measure	(190 to 250) mA	0.17 mA	Continuity resistance, 5½ digit digital multimeter
DC Voltage – Measure  Fixed Points	(1000 to 1500) V (1500 to 3000) V  250 V $\pm$ 10 % 500 V $\pm$ 10 %	0.68 V 9.8 V  0.08 V 0.13 V	5½ digit digital multimeter

## II. Time & Frequency

Parameter/Equipment	Range	CMC <sup>2, 4, 6</sup> ( $\pm$ )	Comments
Frequency – Measure, Fixed Point	50 Hz $\pm$ 10 %	0.0041 Hz	Oscilloscope
RCD Tripping Time – Measure	(1 to 300) ms	0.26 ms	Oscilloscope

<sup>1</sup> This laboratory offers commercial calibration service.

<sup>2</sup> 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.

<sup>3</sup> Earth resistance, earth resistivity, insulation resistance, continuity resistance of earth connection and equipotential bonding.

<sup>4</sup> The contributions from the "best existing device" are not included in the CMC claim.

<sup>5</sup> The stated measured values are determined using the indicated instrument (see Comments). This capability is suitable for the calibration of the devices intended to measure or generate the measured value in the ranges indicated. CMCs are expressed as either a specific value that covers the full range or as a percent or fraction of the reading plus a fixed floor specification.

<sup>6</sup> The type of instrument or material being calibrated is defined by the parameter. This indicates the laboratory is capable of calibrating instruments that measure or generate the values in the ranges indicated for the listed measurement parameter.

<sup>7</sup> This scope meets A2LA's P112 *Flexible Scope Policy*.



## Accredited Laboratory

A2LA has accredited

### **ELEMKO SA, LIGHTNING & HIGH VOLTAGE LABORATORY, THIVA GREECE**

*Metamorphosis, Greece*

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 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 5<sup>th</sup> day of October 2022.

A blue ink signature of the Vice President of Accreditation Services, written over a horizontal line.

Vice President, Accreditation Services  
For the Accreditation Council  
Certificate Number 3051.02  
Valid to September 30, 2024

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