REPUBLIC OF BULGARIA
Executive agency
Bulgarian accreditation service

Signatory to the EA Multilateral Agreement in this field

ORDER

№ A 409

Sofia, 31.10.2024

Pursuant to Art. 10, para. 1, item 2a of the Law on National Accreditation of Conformity Assessment Bodies, in connection with item 5.3.1 of the BAS QR 2 Accreditation Procedure and EA BAS order ref. № A 408/31.10.2024, I hereby

AMEND

Certificate of accreditation reg. № 1 ЛК /28.10.2024, valid until 28.10.2028 and its enclosure EA BAS order reg. № A 393/28.10.2024.

UNISYST LTD
CALIBRATION LABORATORY FOR MEASURING INSTRUMENTS

Management address: 1113 Sofia, Slatina, Akad. G. Bonchev Str, Block 105
Laboratory address: 1582 Sofia, Druzhba-2, 144 Prof. Tsvetan Lazarov Blvd.

To perform calibration of:

Type of scope: *fixed*					
№	**Measuring instrument**	**Measured quantity, Measurement unit**	**Range of measurement**	**Measurement uncertainty**	**Calibration method**
1	2	3	4	5	6
1.*	DC voltmeters	Direct voltage, DCU, V	from 0,0 mV to 200 mV	from 7,5.10^{-3} mV to 2.10^{-2} mV	MK 7.02 01-01:2020
			from 0,2 V to 200 V	from 2.10^{-2} mV to 4,4.10^{-3} V	
			from 200 V to 1 000 V	from 4,4.10^{-3} V to 6.10^{-2} V	
2.	AC voltmeters (45 Hz and 1 kHz)	Alternating voltage, ACU, V	from 10 mV to 200 mV	from 3.10^{-2} mV to 0,17 mV	MK 7.02 01-13:2020
			from 200 mV to 200 V	from 0,17 mV to 4.10^{-2} V	
			from 200 V to 1000 V	from 4.10^{-2} V to 0,35 V	
3.*	DC voltage calibrators	Direct voltage, DCU, V	from 0,0 mV to 100 mV	from 2,1.10^{-3} mV to 5.10^{-3} mV	MK 7.02 01-01:2020
			from 0,1 V to 10 V	from 5.10^{-6} V to 2,4.10^{-4} V	
			from 10 V to 1000 V	from 2,4.10^{-4} V to 6.10^{-2} V	
			from 1000 V to 20 000 V	from 1.10^{1} V to 2.10^{2} V	

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Type of scope: *fixed*					
№	**Measuring instrument**	**Measured quantity, Measurement unit**	**Range of measurement**	**Measurement uncertainty**	**Calibration method**
1	2	3	4	5	6
4.*	AC voltage calibrators (45 Hz and 1 kHz)	Alternating voltage, ACU, V	from 0,01 V to 750 V	from 5.10^{-5} V to 0,5 V	MK 7.02 01-13:2020
	AC voltage calibrators (50 Hz)		from 1000 V to 20 000 V	from 2.10^{1} V to 4.10^{2} V	
5.*	DC ammeters	Direct current, DCI, A	from 0,0 mA to 20 mA	from $1,8.10^{-4}$mA to $1,5.10^{-3}$ mA	MK 7.02 01-02:2018
			from 0,02 A to 2 A	from $1,5.10^{-3}$ mA to $2,4.10^{-4}$ A	
			from 2 A to 20 A	from $2,4.10^{-4}$ A to $6,7.10^{-3}$ A	
6.	AC ammeters (45 Hz and 1 kHz)	Alternating current, ACI, A	from 0,1 mA to 200 mA	from $3,8.10^{-3}$ mA to 0,7 mA	MK 7.02 01-12:2018
			from 200 mA to 20 A	from $0,7.10^{-3}$ A to 6.10^{-3} A	
7.*	AC current calibrators (45 Hz and 1 kHz)	Alternating current, ACI, A	from 1 mA to 100 mA	from 6.10^{-3} mA to 9.10^{-2} mA	MK 7.02 01-12:2018
			from 100 mA to 10 A	from 9.10^{-5} A to $1,8.10^{-2}$ A	
8.	DCI/ACI (45 Hz and 1 kHz) clamp meter	Direct and Alternating current, DCI and ACI, A	from 0,01 A to 1 000 A	from $5,8.10^{-3}$ A to 0,2 A	MK 7.02 01-02:2018 MK 7.02 01-12:2018
9.*	DC current calibrators	Direct current, DCI, A	from 0,0 mA to 100 mA	from 4.10^{-4} mA to $3,3.10^{-2}$ mA	MK 7.02 01-02:2018
			from 100 mA to 10 A	from $3,3.10^{-2}$mA to $9,4.10^{-3}$ A	
10.*	DC ohmmeters	Direct current resistance, *R*, Ω	from 0,000 1 Ω to 100 kΩ	from $3,2.10^{-8}$ Ω to $2,4.10^{-3}$ kΩ	MK 7.02 01-04:2018
			from 1 kΩ to 1 TΩ	from $2,8.10^{-4}$ kΩ to 7 GΩ	
11.*	Electrical resistance measure	Direct current resistance, *R*, Ω	from 0,000 1 Ω to 100 Ω	from $3.4.10^{-8}$ Ω to $1,2.10^{-2}$ Ω	MK 7.02 01-03:2018
			from 100 Ω to 100 MΩ	from $8,4.10^{-3}$ Ω to 0,18 MΩ	
12.	Frequency meters	Frequency, *f*, Hz	from 1 Hz to 20 MHz	от $1,6.10^{-3}$ Hz to 0,58 kHz	MK 7.02 01-14:2018
13.	Frequency generators	Frequency, *f*, Hz	from 1 Hz to 1 GHz	от $5,8.10^{-6}$ Hz to $8,2.10^{-7}$ GHz	MK 7.02 01-14:2018
14.*	Inductance measuring instruments (1 kHz)	Inductance, *L*, H	from 1 μH to 50 mH	от 3.10^{-4} mH to 2.10^{-2} mH	MK 7.02 01-15:2018
15.	Capacitance measuring	Capacity, *C*, F	at frequency 300 Hz from 1 nF to 50 μF	from 1 pF to $2,9.10^{-2}$ nF	MK 7.02 01-15:2018

Type of scope: *fixed*					
№	**Measuring instrument**	**Measured quantity, Measurement unit**	**Range of measurement**	**Measurement uncertainty**	**Calibration method**
1	2	3	4	5	6
	instruments (300 Hz and kHz)		at frequency 1000 Hz from 1 nF to 100 nF	from 1 pF to 30 pF	
16.	Single-phase measuring instruments active power measurement (wattmeters)	Power P, W	AC power: U= 230 V f= 50 Hz and U= 115 V f= 60 Hz I: from 0,1 A to 10 A PF: from -1 to 1	from 10 mW to 0,50 W	MK 7.02 01-16:2018
			DC power: U: from 1 V to 240 V I: from 0,01 A to 10 A	from 7,9 µW to 0,3 W	
17.*	Measuring instruments for measurement and simulating absolute, atmospheric, positive and negative pressure	Pressure, *p*, bar	from minus 2,5 mbar to 2,5 mbar	$2,0.10^{-3}$ mbar	MK 7.02 01-11:2018
			from minus 75 mbar to 75 mbar	$2,5.10^{-3}$ mbar	
			from minus 0,92 bar to 70 bar	from $2,5.10^{-4}$ bar to $6,5.10^{-3}$ bar	
			from 70 bar to 700 bar	from $4,0.10^{-2}$ bar to 0,20 bar	
			from 500 hPa to 1 100 hPa	from $2,2.10^{-2}$ hPa to $5,5.10^{-2}$ hPa	
18.	18.1* Thermometers (digital, analog and liquid)	Temperature, *t*, °C	from minus 40 °C to 1 100 °C	from 0,06 °C to 2,0 °C	MK 7.02 01-07:2018 MK 7.02 01-10:2018
	18.2 Infrared thermometers		from 150 °C to 1 100 °C	from 1,1 °C to 3,0 °C	MK 7.02 01-07:2018
19.*	19.1 Resistance thermometers	Temperature, *t*, °C Resistance R, Ω,	from minus 40 °C to 600 °C	from 0,06 °C to 0,2 °C	MK 7.02 01-08:2018
			from 1 Ω to 10 000 Ω	from 7.10^{-3} Ω to 0,12 Ω	
	19.2 Thermocouples	Temperature t, °C Thermoelectric voltage, mV	from minus 40 °C to 600 °C	from 0,30 °C to 0,90 °C	MK 7.02 01-09:2018
			from 600 °C to 1 100 °C	from 1,5 °C to 2,5 °C	
			from minus 10 mV to 200 mV	2.10^{-3} mV	
20.*	20.1 Indicators with input: unified electrical signal	Input: Resistance, *R*, Ω, Direct current, DCI, mA	from 0,001 Ω to 10 κΩ	from 7.10^{-5} Ω to 0,9 Ω	MK 7.02 01-06:2018
			from 0 mA to 20 mA	from 0,6 10^{-4}mA to 6.10^{-4} mA	
			from minus 50 mV	from 1.10^{-3} mV	

Type of scope: *fixed*						
№	**Measuring instrument**		**Measured quantity, Measurement unit**	**Range of measurement**	**Measurement uncertainty**	**Calibration method**
1	2		3	4	5	6
			Direct voltage, DCU, mV (V)	to 150 mV from 0 V to 5 V	to 2.10^{-3} mV	
	20.2 Temperature indicators with input: DCU and R (simulation mode)		Temperature, t, °C	from minus 200 °C to 1 600 °C	from 0,06 °C to 5,0 °C	MK 7.02 01-05:2018
21.	Calipers (depth gauge and height gauge)		Length *l*, mm	up to 200 mm	18 µm	MK 7.02 01-17:2018
22.	Micrometers (micrometer depth gauge and height gauge)		Length *l*, mm	up to 200 mm	5,8 µm	MK 7.02 01-18:2018
23.	Measure of length with scale marks		Length *l*, m	up to 2 m	0,12 mm	MK 7.02 01-19:2018
				from 2 m to 30 m	from 0,12 mm to 0,6 mm	
24.*	Stopwatches and timers	Digital	Time interval, s	from 0 s to 86400 s (24 h)	0,01 s/24 h	MK 7.02 01-20:2018
		Mechanical	Time interval, s	from 0 s to 86400 s (24 h)	1,0 s/24 h	
25.	Installation testers	Trip time	Time, ms	t: from 10 ms to 2 000 ms	from 0,59 ms to 0,90 ms	MK 7.02 01-21:2021
		Test current (50 Hz)	Alternating current, ACI, mA	Ia: from 10 mA to 2 500 mA	from 0,09 mA to 5,9 mA	
		Loop impedance	Impedance, Ω	Z: from 0,098 Ω to 1,8 kΩ	from 0,04 Ω to 11 Ω	
		Contact voltage (50 Hz)	Alternating voltage, ACU, V	from 0,1 V to 90 V	from 0,01 V to 0,1 V	
26.	Hygrometers		Relative humidity, %rh	from 20 %rh to 90 %rh	from 1,7 %rh to 2,5 %rh	MK 7.02 01-22:2022

Note: Calibration of the measuring instruments specified in clauses whit (*) is performed in the laboratory and on site, at the customer's premises.

References:

1. MK 7.02 01-01/2020 Method for calibration of voltmeters and calibrators for direct voltage.
2. MK 7.02 01-02/2018 Method for calibration of ammeters and calibrators for direct current.
3. MK 7.02 01-03/2018 Method for calibration of electrical resistance measure.
4. MK 7.02 01-04/2018 Method for calibration of ohmmeters.
5. MK 7.02 01-05/2018 Method for calibration of temperature indicators with input for thermocouples or resistance thermometers (TC or RTD).
6. MK 7.02 01-06/2018 Method for calibration of indicators on different quantities.
7. MK 7.02 01-07/2018 Method for calibration of thermometers (digital, analog and infrared).
8. MK 7.02 01-08/2018 Method for calibration of resistance thermometers.
9. MK 7.02 01-09/2018 Method for calibration of thermocouples.

10. MK 7.02 01-10/2018	Method for calibration of liquid thermometers.
11. MK 7.02 01-11/2018	Method for calibration of measuring instruments for measuring and simulating of pressure.
12. MK 7.02 01-12/2018	Method for calibration of ammeters and calibrators for alternating current.
13. MK 7.02 01-13/2020	Method for calibration of voltmeters and calibrators for alternating voltage.
14. MK 7.02 01-14/2018	Method for calibration of frequency meters and frequency generators
15. MK 7.02 01-15/2018	Method for calibration of measuring instruments to measure R, L, C
16. MK 7.02 01-16/2018	Method for calibration of measuring instruments to measure active power (wattmeters).
17. MK 7.02 01-17/2018	Method for calibration of calipers (depth gauge and height gauge)
18. MK 7.02 01-18/2018	Method for calibration of micrometers (micrometer depth gauge and height gauge).
19. MK 7.02 01-19/2018	Method for calibration of measure of length with scale marks.
20. MK 7.02 01-20/2018	Method for calibration of stopwatches and timers.
21. MK 7.02 01-21/2021	Method for calibration of Installation testers.
22. MK 7.02 01-22/2021	Method for calibration of hygrometers.

ORDER

To issue the certificate of accreditation reg. № 1 ЛК of 31.10.2024 valid until 28.10.2028 and this order as an integral part of it.

The certificate of accreditation with the enclosure should be obtained from the manager of UNISYST LTD, Sofia, the head of Calibration laboratory for measuring instruments at UNISYST LTD, Sofia, or other authorized person in the office of EA BAS.

Upon receipt of the certificate issued and enclosure, accredited person is obliged to return to EA BAS the originals of certificate of accreditation reg. № 1 ЛК/28.10.2024, valid until 28.10.2028 and its enclosure EA BAS order reg. № А 393/28.10.2024.

This order shall be notified to UNISYST LTD, Sofia, within 3 (three) days from its issuance.

Eng. Irena Borislavova

Executive Director of EA BAS

"BULGARIAN ACCREDITATION SERVICE" EXECUTIVE AGENCY REPUBLIC OF BULGARIA