**REPUBLIC OF BULGARIA**
Executive Agency
Bulgarian Accreditation Service

***Signatory to the EA Multilateral Agreement in this field***

**ORDER**

**No A 7**

**Sofia, 10.01.2022**

Pursuant to Art. 10, para. 1, item 2a and and Art. 32, item 2 of the Law on National Accreditation of Conformity Assessment Bodies, and item 7 (1) and item 5.3.1 in connection with a change in an element of the content of the certificate according to item 4.3.8/ letter f/ of BAS QR 2 Accreditation Procedure and open procedure reg. № 5/1 ЛК/РО/23.07.2021, Declaration for specify the scope № 5/1 ЛК/РО/3/Р/29.07.2021, assessment report № 5/1 ЛК/ 4/В/30.07.2021, order of EA BAS № А 6/10.01.2022, I hereby

**AMEND**
**EA BAS Order № А 616/28.10.2020**

**„UNISYST" LTD**
**CALIBRATION LABORATORY FOR MEASURING INSTRUMENTS**

**Address of the management:**
1113 Sofia, „Slatina" region, „Akad. G. Bonchev" Str., Block 105
**Address of the laboratory:**
1582 Sofia, „Druzhba 2" quarters, 144 „Prof. Tsvetan Lazarov" Blvd.

**To perform calibration of:**

| Type of scope: fixed | | | | | |
|---|---|---|---|---|---|
| *№* | *Measuring instrument* | *Measured quantity, measurement unit* | *Measurement range* | *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 |
| | | | 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 |
| | | | 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 200 mV | from $4{,}7.10^{-3}$ mV to $2.10^{-2}$ mV | MK 7.02 01-01 |
| | | | from 0,2 V to 10 V | from $2.10^{-5}$ V to $4{,}6.10^{-4}$ V | |
| | | | from 10 V | from $4{,}6.10^{-4}$ V | |

52 A "Dr. G. M. Dimitrov" Blvd. 1797 Sofia Bulgaria
phone: +359 9766 401; fax: (+3592) 9766 415
e-mail: office@nab-bas.bg

| Type of scope: fixed | | | | | |
|---|---|---|---|---|---|
| *№* | *Measuring instrument* | *Measured quantity, measurement unit* | *Measurement range* | *Measurement uncertainty* | *Calibration method* |
| 1 | 2 | 3 | 4 | 5 | 6 |
| | | | to 1000 V | to $6.10^{-2}$ V | |
| | | | from 1000 V to 20 000 V | from $1.10^{1}$ V to $2.10^{2}$ V | |
| 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 | МК 7.02 01-13 |
| | | | 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 | МК 7.02 01-02 |
| | | | 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 | МК 7.02 01-12 |
| | | | 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 200 mA | from $6,2.10^{-3}$ mA to 0,7 mA | МК 7.02 01-12 |
| | | | from 200 mA to 10 A | from $0,7.10^{-3}$ 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 | МК 7.02 01-02 МК 7.02 01-12 |
| 9.* | DC current calibrators | Direct current, DCI, A | from 0,0 mA to 20 mA | from $4.10^{-4}$ mA to $3,5.10^{-3}$ mA | МК 7.02 01-02 |
| | | | from 20 mA to 200 mA | from $3,5.10^{-3}$ mA to 0,24 mA | |
| | | | from 200 mA to 10 A | from 0,24 mA to $1,7.10^{-2}$ 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 | МК 7.02 01-04 |
| | | | 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 1 mΩ to 1 Ω | from $1,5.10^{-7}$ Ω to $1,3.10^{-4}$ Ω | МК 7.02 01-03 |
| | | | from 1 Ω to 100 Ω | from $1,3.10^{-4}$ Ω to $1,2.10^{-2}$ Ω | |
| | | | from 100 Ω to 10 kΩ | from $1,2.10^{-5}$ kΩ to $2,3.10^{-3}$ kΩ | |
| | | | from 10 kΩ to 100 MΩ | from $2,3.10^{-6}$ MΩ 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 | МК 7.02 01-14 |
| 13. | Frequency generators | Frequency, *f*, Hz | from 1 Hz to 1 GHz | от $5,8.10^{-6}$ Hz to $8,2.10^{-7}$ GHz | МК 7.02 01-14 |

| Type of scope: fixed | | | | | |
|---|---|---|---|---|---|
| *№* | *Measuring instrument* | *Measured quantity, measurement unit* | *Measurement range* | *Measurement uncertainty* | *Calibration method* |
| 1 | 2 | 3 | 4 | 5 | 6 |
| 14.* | Inductance meter (1 kHz) | Inductance, *L*, H | from 1 μH to 50 mH | от $3.10^{-4}$ mH to $2.10^{-2}$ mH | МК 7.02 01-15 |
| 15. | Capacitance measuring instruments (300 Hz and 1 kHz) | Capacity, *C*, F | at frequency 300 Hz from 1 nF to 50 μF | from 1 pF to $2,9.10^{-2}$ nF | МК 7.02 01-15 |
| | | | 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 I: from 0,1 A to 10 A PF: from -1 to 1 f= 50 Hz | from 10 mW to 0,50 W | МК 7.02 01-16 |
| | | | 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 | МК 7.02 01-11 |
| | | | 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 | МК 7.02 01-07 МК 7.02 01-10 |
| | 18.2 Infrared thermometers | | from 150 °C to 1 100 °C | from 1,1 °C to 3,0 °C | МК 7.02 01-07 |
| 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 | МК 7.02 01-08 |
| | | | from 1 Ω to 10 000 Ω | from $7.10^{-3}$ Ω to 0,12 Ω | |
| | 19.2 Thermocouples | Temperature t, °C Thermoelectric voltage, | from minus 40 °C to 600 °C | from 0,30 °C to 0,90 °C | МК 7.02 01-09 |
| | | | from 600 °C to 1 100 °C | from 1,5 °C to 2,5 °C | |

| Type of scope: fixed | | | | | |
|---|---|---|---|---|---|
| *№* | *Measuring instrument* | *Measured quantity, measurement unit* | *Measurement range* | *Measurement uncertainty* | *Calibration method* |
| 1 | 2 | 3 | 4 | 5 | 6 |
| | | mV | 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 Direct voltage, DCU, mV (V) | from 0,001 Ω to 10 kΩ | from $7.10^{-5}$ Ω to 0,9 Ω | MK 7.02 01-06 |
| | | | from 0 mA to 20 mA | from 0,6 $10^{-4}$ mA to $6.10^{-4}$ mA | |
| | | | from minus 50 mV to 150 mV | from $1.10^{-3}$ mV 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 |
| 21. | Digital and vernier calipers (depth gauge and height gauge) | Length *l*, mm | to 200 mm | 18 µm | MK 7.02 01-17 |
| 22. | Micrometers (micrometer depth gauge and height gauge) | Length *l*, mm | to 200 mm | 5,8 µm | MK 7.02 01-18 |
| 23. | Measure of length with scale marks | Length *l*, m | to 2 m | 0,12 mm | MK 7.02 01-19 |
| | | | from 2 m to 30 m | from 0,12 mm to 0,6 mm | |
| 24.* | Digital and mechanical stopwatches and timers | Deviation of measured time for 24 hours ΔT, s | from 0 s to 200 s | from 0,01 s to 5 s | MK 7.02 01-20 |
| 25. | Installation testers – Trip time, ms | Time, ms | t: from 10 ms to 2 000 ms | from 0,59 ms to 0,90 ms | MK 7.02 01-21 |
| | Installation testers – Test current (50 Hz) | Alternating current, ACI, mA | Ia: from 10 mA to 2 500 mA | from 0,09 mA to 5,9 mA | |
| | Installation testers – Loop impe-dance | Impedance, Ω | Z: from 0,071 Ω to 1,8 kΩ | from 0,04 Ω to 11 Ω | |
| | Installation testers – Contact voltage (50 Hz) | Alternating voltage, ACU | 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 |

*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. | МК 7.02 01-01/2020 | Method for calibration of voltmeters and calibrators for direct voltage |
| 2. | МК 7.02 01-02/2018 | Method for calibration of ammeters and calibrators for direct current |
| 3. | МК 7.02 01-03/2018 | Method for calibration of electrical resistance measure |
| 4. | МК 7.02 01-04/2018 | Method for calibration of ohmmeters |
| 5. | МК 7.02 01-05/2018 | Method for calibration of temperature indicators with input for thermocouples or resistance thermometers (TC or RTD) |
| 6. | МК 7.02 01-06/2018 | Method for calibration of indicators on different quantities |
| 7. | МК 7.02 01-07/2018 | Method for calibration of thermometers (digital, analog and infrared) |
| 8. | МК 7.02 01-08/2018 | Method for calibration of resistance thermometers |
| 9. | МК 7.02 01-09/2018 | Method for calibration of thermocouples |
| 10. | МК 7.02 01-10/2018 | Method for calibration of liquid thermometers |
| 11. | МК 7.02 01-11/2018 | Method for calibration of measuring instruments for measuring and simulating of pressure |
| 12. | МК 7.02 01-12/2018 | Method for calibration of ammeters and calibrators for alternating current |
| 13. | МК 7.02 01-13/2020 | Method for calibration of voltmeters and calibrators for alternating voltage |
| 14. | МК 7.02 01-14/2018 | Method for calibration of frequency meters and frequency generators |
| 15. | МК 7.02 01-15/2018 | Method for calibration of of measuring instruments to measure R, L, C |
| 16. | МК 7.02 01-16/2018 | Method for calibration of measuring instruments to measure active power (wattmeters) |
| 17. | МК 7.02 01-17/2018 | Method for calibration of calipers (depth gauge and height gauge) |
| 18. | МК 7.02 01-18/2018 | Method for calibration of micrometers (micrometer depth gauge and height gauge) |
| 19. | МК 7.02 01-19/2018 | Method for calibration of measure of length with scale marks |
| 20. | МК 7.02 01-20/2018 | Method for calibration of stopwatches and timers |
| 21. | МК 7.02 01-21/2021 | Method for calibration of Installation testers |
| 22. | МК 7.02 01-22/2021 | Method for calibration of hygrometers |

## I HEREBY ORDER:

To issue the Certificate of accreditation reg. № 1 ЛК/10.01.2022, valid until 28.10.2024 and this order as an integral part of it.

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

Upon receipt of the certificate issued and enclosure, Calibration laboratory for measuring instruments at „UNISYST" LTD is obliged to return to EA BAS the originals of Certificate of accreditation reg. № 1 ЛК/28.10.2020 and the enclosure EA BAS Order № А 616/28.10.2020.

This Order shall be notified to „UNISYST" LTD within 3 (three) days from its issuance.

**Dipl. Eng. Irena Borislavova:**

*Executive Director of EA BAS*