RADWAG BALANCES AND SCALES
ADVANCED WEIGHING TECHNOLOGIES

Excellent measurement repeatability
Multi-position magazine for mass standard sets
Compliance with OIML R111

UMA – Automatic Mass Comparator

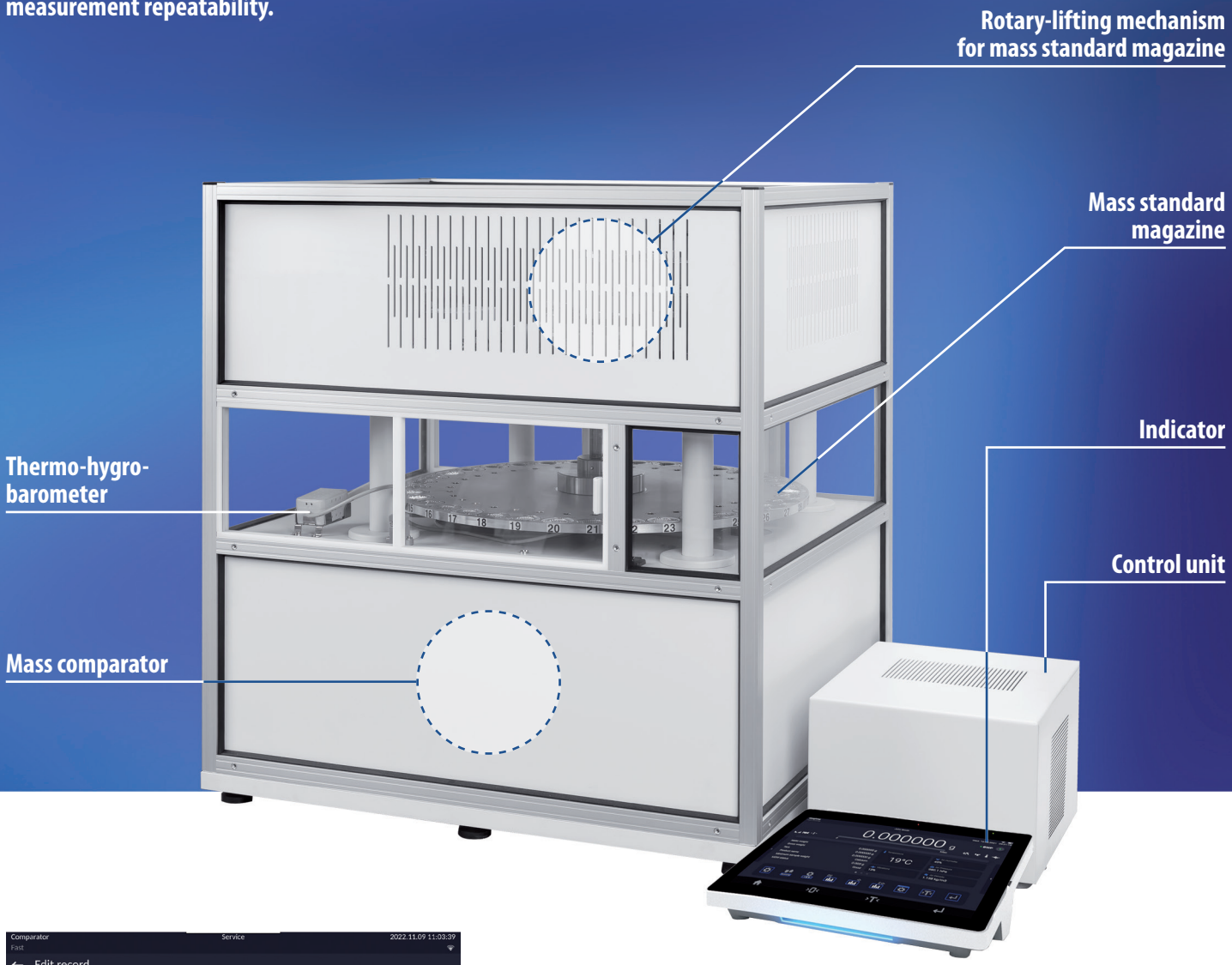
AUTOMATED COMPARISON OF MASS STANDARDS

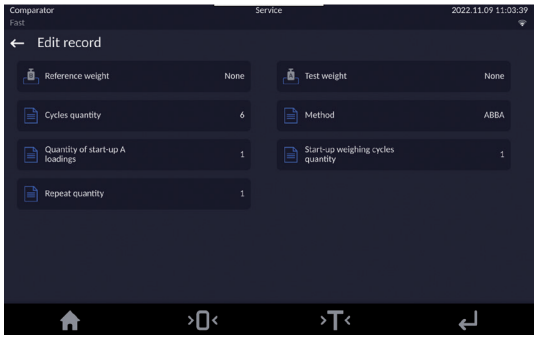
www.radwag.com

UMA | Automatic concurrent comparison of up to 36 mass standards

The automatic UMA series stands for a class-leading mass comparator. This instrument enables comparison of 1 mg - 1000 g weights of class E1 and lower. The UMA mass comparator is equipped with either 18-position or 36-position magazine. This universal solution has been designed to let you compare whole weight sets during one process, but also just few mass standards of the same mass.

UMA automatic mass comparator, due to the elimination of the human factor, temperature changes and air drafts, guarantees excellent measurement repeatability.





Intuitive in-built software allows to create calibration plan fast without the need to use the computer.

Direct Measurement of Ambient Conditions in a Weighing Chamber

The UMA mass comparator is equipped with a high-class thermo-hygro-barometer allowing to test ambient conditions in real time. The characteristic feature of the device is high readability of pressure (0.001 hPa), humidity (0.01%), and temperature (0.001 °C).

Real-Time Measurement of Vibrations

With vibration sensor placed inside the electronics, the UMA mass comparators analyse and identify vibration sources. The sensor helps to determine whether the recorded vibrations influence the measurement result or not.

Comparison of very small 1 mg plate mass standards without the threat of jamming.

Custom design insert allowing calibration of rod mass standards.

Universal insert for UMA-1000 guarantees precise measurement of 10 g - 1 kg mass standards regardless of shape and size.

Possibility to load 36 objects onto the comparator's magazine. This allows to calibrate the whole set of weights during one course.

Comparison range from 1 mg to 1000 g Repeatability of 0.2 µg

Effective and Excellent Measurement
The automatic UMA series stands for a class-leading mass comparator. This instrument enables comparison of 1 mg - 1000 g weights of class E1 and lower.

Comparison of Weight Sets
The UMA mass comparator is equipped with either 18-position or 36-position magazine. This universal solution has been designed to let you compare whole weight sets during one process, but also just few mass standards of the same mass.

The Best Measurement Repeatability over Short Period of Time
UMA automatic mass comparator, due to the elimination of the human factor, temperature changes and air drafts, guarantees excellent measurement repeatability. Due to the consistent mechanical design, the mass standards are located in close vicinity one to another. With this the calibration time is reduced to minimum.

Dedicated Software
Thanks to a user-friendly and functional software the user can prepare complete calibration plan within just a few minutes. The program stores calibration plans in memory. The plans can be used in future due to which preparation of calibration procedure takes less time.

Universal Insert Shape
Insert design allows measurement of very small and light weight with high accuracy, and prevents mass standard jamming. The automatic UMA mass comparator enables comparison of weights of various shapes using just one universal insert.

Compact Design
The UMA mass comparators due to their mechanical design can be easily adapted to any laboratory conditions. The device size facilitates its placing on the anti-vibration table of standard dimensions.

In-Built Weight Positioning Assistant
Supplementary software monitors loading of the mass comparator magazine, this prevents using of the same position many times.

Dedicated Databases
The mass comparator records all comparison reports and ambient conditions into databases. This makes them easily accessible and facilitates fast copying and printout.

Separation of an electronic control unit and the mass comparator ensures constant ambient conditions (temperature) in the weighing chamber during the measurement.

Special light system of the mass comparator chamber facilitates precise loading of mass standards and helps to find and remove potential impurities.

	UMA-5	UMA-100	UMA-1000
OIML calibration range E1	1 mg ÷ 5 g	1 g ÷ 100 g	100 g ÷ 1000 g
OIML calibration range E2	1 mg ÷ 5 g	1 g ÷ 100 g	100 g ÷ 1000 g
OIML calibration range F1	1 mg ÷ 5 g	1 g ÷ 100 g	100 g ÷ 1000 g
OIML calibration range F2	1 mg ÷ 5 g	1 g ÷ 100 g	100 g ÷ 1000 g
OIML calibration range M1	1 mg ÷ 5 g	1 g ÷ 100 g	100 g ÷ 1000 g
OIML calibration range M2	1 mg ÷ 5 g	1 g ÷ 100 g	100 g ÷ 1000 g
Maximum capacity [Max]	5.1 g	110 g	1060 g
Readability [d]	0.1 µg	1 µg	5 µg
Repeatability for small load *	0.2 µg (1 mg ÷ 1 g); 0.3 µg (1 g ÷ 2 g)	2 µg (1 g)	12 µg (10 g)
Repeatability for nominal load *	0.4 µg (2 g ÷ 5 g)	2 µg (100 g)	12 µg (1000 g)
Stabilization time	30 s	30 s	30 s
Adjustment	Internal	External	External
Electric compensation range	0 g ÷ +5.1 g	-1 g ÷ +10 g	-1 g ÷ +60 g
Internal supplementary weights	–	Automatic	Automatic
Eccentricity (for test weight)	0 µg	0 mg	0 mg
Magazine positions	36	36	18
Display	5.7" colour resistive touch screen	5.7" colour resistive touch screen	5.7" colour resistive touch screen
Communication interfaces	2×USB-A, Ethernet, 2×RS 232, 4×IN, 4×OUT, Wi-Fi®	2×USB-A, Ethernet, 2×RS 232, 4×IN, 4×OUT, Wi-Fi®	2×USB-A, Ethernet, 2×RS 232, 4×IN, 4×OUT, Wi-Fi®
Operating temperature	+15 ÷ +30 °C	+15 ÷ +30 °C	+15 ÷ +30 °C
Operating temperature change rate	±0,5 °C / 12 h (± 0,3 °C / 4 h)	±0,5 °C / 12 h (± 0,3 °C / 4 h)	±0,5 °C / 12 h (± 0,3 °C / 4 h)
Relative humidity change rate	±2% / 4h	±2% / 4h	±2% / 4h
Relative humidity **	40 ÷ 60%	40 ÷ 60%	40 ÷ 60%
Transport and storage temperature	–20 ÷ +50 °C	–20 ÷ +50 °C	–20 ÷ +50 °C
Weighing pan dimensions	ø 20 mm	ø 21 mm	ø 48 mm
Control unit dimensions (L×W×H)	465 × 187 × 261 mm	465 × 187 × 261 mm	465 × 187 × 261 mm
Overall dimensions (L×W×H)	900 × 535 × 585 mm	700 × 775 × 585 mm	700 × 775 × 585 mm

*Repeatability in vacuum for model ambient conditions | **Non-condensing conditions | Wi-Fi ® is a registered trademark of Wi-Fi Alliance.