Cubis® MCM5004

Manual Mass Comparator

User Benefits

- Complete mass standard laboratory in a single unit
- Integrated climate sensors for recording all data relevant for determining measurement uncertainty
- Integrated workflow control for efficient and error-free mass comparison
- Fast measurement cycles according to the ABA, ABBA or $AB_1...B_nA$ method

Highlighted Performance Features

- Cubis® MSA color touch screen for fast and simple configuration of parameters and workflows
- Sensor-equipped climate module integrated into the draft shield for recording the temperature, humidity and air pressure
- Integrated calibration workflows for ABA, ABBA, $AB_1...B_nA$ cycles to ensure efficient, error-free mass comparison
- Fully integrated function for determining the measurement uncertainty in accordance with OIML and ASTM recommendations
- Filters for optimal adaptation of the mass comparator to ambient conditions
- Monolithic weighing technology
- For display and evaluation, complete electronics and power supply separated from the weighing system to prevent heat from affecting the results
- All MCM mass comparators featuring eccentric (off-center) load compensation for easy loading of weights without automatic centering
- Additional applications for density determination, statistics and individual identifiers are integrated as standard programs
- Automatic, motorized leveling
- Built-in SD card slot for storage and transfer of all data and settings
- Easy logging of reference weight data
- Continuous weighing range display: any weight between 0 g and the maximum capacity can be displayed
- USB, RS-232C and Ethernet interface ports to integrate the mass comparator into networks or to enable it to communicate with external software via third-party protocols, standardized communication protocols or Web services

Technical Specifications

Metrological Specifications	
Maximum capacity	5100 g
Application range	0 – 5100 g
Readability	0.1 mg
Repeatability, optimal [1])	0.3 mg
Repeatability, standard E [2])	0.5 mg
Repeatability, E 1/10 load [2])	0.3 mg
Repeatability standard, F [3])	0.8 mg
Electronic weighing range and tare range	5100 g
Linearity	2 mg
Eccentric load deviation	151 µg | mm
Stabilization time	3 s
Cycle time, ABBA in s	90 s

Basic Equipment	
Interfaces	RS232C | USB | LAN
isoCAL	✓
Draft shield	✓
Application programs	Basic weighing, mass unit conversion, individual identifiers, density determination, statistics
Below-comparator weighing port	✓
Air temperature sensor	✓
Air humidity sensor	✓
Air pressure sensor	✓
PC connecting cable	USB

Ambient Conditions	
Permissible operating temperature range	10-30 °C
Recommended operating temperature	22 °C
Temperature fluctuations	0.3°C/h | 0.5°C/12h
Max. air current	< 0.2 m/s
Humidity range	40 – 70 %
Humidity fluctuations	5% | 4 h
Power supply	100 – 240 V AC/50 – 60 Hz
Power consumption	< 35 VA

Dimensions	
Weighing pan diameter	136 × 136 mm
Sample size (D × H)	130 × 200 mm
Weigh cell (W × D × H)	240 × 276 × 373 mm
Electronic unit (W × D × H)	239 × 320 × 56 mm
Net weight	15 kg
Gross weight	22.5 kg
Number of packages	1
Packaging data 1	83 × 45 × 59 cm
Optimal height for setup	800 mm

Applications	
OIML R111, class E1	5 kg
OIML R111, class E2	2 – 5 kg
OIML R111, class F1	200 g – 5 kg
OIML R111, class F2	100 g – 5 kg
OIML R111, class M1	
OIML R111, class M2	
OIML R111, class M3	
ASTM E617, class 0	1 – 5 kg
ASTM E617, class 1	500 g – 5 kg
ASTM E617, class 2	300 g – 5 kg
ASTM E617, class 3	100 g – 5 kg
ASTM E617, class 4	
ASTM E617, class 5	
ASTM E617, class 6	

Optional Accessories	
External calibration weight	5 kg | E2 YCW652-00
Climate module, uncalibrated, for all MCM models	YCM20MC
Calibration of a YCM20MC climate module with DAkkS calibration certificate	YCM20DAkkS
Climate module with DAkkS calibration certificate for all MCM models	YCM20MC-DAkkS
Optional draft shield	YDS24C
Weighing table	YWT03

The standard deviation "s" is the repeatability calculated from 5 ABA cycles under the following conditions:

[1]) Optimal conditions: automatic measurement without operator influence measured in a laboratory under E1 conditions, on a decoupled weighing stone no drafts from above

[2]) Standard conditions E: measured by hand in a laboratory under E1 conditions, on a decoupled weighing stone; no drafts from above

[3]) Standard conditions F: measurement performed mannually in a laboratory under at least F1 conditions, on a non-decoupled weighing stone, air conditioning and minimal drafts from above

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