SARTORIUS

Product Datasheet

Cubis® II Ultra-High Resolution Balances

High-Capacity Micro Balances

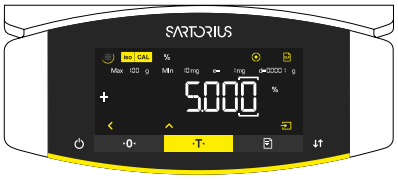
Highlights

- Ultra-high resolution with up to 61 million weighing steps (digits)
- End-to-end data integrity. 21 CFR Part 11 compliance, integrated audit-trail, state-of-the-art user management
- Cleanability, part of compliance
- Error-free operation. Individual QApp workflows, motorized auto-leveling
- Allow upgrades for hardware features like automated draft shields or built-in ionizer
- Optional inner draft shield for best weighing performance

Product Information

The Cubis® II laboratory balances are modular, therefore they allow to choose between applications and configurations which suit the best to the needs. These balances can be configured at the level of display, draft-shields, software applications and hardware functions. The Cubis® II range of high-capacity micro balances with a maximum load between 32 g and 111 g and a readability between 0.001 mg and 0.002 mg provide the ideal choice for a broad range of applications.

Cubis® II Display and Control Units



Type	MCA	Type	MCE
Display*	7″ color touch TFT display in 16:9 format with intuitive user interface	**Display***	TFT touch screen for routine weighing tasks
Software	Factory installed basic set of weighing applications (license free) and software packages which include advanced applications and functional extensions where licensing is required	**Software**	Factory installed basic set of weighing applications
Hardware	Configurable functions such as automated draft-shield or built-in ionizer. Optional upgrade after purchase is available (license required)	**Hardware**	Configurable functions such as automated draft-shield or built-in ionizer. Optional upgrade after purchase is not available.
Operation	Activated by touch key, touch-free using IR sensor or gesture sensor (optional), learning capability	**Operation**	Activated by touch key, touch-free using IR sensor or gesture sensor (optional), learning capability

* LED backlight 50,000 hours (if used with max. contrast), cable length 25 cm

Draft Shield Inner Dimensions

Draft Shield Version	Depth (mm)	Height (mm)	Width (mm)
D	159	234	185
YDS125A/U	Ø 80	125	

** max. 500,000 opening/closing cycles guaranteed if serviced at regular intervals of 100.000 cycles

Technical Specifications

Cubis® II Weighing Modules
High-Capacity Micro Balances 0.001 - 0.002 mg

	Units	36S	36P	66S
Scale interval (d)	mg	0.001	0.01 | 0.001	0.001
Maximum capacity (Max)	g	32	32 | 10.1	61
Repeatability at 5% load				
Standard deviation of the load values, tolerance	mg	0.0015	0.002	0.0015
Standard deviation of the load values, typical value	mg	0.0007	0.0007	0.0007
Repeatability near Max				
Standard deviation of the load values, tolerance	mg	0.0025	0.007	0.004
Standard deviation of the load values, typical value	mg	0.0018	0.005	0.0025
Linearity deviation				
Tolerance	mg	0.012	0.015	0.02
Typical value	mg	0.005	0.006	0.005
Deviation at eccentric loading, positions according to OIML R76				
Test weight	g	10	10	20
Tolerance	mg	0.015	0.02	0.02
Typical value	mg	0.006	0.008	0.01
Sensitivity drift between +10° C and +30° C	ppm/K	1	1	1
Tare maximum capacity: Less than 100% of maximum capacity				
Accuracy class according to Directive 2014 | 31 | EU		I	I	I
Verification scale interval (e) according to Directive 2014 | 31 | EU	mg	1	1	1
Minimum load (Min) according to Directive 2014 | 31 | EU	mg	0.1	0.1	0.1
Minimum weight according to USP (United States Pharmacopeia), Chap. 41 and Ph.Eur. 2.1.7				
Optimum minimum weight	mg	0.82	0.82	0.82
Typical minimum weight	mg	1.4	1.4	1.4
Typical stabilization time	s	3.5	3.5 | 2.5	3.5
Typical measurement time	s	10	10 | 6	10
Recommended calibration weight				
External test load	g	20	20	50
Accuracy class, according to OIML R111-1		E2	E2	E2
isoCAL				
Temperature change	K	1.5	1.5	1.5
Time span	h	12	12	12
Dimensions				
MCE | MCA Weighing module (L × W × H)*	mm	486 | 510 x 240 x 302	486 | 510 x 240 x 302	486 | 510 x 240 x 302
Weighing pan size	mm	Ø 50	Ø 50	Ø 50
Weight, approx.*	kg	15	15	15

* depending upon weighing pan size, filter weighing pan and draft shield

Cubis® II Weighing Modules
High-Capacity Micro Balances 0.001 - 0.002 mg

	Units	66P	116S
Scale interval (d)	mg	0.01 | 0.001	0.002
Maximum capacity (Max)	g	61 | 12	111
Repeatability at 5% load			
Standard deviation of the load values, tolerance	mg	0.002	0.004
Standard deviation of the load values, typical value	mg	0.0007	0.0025
Repeatability near Max			
Standard deviation of the load values, tolerance	mg	0.01	0.01
Standard deviation of the load values, typical value	mg	0.006	0.005
Linearity deviation			
Tolerance	mg	0.02	0.03
Typical value	mg	0.008	0.02
Deviation when load is off-center, positions according to OIML R76			
Test weight	g	20	50
Tolerance	mg	0.03	0.03
Typical value	mg	0.012	0.02
Sensitivity drift between +10° C and +30° C	ppm/K	1	1
Tare maximum capacity: Less than 100% of maximum capacity			
Accuracy class according to Directive 2014 | 31 | EU		I	I
Verification scale interval (e) according to Directive 2014 | 31 | EU mg		1	1
Minimum load (Min) according to Directive 2014 | 31 | EU	mg	0.1	0.2
Minimum weight according to USP (United States Pharmacopeia), Chap. 41 and Ph.Eur. 2.1.7			
Optimum minimum weight	mg	0.82	1.64
Typical minimum weigh	mg	1.4	5.0
Typical stabilization time	s	3.5 | 2.5	3.5
Typical measurement time	s	10 | 6	8
Recommended calibration weight			
External test load	g	50	50
Accuracy class, according to OIML R111-1		E2	E2
isoCAL			
Temperature change	K	1.5	1.5
Time span	h	12	12
Dimensions			
MCE | MCA Weighing module (L × W × H)*	mm	486 | 510 x 240 x 302	510 x 240 x 302
Weighing pan size	mm	Ø 50	
Weight, approx.*	kg	15	

* depending upon weighing pan size, filter weighing pan and draft shield

Technical Specifications

Cubis® II Power Supply Unit

Power supply only permitted using Sartorius power supply unit. Sartorius network device, type 1000099844

	Units	Value
Primary		
AC voltage	V	100–240 (±10%)
Frequency	Hz	47-63
Current consumption, maximum	A	0.8
Overvoltage category according to IEC 606641–		
DC voltage at 4.3 output current	V	15 ±15%
Power, maximum	W	64.5
Short circuit protection: Electronic		
Power supply cable		
Power supply cable according to IEC 60320-1 C13 | C14, with IEC plug, 3-pin, and with country-specific power plug		
Cubis® II Safety of Electrical Equipment		
According to EN 61010–1 | IEC 61010–1 : Safety requirements for electrical equipment for measurement, control, and laboratory use — Part 1: General Requirements		
Electromagnetic Compatibility		
Interference Immunity		
Suitable for use in industrial areas		
Transient emissions		
Class B		
Suitable for use in residential areas and areas that are directly connected to a low voltage network that (also) supplies residential buildings		
Materials		
Housing: Stainless steel 1.4401 | 1.4404, Aluminum ;Plastic PBT | PA; Float glass Optiwhite		
Control Unit: Aluminum, painted; Plastic PBT | PP; Float glass		
Integrated Clock		
Maximum deviation per month (RTC): 30		
Protection Class		
IP Protection: Protected against dust and water (IP30)		
Backup Battery		
Lithium battery: type CR2032		
Service life at room temperature, minimum: 10 Years		
Alibi Memory Value		
Maximum number of data records: 300,000		
Audit-Trail memory		
Maximum number of data points: 300,000		

Technical Specifications

Interfaces

Specifications for the USB–A Interface
Communication: USB host (master)
Connectable devices: Sartorius printers, USB sticks with software update
Specifications for the USB–B Interface
Communication: USB device (slave)
Type of interface: Virtual serial interface (virtual COM-port, VCP) and “PC direct” communication
Specifications for the USB-C interface
Communication: Downstream-facing port (DFP), USB host (Master)
Communication: RS232 connection with accessory YCC-USB-C-D09M

Draft Shield

Code	Item
D	Manual glass analytical draft shield chamber, with smooth-action doors that open wide and provide unimpeded access to the weighing chamber.

Configuration Options

Code	Item	MCA	MCE
QP99	QApp Package All inclusive (QP1 to QP4)	x	-
QP1	QApp Package Pharma	x	-
QP2	QApp Package Advanced Applications	x	-
QP3	QApp Package Utilities	x	-
QP4	QApp Package Connectivity	x	-
HWL	QApp Package Hardware	x	x
ION	Ionizer	x	x
MDS	Automatic Draft Shield	x	x

After Purchase Licensing

Code	Item	MCA	MCE
QP1	QApp Package Pharma	x	-
QP2	QApp Package Advanced Applications	x	-
QP3	QApp Package Utilities	x	-
QP4	QApp Package Connectivity	x	-
QP10	QApp Package Hardware	x	-
QAPP1001	Ionizer	x	-
QAPP1002	Automatic Draft Shield	x	-

Technical Specifications

Ambient Conditions

Installation Site		
Standard laboratory rooms		
Installation site according to IEC 60259–1, maximum altitude above sea level	m	3000
For indoor use only		
Temperature		
In operation with isoCAL function	° C	+10 – +30
n operation, without isoCAL function	° C	+17 – +27
In operation for conformity-assessed devices: see information on the device's ID plate		
During storage and transport	° C	–20 – +60
* Scope of application as per Directive 2014/31/EU		
Relative humidity		
At temperatures of up to 31° C	%	80
Then linear decrease from 80% at 31° C to 50% at 40° C		

Installation Conditions

Suitable for the weight of the device and the associated components
Stable, fully flat, even, low vibrations
Not directly against a wall
No heat from heating systems or direct sunlight
No drafts from open windows, AC systems, or doors
No vibrations
No "heavy traffic" areas (personnel)
No electromagnetic fields
No dry air

Meteorological Data

Code	Item
SØØ	Standard version non-verified, all units
SØ1	Standard version non-verified, metric units only
CCN	Balance with Type Approval Certificate for China
CEU	Verified balance with EC Type Approval Certificate (for EU except France)
CFR	Verified balance with EC Type Approval Certificate for France only
OBR	Balance with Type Approval Certificate for Brazil
OIN	Balance with Type Approval Certificate for India
OJP	Balance with Type Approval Certificate for Japan
ORU	Balance with Type Approval Certificate for Russia

Accessories

Inner Draft Shield	Quantity	Cat. No.
Motorized	1	YDS125A
Manual	1	YDS125U
Glass base, for height reduction of weighing compartment	1	YDSHR
Outer Draft Shield		
Left door outer draftshield	1	YCCDSL
Right door outer draftshield	1	YCCDSR
Cover slide outer draftshield	1	YCCDSU
Front panel outer draftshield	1	YCCDSF
Printers and Communication		
Thermal transfer | thermal printer for GMP | GLP printouts on continuous paper and labels	1	YDP30
Laboratory thermal transfer printer YDP30 with USB and ethernet connection	1	YDP30-NET
Wireless Nano USB Adapter (for EU only)	1	YWLAN01MS
WIFI Nano Router (for EU only)	1	YWLAN02MS
Standard paper and ink ribbon, set, 90 m, for YDP30	1	69Y03285
Self-adhesive paper and ink ribbon, 90 m, for YDP30	1	69Y03286
Standard thermal paper, 24 m roll, for YDP30 | YDP40	5	69Y03287
Self-adhesive thermal paper, 24 m roll, for YDP30	5	69Y03288
Self-adhesive labels for YDP30		
58 mm × 100 mm	350	69Y03094
58 mm × 76 mm	500	69Y03093
58 mm × 30 mm	1000	69Y03092
Displays and Input | Output Elements		
MCE Display	1	69MS0218
Display head MCA for balances with automatic draft shield	1	69MS0212
Motion sensor with USB connection cable	1	YHS02USB
Barcode and QR Reader with USB	1	YBR05
Foot switch for draft shield, tara, print	1	YFS02
Density Determination Kits		
Density determination set for solids and liquids	1	YDK03MC

Accessories

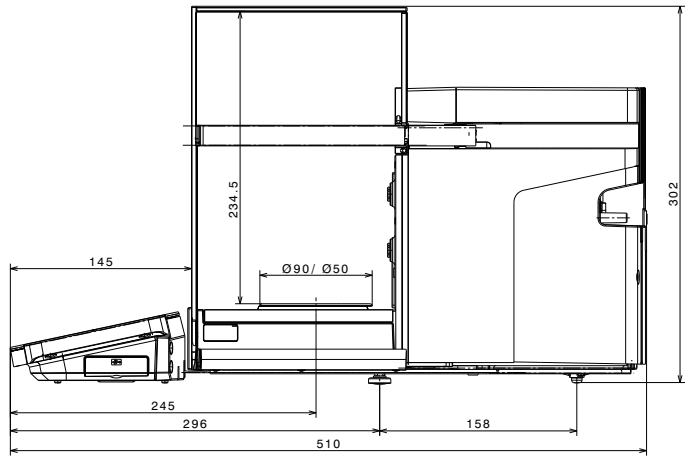
Weighing Pans, Ionizer and Weighing Scoops	Quantity	Cat. No.
90 mm weighing pan, slotted	1	YWP10-3
50 mm weighing pan, slotted, with protective plate for 50 mm	1	YWP09-3
Ionization blower for electrostatically charged samples	1	YIB01-ODR
Ionizer with U-shaped electrode for 230 V	1	YIB02-230V
Ionizer with U-shaped electrode for 115 V	1	YIB02-115V
Compact U-shaped ionizer for 230 V/115 V	1	YIB03-C
Stat-Pen ionization pen for discharging electrostatically charged samples	1	YSTP01
Aluminum weighing scoop, 4.5 mg for ultra-micro balance and micro balance models	250	6565-250
Aluminum weighing scoop, 52 mg for ultra-micro balance and micro balance models	50	6566-50
Weighing scoop made from chrome-nickel steel, L 90 mm x W 32 mm x H 8 mm	1	641214
Other Accessories		
Connection cable for operating display, length 3 m	1	YCC01-MCD3-3
Connection cable with RS232 adapter, USB-C to RS232, 9-pin	1	YCC-USB-C-D09M
Ethernet extension cable, 1 m	1	YCC-RJ45-CAT7
Cable RS232 9-pin to M12 inlet for connecting Watson-Marlow pumps 530DuN and 630DuN, 2 m	1	YCC-D09M-M12F-2M
Cable RS232 9-pin (male) to 9-pin (male) for connecting e.g. Watson-Marlow 323Du pump, 2.9 m	1	YCC-D09MM-EC-2.9M
Cable DSUB25 DIO to USB for connecting e.g. signal light, 0.5 m	1	YCC01-MC05
Sartorius Wedge, software for data communication between the PC and balance	1	YSW02
Signal light for displays MCE and MCA	1	VF4763
Connection cable for fermenter	1	VF4758
Power supply TNG10 EPS30W	1	6971987
YRB11Z modified for Cubis® balances	1	VF4476
External battery pack	1	YRB11Z
Dust cover Cubis® II MCE ultra-high resolution	1	YDCC2MCE
Dust cover Cubis® II MCA ultra-high resolution	1	YDCC2MCA
Weighing Tables		
Made from synthetic stone, with vibration dampening	1	YWT03
Made from wood with synthetic stone	1	YWT09
Wall console	1	YWT04
Climate Modules		
Climate module, uncalibrated, for ultra-high resolution balances with MCA display	1	YCM20MC
Calibration of a climate module YCM20MC with DAkkS calibration certificate	1	YCM20DAkkS
Climate module with DAkkS calibration certificate for ultra-high resolution balances with MCA display	1	YCM20MC-DAkkS

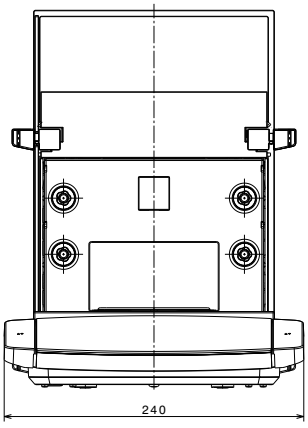
Accessories

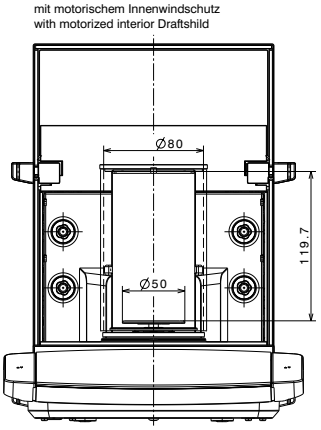
Sample Holders Made of Titanium		Quantity	Cat. No.
Adjustable sample holder for vessels of up to 50 ml		1	YSH02-3
For coronary stents (up to 38 mm)		1	YSH12-3
For save-lock tubes, 1.5 ml – 2 ml		1	YSH14-3
For save-lock tubes up to 5 ml		1	YSH18-3
For vials		1	YSH22-3
For weighing boats		1	YSH26-3
For filters, 150 mm diameter		1	YSH30-3
For filters up to 75 mm		1	YSH35-3
For titration vessels and round bottom flasks		1	YSH47-3
For syringes, vertical		1	YSH46-3

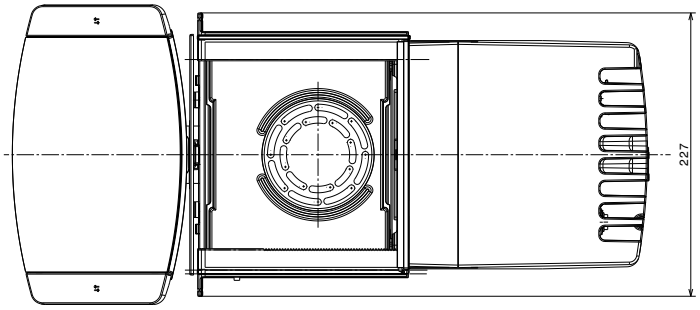
Balance Dimensions

High-Capacity Micro Balances (MCA Display) | All dimensions are given in millimeters



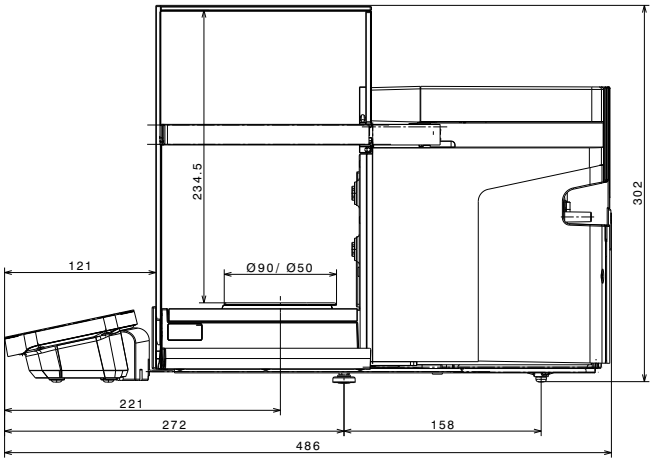


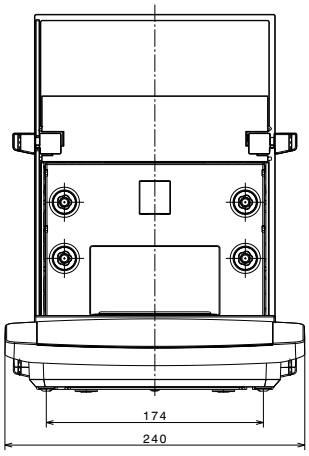


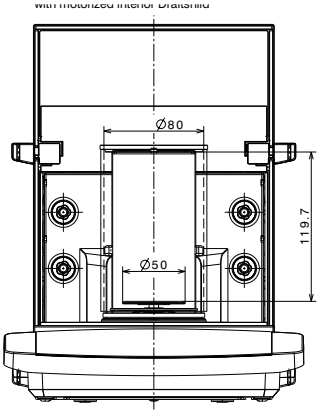


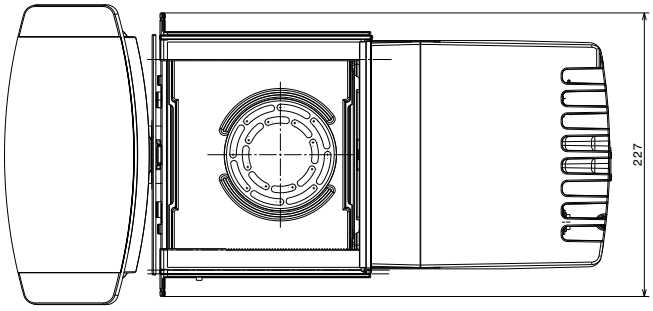
Balance Dimensions

High-Capacity Micro Balances (MCE display) | All dimensions are given in millimeters









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