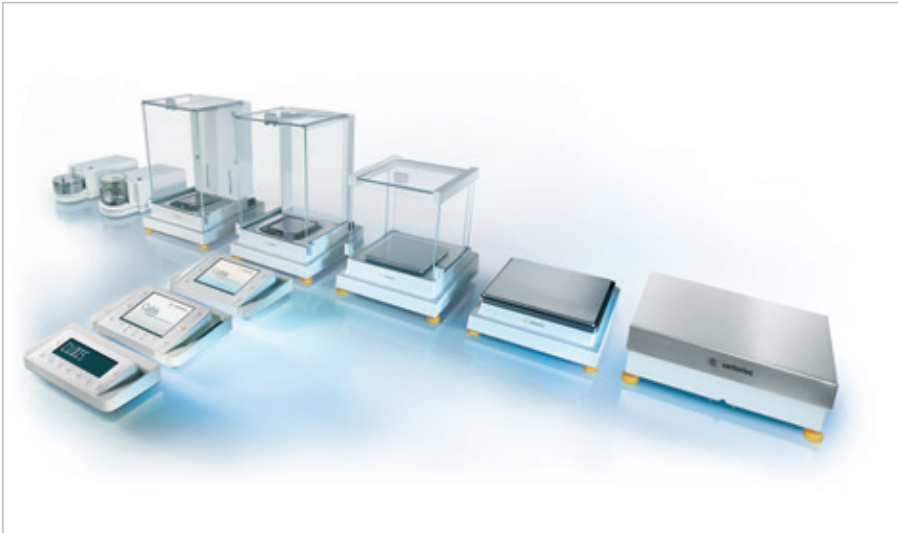


## Sartorius Cubis® Series


**CUBIS**
**MODULAR  
DESIGN**

### General Specifications

Power supply	100–240 V~, -15%/+10%, 50–60 Hz, 1.0 A
Input voltage	15 VDC, ± 5%
Power consumption	7W (max.)
Ambient temperature	Operation +5°C to +40°C
Highest relative humidity	80% for temperatures up to 31°C, decreasing linearly to 50% relative humidity for 40°C
Safety of electrical equipment	According to EN 61010-1:2001: Safety requirements for electrical equipment for measurement, control, and laboratory use – Part 1: General requirements
Electromagnetic compatibility	According to EN 61326-1:2006: Electrical equipment for measurement, control, and laboratory use – EMC requirements – Part 1: General requirements
Defined immunity to interference	Suitable for use in industrial areas
Interference emission	Class B (suitable for use in residential areas and areas that are connected to a low voltage network that also supplies residential buildings)

## Cubis® Display and Control Units



Type	MSA	MSU	MSE
Operation	Touch screen, keys for central basic functions	Keys	Keys
Display	High-resolution color TFT, 5.7" graphic display	High-resolution black-and-white, 5.7" graphical display	Liquid crystal display, black-and-white
Adaptation of the display and control unit	Tilttable display, removable display and control unit		Removable display and control unit
Standard data interfaces	<ul style="list-style-type: none"> <li>– USB (integrated into weighing module)</li> <li>– RS-232C accessory interface, 25-pin (integrated into weighing module)</li> <li>– Various data protocols available (can also be connected to software designed for external manufacturers)</li> <li>– Ethernet (integrated into display unit)</li> </ul>		<ul style="list-style-type: none"> <li>– USB (integrated into weighing module)</li> <li>– RS-232C accessory interface, 25-pin (integrated into weighing module)</li> </ul>
SD card reader	Integrated as standard into display and control unit		–
Operation of the motorized draft shield (only for DA, DI, DM draft shields)	Activated by side keys or touch-free using IR switch (optional); learning capability		Activated by key or touch-free using IR switch (optional); learning capability
Applications	Unit conversion, SQmin function for minimum initial weight according to USP, isoCAL automatic calibration   adjustment function, individual identifiers, density determination, statistics, calculations, averaging, formulation, weighing in percent, time-controlled functions, totalizing, DKD measurement uncertainty, second tare memory, counting, checkweighing, alibi memory, audit trail		Unit conversion, isoCAL automatic calibration   adjustment function, density determination (buoyancy method only), calculations, averaging, net   total formulation, weighing in percent, counting

## Cubis® Weighing Modules

### Ultramicrobalances 0.0001 mg

Model		2.7S	2.7S (with DF filter draft shield)
Readability	mg	0.0001	0.0001
Weighing capacity	g	2.1	2.1
Tare range (subtractive)	g	– 2.1	– 2.1
Repeatability	≤±mg	0.00025	0.00025
Linearity	≤±mg	0.0009	0.0009
Corner load (test load [g])	mg	0.0025 (1)	0.0025 (1)
Min. initial weight*	mg	1	–
Sensitivity drift between +10 to +30°C	±ppm/K	1	1
Typical stabilization time	s	< 7	< 7
Typical measurement time	s	< 10	< 10
External standard calibration value (min. accuracy class)	g	2 (E2)	2 (E2)
Display result (depending on the set filter level)	s	0.1 – 0.4	0.1 – 0.4
Weighing pan size ∅	mm	20	50
Weighing chamber height	mm	70	15
Protection		Protected against dust and water	

\* = Typical min. initial weighing according to USP (United States Pharmacopeia), USP31-NF26

### Microbalances 0.001 mg

Model		6.6S	6.6S (with DF filter draft shield)	3.6P
Readability	mg	0.001	0.001	0.001   0.002   0.005
Weighing capacity	g	6.1	6.1	1.1   2.1   3.1
Tare range (subtractive)	g	- 6.1	- 6.1	- 3.1
Repeatability	≤±mg	0.001	0.001	0.003   0.004   0.005
Linearity	≤±mg	0.004	0.004	0.004
Corner load (test load [g])	mg	0.004 (2)	0.004 (2)**	0.005 (1)
Min. initial weight*	mg	2	-	4
Sensitivity drift between +10 to +30°C	±ppm/K	1	1	1
Typical stabilization time	s	< 5	< 5	< 5
Typical measurement time	s	< 8	< 8	< 8
External standard calibration value (min. accuracy class)	g	5 (E2)	5 (E2)	3 (E2)
Display result (depending on the set filter level)	s	0.1 – 0.4	0.1 – 0.4	0.1 – 0.4
Weighing pan size Ø	mm	30	50	30
Weighing chamber height	mm	70	15	70
Protection		Protected against dust and water		

### Semi-microbalances 0.01 mg

Model		225S	225P	125P
Readability	mg	0.01	0.01   0.02   0.05	0.01   0.1
Weighing capacity	g	220	60   120   220	60   120
Tare range (subtractive)	g	- 220	- 220	- 120
Repeatability	≤±mg	0...60 g: 0.015 60...220 g: 0.025	0...60 g: 0.015 60...220 g: 0.04	0...60 g: 0.015 60...120 g: 0.06
Linearity	≤±mg	0.1	0.15	0.15
Corner load (test load [g])	mg	0.15 (100)	0.2 (100)	0.15 (50)
Min. initial weight*	mg	20	20	20
Sensitivity drift between +10 to +30°C	±ppm/K	1	1	1
Typical stabilization time	s	≤ 2	≤ 2	≤ 2
Typical measurement time	s	≤ 6	≤ 6	≤ 6
External standard calibration value (min. accuracy class)	g	200 (E2)	200 (E2)	100 (E2)
Display result (depending on the set filter level)	s	0.2 – 0.4	0.2 – 0.4	0.2 – 0.4
Weighing pan size (W × D)	mm	85 × 85	85 × 85	85 × 85
Weighing chamber height (draft shield DU)	mm	261	261	261
Protection		Protected against dust and water		

\* = Typical min. initial weighing according to USP (United States Pharmacopeia), USP31-NF26

\*\* = Measured using a standard pan

### Analytical Balances 0.1 mg

Model		524S	524P	324S	324P	224S	124S
Readability	mg	0.1	0.1   0.2   0.5	0.1	0.1   0.2   0.5	0.1	0.1
Weighing capacity	g	520	120   240   520	320	80   160   320	220	120
Tare range (subtractive)	g	- 520	- 520	- 320	- 320	- 220	- 120
Repeatability	≤±mg	0.1	0.15   0.2   0.4	0.1	0.1   0.2   0.4	0.07	0.1
Linearity	≤±mg	0.4	0.5	0.3	0.5	0.2	0.2
Corner load (test load [g])	mg	0.3 (200)	0.4 (200)	0.3 (200)	0.4 (200)	0.2 (100)	0.2 (50)
Min. initial weight*	mg	120	120	120	120	120	120
Sensitivity drift between +10 to +30°C	±ppm/K	1	1	1	1	1	1
Typical stabilization time	s	< 1	< 1	< 1	< 1	< 1	< 1
Typical measurement time	s	< 3	< 3	< 3	< 3	< 3	< 3
External standard calibration value (min. accuracy class)	g	500	500	200+100 (E2)	200+100 (E2)	200 (E2)	100 (E2)
Display result (depending on the set filter level)	s	0.1 – 0.4	0.1 – 0.4	0.1 – 0.4	0.1 – 0.4	0.1 – 0.4	0.1 – 0.4
Weighing pan size (W × D)	mm	85 × 85	85 × 85	85 × 85	85 × 85	85 × 85	85 × 85
Weighing chamber height (draft shield DU)	mm	261	261	261	261	261	261
Protection		IP54 in accordance with IEC 60529					

\* = Typical min. initial weighing according to USP (United States Pharmacopeia), USP31-NF26

### Precision Balances

Model		5203S	5203P	3203S	2203S	2203P	1203S
Readability	mg	1	1   2   5	1	1	1   10	1
Weighing capacity	g	5,200	1,200   2,400   5,200	3,200	2,200	1,010   2,200	1,200
Tare range (subtractive)	g	- 5,200	- 5,200	- 3,200	- 2,200	- 2,200	- 1,200
Repeatability	≤±mg	1	1	1	1	1   6	0.7
Linearity	≤±mg	5	5	5	3	5	2
Corner load (test load [g])	mg	2 (2,000)	2 (2,000)	2 (1,000)	2 (1,000)	3 (1,000)	2 (500)
Min. initial weight*	g	1.5	1.5	1.5	1.5	1.5	1.5
Sensitivity drift between +10 to +30°C	±ppm/K	1	1	1	1	1	1.5
Typical stabilization time	s	≤ 1	≤ 1	≤ 1	≤ 1	≤ 1	≤ 1
Typical measurement time	s	≤ 2	≤ 2	≤ 2	≤ 1.5	≤ 1.5	≤ 1.5
External standard calibration value (min. accuracy class)	g	5,000	5,000	2,000	2,000 (E2)	1,000 (E2)	1,000 (E2)
Display result (depending on the set filter level)	s	0.1 – 0.4	0.1 – 0.4	0.1 – 0.4	0.1 – 0.4	0.1 – 0.4	0.1 – 0.4
Weighing pan size (W × D)	mm	140 × 140	140 × 140	140 × 140	140 × 140	140 × 140	140 × 140
Weighing chamber height (draft shield DE)	mm	172	172	172	172	172	172
Protection		Protected against dust and water					

\* = Typical min. initial weighing according to USP (United States Pharmacopeia), USP31-NF26

## Precision Balances

Model		623S	623P	323S
Readability	mg	1	1   2   5	1
Weighing capacity	g	620	150   300   620	320
Tare range (subtractive)	g	- 620	- 620	- 320
Repeatability	≤±mg	0.7	1   2   4	0.7
Linearity	≤±mg	2	5	2
Corner load (test load [g])	mg	2 (200)	4 (200)	2 (200)
Min. initial weight*	g	1.5	1.5	1.5
Sensitivity drift between +10 to +30°C	±ppm/K	2	2	2
Typical stabilization time	s	≤ 0.8	≤ 0.8	≤ 0.8
Typical measurement time	s	≤ 1	≤ 1	≤ 1
External standard calibration value (min. accuracy class)	g	500 (E2)	500 (F1)	200 (E2)
Display result (depending on the set filter level)	s	0.1 – 0.4	0.1 – 0.4	0.1 – 0.4
Weighing pan size (W × D)	mm	140 × 140	140 × 140	140 × 140
Weighing chamber height (draft shield DE)	mm	172	172	172
Protection		Protected against dust and water		

Model		14202S	14202P	10202S	8202S
Readability	mg	10	10   20   50	10	10
Weighing capacity	g	14,200	3,500   7,000   14,200	10,200	8,200
Tare range (subtractive)	g	- 14,200	- 14,200	- 10,200	- 8,200
Repeatability	≤±mg	10	10   20   40	7	7
Linearity	≤±mg	30	50	20	20
Corner load (test load [g])	mg	20 (5,000)	40 (5,000)	20 (5,000)	20 (5,000)
Min. initial weight*	g	15	15	12	12
Sensitivity drift between +10 to +30°C	±ppm/K	1.5	1.5	2	2
Typical measurement time	s	≤ 1.5	≤ 1.5	≤ 1.5	≤ 1.5
External standard calibration value (min. accuracy class)	kg	10 (E2)	10 (E2)	10 (E2)	5 (E2)
Display result (depending on the set filter level)	s	0.1 – 0.4	0.1 – 0.4	0.1 – 0.4	0.1 – 0.4
Weighing pan size (W × D)	mm	206 × 206	206 × 206	206 × 206	206 × 206
Protection		IP54 in accordance with IEC 60529			

\* = Typical min. initial weighing according to USP (United States Pharmacopeia), USP31-NF26

## Precision Balances

Model		6202S	6202P	5202S	4202S
Readability	mg	10	10   20   50	10	10
Weighing capacity	g	6,200	1,500   3,000   6,200	5,200	4,200
Tare range (subtractive)	g	- 6,200	- 6,200	- 5,200	- 4,200
Repeatability	≤±mg	7	7   20   40	6	7
Linearity	≤±mg	20	50	10	20
Corner load (test load [g])	mg	20 (2,000)	50 (2,000)	10 (2,000)	30 (2,000)
Min. initial weight*	g	12	12	10	12
Sensitivity drift between +10 to +30°C	±ppm/K	2	2	2	2
Typical measurement time	s	≤ 1.5	≤ 1.5	≤ 1	≤ 1
External standard calibration value (min. accuracy class)	kg	5 (E2)	5 (F1)	5	2 (E2)
Display result (depending on the set filter level)	s	0.1 – 0.4	0.1 – 0.4	0.1 – 0.4	0.1 – 0.4
Weighing pan size (W × D)	mm	206 × 206	206 × 206	140 × 140	206 × 206
Protection		IP54 in accordance with IEC 60529			

Model		2202S	1202S	12201S	8201S	5201S
Readability	mg	10	10	100	100	100
Weighing capacity	g	2,200	1,200	12,200	8,200	5,200
Tare range (subtractive)	g	- 2,200	- 1,200	- 12,200	- 8,200	- 5,200
Repeatability	≤±mg	7	7	50	50	50
Linearity	≤±mg	20	20	100	100	100
Corner load (test load [g])	mg	20 (1,000)	20 (500)	200 (5,000)	200 (5,000)	200 (2,000)
Min. initial weight*	g	12	12	100	100	100
Sensitivity drift between +10 to +30°C	±ppm/K	2	2	4	4	4
Typical measurement time	s	≤ 1	≤ 1	≤ 1	≤ 1	≤ 1
External standard calibration value (min. accuracy class)	kg	2 (F1)	1 (F1)	10 (F1)	5 (F2)	5 (F2)
Display result (depending on the set filter level)	s	0.1 – 0.4	0.1 – 0.4	0.1 – 0.4	0.1 – 0.4	0.1 – 0.4
Weighing pan size (W × D)	mm	206 × 206	206 × 206	206 × 206	206 × 206	206 × 206
Protection		IP54 in accordance with IEC 60529				

\* = Typical min. initial weighing according to USP (United States Pharmacopeia), USP31-NF26

### High load balances

Model		70201S	36201S	36201P	20201S
Readability	mg	100	100	100   1,000	100
Weighing capacity	g	70,200	36,200	10,200   36,200	20,200
Tare range (subtractive)	g	- 70,200	- 36,200	- 36,200	- 20,200
Repeatability	≤±mg	100	100	100   500	100
Linearity	≤±mg	500	200	200	200
Corner load (test load [g])	mg	500 (20,000)	300 (10,000)	300 (10,000)	300 (5,000)
Min. initial weight*	g	-	-	-	-
Sensitivity drift between +10 to +30°C	±ppm/K	3	2	2	2
Typical measurement time	s	1.5	1.5	1.5	1.5
External standard calibration value (min. accuracy class)	kg	20 (F1)	10 (F1)	10 (F1)	10 (F1)
Display result (depending on the set filter level)	s	0.1 – 0.4	0.1 – 0.4	0.1 – 0.4	0.1 – 0.4
Weighing pan size (W × D)	mm	400 × 300	400 × 300	400 × 300	400 × 300
Protection		IP54 in accordance with IEC 60529			

Model		70200S	36200S
Readability	mg	1,000	1,000
Weighing capacity	g	70,200	36,200
Tare range (subtractive)	g	- 70,200	- 36,200
Repeatability	≤±mg	500	500
Linearity	≤±mg	1,000	1,000
Corner load (test load [g])	mg	1,000 (20,000)	1,000 (10,000)
Min. initial weight*	g	-	-
Sensitivity drift between +10 to +30°C	±ppm/K	2	3
Typical measurement time	s	1	1
External standard calibration value (min. accuracy class)	kg	20 (F1)	10 (F1)
Display result (depending on the set filter level)	s	0.1 – 0.4	0.1 – 0.4
Weighing pan size (W × D)	mm	400 × 300	400 × 300
Protection		IP54 in accordance with IEC 60529	

\* = Typical min. initial weight according to USP (United States Pharmacopeia), USP31-NF26

### Verified Models with EC Type Approval Certificate: Micro- and Ultramicrobalances

Model		6.6S-xCE	2.7S-xCE	3.6P-xCE
Accuracy class*	mg	Ⓘ	Ⓘ	Ⓘ
For verified models: EC type approval certificate D09-09-015, Type: MSX				
Scale interval d*	mg	0.001	0.0001	0.001
Weighing capacity max*	g	6.1	2.1	3.1
Calibration value e*	mg	1	1	1
Min. load min*	mg	0.1	0.01	0.1
Tare equalization range (subtractive)	g	≤ 100% from max. weighing capacity		
Application range according to DIR*	g	0.001 – 6.1	0.001 – 2.1	0.001 – 3.1
Min. initial weight**	mg	2	1	4
Typical stabilization time	s	≤ 5	≤ 7	≤ 5
Typical measurement time	s	≤ 8	≤ 10	≤ 8
External standard calibration value (min. accuracy class)	g	5	2	3
Application range (temperature)		With "isoCAL" function: +5...+40°C   Without "isoCAL" function: +15 ... +25°C		
Display result (depending on the set filter level)	s	By selection of 1 of 4 optimized filter levels		
Weighing pan size Ø	mm	30	20	30
Weighing chamber height (draft shield DM)	mm	70	70	70
Protection		Protected against dust and water		

### Verified Models with EC Type Approval Certificate: Semi-microbalances 0.01 mg

Model		225S-xCE	225P-xCE	125P-xCE
Accuracy class*	mg	Ⓘ	Ⓘ	Ⓘ
For verified models: EC type approval certificate D09-09-015, Type: MSX				
Scale interval d*	mg	0.01	0.01   0.02   0.05	0.01   0.1
Weighing capacity max*	g	220	60   120   220	60   120
Calibration value e*	mg	1	1	1
Min. load min*	mg	1	1	1
Tare equalization range (subtractive)		≤ 100% from max. weighing capacity		
Application range according to DIR*	g	0.001 – 220	0.001 – 220	0.001 – 120
Min. initial weight**	mg	20	20	20
Typical stabilization time	s	≤ 2	≤ 2	≤ 2
Typical measurement time	s	≤ 6	≤ 6	≤ 6
External standard calibration value (min. accuracy class)	g	200 (E2)	200 (E2)	100 (E2)
Application range (temperature)		With "isoCAL" function: +5 ... +40°C   Without "isoCAL" function: +15 ... +25°C		
Adaptation to ambient conditions		By selection of 1 of 4 optimized filter levels		
Display result (depending on the set filter level)	s	0.2 – 0.4	0.2 – 0.4	0.2 – 0.4
Weighing pan size (W × D)	mm	85 × 85	85 × 85	85 × 85
Weighing chamber height (draft shield DU)	mm	261	261	261
Protection		Protected against dust and water		

\* DIR = Directive 90/384/EEC on non-automatic weighing instruments used within the European Economic Area

\*\* = Typical min. initial weighing according to USP (United States Pharmacopeia), USP31-NF26



**Verified Models with EC Type Approval Certificate: Analytical Balances 0.1 mg**

Model		524S-xCE	524P-xCE	324S-xCE	224S-xCE	324P-xCE	124S-xCE
Accuracy class*		I	I	I	I	I	I
For verified models: EC type approval certificate D09-09-015, Type: MSX							
Scale interval d*	mg	0.1	0.1   0.2   0.5	0.1	0.1	0.1   0.2   0.5	0.1
Weighing capacity max*	g	520	120   240   520	320	220	80   160   320	120
Calibration value e*	mg	1	1	1	1	1	1
Min. load min*	mg	10	10	10	10	10	10
Tare equalization range (subtractive)	g	≤ 100% from max. weighing capacity					
Application range according to DIR*	g	0.01-520	0.01-520	0.01-320	0.01-220	0.01-320	0.01-120
Min. initial weight**	mg	120	120	120	120	120	120
Typical stabilization time	s	≤ 1	≤ 1	≤ 1	≤ 1	≤ 1	≤ 1
Typical measurement time	s	≤ 3	≤ 3	≤ 3	≤ 3	≤ 3	≤ 3
External standard calibration value (min. accuracy class)	g	500	500 (E2)	200+100 (E2)	200 (E2)	200+100 (E2)	100
Application range (temperature)		With "isoCAL" function: +5 ... +40°C   Without "isoCAL" function: +15 ... +25°C					
Display result (depending on the set filter level)	s	0.1 – 0.4	0.1 – 0.4	0.1 – 0.4	0.1 – 0.4	0.1 – 0.4	0.1 – 0.4
Weighing pan size (W × D)	mm	85 × 85	85 × 85	85 × 85	85 × 85	85 × 85	85 × 85
Weighing chamber height (draft shield DU) mm		261	261	261	261	261	261
Protection		IP54 in accordance with IEC 60529					

**Verified Models with EC Type Approval Certificate: Precision Balances**

Model		5203S-xCE	5203P-xCE	3203S-xCE	2203S-xCE	2203P-xCE	1203S-xCE
Accuracy class*		I	I	I	I	I	I
For verified models: EC type approval certificate D09-09-015, Type: MSX							
Scale interval d*	mg	1	1   2   5	1	1	1   10	1
Weighing capacity max*	g	5,200	1,200   2,400   5,200	3,200	2,200	1,010   2,200	1,200
Calibration value e*	mg	10	10	10	10	10	10
Min. load min*	mg	100	100	100	100	100	100
Tare equalization range (subtractive)	g	≤ 100% from max. weighing capacity					
Application range according to DIR*	g	0,1 – 5,200	0,1 – 5,200	0,1 – 3,200	0,1 – 2,200	0,1 – 2,200	0,1 – 1,200
Min. initial weight**	g	1.5	1.5	1.5	1.5	1.5	1.5
Typical stabilization time	s	≤ 1	≤ 1	≤ 1	≤ 1	≤ 1	≤ 1
Typical measurement time	s	≤ 2	≤ 2	≤ 2	≤ 1.5	≤ 1.5	≤ 1.5
External standard calibration value (min. accuracy class)	g	5,000	5,000	2,000	2,000 (E2)	1,000 (E2)	1,000 (E2)
Application range (temperature)		With "isoCAL" function: +5 to +40°C   Without "isoCAL" function: +15 to +25°C					
Display result (depending on the set filter level)	s	0.1 – 0.4	0.1 – 0.4	0.1 – 0.4	0.1 – 0.4	0.1 – 0.4	0.1 – 0.4
Weighing pan size (W × D)	mm	140 × 140	140 × 140	140 × 140	140 × 140	140 × 140	140 × 140
Weighing chamber height (draft shield DE) mm		172	172	172	172	172	172
Protection		Protected against dust and water					

\* DIR = Directive 90/384/EEC on non-automatic weighing instruments used within the European Economic Area

\*\* = Typical min. initial weighing according to USP (United States Pharmacopeia), USP31-NF26

**Verified Models with EC Type Approval Certificate: Precision Balances**

Model		623S-xCE	623P-xCE	323S-xCE
Accuracy class*	mg	Ⓔ	Ⓔ	Ⓔ
For verified models: EC type approval certificate D09-09-015, Type: MSX				
Scale interval d*	mg	1	1   2   5	1
Weighing capacity max*	g	620	150   300   620	320
Calibration value e*	mg	10	10	10
Min. load min*	mg	20	20	20
Tare equalization range (subtractive)		≤ 100% from max. weighing capacity		
Application range according to DIR*	g	0.02 – 620	0.02 – 620	0.02 – 320
Min. initial weight**	g	1.5	1.5	1.5
Typical stabilization time	s	≤ 0.8	≤ 0.8	≤ 0.8
Typical measurement time	s	≤ 1	≤ 1	≤ 1
Application range (temperature)		With "isoCAL" function: +5 ... +40°C   Without "isoCAL" function: +10 ... +30°C		
Display result (depending on the set filter level)	s	0.1 – 0.4	0.1 – 0.4	0.1 – 0.4
Weighing pan size (W × D)	mm	140 × 140	140 × 140	140 × 140
Weighing chamber height (draft shield DE)	mm	172	172	172
Protection		Protected against dust and water		

Model		14202S-xCE	14202P-xCE	10202S-xCE	8202S-xCE
Accuracy class*		Ⓘ	Ⓘ	Ⓘ	Ⓔ
For verified models: EC type approval certificate D09-09-015, Type: MSX					
Scale interval d*	g	0.01	0.01   0.02   0.05	0.01	0.01
Weighing capacity max*	g	14,200	3,500   7,000   14,200	10,200	8,200
Calibration value e*	g	0.1	0.1	0.1	0.1
Min. load min*	g	1	1	1	0.5
Tare equalization range (subtractive)		≤ 100% from max. weighing capacity			
Application range according to DIR*	g	1 – 14,200	1 – 14,200	1 – 10,200	0,5 – 8,200
Min. initial weight**	g	15	15	12	12
Typical measurement time	s	≤ 1.5	≤ 1.5	≤ 1.5	≤ 1.5
Application range (temperature):					
With "isoCAL" function		+5 ... +40°C	+5 ... +40°C	+5 ... +40°C	+5 ... +40°C
Without "isoCAL" function		+15 ... +25°C	+15 ... +25°C	+15 ... +25°C	+10 ... +30°C
Display result (depending on the set filter level)	s	0.1 – 0.4	0.1 – 0.4	0.1 – 0.4	0.1 – 0.4
Weighing pan size (W × D)	mm	206 × 206	206 × 206	206 × 206	206 × 206
Protection		IP54 in accordance with IEC 60529			

\* DIR = Directive 90/384/EEC on non-automatic weighing instruments used within the European Economic Area

\*\* = Typical min. initial weighing according to USP (United States Pharmacopeia), USP31-NF26

**Verified Models with EC Type Approval Certificate: Precision Balances**

Model		6202S-xCE	6202P-xCE	5202S-xCE	4202S-xCE
Accuracy class*		II	II	I	II
For verified models: EC type approval certificate D09-09-015. Type: MSX					
Scale interval d*	g	0.01	0.01   0.02   0.05	0.01	0.01
Weighing capacity max*	g	6,200	1,500   3,000   6,200	5,200	4,200
Calibration value e*	g	0.1	0.1	0.1	0.1
Min. load min*	g	0.5	0.5	1	0.5
Tare equalization range (subtractive)		≤ 100% from max. weighing capacity			
Application range according to DIR*	g	0.5 – 6,200	0.5 – 6,200	1 – 5,200	0.5 – 4,200
Min. initial weight**	g	12	12	10	12
Typical stabilization time	s	≤ 1	≤ 1	≤ 0.8	≤ 0.8
Typical measurement time	s	≤ 1.5	≤ 1.5	≤ 1	≤ 1
Application range (temperature):					
With "isoCAL" function		+5 ... +40°C	+5 ... +40°C		+5 ... +40°C
Without "isoCAL" function		+10 ... +30°C	+10 ... +30°C		+10 ... +30°C
Display result (depending on the set filter level)	s	0.1 – 0.4	0.1 – 0.4	0.1 – 0.4	0.1 – 0.4
Weighing pan size (W × D)	mm	206 × 206	206 × 206	206 × 206	206 × 206
Protection		IP54 in accordance with IEC 60529			

Model		2202S-xCE	1202S-xCE	12201S-xCE	8201S-xCE	5201S-xCE
Accuracy class*		II	II	II	II	II
For verified models: EC type approval certificate D09-09-015, Type: MSX						
Scale interval d*	mg	10	10	100	100	100
Weighing capacity max*	g	2,200	1,200	12,200	8,200	5,200
Calibration value e*	g	0.1	0.1	1	1	1
Min. load min*	g	0.5	0.5	5	5	5
Tare equalization range (subtractive)		≤ 100% from max. weighing capacity				
Application range according to DIR*	g	0.5 – 2,200	0.5 – 1,200	5 – 12,200	5 – 8,200	5 – 5,200
Min. initial weight**	g	12	12	100	100	100
Typical stabilization time	s	≤ 0.8	≤ 0.8	≤ 0.8	≤ 0.8	≤ 0.8
Typical measurement time	s	≤ 1	≤ 1	≤ 1	≤ 1	≤ 1
External standard calibration value (min. accuracy class)	kg	2 (F1)	1 (F1)	10 (F1)	5 (F2)	5 (F2)
Application range (temperature)		With "isoCAL" function: +5 ... +40°C   Without "isoCAL" function: +10 ... +30°C				
Display result (depending on the set filter level)	s	0.1 – 0.4	0.1 – 0.4	0.1 – 0.4	0.1 – 0.4	0.1 – 0.4
Weighing pan size (W × D)	mm	206 × 206	206 × 206	206 × 206	206 × 206	206 × 206
Protection		IP54 in accordance with IEC 60529				

\* DIR = Directive 90/384/EEC on non-automatic weighing instruments used within the European Economic Area

\*\* = Typical min. initial weighing according to USP (United States Pharmacopeia), USP31-NF26

### Cubis® Leveling

- 
- |   |   |
|---|---|
| Ø | The Cubis® shows the level indicator on the display and provides support for rapid leveling (as standard on the display and service units MSA and MSU; on the MSE there are only symbols to support manual leveling). |
| 1 | Fully automatic, motorized Q-Level leveling at the touch of a button (available for all Cubis® weighing modules with a weighing capacity of > 6.1 g and ≤ 6200 g).  |
- 

### Test Certificates and Permits

- 
- |    |   |
|----|---|
| ØØ | Standard certificate of conformity to specifications                                      |
| TR | Like ØØ, but with a detailed test protocol  |
| CE | Factory-calibrated with European calibration permit (not for models with DF draft shield) |
- 

### Cubis® Draft Shields

- 
- |    |  |
|----|--|
| DO | No draft shield. Please always enter this identifier for weighing modules with the weighing pan size 206 × 206 mm.   |
| DE | Manual glass draft shield for precision balances with a readability of 1 mg.   |
| DR | Flat, stainless steel weighing pan draft shield (removable, with no glass components) for all precision balances with a readability of 1 mg and 10 mg – Weighing module 5202s.                                 |
| DU | Manual analytical balance draft shield with smooth-running, wide-opening doors, unimpeded access to the weighing chamber without interfering braces. For all models with 0.01 mg, 0.1 mg and 1 mg readability. |
| DA | Automatic, motorized draft shield with learning capability for ergonomic working and individual adaptation to different applications, or all models with 0.01 mg, 0.1 mg and 1 mg readability.                 |
| DI | Like the DA draft shield, but with the addition of an integrated ionizer to eliminate the impact of electrostatic charges in samples and vessels.  |
| DM | Automatic, motorized, 100% glass draft shield with learning capability for ultramicrobalances and microbalances with a readability of 0.0001 mg and 0.001 mg (2.7S, 6.6S and 3.6P weighing modules).           |
| DF | Manual draft shield made from stainless steel for weighing filters with diameters of up to 50 mm (75 mm and 90 mm optional) (not possible in combination with weighing module 3.6P).                           |
- 

### Optional Interface Modules

- 
- |    |   |
|----|---|
| IR | RS-232 interface, 25-pin                      |
| IB | Bluetooth® interface                          |
| IP | RS-232 interface, 9-pin, incl. PS/2 interface |
-

## Cubis® Optional Accessories

### Printers and Communication

Verifiable data printer for connection to RS-232, 25-pin, accessory interface	YDP10-OCE
Verifiable data printer with <i>Bluetooth</i> ® data transmission (with YD001MS-B or IB option only)*	YDP10BT-OCE
Color ribbon for YDP10-OCE and YDP10BT-OCE	6906918
Paper rolls for printer YDP10-OCE; 5 rolls 50 m each	6906937
<i>Bluetooth</i> ® data interface for wireless connection of data printer YDP10BT*	YD001MS-B
RS-232C data interface, 9-pin including PS/2 for connecting a PC or keyboard*	YD001MS-P
RS-232C data interface, 25-pin for connection of Cubis® accessories*	YD001MS-R
Display cable 3 m for Cubis® MSA and MSU models for separate setup of display and weighing unit (installation by Sartorius Service or ex works [order VF4016])	YCC01-MSD3
Display cable 3 m for Cubis® MSE models, for separate setup of display and weighing unit (installation by Sartorius Service or ex works [order VF4016])	YCC01-MSED3
Cable 3 m between weighing module and electronics module for Cubis® models with 0.01 mg   0.001 mg   0.0001 mg readability	YCC01-MSM3
Installation display cable 3 m for Cubis® models, for separate setup of display and weighing unit	VF4016
RS-232C connection cable to connect PC with 9-pin; COM interface, length 1.5 m	7357314
SartoCollect software for data communication between balance and PC	YSC02

### Displays and Input | Output Elements

MSA control unit with color TFT graphic display and touch screen	YAC01MSA
MSE display unit with backlit LC display and tactile keys	YAC01MSE
MSU display and control unit with backlit b w graphic display and tactile navigation keys	YAC01MSU
Barcode reader with connection cable, 120 mm reading range	YBR03PS2
Foot switch for printing, taring, or using function keys, selection via menu, incl. T connector	YFS01
Infrared sensor for touch-free activation of functions (e.g., draft shield control)	YHS01MS
Hand switch for printing, taring, or using function keys, selection via menu, incl. T connector	YHS02
Foot switch for functions draft shield OPEN   CLOSED (in combination with DA and DI draft shields only), tare, and print	YPE01RC
Additional display, LCD, figure size 13 mm, backlit	YRD03Z
3-segment control display, red – green – red, for plus minus measurements, incl. T connector	YRD11Z

\* Not available for heavy-duty models with a weighing capacity of  $\geq 20,200$  g.

### Pipette Calibration Hardware and Software

Pipette calibration kit (hardware) for models with 0.1 mg and 0.01 mg readability Consists of moisture trap and all required adapters	YCP04MS
Pipette calibration kit (hardware) for microbalance weighing modules 6.6S and 3.6P Consists of moisture trap and all required adapters	VF988
Pipette Tracker pipette calibration software. Software and user manual in English only.	YCP04-PT
Pipette Tracker Pro pipette calibration software, for use in regulated areas, networkable and validatable, according to the 21 CFR Part 11 regulations. Software and user manual in English only.	YCP04-PTPro
Documentation basis for validation (IQ, OQ) of Pipette Tracker PRO version. All documents are in English only.	YCP04-VTK

### Filter Weighing and Antistatic Accessories

Antistatic weighing pan, diameter 130 mm, for weighing modules with a readability of 0.1 mg or 0.01 mg	YWPO1MS
Filter weighing pan Ø 75 mm, for ultramicrobalance or microbalance models (weighing modules 6.6S, 2.7S; only together with DF draft shield)	VF2562
Filter weighing pan Ø 90 mm, for ultramicrobalance or microbalance models (weighing modules 6.6S, 2.7S; only together with DF draft shield)	VF2880
Ionization blower to eliminate electrostatic charges on sample containers and samples	YIB01-ODR
Stat-Pen ionization probe for discharging electrostatically charged samples and filters	YSTP01

### Special Applications

Density determination kit for solids and liquids for weighing modules with a readability of < 1 mg	YDK01MS
Density determination kit for solids and liquids for weighing modules with a readability of 1 mg	YDK02MS
Q-Grip, flexible holder for weigh-in containers and filters up to 120 mm diameter (replaces the original weighing pan; for Cubis® models with 0.01 and 0.1 mg readability)	YFH01MS
Q-Grid grid weighing pan for Cubis® models with 10 mg or 100 mg readability for weighing in laboratory hoods, safety weighing cabinets, or workbenches (smaller areas exposed to draft on the weighing pan; replaces the standard weighing pan)	YWPO3MS

### Weighing Tables

Weighing table made from synthetic stone, with vibration dampening	YWT03
Wall console	YWT04
Weighing table made from wood with synthetic stone for precise, reliable measurements	YWT09

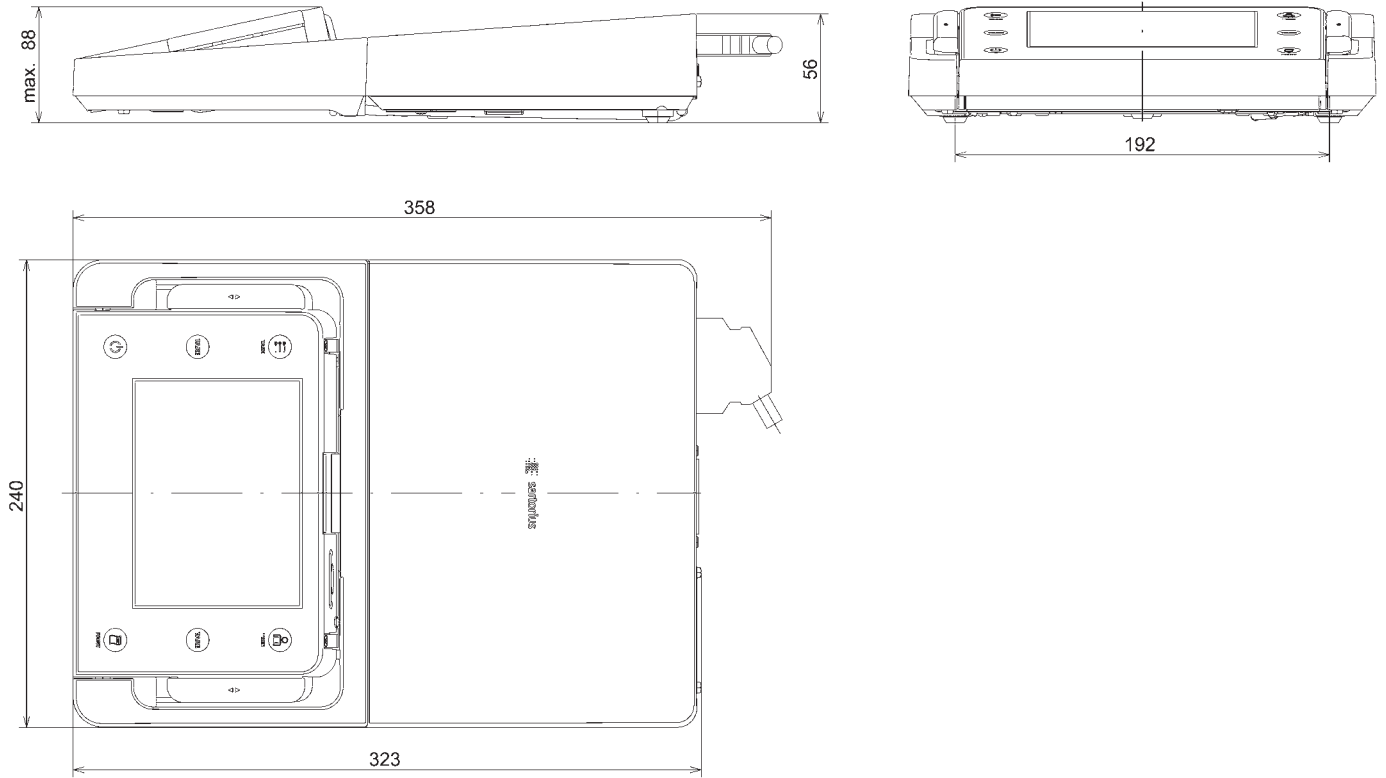
### Weighing Accessories

Weighing scoop made from chrome nickel steel, 90 × 32 × 8 mm	641214
Aluminum weighing scoop, 4.5 mg (250 pieces) for ultramicrobalance and microbalance models	6565-250
Aluminum weighing scoop, 52 mg (50 pieces) for ultramicrobalance and microbalance models	6566-50
Support arm for 10   100 mg precision weighing modules for raising MSE, MSU, and MSA display and control units	YDH01MS
Support arm for precision weighing modules with 100 mg   1 g readability and weighing capacity > 20 kg for raising MSE, MSU, and MSA display and control units	YDH02MS
Hook for below-balance weighing for precision weighing modules with 100 mg   1 g readability and weighing capacity > 20 kg (not for verified models, CE mark)	69EA0040

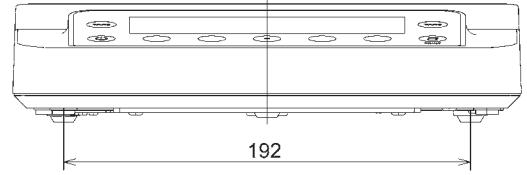
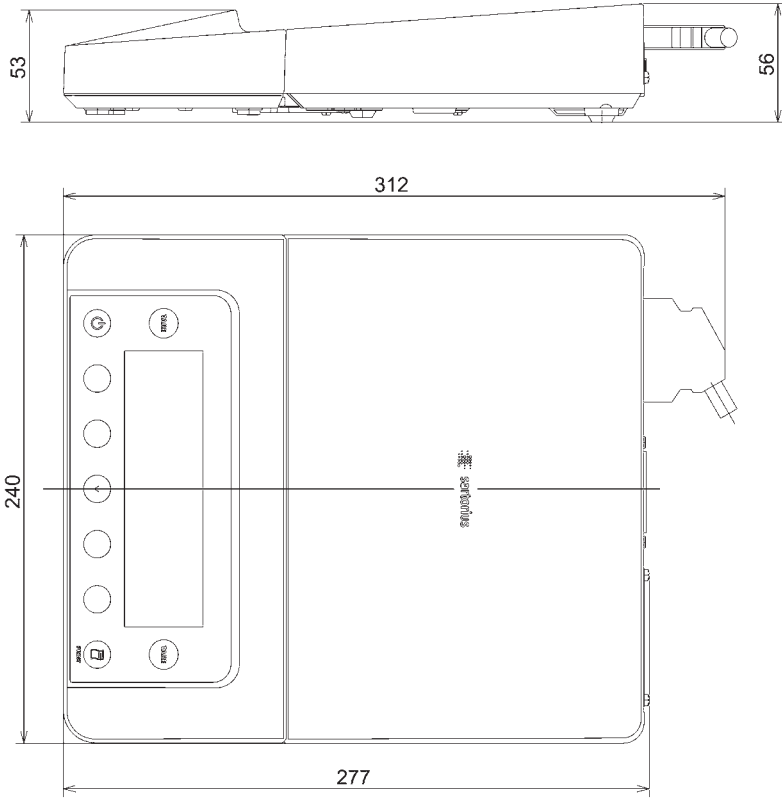
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### Balance Dimensions

Ultramicrobalance | Microbalance Control Unit MSA | MSU with E-box  
All dimensions are given in millimeters

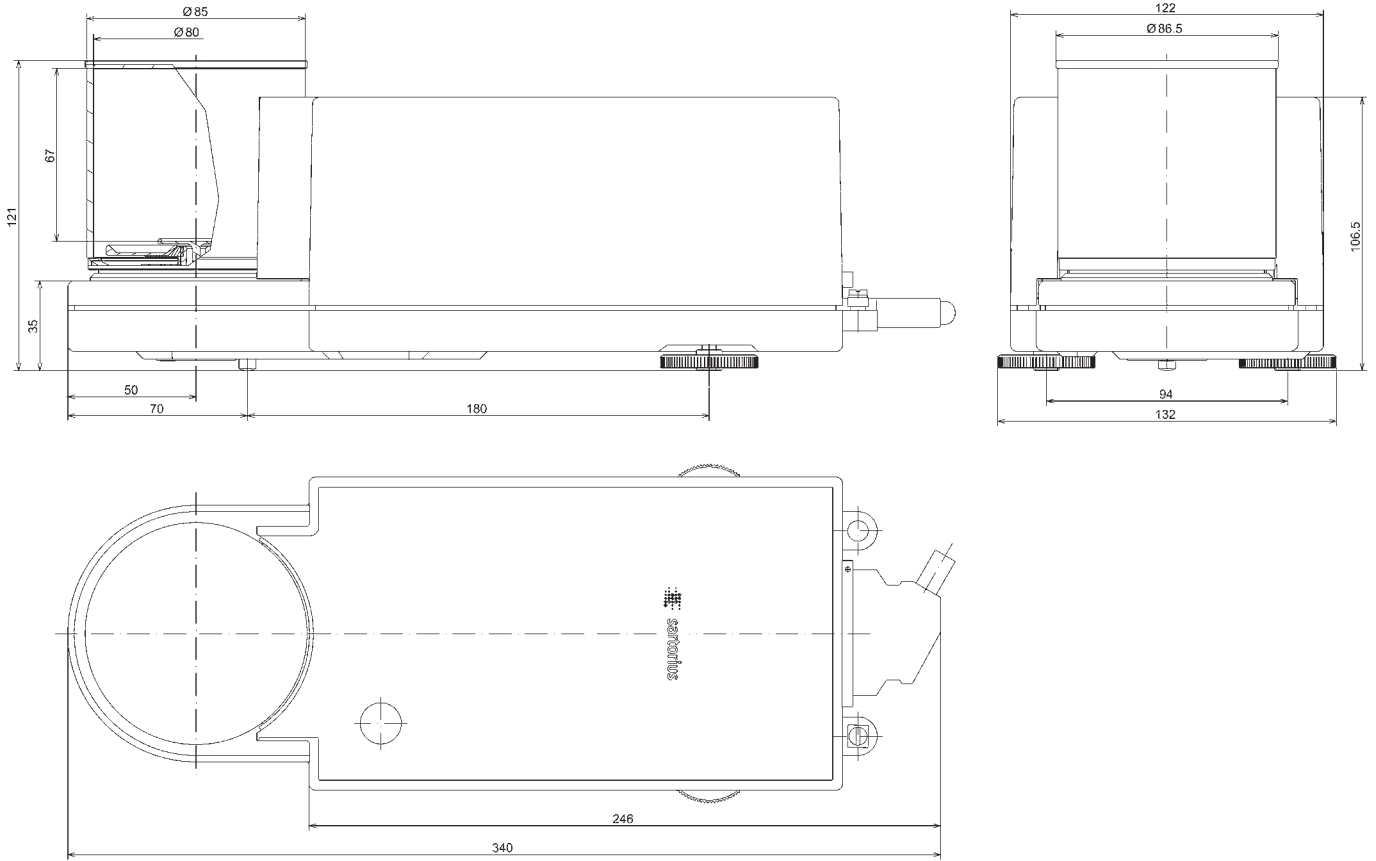


**Ultramicrobalance | Microbalance Control Unit MSE with E-box**  
All dimensions are given in millimeters

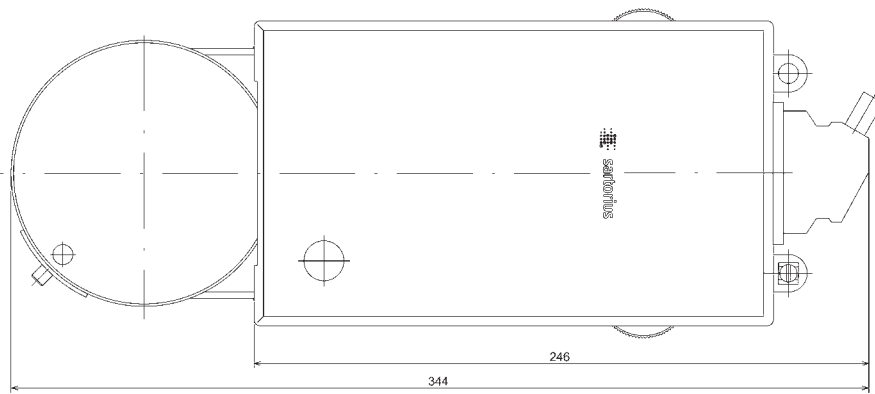
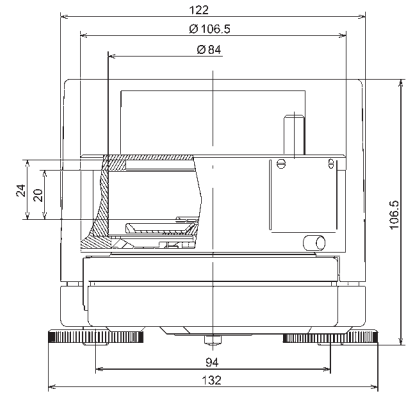
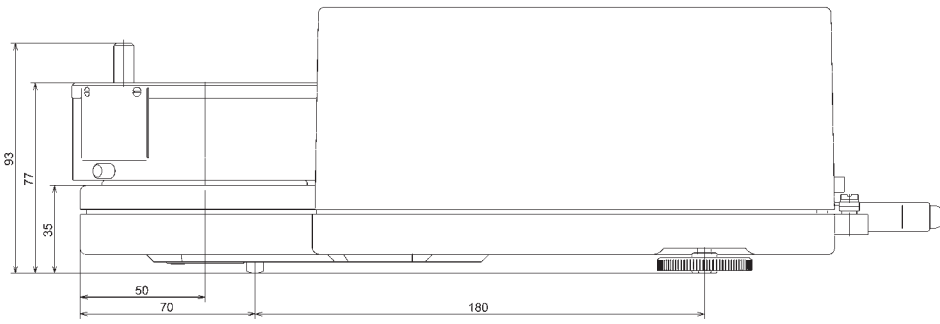




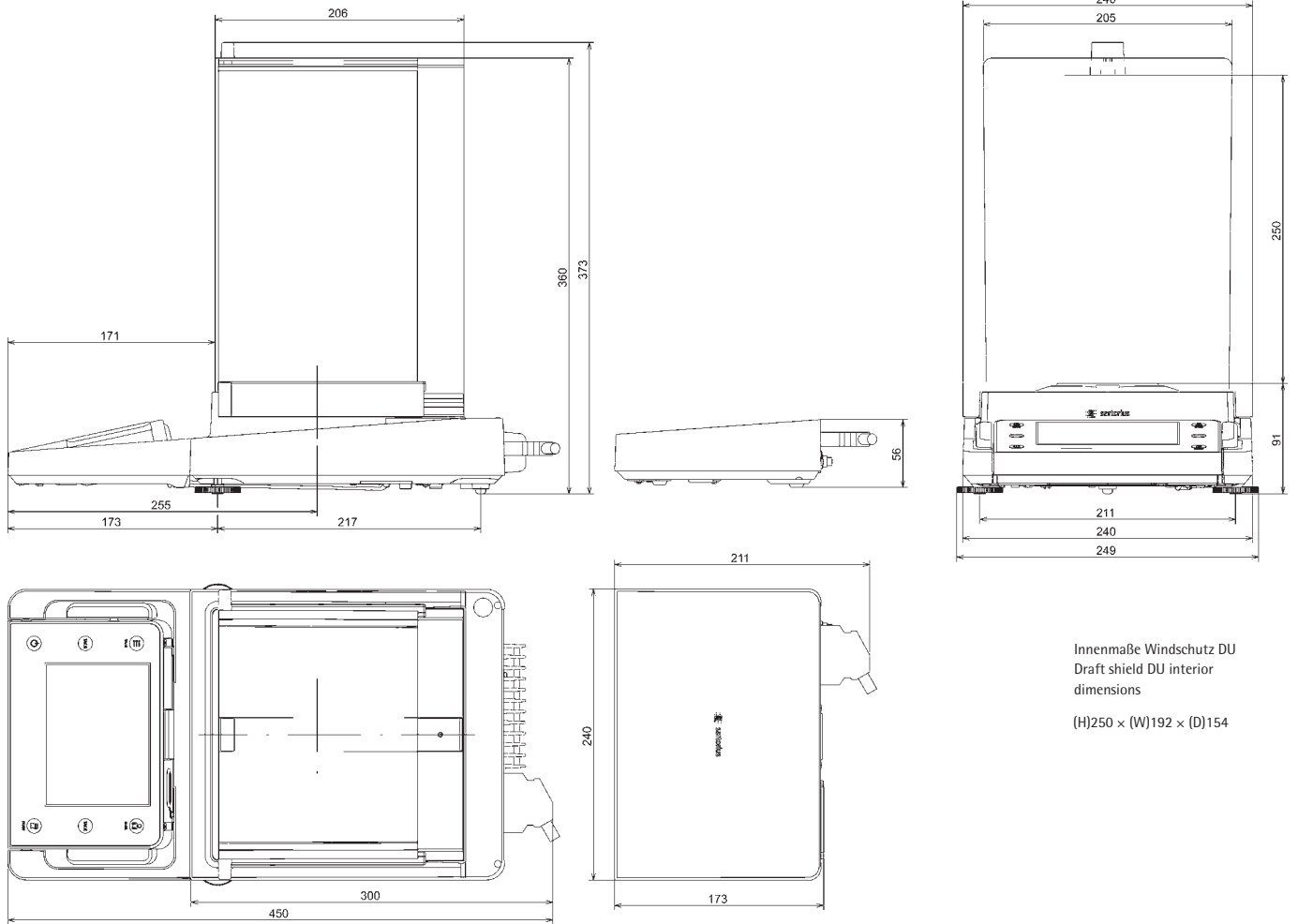
**Ultramicrobalance | Microbalance Weighing Module with DM Draft Shield**  
All dimensions are given in millimeters



**Ultramicrobalance | Microbalance Weighing Module with DF Draft Shield**  
All dimensions are given in millimeters

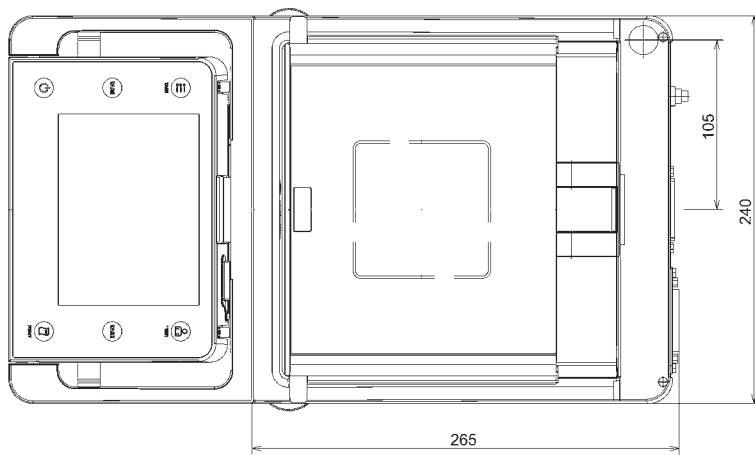
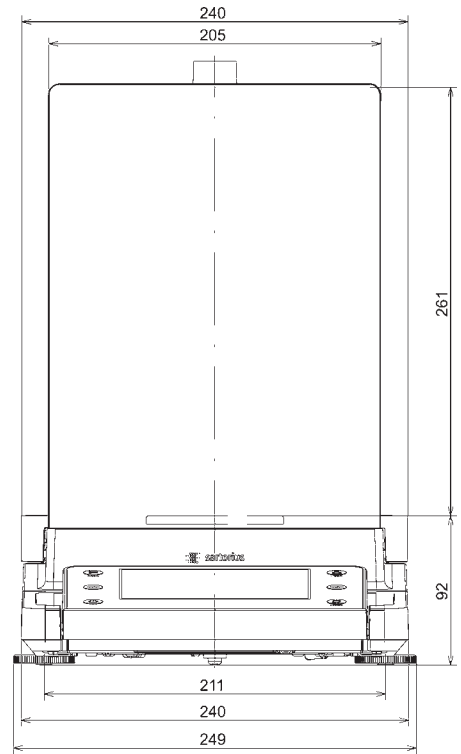
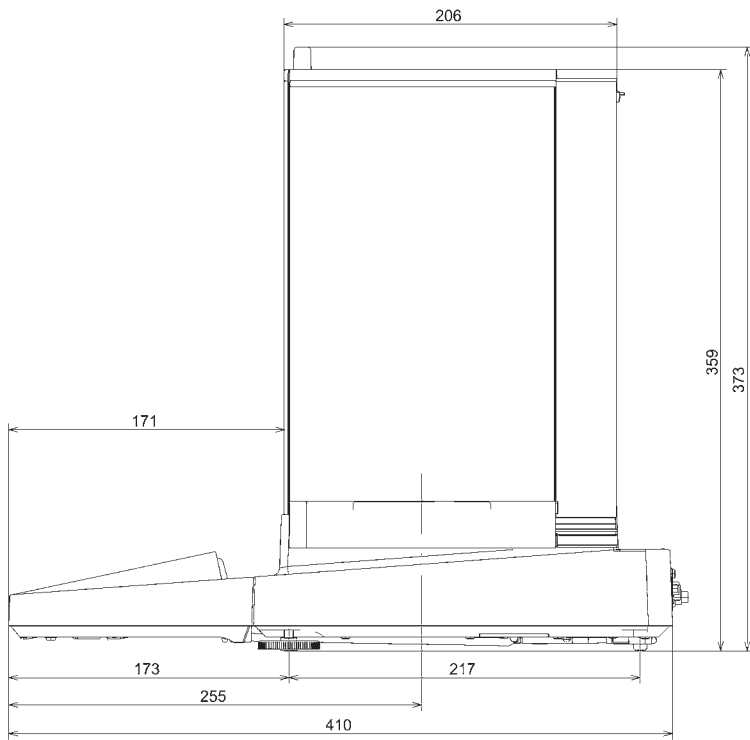


**Semi-microbalances with Motorized Draft Shield**  
 All dimensions are given in millimeters



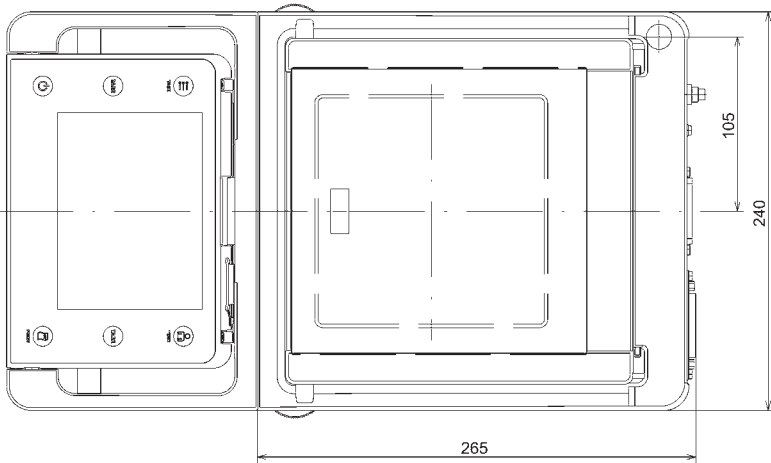
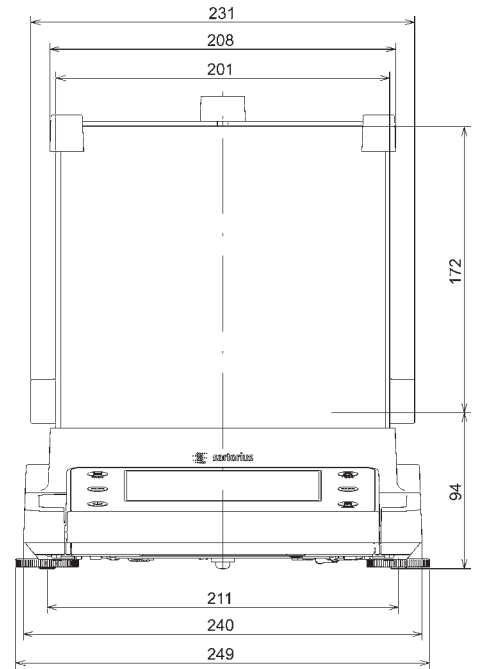
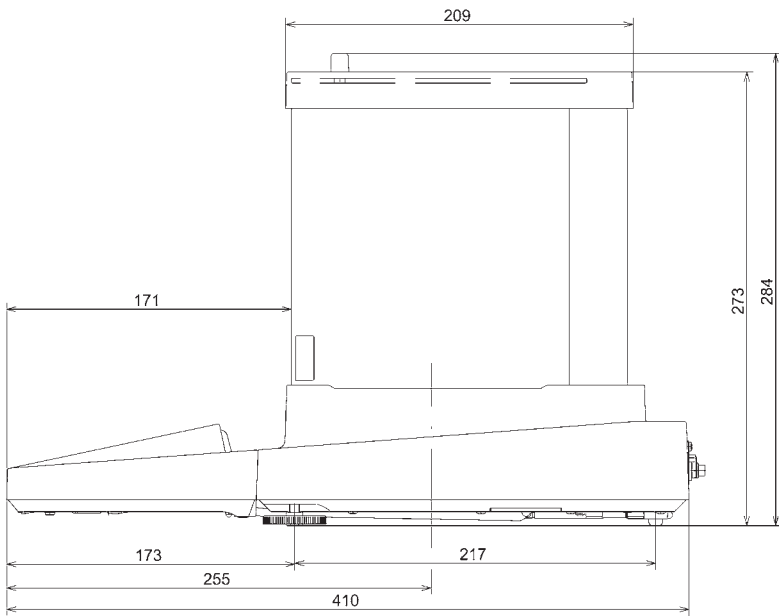
Innenmaße Windschutz DU  
 Draft shield DU interior  
 dimensions  
 (H)250 × (W)192 × (D)154

**Semi-micro and Analytical Balances with Manual DU Draft Shield**  
 All dimensions are given in millimeters



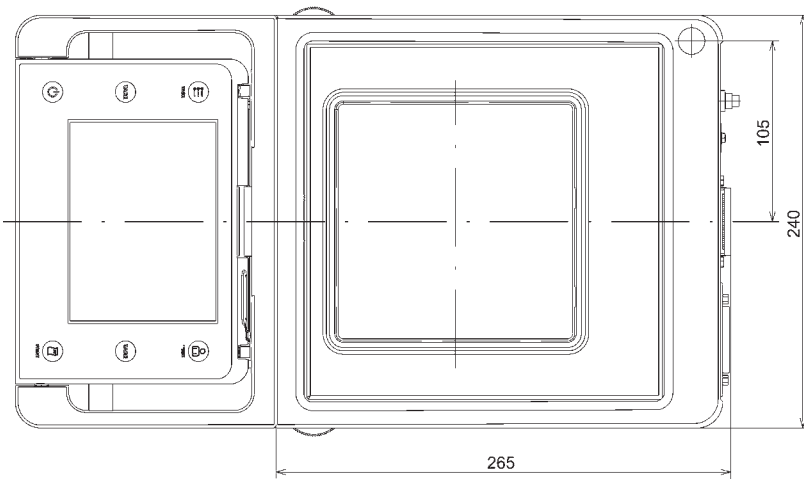
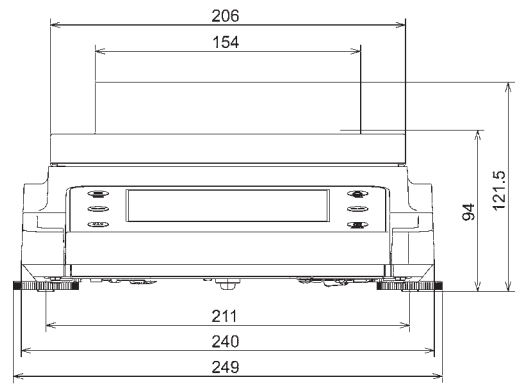
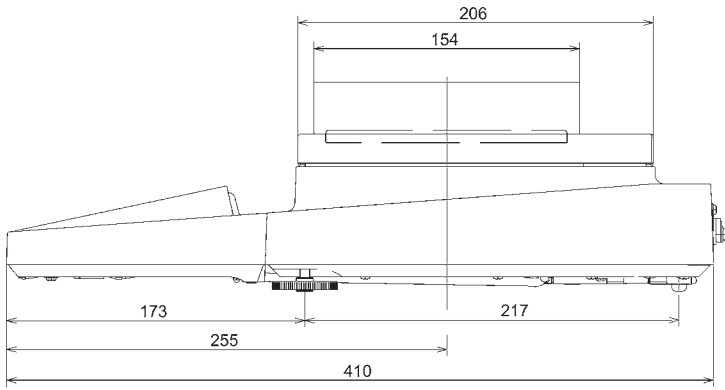
Innenmaße Windschutz DU  
 Draft shield DU interior  
 dimensions  
 (H)261 × (B)193 × (T)191

**Precision Balances with a Readability of 1 mg and Manual DE Draft Shield**  
 All dimensions are given in millimeters

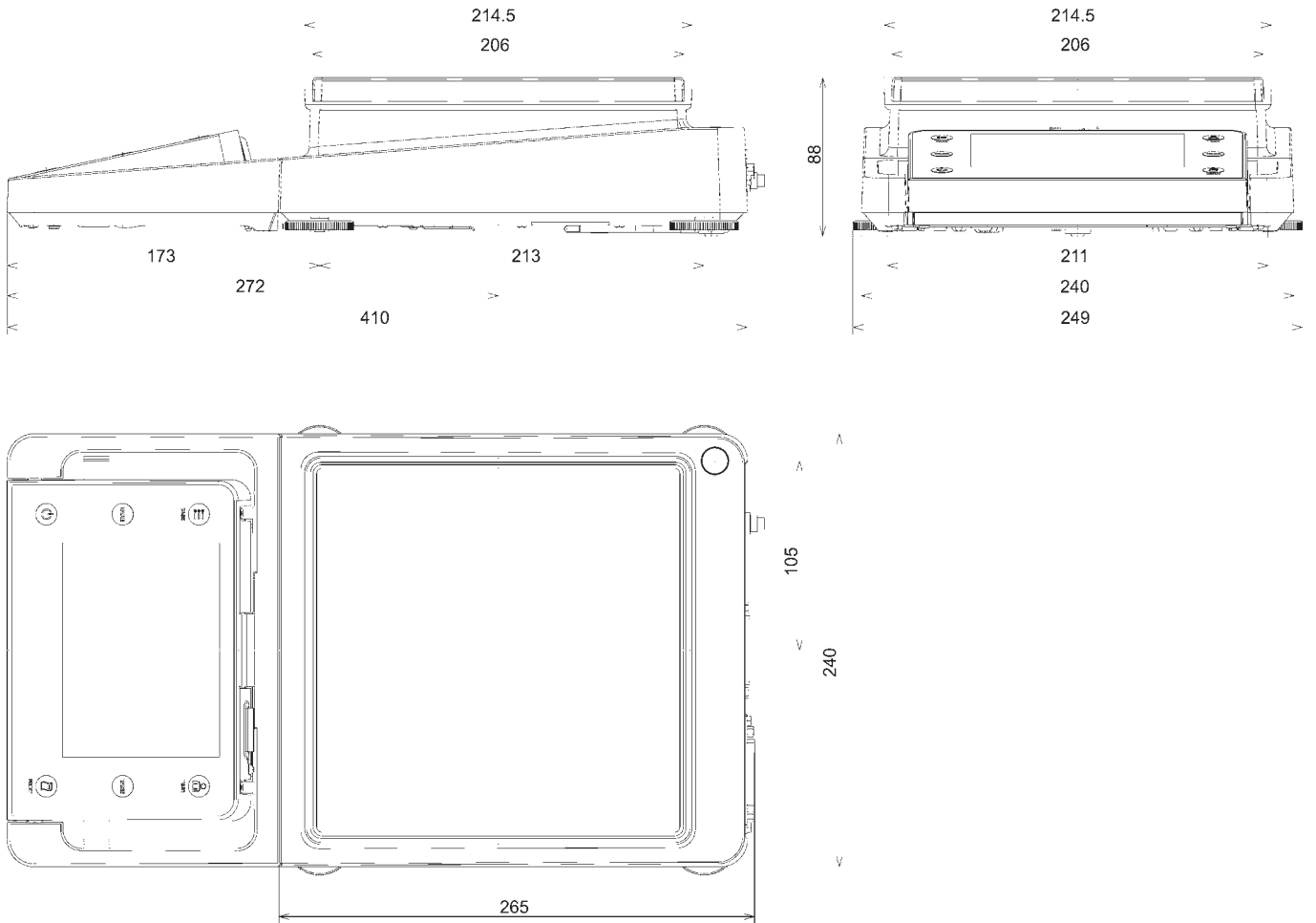


Innenmaße Windschutz  
 Windshield inside dimensions  
 (H)172 × (W)193 × (D)191

**Precision Balances with a Readability of 1 mg and Framed DR Draft Shield**  
All dimensions are given in millimeters

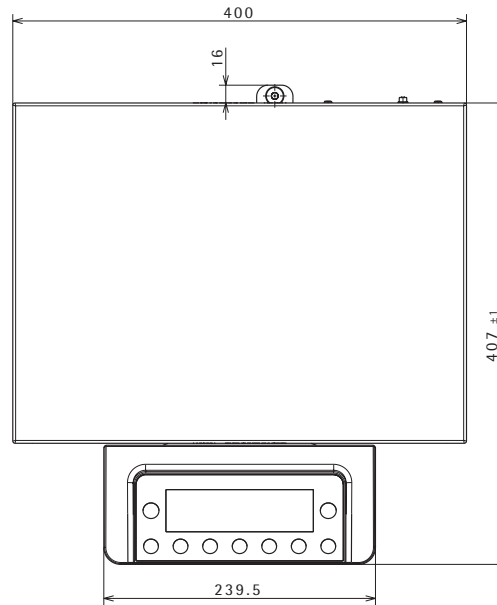
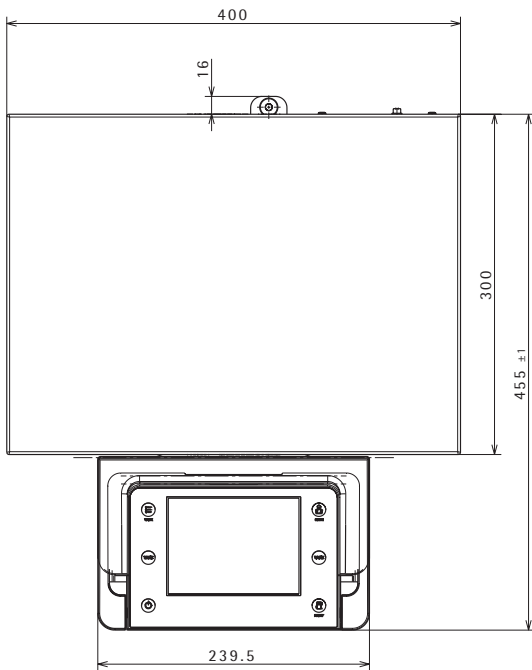
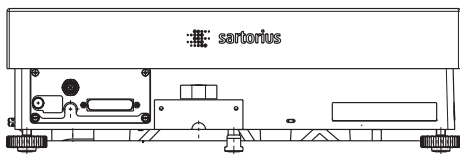
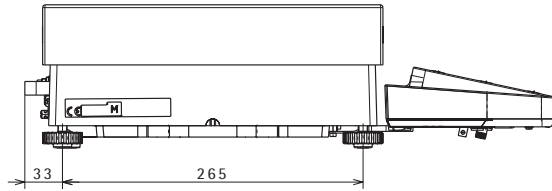
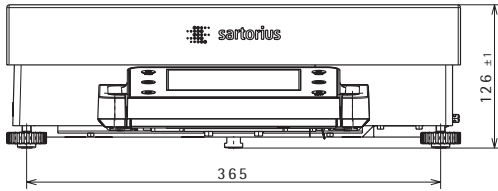


**Precision Balances with No Draft Shield**  
 All dimensions are given in millimeters



## High Load Balances

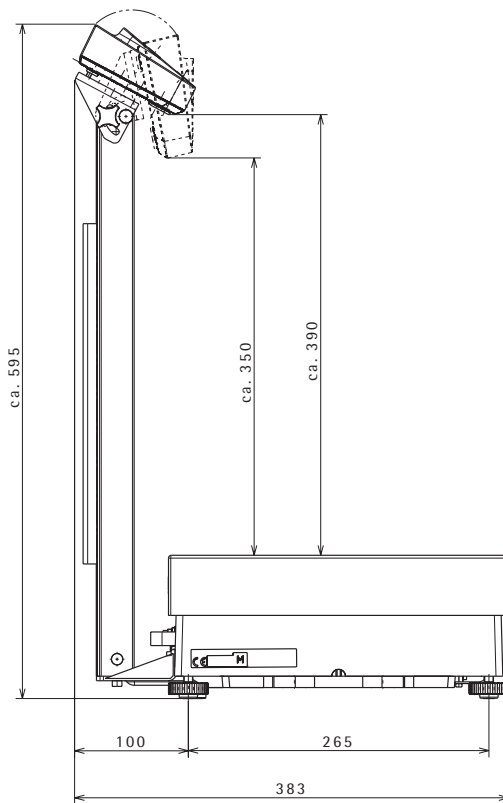
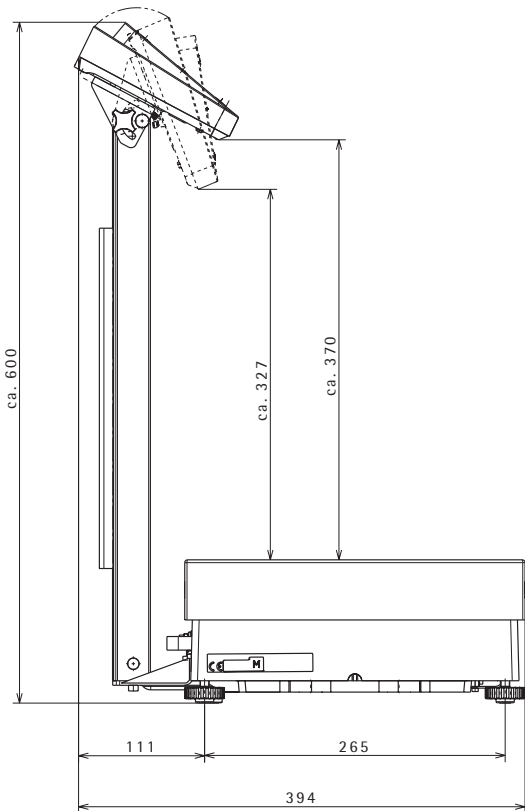
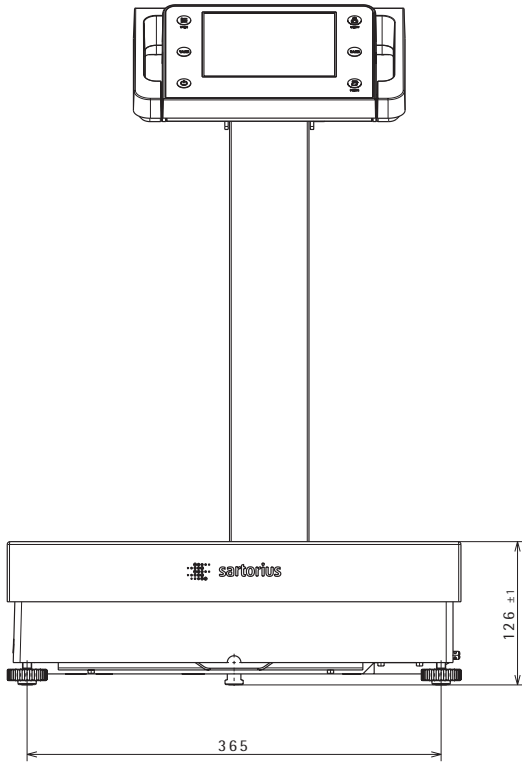
All dimensions are given in millimeters





## High Load Balances

All dimensions are given in millimeters







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