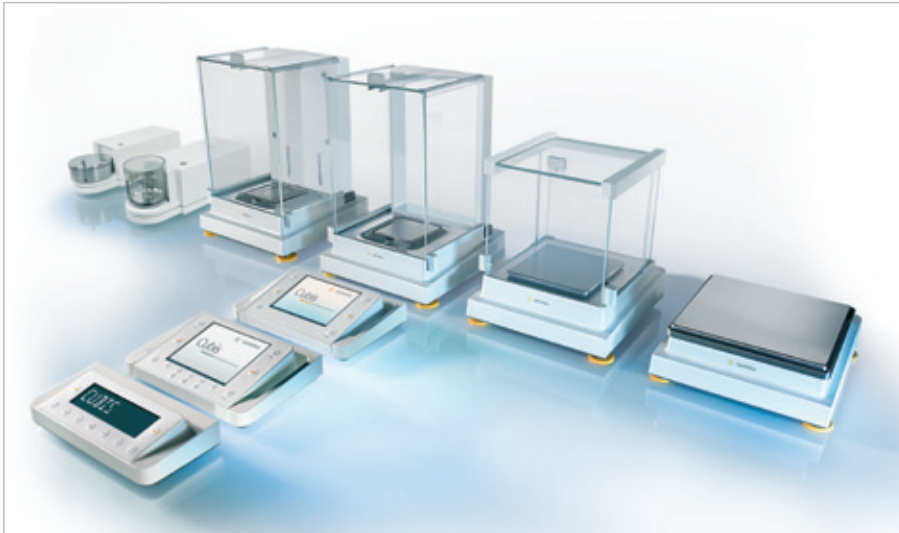


Sartorius Cubis® Series


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"> – USB (integrated into weighing module) – Various data protocols available (can also be connected to software designed for external manufacturers) – RS-232C accessory interface, 25-pin (integrated into weighing module) – Ethernet (integrated into display and service unit) | | <ul style="list-style-type: none"> – USB (integrated into weighing module) – RS-232C accessory interface, 25-pin (integrated into weighing module) |
| 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) | | 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) | | 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) | | 0.2 – 0.4 | | |
| Weighing pan size (W × D) | mm | 85 × 85 | | |
| Weighing chamber height (draft shield DU) | mm | 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 | 224S | 324P | 124S |
|---|--------|-----------------------------------|------------------|--------------|-----------|-----------------|----------|
| Readability | mg | 0.1 | 0.1 0.2 0.5 | 0.1 | 0.1 | 0.1 0.2 0.5 | 0.1 |
| Weighing capacity | g | 520 | 120 240 520 | 320 | 220 | 80 160 320 | 120 |
| Tare range (subtractive) | g | - 520 | - 520 | - 320 | - 220 | - 320 | - 120 |
| Repeatability | ≤±mg | 0.1 | 0.15 0.2 0.4 | 0.1 | 0.07 | 0.1 0.2 0.4 | 0.1 |
| Linearity | ≤±mg | 0.4 | 0.5 | 0.3 | 0.2 | 0.5 | 0.2 |
| Corner load (test load [g]) | mg | 0.3 (200) | 0.4 (200) | 0.3 (200) | 0.2 (100) | 0.4 (200) | 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 (E2) | 200+100 (E2) | 100 (E2) |
| Display result (depending on the set filter level) | | 0.1 – 0.4 | | | | | |
| Weighing pan size (W × D) | mm | 85 + 85 | | | | | |
| Weighing chamber height (draft shield DU) | mm | 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) | | 0.1 – 0.4 | | | | | |
| Weighing pan size (W × D) | mm | 140 × 140 | | | | | |
| Weighing chamber height (draft shield DE) | mm | 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) | | 0.1 – 0.4 | | |
| Weighing pan size (W × D) | mm | 140 × 140 | | |
| Weighing chamber height (draft shield DE) | mm | 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) | | 0.1 – 0.4 | | | |
| Weighing pan size (W × D) | mm | 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) | | 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) | | 0.1 - 0.4 | | | | |
| Weighing pan size (W × D) | mm | 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 | 10,000 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 | 300 | 300 | 300 |
| 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 | | | | |
| Display result (depending on the set filter level) | | 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 | 100 | 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 | 500 |
| Corner load (test load [g]) | mg | 1,000 (20,000) | 1,000 (20,000) |
| 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 | | |
| Display result (depending on the set filter level) | | 0.1 - 0.4 | |
| Weighing pan size (W × D) | mm | 400 × 300 | 400 × 300 |
| Protection | | | |

* = 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) | | By selection of 1 of 4 optimized filter levels | | |
| Weighing pan size ∅ | 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) | | 0.2 – 0.4 | | |
| Weighing pan size (W × D) | mm | 85 × 85 | | |
| Weighing chamber height (draft shield DU) | mm | 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) | | 0.1 – 0.4 | | | | | |
| Weighing pan size (W × D) | mm | 85 × 85 | | | | | |
| Weighing chamber height (draft shield DU) mm | | 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) | | 0.1 – 0.4 | | | | | |
| Weighing pan size (W × D) | mm | 140 × 140 | | | | | |
| Weighing chamber height (draft shield DE) mm | | 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) | | 0.1 – 0.4 | | |
| Weighing pan size (W × D) | mm | 140 × 140 | | |
| Weighing chamber height (draft shield DE) | mm | 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) | | 0.1 – 0.4 | | | |
| Weighing pan size (W × D) | mm | 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) | | 0.1 – 0.4 | | | |
| Weighing pan size (W × D) | mm | 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) | | 0.1 – 0.4 | | | | |
| Weighing pan size (W × D) | mm | 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 |

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 |

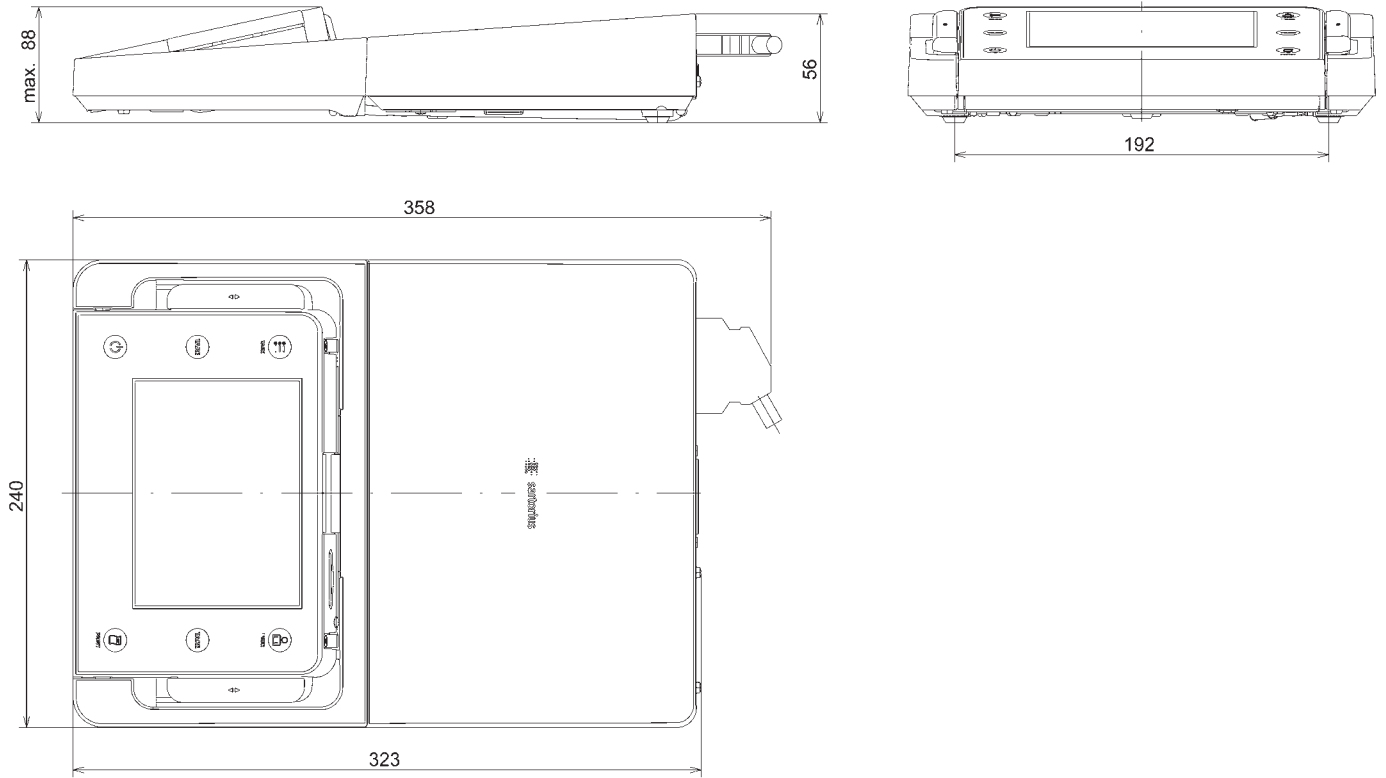
Weighing Accessories

| | |
|---|----------|
| 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 |

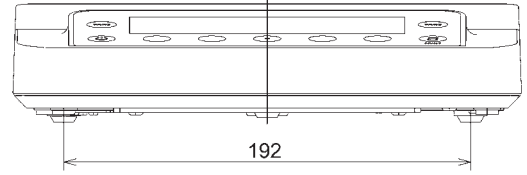
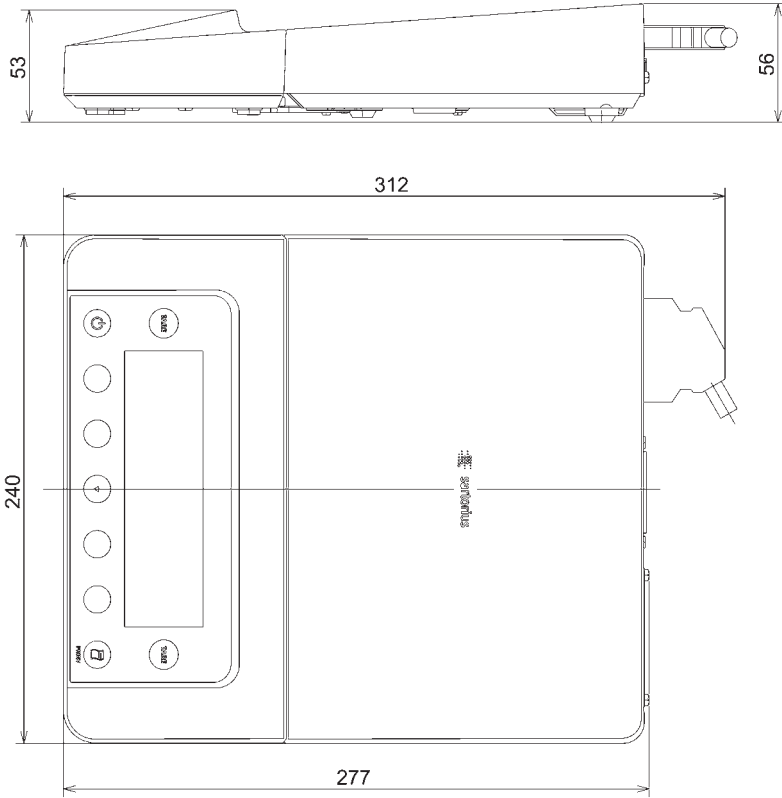
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Balance Dimensions

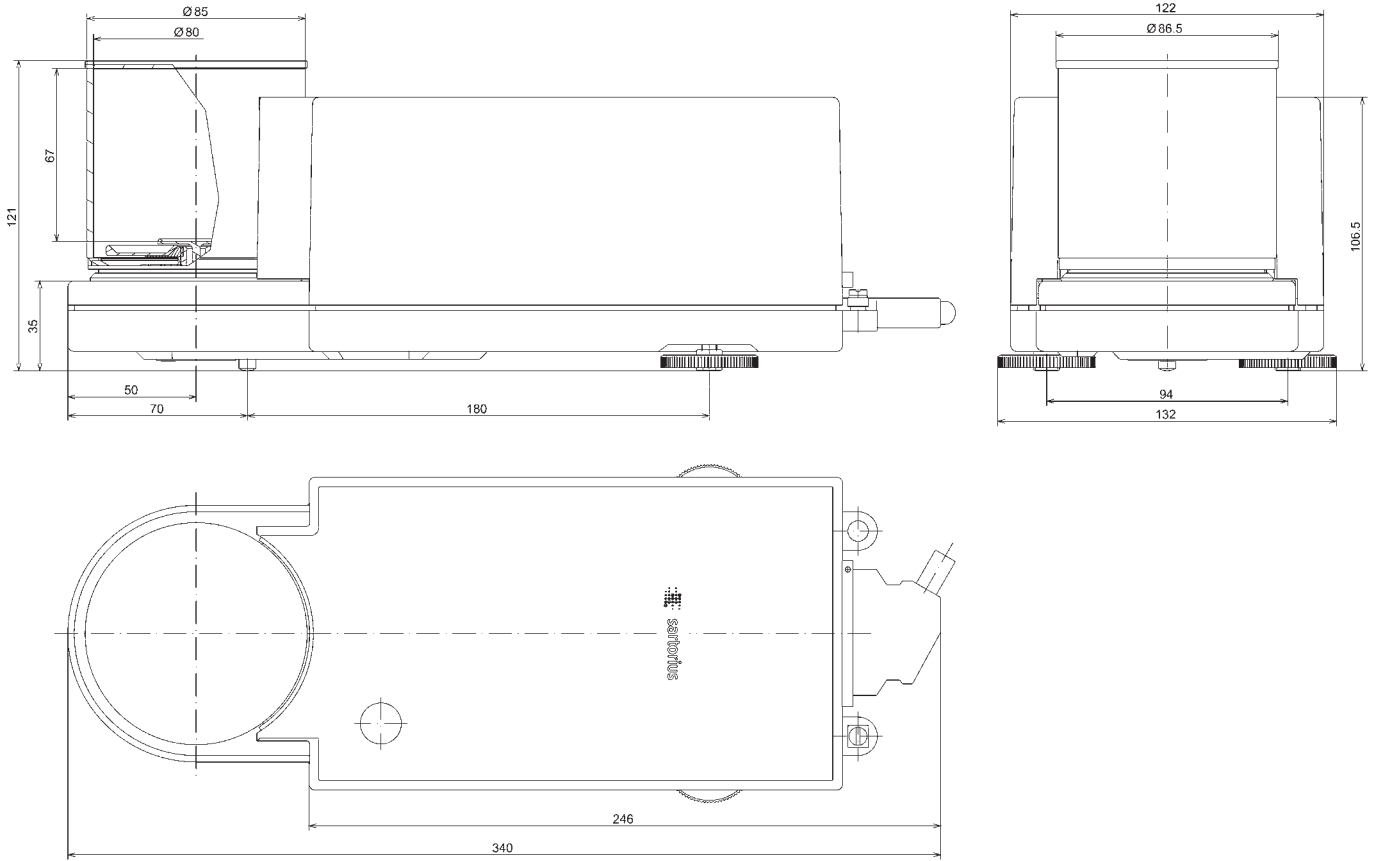
Ultramicrobalance | Microbalance Control Unit MSA | MSU with E-box
All dimensions are given in millimeters



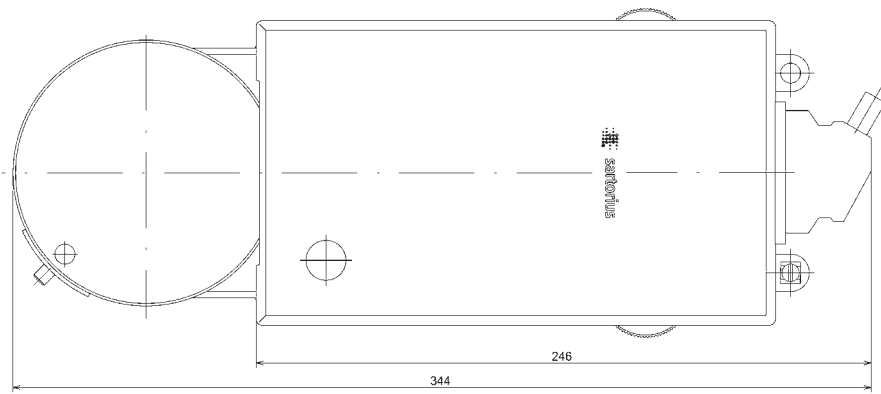
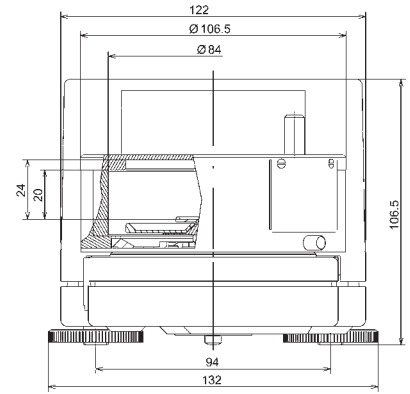
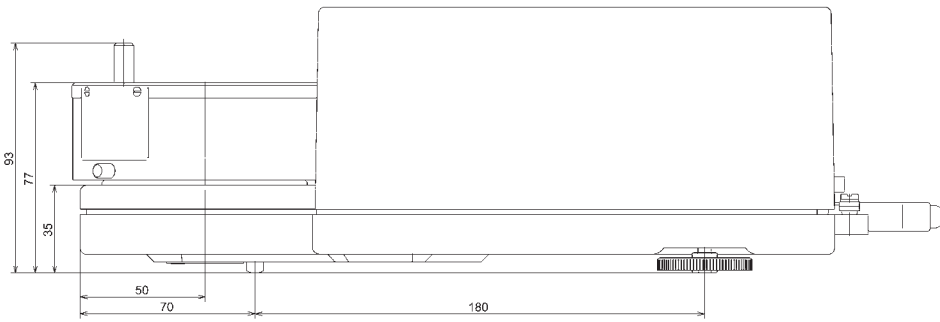
Ultramicrobalance | Microbalance Control Unit MSE with E-box
All dimensions are given in millimeters



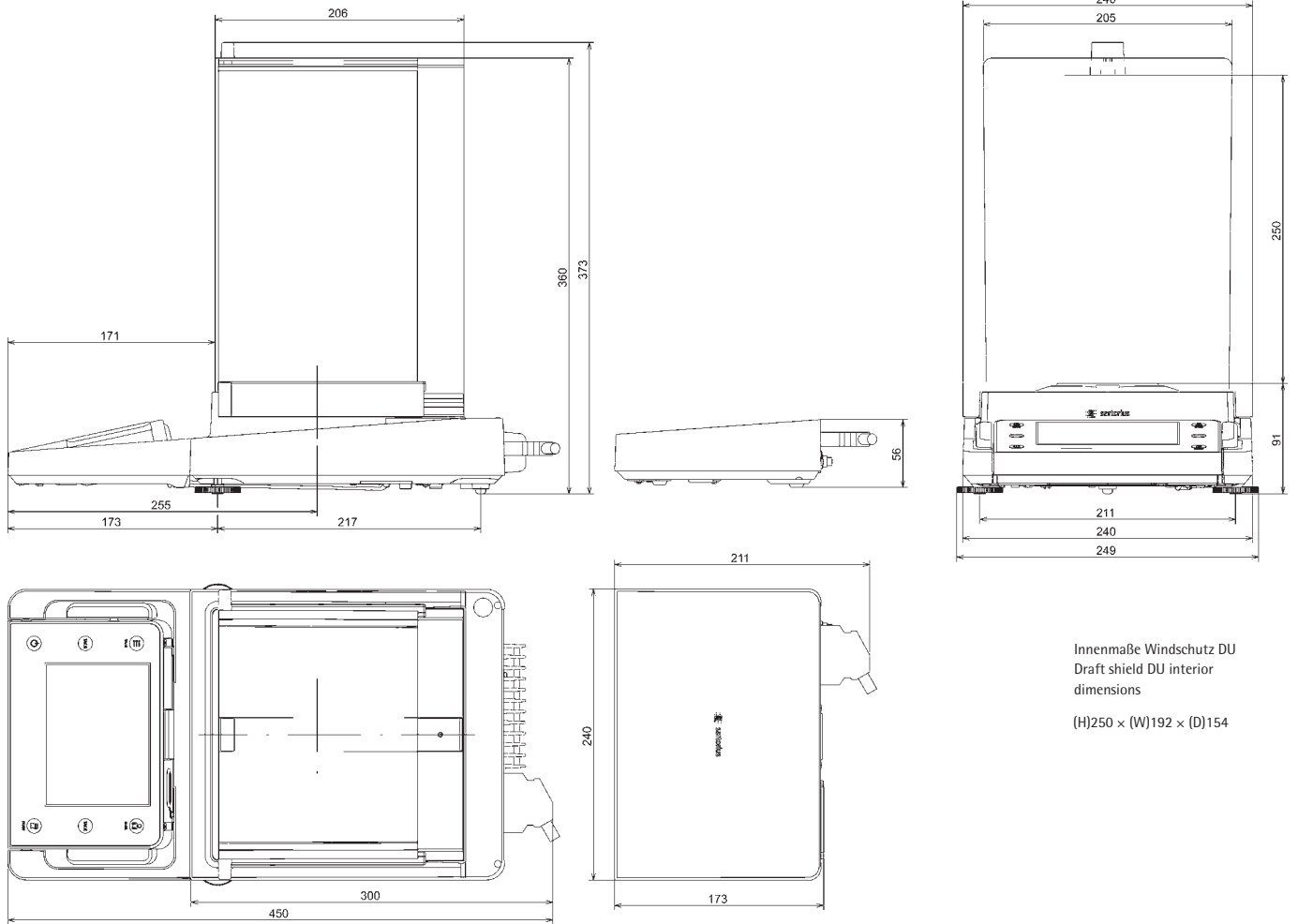
Ultramicrobalance | Microbalance Weighing Module with DM Draft Shield
All dimensions are given in millimeters



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

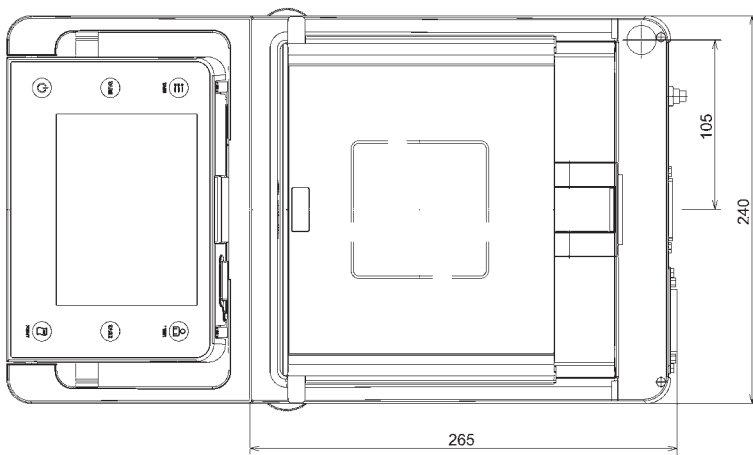
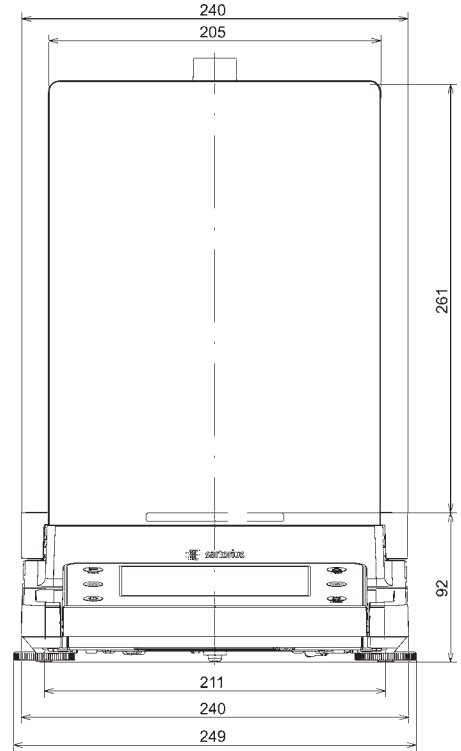
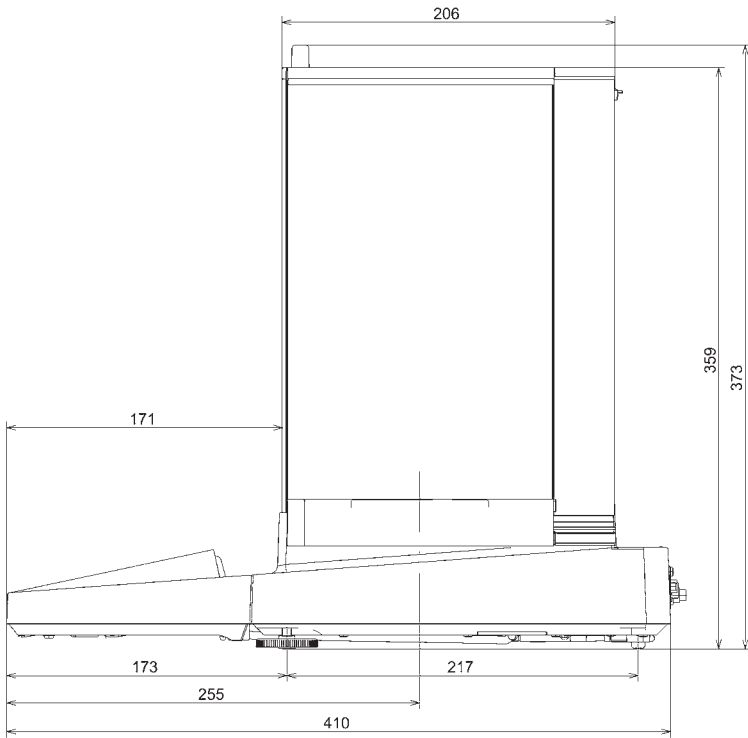


Semi-microbalances with Motorized Draft Shield
 All dimensions are given in millimeters



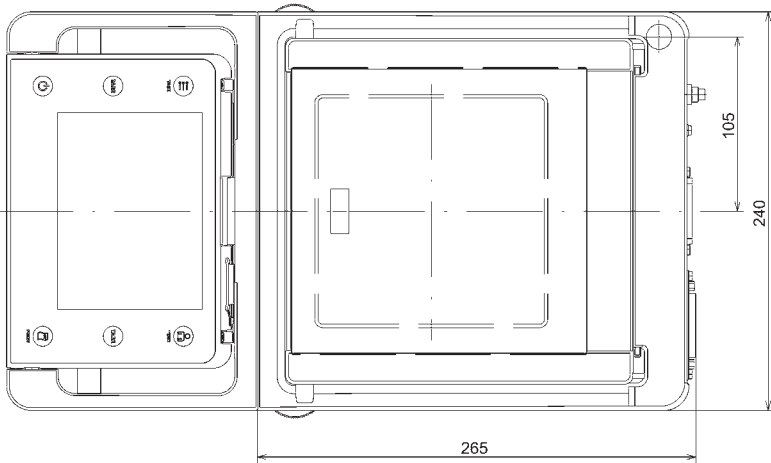
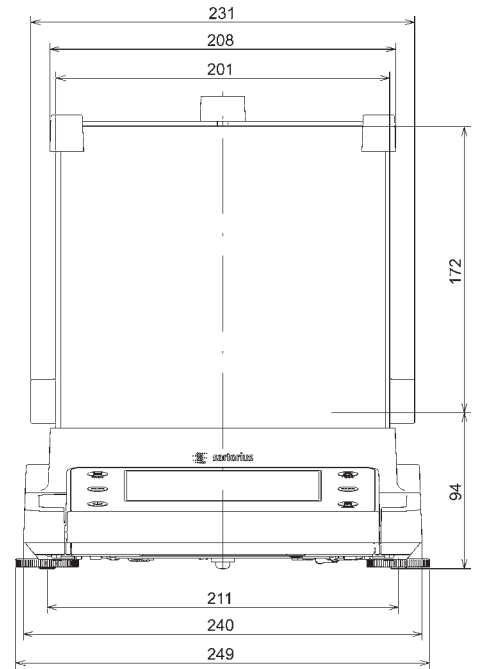
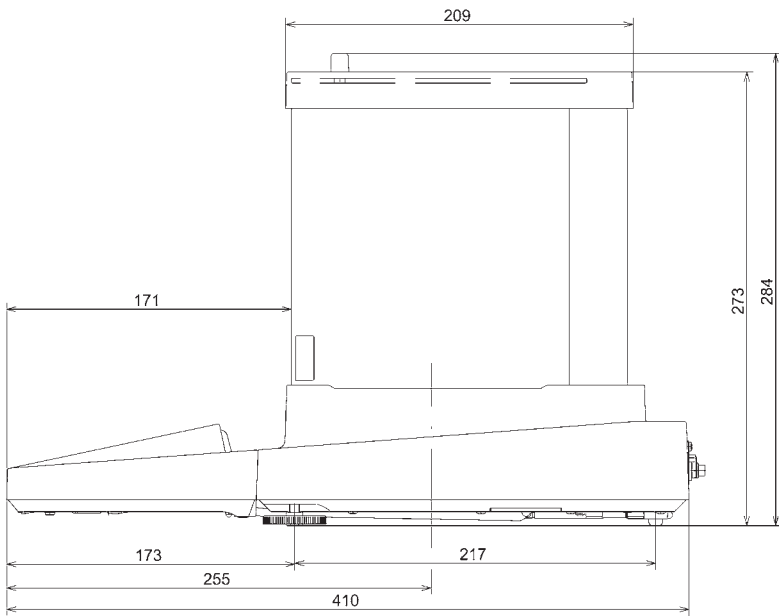
Innenmaße Windschutz DU
 Draft shield DU interior
 dimensions
 (H)250 × (W)192 × (D)154

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



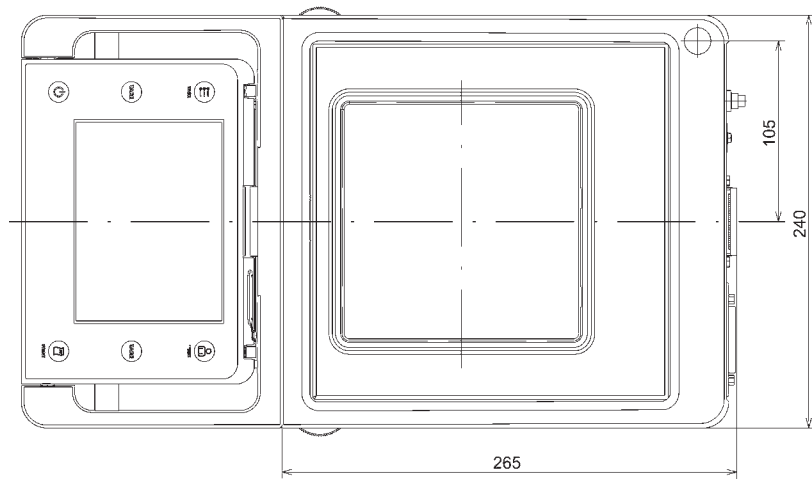
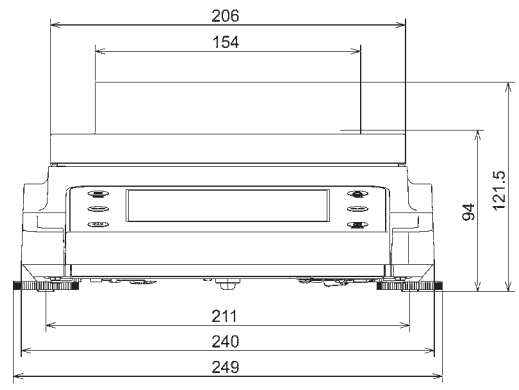
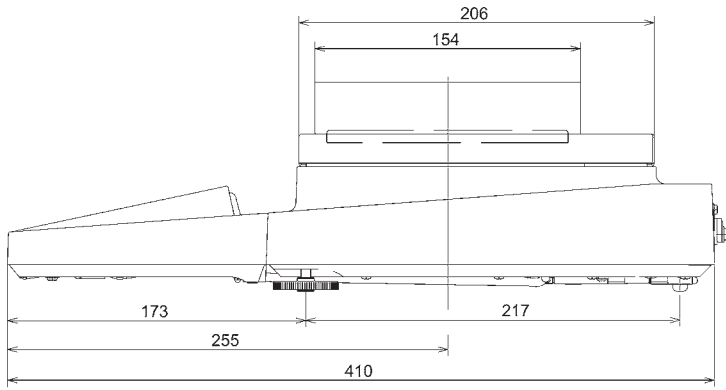
Innenmaße Windschutz DU
 Draft shield DU interior
 dimensions
 (H)261 × (B)193 × (T)191

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

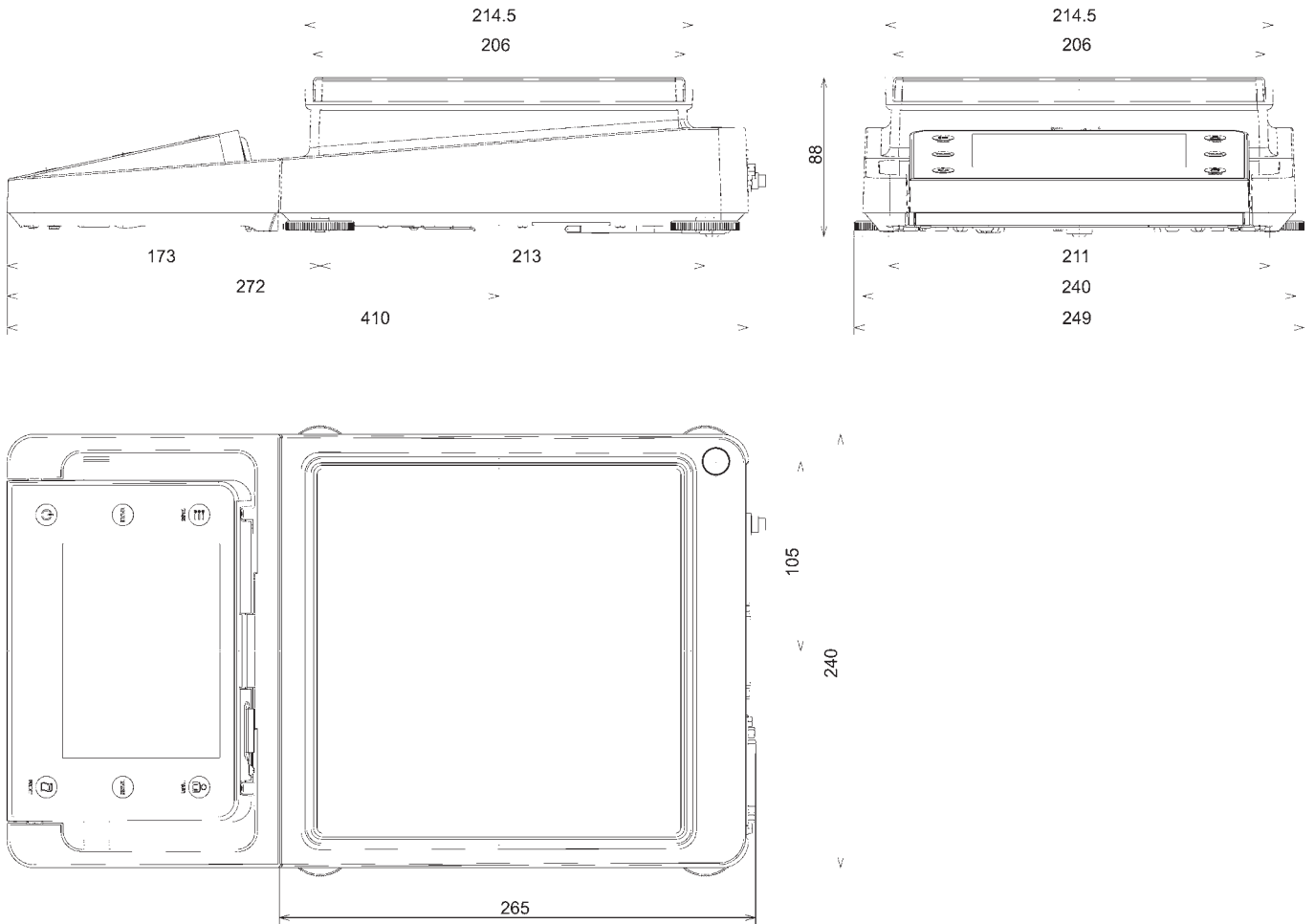


Innenmaße Windschutz
 Windshield inside dimensions
 (H)172 × (W)193 × (D)191

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

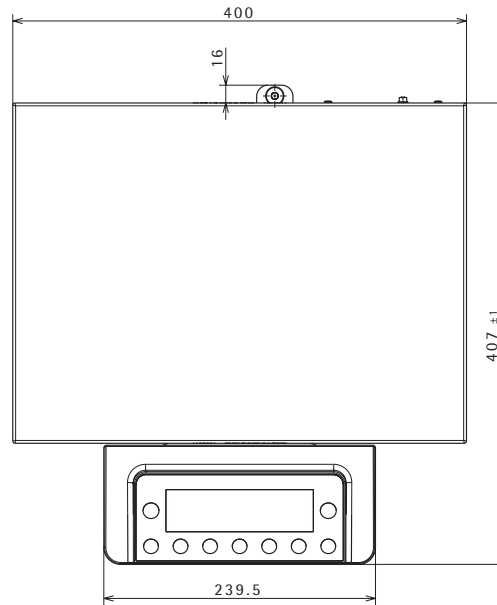
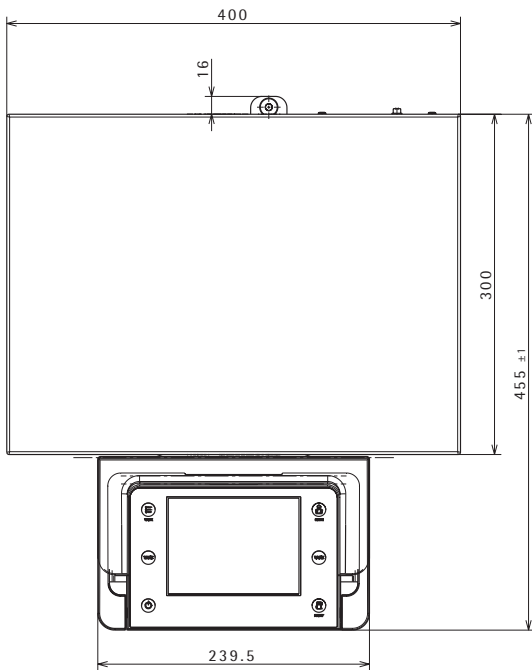
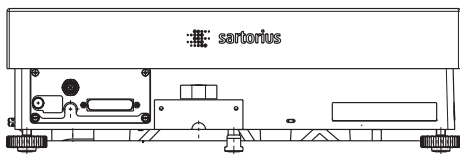
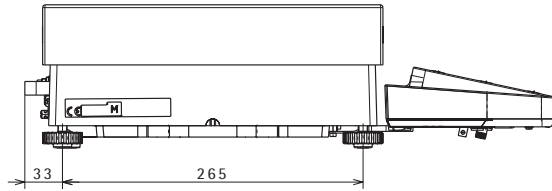
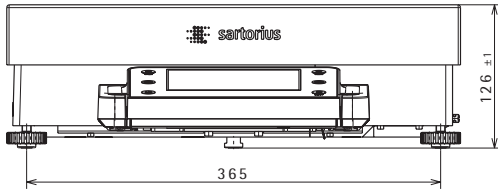


Precision Balances with No Draft Shield
 All dimensions are given in millimeters



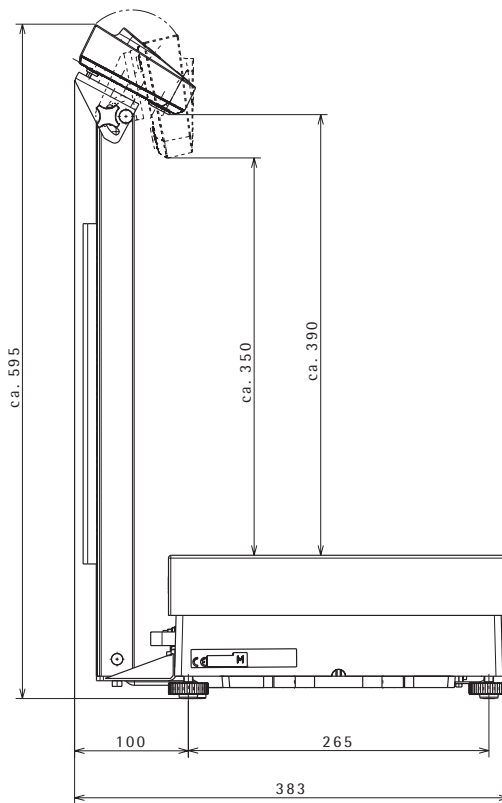
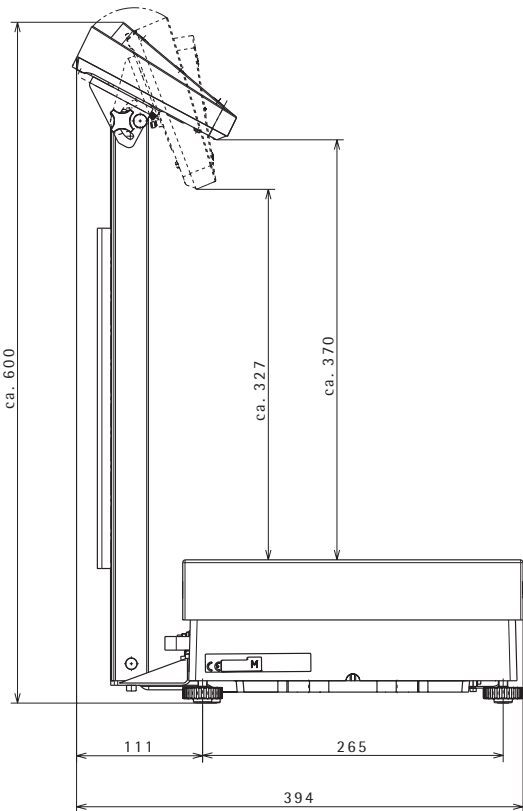
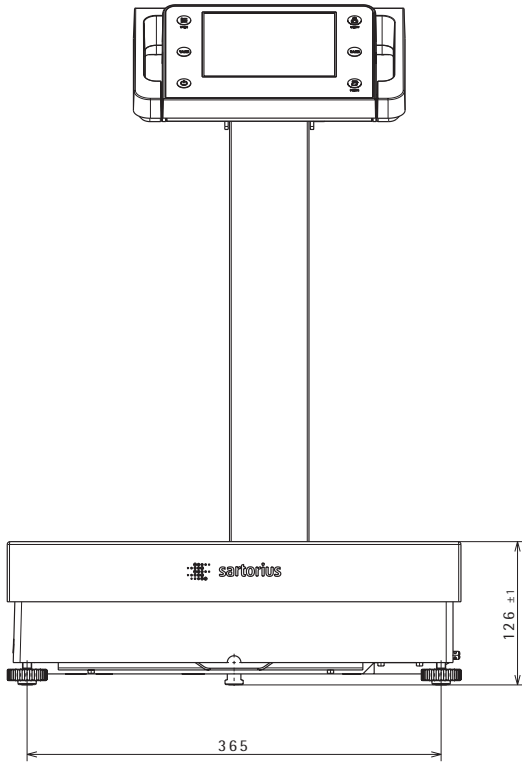
High Load Balances

All dimensions are given in millimeters



High Load Balances

All dimensions are given in millimeters



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