

BSA II Series



Benefits

- Hybrid screen for excellent readability
- Internal calibration and adjustment feature ensure measurement accuracy
- Technology designed in Germany
- Integrated application programs your daily work routines

Product Information

Designed for the routine demands of lab work, the BSA II balances bring efficiency and reliability to everyday weighing. Choosing a German-designed Sartorius Balance means consistent readings with each use, allowing you to simply weigh your sample and move on to the next task without a worry.

Technical Specifications

General Technical Data

Ambient Conditions		Value
Installation site	For indoor use only, max. height above sea level	3000 m
Temperature	Environment (metrological data)*	+10 – +30 °C
	Environment	+5 – +40 °C
	Storage and transport	-10 – +60 °C
Relative humidity**	At temperatures up to 31° c, non-condensing, then linear decrease from max. 80 % at 31° c to max. 50 % at 40° c	15 – 80 %

No heat from heating systems or direct sunlight

No electromagnetic fields

Power Supply Device	Value
Input voltage	15 VDC (±10 %)
Power consumption, max	4 W
Only by Sartorius power supply unit YEPS01-15V0W with interchangeable country-specific plug-in ac adaptors	

Power Supply Unit	Value	
Type: Sartorius power supply unit YEPS01-15V0W		
Primary	Voltage	100 – 240 VAC (±10 %)
	Frequency	50 - 60 Hz
	Current consumption, maximum	0.2 A
Secondary	Voltage	15 VDC (±5 %)
	Current, maximum	0.53 A
Short-circuit protection	Electronic	
Protection class according to IEC 60950-1	II	
Pollution level according to IEC 61010-1	2	
Overvoltage category according to IEC 60664-1	II	
Other data: See label on the power supply unit		

Electromagnetic Compatibility

Interference resistance: Suitable for use in industrial areas

Transient emissions	Class B Suitable for use in residential areas and areas that are connected to a low voltage network that also supplies residential buildings.
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Materials

Housing	Plastic (ABS)
Control module	Glass
Draft shield	Glass plastic (ABS)
Base plate	Stainless steel
Frame draft shield	Stainless steel
Weighing pan	Stainless steel

Warm-up Time	Value
Device, approx	2h

* For conformity-assessed (verified) balances in accordance with EU requirements, refer to the information on the balance.

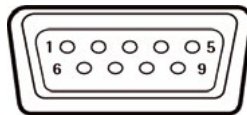
** For conformity-assessed (verified) balances in accordance with EU requirements, the legal regulations apply.

Interfaces

Specifications of the RS232 Interface

Type of interface	Serial interface
Interface operation	Full duplex
Level	RS232
Connection	D-sub connector, 9-pin
Maximum cable length	10 m

Pin assignment



Pin 1: Not assigned	Pin 6: Not assigned
Pin 2: Data output (TxD)	Pin 7: Clear to Send (CTS)
Pin 3: Data input (RxD)	Pin 8: Request to Send (RTS)
Pin 4: Not assigned	Pin 9: Universal key
Pin 5: Internal ground	

Specifications for the USB-C Interface

Communication	USB UTL
Connectable devices	Sartorius printers, Sartorius second display or PC

Calibration

Internal calibration (models with marking i-1x)

External calibration

Selectable Weight Units*

Gram, kilogram, carat, pound, ounce, troy ounce, Hong Kong tael, Singapore tael, Taiwan tael, grain, pennyweights, milligram, parts per pound, China tael, ommes, Austrian carat, tola, baht, mesghal and Newton

Display

Intuitive, wear resistant LED screen with touch technology

Built-in Applications

- Weighing | Dosing
 - Counting
 - Percentage weighing
 - Mixing | Net total
 - Components | Totalizing
 - Animal weighing
 - Calculation | Free factor
 - Density determination
 - Underfloor weighing feature for bigger samples
 - Statistics
 - Mass unit conversion
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Languages

English, German, France, Italian, Spanish, Portuguese, Russian, Polish

Protection

- Display foil (available as accessory)
 - Dust cover for balances with draft shield
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Anti-theft Lock

Kensington lock and lockdown capability for cable or chain

* The availability of units depends on national legislation and is therefore country-specific.

Models with internal adjustment feature

Model	Unit	224i-1x ¹	124i-1x ¹	623i-1x ¹	423i-1x ¹	323i-1x ¹	223i-1x ¹
Readability Scale interval (d)	mg	0.1	0.1	1	1	1	1
Maximum capacity (Max)	g	220	120	620	420	320	220
Weighing system		EMC	EMC	EMC	EMC	EMC	EMC
Repeatability							
At approx. maximum load, typical value	±mg	0.1	0.1	1	1	1	1
Linearity deviation							
Limits	±mg	0.2	0.2	2	2	2	2
Sensitivity drift between +10 °c and +30 °c	±ppm/K	1.5	1.5	2	2	2	2
Tare maximum capacity (subtractive)		<100% of maximum capacity					
For models with approval:							
Accuracy class		I	I	II	II	II	II
Type		BC-EB	BC-EB	BC-ED	BC-ED	BC-ED	BC-ED
Verification scale interval (e)	mg	1	1	10	10	10	10
Minimum load (Min)	mg	10	10	20	20	20	20
Typical measurement time	s	≤ 2.0	≤ 2.0	≤ 1.5	≤ 1.5	≤ 1.5	≤ 1.5
Recommended calibration weight							
External calibrated test weight	g	200	100	500	200	200	200
Accuracy class in accordance with OIML R111-1		E2	E2	F1	F1	F1	F1
Weighing pan size	mm	Ø 90	Ø 90	Ø 120	Ø 120	Ø 120	Ø 120
Weighing chamber height*	mm	200	200	200	200	200	200
Net weight, approx.	kg	6.20	6.20	6.30	6.30	6.30	6.30
Gross weight, approx.	kg	8.00	8.00	8.10	8.10	8.10	8.10

* upper edge of the weighing pan to the lower edge of the upper draft shield panel

¹ Country-specific marking in model:

x = S: Standard balances without country-specific additions

x = CCN: Balances with approval for China

x = OIN: Balances with approval for India

6202i-1x ¹	4202i-1x ¹	3202i-1x ¹	2202i-1x ¹	822i-1x ¹	8201i-1x ¹	5201i-1x ¹	2201i-1x ¹
10	10	10	10	10	100	100	100
6,200	4,200	3,200	2,200	820	8,200	5,200	2,200
EMC	EMC	EMC	EMC	EMC	EMC	EMC	EMC
10	10	10	10	10	100	100	100
20	20	20	20	20	100	100	100
2	2	2	2	2	2	2	2
<100% of maximum capacity							
II	II	II	II	II	II	II	II
BC-EE	BC-EE	BC-EE	BC-EE	BC-EE	BC-EG	BC-EE	BC-EE
100	100	100	100	100	1,000	100	100
500	500	500	500	500	5,000	5,000	5,000
≤ 1.0	≤ 1.0	≤ 1.0	≤ 1.0	≤ 1.0	≤ 1.0	≤ 1.0	≤ 1.0
5,000	2,000	2,000	2,000	500	5,000	5,000	2,000
F1	F1	F1	F1	F2	F2	F2	F2
182 × 182	182 × 182	182 × 182	182 × 182	182 × 182	182 × 182	182 × 182	182 × 182
-	-	-	-	-	-	-	-
6.20	6.20	6.20	6.20	6.20	6.20	6.20	6.20
7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50

Models without internal adjustment feature, with approval

Model	Unit	224-1x ¹	124-1x ¹	623-1x ¹	423-1x ¹	323-1x ¹	223-1x ¹
Readability Scale interval (d)	mg	0.1	0.1	1	1	1	1
Maximum capacity (Max)	g	220	120	620	420	320	220
Weighing system		EMC	EMC	EMC	EMC	EMC	EMC
Repeatability							
At approx. maximum load, typical value	±mg	0.1	0.1	1	1	1	1
Linearity deviation							
Limits	±mg	0.2	0.2	2	2	2	2
Sensitivity drift between +10 °C and +30 °C	±ppm/K	1.5	1.5	2	2	2	2
Tare maximum capacity (subtractive)		<100% of maximum capacity					
For models with approval:							
Accuracy class		I	I	II	II	II	II
Type		BC-EB	BC-EB	BC-ED	BC-ED	BC-ED	BC-ED
Verification scale interval (e)	mg	1	1	10	10	10	10
Minimum load (Min)	mg	10	10	20	20	20	20
Typical measurement time	s	≤ 2.0	≤ 2.0	≤ 1.5	≤ 1.5	≤ 1.5	≤ 1.5
Recommended calibration weight							
External calibrated test weight	g	200	100	500	200	200	200
Accuracy class in accordance with OIML R111-1		E2	E2	F1	F1	F1	F1
Weighing pan size	mm	Ø 90	Ø 90	Ø 120	Ø 120	Ø 120	Ø 120
Weighing chamber height*	mm	200	200	200	200	200	200
Net weight, approx.	kg	5.90	5.90	5.90	5.90	5.90	5.90
Gross weight, approx.	kg	7.70	7.70	7.70	7.70	7.70	7.70

* upper edge of the weighing pan to the lower edge of the upper draft shield panel

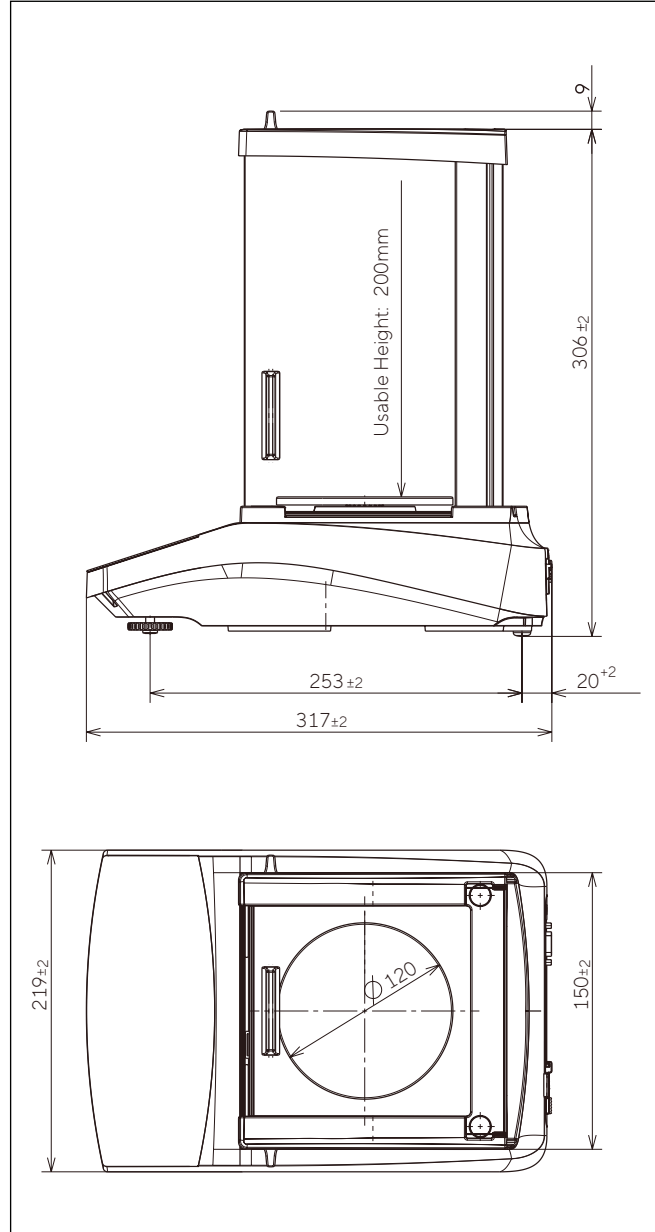
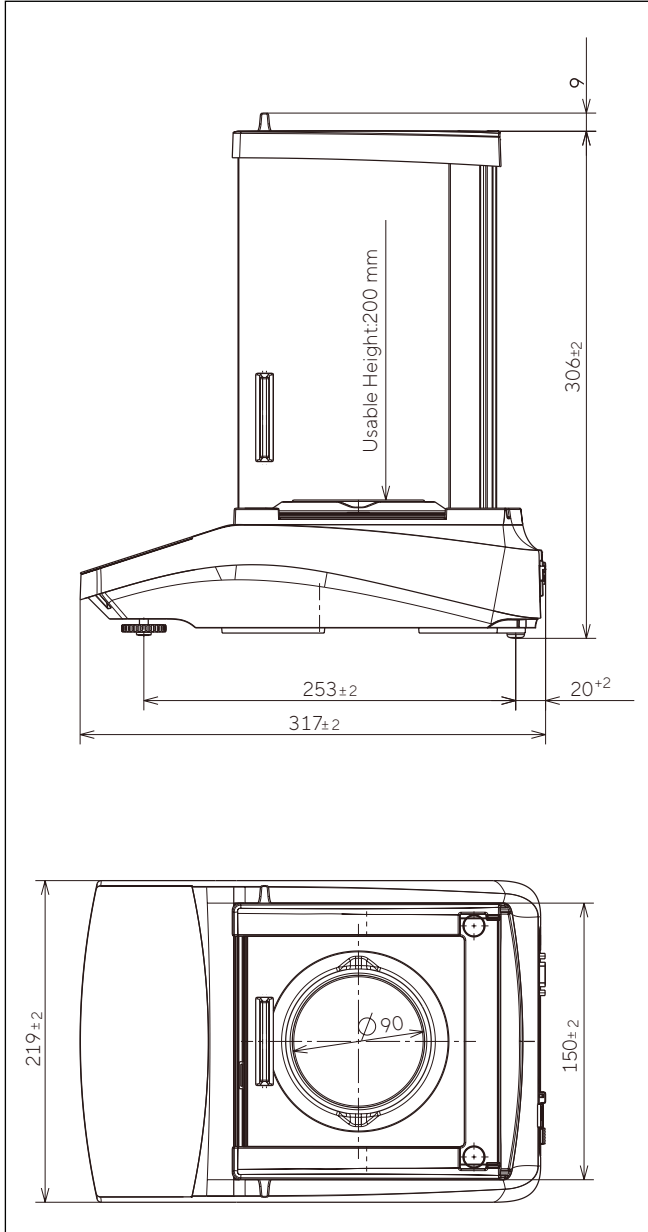
1 Country-specific marking in model:
x = S: Standard balances without country-specific additions
x = CCN: Balances with approval for China
x = OIN: Balances with approval for India

6202-1x ¹	4202-1x ¹	3202-1x ¹	2202-1x ¹	822-1x ¹	8201-1x ¹	5201-1x ¹	2201-1x ¹
10	10	10	10	10	100	100	100
6,200	4,200	3,200	2,200	820	8,200	5,200	2,200
EMC	EMC	EMC	EMC	EMC	Strain gauge	EMC	EMC
10	10	10	10	10	100	100	100
20	20	20	20	20	300	100	100
2	2	2	2	2	7	2	2
<100% of maximum capacity							
II	II	II	II	II	II	II	II
BC-EE	BC-EE	BC-EE	BC-EE	BC-EE	BC-EI	BC-EE	BC-EE
100	100	100	100	100	1,000	100	100
500	500	500	500	500	5,000	5,000	5,000
≤ 1.0	≤ 1.0	≤ 1.0	≤ 1.0	≤ 1.0	≤ 1.0	≤ 1.0	≤ 1.0
5,000	2,000	2,000	2,000	500	5,000	5,000	2,000
F1	F1	F1	F1	F2	F2	F2	F2
182 × 182	182 × 182	182 × 182	182 × 182	182 × 182	182 × 182	182 × 182	182 × 182
-	-	-	-	-	-	-	-
6.20	6.20	6.20	6.20	4.30	6.20	6.20	6.20
5.60	5.60	5.60	5.60	5.60	5.60	5.60	5.60

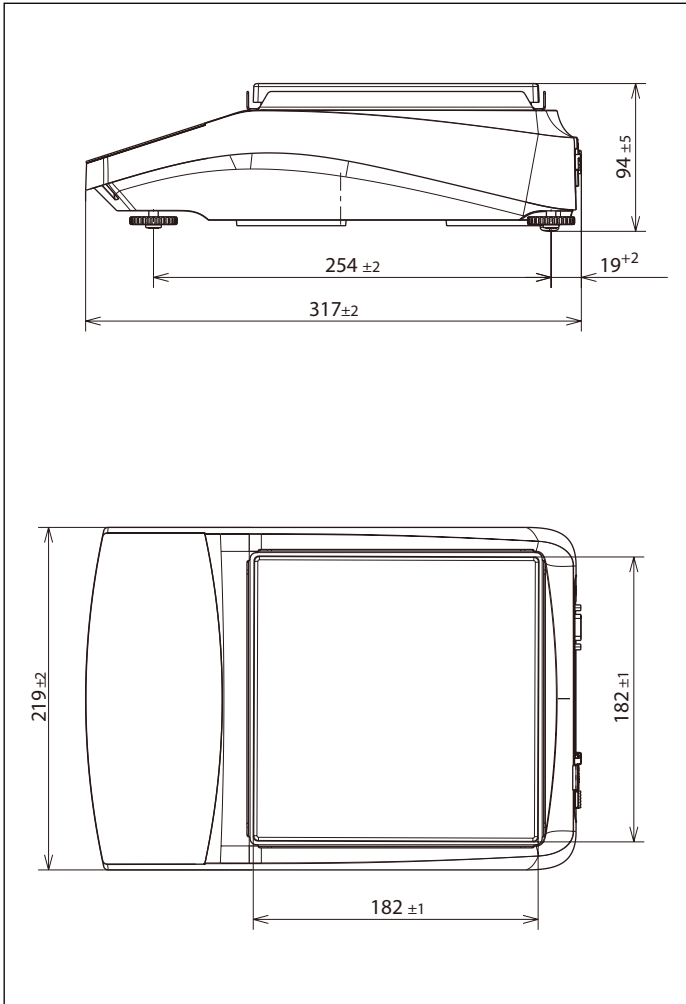
Technical Drawings

Models with a readability of 0.1 mg
All dimensions are given in millimeters

Models with a readability of 1 mg
All dimensions are given in millimeters



Models with a readability of ≥ 10 mg
All dimensions are given in millimeters



Accessories

These tables contain an excerpt of the accessories that can be ordered. For information on other products, contact Sartorius.

Balance Accessories

Item	Quantity	Order number
Display protection film (set of 5)	1	YDC10
Dust cover for balances with an analytical draft shield	1	6960BC01
Density determination set for solids and liquids for balances with a readability of 0.1 mg 1 mg	1	YDK03
"Kensington Lock" anti-theft device	1	YKL01
Pedal button foot switch	1	YFS03
Second display remote display	1	YSD01
Below-balance weighing, only for models with strain gauge system (not for models in legal metrology)		
Hook M5	1	69EA0039
Weighing table		
Made from wood with natural stone	1	YWT09
Made from natural stone, with vibration dampening	1	YWT03
Wall console made from natural stone	1	YWT04

Printer and Accessories for Data Communication

Item	Quantity	Order number
Dot matrix printer (USB-B, RS232)	1	YDP50
Thermal transfer printer (USB-B, RS232)	1	YDP30
Data cable USB-C > USB-B (> YDP30, YDP40, YDP50)	1.5 m	YCC-USB-C-B
Data cable USB-C > USB-A (> PC)	1.5 m	YCC-USB-C-A
Data cable RS232 (9-pin) > USB-A (> PC)	1.5 m	YCC-D09M-USB-A
Data cable RS232 (9-pin) male > RS232 (9-pin) male (> YDP30, YDP50)	1.5 m	YCC-D09MM
Data cable RS232 (9-pin) male > RS232 (9-pin) female (> YDP20-0CE, YSD01)	1.5 m	YCC-D09MF
Y-adapter RS232 (9-pin) male > 2x RS232 (9-pin) female	0.5 m	YCC-D09M-2D09F

External Calibration and Adjustment Weights


BSA II model	Weight	Accuracy class	Quantity	Order number
224	200 g	E2	1	YCW522-AC-02
124	100 g	E2	1	YCW512-AC-02
623	500 g	F1	1	YCW553-AC-02
423 323 223	200 g	F1	1	YCW523-AC-02
6202	5,000 g	F1	1	YCW653-AC-02
4202 3202 2202	2,000 g	F1	1	YCW623-AC-02
822	500 g	F2	1	YCW554-AC-02
8201 5201	5,000 g	F2	1	YCW654-AC-02
2201	2,000 g	F2	1	YCW624-AC-02

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