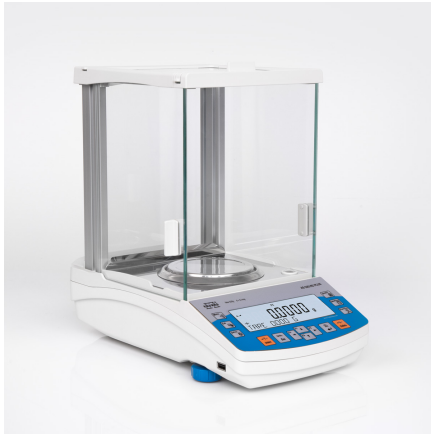
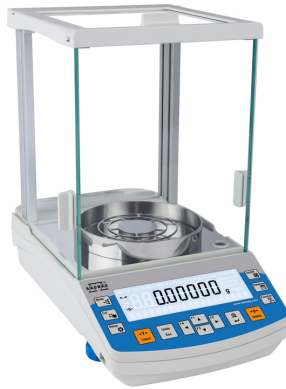




AS 310.R2 PLUS Analytical Balance, AS 62.R2 PLUS Analytical Balance, AS 520.R2 PLUS Analytical Balance, AS 60/220.R2 PLUS Analytical Balance, AS 160.R2 PLUS Analytical Balance, AS 82/220.R2 PLUS Analytical Balance, AS 110.R2 PLUS Analytical Balance, AS 120.R2 PLUS Analytical Balance, AS 220.R2 PLUS Analytical Balance



AS 310.R2 PLUS Analytical Balance  
AS 520.R2 PLUS Analytical Balance  
AS 160.R2 PLUS Analytical Balance  
AS 110.R2 PLUS Analytical Balance  
AS 220.R2 PLUS Analytical Balance



AS 62.R2 PLUS Analytical Balance  
AS 60/220.R2 PLUS Analytical Balance  
AS 82/220.R2 PLUS Analytical Balance  
AS 120.R2 PLUS Analytical Balance

The drawings, photos and graphics used are for illustrative purposes only.

## Functions



### Autotest:

- AS 60/220.R2 PLUS Analytical Balance
- AS 82/220.R2 PLUS Analytical Balance
- AS 110.R2 PLUS Analytical Balance
- AS 160.R2 PLUS Analytical Balance
- AS 220.R2 PLUS Analytical Balance
- AS 310.R2 PLUS Analytical Balance
- AS 520.R2 PLUS Analytical Balance



### Dosing:

- AS 60/220.R2 PLUS Analytical Balance
- AS 82/220.R2 PLUS Analytical Balance
- AS 110.R2 PLUS Analytical Balance
- AS 160.R2 PLUS Analytical Balance
- AS 220.R2 PLUS Analytical Balance
- AS 310.R2 PLUS Analytical Balance
- AS 520.R2 PLUS Analytical Balance



### Percent Weighing:

- AS 60/220.R2 PLUS Analytical Balance
- AS 82/220.R2 PLUS Analytical Balance
- AS 110.R2 PLUS Analytical Balance
- AS 160.R2 PLUS Analytical Balance
- AS 220.R2 PLUS Analytical Balance
- AS 310.R2 PLUS Analytical Balance
- AS 520.R2 PLUS Analytical Balance



### Totalizing:

- AS 60/220.R2 PLUS Analytical Balance
- AS 82/220.R2 PLUS Analytical Balance
- AS 110.R2 PLUS Analytical Balance
- AS 160.R2 PLUS Analytical Balance
- AS 220.R2 PLUS Analytical Balance
- AS 310.R2 PLUS Analytical Balance
- AS 520.R2 PLUS Analytical Balance



### Parts counting:

- AS 60/220.R2 PLUS Analytical Balance
- AS 82/220.R2 PLUS Analytical Balance
- AS 110.R2 PLUS Analytical Balance
- AS 160.R2 PLUS Analytical Balance
- AS 220.R2 PLUS Analytical Balance
- AS 310.R2 PLUS Analytical Balance
- AS 520.R2 PLUS Analytical Balance



### Peak hold:

- AS 60/220.R2 PLUS Analytical Balance
- AS 82/220.R2 PLUS Analytical Balance
- AS 110.R2 PLUS Analytical Balance
- AS 160.R2 PLUS Analytical Balance
- AS 220.R2 PLUS Analytical Balance
- AS 310.R2 PLUS Analytical Balance
- AS 520.R2 PLUS Analytical Balance



### Newton unit measurement:

- AS 60/220.R2 PLUS Analytical Balance
- AS 82/220.R2 PLUS Analytical Balance
- AS 110.R2 PLUS Analytical Balance
- AS 160.R2 PLUS Analytical Balance
- AS 220.R2 PLUS Analytical Balance
- AS 310.R2 PLUS Analytical Balance
- AS 520.R2 PLUS Analytical Balance



### Statistics:

- AS 60/220.R2 PLUS Analytical Balance
- AS 82/220.R2 PLUS Analytical Balance
- AS 110.R2 PLUS Analytical Balance
- AS 160.R2 PLUS Analytical Balance
- AS 220.R2 PLUS Analytical Balance
- AS 310.R2 PLUS Analytical Balance
- AS 520.R2 PLUS Analytical Balance

**Checkweighing:**

- AS 60/220.R2 PLUS Analytical Balance
- AS 82/220.R2 PLUS Analytical Balance
- AS 110.R2 PLUS Analytical Balance
- AS 160.R2 PLUS Analytical Balance
- AS 220.R2 PLUS Analytical Balance
- AS 310.R2 PLUS Analytical Balance
- AS 520.R2 PLUS Analytical Balance

**Under-pan weighing:**

- AS 60/220.R2 PLUS Analytical Balance
- AS 82/220.R2 PLUS Analytical Balance
- AS 110.R2 PLUS Analytical Balance
- AS 160.R2 PLUS Analytical Balance
- AS 220.R2 PLUS Analytical Balance
- AS 310.R2 PLUS Analytical Balance
- AS 520.R2 PLUS Analytical Balance

**GLP Procedures:**

- AS 60/220.R2 PLUS Analytical Balance
- AS 82/220.R2 PLUS Analytical Balance
- AS 110.R2 PLUS Analytical Balance
- AS 160.R2 PLUS Analytical Balance
- AS 220.R2 PLUS Analytical Balance
- AS 310.R2 PLUS Analytical Balance
- AS 520.R2 PLUS Analytical Balance

**Animal weighing:**

- AS 60/220.R2 PLUS Analytical Balance
- AS 82/220.R2 PLUS Analytical Balance
- AS 110.R2 PLUS Analytical Balance
- AS 160.R2 PLUS Analytical Balance
- AS 220.R2 PLUS Analytical Balance
- AS 310.R2 PLUS Analytical Balance
- AS 520.R2 PLUS Analytical Balance

**Density determination:**

- AS 60/220.R2 PLUS Analytical Balance
- AS 82/220.R2 PLUS Analytical Balance
- AS 110.R2 PLUS Analytical Balance
- AS 160.R2 PLUS Analytical Balance
- AS 220.R2 PLUS Analytical Balance
- AS 310.R2 PLUS Analytical Balance
- AS 520.R2 PLUS Analytical Balance

# Datasheet

	AS 60/220.R2 PLUS Analytical Balance	AS 62.R2 PLUS Analytical Balance	AS 82/220.R2 PLUS Analytical Balance
<b>Metrological parameters</b>			
Maximum capacity [Max]	60 / 220 g	62 g	82 / 220 g
Minimum load	1 mg	1 mg	1 mg
Readability [d]	0,01 / 0,1 mg	0,01 mg	0,01 / 0,1 mg
Verification unit [e]	1 mg	1 mg	1 mg
Tare range	-220 g	-62 g	-220 g
Standard repeatability [5% Max]	0,012 mg	0,012 mg	0,012 mg
Standard repeatability [Max]	0,08 mg	0,02 mg	0,08 mg
Standard minimum weight (USP)	24 mg	24 mg	24 mg
Standard minimum weight (U=1%, k=2)	2,4 mg	2,4 mg	2,4 mg
Permissible repeatability [5% Max]	0,02 mg	0,02 mg	0,02 mg
Permissible repeatability [Max]	0,1 mg	0,035 mg	0,1 mg
Linearity	±0,05/0,2 mg	±0,05 mg	±0,05/0,2 mg
Stabilization time	2 s	2 s	2 s
Adjustment	internal (automatic)	internal (automatic)	internal (automatic)
OIML Class	I	I	I
<b>Physical parameters</b>			
Leveling system	manual	manual	manual
Display	LCD (backlit)	LCD (backlit)	LCD (backlit)
Protection class	IP 43	IP 43	IP 43
Delivery components	Balance, weighing pan, weighing pan shield, centring ring, bottom cover, power supply, fabric dust cover.	Balance, weighing pan, weighing pan shield, centring ring, bottom cover, power supply, fabric dust cover.	Balance, weighing pan, weighing pan shield, centring ring, bottom cover, power supply, fabric dust cover.
Weighing pan dimensions	ø90 + ø85 (option) mm	ø90 + ø85 (option) mm	ø90 + ø85 (option) mm
Packaging dimensions	545×455×575 mm	545×455×575 mm	545×455×575 mm
Net weight	7 kg	7 kg	7,3 kg
Gross weight	11 kg	11 kg	11 kg
<b>Communication interface</b>			
Communication interface	2×RS232 <sup>1</sup> , 2×USB-A (interchangeable), USB-B, Wi-Fi (option)	2×RS232 <sup>1</sup> , 2×USB-A (interchangeable), USB-B, Wi-Fi (option)	2×RS232 <sup>1</sup> , 2×USB-A (interchangeable), USB-B, Wi-Fi (option)
<b>Electrical parameters</b>			
Power supply	Adapter: 100 – 240V AC 50/60Hz 0,6A; 12V DC 1,2A Balance: 12 – 15V DC 0,4A max	Adapter: 100 – 240V AC 50/60Hz 0,6A; 12V DC 1,2A Balance: 12 – 15V DC 0,4A max	Adapter: 100 – 240V AC 50/60Hz 0,6A; 12V DC 1,2A Balance: 12 – 15V DC 0,4A max
Power consumption max.	3 W	3 W	3 W
Overvoltage protection	—	—	—
<b>Environmental conditions</b>			
Operating temperature	+10 ÷ +40 °C	+10 ÷ +40 °C	+10 ÷ +40 °C
Relative humidity	40% ÷ 80%	40% ÷ 80%	40% ÷ 80%

Repeatability is expressed as a standard deviation from 10 weighing cycles. Stabilization time depends on the ambient conditions and the dynamics of weighing pan loading; specified for FAST profile. 1 Barcode scanners, available as weighing instrument accessory, communicate with the instrument via RS232 interface exclusively.

# Datasheet

	AS 110.R2 PLUS Analytical Balance	AS 120.R2 PLUS Analytical Balance	AS 160.R2 PLUS Analytical Balance
<b>Metrological parameters</b>			
Maximum capacity [Max]	110 g	120 g	160 g
Minimum load	10 mg	1 mg	10 mg
Readability [d]	0,1 mg	0,01 mg	0,1 mg
Verification unit [e]	1 mg	1 mg	1 mg
Tare range	-110 g	-120 g	-160 g
Standard repeatability [5% Max]	0,06 mg	0,012 mg	0,07 mg
Standard repeatability [Max]	0,08 mg	0,03 mg	0,08 mg
Standard minimum weight (USP)	120 mg	24 mg	140 mg
Standard minimum weight (U=1%, k=2)	12 mg	2,4 mg	14 mg
Permissible repeatability [5% Max]	0,09 mg	0,02 mg	0,09 mg
Permissible repeatability [Max]	0,1 mg	0,05 mg	0,1 mg
Linearity	±0,2 mg	±0,07 mg	±0,2 mg
Stabilization time	2 s	2 s	2 s
Adjustment	internal (automatic)	internal (automatic)	internal (automatic)
OIML Class	I	I	I
<b>Physical parameters</b>			
Leveling system	manual	manual	manual
Display	LCD (backlit)	LCD (backlit)	LCD (backlit)
Protection class	IP 43	IP 43	IP 43
Delivery components	Balance, weighing pan, weighing pan shield, centring ring, bottom cover, power supply.	Balance, weighing pan, weighing pan shield, centring ring, bottom cover, power supply, fabric dust cover.	Balance, weighing pan, weighing pan shield, centring ring, bottom cover, power supply.
Weighing pan dimensions	ø100 mm	ø90 + ø85 (option) mm	ø100 mm
Packaging dimensions	490×400×520 mm	495×400×515 mm	545×455×575 mm
Net weight	7,3 kg	7,3 kg	7 kg
Gross weight	9 kg	9,3 kg	9 kg
<b>Communication interface</b>			
Communication interface	2×RS232 <sup>1</sup> , 2×USB-A (interchangeable), USB-B, Wi-Fi (option)	2×RS232 <sup>1</sup> , 2×USB-A (interchangeable), USB-B, Wi-Fi (option)	2×RS232 <sup>1</sup> , 2×USB-A (interchangeable), USB-B, Wi-Fi (option)
<b>Electrical parameters</b>			
Power supply	Adapter: 100 – 240V AC 50/60Hz 0,6A; 12V DC 1,2A Balance: 12 – 15V DC 0,4A max	Adapter: 100 – 240V AC 50/60Hz 0,6A; 12V DC 1,2A Balance: 12 – 15V DC 0,4A max	Adapter: 100 – 240V AC 50/60Hz 0,6A; 12V DC 1,2A Balance: 12 – 15V DC 0,4A max
Power consumption max.	3 W	3 W	3 W
Overvoltage protection	—	—	YES
<b>Environmental conditions</b>			
Operating temperature	+10 ÷ +40 °C	+10 ÷ +40 °C	+10 ÷ +40 °C
Relative humidity	40% ÷ 80%	40% ÷ 80%	40% ÷ 80%

Repeatability is expressed as a standard deviation from 10 weighing cycles. Stabilization time depends on the ambient conditions and the dynamics of weighing pan loading; specified for FAST profile. 1 Barcode scanners, available as weighing instrument accessory, communicate with the instrument via RS232 interface exclusively.

# Datasheet

	AS 220.R2 PLUS Analytical Balance	AS 310.R2 PLUS Analytical Balance	AS 520.R2 PLUS Analytical Balance
<b>Metrological parameters</b>			
Maximum capacity [Max]	220 g	310 g	520 g
Minimum load	10 mg	10 mg	-
Readability [d]	0,1 mg	0,1 mg	0,1 mg
Verification unit [e]	1 mg	1 mg	-
Tare range	-220 g	-310 g	-520 g
Standard repeatability [5% Max]	0,07 mg	0,08 mg	0,08 mg
Standard repeatability [Max]	0,08 mg	0,12 mg	0,25 mg
Standard minimum weight (USP)	140 mg	160 mg	160 mg
Standard minimum weight (U=1%, k=2)	14 mg	16 mg	16 mg
Permissible repeatability [5% Max]	0,09 mg	0,12 mg	0,12 mg
Permissible repeatability [Max]	0,1 mg	0,15 mg	0,4 mg
Linearity	±0,2 mg	±0,3 mg	±0,6 mg
Stabilization time	2 s	2,5 s	2,5 s
Adjustment	internal (automatic)	internal (automatic)	internal (automatic)
OIML Class	I	I	-
<b>Physical parameters</b>			
Leveling system	manual	manual	manual
Display	LCD (backlit)	LCD (backlit)	LCD (backlit)
Protection class	IP 43	IP 43	IP 43
Delivery components	Balance, weighing pan, weighing pan shield, bottom cover, power supply.	Balance, weighing pan, weighing pan shield, bottom cover, power supply.	Balance, weighing pan, weighing pan shield, bottom cover, power supply.
Weighing pan dimensions	ø100 mm	ø100 mm	ø100 mm
Packaging dimensions	495×400×515 mm	495×400×515 mm	495×400×515 mm
Net weight	7,3 kg	7,3 kg	7,3 kg
Gross weight	9,3 kg	9,3 kg	9,3 kg
<b>Communication interface</b>			
Communication interface	2×RS232 <sup>1</sup> , 2×USB-A (interchangeable), USB-B, Wi-Fi (option)	2×RS232 <sup>1</sup> , 2×USB-A (interchangeable), USB-B, Wi-Fi (option)	2×RS232 <sup>1</sup> , 2×USB-A (interchangeable), USB-B, Wi-Fi (option)
<b>Electrical parameters</b>			
Power supply	Adapter: 100 – 240V AC 50/60Hz 0,6A; 12V DC 1,2A Balance: 12 – 15V DC 0,4A max	Adapter: 100 – 240V AC 50/60Hz 0,6A; 12V DC 1,2A Balance: 12 – 15V DC 0,4A max	Adapter: 100 – 240V AC 50/60Hz 0,6A; 12V DC 1,2A Balance: 12 – 15V DC 0,4A max
Power consumption max.	3 W	3 W	3 W
Overvoltage protection	—	—	—
<b>Environmental conditions</b>			
Operating temperature	+10 ÷ +40 °C	+10 ÷ +40 °C	+10 ÷ +40 °C
Relative humidity	40% ÷ 80%	40% ÷ 80%	40% ÷ 80%

Repeatability is expressed as a standard deviation from 10 weighing cycles. Stabilization time depends on the ambient conditions and the dynamics of weighing pan loading; specified for FAST profile. 1 Barcode scanners, available as weighing instrument accessory, communicate with the instrument via RS232 interface exclusively.

\* Wi-Fi® is a registered trademark of Wi-Fi® Alliance.



Extra payment for verification



## Accessories

Antivibration Tables  
Holders for laboratory flasks  
Power Adapters  
Barcode scanners  
Cigarette lighter receptacle power supply cables  
Density determination KIT  
USB cable (scale - printer)  
Professional weighing table  
Holders for test tubes and filters  
Workstation for Pipettes Calibration

Displays  
Protective cover for balances  
Weighing dishes  
Antistatic ionizer  
Receipt Printer  
THBR 2.0 System - Ambient Conditions Monitoring  
RS 232, RS 485 cables  
Under-pan weighing  
RS 232 cables (scale - printer)

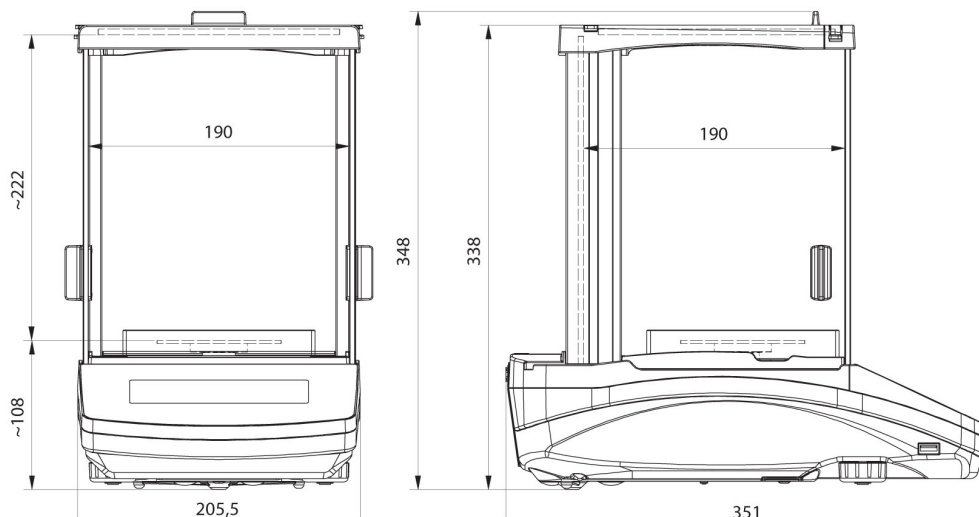
## Software

RAD-KEY  
R Panel  
R-LAB  
E2R System

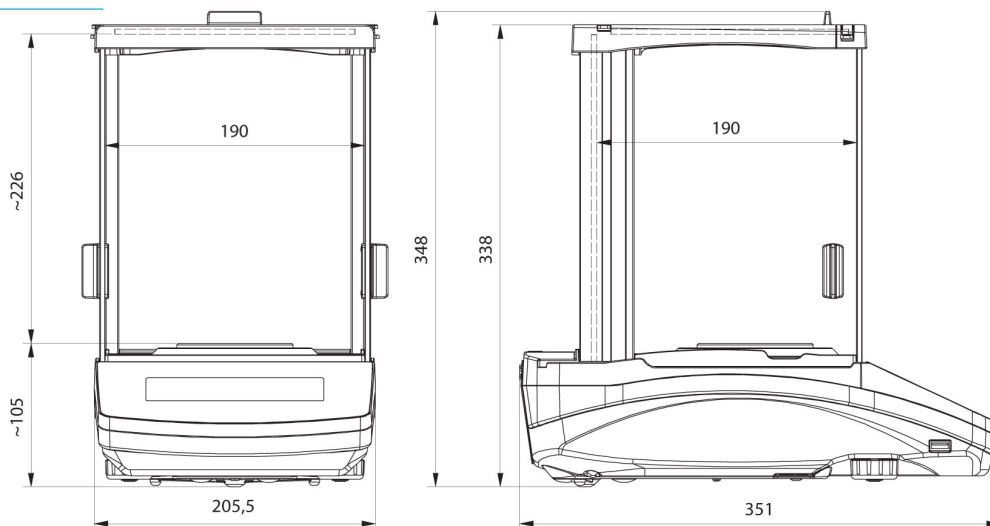
LabVIEW Driver  
Alibi Reader  
RADWAG Development Studio  
R.Barcode

## Device dimensions

AS 310.R2 PLUS Analytical Balance, AS 62.R2 PLUS Analytical Balance, AS 520.R2 PLUS Analytical Balance, AS 60/220.R2 PLUS Analytical Balance, AS 160.R2 PLUS Analytical Balance, AS 82/220.R2 PLUS Analytical Balance, AS 110.R2 PLUS Analytical Balance, AS 120.R2 PLUS Analytical Balance, AS 220.R2 PLUS Analytical Balance



AS R2, d = 0.01 mg



AS R2, AS R1 d = 0.1 mg