AS R PLUS Analytical Balances

Innovative design and system solutions for standard-class products

AS R2 PLUS, d = 0.01 mg

AS R1 PLUS, d = 0.1 mg
AS R2 PLUS, d = 0.1 mg

Communication interfaces

Large LCD display with text information section

Functions

- Parts counting
- Statistics
- Density determination
- Totalizing
- Alibi memory
- Dosing
- Animal weighing
- Under hook weighing
- GLP procedures
- Replaceable unit
- Checkweighing
- Autotest
- Peak hold
- Ambient conditions measurement
- Multilingual menu
- Percent Weighing

Features

Ergonomic Mechanical Design
Spacious weighing chamber and large open-door clearance allow easy access to the weighing pan and facilitate use of laboratory glassware of various sizes and dimensions. Improved aluminium base of the balance guarantees stability of the weihging system. DUAL-CLICK system facilitates tool-free disassembly and assembly of the weighing chamber. Locating the USB interface at the balance front makes it easier to communicate with peripherals.

Levelling System
Clearly visible levelling device located at the front of the weighing chamber facilitates level control.

Antistatic Weighing Chamber
Weighing chamber panes feature antistatic coating compensating electrostatic charges on the sample and accessories used for mass measurement.

Uncomplicated and Intuitive Operation
Large, easy-to-read LCD display offers not only a clear presentation of the weighing result, but also enables displaying messages related to the drying process as well as pictograms of active functions and working modes. Quick access keys located on the operation panel enable you to run a given function with just one click.

Data Management
AS R PLUS information system is based on operators, products, weighings and tares databases. All saved data can be analysed, exported, imported or exchanged between weighing instruments.

ALIBI Memory
Internal ALIBI memory guarantees safety and automatic record of measurements copies, it also offers possibility to preview, copy and archive data.

Kensington Lock
AS R PLUS balances are equipped with Kensington Lock, which allows to secure the device against theft.

Technical Specifications

	AS 60/220.R2 PLUS	AS 62.R2 PLUS	AS 82/220.R2 PLUS	AS 120.R2 PLUS
Maximum capacity [Max]	60 g / 220 g	62 g	82 g / 220 g	120 g
Minimum load	1 mg	1 mg	1 mg	1 mg
Readability [d]	0.01 mg / 0.1 mg	0.01 mg	0.01 mg / 0.1 mg	0.01 mg
Verification scale interval [e]	1 mg	1 mg	1 mg	1 mg
Tare range	−220 g	−62 g	−220 g	−120 g
Standard values				
Repeatability(5% Max)*	0.012 mg	0.012 mg	0.012 mg	0.012 mg
Repeatability(Max)*	0.08 mg	0.02 mg	0.08 mg	0.03 mg
Minimum weight (USP)	24 mg	24 mg	24 mg	24 mg
Minimum weight (U=1%, k=2)	2.4 mg	2.4 mg	2.4 mg	2.4 mg
Permissible values				
Repeatability(5% Max)*	0.02 mg	0.018 mg	0.02 mg	0.02 mg
Repeatability(Max)*	0.1 mg	0.03 mg	0.1 mg	0.05 mg
Linearity	± 0.05 mg / ±0.2 mg	± 0.05 mg	± 0.05 mg / ±0.2 mg	± 0.07 mg
Stabilization time*	2 s	2 s	2 s	2 s
Adjustment	internal	internal	internal	internal
Verification	Yes	Yes	Yes	Yes
OIML Class	I	I	I	I
Display	LCD (with backlight)	LCD (with backlight)	LCD (with backlight)	LCD (with backlight)
Keypad	14 keys	14 keys	14 keys	14 keys
Protection class	IP 43	IP 43	IP 43	IP 43
Databases	5	5	5	5
USB-A (interchangeable)	2	2	2	2
USB-B	1	1	1	1
RS 232	2	2	2	2
Wi-Fi® ***	802.11 b/g/n	802.11 b/g/n	802.11 b/g/n	802.11 b/g/n
Power supply	12 ÷ 16 V DC	12 ÷ 16 V DC	12 ÷ 16 V DC	12 ÷ 16 V DC
Power consumption	3 W	3 W	3 W	3 W
Operating temperature	+10 ÷ +40 ℃	+10 ÷ +40 ℃	+10 ÷ +40 ℃	+10 ÷ +40 ℃
Atmospheric humidity***	40% ÷ 80%	40% ÷ 80%	40% ÷ 80%	40% ÷ 80%
Transport and storage temperature	−20 ÷ +50 ℃	−20 ÷ +50 ℃	−20 ÷ +50 ℃	−20 ÷ +50 ℃
Weighing pan dimensions	ø 90 mm open-work ø 85 mm standard (option)******	ø 90 mm open-work ø 85 mm standard (option)******	ø 90 mm open-work ø 85 mm standard (option)******	ø 90 mm open-work ø 85 mm standard (option)******
Weighing chamber dimensions	190 × 190 × 222 mm	190 × 190 × 222 mm	190 × 190 × 222 mm	190 × 190 × 222 mm
Weighing device dimensions	351 × 205.5 × 348 mm	351 × 205.5 × 348 mm	351 × 205.5 × 348 mm	351 × 205.5 × 348 mm
Net weight	7.3 kg	7.3 kg	7.3 kg	7.3 kg
Gross weight	9.3 kg	9.3 kg	9.3 kg	9.3 kg
Packaging dimensions	495 × 400 × 515 mm	495 × 400 × 515 mm	495 × 400 × 515 mm	495 × 400 × 515 mm

*	repeatability is expressed as a standard deviation from 10 weighing cycles
**	parameter determined in the following temperature range: +15 ÷ +35 ℃
***	stabilization time depends on external conditions and dynamics of placing loads on a pan, determined for FAST profile
****	optional solution on purchase order
*****	non-condensing conditions
******	ø 85 mm standard weighing pan on purchase order

Values of parameters provided in Technical Specifications table, have been determined under stable laboratory conditions. Due to ambient conditions impact or/and balance setup, the above parameters may vary for environments other than laboratory.

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

Technical Specifications

	AS 110.R2 PLUS	AS 160.R2 PLUS	AS 220.R2 PLUS	AS 310.R2 PLUS
Maximum capacity [Max]	110 g	160 g	220 g	310 g
Minimum load	10 mg	10 mg	10 mg	10 mg
Readability [d]	0.1 mg	0.1 mg	0.1 mg	0.1 mg
Verification scale interval [e]	1 mg	1 mg	1 mg	1 mg
Tare range	−110 g	−160 g	−220 g	−310 g
Standard values				
Repeatability(5% Max)*	0.06 mg	0.07mg	0.07 mg	0.08 mg
Repeatability(Max)*	0.08 mg	0.08 mg	0.08 mg	0.12 mg
Minimum weight (USP)	120 mg	140 mg	140 mg	160 mg
Minimum weight (U=1%, k=2)	12 mg	14 mg	14 mg	16 mg
Permissible values				
Repeatability(5% Max)*	0.09 mg	0.09 mg	0.09 mg	0.12 mg
Repeatability(Max)*	0.1 mg	0.1 mg	0.1 mg	0.15 mg
Linearity	± 0.2 mg	± 0.2 mg	± 0.2 mg	± 0.2 mg
Stabilization time*	2 s	2 s	2 s	2.5 s
Adjustment	internal	internal	internal	internal
Verification	Yes	Yes	Yes	Yes
OIML Class	I	I	I	I
Display	LCD (with backlight)	LCD (with backlight)	LCD (with backlight)	LCD (with backlight)
Keypad	14 keys	14 keys	14 keys	14 keys
Protection class	IP 43	IP 43	IP 43	IP 43
Databases	5	5	5	5
USB-A (interchangeable)	2	2	2	2
USB-B	1	1	1	1
RS 232	2	2	2	2
Wi-Fi® ***	802.11 b/g/n	802.11 b/g/n	802.11 b/g/n	802.11 b/g/n
Power supply	12 ÷ 16 V DC	12 ÷ 16 V DC	12 ÷ 16 V DC	12 ÷ 16 V DC
Power consumption	3 W	3 W	3 W	3 W
Operating temperature	+10 ÷ +40 ℃	+10 ÷ +40 ℃	+10 ÷ +40 ℃	+10 ÷ +40 ℃
Atmospheric humidity***	40 ÷ 80%	40 ÷ 80%	40 ÷ 80%	40 ÷ 80%
Transport and storage temperature	−20 ÷ +50 ℃	−20 ÷ +50 ℃	−20 ÷ +50 ℃	−20 ÷ +50 ℃
Weighing pan dimensions	ø 100 mm	ø 100 mm	ø 100 mm	ø 100 mm
Weighing chamber dimensions	190 × 190 × 226 mm	190 × 190 × 226 mm	190 × 190 × 226 mm	190 × 190 × 226 mm
Weighing device dimensions	351 × 205,5 × 348 mm	351 × 205,5 × 348 mm	351 × 205,5 × 348 mm	351 × 205,5 × 348 mm
Net weight	7.3 kg	7.3 kg	7.3 kg	7.3 kg
Gross weight	9.3 kg	9.3 kg	9.3 kg	9.3 kg
Packaging dimensions	495 × 400 × 515 mm	495 × 400 × 515 mm	495 × 400 × 515 mm	495 × 400 × 515 mm

*　　　　repeatability is expressed as a standard deviation from 10 weighing cycles
**　　　parameter determined in the following temperature range: +15 ÷ +35 ℃
***　　Stabilization time depends on external conditions and dynamics of placing loads on a pan, determined for FAST profile
****　　optional solution on purchase order
*****　non-condensing conditions

Values of parameters provided in Technical Specifications table, have been determined under stable laboratory conditions. Due to ambient conditions impact or/and balance setup, the above parameters may vary for environments other than laboratory.

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Technical Specifications

	AS 520.R2 PLUS
Maximum capacity [Max]	520 g
Minimum load	—
Readability [d]	0.1 mg
Verification scale interval [e]	—
Tare range	−520 g
Standard values	
Repeatability(5% Max)*	0.08 mg
Repeatability(Max)*	0.25 mg
Minimum weight (USP)	160 mg
Minimum weight (U=1%, k=2)	16 mg
Permissible values	
Repeatability(5% Max)*	0.12 mg
Repeatability(Max)*	0.4 mg
Linearity	± 0.4 mg
Stabilization time***	2.5 s
Adjustment	internal
Verification	—
OIML Class	—
Display	LCD (with backlight)
Keypad	14 keys
Protection class	IP 43
Databases	5
USB-A (interchangeable)	2
USB-B	1
RS 232	2
Wi-Fi® ****	802.11 b/g/n
Power supply	12 ÷ 16 V DC
Power consumption	3 W
Operating temperature	+10 ÷ +40 ℃
Atmospheric humidity*****	40 ÷ 80%
Transport and storage temperature	−20 ÷ +50 ℃
Weighing pan dimensions	ø 100 mm
Weighing chamber dimensions	190 × 190 × 226 mm
Weighing device dimensions	351 × 205,5 × 348 mm
Net weight	7.3 kg
Gross weight	9.3 kg
Packaging dimensions	495 × 400 × 515 mm

* repeatability is expressed as a standard deviation from 10 weighing cycles
** parameter determined in the following temperature range: +15 ÷ +35 ℃
*** Stabilization time depends on external conditions and dynamics of placing loads on a pan, determined for FAST profile
**** optional solution on purchase order
***** non-condensing conditions
Values of parameters provided in Technical Specifications table, have been determined under stable laboratory conditions. Due to ambient conditions impact or/and balance setup, the above parameters may vary for environments other than laboratory.

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Technical Specifications

	AS 120.R1 PLUS	AS 220.R1 PLUS
Maximum capacity [Max]	120 g	220 g
Minimum load	10 mg	10 mg
Readability [d]	0.1 mg	0.1 mg
Verification scale interval [e]	1 mg	1 mg
Tare range	−120 g	−220 g
Standard values		
Repeatability(5% Max)*	0.06 mg	0.07 mg
Repeatability(Max)*	0.08 mg	0.08 mg
Minimum weight (USP)	120 mg	140 mg
Minimum weight (U=1%, k=2)	12 mg	14 mg
Permissible values		
Repeatability(5% Max)*	0.09 mg	0.09 mg
Repeatability(Max)*	0.1 mg	0.1 mg
Linearity	± 0.2 mg	± 0.2 mg
Stabilization time*	2 s	2 s
Adjustment	External	External
Verification	No	No
OIML Class	−	−
Display	LCD (with backlight)	LCD (with backlight)
Keypad	14 keys	14 keys
Protection class	IP 43	IP 43
Databases	5	5
USB-A (interchangeable)	2	2
USB-B	1	1
RS 232	2	2
Wi-Fi® ***	802.11 b/g/n	802.11 b/g/n
Power supply	12 ÷ 16 V DC	12 ÷ 16 V DC
Power consumption	3 W	3 W
Operating temperature	+10 ÷ +40 ℃	+10 ÷ +40 ℃
Atmospheric humidity***	40% ÷ 80%	40 ÷ 80%
Transport and storage temperature	−20 ÷ +50 ℃	−20 ÷ +50 ℃
Weighing pan dimensions	ø 100 mm	ø 100 mm
Weighing chamber dimensions	190 × 190 × 222 mm	190 × 190 × 226 mm
Weighing device dimensions	351 × 205.5 × 348 mm	351 × 205.5 × 348 mm
Net weight	7.3 kg	7.3 kg
Gross weight	9.3 kg	9.3 kg
Packaging dimensions	495 × 400 × 515 mm	495 × 400 × 515 mm

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Dimensions

AS R2, d = 0.01 mg

AS R2, AS R1 d = 0.1 mg

Accessories

Weighing Tables
- granite antivibration table
- antivibration tables for laboratory balances
- professional weighing table

Professional Weighing
- laboratory ware holders
- KIT 85 density determination kit
- under-hook weighing rack

Ambient Conditions
- DJ-04 anti-static ioniser

Peripheral Devices
- label printer
- receipt printer
- Epson dot matrix printer
- barcode scanners
- WD-6 LCD display

Cables, Converters
- P0108: RS 232 cable (balance - computer)
- P0151: RS 232 cable (balance - Epson printer)
- USB cable type A-B
- AP2-1 power loop output

Draft shields and anti-draft chambers
- protective cover for R series indicator

Electrical accessories
- ZR-02 power supply with battery
- panel box

Dedicated Software

R-LAB
- collecting measurements
- carrying out statistical analysis of measurements
- customized graphs and reports

E2R Weighing Records
- complete, automated databases synchronization
- fully supported processes of labelling and parts counting
- record of weighings, weighings archiving
- basic and advanced (with graphs) reports

Alibi Reader
- readout of data saved to Alibi memory
- export of data saved to Alibi memory
- data filtering and reports generating
- saving ALIBI database to CSV file

RAD KEY
- Establishing cooperation between a weighing instrument and a computer

R.Barcode
- The basic function software is presentation of the data sent by barcode scanners connected to PC via USB or RS232

Radwag Development Studio
- presentation of functions (and subfunctions) of communication protocol (Common Communication Protocol)
- possibility of connection with weighing equipment on which each function is carried out,
- library with mass control, contained within the development environment
- complete documentation of the communication protocol
- set of user manuals for different solutions addressed for programmers employed in companies using RADWAG-manufactured weighing equipment

RADWAG Connect
- establishing communication with all balances, scales and weighing modules using Common Communication Protocol
- communication via local network,
- support of basic functions
- auto searching for devices
- connecting with few devices simultaneously, swapping between them
- clear list of connected platforms
- record of measurements in the program,
- export of carried out measurements to CSV file,
- work performed using freely selected device with Windows 10 operating system

LabView Driver
- operation of RADWAG balances in LabView environment

R Panel
- operator access to all keys and functions that are to be found on an operation panel
- communication via COM1, COM2 or USB,
- compatible with: Windows Vista, 7, 8, 8.1, 10, Server 2008R2, 2012, 2016.