RADWAG®

AS R1 Analytical Balances

Versatility of solutions along with accuracy and reliability of the measurements for instruments of economic class

AS.R1, d = 0,1 mg

Communication interfaces

Large LCD display with text information section

Functions

Parts counting	Statistics
Dosing	Animal weighing
Checkweighing	Autotest
Formulations	

Density determination	Totalizing
Under hook weighing	GLP procedures
Peak hold	Ambient conditions measurement

Alibi memory
Replaceable unit
Multilingual menu

Features

Ease of Use and Measurements Accuracy
Combination of operation simplicity, measurement accuracy and robust design enables applying AS R1 balances in majority of the universal laboratory solutions.

Measurements Precision and Repeatability
Automatic adjustment in R series balances is an advanced control and correction system that enables accurate weighing under any conditions.

Perfect Readability and Clear Information Layout
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.

Spacious Weighing Chamber
Large weighing chamber enables convenient operation using laboratory vessels of different dimensions.

Data Management
AS.R1 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.

Quick Access to Selected Functions
Quick access keys located on the operation panel enable you to run a given function with just one click. You can assign some of the keys with a function of your choice.

Technical Specifications

	AS 110.R1	AS 160.R1	AS 220.R1
Maximum capacity [Max]	110 g	160 g	220 g
Minimum load	10 mg	10 mg	10 mg
Readability [d]	0.1 mg	0.1 mg	0.1 mg
Verification scale interval [e]	1 mg	1 mg	1 mg
Tare range	−110 g	−160 g	−220 g
Repeatability (5% Max)* **Repeatability (Max)***	0.08 mg (Rt ≤ 10 g) 0,1 mg	0.08mg (Rt ≤ 10 g) 0,1 mg	0.08 mg (Rt ≤ 10 g) 0,1 mg
Linearity	± 0.2 mg	± 0.2 mg	± 0.2 mg
Sensitivity temperature drift**	1×10^{-6} / °C × Rt	1×10^{-6} / °C × Rt	1×10^{-6} / °C × Rt
Minimum weight (U=1%, k=2)	16 mg	16 mg	16 mg
Minimum weight (USP)	160 mg	160 mg	160 mg
Stabilization time**	2 s	2 s	2 s
Adjustment	external	external	external
Verification	No	No	No
OIML Class	−	−	−
Display	LCD (with backlight)	LCD (with backlight)	LCD (with backlight)
Keypad	14 keys	14 keys	14 keys
Protection class	IP 43	IP 43	IP 43
Databases	5	5	5
USB-A	1	1	1
USB-B	1	1	1
RS 232	2	2	2
Wi-Fi® (option)***	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
Power consumption	3 W	3 W	3 W
Operating temperature	+10 ÷ +40 °C	+10 ÷ +40 °C	+10 ÷ +40 °C
Atmospheric humidity***	40 ÷ 80%	40 ÷ 80%	40 ÷ 80%
Transport and storage temperature	−20 ÷ +50 °C	−20 ÷ +50 °C	−20 ÷ +50 °C
Weighing pan dimensions	ø 100 mm	ø 100 mm	ø 100 mm
Weighing chamber dimensions	160 × 168 × 227 mm	160 × 168 × 227 mm	160 × 168 × 227 mm
Weighing device dimensions	333 × 206 × 355 mm	333 × 206 × 355 mm	333 × 206 × 355 mm
Net weight	5.3 kg	5.3 kg	5.3 kg
Gross weight	7.3 kg	7.3 kg	7.3 kg
Packaging dimensions	495 × 400 × 515 mm	495 × 400 × 515 mm	495 × 400 × 515 mm

Rt   net weight
*   repeatability is expressed as a standard deviation from 10 weighing cycles
**   parameter determined in the following temperature range: +15 ÷ +35 °C
***   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.

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

Dimensions
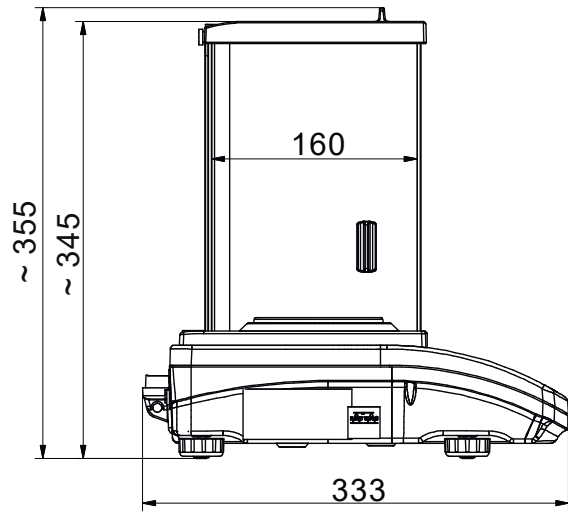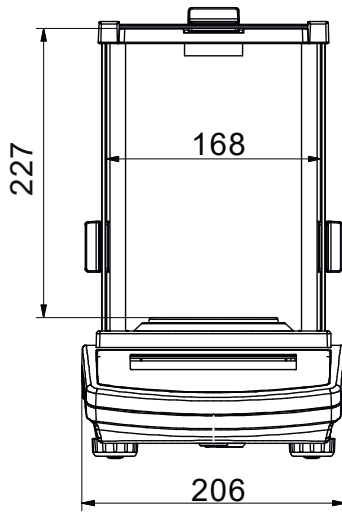
AS R, d = 0.1 mg

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

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

Ambient Conditions
- DJ-04 anti-static ioniser

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

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.

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