AS R2 PLUS Analytical Balances

Innovative design and system solutions for standard-class products

AS R2 PLUS, d = 0,1 mg

Communication interfaces

Large LCD display with text

information section

AS R2 PLUS, d = 0,01 mg

Functions

Parts

counting

Density

determination

Alibi

memory

Statistics

Totalizing

Animal

weighing

Under hook

weighing

GLP

procedures

Replaceable

unit

Dosing

Ambient conditions

measurement

Multilingual

menu

Checkweighing

Percent Weighing

Autotest

Peak hold

Features

Ergonomic Mechanical Design

Uncomplicated and Intuitive Operation

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.

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 R2 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.

Levelling System

Clearly visible levelling device located at the front of the weighing

chamber facilitates level control.

ALIBI Memory

Antistatic Weighing Chamber

Internal ALIBI memory guarantees safety and automatic record of

measurements copies, it also oﬀers possibility to preview, copy and

archive data.

Weighing chamber panes feature antistatic coating compensating

electrostatic charges on the sample and accessories used for mass

measurement.

Kensington Lock

\*

Antistatic coating has been applied in balances with the readability of

AS R2 PLUS balances are equipped with Kensington Lock, which allows

to secure the device against theft.

d=0.01mg

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Date: 27.02.2020

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Technical Speciﬁcations

AS 60/220.R2 PLUS

60 g / 220 g

1 mg

AS 62.R2 PLUS

62 g

AS 82/220.R2 PLUS

82 g / 220 g

1 mg

AS 120.R2 PLUS

120 g

Maximum capacity [Max]

Minimum load

1 mg

1 mg

Readability [d]

0.01 mg / 0.1 mg

1 mg

0.01 mg

1 mg

0.01 mg / 0.1 mg

1 mg

0,01 mg

1 mg

Veriﬁcation scale interval [e]

Tare range

–220 g

–62 g

–220 g

–120 g

Standard values

Repeatability(5% Max)\*

Repeatability(Max)\*

Minimum weight (USP)

Minimum weight (U=1%, k=2)

Permissible values

Repeatability(5% Max)\*

Repeatability(Max)\*

Linearity

0.015 mg

0.08 mg

30 mg

0.012 mg

0.02 mg

24 mg

0.015 mg

0.08 mg

30 mg

0.015 mg

0.04 mg

30 mg

3.0 mg

2.4 mg

3.0 mg

3.0 mg

0.02 mg

0.018 mg

0.02 mg

0.02 mg

0.1 mg

0.03 mg

0.1 mg

0.05 mg

± 0.05 mg / ±0.2 mg

± 0.05 mg

± 0.05 mg / ±0.2 mg

± 0,05 mg

Stabilization time\*\*\*

Adjustment

2 s

2 s

2 s

2 s

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

Databases

IP 43

IP 43

IP 43

IP 43

5

5

5

5

USB-A

1

1

1

1

USB-B

1

1

1

1

RS 232

2

2

2

2

Wi-Fi® \*\*\*\*

802.11 b/g/n

12 ÷ 16 V DC

3 W

802.11 b/g/n

12 ÷ 16 V DC

3 W

802.11 b/g/n

12 ÷ 16 V DC

3 W

802.11 b/g/n

12 ÷ 16 V DC

3 W

Power supply

Power consumption

Operating temperature

Atmospheric humidity\*\*\*\*\*

+10 ÷ +40 °C

40% ÷ 80%

–20 ÷ +50 °C

+10 ÷ +40 °C

40% ÷ 80%

–20 ÷ +50 °C

+10 ÷ +40 °C

40% ÷ 80%

–20 ÷ +50 °C

+10 ÷ +40 °C

40% ÷ 80%

–20 ÷ +50 °C

Transport and storage

temperature

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

Weighing device dimensions

Net weight

160 × 168 × 227 mm

333 × 206 × 325 mm

5.3 kg

160 × 168 × 227 mm

333 × 206 × 325 mm

5.3 kg

160 × 168 × 227 mm

333 × 206 × 325 mm

5.3 kg

160 × 168 × 227 mm

333 × 206 × 325 mm

5.3 kg

Gross weight

7.3 kg

7.3 kg

7.3 kg

7.3 kg

Packaging dimensions

495 × 400 × 515 mm

495 × 400 × 515 mm

495 × 400 × 515 mm

495 × 400 × 515 mm

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\*

\*

\*

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

ø 85 mm standard weighing pan on purchase order

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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 110.R2 PLUS

110 g

AS 160.R2 PLUS

160 g

AS 220.R2 PLUS

220 g

AS 310.R2 PLUS

310 g

Maximum capacity [Max]

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]

Tare range

1 mg

1 mg

1 mg

1 mg

–110 g

–160 g

–220 g

–310 g

Standard values

Repeatability(5% Max)\*

Repeatability(Max)\*

Minimum weight (USP)

Minimum weight (U=1%, k=2)

Permissible values

Repeatability(5% Max)\*

Repeatability(Max)\*

Linearity

0.06 mg

0.08 mg

120 mg

12 mg

0.07mg

0.08 mg

140 mg

14 mg

0.07 mg

0.08 mg

140 mg

14 mg

0.08 mg

0.12 mg

160 mg

16 mg

0.09 mg

0.09 mg

0.09 mg

0.12 mg

0.1 mg

0.1 mg

0.1 mg

0.15 mg

± 0.2 mg

± 0.2 mg

± 0.2 mg

± 0.3 mg

Stabilization time\*\*\*

Adjustment

2 s

2 s

2 s

2.5 s

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

Databases

IP 43

IP 43

IP 43

IP 43

5

5

5

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USB-A

1

1

1

1

USB-B

1

1

1

1

RS 232

2

2

2

2

Wi-Fi® \*\*\*\*

802.11 b/g/n

12 ÷ 16 V DC

3 W

802.11 b/g/n

12 ÷ 16 V DC

3 W

802.11 b/g/n

12 ÷ 16 V DC

3 W

802.11 b/g/n

12 ÷ 16 V DC

3 W

Power supply

Power consumption

Operating temperature

Atmospheric humidity\*\*\*\*\*

+10 ÷ +40 °C

40 ÷ 80%

–20 ÷ +50 °C

+10 ÷ +40 °C

40 ÷ 80%

–20 ÷ +50 °C

+10 ÷ +40 °C

40 ÷ 80%

–20 ÷ +50 °C

+10 ÷ +40 °C

40 ÷ 80%

–20 ÷ +50 °C

Transport and storage

temperature

Weighing pan dimensions

Weighing chamber dimensions

Weighing device dimensions

Net weight

ø 100 mm

ø 100 mm

ø 100 mm

ø 100 mm

160 × 168 × 227 mm

333 × 206 × 355 mm

5.3 kg

160 × 168 × 227 mm

333 × 206 × 355 mm

5.3 kg

160 × 168 × 227 mm

333 × 206 × 355 mm

5.3 kg

160 × 168 × 227 mm

333 × 206 × 355 mm

5.3 kg

Gross weight

7.3 kg

7.3 kg

7.3 kg

7.3 kg

Packaging dimensions

495 × 400 × 515 mm

495 × 400 × 515 mm

495 × 400 × 515 mm

495 × 400 × 515 mm

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\*

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

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Technical Speciﬁcations

AS 520.R2 PLUS

Maximum capacity [Max]

Minimum load

520 g

—

Readability [d]

0.1 mg

—

Veriﬁcation scale interval [e]

Tare range

–520 g

Standard values

Repeatability(5% Max)\*

Repeatability(Max)\*

Minimum weight (USP)

Minimum weight (U=1%, k=2)

Permissible values

Repeatability(5% Max)\*

Repeatability(Max)\*

Linearity

0.08 mg

0.25 mg

160 mg

16 mg

0.12 mg

0.4 mg

± 0.4 mg

Stabilization time\*\*\*

Adjustment

2.5 s

internal

Veriﬁcation

—

OIML Class

—

Display

LCD (with backlight)

Keypad

14 keys

Protection class

IP 43

Databases

5

USB-A

1

USB-B

1

RS 232

2

Wi-Fi® \*\*\*\*

802.11 b/g/n

12 ÷ 16 V DC

3 W

Power supply

Power consumption

Operating temperature

Atmospheric humidity\*\*\*\*\*

Transport and storage temperature

Weighing pan dimensions

Weighing chamber dimensions

Weighing device dimensions

Net weight

+10 ÷ +40 °C

40 ÷ 80%

–20 ÷ +50 °C

ø 100 mm

160 × 168 × 227 mm

333 × 206 × 355 mm

5.3 kg

Gross weight

7.3 kg

Packaging dimensions

495 × 400 × 515 mm

\*

\*

\*

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non-condensing conditions

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Dimensions

1

89,8

168,6

2

05,5

351

AS R2, d = 0.01 mg

1

89,8

168,6

2

05,5

351

AS R2, d = 0.1 mg

Accessories

Weighing Tables

Cables, Converters

•

•

•

granite antivibration table

antivibration tables for laboratory balances

professional weighing table

• P0108: RS 232 cable (balance-computer)

• P0151: RS 232 cable (balance - Epson printer)

• USB cable type A-B

•

AP2-1 power loop output

Professional Weighing

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•

•

laboratory ware holders

KIT 85 density determination kit

under-hook weighing rack

Draft shields and anti-draft chambers

• protective cover for R series indicator

Electrical accessories

• ZR-02 power supply with battery

• panel box

Ambient Conditions

DJ-04 anti-static ioniser

Peripheral Devices

•

•

•

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•

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label printer

receipt printer

Epson dot matrix printer

barcode scanners

WD-6 LCD display

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Date: 27.02.2020

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Dedicated Software

R-LAB

RADWAG Connect

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•

•

collecting measurements

carrying out statistical analysis of measurements

customized graphs and reports

• 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

E2R Weighing Records

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•

•

•

complete, automated databases synchronization

fully supported processes of labelling and parts counting

record of weighings, weighings archiving

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•

•

•

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

LabView Driver

operation of RADWAG balances in LabView environment

R Panel

•

RAD KEY

•

Establishing cooperation between a weighing instrument and

•

operator access to all keys and functions that are to be found on an

operation panel

communication via COM1, COM2 or USB,

a computer

R.Barcode

•

•

•

The basic function software is presentation of the data sent by

compatible with: Windows Vista, 7, 8, 8.1, 10, Server 2008R2, 2012,

barcode scanners connected to PC via USB or RS232

2

016.

Radwag Development Studio

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•

•

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

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•

complete documentation of the communication protocol

set of user manuals for diﬀerent solutions addressed for programmers

employed in companies using RADWAG-manufactured

weighing equipment

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