

AS X2 PLUS Analytical Balances

Innovative design and system solutions for advanced-class products



AS X2 PLUS, d = 0,01 mg



AS X2 PLUS, d = 0,1 mg



Communication interfaces



5" colour touch screen with customized keys layout

Functions

 Parts counting	 Percent weighing	 Density determination	 GLP procedures	 Ambient conditions measurement
 Dosing	 Statistics	 Under hook weighing	 Proximity sensors	 Replaceable unit
 Checkweighing	 Animal weighing	 Peak hold	 Cooperation with titrators	 Multilingual menu
 Formulations	 Autotest			

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 weighing 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

LevelSENSING System

The in-built sensors measure tilt and display graphic message on the weighing device screen. Levelling system facilitates adjustment, controls the level state, and informs about level deviations, all this in accordance with GLP and GMP.

SMARTLab

AS X2 PLUS balances feature numerous functions supporting and supervising mass measurement in laboratory, facilitating operation and limiting the risk of „human factor“ errors, e.g. automatic adjustment, data control, ALIBI memory, automatic reports and ambient conditions monitoring

Antistatic Weighing Chamber

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

*Antistatic coating has been applied in balances with the readability of d=0.01mg

Display Customization

Functions displayed on the colour 5" touch screen can be customized to suit carried out process and user's needs. Flexible configuration of buttons, labels and text fields is also a great advantage.

Kensington Lock

AS X2 PLUS balances are equipped with Kensington Lock, which allows to secure the device against theft.

Technical Specifications

	AS 60/220.X2 PLUS	AS 62.X2 PLUS	AS 82/220.X2 PLUS	AS 120.X2 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	0.01 mg	0.012 mg	0.012 mg
Repeatability(Max)*	0.07 mg	0.017 mg	0.07 mg	0.03 mg
Minimum weight (USP)	24 mg	20 mg	24 mg	24 mg
Minimum weight (U=1%, k=2)	2.4 mg	2 mg	2.4 mg	2.4 mg
Permissible values				
Repeatability(5% Max)*	0.015 mg	0.012 mg	0.015 mg	0.015 mg
Repeatability(Max)*	0.1 mg	0.025 mg	0.1 mg	0.04 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	5" capacitive colour touch screen	5" capacitive colour touch screen	5" capacitive colour touch screen	5" capacitive colour touch screen
Keypad	6 keys	6 keys	6 keys	6 keys
Protection class	IP 43	IP 43	IP 43	IP 43
Databases	7	7	7	7
Touch-free operation	2 programmable proximity sensors	2 programmable proximity sensors	2 programmable proximity sensors	2 programmable proximity sensors
USB-A	1	1	1	1
USB-B	1	1	1	1
RS 232	1	1	1	1
DB9	Tare and Print External Buttons	Tare and Print External Buttons	Tare and Print External Buttons	Tare and Print External Buttons
Wi-Fi®	802.11 b/g/n	802.11 b/g/n	802.11 b/g/n	802.11 b/g/n
Ethernet	10 / 100 Mbit	10 / 100 Mbit	10 / 100 Mbit	10 / 100 Mbit
Power supply	12 ÷ 16 V DC	12 ÷ 16 V DC	12 ÷ 16 V DC	12 ÷ 16 V DC
Power consumption	4 W	4 W	4 W	4 W
Operating temperature	+10 ÷ +40 °C	+10 ÷ +40 °C	+10 ÷ +40 °C	+10 ÷ +40 °C
Atmospheric humidity****	40 ÷ 80%	40 ÷ 80%	40 ÷ 80%	40 ÷ 80%
Transport and storage temperature	-20 ÷ +50 °C	-20 ÷ +50 °C	-20 ÷ +50 °C	-20 ÷ +50 °C
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	160 × 168 × 223 mm	160 × 168 × 223 mm	160 × 168 × 223 mm	160 × 168 × 223 mm
Weighing device dimensions	333 × 206 × 355 mm	333 × 206 × 355 mm	333 × 206 × 355 mm	333 × 206 × 355 mm
Net weight	5.3 kg	5.3 kg	5.3 kg	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

* 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

**** 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.X2 PLUS	AS 160.X2 PLUS	AS 220.X2 PLUS	AS 310.X2 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)*	0.05 mg	0,06 mg	0,06 mg	0,07 mg
Repeatability(Max)*	0.06 mg	0,07 mg	0,07 mg	0,1 mg
Minimum weight (USP)	100 mg	120 mg	120 mg	140 mg
Minimum weight (U=1%, k=2)	10 mg	12 mg	12 mg	14 mg
Permissible values				
Repeatability(5% Max)*	0.07 mg	0.08mg	0.08 mg	0.1 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	± 0.3 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	5" capacitive colour touch screen	5" capacitive colour touch screen	5" capacitive colour touch screen	5" capacitive colour touch screen
Keypad	6 keys	6 keys	6 keys	6 keys
Protection class	IP 43	IP 43	IP 43	IP 43
Databases	7	7	7	7
Touch-free operation	2 programmable proximity sensors	2 programmable proximity sensors	2 programmable proximity sensors	2 programmable proximity sensors
USB-A	1	1	1	1
USB-B	1	1	1	1
RS 232	1	1	1	1
DB9	Tare and Print External Buttons	Tare and Print External Buttons	Tare and Print External Buttons	Tare and Print External Buttons
Wi-Fi®	802.11 b/g/n	802.11 b/g/n	802.11 b/g/n	802.11 b/g/n
Ethernet	10 / 100 Mbit	10 / 100 Mbit	10 / 100 Mbit	10 / 100 Mbit
Power supply	12 ÷ 16 V DC	12 ÷ 16 V DC	12 ÷ 16 V DC	12 ÷ 16 V DC
Power consumption	4 W	4 W	4 W	4 W
Operating temperature	+10 ÷ +40 °C	+10 ÷ +40 °C	+10 ÷ +40 °C	+10 ÷ +40 °C
Atmospheric humidity****	40 ÷ 80%	40 ÷ 80%	40 ÷ 80%	40 ÷ 80%
Transport and storage temperature	-20 ÷ +50 °C	-20 ÷ +50 °C	-20 ÷ +50 °C	-20 ÷ +50 °C
Weighing pan dimensions	ø 100 mm	ø 100 mm	ø 100 mm	ø 100 mm
Weighing chamber dimensions	160 × 168 × 227 mm	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	333 × 206 × 355 mm
Net weight	5.3 kg	5.3 kg	5.3 kg	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

* 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

**** 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.X2 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)*	0.07 mg
Repeatability(Max)*	0.2 mg
Minimum weight (USP)	140 mg
Minimum weight (U=1%, k=2)	14 mg
Permissible values	
Repeatability(5% Max)*	0.1 mg
Repeatability(Max)*	0.3 mg
Linearity	± 0.4 mg
Stabilization time***	2.5 s
Adjustment	internal
Verification	—
OIML Class	—
Display	5" capacitive colour touch screen
Keypad	6 keys
Protection class	IP 43
Databases	7
Touch-free operation	2 programmable proximity sensors
USB-A	1
USB-B	1
RS 232	1
DB9	Tare and Print External Buttons
Wi-Fi®	802.11 b/g/n
Ethernet	10 / 100 Mbit
Power supply	12 ÷ 16 V DC
Power consumption	4 W
Operating temperature	+10 ÷ +40 °C
Atmospheric humidity****	40 ÷ 80%
Transport and storage temperature	–20 ÷ +50 °C
Weighing pan dimensions	ø 100 mm
Weighing chamber dimensions	160 × 168 × 227 mm
Weighing device dimensions	333 × 206 × 355 mm
Net weight	5.3 kg
Gross weight	7.3 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 °C

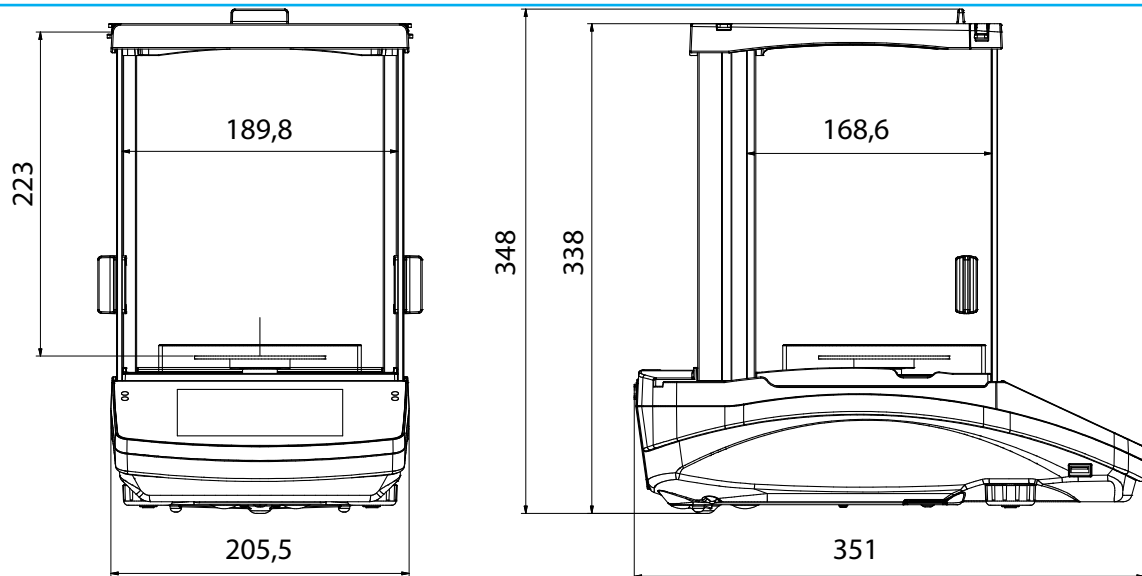
*** stabilization time depends on external conditions and dynamics of placing loads on a pan, determined for FAST profile

**** non-condensing conditions

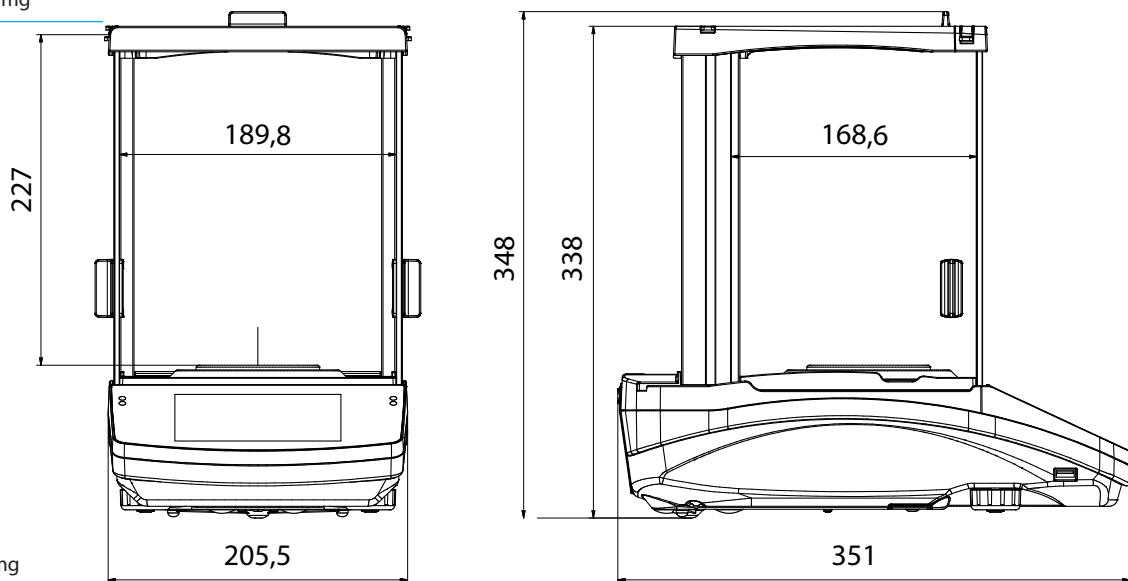
Values of parameters provided in Technical Specifications table, have been determined under stable laboratory conditions. Due to ambient conditions impact or/and balance setup, the above parameters may vary for environments other than laboratory.

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Dimensions



AS X2 PLUS, $d = 0.01 \text{ mg}$



AS X2 PLUS, $d = 0.1 \text{ mg}$

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

Draft shields and anti-draft chambers

- protective cover for X2 series indicator

Electrical Accessories

- ZR-02 power supply with battery

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

R.Barcode

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

RAD KEY

- Establishing cooperation between a weighing instrument and a computer

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