

# AS X2 Analytical Balances

'Advanced level' measurements, maximum operation comfort and countless display customization options



AS.X2, d = 0,01 mg



AS.X2, 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

### High Quality Measurements and Weighing Performance

Combination of easy operation and excellent weighing accuracy makes AS X2 balances an ideal solution for most of the demanding applications in laboratory processes.

### Excellent Weighing Parameters and Comfort of Operation

Thanks to a clear and intuitive menu layout and 5" colour touch screen, maximum comfort and incredibly easy operation are both ensured.

### Customization via Widgets

AS X2 software enables designing screen widgets layout. Display customization allows you to run any selected function directly from the home screen.

### Numerous Options of Data Management

Extensive storage capacity enables record of all measurement data in a form of complex reports.

### Second to None Repeatability and Compliance with USP

AS X2 analytical balances feature the highest measurements accuracy, excellent repeatability and are compliant with USP requirements (Chapter 41 and 1251).

### Spacious Weighing Chamber

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

### Touch-Free Operation

Two programmable proximity sensors can be assigned with any function or application. The given function when assigned is both run and operated touch-free.

## Technical Specifications

	AS 60/220.X2	AS 62.X2	AS 82/220.X2
Maximum capacity [Max]	60 g / 220 g	62 g	82 g / 220 g
Minimum load	1 mg	1 mg	1 mg
Readability [d]	0.01 mg / 0.1 mg	0.01 mg	0.01 mg / 0.1 mg
Verification scale interval [e]	1 mg	1 mg	1 mg
Tare range	-220 g	-62 g	-220 g
Repeatability (5% Max)*	0.015 mg (Rt ≤ 3 g)	0.015 mg (Rt ≤ 3 g)	0.015 mg (Rt ≤ 5 g)
Repeatability (Max)*	0.1 mg	0.03 mg	0.1 mg
Linearity	± 0.06 mg / ±0.2 mg	± 0.06 mg	± 0.06 mg / ±0.2 mg
Sensitivity temperature drift**	1 × 10 <sup>-6</sup> / °C × Rt	1 × 10 <sup>-6</sup> / °C × Rt	1 × 10 <sup>-6</sup> / °C × Rt
Minimum weight (U=1%, k=2)	3 mg	3 mg	3 mg
Minimum weight (USP)	30 mg	30 mg	30 mg
Stabilization time***	2 s	2 s	2 s
Adjustment	internal	internal	internal
Verification	Yes	Yes	Yes
OIML Class	I	I	I
Display	5" capacitive colour touch screen	5" capacitive colour touch screen	5" capacitive colour touch screen
Keypad	6 keys	6 keys	6 keys
Protection class	IP 43	IP 43	IP 43
Databases	7	7	7
Touch-free operation	2 programmable proximity sensors	2 programmable proximity sensors	2 programmable proximity sensors
USB-A	1	1	1
USB-B	1	1	1
RS 232	2	2	2
Wireless connection	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
Power supply	12 ÷ 16 V DC	12 ÷ 16 V DC	12 ÷ 16 V DC
Power consumption	4 W	4 W	4 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 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
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

\*\*\*\* 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.

	AS 110.X2	AS 160.X2	AS 220.X2	AS 310.X2
<b>Maximum capacity [Max]</b>	110 g	160 g	220 g	310 g
<b>Minimum load</b>	10 mg	10 mg	10 mg	10 mg
<b>Readability [d]</b>	0.1 mg	0.1 mg	0.1 mg	0.1 mg
<b>Verification scale interval [e]</b>	1 mg	1 mg	1 mg	1 mg
<b>Tare range</b>	-110 g	-160 g	-220 g	-310 g
<b>Repeatability (5% Max)*</b>	0.07 mg (Rt ≤ 10 g)	0.07mg (Rt ≤ 10 g)	0.07 mg (Rt ≤ 10 g)	0.07 mg (Rt ≤ 15 g)
<b>Repeatability (Max)*</b>	0.1 mg	0.1 mg	0.1 mg	0.15 mg
<b>Linearity</b>	± 0.2 mg	± 0.2 mg	± 0.2 mg	± 0.3 mg
<b>Sensitivity temperature drift**</b>	$1 \times 10^{-6} / ^\circ\text{C} \times \text{Rt}$	$1 \times 10^{-6} / ^\circ\text{C} \times \text{Rt}$	$1 \times 10^{-6} / ^\circ\text{C} \times \text{Rt}$	$1 \times 10^{-6} / ^\circ\text{C} \times \text{Rt}$
<b>Minimum weight (U=1%, k=2)</b>	14 mg	14 mg	14 mg	14 mg
<b>Minimum weight (USP)</b>	140 mg	140 mg	140 mg	140 mg
<b>Stabilization time***</b>	2 s	2 s	2 s	2,5 s
<b>Adjustment</b>	internal	internal	internal	internal
<b>Verification</b>	Yes	Yes	Yes	Yes
<b>OIML Class</b>	I	I	I	I
<b>Display</b>	5" capacitive colour touch screen	5" capacitive colour touch screen	5" capacitive colour touch screen	5" capacitive colour touch screen
<b>Keypad</b>	6 keys	6 keys	6 keys	6 keys
<b>Protection class</b>	IP 43	IP 43	IP 43	IP 43
<b>Databases</b>	7	7	7	7
<b>Touch-free operation</b>	2 programmable proximity sensors	2 programmable proximity sensors	2 programmable proximity sensors	2 programmable proximity sensors
<b>USB-A</b>	1	1	1	1
<b>USB-B</b>	1	1	1	1
<b>RS 232</b>	2	2	2	2
<b>Wireless connection</b>	802.11 b/g/n	802.11 b/g/n	802.11 b/g/n	802.11 b/g/n
<b>Ethernet</b>	10 / 100 Mbit	10 / 100 Mbit	10 / 100 Mbit	10 / 100 Mbit
<b>Power supply</b>	12 ÷ 16 V DC	12 ÷ 16 V DC	12 ÷ 16 V DC	12 ÷ 16 V DC
<b>Power consumption</b>	4 W	4 W	4 W	4 W
<b>Operating temperature</b>	+10 ÷ +40 °C	+10 ÷ +40 °C	+10 ÷ +40 °C	+10 ÷ +40 °C
<b>Atmospheric humidity****</b>	40 ÷ 80%	40 ÷ 80%	40 ÷ 80%	40 ÷ 80%
<b>Transport and storage temperature</b>	-20 ÷ +50 °C	-20 ÷ +50 °C	-20 ÷ +50 °C	-20 ÷ +50 °C
<b>Weighing pan dimensions</b>	ø 100 mm	ø 100 mm	ø 100 mm	ø 100 mm
<b>Weighing chamber dimensions</b>	160 × 168 × 227 mm	160 × 168 × 227 mm	160 × 168 × 227 mm	160 × 168 × 227 mm
<b>Weighing device dimensions</b>	333 × 206 × 355 mm	333 × 206 × 355 mm	333 × 206 × 355 mm	333 × 206 × 355 mm
<b>Net weight</b>	5.3 kg	5.3 kg	5.3 kg	5.3 kg
<b>Gross weight</b>	7.3 kg	7.3 kg	7.3 kg	7.3 kg
<b>Packaging dimensions</b>	495 × 400 × 515 mm	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

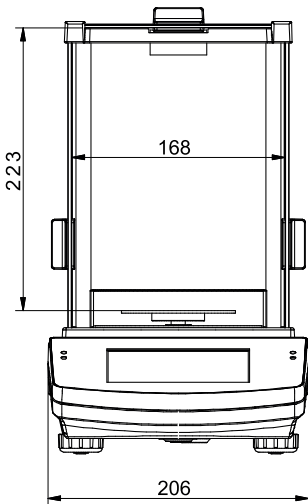
\*\* parameter determined in the following temperature range: +15 ÷ +35 °C

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

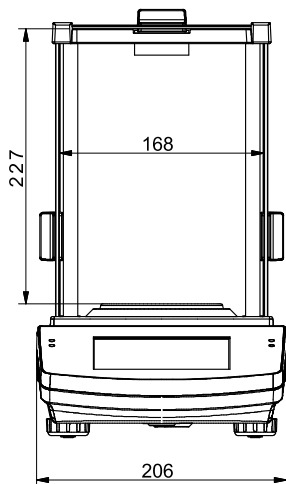
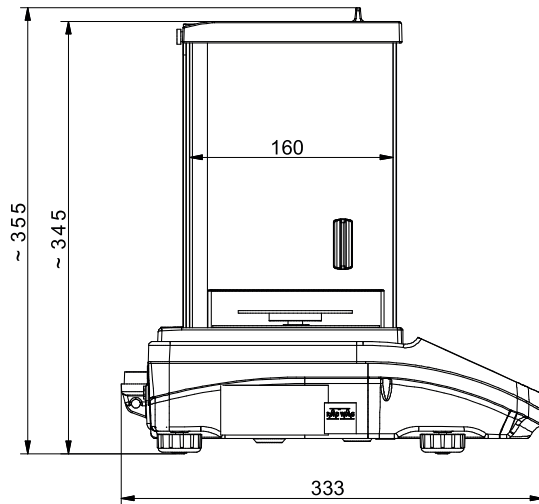
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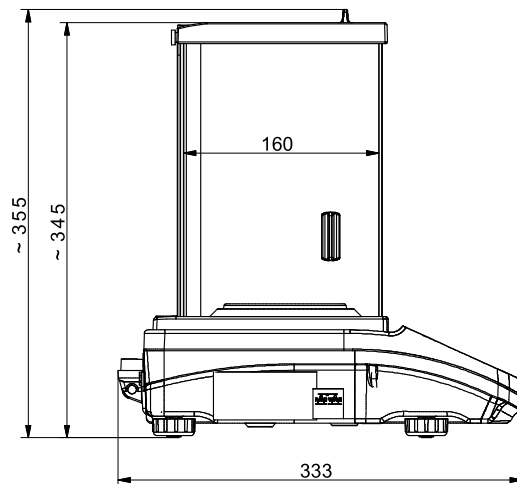
## Dimensions



AS X2, d = 0.01 mg



AS X2, 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
- THB-X ambient conditions modules

### 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

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### **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