RADWAG®

AS X2 Analytical Balances

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

AS.X2, d = 0,1 mg

Communication interfaces

5" colour touch screen with customized keys layout

AS.X2, d = 0,01 mg

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.

Datasheet_AS_X2_V2

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)* **Repeatability (Max)***	0.015 mg (Rt ≤ 3 g) 0.1 mg	0.015 mg (Rt ≤ 3 g) 0.03 mg	0.015 mg (Rt ≤ 5 g) 0.1 mg
Linearity	± 0.06 mg / ±0.2 mg	± 0.06 mg	± 0.06 mg / ±0.2 mg
Sensitivity temperature drift**	$1 \times 10^{-6} / °C \times Rt$	$1 \times 10^{-6} / °C \times Rt$	$1 \times 10^{-6} / °C \times Rt$
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
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
Repeatability (5% Max)* Repeatability (Max)*	0.07 mg (Rt ≤ 10 g) 0.1 mg	0.07mg (Rt ≤ 10 g) 0.1 mg	0.07 mg (Rt ≤ 10 g) 0.1 mg	0.07 mg (Rt ≤ 15 g) 0.15 mg
Linearity	± 0.2 mg	± 0.2 mg	± 0.2 mg	± 0.3 mg
Sensitivity temperature drift**	$1 \times 10^{-6} / ℃ \times Rt$	$1 \times 10^{-6} / ℃ \times Rt$	$1 \times 10^{-6} / ℃ \times Rt$	$1 \times 10^{-6} / ℃ \times Rt$
Minimum weight (U=1%, k=2)	14 mg	14 mg	14 mg	14 mg
Minimum weight (USP)	140 mg	140 mg	140 mg	140 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	2	2	2	2
Wireless connection	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 ℃	+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	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
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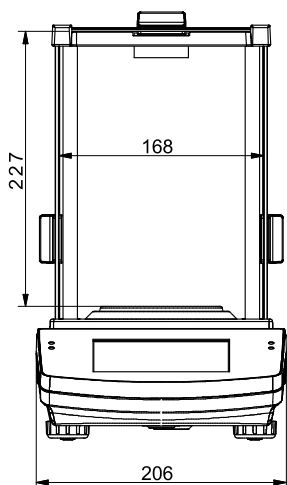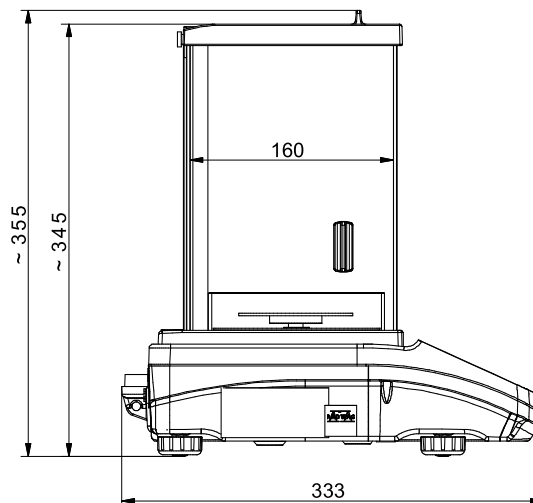****   non-condensing conditions
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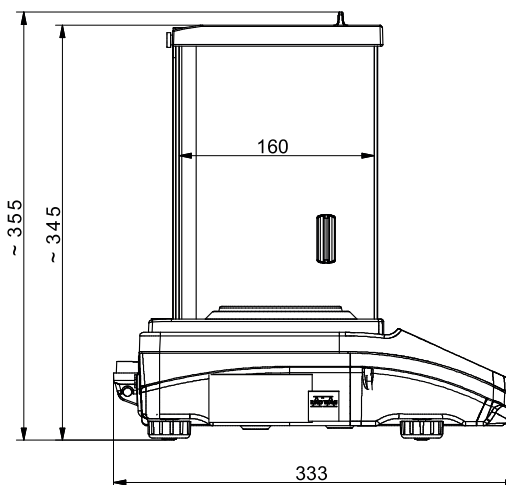
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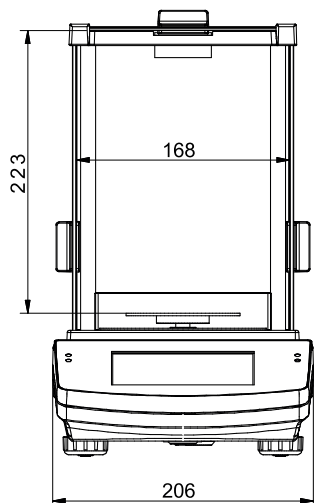
AS X2, d = 0.01 mg

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

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