



X2 Series Laboratory Balances



X2 Series Laboratory Balances

The X2 series is a synergy between solutions typical for advanced class balances and technology intended mainly for professional devices.

The combination of the above qualities provides you with a high-tech instrument offering the utmost accuracy and maximum comfort of operation for a price typical of lower class devices.

- 5" color capacitive touchscreen
- Display customization via widgets
- Multilingual, interactive menu
- Sensors for touch-free operation
- Conformity with GLP and GMP regulations
- Dynamically controlled sample weight (bar graph)
- Statistics, formulations, reports and printouts
- Unlimited communication possibilities
- Alibi Memory with record of measurements
- Complex databases
- Maximum comfort of operation
- Internal adjustment (excluding MA X2.A)

Home screen

- A** Set working mode and profile
- B** Logged-in user info
- C** Date, time, connection, battery state etc.
- D** Weighing result window
- E** Load bar graph
- F** Checkweighing bar graph (thresholds)
- G** Ambient conditions pictograms
- H** Configurable additional information field
- I** Quick access buttons (editing option)
- J** Proximity sensors (operation optimization)
- K** Setting menu for current operating mode
- L** Proximity sensors





AS X2 PLUS Analytical balances

Maximum capacity [Max]: up to 520 g
 Readability [d]: down to 0.01 mg
 Weighing pan dimensions: ø 90 mm, ø 100 mm, ø 85 mm (option)



PS X2 Precision balances

Maximum capacity [Max]: up to 10.1 kg
 Readability [d]: down to 1 mg
 Weighing pan dimensions: 128 x 128 mm, 195 x 195 mm



WLC X2 Precision balances

Maximum capacity [Max]: up to 21 kg
 Readability [d]: down to 1 mg
 Weighing pan dimensions: 128 x 128 mm, 195 x 195 mm, ø100 mm



MA X2.A, MA X2.IC.A Moisture analyzers

Maximum capacity [Max]: up to 210 g
 Readability [d]: down to 0.1 mg
 Weighing pan dimensions: ø 90 mm, h = 8 mm

The X2 Series as a Standard for Quality

Accuracy in any temperature

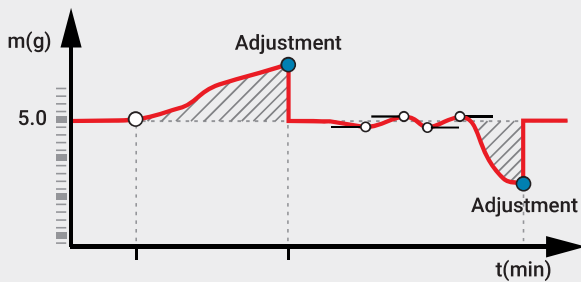
Accuracy is one of the most significant parameters influencing metrological characteristics of the weighing device. Production and control of X2 balances include monitoring and adjustment of accuracy in changeable temperatures. With minimized indication deviation, the X2 series ensures great measurement stability for a wide temperature range.

Accuracy in any conditions

The multi-shield mechanical design of X2 series balances offers effective protection against the influence of ambient conditions. With such design, the X2 series ensures fast and reliable measurement of both light and heavy loads, even when ambient conditions pose challenge.

Accuracy of each weighing indication

X2 series balances with an automatic adjustment system, using an internal adjustment weight, guarantee reliable measurement. Regardless of ambient conditions, the system provides effective elimination of any balance sensitivity deviations.



Quality begins with precision

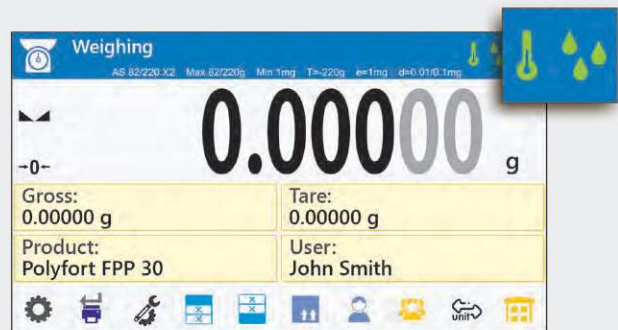
The optimization of X2 structural components provides measurement repeatability – the pivotal parameter for several analytical processes.

Speed, operation time optimization

The X2 series is a product of both measuring system development and progress when it comes to the methodology of measuring signal monitoring. X2 balances offer a wide range of settings. This provides the right sensitivity for measurements performed within a very short time.

Ambient conditions monitoring

Information on change in ambient conditions is essential in measuring devices of high resolution. For your comfort, X2 series balances have been equipped with system that signals the dynamics of temperature changes with a special symbol. This is especially useful while installing your device (acclimatization period), and when the



Databases - weighing process ergonomics

The structure of X2 series balances is based on structural databases. Freely programmed database content favours the creation of a dedicated information network, suiting precisely the nature of any performed process. Databases comprise the following components:

- 100 users
- 100 packaging types
- 100 warehouses
- 100 formulations
- 200 formulation reports
- 500 density reports
- 1 000 customers
- 5 000 products
- 50 000 weighings
- 500 000 Alibi records

Redefined Functionality

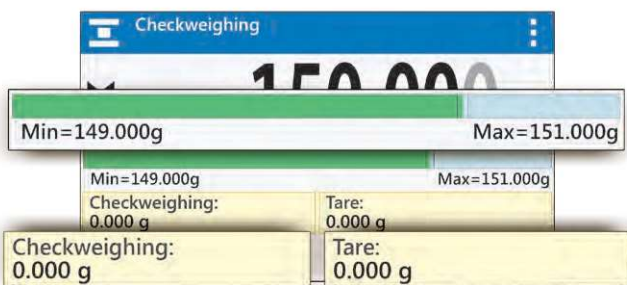
Button customization

Customized buttons facilitate the selection of weighing units, packaging, customers, and variable tare values adding to the fast and solid performance of the weighing process. User-designed key, tailored to the user's needs, can be assigned to a particular working mode, boosting your balance's functionality.



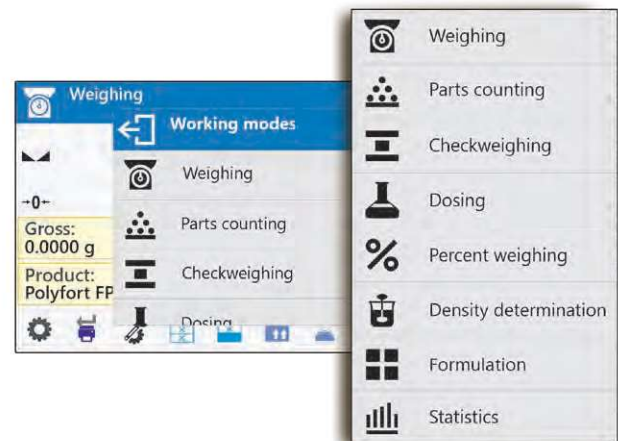
Labels selected freely by a user

X2 balances feature labels – pre-defined information fields providing various data, e.g. product name, user, date and time or bar graph. Labels names and values are not intended for modification but it is the user who decides which labels are to be displayed.



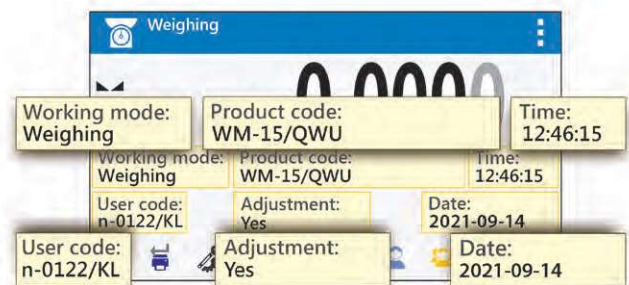
Clear information arrangement, even greater ease of operation

Priority for our X2 series balances is ease of operation and intuitive communication with the user. Clear information presented by symbols provides even more user-friendly operation.



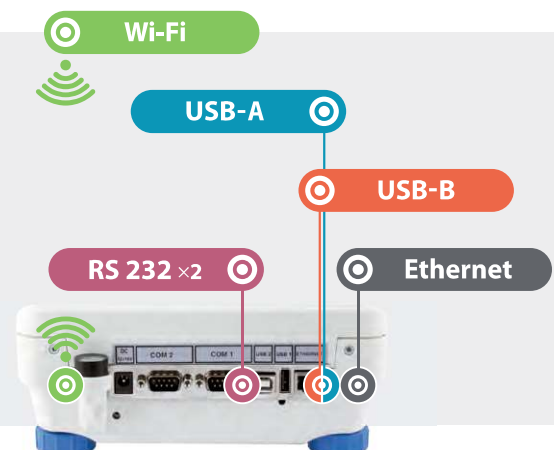
Configurable text fields

Text fields and labels feature similar characteristics, but text fields, unlike labels, can be freely created and configured by a user. It is possible to provide each text field with an individual name, function and value. In addition, you can decide on the particular text field size and location.



Communication interfaces

The X2 series balances have been equipped with various means of communication. They offer standard cable connections, realized via USB-A and USB-B or RS 232 ports, and wireless connection, realised via Wi-Fi technology. The latter is supported by all RADWAG-manufactured programs.



21 CFR Part 11

EU GMP Annex 11



- Password strength settings
- Maximum number of incorrect login attempts
- Auto-logout of inactive user
- Permissions for non-logged-in users
- Permissions for electronic signature
- Permissions for databases management
- Creating database backup
- Adding respectively secured users
- Adding and editing databases according to permissions granted
- Replacing paper documents with digital ones
- Highest level of report security
- Separate database with saved reports
- Signature information
- Validation of the electronically signed report
- Comments on the report
- Three validation levels
- Automatic recording of changes in databases
- Audit trail preview
- Export of audit trail data

**Do you work in the pharmaceutical industry? Do you need a digital signature?
We are offering the laboratory balance which as a standalone fully meets the requirements
of 21 CFR Part 11 / EU GMP Annex 11.**

Technical Specification

Analytical Balance



Product Code	Model	Max. capacity	Readability	Repeatability	Weighing pan dimensions
WL-104-0183	AS 62.X2 PLUS	62 g	0.01 mg	0.01 mg	ø90 mm & ø85 mm (option)
WL-104-0190	AS 120.X2 PLUS	120 g	0.01 mg	0.01 mg	ø90 mm & ø85 mm (option)
WL-104-1053	AS 60/220.X2 PLUS	60 / 220 g	0.01 / 0.1 mg	0.01 mg	ø90 mm & ø85 mm (option)
WL-104-1050	AS 82/220.X2 PLUS	82 / 220 g	0.01 / 0.1 mg	0.01 mg	ø90 mm & ø85 mm (option)



Product Code	Model	Max. capacity	Readability	Repeatability	Weighing pan dimensions
WL-104-0181	AS 160.X2 PLUS	160 g	0.1 mg	0.06 mg	ø100 mm
WL-104-0169	AS 220.X2 PLUS	220 g	0.1 mg	0.06 mg	ø100 mm
WL-104-0182	AS 310.X2 PLUS	310 g	0.1 mg	0.07 mg	ø100 mm
WL-104-0184	AS 520.X2 PLUS	520 g	0.1 mg	0.07 mg	ø100 mm

Precision Balance



Product Code	Model	Max. capacity	Readability	Repeatability	Weighing pan dimensions
WL-218-0015	PS 210.X2	210 g	0.001 g	0.0005 g	128x128 mm
WL-218-0020	PS 360.X2	360 g	0.001 g	0.0005 g	128x128 mm
WL-218-0022	PS 600.X2	600 g	0.001 g	0.0005 g	128x128 mm
WL-218-0024	PS 750.X2	750 g	0.001 g	0.0005 g	128x128 mm
WL-218-0026	PS 1000.X2	1000 g	0.001 g	0.0005 g	128x128 mm
WL-218-1002	PS 200/2000.X2	200 / 2000 g	0.001 / 0.01 g	0.0005 / 0.005 g	128x128 mm
WL-218-0088	PS 3000.X2	3000 g	0.001 g	0.0005 g	128x128 mm



Product Code	Model	Max. capacity	Readability	Repeatability	Weighing pan dimensions
WL-218-0127	PS 2100.X2.M	2100 g	0.01 g	0.005 g	195x195 mm
WL-218-0134	PS 3500.X2.M	3500 g	0.01 g	0.005 g	195x195 mm
WL-218-0103	PS 4500.X2.M	4500 g	0.01 g	0.005 g	195x195 mm
WL-218-0104	PS 6100.X2.M	6100 g	0.01 g	0.005 g	195x195 mm
WL-218-0102	PS 8100.X2.M	8100 g	0.01 g	0.005 g	195x195 mm
WL-218-0101	PS 10100.X2.M	10100 g	0.01 g	0.005 g	195x195 mm



Product Code	Model	Max. capacity	Readability	Repeatability	Weighing pan dimensions
WL-222-0001	WLC 0.2.X2	0.2 kg	0.001 g	0.0014 g	ø100 mm



Product Code	Model	Max. capacity	Readability	Repeatability	Weighing pan dimensions
WL-222-0002	WLC 0.6.X2	0.6 kg	0.01 g	0.008 g	128x128 mm



Product Code	Model	Max. capacity	Readability	Repeatability	Weighing pan dimensions
WL-222-0003	WLC 2.X2	2 kg	0.01 g	0.015 g	195x195 mm
WL-222-0004	WLC 6.X2	6 kg	0.1 g	0.1 g	195x195 mm
WL-222-1001	WLC 1/10.X2	10 kg	0.01 / 0.1 g	0.015 / 0.08 g	195x195 mm
WL-222-0009	WLC 10.X2	10 kg	0.1 g	0.08 g	195x195 mm
WL-222-0011	WLC 20.X2	20 kg	0.1 g	0.1 g	195x195 mm
WL-222-0013	WLC 21.X2	21 kg	1 g	0.8 g	195x195 mm

Technical Specification for X2 Series Moisture Analyzers can be found in the Laboratory Balances section, under Moisture Analyzers.



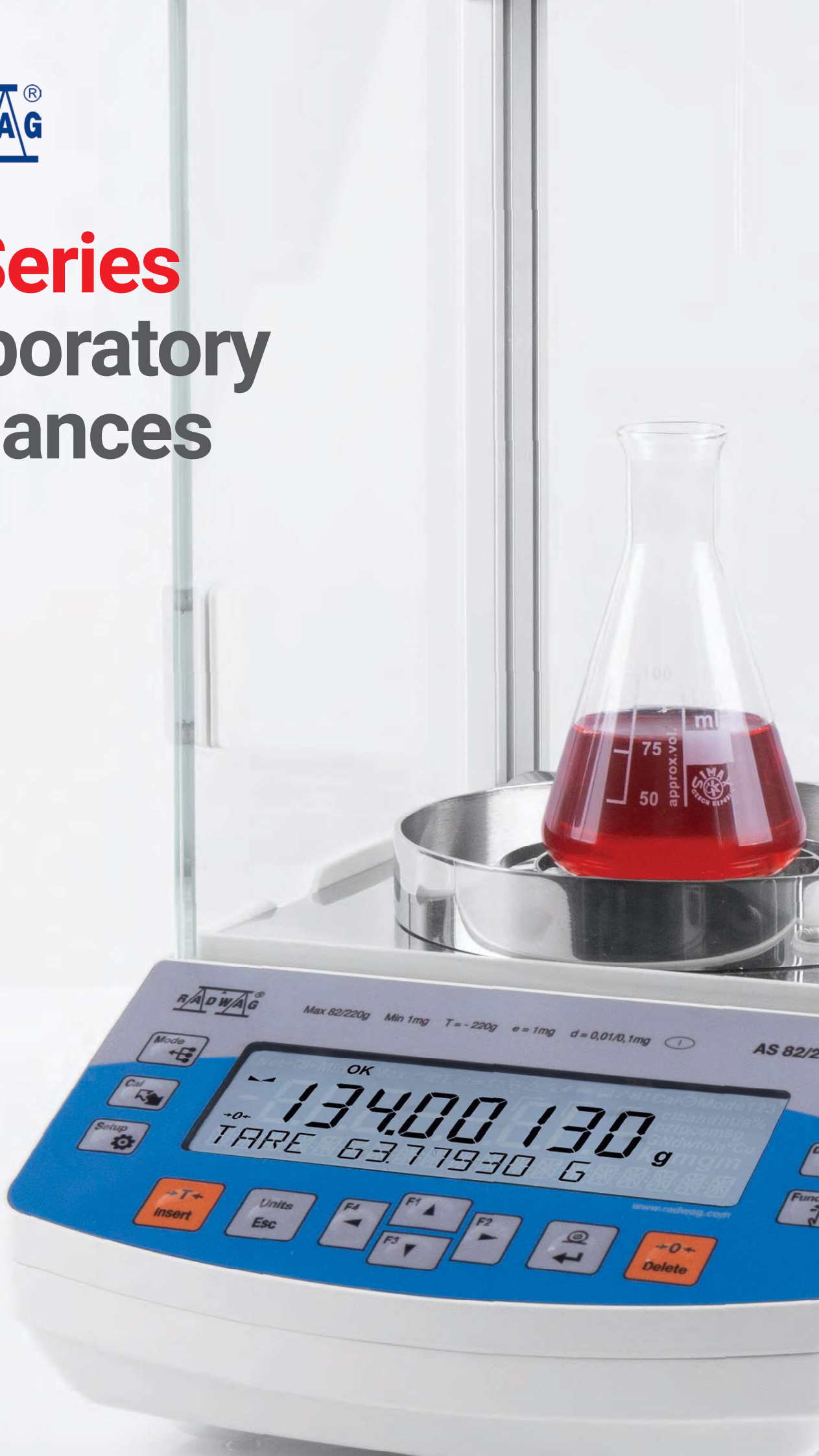
PRODUCT CATALOGUE

ADVANCED WEIGHING TECHNOLOGIES





R Series Laboratory Balances



R Series Laboratory Balances

Innovative solutions of the R series, redefined operation and presentation of weighing results.

The R series balances represent the standard level of precision instruments. They have been equipped with LCD screen, providing even clearer result presentation. To maximize the comfort of operation, the display has been enriched with an extra text line supplying you with either information or prompts on the weighing process (product name, tare value, etc.).

A new feature of the R series balances is a set of symbols showing a current working mode, type of connection with a computer, battery state, weighing and service functions. Additionally, now there are even more weighing units at your disposal (g, mg, etc.). Weighing results are recorded in ALIBI memory.

The R series features a plastic housing and a stainless steel weighing pan, and enables under-pan weighing, wherein the load is suspended under the balance

Home screen

- A** Symbols
- B** Extra text line
- C** Direct access to databases
- D** Access to a particular working mode functions
- E** Working mode selection
- F** Direct start-up of balance adjustment procedure
- G** Transfer of display state to a peripheral device
- H** Navigation buttons





AS R2 PLUS Analytical balances

Maximum capacity [Max]: up to 520 g
 Readability [d]: down to 0,01 mg
 Weighing pan dimensions: ø 90 mm, ø 100 mm, ø 85 mm (option)



PS R1 Precision balances

Maximum capacity [Max]: up to 6100 g
 Readability [d]: down to 1 mg
 Weighing pan dimensions: 128 x 128 mm, 195 x 195 mm



PS R2 Precision balances

Maximum capacity [Max]: up to 10100 g
 Readability [d]: down to 1 mg
 Weighing pan dimensions: 128 x 128 mm, 195 x 195 mm



MA R Moisture analyzers

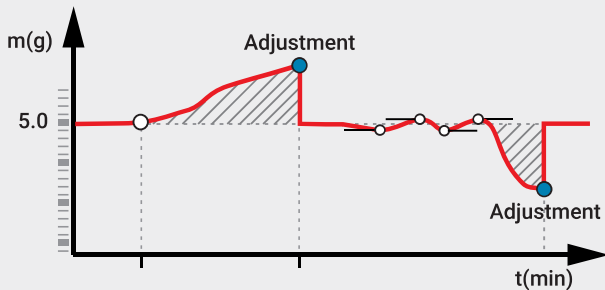
Maximum capacity [Max]: up to 210 g
 Readability [d]: down to 0.1 mg
 Weighing pan dimensions: ø 90 mm, h = 8 mm

Quality and Precision

Auto-Cal - automatic system of adjustment procedure

Auto-Cal system is a tool for control and correction. It provides accurate weighing regardless of temperature variation, the position of the balance or changing environmental conditions. This allows the R series balances to offer accuracy in all conditions.

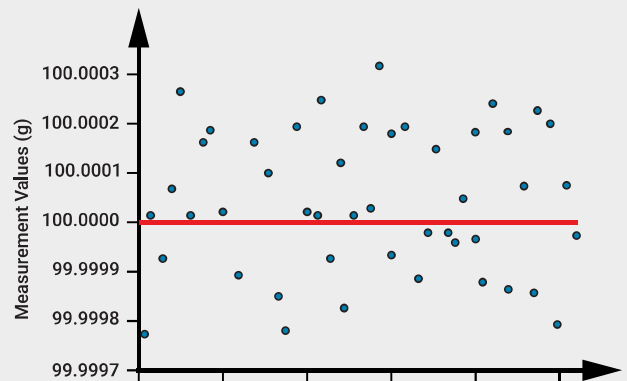
The built-in adjustment weight has been designed to maintain accurate indications. Discover that with our automatic or semiautomatic adjustment procedure, performed periodically, you may grow confident about your weighing results' accuracy. The adjustment system guarantees that accurate weighing results are obtained even for challenging working conditions. It is used for GLP, GMP control procedures.



Repeatability of indications

The monolithic system ensures even greater accuracy and repeatability of weighing due to consolidation of elements of the balance's mechanical design. Using such technology results in higher quality balances.

Owing to the monolithic systems, R series balances offer fast measurement and excellent repeatability. These up-to-date design solutions, being highly resistant to transport shocks, are characterized by good metrological parameters.



Operating temperature range

Now, owing to a wider working temperature range, you don't have to monitor and adjust the room temperature, affecting your balance stability, over and over again.

Communication interfaces

The R series balances have been equipped with various means of communication. They offer standard cable connections, realized via USB-A and USB-B or RS 232 ports, and wireless connection, realised via Wi-Fi technology. The latter is supported by all RADWAG-manufactured programs.



Databases ergonomics for your weighing process

You certainly will appreciate information system of R series balances. The system is based on 5 databases: users database (10 different operators), products database (1000 different products), weighments database (1000 different measurements), tares database (10 different packaging weights).

When operating the new R series balances you can analyze particular measurements in details, export or import any data and exchange.

Resistance to ambient conditions

Increased resistance to fluctuating ambient conditions such as breezes and changes in humidity provides more accurate measurements.

Functionality and Ergonomics

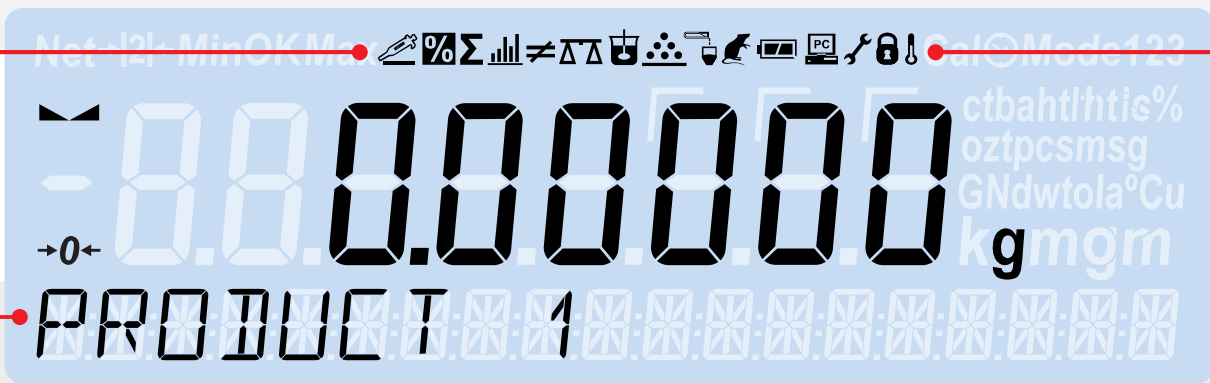
Symbols and units

The R series offers a priceless set of intuitive symbols signalling current working mode, computer connection type, battery status, function that is in operation and much more. The symbols add to readout clarity, they provide maximum comfort of operation and improve ergonomics. Another facility supporting the weighing process is a wider choice of units.

Ambient conditions monitoring

Stable ambient temperature is a key factor when it comes to the accuracy of balance indications. The R series balances feature an ergonomic diagnostic tool, namely, automatic monitoring of balance temperature. The dynamics of balance temperature variation is registered online. Shall the limit values be exceeded, a thermometer symbol is displayed on the balance screen. This calls for the necessity to stabilize the balance.

You may find ambient conditions monitoring especially useful during installation of the balance at its place of use. This solution may also turn out to be exceptionally valuable for observation of ambient temperature variation.

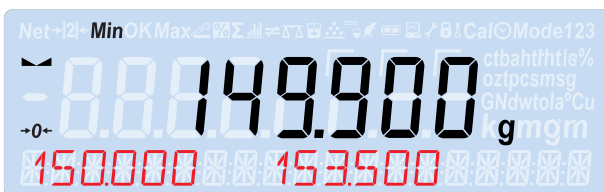


Extra text line

An extra text line provides you with either information or prompts on the weighing process, e.g. product name or tare value.

Bar Graph, visual representation of load capacity

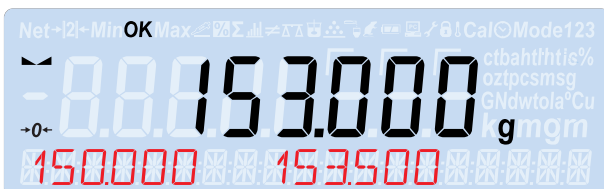
The bar graph indicates the load capacity change in real time. It can be run for various working modes with threshold markers, e.g. parts counting, dosing, percent weighing, animal weighing, statistics, totaling, peak hold or checkweighing.



Minimum value Maximum value



Mass value lower than the value of minimum threshold



Minimum value Maximum value



Mass value contained within thresholds



Minimum value Maximum value



Mass value higher than the value of maximum threshold

Database Security

Data protection

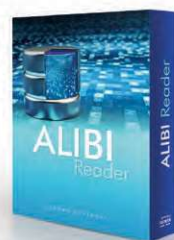
Access to the secured sensitive data is only possible when logged in. The access rights for each operator are set up by the Administrator.

Archiving and data exchange

Archive your data. You will do it by transfer of reports on performed processes and partial measurements to external devices via a USB interface. With the USB interface, you can control the working process, restore any data, and copy the balance settings.

ALIBI memory

ALIBI memory is a guarantee of data protection. It enables record of up to 100 000 weighings. This ensures security of stored data over long period of time.



ALIBI Reader PC software enables the user to preview all weighings recorded in balance memory. The software allows printout of selected data and creation of PDF and CSV (Excel) reports.

Reports and Printouts

Configurable printouts

In the new R series balances the weighing reports are divided into 3 configurable sections, each of which can be fully customized.

Working mode	Weighing
Date	18.01.2021
Time	11:36:36
Balance type	AS R2
Balance ID	2035
Product	PILL
Tare	0.5000 g
Gross weight	1.3020 g
Net weight	0.8020 g
User	Tom Smith
----- Calibration Report -----	
Calibration type	Internal
User	Tom Smith
Project	124/SGW/2021
Date	18.01.2021
Time	12:56:10
Balance ID	1035
Calibration difference	0.0000 g

Signature	

Measurement printouts sent to PC software

Measurements carried out by R series balance can be transferred directly to R-Lab and RAD KEY PC software.



RAD KEY PC Software is designed to acquire your balance data with the use of special HotKey, which is then entered into an active spreadsheet cell.



R-Lab software enables scale preview and generating both weighings and statistics graphs.

Sample report divided into three configurable sections: header, GLP printout and footer.

All R balances communicate with computer printers supporting PCL standard. Communication between the devices is established via USB or RS 232 interface.

Technical Specification

Analytical Balance



Product Code	Model	Max. capacity	Readability	Repeatability	Weighing pan dimensions
WL-104-0179	AS 62.R2 PLUS	62 g	0.01 mg	0.012 mg	ø90 mm & ø85 mm (option)
WL-104-0175	AS 110.R2 PLUS	110 g	0.1 mg	0.06 mg	ø90 mm & ø85 mm (option)
WL-104-0191	AS 120.R2 PLUS	120 g	0.01 mg	0.012 mg	ø90 mm & ø85 mm (option)
WL-104-1052	AS 60/220.R2 PLUS	60 / 220 g	0.01 / 0.1 mg	0.012 mg	ø90 mm & ø85 mm (option)
WL-104-1051	AS 82/220.R2 PLUS	82 / 220 g	0.01 / 0.1 mg	0.012 mg	ø90 mm & ø85 mm (option)



Product Code	Model	Max. capacity	Readability	Repeatability	Weighing pan dimensions
WL-104-0230	AS 120.R1 PLUS	120 g	0.1 mg	0.06 mg	ø100 mm
WL-104-0229	AS 220.R1 PLUS	220 g	0.1 mg	0.07 mg	ø100 mm
WL-104-0176	AS 160.R2 PLUS	160 g	0.1 mg	0.07 mg	ø100 mm
WL-104-0177	AS 220.R2 PLUS	220 g	0.1 mg	0.07 mg	ø100 mm
WL-104-0178	AS 310.R2 PLUS	310 g	0.1 mg	0.08 mg	ø100 mm
WL-104-0186	AS 520.R2 PLUS	520 g	0.1 mg	0.08 mg	ø100 mm

Precision Balance



Product Code	Model	Max. capacity	Readability	Repeatability	Weighing pan dimensions
WL-213-0020	PS 360.R1	360 g	0.001 g	0.0005 g	128x128 mm
WL-213-0080	PS 600.R1	600 g	0.001 g	0.0005 g	128x128 mm
WL-213-0022	PS 750.R1	750 g	0.001 g	0.0005 g	128x128 mm
WL-213-0023	PS 1000.R1	1000 g	0.001 g	0.0005 g	128x128 mm
WL-213-1002	PS 200/2000.R1	200 / 2000 g	0.001 / 0.01 g	0.0005 / 0.005 g	128x128 mm



Product Code	Model	Max. capacity	Readability	Repeatability	Weighing pan dimensions
WL-213-0091	PS 3500.R1.M	3500 g	0.01 g	0.005 g	195x195 mm
WL-213-0078	PS 4500.R1.M	4500 g	0.01 g	0.005 g	195x195 mm
WL-213-0085	PS 6100.R1.M	6100 g	0.01 g	0.005 g	195x195 mm



Product Code	Model	Max. capacity	Readability	Repeatability	Weighing pan dimensions
WL-212-0018	PS 210.R2	210 g	0.001 g	0.0005 g	128x128 mm
WL-212-0019	PS 360.R2	360 g	0.001 g	0.0005 g	128x128 mm
WL-212-0071	PS 0.6.R2	600 g	0.01 g	0.005 g	195x195 mm
WL-212-0020	PS 600.R2	600 g	0.001 g	0.0005 g	128x128 mm
WL-212-0021	PS 750.R2	750 g	0.001 g	0.0005 g	128x128 mm
WL-212-0022	PS 1000.R2	1000 g	0.001 g	0.0005 g	128x128 mm
WL-212-1003	PS 200/2000.R2	200 / 2000 g	0.001 / 0.01 g	0.0005 / 0.005 g	128x128 mm



Product Code	Model	Max. capacity	Readability	Repeatability	Weighing pan dimensions
WL-212-0170	PS 2100.R2.M	2100 g	0.01 g	0.005 g	195x195 mm
WL-212-0173	PS 3500.R2.M	3500 g	0.01 g	0.005 g	195x195 mm
WL-212-0134	PS 4500.R2.M	4500 g	0.01 g	0.005 g	195x195 mm
WL-212-0135	PS 6100.R2.M	6100 g	0.01 g	0.005 g	195x195 mm
WL-212-0132	PS 8100.R2.M	8100 g	0.01 g	0.005 g	195x195 mm
WL-212-0133	PS 10100.R2.M	10100 g	0.01 g	0.005 g	195x195 mm



Product Code	Model	Max. capacity	Readability	Repeatability	Weighing pan dimensions
WL-221-0001	PS 210.R2.H	210 g	0.001 g	0.0005 g	ø100 mm
WL-221-0002	PS 360.R2.H	360 g	0.001 g	0.0005 g	ø100 mm
WL-221-0003	PS 600.R2.H	600 g	0.001 g	0.0005 g	ø100 mm
WL-221-0004	PS 750.R2.H	750 g	0.001 g	0.0005 g	ø100 mm
WL-221-0005	PS 1000.R2.H	1000 g	0.001 g	0.0005 g	ø100 mm



Product Code	Model	Max. capacity	Readability	Repeatability	Weighing pan dimensions
WL-221-1001	PS 200/2000.R2.H	200 / 2000 g	0.001 / 0.01 g	0.0005 / 0.005 g	ø100 mm
WL-221-0023	PS 2100.R2.M.H	2100 g	0.01 g	0.005 g	195x195 mm
WL-221-0024	PS 3500.R2.M.H	3500 g	0.01 g	0.005 g	195x195 mm
WL-221-0025	PS 4500.R2.M.H	4500 g	0.01 g	0.005 g	195x195 mm
WL-221-0026	PS 6100.R2.M.H	6000 g	0.01 g	0.005 g	195x195 mm

Technical Specification for R Series Moisture Analyzers can be found in the Laboratory Balances section, under Moisture Analyzers.