



# 3Y series balances

INNOVATIVE SOLUTIONS – NEW POSSIBILITIES

## 3Y series balances

**Innovative solutions designed for 3Y series offer completely new possibilities, not only within operation but also when it comes to weighing results presentation.**

Featuring 5,7” colour touchscreen display, 3Y series balances increase customers satisfaction. Great sunlight legibility of LCD, combined with clear menu arrangement, provides maximum comfort and ease of operation, significantly improving efficiency.

High precision touch-panel enables access to the most important functions, whereas build-in IR sensors facilitate user touch-free balance operation.

Multilingual, intuitive menu allows balance operators to personalize their profiles. Semi-automatic levelling system controls if the balance is correctly levelled, whereas ambient conditions are monitored by a dedicated built-in system ensuring appropriate conditions for the workplace.

Accuracy of measurements is provided by an automatic adjustment function. Every single weighing operation is recorded in an Alibi memory.

### Main window

- A** Information on current operating mode and profile
- B** Information on logged user
- C** Date, time, information on connection type, battery state etc.
- D** Levelling status icon
- E** Measurement results
- F** Minimum sample weight icon
- G** Ambient conditions monitoring icon
- H** Configurable field for additional information
- I** Quick access bar





## Table of contents

Accuracy with no compromises	4
Ergonomics and comfort of operation	6
Data management and safety	8
Reports and printouts	9
Balances overview and technical specification	10

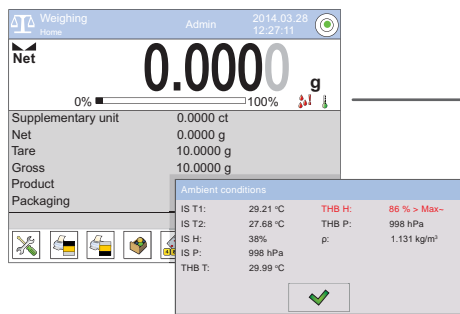
# Accuracy with no compromises

## Ambient conditions monitoring

The 3Y series offers a unique solution for monitoring of ambient conditions at the balance workplace. The monitoring is performed in real time by means of internal, optionally external, sensors (THB module). Depending on a balance type and sensors used, the system monitors temperature, humidity, atmospheric pressure and air density.



Pictograms informing about change of ambient conditions at the balance workplace. Upon touching the respective icon, the user activates a prompt informing about occurrence of change.



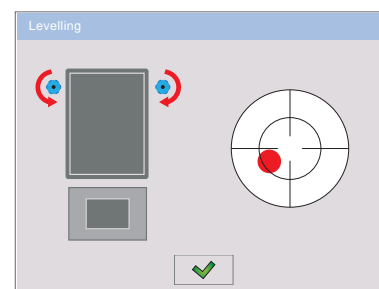
A prompt informing about change of ambient conditions (THB has detected exceeded humidity level).

**THB H: 86 % > Max~**

The system automatically informs about detection of change or about exceeding specified limits. The information is presented on the main screen of a balance. Thanks to AutoCal system, the user is warned about a need for balance adjustment. Each readout from a module is saved to balance memory.

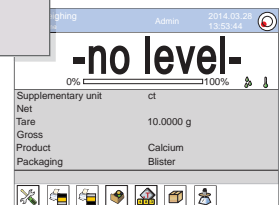
## Auto-levelling Semi-automatic levelling system

The 3Y series offers brand new solutions for continuous control of balance level. In case of horizontal tilt of the balance, the system displays a respective prompt and by means of screen-displayed instruction helps the user perform balance levelling.



Pressing level indicator icon activates screen for levelling process.

For not levelled balance a respective message is displayed, indications may be blocked.





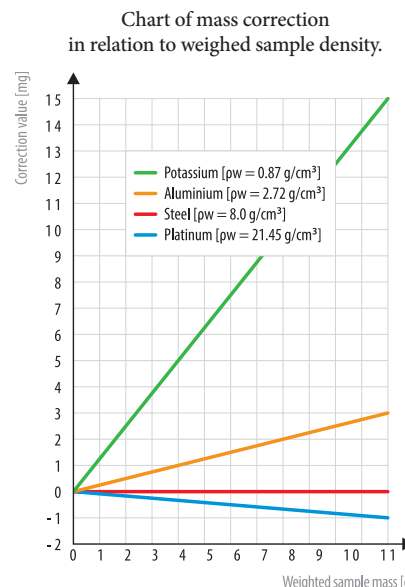
## Air buoyancy compensation

Air buoyancy compensation aims at limiting an error occurring during weighing process performed on samples of density distinctly different from density of mass standard used for balance adjustment. Sensors of ambient conditions module help to calculate current air density, as a result the balance constantly corrects measurement result of a weighed sample.



	Air buoyancy compensation	Yes
	Sample density	0.87 g/cm <sup>3</sup>
	Air density	Online

The chart presents errors of measurement indication for samples of density distinctly different from density of mass standards (refers to balances for which air buoyancy compensation has not been applied).



## Minimum sample weight

According to USP regulations

It is possible for the 3Y series to inform whether the minimum sample weight value has been exceeded for particular thresholds or not (for value greater than specified, measurements are performed with expected uncertainty of measurement). Such approach allows to determine value of minimum sample weight for the whole weighing range.



Minimum sample

Name: MSW 0,6 g  
Subsequent control: 2015.03.28

Tare	Minimum mass
2 g	0.02 g

Upon touching the minimum sample weight icon, the user activates a window containing information on minimal sample weight value and the earliest date for its determination.

## Auto-test

Ensuring the best quality of measurements

Auto-test function provides the user with possibility of manual confirmation of the performed measurements quality (Autotest GLP). Additionally the user may benefit from Autotest Filter function, which helps one to select such balance settings (appropriate for given ambient conditions) that make it work with the best possible repeatability.

Autotest

- 1 Autotest GLP
- 2 Autotest Filter
- 3 Autotest for service

Exemplary report on GLP autotest

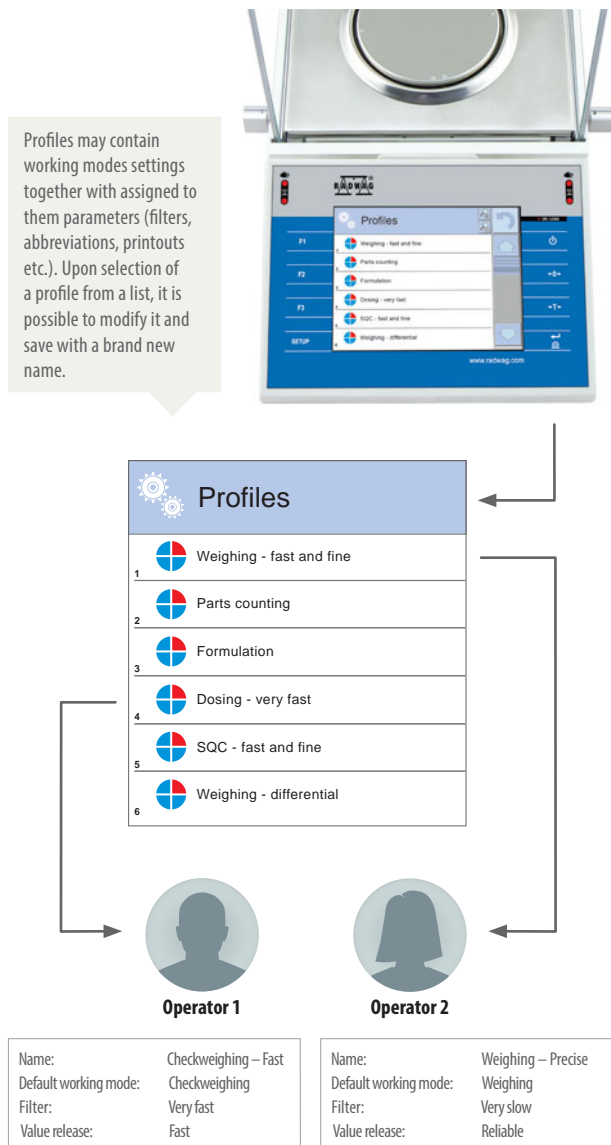
Autotest GLP: Report	
Balance type	XA 3Y
Balance ID	392543
Operator	Admin
Application revision	L1.3.38 S
Date	2014.08.19
Time	14:49:38
-----	
Number of measurements	10
Balance weighing interval	0.00001/0.0001 g
Internal weight mass	224.45050 g
Filter	Normal
Value release	Fast and reliable
Temperature: Start	25.32 °C
Temperature: Stop	25.32 °C
Humidity: Start	42 %
Humidity: Stop	42 %
-----	
Deviation for Max	0.00011 g
Repeatability	0.000053 g
-----	
Signature	

# Ergonomics and comfort of operation

## User profiles

### Authorization and balance settings personalization

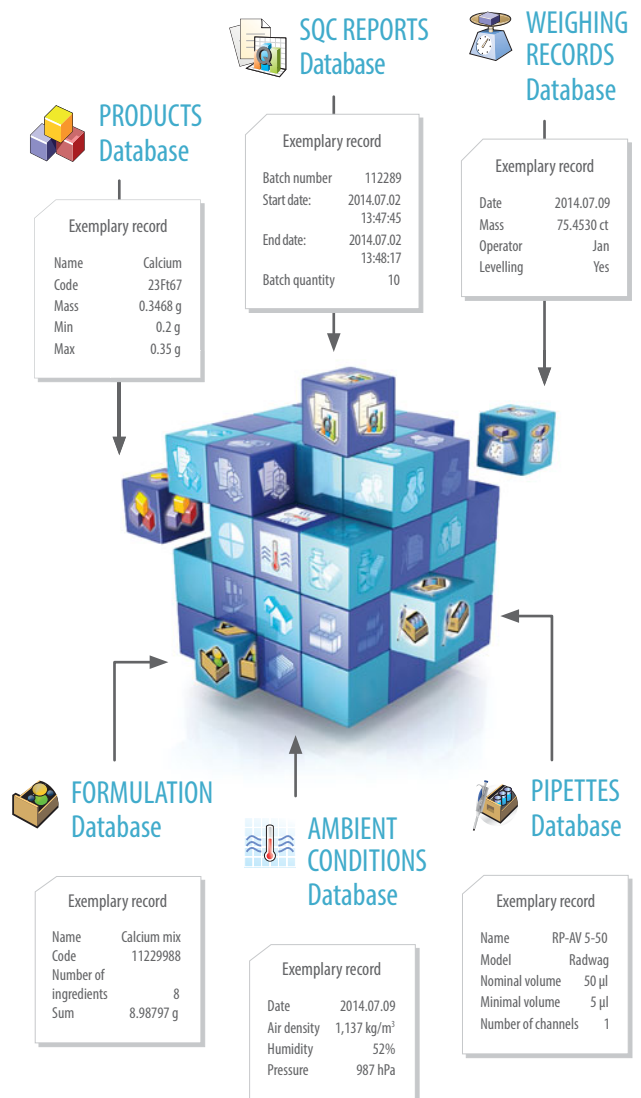
Unique user, settings and authorization profiles will satisfy the user with flexible balance settings personalization. USB interface provides options for copying and moving user profiles from one 3Y series balance to another.



## Information system

### Complex databases

Complex databases are an outstanding feature of RADWAG balances, there are 18 secure databases for 3Y series balances. Particular databases size is dynamically shared within 1 GB memory flash. Option of databases import and export enables ease of databases management as well as their copying and archiving.



## Sensors

### For touch-free operation

It is possible to assign an action to a particular IR sensor in order to perform touch-free activation of a given function (wide range of functions available).



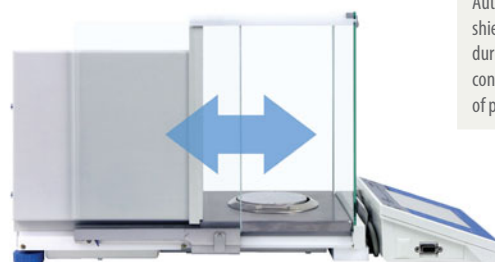
Left proximity sensor	
Operator	✖
Left door	⬆
Right door	⬆
Open / Close door	⬆
Parameters	⬆

Possibility of defining various actions separately for the right and the left sensor (e.g. left sensor – door on the right, right sensor – zeroing).

## Auto-open

### Automatic opening of draft shield door

For a greater comfort some balances of the 3Y series have been equipped with an automatic device facilitating opening and closing a draft shield door.

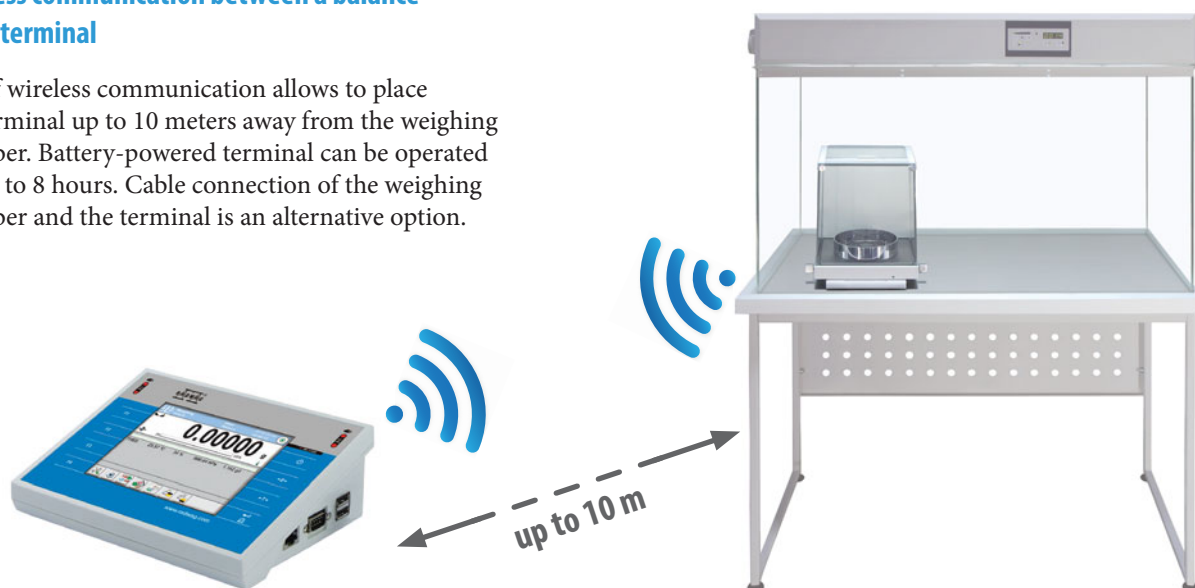


Automatic draft shield door opening during volume control procedure of piston pipettes.

## Portability

### Wireless communication between a balance and a terminal

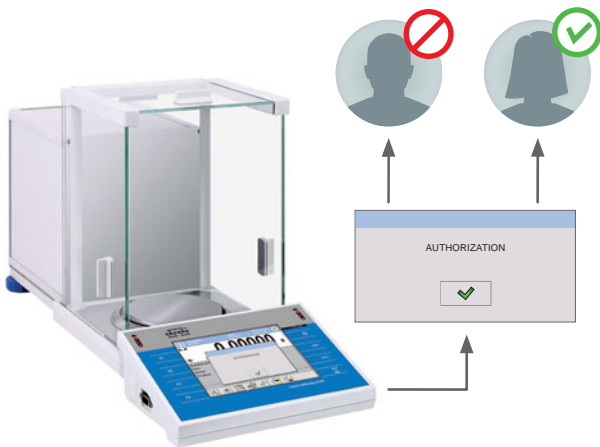
Use of wireless communication allows to place the terminal up to 10 meters away from the weighing chamber. Battery-powered terminal can be operated for up to 8 hours. Cable connection of the weighing chamber and the terminal is an alternative option.



# Data management and safety

## Protecting data User authorization levels

When there is a need for one balance to be operated by several users, the option of customizing access rights for particular functions may turn out to be indispensable. Four access levels ensure many possibilities of supervision over users and provide important data protection (e.g. formulas).

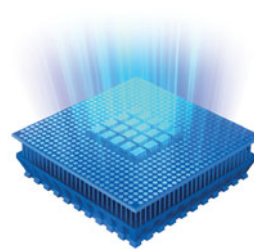


Numerous operations such as defining language of the menu, selecting a desired working mode or personalizing main screen layout may be limited according to the access level, with respective password protection.

Access level		Edit record	
1	Anonymous operator Guest	1	Name Admin EN
2	Date and time Administrator	2	Code
3	Printouts Administrator	3	Password .....
4	Database	4	Access level Administrator
		5	Language English
		6	Default profile Fast filters

Possibility of associating a given profile with a particular user allows such balance personalization, that upon log in, a given working mode and filters are automatically selected.

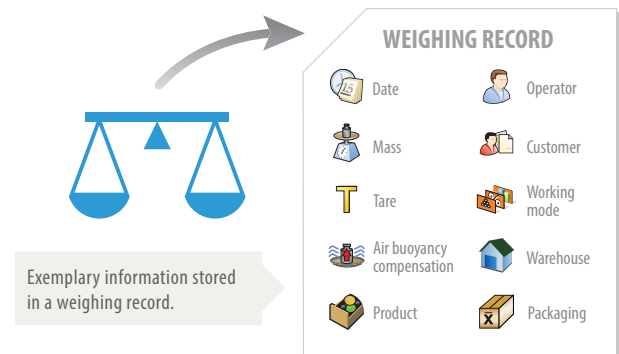
## Alibi Secure data storage partition



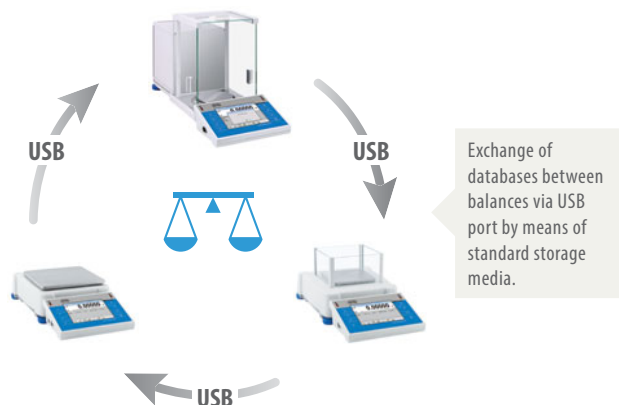
3Y series balances feature secure partition for data storing where all weighing data, reports, ambient conditions measurements are recorded and secured for a specified amount of time. All these can be easily restored in case there was such a need.

## Data archiving and exchange

The 3Y series offers complex archiving of databases, user profiles and data stored in Alibi memory. All the data can be exported, imported, copied and transferred between balances.



Exemplary information stored in a weighing record.



Exchange of databases between balances via USB port by means of standard storage media.



# Reports and printouts

## Reports

### Reports database

Upon completion of each process, a respective report is generated and recorded in a proper report database.

The users have possibility to preview, print, export or archive reports but not only. They can also freely configure them.

----- Weighing -----	
Date	2014.08.19
Time	14:48:50
Balance type	XA 3Y
Balance ID	392543
Level status	Yes
Product	Calcium
Net	0.7502 g
Tare	24.23788 g
Gross	24.9881 g
-----	
Signature	
-----	

## Printouts

### Flexibility of configuration

There are two printout types for 3Y series balances: standard (generated according to a fixed pattern) and non-standard, customized ones.

Standard printout comprises three sections: header [A], weighing data [B] and footer [C].

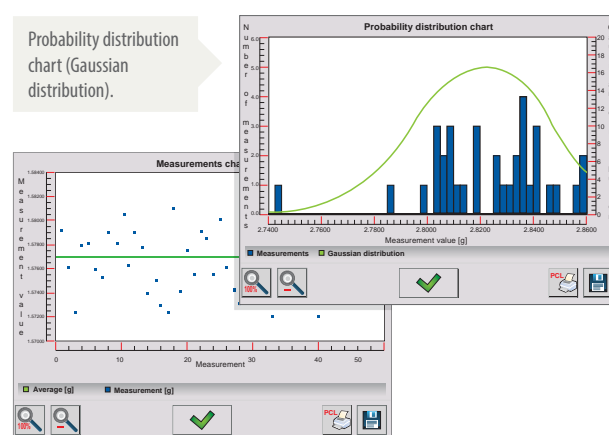
Each section can be freely adjusted by a user, it can also be extended with a non-standard printout.

----- Weighing -----	
Date	2014.04.02
Time	14:07:43
Balance ID	419036
Operator	Admin
Level status	Yes
Product	Calcium
Packaging	Blister
-----	
Temperature during measurements:	26.79 °C
Humidity during measurements:	24 %
Pressure during measurements:	994 hPa
-----	
Net	0.1118376 g
Tare	0.5000000 g
Gross	0.6118376 g
Supplementary unit	0.5591880 ct
Minimum sample status	OK
-----	
Net	0.1118071 g
Tare	0.5000000 g
Gross	0.6118071 g
Supplementary unit	0.5590355 ct
Minimum sample status	OK
-----	
Net	0.1118071 g
Tare	0.5000000 g
Gross	0.6118071 g
Supplementary unit	0.5590355 ct
Minimum sample status	OK
-----	
Signature	
-----	

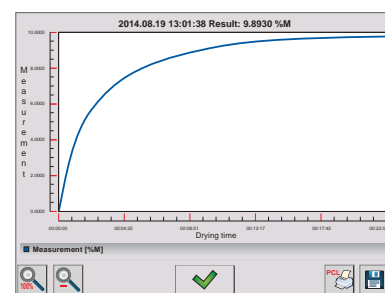
## Charts

### Measurement visualization and statistics

Selected working modes (Statistics, SQC), apart from generating report, offer possibility of creating a chart for a particular completed weighing. The balance allows to generate weighments charts (with mean value calculated) and probability distribution chart out of series of measurements. Each chart can be freely scaled, printed or saved to BMP file.



Drying curve for a sample (MA 3Y moisture analyzer).







## Operations to be carried out on printouts

### Import, export and printing

Technology used for 3Y series enables free exchange of printouts and labels (TXT or LB file format) between balances. The balances are compatible with vast range of PCL printers and label printers, wherein connection between printers and balances is established by RS 232, USB, Ethernet.

# Technical specification

	Ultra and microbalances	Analytical balances		
	UYA 3Y, MYA 3Y	XA 3Y	XA 3Y.A	XA 3Y.F
				
Verification <b>M</b>	–	●	●	●
Max capacity [Max]	0,8 – 21 g	52 – 510 g	52 – 310 g	52 g
Readability [d]	0,1 – 1 µg	0,01 – 0,1 mg	0,01 – 0,1 mg	0,01 mg
Minimum weight USP	0,8 – 3,2 mg	20 – 160 mg	20 – 160 mg	20 mg
Minimum weight (U = 1%, k = 2)	0,08 – 0,32 mg	2 – 16 mg	2 – 16 mg	2 mg
Pan Size	ø 16 mm ø 26 mm ø 100 mm ø 160 mm	ø 85 mm ø 100 mm	ø 85 mm ø 100 mm	ø 85 mm 210×254 mm
Stabilization time	5 s, (10 – 20 s for UYA 3Y)	3 – 5 s	3 – 5 s	5 s (30 s for filters)
Internal (automatic) calibration/adjustment	●	●	●	●
Display	5,7" colour,			
Interfaces	2×USB, 2×RS 232,			

## Software



### Database Editor

Databases support for 3Y balances and PUE 7 and PUE HY terminals.



### PIPETTES

Pipettes calibration and estimation of volume measurement errors in accordance with ISO 8655.



### E2R Weighing Records

Record of weighments carried out by balances cooperating in a network.



### PW Win

Balance and computer cooperation display of measurements and statistics.









### RAD Key

Readout of balance data by means of defined Hot Key.



### E2R Moisture Analyzers

Record of weighments carried out by moisture analyzers cooperating in a network.

	Precision balances				Moisture analyzers
AS 3Y	PS 3Y	APP 3Y	APP 3Y.1	MA 3Y	
					
●	●	●	●	–	–
82 – 510 g	200 – 2000 g	1500 – 6000 g	10 – 35 kg	10 – 50 kg	60 – 200 g
0,01 – 0,1 mg	1 – 10 mg	10 mg	0,01 – 0,1 g	0,01 – 0,1 g	0,1 – 1 mg
20 mg	–	–	–	–	–
2 mg	–	–	–	–	–
ø 70 mm ø 85 mm	128×128 mm	195×195 mm	347×259 mm	347×259 mm	ø 90 mm
3,5 – 6 s	1,5 – 2 s	1,5 s	3 – 4 s	3 – 4 s	–
●	●	●	●	–	–
resistive touchscreen display (640×480)					
Ethernet, 4 Inputs / 4 Outputs (digital), Wi-Fi *					

\* Wi-Fi interface is intended only for ultra-microbalances and microbalances.

## Optional accessories

Anti-vibration tables,  
Thermal and dot matrix printers,  
Adapter for pipettes calibration,  
THB Ambient condition module,  
Automatic feeder,  
Barcode scanner,  
Laboratory ware holders,  
Density determination kit for liquids and solid bodies.

Complete offer is to be found on [www.radwag.com](http://www.radwag.com) website.

## Services

Calibration,  
Minimum sample weight estimation,  
Adjustment of weighing chamber temperature  
(moisture analyzers),  
PQ/OQ/IQ Validation,  
Periodic inspections.

## Features:



Touchscreen display



Portable terminal



Proximity sensors



Profiles



Ambient conditions monitoring



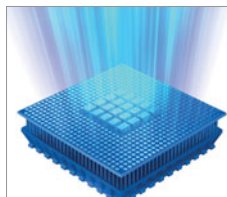
Databases



Semi-automatic level indicator



Interfaces:  
USB, Wi-Fi,  
Ethernet, IN/OUT  
and RS 232



Alibi memory



Media player

## Functions:

-  Parts counting
-  Checkweighing
-  Dosing
-  Percent deviations
-  Density determination
-  Animal weighing
-  Formulation
-  Statistics
-  Pipettes calibration
-  Differential weighing
-  Statistical Quality Control
-  Samples drying
-  Automatic feeder support
-  PGC control
-  GLP procedures
-  Minimal sample weight
-  Air buoyancy compensation
-  Cooperation with titrators
-  Ambient conditions monitoring
-  Autotest (GLP, Filter)
-  Under pan weighing

Availability of particular functions may be limited for some balance types.