

# AS R PLUS Analytical Balances

Innovative design and system solutions for standard-class products



# 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 weihging 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.

## Levelling System

Clearly visible levelling device located at the front of the weighing chamber facilitates level control.

# Antistatic Weighing Chamber

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

# **Uncomplicated and Intuitive Operation**

Large, easy-to-read LCD display offers not only a clear presentation of the weighing result, but also enables displaying messages related to the drying process as well as pictograms of active functions and working modes. Quick access keys located on the operation panel enable you to run a given function with just one click.

#### Data Management

AS R PLUS information system is based on operators, products, weighings and tares databases. All saved data can be analysed, exported, imported or exchanged between weighing instruments.

#### **ALIBI Memory**

Internal ALIBI memory guarantees safety and automatic record of measurements copies, it also offers possibility to preview, copy and archive data.

#### **Kensington Lock**

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

	AS 60/220.R2 PLUS	AS 62.R2 PLUS	AS 82/220.R2 PLUS	AS 120.R2 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)*	0.015 mg	0.012 mg	0.015 mg	0.015 mg
Repeatability(Max)*	0.08 mg	0.02 mg	0.08 mg	0.04 mg
Minimum weight (USP)	30 mg	24 mg	30 mg	30 mg
Minimum weight (U=1%, k=2)	3 mg	2.4 mg	3 mg	3 mg
Permissible values				
Repeatability(5% Max)*	0.02 mg	0.018 mg	0.02 mg	0.02 mg
Repeatability(Max)*	0.1 mg	0.03 mg	0.1 mg	0.05 mg
Linearity	± 0.05 mg / ±0.2 mg	± 0.05 mg	± 0.05 mg / ±0.2 mg	± 0.05 mg
Stabilization time***	2 s	2 s	2 s	2 s
Adjustment	internal	internal	internal	internal
<b>Verification</b>	Yes	Yes	Yes	Yes
OIML Class	1	I	I	I
Display	LCD (with backlight)	LCD (with backlight)	LCD (with backlight)	LCD (with backlight)
Keypad	14 keys	14 keys	14 keys	14 keys
Protection class	IP 43	IP 43	IP 43	IP 43
Databases	5	5	5	5
JSB-A (interchangeable)	2	2	2	2
JSB-B	1	1	1	1
RS 232	2	2	2	2
Wi-Fi® ∗∗∗∗	802.11 b/g/n	802.11 b/g/n	802.11 b/g/n	802.11 b/g/n
Power supply	12 ÷ 16 V DC			
Power consumption	3 W	3 W	3 W	3 W
Operating temperature	+10 ÷ +40 °C			
Atmospheric humidity*****	40% ÷ 80%	40% ÷ 80%	40% ÷ 80%	40% ÷ 80%
Transport and storage temperature	-20 ÷ +50 ℃	-20 ÷ +50 ℃	-20 ÷ +50 ℃	-20 ÷ +50 ℃
Neighing pan dimensions	ø 90 mm open-work ø 85 mm standard (option)******			
Weighing chamber dimensions	190 × 190 × 222 mm			
Weighing device dimensions	351 × 205.5 × 348 mm			
Net weight	7.3 kg	7.3 kg	7.3 kg	7.3 kg
Gross weight	9.3 kg	9.3 kg	9.3 kg	9.3 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  $\div$  +35  $^\circ$ C

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

\*\*\*\* optional solution on purchase order

\*\*\*\*\* 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.

Maximum capacity [Max]110 g160 g270 g310 gMinimum load10 mg10 mg10 mg10 mg10 mgReadability (d)0.1 mg0.1 mg0.1 mg0.1 mg0.1 mgVerification scale interval (e)1 mg1 mg-200 g-310 gTare range-10 g-160 g-200 g-310 gStandard values300 g0.08 mgRepeatability (Max)*0.08 mg0.08 mg0.08 mg0.08 mgMinimum weight (USP)120 mg14 mg14 mg160 mgMinimum weight (USP)120 mg14 mg0.09 mg0.09 mgPermissible valuesRepeatability (Max)*0.09 mg0.09 mg0.1 mg0.15 mgStalization time***2 s2 s2 s2 s2 sStabilization time***2 s2 s2 s2 s2 sStabilization time***1 c1 c1 c1 cUSA (Listex)1 keys1 keys1 keys1 keysProtection class1 keys1 keys1 keys1 keysStabilization time***2 c2 c2 c2 cVerification class1 keys1 keys1 keys1 keysProtection class1 keys1 keys1 keys1 keysStabilization time***80211 kg/m80211 kg/m80211 kg/m80211 kg/mVerification class1 keys1 keys1 keys1 keysProtection class					
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Standard values      Adds      Adds      Adds      Adds        Repeatability(S% Max)*      0.06 mg      0.07 mg      0.08 mg      0.08 mg      0.08 mg      0.12 mg        Repeatability(Max)*      0.08 mg      0.08 mg      0.08 mg      0.12 mg        Minimum weight (USP)      120 mg      14 mg      16 mg        Minimum weight (USP)      120 mg      0.09 mg      0.09 mg      0.09 mg      0.11 mg      0.12 mg        Repeatability(S% Max)*      0.09 mg      0.09 mg      0.09 mg      0.09 mg      0.11 mg      0.15 mg        Linearity      ±0.2 mg      ±0.2 mg      ±0.2 mg      ±0.2 mg      ±0.3 mg        Stabilization time***      2 s      2 s      2 s      2 s      2 s        Adjustment      internal      internal      internal      internal        Verification      Yes      Yes      Yes      Yes        OML Class      I      I      I      I        Databases      5      5      5      5      2        USB-A (interchangeable)      12 + 16 V DC      12 + 16 V DC	Verification scale interval [e]		Ū.	1 mg	1 mg
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Repeatability(5% Max)*0.09 mg0.09 mg0.12 mgRepeatability(Max)*0.1 mg0.1 mg0.1 mg0.1 mgtinearity±0.2 mg±0.2 mg±0.2 mg±0.3 mgStabilization time***2 s2 s2 s2 sAdjustmentinternalinternalinternalinternalVerificationYesYesYesYesYesDibplayLDC (with backlight)LCD (with backlight)LCD (with backlight)LCD (with backlight)LCD (with backlight)Protection class14 kays14 kays14 kays14 kaysDisplay14 kays14 kays14 kays14 kaysDatabases2222USB-A (interchangeable)221 bi bi bi chi bi chi bi chi10 chi bi chi bi chiNiFF*****802.11 bi g/n802.11 bi g/n802.11 bi g/n802.11 bi g/nPower osumption3W3W3W3W3WPower osumption10 + 40 °C10 + 41 °C10 + 41 °CRespert and storage temperature20 + 15 °C-20 + 50 °C-20 + 50 °CWeighing damber dimension910 nm910 nm910 nm910 nmWeighing damber dimension51 × 205 x 348 nm31 × 205 x 348 nm31 × 205 x 348 nmNetweight93 kg93 kg93 kg93 kg93 kg	Minimum weight (U=1%, k=2)	12 mg	14 mg	14 mg	16 mg
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±0.2 mg      ±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      LCD (with backlight)      LCD (with backlight)      LCD (with backlight)      LCD (with backlight)        Keypad      14 keys      14 keys      14 keys      I4 keys      I4 keys        Protection class      IP 43      IP 43      IP 43      IP 43        Databases      5      5      5      2        USB-A (interchangeable)      2      2      2      2        USB-B      1      1      1      1        R 5232      2      2      2      2        Wi-Fi*****      802.11 b/g/n      802.11 b/g/n      802.11 b/g/n      802.11 b/g/n        Power consumption      3W      3W      3W      3W        Operating temperature </td <td>Repeatability(5% Max)*</td> <td>0.09 mg</td> <td>0.09 mg</td> <td>0.09 mg</td> <td>0.12 mg</td>	Repeatability(5% Max)*	0.09 mg	0.09 mg	0.09 mg	0.12 mg
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Yes      Yes      Yes      Yes        Weiffication      I      I      I        Display      LCD (with backlight)      LCD (with backlight)      LCD (with backlight)      LCD (with backlight)        Keypad      14 keys      14 keys      14 keys      14 keys        Protection class      IP 43      IP 43      IP 43        Databases      5      5      5        USB-A (interchangeable)      2      2      2        S322      2      2      2      2        Weiffig themperature      802.11 b/g/n      802.11 b/g/n      802.11 b/g/n      802.11 b/g/n        Power consumption      3W      3W      3W      3W      3W        Operating temperature      +10 ÷ +40 °C      +10 ÷ +40 °C      +10 ÷ +40 °C      +10 ÷ +40 °C        Transport and storage temperature      20 ÷ 50 °C      -20 ÷ +50 °C      -20 ÷ +5	Stabilization time***	2 s	2 s	2 s	2.5 s
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Keypad      14 keys      14 keys      14 keys      14 keys        Protection class      IP 43      IP 43      IP 43      IP 43        Databases      5      5      5      5        USB-A (interchangeable)      2      2      2      2        USB-B (interchangeable)      2      2      2      2        Wi-Fi*****      802.11 b/g/n      802.11 b/g/n      802.11 b/g/n      802.11 b/g/n        Power supply      12 + 16 V DC        Power consumption      3W      3W      3W      3W        Operating temperature      +10 + 40 °C      +10 + 440 °C      +10 + 440 °C        Atmospheric humidity*****      40 + 80%      40 + 80%      40 + 80%      40 + 80%        Weighing pan dimensions      910 mm      910 mm      910 mm      910 mm        Weighing chamber dimensions      190 × 190 × 226 mm      190 × 190 × 226 mm      31 × 205,5 × 348 mm        Net weight      73 kg      73 kg      73 kg      73 kg      73 kg	OIML Class	1	I	I	I
Protection class      IP 43      IP 43      IP 43      IP 43        Databases      5      5      5      5        USB-A (interchangeable)      2      2      2      2        USB-B (interchangeable)      1      1      1      1        RS 232      2      2      2      2      2        Wi-Fi*****      802.11 b/g/n      12 + 16 V DC      3W      3W        Power consumption      3 W      3 W      3 W      3W	Display	LCD (with backlight)	LCD (with backlight)	LCD (with backlight)	LCD (with backlight)
Databases      5      5      5        Databases      5      5      5        USB-A (interchangeable)      2      2      2        USB-B      1      1      1        RS 232      2      2      2        Wi-Fi*****      802.11 b/g/n      802.11 b/g/n      802.11 b/g/n        Power supply      12 ± 16 V DC      12 ± 16 V DC      12 ± 16 V DC        Power consumption      3W      3W      3W      3W        Operating temperature      ±10 ± ± 40 °C        Atmospheric humidity******      40 ± 80%      40 ± 80%      40 ± 80%      40 ± 80%        Weighing pan dimensions      010 mm      010 mm      010 mm      010 mm        Weighing chamber dimensions      910 v 190 × 226 mm      190 × 190 × 226 mm      190 × 190 × 226 mm      351 × 205,5 × 348 mm        Weighing device dimensions      351 × 205,5 × 348 mm        Weighing device dimensions      351 × 205,5 × 348 mm      351 × 205,5 × 348 mm      351 × 205,5 × 348 mm      351	Keypad	14 keys	14 keys	14 keys	14 keys
USB-A (interchangeable)      2      2      2      2        USB-B      1      1      1      1        RS 232      2      2      2      2      2        Wi-Fi*****      802.11 b/g/n      802.11 b/g/n      802.11 b/g/n      802.11 b/g/n      802.11 b/g/n      802.11 b/g/n        Power supply      12 ÷ 16 V DC        Power consumption      3W      3W      3W      3W      3W        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      -20 ÷ +50 °C      -20 ÷ +50 °C      -20 ÷ +50 °C      -20 ÷ +50 °C        Weighing pan dimensions      9100 mm      9100 mm      9100 mm      9100 mm      9100 mm        Weighing chamber dimensions      190 × 190 × 226 mm        Weighing device dimensions      351 × 205,5 × 348 mm      351 × 205,5 × 348 mm      351 × 205,5 × 348 mm      351 × 20	Protection class	IP 43	IP 43	IP 43	IP 43
USB-B      1      1      1        RS 232      2      2      2      2        Wi-Fi*****      802.11 b/g/n      802.11 b/g/n      802.11 b/g/n      802.11 b/g/n        Power supply      12 ÷ 16 V DC        Power consumption      3W      3W      3W      3W        Operating temperature      +10 ÷ +40 °C      +10 ÷ +40 °C      +10 ÷ +40 °C        Atmospheric humidity*****      40 ÷ 80%      40 ÷ 80%      40 ÷ 80%        Meighing pan dimensions      9100 mm      9100 mm      9100 mm        Weighing chamber dimensions      190 × 190 × 226 mm      190 × 190 × 226 mm      190 × 190 × 226 mm        Weighing device dimensions      351 × 205,5 × 348 mm        Net weight      7.3 kg      7.3 kg      7.3 kg      7.3 kg      7.3 kg	Databases	5	5	5	5
RS 232      2      2      2        Wi-Fi*****      802.11 b/g/n      802.11 b/g/n      802.11 b/g/n      802.11 b/g/n        Power supply      12 ÷ 16 V DC        Power consumption      3W      3W      3W      3W      3W        Operating temperature      +10 ÷ +40 °C      +10 ÷ +40 °C      +10 ÷ +40 °C      +10 ÷ +40 °C        Atmospheric humidity*****      40 ÷ 80%      40 ÷ 80%      40 ÷ 80%      40 ÷ 80%        Meighing pan dimensions      >20 ÷ +50 °C      -20 ÷ +50 °C      -20 ÷ +50 °C      -20 ÷ +50 °C        Weighing chamber dimensions      100 nm      910 nm      910 nm      910 nm      910 nm        Weighing device dimensions      190 × 190 × 226 mm        Net weight      7.3 kg      7.3 kg      7.3 kg      7.3 kg      7.3 kg        Gross weight      9.3 kg      9.3 kg      9.3 kg      9.3 kg      9.3 kg	USB-A (interchangeable)	2	2	2	2
Wi-Fi°****      802.11 b/g/n      802.11 b/g/n      802.11 b/g/n      802.11 b/g/n        Power supply      12 ÷ 16 V DC        Power consumption      3W      3W      3W      3W        Operating temperature      +10 ÷ +40 °C      +10 ÷ +40 °C      +10 ÷ +40 °C      +10 ÷ +40 °C        Atmospheric humidity*****      40 ÷ 80%      40 ÷ 80%      40 ÷ 80%      40 ÷ 80%      40 ÷ 80%      40 ÷ 80%        Transport and storage temperature      -20 ÷ +50 °C	USB-B	1	1	1	1
Power supply      12 ÷ 16 V DC      10 ÷ 140 °C      10 · 10 · ÷ 40 °C      10 · ÷ 40 °C      10 · ÷ +40 °C      10 · ÷ 50 °C      -20 · ÷ +50 °C      10 · · · +40 °C      10 · · · ·	RS 232	2	2	2	2
Power consumption      3W      3W      3W      3W        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        Weighing chamber dimensions      190 × 190 × 226 mm      351 × 205,5 × 348 mm        Net weight      7.3 kg      7.3 kg      7.3 kg      7.3 kg      7.3 kg        Gross weight      9.3 kg      9.3 kg      9.3 kg      9.3 kg      9.3 kg	Wi-Fi <sup>®</sup> ****	802.11 b/g/n	802.11 b/g/n	802.11 b/g/n	802.11 b/g/n
Operating temperature      +10 ÷ +40 °C      40 ÷ 80%      40 ÷ 40 °C      *10 ÷ 40	Power supply	12 ÷ 16 V DC			
Atmospheric humidity*****    40 ÷ 80%    40 ÷ 80%    40 ÷ 80%    40 ÷ 80%      Transport and storage temperature    -20 ÷ +50 °C    -20 ÷ ± +5	Power consumption	3 W	3 W	3 W	3 W
Transport and storage temperature    -20 ÷ +50 °C    -20 ÷ ±50 °C    -20 ÷	Operating temperature	+10 ÷ +40 °C			
temperature        Weighing pan dimensions      Ø 100 mm      Ø 100 mm      Ø 100 mm      Ø 100 mm        Weighing chamber dimensions      190 × 190 × 226 mm        Weighing device dimensions      351 × 205,5 × 348 mm        Net weight      7.3 kg      7.3 kg      7.3 kg      7.3 kg      7.3 kg        Gross weight      9.3 kg      9.3 kg      9.3 kg      9.3 kg      9.3 kg	Atmospheric humidity*****	40 ÷ 80%	40 ÷ 80%	40 ÷ 80%	40 ÷ 80%
Weighing chamber dimensions      190 × 190 × 226 mm      351 × 205,5 × 348 mm <td></td> <td>-20 ÷ +50 ℃</td> <td>-20 ÷ +50 ℃</td> <td>-20 ÷ +50 ℃</td> <td>-20 ÷ +50 ℃</td>		-20 ÷ +50 ℃	-20 ÷ +50 ℃	-20 ÷ +50 ℃	-20 ÷ +50 ℃
Weighing device dimensions      351 × 205,5 × 348 mm      351	Weighing pan dimensions	ø 100 mm	ø 100 mm	ø 100 mm	ø 100 mm
Net weight      7.3 kg      9.3	Weighing chamber dimensions	190 × 190 × 226 mm			
Gross weight      9.3 kg      9.3 kg      9.3 kg      9.3 kg	Weighing device dimensions	351 × 205,5 × 348 mm			
Gross weight      9.3 kg      9.3 kg      9.3 kg      9.3 kg	Net weight	7.3 kg	7.3 kg	7.3 kg	7.3 kg
Packaging dimensions      495 × 400 × 515 mm	Gross weight	9.3 kg	9.3 kg	9.3 kg	9.3 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 ℃

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

\*\*\*\* optional solution on purchase order

\*\*\*\*\* 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.

Naximum capacity [Max]S20 gMinimu loadReadability (d)0.1 mgVerification scale interval [c]Tare range-S20 gStandard valuesRepeatability(Max)*0.25 mgMinimum weight (USP)160 mgMinimum weight (USP)160 mgMinimum weight (USP)0.12 mgRepeatability(Max)*0.12 mg <th></th> <th>AS 520.R2 PLUS</th>		AS 520.R2 PLUS
Minimunioad–Readbilly (al)0.1mgVerification scale interval (al)-Tare rango-20.9 (Construction construction	Maximum capacity [Max]	
Readability[d]0.1 mgVerification scale interval [e]Tare rangeStandard valuesRepeatability(Max)*0.8 mgRepeatability(Max)*0.25 mgMinimu weight (U-Phs, k=2)160 mgMinimu weight (U-Phs, k=2)0.1 mgPermissible valuesRepeatability(Max)*0.4 mgEneration (Max)*0.4 mgLiterativ1.0 mgVerificationAdjustmentVerificationOld LassOld LassDisplayUCD (with backlight)Keypad144DatabaseStablaseUSA-Ration (Max)*0.21 Mg/		-
Verification scale interval [e]–Tarcange-20 gnStandar values08 mgRepeatability(SMax)*08 mgRepeatability(SMax)*08 mgMinimu weight (U=Ns, k=.2)16 mgMinimu weight (U=Ns, k=.2)01 mgPermissibues-Repeatability(Max)*04 mgRepeatability(Max)*04 mgRepeatability(Max)*04 mgRepeatability(Max)*04 mgRepeatability(Max)*04 mgStalization time**04 mgStalization time**04 mgAdjustment-Old Class-DisplayLife with scale scal		0.1 mg
Standard valuesRepeatability(5% Max)*0.08 mgRepeatability(Max)*0.25 mgMinimum weight (USP)16 mgMinimum weight (USP)16 mgPermissible values0.2 mgRepeatability(fs% Max)*0.12 mgRepeatability(Max)*0.4 mgLinearity4.04 mgStabilization time***2.5 sAdjustmentinternalOlML Class-DisplayLCD (with backlight)Keypad14 keysProtection class9USB-A (interchangeable)2Varifier80211 b/g/nVirifier80211 b/g/nVirifier80211 b/g/nKeypad14 keysProtection class9Virifier80211 b/g/nVirifier80211 b/g/nKeypad12 + 16 VDCPower consumption3WOperating temperature40 + 80%Atmospherichunidity****40 + 80%Viriging partimensions901 kmWeighing partimensions31 × 2025 x 348 mmNetweight31 × 2025 x 348 mmNetweight31 kg		
Standard valuesRepeatability(5% Max)*0.08 mgRepeatability(Max)*0.25 mgMinimum weight (USP)16 mgMinimum weight (USP)16 mgPermissible values0.2 mgRepeatability(fs% Max)*0.12 mgRepeatability(Max)*0.4 mgLinearity4.04 mgStabilization time***2.5 sAdjustmentinternalOlML Class-DisplayLCD (with backlight)Keypad14 keysProtection class9USB-A (interchangeable)2Varifier80211 b/g/nVirifier80211 b/g/nVirifier80211 b/g/nKeypad14 keysProtection class9Virifier80211 b/g/nVirifier80211 b/g/nKeypad12 + 16 VDCPower consumption3WOperating temperature40 + 80%Atmospherichunidity****40 + 80%Viriging partimensions901 kmWeighing partimensions31 × 2025 x 348 mmNetweight31 × 2025 x 348 mmNetweight31 kg	Tare range	-520 g
Repeatability(Max)*0.25 mgMinimum weight (USP)160 mgMinimum weight (U=1%, k=2)16 mgPermisble values0.12 mgRepeatability(Max)*0.4 mgBepeatability(Max)*0.4 mgLinearity±0.4 mgStabilization time***25 sAdjustmentOldin Class-Oldin Class-DisplayLCD (with backlight)Keypad14 keysProtection class1USB-82USB-81Restability2Wiff*****802.11 hg/mOperating megrature10+40°CAmspherichundity*****40-80%Verighing na dimensions100 mmWeighing nationensions100 mmWeighing device dimensions100 kardisWeighing device dimensions33 kg		
Repeatability(Max)*0.25 mgMinimum weight (USP)160 mgMinimum weight (U=1%, k=2)16 mgPermisble values0.12 mgRepeatability(Max)*0.4 mgBepeatability(Max)*0.4 mgLinearity±0.4 mgStabilization time***25 sAdjustmentOldin Class-Oldin Class-DisplayLCD (with backlight)Keypad14 keysProtection class1USB-82USB-81Restability2Wiff*****802.11 hg/mOperating megrature10+40°CAmspherichundity*****40-80%Verighing na dimensions100 mmWeighing nationensions100 mmWeighing device dimensions100 kardisWeighing device dimensions33 kg	Repeatability(5% Max)*	0.08 mg
Minimum veight (USP)160 mgMinimum veight (U=1%, k=2)16 mgPermissible values		
Minimu weight (U=1%, k=2)16 mgPermissible valuesIRepeatability (5% Max)*0.4 mgRepeatability (Max)*0.4 mgIlnearity4.0 4 mgStabilization time***2.5 sAdjustmentInternalVerificationOlML Class-DisplayCD (with backlight)Repeatability (Max)*9.4 3Otablazes5USB-A (interchangeable)2.1 MaxUSB-A (interchangeable)2.1 MaxWi-Fire****0.2 MaxPower comsumption3WOperating temperature4.0 4 moxAusopher chumidity*****0.2 MaxVeliging and mensions9.0 moxWeighing nationesions100 mmWeighing device dimensions100 mmNetweight3.3 kg		-
Repeatability(5% Max)*0.12 mgRepeatability(Max)*0.4 mgLinearity± 0.4 mgStabilization time***2.5 sAdjustmentinternalVerification-Olini Class-DisplayCD (with backlight)Keypad10 (With backlight)Rotabases5USB-8 (interchangeable)2Verification2Ower supply10 ± 40 °CPower consumption3WOperating temperature40 ± 80%Transport and storage temperature-20 ± 50 °CWeighing hambendings100 mmWeighing hambendings100 mmWeighing hambendings33 kg		
Repeatability(Max)*0.4 mgLinearity±0.4 mgStabilization time***25 sAdjustmentinternalVerificationOIML ClassDisplayLCD (with backlight)Keypad14 keysProtection classIP 43Databases5USB-A (interchangeable)2VSB-B1RS 2322Power consumption3WOperating temperature+10 ÷ 440°CAtmospheric humidity****40 ÷ 80%Transport and storage temperature-20 ÷ 50°CWeighing chanber dimensions190 × 190 × 226 mmWeighing charbons351 × 325 × 348 mmWeighing charbons351 × 325 × 348 mmKeypad100 mmWeighing charbons351 × 325 × 348 mmWeighing charbons351 × 325 × 348 mmNet weight93 kg	Permissible values	
Linearity±04 mgStabilization time***25 sAdjustmentinternalVerification-OIML Class-DisplayLCD (with backlight)Keypad14 keysProtection classP43Databases5USB-A (interchangeable)2USB-B1RS 2322Wi-Fi*****80211 b/g/nPower consumption3WOpwer consumption3WOpwerating temperature+10 ÷ +40 °CAtmospheric humidity*****9100 mmWeighing and imensions190 × 190 × 226 mmVeighing device dimensions51 × 205,5 × 348 mmNet weight7.3 kg	Repeatability(5% Max)*	0.12 mg
Stabilization time***25 sAdjustmentinternalVerificationOIML ClassDisplayLCD (with backlight)Keypad14 keysProtection classIP 43Databases5USB-A (interchangeable)2USB-B1RY 2322Wi-Fi****802.11 b/g/nPower onsumption3WOperating temperature-00 + 40 °CAtmospheric humidity****40 + 80%Veighing pan dimensions9010 mmWeighing chamber dimensions9010 mmWeighing device dimensions93 kg	Repeatability(Max)*	0.4 mg
AdjustmentinternalAdjustmentinternalVerification–OIML Class–DisplayLCD (with backlight)Keypad14 keysProtection classIP 43Databases5USB-A (interchangeable)2USB-B1R5 2322Wi-Fi*****802.11 b/g/nPower consumption12 + 16 V DCPower consumption3WOperating temperature-20 + 450 °CKtospier tambenisons900 mmWeighing and imensions901 mm 2205 mmWeighing device dimensions931 kgKtospiert tambenisons931 kg	Linearity	± 0.4 mg
VerificationOIML ClassDisplayLCD (with backlight)Keypad14 keysProtection classP43Databases5USB-A (interchangeable)2USB-B1RS 2322Wi-Fi*****802.11 b/g/nPower supply12 ± 16 V DCPower consumption3WOperating temperature-20 ± +50 °CKinospheric humidity******90 nmWiejhing pan dimensions90 × 190 × 226 mmWeighing chamber dimensions51 × 205,5 × 348 mmNet weight7.3 kgGross weight9.3 kg	Stabilization time***	2.5 s
OML Class–DisplayLCD (with backlight)Keypad14 keysProtection classIP 43Databases5USB-A (interchangeable)2USB-B1RS 2322Wi-Fi*****802.11 b/g/nPower onsumption3WOperating temperature+10 ÷ +40 °CAtmospheric humidity*****40 ÷ 80%Transport and storage temperature>00 mmWeighing namiensions9100 mmWeighing device dimensions351 × 205,5 × 348 mmNet weight7.3 kgGross weight9.3 kg	Adjustment	internal
DisplayLCD (with backlight)Keypad14 keysProtection classIP 43Databases5USB-A (interchangeable)2USB-B1RS 2322Wi-Fi*****802.11 b/g/nPower supply12 + 16 V DCPower consumption3WOperating temperature+10 + +40 °CAtmospheric humidity*****40 + 80%Transport and storage temperature-20 + 50 °CWieghing pan dimensions190 × 190 × 226 mmWeighing device dimensions51 × 205,5 × 348 mmNet weight7.3 kgGross weight9.3 kg	Verification	_
Keypad14 keysProtection classIP 43Databases5USB-A (interchangeable)2USB-B1RS 2322Wi-Fi*****802.11 b/g/nPower supply12 ÷ 16 V DCPower consumption3WOperating temperature40 ÷ 80%Atmospheric humidity*****90.00 mmWiejhing pan dimensions90 × 190 × 226 mmWeighing chamber dimensions190 × 190 × 226 mmWeighing device dimensions31 × 205,5 × 348 mmNet weight7.3 kgGross weight9.3 kg	OIML Class	_
Protection classIP 43Databases5USB-A (interchangeable)2USB-B1RS 2322Wi-Fi*****802.11 b/g/nPower supply12 ÷ 16 V DCPower consumption3WOperating temperature+10 ÷ +40 °CAtmospheric humidity*****40 ÷ 80%Weighing pan dimensions9 100 mmWeighing device dimensions51 × 205, × 348 mmNet weight7.3 kgGross weight9.3 kg	Display	LCD (with backlight)
Databases5USB-A (interchangeable)2USB-B1RS 2322Vi-Fi****802.11 b/g/nPower supply12÷16 V DCPower consumption3WOperating temperature+10÷440 °CAtmospheric humidity*****40÷80%Transport and storage temperature-20÷+50 °CWeighing pan dimensions9100 mmWeighing device dimensions351 × 205,5 × 348 mmNet weight7.3 kgGross weight9.3 kg	Keypad	14 keys
USB-A (interchangeable)2USB-B1RS 2322Wi-Fi® ****802.11 b/g/nPower supply12 ÷ 16 V DCPower consumption3WOperating temperature+10 ÷ +40 °CAtmospheric humidity*****40 ÷ 80%Transport and storage temperature-20 ÷ +50 °CWeighing pan dimensions90 nmWeighing device dimensions190 × 190 × 226 mmWeighing device dimensions351 × 205,5 × 348 mmNet weight7.3 kgGross weight9.3 kg	Protection class	IP 43
USB-B1RS 2322Wi-Fi®****802.11 b/g/nPower supply12 ÷ 16 V DCPower consumption3WOperating temperature+10 ÷ +40 °CAtmospheric humidity*****40 ÷ 80%Transport and storage temperature-20 ÷ +50 °CWeighing pan dimensions90 × 190 × 226 mmWeighing device dimensions51 × 205,5 × 348 mmNet weight3.3 kg	Databases	5
RS 2322Wi-Fi®****802.11 b/g/nPower supply12 ÷ 16 V DCPower consumption3WOperating temperature+10 ÷ +40 °CAtmospheric humidity*****40 ÷ 80%Transport and storage temperature-20 ÷ +50 °CWeighing pan dimensionsØ 100 mmWeighing chamber dimensions190 × 190 × 226 mmWeighing device dimensions51 × 205,5 × 348 mmNet weight9.3 kg	USB-A (interchangeable)	2
Wi-Fi*****802.11 b/g/nPower supply12 ÷ 16 V DCPower consumption3WOperating temperature+10 ÷ +40 °CAtmospheric humidity*****40 ÷ 80%Transport and storage temperature-20 ÷ +50 °CWeighing pan dimensionsØ 100 mmWeighing chamber dimensions190 × 190 × 226 mmWeighing device dimensions351 × 205,5 × 348 mmNet weight9.3 kg	USB-B	1
Power supply12 ÷ 16 V DCPower consumption3 WOperating temperature+10 ÷ +40 °CAtmospheric humidity*****40 ÷ 80%Transport and storage temperature-20 ÷ +50 °CWeighing pan dimensionsØ 100 mmWeighing chamber dimensions190 × 190 × 226 mmWeighing device dimensions351 × 205,5 × 348 mmNet weight7.3 kgGross weight9.3 kg	RS 232	2
Power consumption3WOperating temperature+10 ÷ +40 °CAtmospheric humidity*****40 ÷ 80%Transport and storage temperature-20 ÷ +50 °CWeighing pan dimensionsø 100 mmWeighing chamber dimensions190 × 190 × 226 mmWeighing device dimensions351 × 205,5 × 348 mmNet weight7.3 kgGross weight9.3 kg	Wi-Fi® ****	802.11 b/g/n
Operating temperature+10 ÷ +40 °CAtmospheric humidity*****40 ÷ 80%Transport and storage temperature-20 ÷ +50 °CWeighing pan dimensionsØ 100 mmWeighing chamber dimensions190 × 190 × 226 mmWeighing device dimensions351 × 205,5 × 348 mmNet weight7.3 kgGross weight9.3 kg	Power supply	12 ÷ 16 V DC
Atmospheric humidity*****40 ÷ 80%Transport and storage temperature-20 ÷ +50 °CWeighing pan dimensionsØ 100 mmWeighing chamber dimensions190 × 190 × 226 mmWeighing device dimensions351 × 205,5 × 348 mmNet weight7.3 kgGross weight9.3 kg	Power consumption	3 W
Transport and storage temperature $-20 \div +50 \degree C$ Weighing pan dimensionsØ 100 mmWeighing chamber dimensions $190 \times 190 \times 226 \text{ mm}$ Weighing device dimensions $351 \times 205,5 \times 348 \text{ mm}$ Net weight $7.3 \text{ kg}$ Gross weight $9.3 \text{ kg}$	Operating temperature	+10 ÷ +40 ℃
Weighing pan dimensionsØ 100 mmWeighing chamber dimensions190 × 190 × 226 mmWeighing device dimensions351 × 205,5 × 348 mmNet weight7.3 kgGross weight9.3 kg	Atmospheric humidity*****	40 ÷ 80%
Weighing chamber dimensions      190 × 190 × 226 mm        Weighing device dimensions      351 × 205,5 × 348 mm        Net weight      7.3 kg        Gross weight      9.3 kg	Transport and storage temperature	-20 ÷ +50 ℃
Weighing device dimensions      351 × 205,5 × 348 mm        Net weight      7.3 kg        Gross weight      9.3 kg	Weighing pan dimensions	ø 100 mm
Net weight      7.3 kg        Gross weight      9.3 kg	Weighing chamber dimensions	190 × 190 × 226 mm
Gross weight 9.3 kg	Weighing device dimensions	351 × 205,5 × 348 mm
	Net weight	7.3 kg
Packaging dimensions      495 × 400 × 515 mm	-	9.3 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:  $+15 \div +35$  °C

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

\*\*\*\* optional solution on purchase order

\*\*\*\*\* 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.

Maximum capacity (Max)120g220gMinimum load10mg10mgReadability (d)0.1mg0.1mgReadability (d)0.1mg0.1mgVerification scale interval (e)120g-220gStandard values		AS 120.R1 PLUS	AS 220.R1 PLUS
NinimunoalIongIongReadality (d)0.1mg0.1mgVerification scale interval (e)1.2mg-2mgTare rango1.2mg-2mgStandard values-2mg-2mgRepeatability (Max)*0.6mg0.6mgMinimu weight (USP)0.0mg0.6mgMinimu weight (USP)12mg0.6mgPersibility (Max)*0.9mg0.9mgPersibility (Max)*0.9mg0.9mgMinimu weight (USP)0.9mg0.9mgRepeatability (Max)*0.9mg0.9mgPersibility (SMax)*0.9mg0.9mgRepeatability (Max)*0.9mg0.9mgRepeatability (Max)*	Maximum capacity [Max]		
Readability[d]0.1mg0.1mgVerification scale interval [e]1mg1mgTare range- 10.01mg1mgStandar ValuesRepeatability(Max)*0.06 mg0.07 mg0.08 mgMinimu weight (USP)120 mg140 mg140 mgMinimu weight (USP)120 mg0.09 mg0.09 mgPermissibusRepeatability(Max)*0.09 mg0.09 mg0.09 mgRepeatability(Max)*0.09 mg0.09 mg0.09 mgRepeatability(Max)*0.09 mg0.09 mg0.09 mgRepeatability(Max)*0.01 mg0.09 mg0.01 mgRepeatability(Max)*0.01 mg0.01 mg0.01 mgRepeatability(Max)* <th></th> <th></th> <th>-</th>			-
Verification scale interval (e)IngIngTarenge-200 c.200 c.20		-	-
Tare range-120 g-220 gStandard valuesRepeatability(5% Max)*0.06 mg0.07 mgRepeatability(Max)*0.08 mg0.08 mgMinimu weight (USP)12 mg14 mgMinimu weight (USPs, k=2)12 ng14 mgPermissible values0.09 mg0.09 mgRepeatability(Max)*0.1 mg0.1 mgLinearity±0.2 mg±0.2 mgStabilization time**2 s2 sAdjustmentExternalExternalVerificationNoNoOlful ClassDisplayLD (with backlight)LD (with backlight)Keypad14 keys14 keysProtection class11USB-A (interchangeable)22Verification22Verise22Verise22Protection class14 keysDisplayLD (with backlight)Keypad14 keys10 Li backlight)2VBS-A (interchangeable)22 1 backlight)2VBS-A (interchangeable)22 1 backlight)1Keypad11 backlight)1Keypad12 backlight)21 backlight)21 backlight)21 backlight)21 backlight)21 backlight)11 backlight)21 backlight)21 backlight)21 b		-	-
Standard values        Repeatability(5% Max)*      0.06 mg      0.07 mg        Repeatability(Max)*      0.08 mg      0.08 mg        Minimum weight (U=196, k=2)      12 mg      140 mg        Minimu weight (U=196, k=2)      12 mg      140 mg        Permissible values      0.09 mg      0.09 mg      0.09 mg        Repeatability(Max)*      0.1 mg      0.1 mg      1        Linearity      ± 0.2 mg      ± 0.2 mg      2 s        Adjustment      External      External      External        Verification time***      2 s      2 s      2        Adjustment      External      External      No        OIML Class      -      -      -        Display      LCD (with backlight)      LCD (with backlight)      Keys        Kagad      14 keys      14 keys      14 keys        Protection class      1      -      -        USB-A (interchangeable)      2      2      2        Verif****      802111 b/g/n      802111 b/g/n      80211 b/g/n        Power soumption      3W      3W      - </th <th>Tare range</th> <th></th> <th>-</th>	Tare range		-
Repeatability(Max)*0.08 mg0.08 mgMinimum weight (USP)120 mg144 mgPermissible values12 mg14 mgRepeatability(Max)*0.09 mg0.09 mgRepeatability(Max)*0.09 mg0.09 mgRepeatability(Max)*0.1 mg0.09 mgLinearity±0.2 mg±0.2 mgStabilization time***2 s2 sAdjustmentExternalExternalVerificationNoNoOILLassDisplay(DO with backlight)(DO with backlight)Keypad14 kays14 kaysProtection classP3USB-811R5 23222Wirfi****802.11 b/g/n802.11 b/g/nPower onsumption3W3WOperating temperature40% + 80%40 + 80%Tansport and storage temperature-20 + 450 °CWeighing hammensions800 mm801 0 mmWeighing device dimensions190 x 190 x 220 mmWeighing device dimensions190 x 803 x 804 mmNet weight73 kg73 kg			
Minimum veight (USP)120 mg140 mgMinimum weight (U=1%, k=2)12 mg14 mgPermissible values	Repeatability(5% Max)*	0.06 mg	0.07 mg
Minimum veight (USP)120 mg140 mgMinimum weight (U=1%, k=2)12 mg14 mgPermissible values	Repeatability(Max)*	0.08 mg	0.08 mg
Minimu weight (U=1%, k=2)I2 mg14 mgPermissible valuesI2 mg100 mgRepeatability(S% Max)*0.09 mg0.09 mgRepeatability(Max)*0.1 mg0.1 mgLinearity4.02 mg4.02 mg2.02 mgStabilization time***2.5 G2.5 Kernal2.5 KernalVerificationNoNo0.01 mgOll LicasDisplayLCD (with backlight)LCD (with backlight)KeypadVerification14 keys14 keys14 keysProtection class952Databases552VBF-R0.211 b/g/n0.211 b/g/n0.211 b/g/nPower consumption3W3U3UOperating temperature4.04 +4.0°C4.04 +4.0°CAtomspherichumidity****4.04 +5.0°C3UWeighing and timensions9.04 y0.9222 mm9.09 y0.9225 x0.84 mmWeighing device dimensions31 x205 x348 mm31 x205 x348 mmKerseight31 x205 x348 mm31 x205 x348 mmKerseight31 x205 x348 mm31 x205 x348 mm		-	
Permissible valuesRepeatability(5% Max)*0.09 mg0.09 mgRepeatability(Max)*0.1 mg0.1 mgLinearity±0.2 mg±0.2 mgStabilization time***2 s2 sAdjustmentExternalExternalVerificationNoNoOIML ClassDisplayLDD (with backlight)LDD (with backlight)Keypad14 keysLDD (with backlight)Protection classP4314 keysDisblay22VSB-A (interchangeable)22VSB-A (interchangeable)22VSB-B12100 MCPower supply12+16V DC2Power consumption3W3WOpparating temperature+10+440°CAtmospher humidity****40% +80%40+80%Weighing chamber dimensions100 mm100 mmWeighing chamber dimensions31×205 > 348 mm51×205 > 348 mmNetweight7.3 kg31×205 > 348 mm	-	-	
Repeatability(Max)*0.1 mg0.1 mgLinearity±0.2 mg±0.2 mgStabilization time***2 s2 sAdjustmentExternalExternalVerificationNoNoOIML ClassDisplayLCD (with backlight)LCD (with backlight)Keypad14 keys14 keysProtection classP4314 keysDisblay22USB-A (interchangeable)22USB-A (interchangeable)22Wi-Fi*****802.11 b/g/n802.11 b/g/nPower consumption3W3WOperating temperature+10 ± 40°C+10 ± 40°CAtmospheric humidity*****90x 190 × 222 mm90x 190 × 190 × 226 mmWeighing chamber dimensions190 × 190 × 222 mm90x 190 × 190 × 226 mmWeighing chamber dimensions31x 2055 × 348 mm31x 2055 × 348 mmNet weight7.3 kg7.3 kg7.3 kg			
Linearity      ±0.2 mg      ±0.2 mg        Stabilization time***      2 s      2 s        Adjustment      External      External        Verification      No      No        OIML Class      -      -        Display      LCD (with backlight)      LCD (with backlight)        Keypad      14 keys      14 keys        Protection class      P43      14 keys        Databases      5      5        USB-A (interchangeable)      2      2        ViFiF*****      802.11 b/g/n      802.11 b/g/n        Power consumption      3W      3W        Operating temperature      +10 + 40°C      +10 + 40°C        Atmospheric humidity*****      400 mm      40 + 80%        Weighing chamber dimensions      90 × 190 × 222 mm      100 mm        Weighing chamber dimensions      100 mm      351 × 2055 × 348 mm        Weighing device dimensions      351 × 2055 × 348 mm      351 × 2055 × 348 mm	Repeatability(5% Max)*	0.09 mg	0.09 mg
Stabilization time***2 s2 sAdjustmentExternalExternalVerificationNoNoOIML ClassDisplayLCD (with backlight)LCD (with backlight)Keypad14 keys14 keysProtection classIP 43IP 43Databases55USB-A (interchangeable)22VSB-B11Rs 23222Wi-Fi*****802.11 b/g/n802.11 b/g/nPower onsumption3W3WOperating temperature+10 ± +40 °CAtmospheric humidity*****400 mmVielghing pan dimensions100 mmWielghing chamber dimensions51 × 205 × 348 mmNeighing device dimensions51 × 205 × 348 mmNeighing device dimensions93 kgOst93 kg	Repeatability(Max)*	0.1 mg	0.1 mg
AdjustmentExternalExternalVerificationNoNoOIML ClassDisplayLCD (with backlight)LCD (with backlight)Keypad14 keys14 keysProtection classIP43IP43Databases55USB-A (interchangeable)22VSB-B11Ry Sag222Vi-Fi*****802.11 b/g/n802.11 b/g/nPower consumption3W3WOperating temperature-20 ÷ 50°C-20 ÷ 50°CVielging pan dimensions100 mm100 mmVielging chamber dimensions51 × 205 × 348 mm351 × 205 × 348 mmNet weight351 × 205 × 348 mm351 × 205 × 348 mm	Linearity	± 0.2 mg	± 0.2 mg
Verification      No      No        OIML Class      -      -        Display      LCD (with backlight)      LCD (with backlight)        Keypad      14 keys      14 keys        Protection class      IP 43      IP 43        Databases      5      5        USB-A (interchangeable)      2      2        VSB-B      1      1        RS 232      2      2        Wi-Fi*****      802.11 b/g/n      802.11 b/g/n        Power supply      12 + 16 V DC      12 + 16 V DC        Power consumption      3W      3W        Operating temperature      +10 ÷ 44 °C      +10 ÷ 44 °C        Atmospheric humidity*****      40% ÷ 80%      40 ÷ 80%        Vieighing pan dimensions      ø 100 mm      9 × 100 xm        Weighing chamber dimensions      190 × 190 × 222 mm      190 × 190 × 226 mm        Weighing device dimensions      351 × 205.5 × 348 mm      351 × 205.5 × 348 mm        Net weight      7.3 kg      7.3 kg      7.3 kg	Stabilization time***	2 s	2 s
OMUL Cass      -        Display      LCD (with backlight)      LCD (with backlight)        Keypad      14 keys      14 keys        Protection class      IP 43      IP 43        Databases      5      5        USB-A (interchangeable)      2      2        VSB-B      1      1        RS 232      2      2        Wi-Fi*****      802.11 b/g/n      802.11 b/g/n        Power supply      12 ± 16 V DC      12 ± 16 V DC        Power consumption      3W      3W        Operating temperature      +10 ± +40 °C      +10 ± +40 °C        Atmospheric humidity*****      40% ± 80%      40 ± 80%        Weighing pan dimensions      910 mm      9100 mm        Weighing chamber dimensions      190 × 190 × 222 mm      190 × 190 × 226 mm        Weighing device dimensions      351 × 2055 × 348 mm      51 × 2055 × 348 mm        Net weight      7.3 kg      7.3 kg	Adjustment	External	External
DisplayLCD (with backlight)LCD (with backlight)Keypad14 keys14 keysProtection classIP 43IP 43Databases55USB-A (interchangeable)22USB-B11Rs 23222Wi-Fi*****802.11 b/g/n802.11 b/g/nPower supply12 ± 16 V DC12 ± 16 V DCPower consumption3W3WOperating temperature+10 ± +40 °C+10 ± +40 °CAtmospheric humidity*****4006 ± 80%40 ± 80%Vieighing pan dimensions100 nm90 × 190 × 220 mmWeighing device dimensions51 × 2055 × 348 mm551 × 2055 × 348 mmNet weight73 kg73 kg73 kgGross weight93 kg93 kg93 kg	Verification	No	No
Keypad14 keys14 keysProtection classIP 43IP 43Databases55USB-A (interchangeable)22USB-B11RS 23222Wi-Fi*****802.11 b/g/n802.11 b/g/nPower supply12 ÷ 16 V DC12 ÷ 16 V DCPower consumption3W3WOperating temperature+10 ÷ +40 °C+10 ÷ +40 °CAtmospheric humidity*****400 m-20 ÷ +50 °CVieighing pan dimensions190 × 190 × 222 mm190 × 190 × 226 mmWeighing device dimensions51 × 205 × 348 mm351 × 205 × 348 mmNet weight7.3 kg7.3 kg7.3 kg	OIML Class	_	_
Protection class      IP 43      IP 43        Databases      5      5        USB-A (interchangeable)      2      2        USB-B      1      1        RS 232      2      2        Vi-Fi*****      802.11 b/g/n      802.11 b/g/n        Power supply      12÷16V DC      12÷16V DC        Power consumption      3W      3W        Operating temperature      +10÷+40°C      +10÷+40°C        Atmospheric humidity*****      40%÷ 80%      40÷ 80%        Weighing pan dimensions      9100 mm      9100 mm        Weighing chamber dimensions      190 × 190 × 222 mm      51 × 205.5 × 348 mm        Weighing device dimensions      351 × 205.5 × 348 mm      51 × 205.5 × 348 mm        Net weight      7.3 kg      9.3 kg	Display	LCD (with backlight)	LCD (with backlight)
Databases      5      5        Databases      5      5        USB-A (interchangeable)      2      2        USB-B      1      1        RS 232      2      2        Wi-Fi*****      802.11 b/g/n      802.11 b/g/n        Power supply      12 ± 16 V DC      12 ± 16 V DC        Power consumption      3W      3W        Operating temperature      +10 ± +40 °C      +10 ± +40 °C        Atmospheric humidity******      40% ± 80%      40 ± 80%        Transport and storage temperature      -20 ± +50 °C      -20 ± + 50 °C        Weighing pan dimensions      9 100 mm      9100 mm        Weighing chamber dimensions      910× 190× 222 mm      190× 190× 226 mm        Weighing device dimensions      51 × 205.5 × 348 mm      351 × 205.5 × 348 mm        Net weight      7.3 kg      7.3 kg        Gross weight      9.3 kg      9.3 kg	Keypad	14 keys	14 keys
USB-A (interchangeable)      2      2        USB-B      1      1        RS 232      2      2        Wi-Fi® ****      802.11 b/g/n      802.11 b/g/n        Power supply      12 ÷ 16 V DC      12 ÷ 16 V DC        Power consumption      3W      3W        Operating temperature      +10 ÷ +40 °C      +10 ÷ +40 °C        Atmospheric humidity*****      40% ÷ 80%      40 ÷ 80%        Vieighing pan dimensions      0 100 mm      -20 ÷ +50 °C        Weighing chamber dimensions      190 × 190 × 222 mm      190 × 190 × 226 mm        Weighing device dimensions      51 × 205.5 × 348 mm      51 × 205.5 × 348 mm        Net weight      7.3 kg      7.3 kg	Protection class	IP 43	IP 43
USB-B      1      1        RS 232      2      2        Wi-Fi®****      802.11 b/g/n      802.11 b/g/n        Power supply      12 ÷ 16 V DC      12 ÷ 16 V DC        Power consumption      3W      3W        Operating temperature      +10 ÷ +40 °C      +10 ÷ +40 °C        Atmospheric humidity*****      40% ÷ 80%      40 ÷ 80%        Transport and storage temperature      -20 ÷ +50 °C      -20 ÷ ÷ 50 °C        Weighing pan dimensions      Ø 100 mm      Ø 100 mm        Weighing device dimensions      190 × 190 × 222 mm      190 × 190 × 226 mm        Net weight      7.3 kg      7.3 kg      7.3 kg        Gross weight      9.3 kg      9.3 kg      9.3 kg	Databases	5	5
RS 232      2      2        Wi-Fi*****      802.11 b/g/n      802.11 b/g/n        Power supply      12 ÷ 16 V DC      12 ÷ 16 V DC        Power consumption      3 W      3 W        Operating temperature      +10 ÷ +40 °C      +10 ÷ +40 °C        Atmospheric humidity*****      40% ÷ 80%      40 ÷ 80%        Transport and storage temperature      -20 ÷ +50 °C      -20 ÷ +50 °C        Weighing pan dimensions      9 100 mm      9 100 mm        Weighing device dimensions      190 × 190 × 222 mm      190 × 190 × 226 mm        Net weight      7.3 kg      7.3 kg      7.3 kg        Gross weight      9.3 kg      9.3 kg      9.3 kg	USB-A (interchangeable)	2	2
Wi-Fi*****      802.11 b/g/n      802.11 b/g/n        Power supply      12 ÷ 16 V DC      12 ÷ 16 V DC        Power consumption      3W      3W        Operating temperature      +10 ÷ +40 °C      +10 ÷ +40 °C        Atmospheric humidity*****      40% ÷ 80%      40 ÷ 80%        Transport and storage temperature      -20 ÷ +50 °C      -20 ÷ +50 °C        Weighing pan dimensions      Ø 100 mm      Ø 100 mm        Weighing chamber dimensions      190 × 190 × 222 mm      190 × 190 × 226 mm        Net weight      7.3 kg      7.3 kg        Post supply      9.3 kg      9.3 kg	USB-B	1	1
Power supply      12 ÷ 16 V DC      12 ÷ 16 V DC        Power consumption      3W      3W        Operating temperature      +10 ÷ +40 °C      +10 ÷ +40 °C        Atmospheric humidity*****      40% ÷ 80%      40 ÷ 80%        Transport and storage temperature      -20 ÷ +50 °C      -20 ÷ +50 °C        Weighing pan dimensions      Ø 100 mm      Ø 100 mm        Weighing chamber dimensions      190 × 190 × 222 mm      190 × 190 × 226 mm        Weighing device dimensions      351 × 205.5 × 348 mm      351 × 205.5 × 348 mm        Net weight      7.3 kg      7.3 kg        Gross weight      9.3 kg      9.3 kg	RS 232	2	2
Power consumption      3 W      3 W        Operating temperature      +10 ÷ +40 °C      +10 ÷ +40 °C        Atmospheric humidity*****      40% ÷ 80%      40 ÷ 80%        Transport and storage temperature      -20 ÷ +50 °C      -20 ÷ +50 °C        Weighing pan dimensions      Ø 100 mm      Ø 100 mm        Weighing chamber dimensions      190 × 190 × 222 mm      190 × 190 × 226 mm        Weighing device dimensions      351 × 205.5 × 348 mm      351 × 205.5 × 348 mm        Net weight      7.3 kg      7.3 kg        Gross weight      9.3 kg      9.3 kg	Wi-Fi® ****	802.11 b/g/n	802.11 b/g/n
Operating temperature    +10 ÷ +40 °C    +10 ÷ +40 °C      Atmospheric humidity*****    40% ÷ 80%    40 ÷ 80%      Transport and storage temperature    -20 ÷ +50 °C    -20 ÷ +50 °C      Weighing pan dimensions    Ø 100 mm    Ø 100 mm      Weighing chamber dimensions    190 × 190 × 222 mm    190 × 190 × 226 mm      Weighing device dimensions    351 × 205.5 × 348 mm    351 × 205.5 × 348 mm      Net weight    7.3 kg    7.3 kg    7.3 kg      Gross weight    9.3 kg    9.3 kg    9.3 kg	Power supply	12 ÷ 16 V DC	12 ÷ 16 V DC
Atmospheric humidity*****    40% ÷ 80%    40 ÷ 80%      Transport and storage temperature    -20 ÷ +50 °C    -20 ÷ +50 °C      Weighing pan dimensions    Ø 100 mm    Ø 100 mm      Weighing chamber dimensions    190 × 190 × 222 mm    190 × 190 × 226 mm      Weighing device dimensions    351 × 205.5 × 348 mm    351 × 205.5 × 348 mm      Net weight    7.3 kg    7.3 kg    7.3 kg      Gross weight    9.3 kg    9.3 kg    9.3 kg	Power consumption	3 W	3 W
Transport and storage temperature      -20 ÷ +50 °C      -20 ÷ +50 °C        Weighing pan dimensions      Ø 100 mm      Ø 100 mm        Weighing chamber dimensions      190 × 190 × 222 mm      190 × 190 × 226 mm        Weighing device dimensions      351 × 205.5 × 348 mm      351 × 205.5 × 348 mm        Net weight      7.3 kg      7.3 kg      7.3 kg        Gross weight      9.3 kg      9.3 kg      9.3 kg	Operating temperature	+10 ÷ +40 °C	+10 ÷ +40 ℃
Weighing pan dimensions      Ø 100 mm      Ø 100 mm        Weighing chamber dimensions      190 × 190 × 222 mm      190 × 190 × 226 mm        Weighing device dimensions      351 × 205.5 × 348 mm      351 × 205.5 × 348 mm        Net weight      7.3 kg      7.3 kg        Gross weight      9.3 kg      9.3 kg	Atmospheric humidity*****	40% ÷ 80%	40 ÷ 80%
Weighing chamber dimensions      190 × 190 × 222 mm      190 × 190 × 226 mm        Weighing device dimensions      351 × 205.5 × 348 mm      351 × 205.5 × 348 mm        Net weight      7.3 kg      7.3 kg        Gross weight      9.3 kg      9.3 kg	Transport and storage temperature	-20 ÷ +50 ℃	−20 ÷ +50 °C
Weighing device dimensions      351 × 205.5 × 348 mm      351 × 205.5 × 348 mm        Net weight      7.3 kg      7.3 kg        Gross weight      9.3 kg      9.3 kg	Weighing pan dimensions	ø 100 mm	ø 100 mm
Net weight      7.3 kg      7.3 kg        Gross weight      9.3 kg      9.3 kg	Weighing chamber dimensions	190 × 190 × 222 mm	190 × 190 × 226 mm
Gross weight 9.3 kg 9.3 kg	Weighing device dimensions	351 × 205.5 × 348 mm	351 × 205.5 × 348 mm
	Net weight	7.3 kg	7.3 kg
Packaging dimensions      495 × 400 × 515 mm      495 × 400 × 515 mm	Gross weight	9.3 kg	9.3 kg
	Packaging dimensions	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  $\div$  +35  $^{\circ}\mathrm{C}$ 

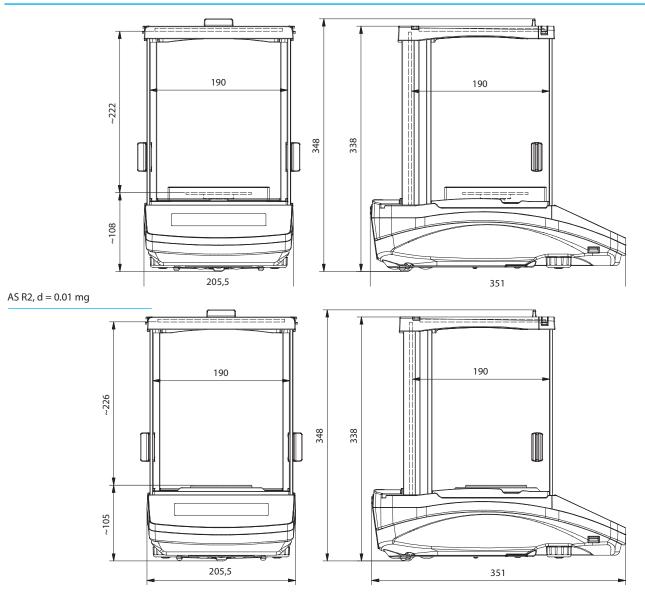
\*\*\* Stabilization time depends on external conditions and dynamics of placing loads on a pan, determined for FAST profile

\*\*\*\* optional solution on purchase order

\*\*\*\* 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.

# Dimensions



AS R2, AS R1 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
- AP2-1 power loop output

# Draft shields and anti-draft chambers

#### • protective cover for R series indicator

#### **Electrical accessories**

- ZR-02 power supply with battery
- panel box

# 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

#### RAD KEY

• Establishing cooperation between a weighing instrument and a computer

#### **R.Barcode**

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

#### **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

#### R Panel

- operator access to all keys and functions that are to be found on an operation panel
- communication via COM1, COM2 or USB,
- compatible with: Windows Vista, 7, 8, 8.1, 10, Server 2008R2, 2012, 2016.