

# PS R2.H Precision Balances

'Standard level' measurement and proper protection class intended for operation under challenging conditions







PS R2.M.H, d = 10 mg

Hermetic external interface



Interface separated from the balance

PS R2.H, d = 1 mg

### **Functions**



Parts



Dosing



Checkweighing



Percent weighing



Statistics



Animal weighing



Autotest



Density determination



Under hook weighing



hold

GLP

procedures

measurement

Ambient conditions



Alibi memory



Replaceable unit



Multilingual menu

# **Features**

## **Ease of Use and Measurements Accuracy**

Combination of weighing accuracy and robust design enables applying PS R2.H balances in most of the laboratory and industrial solutions.

### **Resistance and Protection Under Unfavourable Ambient Conditions**

The design of appropriate protection class and closing the communication interfaces in a separate hermetic housing enable operation under difficult conditions (water splash, dust, etc.).

## Perfect Readability and Clear Information Layout

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 to Selected Functions**

Quick access keys located on the operation panel enable you to run a given function with just one click. You can assign some of the keys with a function of your choice.

# **Automatic Adjustment**

Internal adjustment system guarantees the highest accuracy and reliable measurements results.

# RADWAG MonoBLOCK™, an Innovative Weighing System

The most advanced weighing system technology allowing measurement with the readability of d=0.01 g at 10 kg maximum capacity. The mechanism guarantees stable repeatability over the whole product life cycle, it also ensures high resistance to ambient conditions change.

#### **Data Management**

PS R2.H 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.

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# **Technical Specifications**

	PS 200/2000.R2.H	PS 210.R2.H	PS 360.R2.H	PS 600.R2.H
Maximum capacity [Max]	200 g / 2000 g	210 g	360 g	600 g
Minimum load	0.02 g	0.02 g	0.02 g	0.02 g
Readability [d]	0.001 g /0.01 g	0.001 g	0.001 g	0.001 g
Verification scale interval [e]	_	_	_	_
Tare range	-2000 g	–210 g	–360 g	–600 g
Repeatability (5% Max)*	0.0005 / 0.005 g	0.0005 g	0.0005 g	0.0005 g
Repeatability (Max)	0.001 / 0.01 g	0.001 g	0.001 g	0.0015 g
Linearity	±0.002 g / ±0.02 g	±0.002 g	±0.002 g	±0.003 g
Sensitivity temperature drift**	$2 \times 10^{-6}$ / °C × Rt	$2 \times 10^{-6}$ /°C × Rt	2 × 10 <sup>-6</sup> / °C × Rt	2 × 10 <sup>-6</sup> / °C × Rt
Minimum weight (U=1%, k=2)	0.1 g	0.1 g	0.1 g	0.1 g
Minimum weight (USP)	1 g	1 g	1 g	1 g
Stabilization time	2 s / 1.5 s	2 s	2 s	2 s
Adjustment	internal	internal	internal	internal
Verification	_	_	_	_
OIML Class	_	_	_	_
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 54	IP 54	IP 54	IP 54
Databases	5	5	5	5
USB-A	1	1	1	1
USB-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	12 ÷ 16 V DC	12 ÷ 16 V DC	12 ÷ 16 V DC
Power consumption	4 W	4 W	4 W	4 W
Operating temperature	+10 ÷ +40 °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 115 mm	ø 115 mm	ø 115 mm	ø 115 mm
Weighing pan material	stainless steel 0H18N9	stainless steel 0H18N9	stainless steel 0H18N9	stainless steel 0H18N9
Weighing device dimensions				
	333 × 206 × 166 mm	333 × 206 × 166 mm	333 × 206 × 166 mm	333 × 206 × 166 mm
Net weight		333 × 206 × 166 mm 4.2 kg	333 × 206 × 166 mm 4.2 kg	333 × 206 × 166 mm 4.3 kg
Net weight Gross weight	333 × 206 × 166 mm			

Rt

Wi-Fi® is a registered trademark of Wi-Fi® Alliance.

repeatability is expressed as a standard deviation from 10 weighing cycles parameter determined in the following temperature range: +15  $\div$  +35  $^{\circ}$ C

optional solution on purchase order

In accordance with type approval, the balance parameters are maintained in temperature range:  $+15 \div +35$  °C.

# **Technical Specifications**

Maximum capacity (Max)         750 g         1000 g         2100 g         3500 g           Minimum load         0.02 g         0.5 g         0.5 g           Readability (d)         0.001 g         0.01 g         0.01 g           Verification scale interval (e)         −         −         −           Tare range         −750 g         −1000 g         −2100 g         −3500 g           Repeatability (Msx)         0.0005 g         0.0005 g         0.0005 g         0.000 g         0.000 g           Repeatability (Max)         0.0001 g         0.0003 g         0.000 g         0.000 g         0.000 g           Repeatability (Max)         0.003 g         0.000 g         0.000 g         0.000 g         0.000 g           Iclinearity         0.003 g         0.000 g         0.000 g         0.000 g         0.000 g           Sensitivity temperature drift***         2.0 10 g         10 g         10 g         10 g         10 g           Minimum weight (U=19k, ≈2)         1 g         1 g         1 g         1 g         1 g         1 g           Stabilization time         2 s         2 s         1 s         1 s         1 s         1 s         1 s         1 s         1 s         1 s         1 s		PS 750.R2.H	PS 1000.R2.H	PS 2100.R2.M.H	PS 3500.R2.M.H
Minimun load         002 g         002 g         0.01 g         0.00 g         0.00 g         -750 g         -1000 g         -2100 g         -3500 g         0.005 g	Maximum capacity [Max]		1000 g		
Readability (d)         0.001 g         0.001 g         0.01 g         0.01 g           Verification scale interval [e]         −750 g         −1000 g         −2100 g         −500 g           Tare range         −750 g         −1000 g         −2000 g         −500 g           Repeatability (98 Max)**         0.0015 g         0.0015 g         0.008 g         0.008 g           Repeatability (Max)         0.0015 g         0.0015 g         0.008 g         0.008 g           Sensitivity temperature (1ff****)         2×10 √ ° C×Rt         2×10 √ ° C×Rt         2×10 √ ° C×Rt           Minimum weight (U=1%, k=2)         0.1 g         10 g         10 g           Minimum weight (U5P)         1g         1 g         10 g         10 g           Stabilization time         2         2         1.5 s         1.5 s           Adjustment         internal         internal         internal         internal           Verification         −         −         −         −           Display         LCD (with backlight)         LCD (with backlight) <th></th> <th>0.02 g</th> <th>-</th> <th>-</th> <th>0.5 g</th>		0.02 g	-	-	0.5 g
Verification scale interval [e]         −         <	Readability [d]	-	-	-	-
Repeatability (95% Max)*         0.0005 g         0.0005 g         0.0005 g         0.008 g         0.008 g           Repeatability (Max)         ±0.003 g         ±0.003 g         ±0.003 g         ±0.002 g         ±0.002 g           Sensitivity temperature diff***         ±0.003 g         ±0.003 g         ±0.007 (℃ KR)         ≥2 ×10 ° ° ℃ KR           Minimum weight (U=196, k=2)         0.1 g         0.1 g         1 g         1 g         10 g           Minimum weight (U5P)         1 g         1 g         10 g         10 g         10 g         10 g           Stabilization time         2 s         2 s         1.5 s         1.5 s         1.5 s           Adjustment         internal         internal <t< th=""><th></th><th>-</th><th>_</th><th>_</th><th>_</th></t<>		-	_	_	_
Repeatability (Max)         0.0015 g         0.0015 g         0.008 g         0.003 g         ±0.002 g <th>Tare range</th> <th>–750 g</th> <th>-1000 g</th> <th>-2100 g</th> <th>-3500 g</th>	Tare range	–750 g	-1000 g	-2100 g	-3500 g
Linearity         ±0.003 g         ±0.003 g         ±0.02 g         ±0.02 g           Sensitivity temperature drift**         2 x 10 x 10	Repeatability (5% Max)*	0.0005 g	0.0005 g	0.005 g	0.005 g
Sensitivity temperature drift***         2 × 10° f° C× Rt         1 g           Minimum weight (U=1%, k=2)         0.1 g         1 g         10 g         10 g         10 g           Stabilization time         2 s         2 s         1.5 s         1.5 s         1.5 s           Adjustment         internal         internal         internal         internal         internal           Verification         —         —         —         —         —           OIML Class         —         —         —         —         —           Display         LCD (with backlight)         LCD (with backlight	Repeatability (Max)	0.0015 g	0.0015 g	0.008 g	0.008 g
Minimum weight (U=1%, k=2)         0.1 g         1 g         10 g         10 g           Minimum weight (USP)         1 g         1 g         10 g         10 g           Stabilization time         2 s         2 s         1.5 s         1.5 s           Adjustment         internal         internal         internal         internal           Verification         —         —         —         —           OIML Class         —         —         —         —           Display         LCD (with backlight)         LCD (with backlight)         LCD (with backlight)         LCD (with backlight)           Keypad         14 keys         15 s         14 keys         15 s	Linearity	±0.003 g	±0.003 g	±0.02 g	±0.02 g
Minimum weight (USP)         1g         1g </th <th>Sensitivity temperature drift**</th> <th>2 × 10<sup>-6</sup> / °C × Rt</th> <th><math>2 \times 10^{-6}</math>/°C×Rt</th> <th><math>2 \times 10^{-6}</math>/°C×Rt</th> <th>2 × 10<sup>-6</sup> / °C × Rt</th>	Sensitivity temperature drift**	2 × 10 <sup>-6</sup> / °C × Rt	$2 \times 10^{-6}$ /°C×Rt	$2 \times 10^{-6}$ /°C×Rt	2 × 10 <sup>-6</sup> / °C × Rt
Stabilization time         2 s         2 s         1.5 s         1.5 s           Adjustment         internal         internal         internal         internal         internal         internal           Verification         —         —         —         —         —           OIML Class         —         —         —         —         —           Display         LCD (with backlight)         <	Minimum weight (U=1%, k=2)	0.1 g	0.1 g	1 g	1 g
Adjustment         internal         internal         internal         internal           Verification         —         —         —         —           OIML Class         —         —         —         —           Display         LCD (with backlight)         LC	Minimum weight (USP)	1 g	1 g	10 g	10 g
Verification         —         <	Stabilization time	2 s	2 s	1.5 s	1.5 s
OIML Class         —         —         —           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 54         IP 54         IP 54           Databases         5         5         5           USB-A         1         1         1           USB-B         1         1         1         1           RS 232         2         2         2         2           Wi-Fi****         802.11 b/g/n         40         802.11 b/g/n         802.11 b/g/n         802.11 b/g/n         902.11 b/g/	Adjustment	internal	internal	internal	internal
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 54         IP 54         IP 54         IP 54           Databases         5         5         5         5           USB-A         1         1         1         1         1           RS 232         2         2         2         2         2           Wi-Fi****         802.11 b/g/n         40         40         40         40         40         40         40         40	Verification	_	_	_	_
Keypad         14 keys         14 keys         14 keys         14 keys         14 keys         14 keys         154	OIML Class	_	_	_	_
Protection class         IP 54	Display	LCD (with backlight)	LCD (with backlight)	LCD (with backlight)	LCD (with backlight)
Databases         5         5         5           USB-A         1         1         1         1           USB-B         1         1         1         1           RS 232         2         2         2         2           Wi-Fi****         802.11 b/g/n         802.11	Keypad	14 keys	14 keys	14 keys	14 keys
USB-A         1         1         1         1           USB-B         1         1         1         1           RS 232         2         2         2         2           Wi-Fi° ****         802.11 b/g/n	Protection class	IP 54	IP 54	IP 54	IP 54
USB-B         1         1         1         1         1         1         RS 232         2         2         2         2         2         2         Wi-Fi® ****         802.11 b/g/n         40         802.11 b/g/n         40         802.11 b/g/n         40         802.11 b/g/n         40         80         80         80         80         80         80         80         80         80         80         80         80         80 <t< th=""><th>Databases</th><th>5</th><th>5</th><th>5</th><th>5</th></t<>	Databases	5	5	5	5
RS 232         2         2         2         2         2         2         2         2         Wi-Fi®****         802.11 b/g/n         40         802.11 b/g/n         40         800         40         80         40         80         40         80         40         80%         40         80%         40         80%         80%         80%         80%         80%         80%         80%         80%         80%	USB-A	1	1	1	1
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           Power supply         12 ÷ 16 ∨ DC         4W	USB-B	1	1	1	1
Power supply         12 ÷ 16 V DC         40 × 80%         40 × 80%         40 × 80%         40 ÷ 80%	RS 232	2	2	2	2
Power consumption         4 W         4 W         4 W         4 W           Operating temperature $+10 \div +40 ^{\circ}\text{C}$ $+10 \div +40 $	Wi-Fi® ***	802.11 b/g/n	802.11 b/g/n	802.11 b/g/n	802.11 b/g/n
Operating temperature $+10 \div +40 ^{\circ}\text{C}$ Atmospheric humidity***** $40 \div 80\%$ $40 \div 80\%$ $40 \div 80\%$ $40 \div 80\%$ Transport and storage temperature $-20 \div +50 ^{\circ}\text{C}$ $-20 \div +50 ^{\circ}\text{C}$ $-20 \div +50 ^{\circ}\text{C}$ Weighing pan dimensionsØ 115 mmØ 115 mm195 × 195 mm195 × 195 mmWeighing pan materialstainless steel 0H18N9stainless steel 0H18N9stainless steel 0H18N9stainless steel 0H18N9Weighing device dimensions $333 \times 206 \times 166 ^{\circ}$ mm $333 \times 206 \times 100 ^{\circ}$ mm $333 \times 206 \times 100 ^{\circ}$ mmNet weight $4.3 ^{\circ}$ kg $4.5 ^{\circ}$ kg $4.3 ^{\circ}$ kg $4.5 ^{\circ}$ kgGross weight $6.3 ^{\circ}$ kg $6.5 ^{\circ}$ kg $5.8 ^{\circ}$ kg $6.8 ^{\circ}$ kg	Power supply	12 ÷ 16 V DC	12 ÷ 16 V DC	12 ÷ 16 V DC	12 ÷ 16 V DC
Atmospheric humidity**** $40 \div 80\%$ <t< th=""><th>Power consumption</th><th>4 W</th><th>4 W</th><th>4 W</th><th>4 W</th></t<>	Power consumption	4 W	4 W	4 W	4 W
Transport and storage temperature $-20 \div +50 ^{\circ}\text{C}$ $-20 \div +50 ^{\circ}\text{C}$ $-20 \div +50 ^{\circ}\text{C}$ $-20 \div +50 ^{\circ}\text{C}$ Weighing pan dimensionsØ 115 mmØ 115 mm195 × 195 mm195 × 195 mmWeighing pan materialstainless steel 0H18N9stainless steel 0H18N9stainless steel 0H18N9Weighing device dimensions333 × 206 × 166 mm333 × 206 × 166 mm333 × 206 × 100 mmNet weight4.3 kg4.5 kg4.3 kg4.5 kgGross weight6.3 kg6.5 kg5.8 kg6 kg	Operating temperature	+10 ÷ +40 °C	+10 ÷ +40 °C	+10 ÷ +40 °C	+10 ÷ +40 °C
temperature           Weighing pan dimensions         Ø 115 mm         Ø 115 mm         195 x 195 mm         195 x 195 mm           Weighing pan material         stainless steel 0H18N9         stainless steel 0H18N9         stainless steel 0H18N9         stainless steel 0H18N9           Weighing device dimensions         333 x 206 x 166 mm         333 x 206 x 166 mm         333 x 206 x 100 mm         333 x 206 x 100 mm           Net weight         4.3 kg         4.5 kg         4.3 kg         4.5 kg           Gross weight         6.3 kg         6.5 kg         5.8 kg         6 kg	Atmospheric humidity****	40 ÷ 80%	40 ÷ 80%	40 ÷ 80%	40 ÷ 80%
Weighing pan material         stainless steel 0H18N9         stainless steel 0H18N9         stainless steel 0H18N9         stainless steel 0H18N9           Weighing device dimensions         333 × 206 × 166 mm         333 × 206 × 166 mm         333 × 206 × 100 mm         333 × 206 × 100 mm           Net weight         4.3 kg         4.5 kg         4.3 kg         4.5 kg           Gross weight         6.3 kg         6.5 kg         5.8 kg         6 kg		−20 ÷ +50 °C	–20 ÷ +50 °C	–20 ÷ +50 °C	–20 ÷ +50 °C
Weighing device dimensions         333 × 206 × 166 mm         333 × 206 × 166 mm         333 × 206 × 100 mm         333 × 206 × 100 mm           Net weight         4.3 kg         4.5 kg         4.3 kg         4.5 kg           Gross weight         6.3 kg         6.5 kg         5.8 kg         6 kg	Weighing pan dimensions	ø 115 mm	ø 115 mm	195 × 195 mm	195 × 195 mm
Net weight         4.3 kg         4.5 kg         4.3 kg         4.5 kg           Gross weight         6.3 kg         6.5 kg         5.8 kg         6 kg	Weighing pan material	stainless steel 0H18N9	stainless steel 0H18N9	stainless steel 0H18N9	stainless steel 0H18N9
<b>Gross weight</b> 6.3 kg 6.5 kg 5.8 kg 6 kg	Weighing device dimensions	333 × 206 × 166 mm	333 × 206 × 166 mm	333 × 206 × 100 mm	333 × 206 × 100 mm
	Net weight	4.3 kg	4.5 kg	4.3 kg	4.5 kg
Packaging dimensions $470 \times 380 \times 336 \text{ mm}$	Gross weight	6.3 kg	6.5 kg	5.8 kg	6 kg
	Packaging dimensions	470 × 380 × 336 mm	470 × 380 × 336 mm	470 × 380 × 336 mm	470 × 380 × 336 mm

Rt

In accordance with type approval, the balance parameters are maintained in temperature range:  $+15 \div +35$  °C.

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repeatability is expressed as a standard deviation from 10 weighing cycles parameter determined in the following temperature range: +15  $\div$  +35  $^{\circ}$ C

optional solution on purchase order

<sup>\*\*\*\*</sup> non-condensing conditions

# **Technical Specifications**

	PS 4500.R2.M.H	PS 6100.R2.M.H
Maximum capacity [Max]	4500 g	6100 g
Minimum load	0.5 g	0.5 g
Readability [d]	0.01 g	0,01 g
Verification scale interval [e]	_	_
Tare range	–4500 g	-6100 g
Repeatability (5% Max)*	0.005 g	0.005 g
Repeatability (Max)	0.008 g	0.008 g
Linearity	±0.03 g	±0.03 g
Sensitivity temperature drift**	2 × 10-6 / °C × Rt	2 × 10 <sup>-6</sup> /°C × Rt
Minimum weight (U=1%, k=2)	1 g	1 g
Minimum weight (USP)	10 g	10 g
Stabilization time	1.5 s	1.5 s
Adjustment	internal	internal
Verification	_	_
OIML Class	_	_
Display	LCD (with backlight)	LCD (with backlight)
Keypad	14 keys	14 keys
Protection class	IP 54	IP 54
Databases	5	5
USB-A	1	1
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	4 W	4 W
Operating temperature	+10 ÷ +40 °C	+10 ÷ +40 ℃
Atmospheric humidity****	40 ÷ 80%	40 ÷ 80%
Transport and storage temperature	–20 ÷ +50 °C	-20 ÷ +50 °C
Weighing pan dimensions	195 × 195 mm	195 × 195 mm
Weighing pan material	stainless steel 0H18N9	stainless steel 0H18N9
Weighing device dimensions	333 × 206 × 107 mm	333 × 206 × 107 mm
Net weight	4.5 kg	4.5 kg
Gross weight	6.1 kg	6.1 kg
Packaging dimensions	470 × 380 × 336 mm	470 × 380 × 336 mm
Dt not weight		

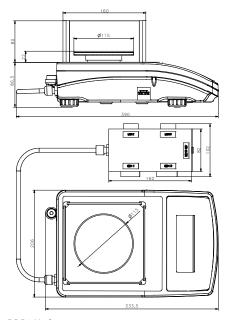
In accordance with type approval, the balance parameters are maintained in temperature range:  $+15 \div +35$  °C.

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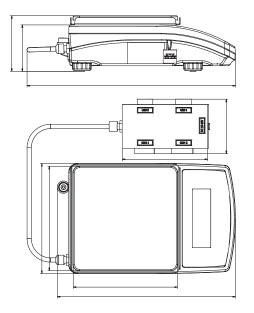
repeatability is expressed as a standard deviation from 10 weighing cycles parameter determined in the following temperature range: +15  $\div$  +35  $^{\circ}$ C

optional solution on purchase order

non-condensing conditions



PS R2.H, d = 1 mg



PS R2.M.H, d = 10 mg

# Accessories

# **Weighing Tables**

- granite antivibration table
- antivibration tables for laboratory balances
- professional weighing table

# **Professional Weighing**

- KIT 195 density determination kit
- under-hook weighing rack

# **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

## **Electrical Accessories**

• power supply with ZR-02 battery

# **Remaining Accessories**

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

#### **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

#### LabView Driver

• operation of RADWAG balances in LabView environment

#### **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

### Alibi Reader

- readout of data saved to Alibi memory
- export of data saved to Alibi memory
- · data filtering and reports generating
- saving ALIBI database to CSV file

#### R 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

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