MAS.1 weighing modules

Series of professional electromagnetic modules of high resolution ensures highly precise and fast measurement in laboratory.

MAS.1 Weighing Module

Module MAS.1 with R Panel

Module MAS.1 with Y Panel

Features

High Resolution
High resolution is the characteristic feature of the advanced line of MAS.1 weighing modules. Their operation is based on an EMFC converter. The modules are intended to be a component of laboratory workstations and to be integrated into production lines.

Ease of Integration
MAS.1 designs enable fast and easy installation at any surface. A weighing terminal is connected to the modules with up to 5-metre long cable facilitating ergonomics of use.

Databases and Alibi Memory
Both panels, R and Y, feature internal databases of products and operators. The databases are secure thanks to implemented modules of ALIBI memory. The panels, being functional devices, provide you with option of easy data import and export.

Precise Measurement
Automatic adjustment system ensures accuracy even under changing ambient conditions. The most precise measurement is guaranteed, this is thanks to the repeatability parameter.

Communication Interfaces
Wide range of communication interfaces facilitates connection of the printer, fast transfer of data using the USB flash drive, and cooperation with PC software. Version of MAS.1 module without a control panel, and version with the control panel of R type have both been equipped with RS232 interface (to be found on the housing). Weighing modules operated via the Y control panel feature 2 x RS232; 2 x USB type A; Ethernet; 4 x IN/OUT; Wi-Fi® interfaces (to be found on the control panel).

Customized Control Panels
Weighing modules are offered with R or Y control panels.
The first one has been equipped with LCD and its functionality is equal to functionality of a standard laboratory balance.
The second is a multifunctional weighing terminal providing you with applications such as formulations, checkweighing, SQC and differential weighing.

Technical Specifications

	MAS.1.21	MAS.1.21.R	MAS.1.21.Y
Maximum capacity [Max]	21 g	21 g	21 g
Minimum load	1 mg	1 mg	1 mg
Readability [d]	0.01 mg	0.01 mg	0,01 mg
Verification scale interval [e]	—	—	—
Tare range	–21 g	–21 g	–21 g
Repeatability (5% Max)*	0.012 mg	0.012 mg	0,012 mg
Repeatability (Max) *	0.02 mg	0.02 mg	0,02 mg
Linearity	±0.06 mg	±0.06 mg	±0,06 mg
Sensitivity temperature drift**	1×10^{-6} / °C × Rt	1×10^{-6} / °C × Rt	1×10^{-6} / °C × Rt
Stabilization time	6 s	6 s	6 s
Adjustment	internal	internal	internal
Verification	—	—	—
OIML Class	—	—	—
Construction material	aluminium	aluminium	aluminium
Weighing pan material	AISI304 stainless steel	AISI304 stainless steel	AISI304 stainless steel
Display	—	LCD (with backlight)	5.7" colour, resistive touch screen
Panel – Module cable lenght***	—	1 meter	1 meter
Protection class	IP 54	IP 54	IP 54
USB - A	—	—	2
RS 232	1	1	2
Ethernet	—	—	10 / 100 Mbit
WiFi®	—	—	802.11 b/g/n
IN/OUT	—	—	4 × IN, 4 × OUT
Power supply	12 ÷ 16 V DC	12 ÷ 16 V DC	13.5 ÷ 16 V DC
Power consumption	10 W	10 W	10 W
Operating temperature	+10 ÷ +40 °C	+10 ÷ +40 °C	+15° ÷ +35 °C
Atmospheric humidity****	40 ÷ 80%	40 ÷ 80%	40 ÷ 80%
Transport and storage temperature	–20 ÷ +50 °C	–20 ÷ +50 °C	–20 ÷ +50 °C
Weighing pan dimensions	Ø 33 mm	Ø 33 mm	Ø 33 mm
Weighing device dimensions	289 × 143 × 125 mm	289 × 143 × 125 mm	289 × 143 × 125 mm
Net weight	4.1 kg	4.7 kg	4.7 kg
Gross weight	6.1 kg	6.7 kg	6.7 kg
Packaging dimensions	650 × 340 × 305 mm	650 × 340 × 305 mm	650 × 340 × 305 mm

Rt net weight
* repeatability is expressed as a standard deviation from 10 weighing cycles
** parameter determined in the following temperature range: +15 ÷ +35 °C
*** optional solution with 5 m cable
**** non-condensing conditions

	MAS.1.51	MAS.1.51.R	MAS.1.51.Y
Maximum capacity [Max]	51 g	51 g	51 g
Minimum load	1 mg	1 mg	1 mg
Readability [d]	0.01 mg	0.01 mg	0.01 mg
Verification scale interval [e]	—	—	—
Tare range	–51 g	–51 g	–51 g
Repeatability (5% Max)*	0.012 mg	0.012 mg	0.012 mg
Repeatability (Max) *	0.025 mg	0.025 mg	0.025 mg
Linearity	±0.06 mg	±0.06 mg	±0.06 mg
Sensitivity temperature drift**	1×10^{-6} / °C × Rt	1×10^{-6} / °C × Rt	1×10^{-6} / °C × Rt
Stabilization time	6 s	6 s	6 s
Adjustment	internal	internal	internal
Verification	—	—	—
OIML Class	—	—	—
Construction material	aluminium	aluminium	aluminium
Weighing pan material	AISI304 stainless steel	AISI304 stainless steel	AISI304 stainless steel
Display	—	LCD (with backlight)	5.7" colour, resistive touch screen
Panel – Module cable lenght***	—	1 meter	1 meter
Protection class	IP 54	IP 54	IP 54
USB-A	—	—	2
RS 232	1	1	2
Ethernet	—	—	10 / 100 Mbit
WiFi®	—	—	802.11 b/g/n
IN/OUT	—	—	4 × IN, 4 × OUT
Power supply	12 ÷ 16 V DC	12 ÷ 16 V DC	13.5 ÷ 16 V DC
Power consumption	10 W	10 W	10 W
Operating temperature	+10 ÷ +40 °C	+10 ÷ +40 °C	+15° ÷ +35 °C
Atmospheric humidity****	40 ÷ 80%	40 ÷ 80%	40 ÷ 80%
Transport and storage temperature	–20 ÷ +50 °C	–20 ÷ +50 °C	–20 ÷ +50 °C
Weighing pan dimensions	Ø 33 mm	Ø 33 mm	Ø 33 mm
Weighing device dimensions	289 × 143 × 125 mm	289 × 143 × 125 mm	289 × 143 × 125 mm
Net weight	4.1 kg	4.7 kg	4.7 kg
Gross weight	6.1 kg	6.7 kg	6.7 kg
Packaging dimensions	650 × 340 × 305 mm	650 × 340 × 305 mm	650 × 340 × 305 mm

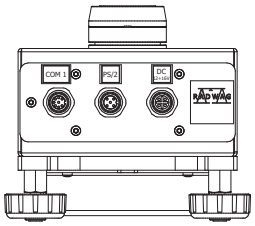
Rt net weight
* repeatability is expressed as a standard deviation from 10 weighing cycles
** parameter determined in the following temperature range: +15 ÷ +35 °C
*** optional solution with 5 m cable
**** non-condensing conditions

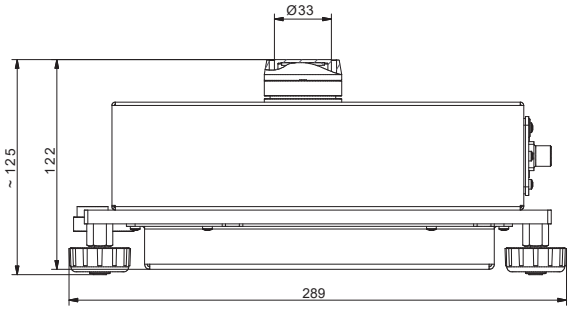
	MAS.1.82/220	MAS.1.82/220.R	MAS.1.82/220.Y
Maximum capacity [Max]	82 g / 220 g	82 g / 220 g	82 g / 220 g
Minimum load	1 mg	1 mg	1 mg
Readability [d]	0.01 mg / 0.1 mg	0.01 mg / 0.1 mg	0.01 mg / 0.1 mg
Verification scale interval [e]	—	—	—
Tare range	–220 g	–220 g	–220 g
Repeatability (5% Max)*	0.02 mg	0.02 mg	0.02 mg
Repeatability (Max) *	0.1 mg	0.1 mg	0.1 mg
Linearity	± 0.06 mg / ± 0.2 mg	± 0.06 mg / ± 0,2 mg	± 0.06 mg / ± 0.2 mg
Sensitivity temperature drift**	1×10^{-6} / °C × Rt	1×10^{-6} / °C × Rt	1×10^{-6} / °C × Rt
Stabilization time	6 s / 2 s	6 s / 2 s	6 s / 2 s
Adjustment	internal	internal	internal
Verification	—	—	—
OIML Class	—	—	—
Construction material	aluminium	aluminium	aluminium
Weighing pan material	AISI304 stainless steel	AISI304 stainless steel	AISI304 stainless steel
Display	—	LCD (with backlight)	5.7" colour, resistive touch screen
Panel – Module cable lenght***	—	1 meter	1 meter
Protection class	IP 54	IP 54	IP 54
USB-A	—	—	2
RS 232	1	1	2
Ethernet	—	—	10 / 100 Mbit
WiFi®	—	—	802.11 b/g/n
IN/OUT	—	—	4 × IN, 4 × OUT
Power supply	12 ÷ 16 V DC	12 ÷ 16 V DC	13.5 ÷ 16 V DC
Power consumption	10 W	10 W	10 W
Operating temperature	+10 ÷ +40 °C	+10 ÷ +40 °C	+15° ÷ +35 °C
Atmospheric humidity****	40 ÷ 80%	40 ÷ 80%	40 ÷ 80%
Transport and storage temperature	–20 ÷ +50 °C	–20 ÷ +50 °C	–20 ÷ +50 °C
Weighing pan dimensions	Ø 42 mm	Ø 42 mm	Ø 42 mm
Weighing device dimensions	289 × 143 × 125 mm	289 × 143 × 125 mm	289 × 143 × 125 mm
Net weight	4.1 kg	4.7 kg	4.7 kg
Gross weight	6.1 kg	6.7 kg	6.7 kg
Packaging dimensions	650 × 340 × 305 mm	650 × 340 × 305 mm	650 × 340 × 305 mm

Rt net weight
* repeatability is expressed as a standard deviation from 10 weighing cycles
** parameter determined in the following temperature range: +15 ÷ +35 °C
*** optional solution with 5 m cable
**** non-condensing conditions

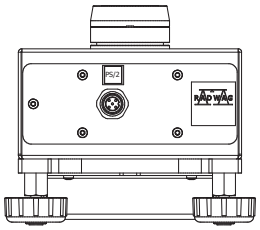
Wi-Fi® is a registered trademark of Wi-Fi® Alliance.

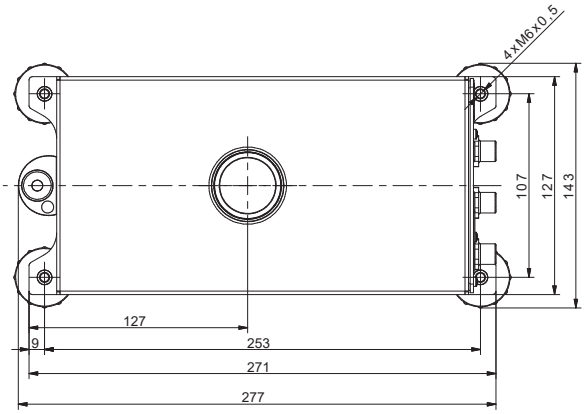
Dimensions





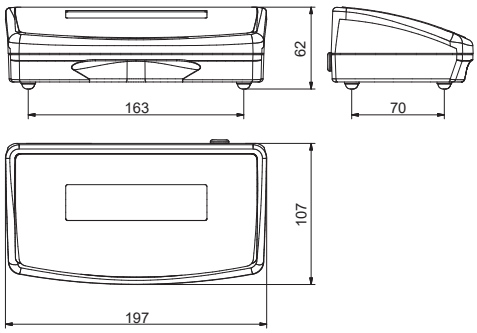
MAS.1
MAS.1.R

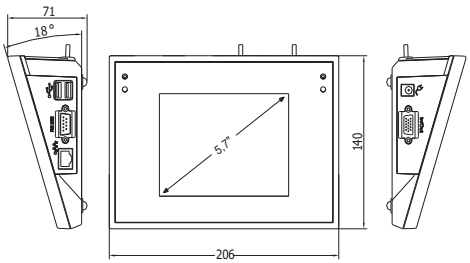




MAS.1.Y

MAS.1





R operator panel

Y operator panel

Accessories

Weighing Tables
- granite antivibration table
- antivibration tables for laboratory balances

Peripheral Devices
- Epson printer

Ambient Conditions
- antistatic ionizer DJ-04

Cables, Converters
- P0108: RS 232 cable (balance-computer)
- P0151: RS 232 cable (balance - Epson printer)

Other
- ZR-02 power supply with battery