

RAVAS 2100 Exi

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User Manual

User manual

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We would like to inform you about the fact that this RAVAS product is 100% recyclable on the basis that the parts are processed and disposed off in the right manner.

More information can be found on our website www.ravas.com.



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Printing/typographical errors and model changes reserved

1. Symbols



Warning!

This symbol indicates advice which, if ignored, puts your health or the ability of the device or devices to function at risk.



Note:

This symbol indicates important additional information, tips and recommendations.

2. Safety instructions

The most important safety instructions are summarized in this chapter. It is intended to supplement the relevant regulations which must be studied by the personnel responsible. When working in hazardous areas, the safety of personnel and plant depends on complying with all relevant safety regulations. Assembly and maintenance staff working on installations therefore have a particular responsibility. They require precise knowledge of the applicable standards and regulations.



As user, please observe:

- *National safety and accident prevention regulations.*
- *National installation regulations (e.g. IEC 60079-14)*
- *Generally recognized technical regulations.*
- *Safety guidelines and information in these operating instructions as well as the enclosed mechanical assembly drawings, wiring diagrams and operating instructions of the subassembly devices.*
- *Characteristic values and rated operating conditions on the rating and data plates.*
- *Additional instruction plates / labels on the devices.*
- *That any damage can invalidate the Ex-protection.*

Use the devices in **accordance with the regulations** and for their intended purpose. Incorrect and impermissible use or non-compliance with these instructions invalidates our warranty provision. No changes to the devices and components impairing their explosion protection are permitted.

3. Conformity to standards

The devices comply with the following standards and directives:

- Directive
94/9/EG; EN
60079-0:
2009
EN 60079-7: 2007
EN 60079-11: 2012
EN 60079-18: 2009
EN 60079-31: 2009



The devices are approved for use in hazardous area Zones 1, 2, 21 and 22.

4. Technical data



Please consult the manufacturer if operating conditions are non-standard.

Additional technical data can be obtained upon request.

4.1 Ex protection RWS-Ex-RPW-2100-Exi

EG-type research certificate:	DEKRA 13ATEX0044
Explosion protection, device group and category	 II 2G Ex ib IIB T4 Gb of  II 2D Ex ib IIIC T135°C Db
May be used in temperature range:	-10°C...+40°C

4.2 Electrical data

Supply by battery type BU-2100-Exi (certificate DEKRA 13ATEX0043)

The battery may only be recharged outside the hazardous area. The charging instructions, stipulated in the manual must be observed.

5. Opening and closing of the enclosure



Only open the enclosure to change battery type BU-2100-Exi. After the battery is connected the housing has to be closed.



The battery can't be changed in areas which contain flammable dust.

6. Commissioning



Before commissioning, ensure that the device is not damaged.

The power supply to the system takes place through an exchangeable battery pack. With a completely charged battery pack the total weighing time is about 100 hours

When the voltage level of the battery is running low, the display will show "LO-BA". When the battery is completely empty, the weighing system switches off. When charging, it is necessary to charge the battery for at least 6 hours. This will prevent loss of battery capacity.

If you use the system in shift work, it is recommended to purchase a supplementary battery pack. By means of a special clasp system, the battery can be removed and replaced easily

Remark: Exchanging the battery can be done inside the EX-zone!

The battery can be charged on the adapter supplied with the charger. When the charger is connected to 220 Vac, the red light is on. When the battery is charging, the yellow LED on the charger is lit. When the LED turns off, the battery is charged and can be used. After a while the yellow LED will start blinking. The blinking will slow down after some time. This shows that the charger is keeping the battery fully charged. It is not possible to overload the battery.

Warning: Charging the battery has to be done outside the EX-zone!

7. Maintenance and servicing



Please pay attention to the national regulations applicable in the country of deployment!

Maintenance, repair and servicing work on the devices must only be performed by personnel who are both authorized and suitably trained for this purpose.

To prevent defects in the system, perform maintenance work regularly. The intervals between inspections should however not exceed a maximum of three years.

Maintenance and calibration may only be executed in a safe area. Main guideline:

- *Because the steering wheels are mounted in the front, pulling of the pallet truck is preferred above pushing it.*
- *When the lifting mechanism is not used, it should be kept in the neutral, middle position. This prolongs the life span of the sealings.*
- *The bearings of the wheels and the pivoting points of the levelling bar of the loading wheels must be cleansed and greased regularly.*
- *The oil containers must be checked every six months.*

An antistatic protection screen is available for polluted environments. Please contact your supplier.

7.1 Inspection intervals

Consider the following conditions when determining the inspection interval:

- The ambient conditions:
 - Set-up in the open
 - Degree of wind, rain and sunlight exposure
- The operating conditions:
 - Duty cycle of the system
 - Operator errors
- Manufacturer information in the technical documentation:
 - Mechanical and electrical service life

7.2 Inspection content

Perform the inspections as determined by the local requirements. The inspections include visual examinations, general checks and detailed inspections.



If defects which affect explosion protection are discovered during inspections, then the equipment is to be taken out of service until the defect is remedied.

7.3 Inspection/maintenance checklist

Date:	Name:	Yes	No	Action performed
Date last inspection				
General inspections				
Are the wires in the terminal blocks clamped properly?				
Are the permissible temperature specifications (in accordance with EN 50014) complied with?				
Are seals, cable glands and cable entries free of damage?				
Inspecting the outer condition of enclosures				
Are the enclosures free of ruptures, holes, bumps, material brittleness or corrosion spots?				
Inspecting the condition of cable glands				
Are the threaded joints tightened properly?				
Is the sealing within the threaded joint in satisfactory condition?				
Inspecting the condition of windows:				
Are the windows intact?				
Inspecting the condition of the wheels				
Are the wheels in satisfactory condition?				
Inspection of the interiors				
Are the interior spaces of the devices in flawless condition?				
Are the electrical points of contact in flawless condition?				
Is the mechanical attachment of the battery intact?				
Do the electrical contact points make contact properly?				
Calibration:				
Is the device within the tolerances as stated by the manufacturer?				
Recommended interval: once a year				
Inspection of the age and condition				
Is the device still within the electrical or mechanical service life as specified by the manufacturer?				
Inspecting the device prior to operating				
Is the device intact?				
Has the device been checked that no extraneous particles are present within?				
Is the battery connection performed correctly?				
Do cable entries and stopping plugs sit correctly?				
Are all unused openings sealed with certified sealing elements?				

7.4 Transportation and storage

Transport and storage are only permissible in the original packaging.

7.5 Disposal



Please observe the national waste-disposal regulations.

Should you require the operating instructions in one of the other European Community languages, please feel free to contact your RAVAS representative.

8. Touch panel indicator



Front indicator

The display

By means of three pointer bars the display shows:

-  ◀ the weighing system (including load) is stable
-  the weight shown is negative
- NET** ◀ the display shows the net weight

The display indications

The minus sign lights in the display. The following indications can be shown in the display:

- | | |
|--|--|
| HELP 1 | The weighing system has been overloaded. |
| HELP 2 | Taring of negative weight. |
| HELP 3 | Negative signal from the load cell on AD converter / tilted position. |
| HELP 4 | The tare value entered (manually) is too high. Press key $\leftrightarrow$ PT again to delete this help message and key in a lower tare value. |
| HELP 5 | Totalling memory full. |
| HELP 6 | No wireless connection (only RF-systems). |
| HELP 7 | Signal from the load cell on AD converter is too high. |
| HELP 8 | Tilted position (only RF-systems). |
| HELP 9 | Low bat on transmitter (only RF-systems). |
| LO-BA or  | The battery voltage level (indicator) is running low. The battery has to be charged. |

The touch panel

Each key has an operational and an entry function.

	Operational function	Entry function
	zero setting and automatic tare	confirm and digit to the left
	tare entry	decreasing flashing digit
	totalising	increasing flashing digit
	on / off	clear

Important

Operation of a key is not accepted unless the weighing system is stable (and the sign “load stable” lights up). This means that the indicator only executes commands with a stable load.

Warning

When the weighed load surpasses the pre-set maximum, the display shows: “HELP1”. In order to prevent damage to the indicator or load cells, the weighing system must be unloaded immediately.

Tilted position

With the approved version of the weighing system, the help display shows small bars when this system is in a tilted position larger than 2°. In this case, the weighing system must be placed in a horizontal position. After this, the system continues executing any commands.

9. Functions indicator

9.1. Multirange

The graduation of the indicator depends on the weighed load:

- from 0 to 200 kg the weight is shown in 0.2 kg steps and
- from 200 to 500 kg the weight is shown in 0.5 kg steps and
- from 500 to 2000 kg the weight is shown in 1.0 kg steps.

Because of the weight dependant graduation, smaller loads are weighed with a higher accuracy.

After taring a weight, smaller weights can be added or subtracted in the graduation belonging to the smaller weight. Both for adding and removing weights, the graduation changes too. For example: if weight is removed from an original load of 650, upon reaching 500 kg the display will change to 0.5 kg steps.

9.2. Before weighing: check zero point

Before each weighing it is necessary to check whether the system is unloaded and free. The indicator is fitted with an automatic zero correction. This means that small deviations of the zero point will be corrected automatically. If the indicator does not determine the zero point automatically, it must be done manually using the →0/T← key.

9.3. Gross weighing

After lifting a load, the display shows the gross value of the weighed load.

9.4. Net weighing: automatic tare

The indicator offers the possibility to reset tare weights to zero automatically. This way added or subtracted weights can be determined. After taring, the display continues in the smallest step.

- Lift load.
- Press key →0/T←.
 - ❑ The indicator is set to zero.
 - ❑ The "NET" pointer shows that a tare weight is activated.
- Place or remove the net load.
 - ❑ The display shows the net value of the weighed load.
 - ❑ When removing load, this is a negative value.
- By executing a zero setting in unloaded position, the system will return to the standard weighing mode.

9.5. Net weighing: manual tare entry

A tare weight can be entered at any moment, meaning in either a loaded or unloaded situation. For a higher accuracy, a tare weight can be entered with a smaller graduation step, independent of the applied load and the active graduation of the indicator.

A tare weight larger than the so-called MAX1 of the weighing system will not be accepted by the indicator. The MAX1 is the value of the weight of the first range; in the standard version 200 kg. If a larger weight is keyed in, the display shows: "HELP4". Upon pressing key $\leftrightarrow$ PT, this HELP indication disappears.

- Press the $\leftrightarrow$ PT key.
 - ❑ The display shows the current tare value.
 - ❑ The digit on the right flashes.
- Press ENTER(↵) for three seconds if the current tare value is required.

Or

- Press the $\leftrightarrow$ PT key.
 - Press the $\wedge$ key to go up a value or press the $\vee$ key to go down a value until the required value is reached.
 - Press ENTER(↵) to change the next value.
 - Repeat this procedure until the required tare value is displayed.
-
- To activate the tare weight, *but without storage in the memory*: press ENTER(↵) for three seconds.
 - ❑ The tare weight is activated.
 - ❑ The "NET" pointer lights up.
 - ❑ When the system is loaded at this moment, the net value appears in the display.
 - ❑ When the system is unloaded, the read-out displays the given tare value negatively.
 - ❑ The keyed in value remains active until the system is turned off, a new tare weight is entered, a new load is tared or by resetting the tare value to zero:
 - The weighing system is loaded: press the $\leftrightarrow$ PT key for two seconds. The tare value is set to zero and the system returns to the standard weighing mode.
- Or**
- The weighing system is unloaded: press the $\rightarrow 0/T \leftarrow$ key. The tare value is set to zero and the system returns to the standard weighing mode.
-
- To activate the tare weight *and store it in memory*: go through all the digits by pressing ENTER(↵).
 - ❑ The tare weight is activated and stored in the memory.
 - ❑ The "NET" pointer lights up.
 - ❑ When the system is loaded at this moment, the net value appears in the display.
 - ❑ When the system is not loaded, the tare value input is displayed negatively.

- ❑ The keyed in value remains active, even if the system is turned off, until a new tare weight is entered, a new load is tared or by resetting the tare value to zero:
 - The weighing system is loaded: press the ⇄PT key for two seconds. The tare value is set to zero and the system returns to the standard weighing mode.

Or

- The weighing system is unloaded: press the →0/T← key. The tare value is set to zero and the system returns to the standard weighing mode.

9.6. Totalling

The indicator offers the possibility to add up weighings and show the total weight. When a tare weight is active, the net weight is added up automatically.

- Load the system with the weight that should be added.
- Press the Σ key to add the weighed load to the total weight.
 - ❑ The value of the display is stored and added in the memory.
 - ❑ In turn, the indicator shows the sequence number (number of weighings) and the (sub)total.
 - ❑ If the weighing system has been equipped with a printer, the value shown is printed at the same time.
 - ❑ After a few seconds the system will automatically return to the standard weighing mode.

Or

- Press the Σ key for three seconds to refer to the total weight calculated thus far (without totalling).
 - ❑ In turn, the indicator shows the sequence number (number of weighings) and the (sub)total current in the memory.
 - ❑ After a few seconds the system will automatically return to the standard weighing mode.
- The memory can be erased by pressing the Σ key during the display of the total.
 - ❑ If the system is equipped with a printer, an overview print is made.
 - ❑ The display shows sequence number 00 and the total weight 0.0 kg.
 - ❑ The system will automatically return to the standard weighing mode.