# OPERATION MANUAL ZONE 2&22

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Corresponds to the ATEX protection:


II 3 G Ex ic IIB T6 Gc


II 3 D Ex ic IIIC T85°C Dc

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Rev.20150618

# 1. THE WEIGHING HAND PALLET TRUCK

## 1.1. TAKING THE SYSTEM INTO OPERATION

To activate the weighing system, turn it on using the on/off (①) key on the terminal.

After 3 to 5 minutes the electronics and load cells have reached the operational temperature. Before this, inaccuracies of up to ca. 0.3% may occur.

It is recommended not to lift loads before the zero-point correction has been executed.

## 1.2. USE

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 35 hours (on a system without a printer).

When the voltage level of the battery is running low, the display will show  . When the “LO-BA” indication is shown for 1 or 2 minutes, the weighing system switches off automatically. It is strongly recommended to charge the empty battery directly with the supplied charger.

| |
|---|
| **Note: The battery should never be replaced and recharged in hazardous areas!** |
| **Caution: Always check the wiring for damage when replacing the battery! In case of damage, DO NOT mount the battery again. In this case, please contact the supplier.** |

In order to maximize the lifetime of the battery,
follow the charging instructions below precisely:

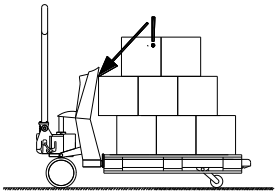
1. Connect the exchangeable battery to the charger with 4-pin connector (Pin 1 = +12 VDC, Pin 2 = 0VDC, Pin 3 and 4 are not in use!)
2. Plug-in the charger adaptor plug, into mains voltage 220-240VDC. The red LED on the charger adaptor is lit to indicate that the charger is charging the battery. When charging, it is necessary to charge the battery for at least 6 hours. This will prevent loss of battery capacity.
3. An empty battery will be fully charged after approximately 6 hours. When the red LED turns off, the battery is fully charged. It is not possible to overload the battery because the charger switches off automatically.
4. De-connect the charger adaptor plug from the 220-240VDC mains voltage.
5. After taking out the charger adaptor plug, directly remove the battery from the charger module.

***!!! Keeping the battery positioned inside the charger module with the charger adaptor plug not plugged-in will reduce the capacity and lifetime of your battery and could even lead to a defect battery !!!***

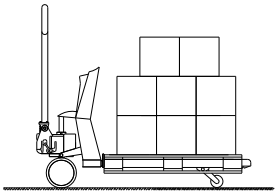
6 For charging a next battery, start at step 1 again.

If you use the system in shift work or if the system has a built-in printer, it is recommended to purchase a supplementary battery pack.

The weight must be lifted freely: without touching the housing of the indicator or other pallets:



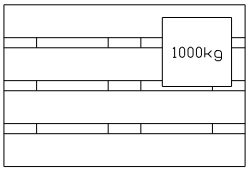
Wrong way of lifting the load



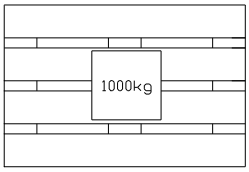
Correct way of lifting the load

The accuracy of the weighing system diminishes with circa 0.1% per degree starting from a tilted position of 2°. This effect also occurs with pits/pot-holes in the floor. An even floor is optimal.

The most accurate weighing result is obtained when the centre of gravity of the load is placed between the forks. With an non-centric loading, the forks will tordate and bend. This may result in a higher inaccuracy. With legal for trade versions, the level control will switch off the indicator with a non-centric loading or a tilted position that influences the weighing accuracy.




Non-optimal placement of the load




Optimal placement of the load

Temperature range: between -10 and +40° C the maximum inaccuracy is 0.1% of the weighed load. Outside this range, inaccuracies of up to 0.3% may occur.

Fast temperature changes must be avoided because it will cause condensation in the electronics. During acclimatisation the weighing system must be switched off.

## 1.3. MAINTENANCE

The maintenance guidelines for normal pallet trucks apply to the chassis of the mobile weighing system. From experience we know that the integrated weighing system still functions when the chassis is damaged by overloading.

Main guidelines:
- 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, the handle should be kept in the neutral, middle, position. This prolongs the life span of the sealing.
- The weighing system meets up to the protection class IP65. This means that dust or moisture (rain or water beam from all sides), will not influence the operation of the electronics. However, high-pressure cleansing in combination with warm water or chemical cleansers will lead to the entry of moisture and therefore negatively influence the operation of the system.
- Only specialists may undertake any welding. This is to avoid damage to electronics and load cells.
- The bearings of the wheels (non-polyurethane) and the pivoting points of the levelling bar of the loading wheels must be cleansed and greased regularly.

## 1.4. MOBILE WEIGHING SYSTEM

A mobile weighing system is a mobile scale. This means that the owner should consider the same maintenance as applicable with standard stationary scales.

A yearly inspection, by an authorized service provider, is recommended. And in case the scale is stamped ‘legal for trade’ then the weighing system should be re-stamped in accordance with the metrological regulations in the country of use.

| |
|---|
| **Warning: Maintenance should be performed only in explosion-proof environments!** |
| **Warning: Maintenance may only pe performed by properly trained personnel!** |
| **Warning: When servicing maintenance, the conduction resistance of the antistatic steering wheels must be checked.** |

When your company is ISO certificated, it is very likely that all measuring devices should be checked more regularly than once a year (i.e. ½ year or ¼ year). For an easy overview you can fill out the following maintenance sheet.

| DATE OF INSPECTION | COMPANY | TECHNICIAN | SIGNATURE |
|---|---|---|---|
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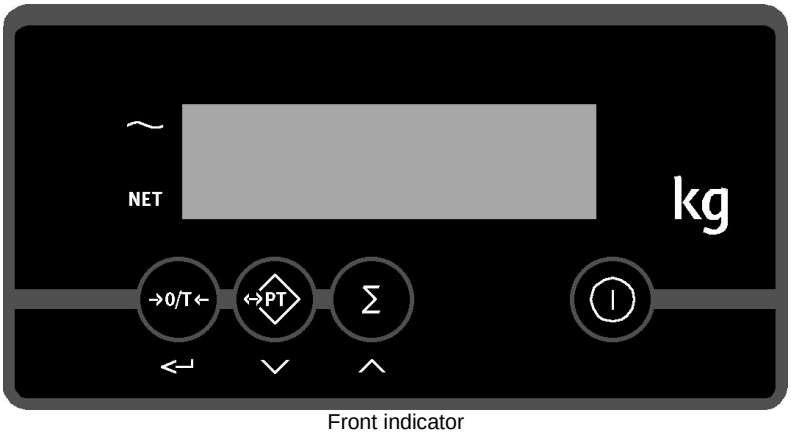
Based on these recommendations we are convinced that your mobile weighing system will work accurately and reliably for a very long time.

## 2. TOUCH PANEL INDICATOR



Front indicator

### THE DISPLAY

By means of three pointer bars the display shows:

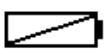
~ ◄ the weighing system (including load) is stable

— the weight shown is negative

**NET** ◄ the display shows the net weight

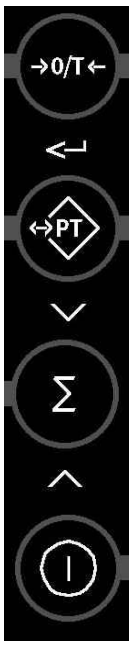
### THE DISPLAY INDICATIONS

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 ↔PT again to delete this help message and key in a lower tare value. |
| HELP 5 | Totalling memory full. |
| HELP 6 | No Bluetooth 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 |
|---|---|---|
| →0/T← | zero setting and automatic tare | confirm and digit to the left |
| ↔PT | tare entry | decreasing flashing digit |
| Σ | 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.

# 3. FUNCTIONS INDICATOR

## 3.1. 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 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.

## 3.2. 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.

## 3.3. GROSS WEIGHING

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

## 3.4. 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.

### 3.5. 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 (see 3.1.). If a larger weight is keyed in, the display shows: “HELP4”. Upon pressing key ⇔PT, this HELP indication disappears.

- Press the ⇔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 ⇔PT key.
- Press the ∧ key to go up a value or press the ∨ 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 (see 3.4.) 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.

- 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 (see 3.4.) 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.

## 3.6. 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.

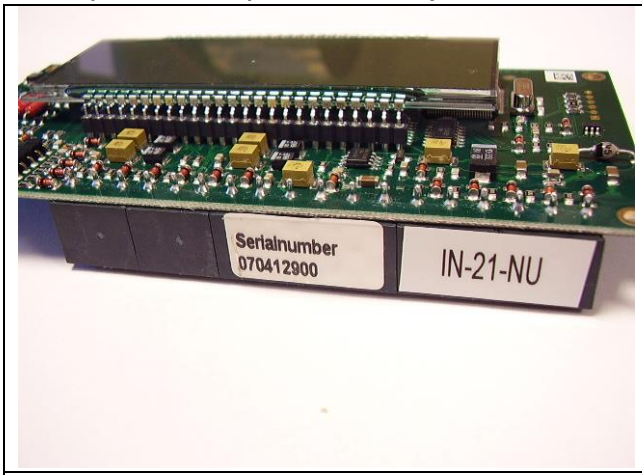
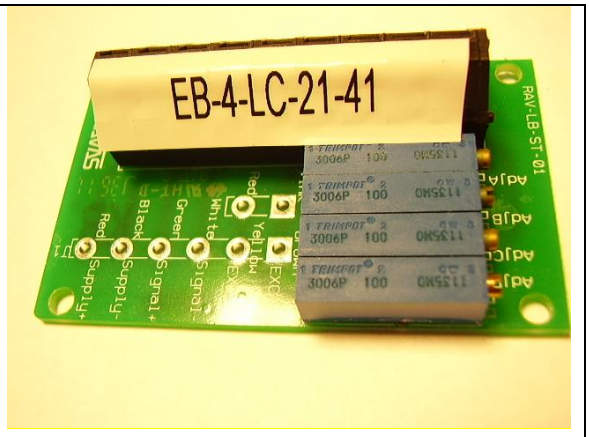
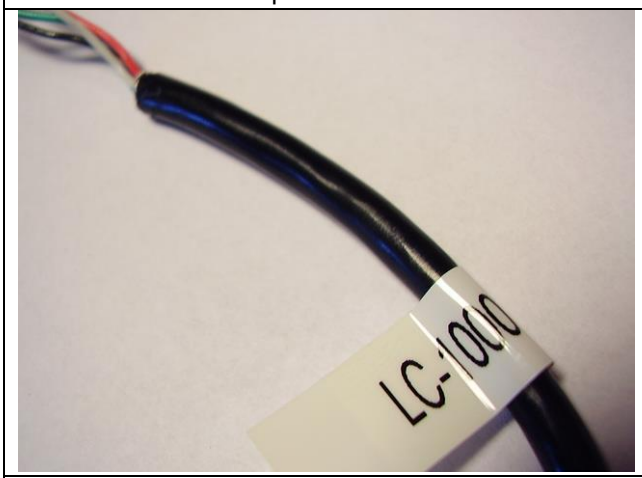
**Or**

- 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.

## 4.1. Partlist of the main parts

| Name tag | Tag position | Description | Quantity per system |
|---|---|---|---|
| IN-21-NU | On the 18-pin connector | Indicator board model 2100-Exi | 1 |
| EB-4-LC-21-41 | On the 9-pin connector | Adjustment print (to adjust down corners) | 1 |
| LC-1000-(M) | At the end of the cable | 1000 kg load cell<br>M = certifiable version | 4 |
| BA-12V-1,2A | At the upper side of the battery | Battery 12VDC/1.2Ah<br>manufacturer: Celectric<br>Type: CCP1212 | 1 |

*: Replacement parts can only be obtained from RAVAS.

<table>
<tr><td> 
</td><td> 
</td></tr>
<tr><td>IN-21-NU: On the 18-pins connector</td><td>EB-4-LC-21-41: On the 9-pins connector</td></tr>
<tr><td> 
</td><td> 
</td></tr>
<tr><td>LC-1000-(M): At the end of the cable</td><td>BA-12V-1,2A: At the upper side of the battery</td></tr>
</table>

## 4.2. SPARK FOR PROTECTION ZONE 2

The following protective measures are taken to prevent sparks:

- Stainless steel fork shoes
- Antistatic steering wheels (conduction resistance of the antistatic wheels <109Ω)