



**RAVAS-310**  
OWNERS MANUAL

## OPERATORS MANUAL RAVAS-310

INDEX	PAGE
1. Safety Instructions	3
2. System Setup	4
3. Operation Manual	6
3.1 Using the Weighing Hand Pallet Truck	
3.2 Touch Panel Indicator	
3.3 Indicator Functions	
3.4 Printer (Option)	
4. Trouble Shooting	18
5. Spare Parts	21
6. Calibration	23
7. Parameter Settings	25

### Contact Us:

RAVAS USA, LLC  
975Deerfield Parkway  
Buffalo Grove, IL 60089  
(224) 676-2238 phone  
(224) 676-2136 fax  
www.ravasusa.com  
info.usa@ravas.com

## 1 SAFETY INSTRUCTIONS

1. NEVER lift a heavy load with just the points of the forks. This could damage the electronic weighing elements permanently.
2. NEVER weigh without a pallet. This could affect the accuracy of the weighing result.
3. The unit may be loaded with weights up to 5000 lb. However we advise you not to move any weights above 1650 lb. (750 kg) with the unit. RAVAS is not responsible for injury that may result when moving heavy loads.
4. Use caution in the vicinity of moving parts - these parts can cut and/or crush hands, arms, feet and legs.
5. Always center the load you are lifting on both the forks.
6. Do not operate the weighing system on ramps, inclines or declines, without the addition of our optional parking brake.
7. Do not operate the weighing system while others are on or near the unit. No riding!
8. All modifications must be approved in writing from the supplier, prior to any work being completed.
9. It is the sole responsibility of the purchaser to train their own employees in the proper use and maintenance of this equipment.
10. Do not operate this unit unless you have been fully trained of its capabilities.
11. Do not use the weighing system in potentially explosive areas.
12. Do not carry passengers with the truck.
13. Do not weld or make changes to the weighing system without consulting the supplier.
14. Do not lift unstable loads.
15. Check the accuracy of the scale on a regular basis to prevent faulty readings.
16. Only trained and authorized personnel are allowed to operate the truck.
17. Always follow the operating, maintenance and repair instructions of this truck and ask the supplier when in doubt.
18. Never lower loads if you are unsure you can place the goods on a stable surface. Personal injury may result from placement on an unstable environment.
19. Always remain with the scale during dosing applications. Incorrect lifting of the pallet can cause overflowing.
20. RAVAS is not responsible for errors that occur due to incorrect weightings or inaccurate scales.

## 2 SYSTEM SETUP

### MOUNTING THE PUMP HANDLE

	
Make sure the lever is pushed down to the "pump" position.	Thread the chain through the hole in the triangle and through the hole in the axle.
	
Place the handle bar onto the triangle and insert the bolts.  Tighten the bolts firmly.	Push the silver part "A" on the outside of the pump downwards.  At the same time; insert the chain into the open side of the slot "B" on the inside of the pump.

## THE BATTERY

The power supply to the system takes place through an exchangeable battery pack. A completely charged battery should operate for a total weighing time of about 35 hours (on a system without a printer).



**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 shuts off.**

It is necessary to charge the battery for at least 6 hours before the first use. Recharge battery when the LO-BA indicator comes on. 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 battery should be charged on the adapter supplied with the charger. When the battery is charging, the LED on the charger is lit. When the LED turns off, the battery is fully charged. It is not possible to overload the battery because the charger shuts off automatically.

### 3 OPERATION MANUAL

#### INDEX PAGE

#### 3.1 Using the Weighing Hand Pallet Truck 7

Accurate Weighing  
Taking the System into Operation  
Maintenance

#### 3.2 Touch Panel Indicator 9

The Display  
The Touch Panel  
Error Messages

#### 3.3 Indicator Functions 12

Graduation  
Before Weighing: Check Zero Point  
Gross Weighing  
Net Weighing: Automatic Tare  
Net Weighing: Pre-set Tare  
Piece Count: Sampling  
Piece Count: Enter a Piece Weight  
Summing  
Change Units

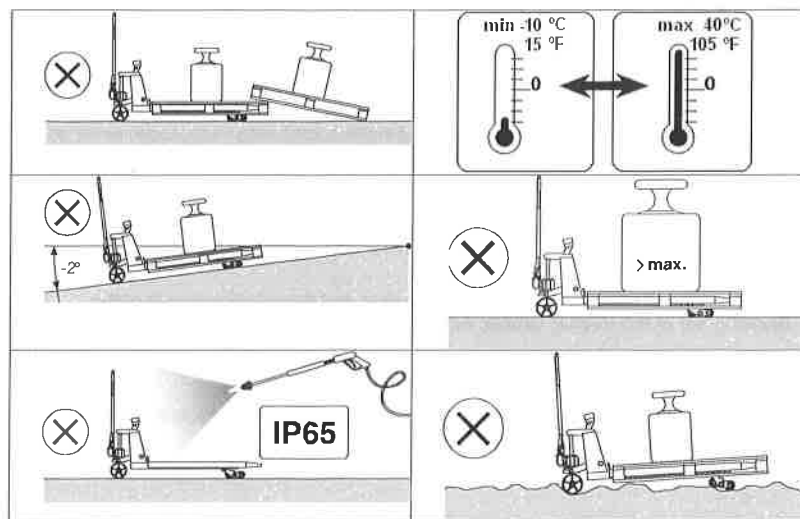
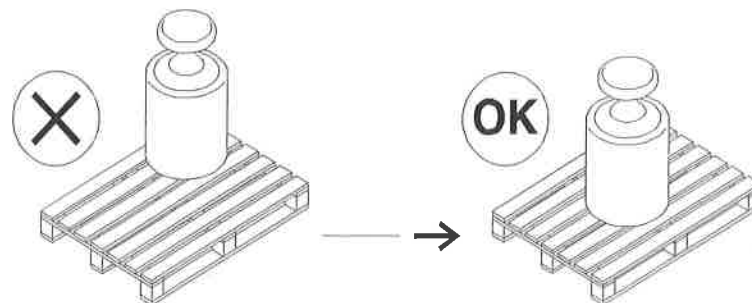
#### 3.4 Printer (Option) 15

The Print Out  
Changing the Thermal Roll Paper  
Changing the Date and Time on the Print Out

### 3.1 USING THE WEIGHING HAND PALLET TRUCK

#### Accurate Weighing

The weight must be centered over the forks of the pallet truck and lift freely: without touching the housing of the indicator or other pallets



Fast temperature changes should be avoided because condensation may form in the electronics. During acclimatization the indicator must be turned off.

## TAKING THE SYSTEM INTO OPERATION

To activate the scale turn it on using the on/off (Ⓢ) button on the terminal.

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

It is recommended not to lift loads before the zero-point correction has been executed. (See Chapter 5)

## MAINTENANCE

The maintenance guidelines for normal pallet trucks apply to the chassis of the mobile scale. The integrated scale will still function even though the chassis has been 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 sealings.
- The scale meets up to the protection class NEMA 4/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 have a negative influence on the operation of the system.
- To avoid damage to load cells and electronics only specialists may undertake any welding.
- 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.

## 3.2 TOUCH PANEL INDICATOR



There are 3 display-modes: lbs, kg or the number of pieces.

Also the battery sign is integrated in the display in order to show a low battery status.






### THE DISPLAY

By means of eight pointer bars the display shows:

- ~ the scale (including load) is stable
- the weight shown is negative
- ZERO** ◀ the weight shown is within the zero range
- NET** ◀ the display is showing the net weight
- e1** ▼ displayed weight shown is in range 1
- e2** ▼ displayed weight shown is in range 2
- e3** ▼ displayed weight shown is in range 3
- stp1** ▼ Set-point 1 is activated
- stp2** ▼ Set-point 2 is activated

## THE TOUCH PANEL

Each key has 2 operational and one entry function

Key	Function level 1 (short key press)	Function level 2 (long key press)	Function level 3 (entry mode)
	zero setting	code entry	enter
	automatic tare	pre-set tare	decrease the value of the digit flashing
	print weight and add to the total	check subtotal and print total	increase the value of the digit flashing
	sampling a piece weight	enter a piece weight	shift to the next digit on the left
	on/off switch	Change units mode	clear entry

## IMPORTANT

Operation of a key is not accepted unless the scale is stable (and the "load stable" pointer 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: "ERR02". In order to prevent damage to the indicator or load cells, the scale must be unloaded immediately.

## ERROR MESSAGES

Displayed error	Meaning	Out of error mode
Err01	Load cell signal is unstable	Automatic
Err02	Overload on full scale	Automatic after removing weight
Err03	Gross negative. This action is not allowed	Automatic
Err04	Out of zero range	Press any key
Err05	Sampling accuracy too low	Press any key
Err06	Input signal too high	Automatic after correcting input
Err07	Input signal too low	Automatic after correcting input
Err08	Calibration out of range (negative)	Automatic
Err09	Calibration out of range (signal too low)	Automatic
Err10	Calibration count 2nd(3rd) point lower than count 1st(2nd) point	Automatic
Err14	Set-point value 2 < set-point value 1. This is not allowed	Automatic
Err98	Calibration point must be higher than previous one	Automatic
Err99	Action only allowed in start-up units	Automatic

### 3.3 INDICATOR FUNCTIONS

#### GRADUATION

From 0 to 5000 lbs the weight is shown in 2 lb increments.

#### 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 by pressing the >0< key.

#### GROSS WEIGHING

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

#### 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.

- > Lift load.
- > Press key ↔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 load is removed, a negative weight is displayed.
- > By pressing the ↔T key again, the gross weight is displayed.

#### NET WEIGHING: MANUAL TARE ENTRY

A tare weight can be entered at any time, either in a loaded or unloaded situation.

- > Press the →PT key until the display changes and the last digit is blinking (approx 3 seconds).
  - The display shows the current tare value.
  - The right digit is blinking.
- > Press ENTER (↵) if the current tare value is correct.

Or

- > Press the →PT key until the display changes and the last digit is blinking (approx 3 seconds).
- > The display shows the current tare value.
- > The right digit is blinking.
- > Press the ^ key to go up a value or press the v key to go down a value until the required value is reached for that place.
- > Press < to change to the next digit.
- > Repeat this procedure until the required tare value is displayed.
- > Press ENTER (↵) to activate the tare weight.
  - The tare weight is activated.
  - The "NET" pointer lights up.
  - When the system is loaded, the net value appears in the display
  - When the system is unloaded, the read-out displays the negative value of the given tare.
  - The entered value remains active until a new tare weight is entered (display shows the new net weight).
  - Press the ↔T key to return to gross weighing mode.

#### PIECE COUNT: SAMPLING

If an unknown piece weight is to be determined you may do this by sampling a certain number of pieces. The number of pieces taken from or placed on the scale determines the accuracy of the sampling. The total weight of the pieces taken from or placed on the scale for the sampling should be no less than 9-10 lb. The greater the weight difference, the greater accuracy. The standard sampling amount is 10 pieces, but this number can be increased up to 95 pieces. (wordy)

- > Press the ⌘ key.
  - The display shows "add10". The "lb" pointer changes to "pcs".
- > Take or place 10 pieces from/on the scale and press the ENTER (↵) key.
  - The sampling is done and the display will show the total number of pieces on the scale.

Or

- > Press the ^ key or the v key to change the number of pieces to add.
  - The display will show the new value to add. (for example "add50")
- > Take or place 50 pieces from/on the scale and press the ENTER (↵) key.
  - The sampling is done and the display will show the total number of pieces on the scale.

To return to the normal weighing mode press the ↻ key for 3 seconds.

#### PIECE COUNT: ENTER A PIECE WEIGHT

- > Press the ⌘ key for 3 seconds.
  - The last used piece weight will be displayed with the right digit flashing.
- > To accept the old value press ENTER (↵).
  - The display shows the number of pieces currently on the scale.


Or

- > Change the piece weight value by using the ^ or v and < keys.
  - The display shows the new piece weight.
- > To accept the new value press ENTER (↵).
  - The display shows the number of pieces currently on the scale.



To return to the normal weigh mode press the  key.

### SUMMING

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


- > Load the system with the weight that should be added.
- > Press the  key to add the weighed load to the total weight.
  - The display shows the message "ADDED" and after a short delay returns to the weighing mode.

Note that no weight can be recorded twice. The system needs to be returned to the net zero-range before another weight can be added up.

- > To check the subtotal can be checked by pressing the  key for 3 seconds.
  - The display shows the net total weight and the number of weightings totaled so far repeatedly for 3 seconds.
    - > If the  key is pressed during this period, the total is printed out (if option is installed) and reset to 0.
    - > If the "CE" key is pressed during this period, the total is reset but not printed out.
    - > If no key is pressed during this period, the subtotal stays in memory and the system returns to the weighing mode after 60 seconds.

### CHANGE UNITS

The system is set to start up in 'lbs' or in 'kg'. However you may, at any time in the weighing mode, change to the second unit (lb↔kg or kg↔lb).

- > Press the  key for 3 seconds.
  - The display will show the current weight in the new units for 5 seconds and then automatically change back to the start up units.

Note: The same key is used to change from the piece counting mode back to the weighing mode.

### 3.4 PRINTER (Option)

The RAVAS 310 comes equipped with a thermal printer. Obtained and entered weighing data can be printed.

#### THE PRINT OUT

In the printout a gross weight is indicated with the letters "B/G" and a net weight with the letter "N". A manually entered tare weight will also be printed and is indicated with the letters "PT". The total weight is shown with the letters "TOT".

*Standard print-out  
without code*

B/G 1234.5 lb.  
T 34.5 lb.  
N 1200.0 lb.

Nr. 1  
10/07/03 17:45

*Piece count print-out  
without code*

B/G 1234.5 lb.  
T 34.5 lb.  
N 1200.0 lb.

PcWt 1.234 lb.  
Qty 12345 PCs

Nr. 1  
10/07/03 17:45

*Total print-out (always without code)*

Tot. B/G 1234.5 lb.  
Tot. T 34.5 lb.  
Tot. N 1200.0 lb.

Tot. Nr. 999  
10/07/03 17:45

*Standard print-out  
with code*

CODE 12345  
B/G 1234.5 lb.  
T 34.5 lb.  
N 1200.0 lb.

Nr. 1  
10/07/03 17:45

*Piece count print-out  
with code*

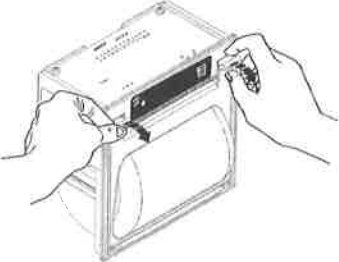
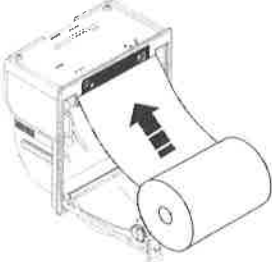

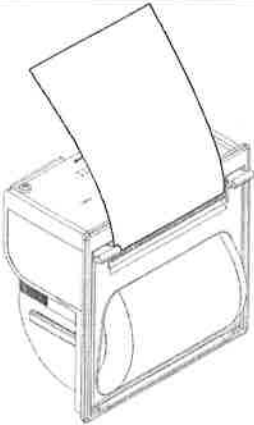
CODE 12345  
B/G 1234.5 lb.  
T 34.5 lb.  
N 1200.0 lb.

PcWt 1.234 lb.  
Qty 12345 PCs

Nr. 1  
10/07/03 17:45



## CHANGING THE THERMAL PAPER ROLL

	
Open the printer cover by pressing down the 2 levers and pulling the cover towards you.	Remove the existing paper roll. Position the new paper roll, making sure it unrolls in the correct direction, as shown above.
	
Unroll the paper slightly. Re-close the cover, holding the edge of the paper.	The printer is now ready for use.

## CHANGING THE TIME AND DATE ON THE PRINT-OUT

The date and time can be printed together with the weight information.

- Press the  $\Delta$  key for 6 seconds.
  - The display will show "ho\_00" or the previous hour time setting, with the right digit flashing.
- To accept the old value press ENTER (↵).
- **Or**
- 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 < to change to the next digit and use the  $\wedge$  or  $\vee$  key to change the value until the required value is reached.
- To accept the new value press ENTER (↵).
  - The display will show "m\_00" or the previous minute time setting, with the right digit flashing.
- Repeat the above procedure to accept or change the minute setting.
  - The display will show "dA\_00" or the previous date of the month setting, with the right digit flashing.
- Repeat the above procedure to accept or change the date of the month setting.
  - The display will show "m\_00" or the previous month setting, with the right digit flashing.
- Repeat the above procedure to accept or change the month setting.
  - The display will show "YE\_00" or the previous year setting, with the right digit flashing.
- Repeat the above procedure to accept or change the year setting.
- The indicator will return to normal weighing mode.

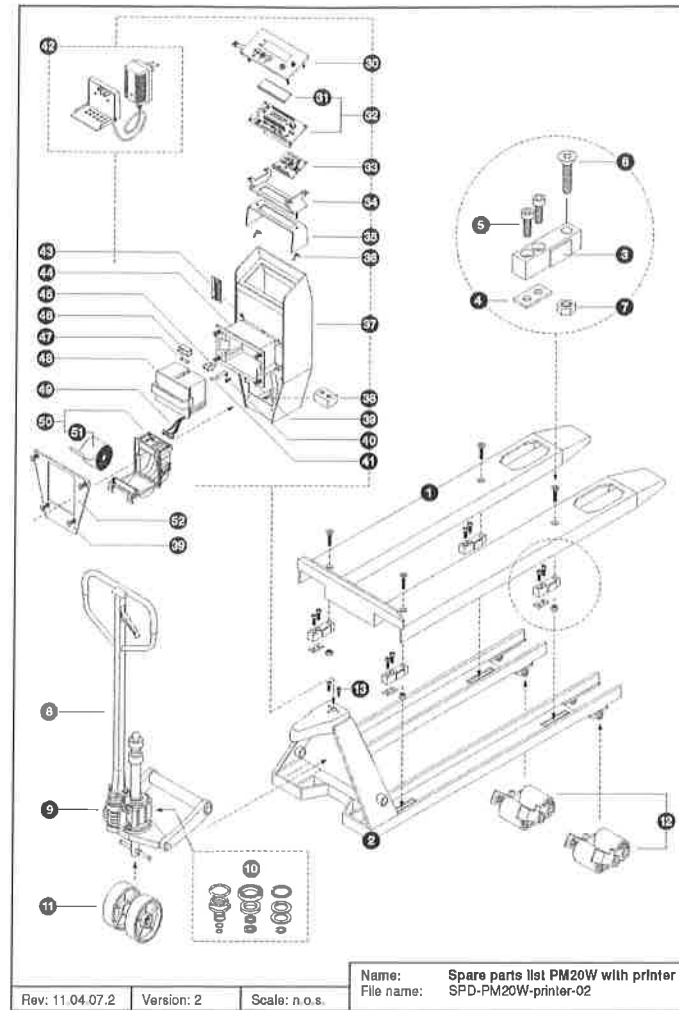
#### 4 TROUBLE SHOOTING

No power	Change batteries	Replace battery pack	Use a fully charged battery pack. (see page 5)
	12Vdc on the board	Check the board for burned components	Picture of component most likely to blow when batteries have been entered the wrong way.
Accuracy	No repeatability	Check if there is a mechanical problem.	Load left and right fork with for example body weight and see if weight changes when you are in different positions on the scale.  There should not be a difference larger than 2 lb.  If there is a bigger difference then 5 lb you have a load cell or a mechanical problem.  To make sure it is a mechanical problem, repeat test with a heavy load on the scale. Lift a pallet with 2000 or 3000 lb.  Reset Indicator for 0 lb using the tare function.  Load corners with body weight by standing on or on the sides of the pallet. If readings change more than 5 lb you have a mechanical problem.  The push rods in the forks may not interfere with the load cells. Take of the fork shoe by unscrewing the nuts on the bottom side of the pallet truck.  Push the pushrods sideways towards the load cells to see if they come in contact with the load cells: see if they can interfere with the load cells.  With the forks lifted half way up, the brackets for the loading wheels may touch the fork shoe. By taking off the fork shoe, Scratches will show if it does and where it does.  Check if bolts are loose.  To be sure that it is not a mechanical problem, load the load cells directly. Take off the fork cover. Try to apply weight 25 to 50 kg / lb, direct onto each load cell. If the indicator shows the same reading, the load cells are OK.  Tap with a hammer onto the load cells. Do not be afraid to break it. Repeat the test for each load cell.  Measure resistance with ohm meter between wires and load cell body. Do this with the other load cells disconnected from indicator. No resistance is allowed.  The load cells should have +/- 350 ohm between the signal wires: yellow and green, and excitation wires, black and red.
			Check the load cells. If one is broken or gives more or less signal than the others, the scale will give different reading depending how it is loaded.
	Check cables	Bad connections will cause changes when moving the scale.  Bend and move the cable briskly especially where the cable is moving continuously while lifting. While doing so, look at the display to see if it reacts to the movements.	

		The potentiometers with which we calibrate the output of the load cells, are mechanical parts therefore, higher risk components	Move the board and but pressure with fingers on the potentiometers while looking at the display to see if it reacts. Do not touch the contact itself.
	Not linear	Check if it is load cells or indicator	Load cells or indicator are very rarely the cause of this problem. Easiest way to check is by changing the indicator temporarily. If problem is not solved when changing the indicator, the problem is the load cell, cable or mechanics
		Check cable	Very rarely the cause. Maybe in a lift truck.
Instability	With no load it is most of the time humidity, bad connection or component r bad shield.	Check for humidity	Check for water marks on the indicator board or load cell connections (potentiometers).
		Check the indicator.	Sometimes the indicator will show a weight when the load cells are disconnected. If you do this and the indicator becomes more stable, it is most likely elsewhere in the system.  Check visually for traces of oxidation. If found, heating the solder contacts can solve the problem.
		Check cables. In warehouse and lift truck the cable is working all the time when following the lifting movement. It may be worn or damaged. Changing temperatures and chemicals have an effect on the lifetime of a cable.	Bad connections will cause changes when moving the scale.  Bend and move the cable briskly especially where the cable is moving continuously when lifting. While doing so, look at the display to see if it reacts to the movements.
		The potentiometers with which we calibrate the output of the load cells are mechanical parts and are sensitive to humidity, shocks and vibration.	Move the board and but pressure with fingers on the potentiometers while looking at the display to see if it reacts. Do not touch the contact itself.
		Check the load cells.	If connected independently to the indicator, it can be checked which one is unstable and which one is not.
	With load	Check mechanics.	
Function error	No reaction when pushing keys	Check the touch panel	Test can be done by making short cut on connection of the touch panel to simulate a key being pressed. Check for wear of broken contacts in the flat cable going to the indicator board
		Lock up	Take out the battery pack and replace to see if it starts up afterwards.

	Not summing	Operator error	Load is not stable. Scale needs to be unloaded before accepting new print. System will not print weights that are smaller than the graduation.
HELP messages	HELP 2	Scale is overloaded	Take load from scale. If there is no load do the same checks as you do with HELP 3 and 7.
	Help 3 or 7	Load cell signal too high or too low.	Check cables for damage. Move the cable while looking at display to see if indicator reacts. Measure load cells to see if they are fine. Check the excitation signal of the indicator
	Help 4	Out of zero range	Zero calibration needed.

## 5 SPARE PARTS



## SPARE PARTS LIST

### Weighing Hand Pallet Truck RAVAS 310

Nr	Article Number	Description	Quantity
1	899193001.3	set fork shoes	1
2	895200708	chassis	1
3	891112256 or 891112255	load cell	4
4	899172200	mounting plate load cell 6 mm	4
5	894141903	load cell mounting bolt (M12 x 35)	8
6	894141922	forkshoe mounting bolt (M12 x 60)	4
7	894142331	forkshoe mounting nut self tightening (M12)	4
8	895201705	handle (black)	1
9	895200780	pump (black)	1
10	895201799	pump repair set	1
11	895201701	steering wheel (polyurethane)	2
12	895201702	loading wheel (polyurethane tandem)	2
13	894141664	indicator support mounting bolt (M8 x 20)	3
30	892131291	touch panel with support plate	1
31	892142545.2	LCD display	1
32	892142545	indicator print board	1
33	892203003	RS232 board indicator	1
34	892203001.1	indicator adaptor bracket	1
35	892203002	indicator mounting support	1
36	894142400	butterfly nut	2
37	899193027.03	steel housing indicator	1
38	893142060	level switch 2" (approved version)	1
39	894207008	enclosure bolt (M5 x 8)	4
40	894203000	screw (KB40 x 8)	6
41	893203004	battery fixation clip	1
42	898202000	charger 230V - 12 V	1
43	893161500	load cell calibration board	1
44	893201006	plastic housing battery module	1
45	983209002	battery connection pins	2
46	893201003	fuse cover	1
47	893143606	fuse 5 x 20mm 2A	1
48	898201000	battery module 12V - 1.2Ah with handle	1
49	892132601	cable for thermal printer	1
50	892132600	thermal printer	1
51	892132604	paper roll for thermal printer	1
52	899193027.33	cover plate	1

## 6 CALIBRATION

### CALIBRATION INSTRUCTIONS INDICATOR 310

The calibration mode can only be reached from the standard weighing mode. You cannot get into the calibration mode when you are in piece count mode.

#### DEFINING ZERO

- Unload the system.
- Switch the system on.
- To enter the zero calibration mode press the >0< key for 10 seconds.
  - ❑ After 3 seconds the display will show the last entered code.
  - ❑ After 7 seconds the display will go into the zero calibration mode and start adjusting.
  - ❑ The display will show "Adj08" and run down until "Adj00". The adjustment has been completed.
  - ❑ The indicator shows the percentage of the total capacity that was adjusted. For a normal scale this would be between 5 and 8 percent. A larger percentage could mean one or more load cells are broken. A lower percentage could mean the fork cover is not mounted.
  - ❑ The zero point has been defined, the system automatically returns to the standard weighing mode.

#### SINGLE POINT CALIBRATION

- Press the ⇄T key for about 10 seconds.
  - ❑ After 3 seconds the display will show the last entered pre-set tare value.
  - ❑ After 7 seconds the display will go into calibration mode.
  - ❑ The display will show the first calibration point with the pointer "e1" flashing.
- Using the ^ and v keys you can see the three earlier programmed values on the display.
  - ❑ The pointer will move through e1-3. "e1" is the first calibration point, "e2" the second and "e3" the third.

When calibrating only one point the second and third values should be set to zero.

- Use the ^ and v keys to move to the second calibration point.
  - ❑ The display will show the pointer "e2" flashing.
- Press the ↓ key.
  - ❑ The display will show the previously entered calibration value, with the last segment flashing.
- Use the ^, v and < keys to return all the segments to zero.
- Press the ↓ key.
- Use the ^ and v keys to move to the third calibration point.
- Repeat the above to set all the segments to zero.
- Press the ↓ key.

#### Calibrating the single point

- Use the ^ and v keys to return to the first point.
  - ❑ The indicator shows the value of the first calibration point, with the "e1" pointer flashing.
- Load the scale with a known weight.
- Press the ↓ key to enter this weight onto the indicator, the first segment starts flashing.
- Use the ^ and v keys to change all the segments until the proper weight has been entered.
- Press the ↓ key to return to calibration mode. The "e1" pointer will start flashing.
- Press the ↓ key for 3 seconds to confirm the entered weight.
  - ❑ This calibration number counts down from Adj 08 to Adj 00, the first calibration point has now been set.
- Leave the calibration mode by pressing the ^ or v key until AP XX appears. This number indicates the calibration sensitivity percentage, eg AP 07.
- Press the ↓ key.
  - ❑ The display now shows the value of the gravitation constant. Use the ^, v and < keys to correct this for your position.
- Press the ↓ key to return to the standard weighing mode.

## MULTI-POINT CALIBRATION

- Push the  $\leftrightarrow$ T key for about 10 seconds.
  - After 3 seconds the display will show the last entered pre-set tare value.
  - After 7 seconds the display will go into the calibration mode.
  - The display will show the first calibration point with the pointer "e1" flashing.
- Using the  $\wedge$  and  $\vee$  keys you can see the three earlier programmed values on the display. The pointer will move through e1-3. "e1" is the first calibration point, "e2" the second and "e3" the third.
- Use the  $\wedge$  and  $\vee$  keys to return to the first point.
  - The indicator shows the value of the first calibration point, with the "e1" pointer flashing.
- Load the weighing system with a known weight.
- Press the  $\downarrow$  key to enter this weight onto the indicator.
  - The first segment will start flashing.
- Use the  $\wedge$ ,  $\vee$  and  $<$  keys to change all segments until the proper weight has been entered.
- Press the  $\downarrow$  key to return to calibration mode.
  - The "e1" pointer will start flashing.
- Press the  $\downarrow$  key for 3 to confirm the entered weight.
  - This calibration number counts down from Adj 08 to Adj 00, the first calibration point has now been set.
- Move to the second calibration point.
  - The display will show the pointer "e2" flashing.
- Repeat the procedure for a second known weight. Be aware that the value of this weight has to be higher than that of the first weight. If not, the display will show ERR98 and return to the entry mode for the calibration point.
- Repeat the procedure for the third known weight. Leave calibration mode by pressing the  $\wedge$  or  $\vee$  key until AP XX appears.
  - This number indicates the calibration sensitivity percentage, eg AP 07.
- Press the  $\downarrow$  key.
  - The display now shows the value of the gravitation constant. Use the  $\wedge$ ,  $\vee$  and  $<$  keys to correct this for your position.
- Press the  $\downarrow$  key to return to the standard weighing mode.

## 7 PARAMETER SETTINGS

**ATTENTION:** Before entering the setup mode make sure that the battery supply is sufficient. A low battery may cause the micro-processor to block. If this happens remove the empty battery and replace it with a fully charged battery. You should be able to start the indicator in the normal way.

To enter the setup mode, turn on the indicator and keep the  $\odot$  key pressed for 20 seconds. You will go through the normal start-up routine (all segments on; software version; calibration number and weight) and end up in the "P\_01" with the right digit flashing.

At this stage you may proceed as follows:

- To enter parameter 01 press the  $\leftarrow$  key quickly.
  - The display will show the setting for this parameter at this moment.
- You may change the setting by using the  $\wedge$  or the  $\vee$  key.

OR

- You can accept the setting by pressing  $\leftarrow$ .

OR

- To move to the next parameter you press the  $\wedge$  key.

OR

- To move to the previous parameter you press the  $\vee$  key.

- To leave the set-up mode you do the following:
- With P\_XX in the display press the  $\odot$  key quickly.
  - The display will show "P\_00"
- Press the  $\odot$  key again quickly.
  - If a change was made to the settings the display will show "SET\_\_" briefly and then return to the normal weighing mode. The calibration number will be increased by every time a change was made in the set up and also after a new calibration.
  - If no change was made, the display will return into the normal weighing mode.

In the following pages the different parameters are explained and the standard settings are given. Parameters that are not used yet will not be accessible or displayed with underscores.



91	Reset to default parameter settings including calibration parameters	If parameter 01 was on 1 it will default to the EU settings. If P_01 =2 the US settings will be defaulted. New delivered boards will have EU settings.	
92-99	Not used		

RAVAS USA, LLC  
 975 Deerfield Parkway  
 Buffalo Grove, IL, USA 60089  
 (224) 676-2238  
[www.ravasusa.com](http://www.ravasusa.com)

Rev. 05.10.10