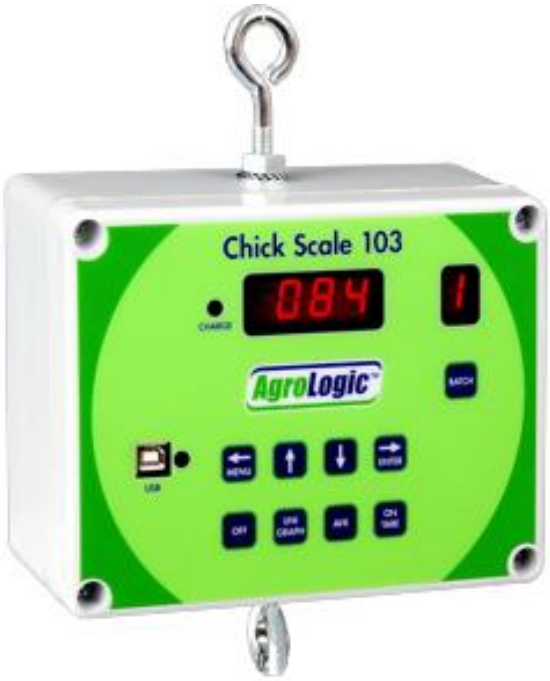
Chick Scale 103



Revision	Date	Change
Version 1.0	12.11.2008	Version 1.0
Version 2.0	13.07.2009	Add number of birds for weighing
Version 4.0	17.01.2011	Add weighing speed mode

Introduction

Thank you for choosing the **Chick Scale 103**.

The **Chick Scale 103** is a stand alone, battery operated precise manual weighing system, specially developed for the weighing of live poultry.

The **Chick Scale 103** can weigh up to 9 batches and supply the following information.

- Total number of birds weighed.
- Average weight.
- Batch uniformity with four user chosen formulas:
  - Coefficient of Variation (CV)
  - Standard Deviation (SD)
  - Standard Deviation in Percentage (SDPR)
  - Percentage range
- A uniformity graph in 25-Grams steps (when in Libra: 0.05-Pound steps)
- Recall of the last 256 weightings.

All information in the **Chick Scale 103** can be easily viewed using the keyboard.

On the **Chick Scale 103** the user can set the configuration easily by choosing items from the menu.

The **Chick Scale 103** may be connected to a PC via a USB port in order to down load all its information in graphic form. All data can then be exported to a spreadsheet.

The **Chick Scale 103** has a built in rechargeable battery, which when fully charged gives a working time of approximately 12 hours.

All information in the **Chick Scale 103** is stored in its internal memory and will remain there even in the event of a low battery voltage or battery failure.

The **Chick Scale 103** has been calibrated before leaving the factory.

The Panel

The Chick Scale 103 panel has two displays, nine keys, a USB connector for PC connection, USB status light, an AC/DC adaptor connector and a CHARGE light. The four-digit display is for displaying the weight measured and various messages (weight display). The one-digit display on the right displays the batch number (batch display). The keys are: **ON/TARE**, **AVR**, **UNI/GRAPH**, **OFF**, **MENU**, ↑**(Arrow Up)** , ↓(**Arrow Down**), **ENTER** and **BATCH**.

The way a weight is displayed depends on type of units set by the user. When the **Chick Scale 103** is in Kg mode, the weight will be displayed in gram XXXX. When the **Chick Scale 103** is in LB mode, the weight will be displayed in LB XX.XX. The default display is the current weight display. When a running decimal point appears on the weight display it indicates that the **Chick Scale 103** is ready and the next bird can be weighed. When a bird is weighed, the display shows its weight and once the weight is registered, the display blinks with the registered weight. When a key is pressed, the display exits the weighing display, displays the requested information and then returns to the weighing display. If an error message appears on the display (i.e. **Err1)** it means that a there is a problem and should be resolved.

A summery of the display and error messages appears in Tables 4 and 5 (pages 14-15).

To see possible solutions to different problems or errors see the Troubleshooting table (page 13).

ON/TARE Key 

To Tare the scale is the act of removing a known weight of an object, usually a weighing container, to zero the scale. Performing a tare allows you to display the weight of the bird on the scales display with the weight of the bird only and not the weighing container.
The **ON/TARE** key is a double-function key. When the **Chick Scale 103** is off, pressing on this key turns the **Chick Scale 103** on and tares the scale. If the **Chick Scale 103** is already on, pressing on the **ON/TARE** just tares the scale. Before pressing the **ON/TARE** key make sure that there are no birds on the hook. The display shows "**tArE**" for a few seconds and then returns to its weighing mode.

AVG Key 

Press on the **AVR** key to display the number of birds weighed in the current batch and the batch average weight. The number of birds weighed is first displayed and after a few seconds the average weight (the average weight is displayed with a decimal point). After a few seconds the display will return to the weighing mode.

UNI/GRAPH Key 

Press on the **UNI/GRAPH** key once to view the batch uniformity. The type of uniformity displayed depends on the uniformity type set in the uniformity setup (see Uniformity Setup below).
Press on the **UNI/GRAPH** twice to view the uniformity graph (see Uniformity Graph below).

OFF Key 

To turn off the **Chick Scale 103** push on the **OFF** key. The current batch data is saved in the internal memory and the **Chick Scale 103** is turned off.

Batch Display Key 

When the power is turned on, the last batch number which was in use will appear on the batch display and the weight display will show the state of this batch information. There are two batch states;
1. Clear: if the batch contains no information the display will show **CLr** (CLr is short for Clear).
2. Data: if the batch contains information the display will show **dAtA.**
To choose a batch out of the nine batches, press on the **BATCH** key. For each key press the batch number increases by one. After the ninth batch, the first batch is displayed. Each time you press the **BATCH** key, the information status for the new batch, **CLr** or **dAtA** appears on the display.

Arrow Up and Arrow Down Keys 

The **Arrow Up** and **Arrow Down** keys have multiple functions depending on the display mode.

- If the display is in the recall recorded weights mode, these keys allow browsing through the recorded weights.
- If the display is the Uniformity Graph mode, these keys allow viewing all the graph weight steps.
- If the display is in menu mode, these keys allow viewing all menu items and menu items options.

Menu / MENU and ENTER Keys 

Press on the **MENU** key to enter the menu. The menu contains 9 items (Table 1 page 12). After pressing the **MENU** key, the first menu item **GrAP** (Uniformity Graph) is displayed. Every press on the **Arrow Up**  key displays the next menu item. Every press on the **Arrow Down**  key displays the previous menu item. To choose a menu item press on the **ENTER** key. To exit the menu, press on the **MENU** key. The display shows **ESCA** (short for Escape) and the display will return to the weighing mode. A full description of the menu items and their usage is done through out the rest of the manual.
See Table 1 Menu Items (page 12) for a detailed definition of Menu Items.

Operation

Charging the Chick Scale 103 Battery

Before weighing the **Chick Scale 103** battery must be charged.
There are two methods available for charging the **ChickScale 103:**

- Charging through a USB cable and PC: Connect one end of a USB cable to the USB connector located on the front panel and the other end to a PC. Note: the PC must be on for charging to take place.
- Charging by use of an AC/DC adaptor connector. Connect the AC/DC adapter to the main electricity supply and to the **Chick Scale 103** AC/DC adaptor connector located on the side of the **Chick Scale 103.**

Charging time is approximately 10 hours.

While the unit is charging, the **CHARGE** light flashes once a second. Once the battery is fully charged, the **CHARGE** light remains constantly on.
If the charging fails, then the **CHARGE** light flashes rapidly (ten times a second) or **Err5** will appear on the display.
When connecting the **Chick Scale 103** to the PC or to a wall outlet via the AC/DC adaptor, **USB** or **AC.Ad** appears for a few seconds on the display. If the **Chick Scale 103** was off, it is turned on automatically. If the **CHARGE** light is turned off it means that the USB cable or the AC/DC adaptor was disconnected from the **Chick Scale 103**.
After the battery is fully charged, the **Chick Scale 103** can be left connected to the PC or to the AC/DC adaptor indefinitely and thus if the battery voltage drops due to its self discharge current, the battery is recharged to keep it always full.
Before disconnecting the **Chick Scale 103** from the PC or from the AC/DC adaptor, press on the **OFF** key. This will save battery power. If the **Chick Scale 103** is not connected to a charger for more than four weeks, recharge it to get full operation time.
To protect the battery, charging is stopped if the temperature is above 45 degrees Celsius (113 degrees Fahrenheit) or below 0 degrees Celsius (32 degrees Fahrenheit).
To keep the capacity of the battery high, avoid storing the **Chick Scale 103** above 40 degrees Celsius (104 degrees Fahrenheit).

See Charge Lights Table 2 (page 12), for list of light modes
For charging problems see the Trouble shooting (page 13).

Important note: Use only the supplied AC/DC adapter. Using any other AC/DC adaptor may cause a permanent damage to the **Chick Scale 103**.

Weighing

Hang the **Chick Scale 103** from its top ring.
Connect your weighing device to the unit (A hook, a bucket or a funnel) before turning the **Chick Scale 103** on.
Turn on the power by pushing the **ON/TARE** button.
The display will show **8.8.8.8**. Then **UrXX** (where XX is the software version), and then **tArE** while the scale is being tarred. When the batch number appears on the batch display, the weight display shows either **CLr** (For the word Clear, meaning that there is no information stored for that batch) or **dAtA** (if there is previously weighed information for that batch). The running decimal point that appears next indicates that the **Chick Scale 103** is now ready and in the weighing mode.

Important note: The accuracy of **Chick Scale 103** is +/-5 Grams (+/-0.01 Lb) or +/-13 Grams (+/-0.026 Lb), depending on Weighing Speed setup (see Weighing Speed Setup on page 10). For accurate measurements avoid touching the unit from the time the **ON/TARE** is pressed until the running decimal point is displayed.

Each time a bird is hung on the hook, the **Chick Scale 103** weighs it and displays its weight. A blinking display indicates that the bird weight has been recorded and taken it into its calculated average and uniformity. The blinking display shows the recorded weight. At this point you may take off the bird, wait for the running decimal point and continue to weigh. The **Chick Scale 103** doesn't record a weight or add it to the average and uniformity calculation if the bird weight is less than half the current average. Also the **Chick Scale 103** doesn't weigh birds under 50 grams (0.1 LB). It is advisable to turn the **Chick Scale 103** off when moving it around to avoid accidentally recording false weights.

Important Note: If a weight over 10 Kg (22 Lb) is hanged on the unit, the display will show **oFl** (meaning Overflow).
Such a weight may damage the load cell.

When the battery voltage is low, the message **Lobt** is displayed. It is possible to continue working for about half an hour before all the battery power is drained off. When all battery power is drained off the alternating messages **End** and **BAtt** appear for 10 seconds. The **Chick Scale 103** will save the batch data and turns itself off. To turn the **Chick Scale 103** on again connect it to a PC or use the AC/DC adaptor.

Note: By connecting the AC/DC adaptor to the **Chick Scale 103** it is possible to continue weighing even after the battery has been fully drained off.

Weighing Chicks with a Bucket

Valid only in software version number 2.0 and up

When using a bucket to weigh more than one chick at a time, the number of chicks put in the bucket must be programmed into the **Chick Scale 103.** This is done in the **Number of Birds** menu item (see **Number of Birds Setup** on page 9).
Hang an empty bucket on the **Chick Scale 103** and do a tare using the **ON/TARE** button. Once the TARE is finished, remove the bucket, fill it with the chicks and hang it again. When the **Chick Scale 103** display is blinking you can remove the bucket (the **Chick Scale 103** has registered all the chick weights in memory). After removing the bucket the display shows a negative weight. The **Chick Scale 103** is ready to weigh the next batch of chicks.

Note: the weight that is displayed when the display is blinking is the calculated weight of each chick.

Viewing the Recorded Weights

To view the recorded weights when in the weighing display mode, press on the **Arrow Up** or the **Arrow Down** keys. The display shows the weight number, where 1 is the first recorded number and then the weight recorded (when the units are set to Kg, the weight recorded is displayed in Kg instead of Grams). If the **Arrow Up** key is pressed first**,** the first recorded weight is displayed and if the **Arrow Down** key is pressed first, the last recorded weight is displayed first. Any other press on **Arrow Up** key displays the next recorded weight and any other press on the **Arrow Down** key displays the previously recorded weight. To return to the weighing mode press on one of these keys: **MENU**, **AVR** or **UNI/GRAPH**.

Uniformity Graph

The **Chick Scale 103** memorizes the weight of all the birds in 25-gram steps (in Pounds in 0.05 Lb steps) in range of ±1000 grams (±2.00 Lb in Pounds) around the average.
To scroll through the uniformity graph, push on the **UNI/GRAPH** button twice or enter the menu or choose the **GrAP** option from the menu.
The display shows the lowest recorded weight and after a few seconds the number of birds in this weight (the weight is displayed with a decimal point).
Press on the **Arrow Up** key to show the next weight step. Press on **Arrow Down** key to show the previous weight step. Weight-steps with no weighs are not shown.
When the end of the Uniformity Graph is reached the display shows **End**.
If the table is empty, the display shows **CLr**.
To exit, press on the **MENU** key. The **Chick Scale 103** returns to the weighing mode.

Erasing a Batch

There are two ways to erase the stored batch information: through repeated use of **AVR** key or through the menu.

Erasing a Batch using the **AVR** key:

1. Press on the **BATCH** key until the desired batch number is displayed.
2. Press 4 times on the **AVR** key. On the second, third and fourth key press the display shows **ErA1**, **ErA2** and **ErA3** correspondingly.
3. Press on **ENTER** key. The display shows blinking **ErAS**.
4. Press on the **ENTER** key again.

The batch data is erased and the display shows **CLr.** Once the batch has been erased the display returns to weighing mode.

Erasing a Batch through the menu:

1. Press on the **MENU** key. The display shows **GrAP**.
2. Press on the **Arrow Up** key until the display shows **ErAS**.
3. Press on **ENTER** key. The display starts to blink.
4. Press on the **ENTER** key again.

The batch data is erased and the display shows **CLr** and then the display returns to the weighing mode.

Undo (delete) a Recorded Weight

To undo a recorded weight enter the menu and choose the **Undo** menu item. Scroll using the **Arrow Up** and **Arrow Down** keys to choose the recorded weight that you want to undo and press on the **ENTER** key (the weights are displayed in the same way they are displayed when viewing the recorded weights as described in the **Viewing the Recorded Weights** above). The display shows alternately **Undo** and the recorded weight. Press again on the **ENTER** key to undo the weight. The recorded weight will be removed from the average weight, uniformity and uniformity graph. The displays then returns to the weighing display. To exit without undoing the weight, press on **MENU** key.

Note: Undoing a recorded weight is not possible if the number of birds recorded is greater than 256.

Setup

To configure the **Chick Scale 103** use the **Number of Birds**, **Weighing Speed**, **Uniformity Setup** and **Measuring Unit Setup** menu items. The following sections contain a description of these menu items.

Number of Birds Setup

Valid only in software version number 2.0 and up

The number of birds weighed each time is entered here. When individual birds are being weighed, **Number of Birds** has to be set to 1. When weighing multiple chicks (using a bucket) the number of chicks weighted each time has to be entered. This is needed so that the **Chick Scale 103** can calculate correctly the weight of each chick. The **Chick Scale 103** default setting is 1. When **Number of Birds** is set to a number greater than 1, the bucket sign **u** appears on the left hand side of the display while the running dot is displayed.

To change the number of birds, do as follows:

- Enter the menu, choose the **Number of Birds** menu item and press on the **ENTER** key. The previously selected number of birds is displayed.
- Use the **Arrow Up** and **Arrow Down** keys to select the desired number of birds and then press the **ENTER** key. The choice is stored in the permanent memory and the display returns to the weighing mode.

Weighing Speed Setup

Valid only in software version number 4.0 and up
There are two weighing modes. The first mode, called the "Normal" mode has a weighing accuracy of +/-5 Grams (+/-0.01 Lb) but the unit takes somewhat longer to register the weight. The second mode, called the "High" mode is weighing faster but the accuracy, +/- 13 Grams (+/-0.026 Lb) is somewhat less.

To set the mode, follow these steps:

- Enter the **Menu**, choose the **Speed** menu item and press on the **ENTER** key. The previously selected mode is displayed.
- **nor** is displayed when the "Normal" mode is chosen setup
- **HIGH** is displayed when the "High" mode is chosen.
- Use the **Arrow Up** and **Arrow Down** keys to select the desired speed setup and then press the **ENTER** key. The choice is stored in the permanent memory and the display returns to the weighing mode.

Uniformity Setup

The **Chick Scale 103** default setting is a uniformity formula called Coefficient of Variation (**CV)**. The user can change the default to one of the other included uniformity formulas: Standard Deviation (**SD**), Standard Deviation in Percents (**SDPR**) and the last formula is called the percentage range of the average.
For a detailed description of the different uniformity formulas see Uniformity Formulas on page 11.

The sub-menu from which you choose the formula contains the following options: **CU** (for **CV**), **Sd** (for **SD**), **SdPr** (for **SDPR**) and numbers from 3 to 30, which are the options for the percentage range of the average.
To change the uniformity formula, do as follows:

- Enter the menu, choose the **Uni** menu item and press on the **ENTER** key. The previously selected uniformity type is displayed.
- Use the **Arrow Up** and **Arrow Down** keys to select the desired uniformity type and then press the **ENTER** key. The choice is stored in the permanent memory and the display returns to the weighing mode.

To exit without changing the uniformity type, press on the **MENU** key instead of the **ENTER** key.

Measuring Unit Setup

The **Chick Scale 103** has two measuring units; kilos or pounds. The factory default measuring unit is set to kilos.
To change the measuring unit, do as follows:
Enter the menu, choose the **grLb** menu item and press on the **ENTER** key. The current measuring unit is displayed.
Use the **Arrow Up** or **Arrow Down** keys to scroll between the options (**gr** for **kilos** and **Lb** for **pounds**). Choose the desired unit and press on Enter. The choice is stored in the permanent memory and the display returns to the weighing display.
To exit without changing the measuring unit, press on the **MENU** key instead of the **ENTER** key.

Calibration

The **Chick Scale 103** is calibrated at the factory.
It is possible to re-calibrate the **Chick Scale 103**.
Important note: To calibrate the **Chick Scale 103** use a 1 Kg or 5 Kg weight (2 Lb or 10 Lb). The accuracy of the calibration depends on the precision of the weight used.

Follow these steps to calibrate the scale:

1. Place the unit in its weighing position. Be sure the weight hook is empty.
2. Enter the menu and choose the **CAL** option.
3. Press on the **ENTER** key. Blinking **-00-** is displayed (an accurate tare is being done).
4. Wait for the display to show **CAL**.
   Hang a standard weight (1 or 5 Kg or 2 or 10 Lb.) on the scale.
   After a few seconds the display will alternate between **End** and the current weight. The system has now completed its calibration and stored it in the permanent memory.
5. Remove the standard weight. The display will return to the weighing mode.

Downloading Data to a PC

Install the P.C. program supplied with the weighing unit.

- Connect a USB cable from the USB connector on the **Chick Scale 103** front panel to a USB connector in the PC. When the USB cable is connected, the **Chick Scale 103** is turned on and **USb** is displayed for few seconds on the display.
- Run the PC program and click on the **Read data** (found on the PC program Menu list. See PC program setup and User's Manual) button to download all data to the PC.

Important note: Do not press on the **ON/TARE** or the **OFF** keys while data is downloaded from the **Chick Scale 103**.

Uniformity Formulas

Here are the formulas that are used to calculate the uniformity.
The **SD** (Standard Deviation) is calculated with the formula:

$$SD = \frac{\sum(Xi-X)^2}{n}$$

Where **Xi** is a weight number **i**, **X** is the average and **n** is the bird number.

The Coefficient of Variation (**CV**) is calculated as follows:
Standard Deviation divided by the average weight times 100.

CV=(SD * 100) /AVR

The **SDPR** (Standard Deviation in Percentage) is calculated as follows:

SDPR=100-CV

When you choose a percentage X (3%-30%), the **Chick Scale 103** counts all the birds that fall into the following weight range:
The minimum of the range is the average weight minus (average*X)/100.
The maximum of the range is the average plus (average*X)/100.

Tables

Table 1: Menu Items

Menu Item No.	Menu Item Name	Menu Item Display	Menu Item Description	Software Version*
1	Uniformity Graph	GrAP	Scrolls the Uniformity Graph.	1 and up
2	Number of Birds	nO.Bd	Set the number of birds weighed each time.	2 and up
3	Erase Batch	ErAS	Erases the data of the current batch.	1 and up
4	Undo Weight	Undo	Scrolls the last 256 registered weightings and can undo a certain weighing.	1 and up
6	Weighing Speed	SPd	Set the weighing speed of the **Chick Scale 103.**	4 and up
7	Calibration	CAL	Calibrate the **Chick Scale 103** with a known weight	1 and up
8	Uniformity Setup	Uni	Set the type of uniformity displayed when the **UNI/GRAPH** key is pressed.	1 and up
9	Measuring Unit Setup	grLb	Set the measuring unit: Kg or Lb (Pound).	1 and up
10	Diagnostics	diAg	For technician's diagnostics use.	1 and up
11	End of Menu	End	Exit the menu.	1 and up

***Note:** Menu item 2 (Number of Birds) appears in software version 2 and up. All other menu items appear in software version 1 and up. The software version number can be seen when turning on the **Chick Scale 103** as '**Ur N**' where the N is the version number.

Table 2: Charge Light Table

Light State	Meaning	Note
Off	No PC or charger is connected or the charging has stopped because of abnormal temperature (see more in the Troubleshooting table below).	If PC or AC/DC adaptor are connected see Solving Problems below
Flash (every second)	Charging in progress	
On	Charging is completed	
Rapid Flash (Ten times a second)	Charging error	See Solving Problems below

Table 3: Troubleshooting Table

Problem	Possible Cause(s)	Ways to Resolve the Problem
With no weight the display doesn't show a running decimal point**.**	Automatic tare can not be done.	1. Press on the ON/TARE key. 2. If phenomenon is constant the **Chick Scale 103** needs to be calibrated (see **Calibration** section above). 3. If after calibration phenomenon persists the **Chick Scale 103** needs to be repaired.
Calibration never completed.	The weighing element (load cell) is damaged.	The **Chick Scale 103** needs to be repaired.
CHARGE light flashes rapidly (ten times a second).	Charging has failed.	See **Err5** in table 4 below.
CHARGE light is off while charging.	Charging is stopped because the temperature is above 45 degrees Celsius (113 degrees Fahrenheit) or below 0 degrees Celsius (32 degrees Fahrenheit).	See **Err6** in table 4 below.

Table 4: Error Messages

Error Message	Cause	Ways to Resolve the Problem
Err1	Configuration data in the permanent memory has been corrupted.	1. Reconfigure the **Chick Scale 103** (see **Setup** section above). 2. Recalibrate the **Chick Scale 103** (see **Calibration** section above). 3. If the problem persists, the **Chick Scale 103** needs to be repaired.
Err2	The weighing element (load cell) is damaged or disconnected.	The **Chick Scale 103** needs to be repaired.
Err3	Calibration failed.	1. Recalibrate the **Chick Scale 103** (see **Calibration** section above). 2. If the problem persists the **Chick Scale 103** needs to be repaired.
Err4	Batch data in has not been saved correctly in the permanent memory.	The **Chick Scale 103** needs to be repaired.
Err5	Charging has failed.	1. If the **Chick Scale 103** has been charged from a PC, use a different USB connector or use the supplied AC/DC adaptor. 2. If the AC/DC adaptor has been used, the AC/DC adaptor or the battery has to be replaced.
Err6	Charging is stopped because the temperature is above 45 degrees Celsius (113 degrees Fahrenheit) or below 0 degrees Celsius (32 degrees Fahrenheit).	Charge the **Chick Scale 103** in temperature below 45 degrees Celsius (113 degrees Fahrenheit) and above 0 degrees Celsius (32 degrees Fahrenheit).

Table 5: Display Messages Table

Message	Short for…	Meaning
oFl	Overflow	The weight is above 10 Kg (22 Lb)
----		The weight is equal or below -1 Kg (-10 Lb)
Err1-Err6	Error1-Error6	Error messages
ESCA	Escape	Exiting menu, graph or viewing weights display modes and returning to weighing mode
Clr	Clear	There is no data in the current batch
dAtA		There is data in the current batch
ErAS	Erase	The data of the batch is about to be erased
USb		The PC has been connected.
USb0-USb9		Data is being downloaded to the PC.
AC.Ad	AC/DC Adaptor	The AC/DC Adaptor has been connected.
Lobt	Low Battery Voltage	There is only about half an hour battery time.
End/BAtt	End of Battery	The battery is fully drained and the **Chick Scale 103** is about to turn itself off.

WARNING:

- Malfunctions or failure resulting from misuse, abuse, negligence, alteration, accident, or lack of proper maintenance shall void all warranties.
- There is no warranty on damage to the load cell.
- This manual may contain mistakes and printing errors. We accept no liability for technical mistakes, printing errors or their consequence's.