

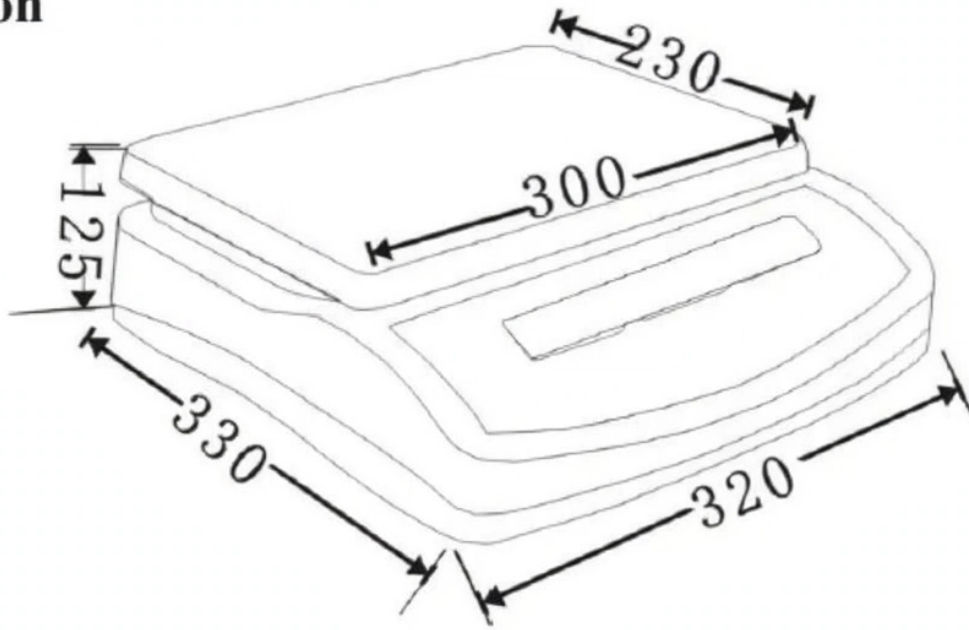


User Manual



CZ Series

Dimension



2. Basic Information

2.1 Proper use

The balance you purchased is intended to determine the weighing value of material to be weighed. It is intended to be used as a "non-automatic" balance, i.e. the material to be weighed is manually and carefully placed in the centre of the weighing plate. As soon as a stable weighing value is reached the weighing value can be read.

2.2 Improper Use

Do not use balance for dynamic weighing. In the event that small quantities are removed or added to the material to be weighed, incorrect weighing results can be displayed due to the "stability compensation" in the balance.

(Example: Slowly draining fluids from a container on the balance.)

Do not leave permanent load on the weighing plate. This may damage the measuring system.

Impacts and overloading exceeding the stated maximum load (max) of the balance, minus a possibly existing tare load, must be strictly avoided. Balance may be damage by this.

Never operate balance in explosive environment. The serial version is not explosion protected.

The structure of the balance may not be modified. This may lead to incorrect weighing results, safety-related faults and destruction of the balance.

The balance may only be used according to the described conditions. Other areas of use must be released by ACZET in writing.

2.3 Warranty

Warranty claims shall be voided in case

- Our conditions in the operation manual are ignored
- The appliance is used outside the described uses
- The appliance is modified or opened
- Mechanical damage or damage by media, liquids, natural wear and tear
- The appliance is improperly set up or incorrectly electrically connected
- The measuring system is overloaded

3. Basic Information

3.1 Pay attention to the instructions in the Operation Manual

Carefully read this operation manual before setup and commissioning, even if you are already familiar with ACZET balances.



Versions in other languages are non-binding translations.
The only binding version is the original documents in German.

3.2 Personnel training

The appliance may only be operated and maintained by trained personnel.

3.3 Precautions

- Always place the scale in a rigid and vibration free surface.
- Avoid any direct flow of air on the pan it can lead to errors during weighing.
- Calibrate the scale at regular intervals and after a long period of use.
- Check level indicator before use. The level bubble should be at the center.

4. Transportation & Storage

4.1 Testing upon acceptance

When receiving the appliance, please check packaging immediately, and the appliance itself when unpacking for possible visible damage.

4.2 Packaging / return transport



Keep all parts of the original packaging for a possibly required return.

Only use original packaging for returning.

Prior to dispatch disconnect all cables and remove loose / mobile parts.

Reattach transport securing devices. (see chapter 5.2)

Secure all parts such as the glass wind screen, the weighing platform, power unit etc. against shifting and damage.

5. Unpacking, Setup and Commissioning

5.1 Installation Site, Location of Use

The balances are designed in a way that reliable weighing results are achieved in common conditions of use.

You will work accurately and fast, if you select the right location for your balance.

Therefore, observe the following for the installation site:

- Place scales on a stable, even surface
- Avoid extreme heat as well as temperature fluctuation caused by installing next to a radiator or in the direct sunlight;
- Protect the balance against direct draughts due to open windows and doors;
- Avoid jarring during weighing;
- Protect the balance against high humidity, vapors and dust;
- Do not expose the device to extreme dampness for longer periods of time. Non-permitted condensation (condensation of air humidity on the appliance) may occur if a cold appliance is taken to a considerably warmer environment. In this case, acclimatize the disconnected appliance for ca. 2 hours at room temperature.
- Avoid static charge of goods to be weighed or weighing container.

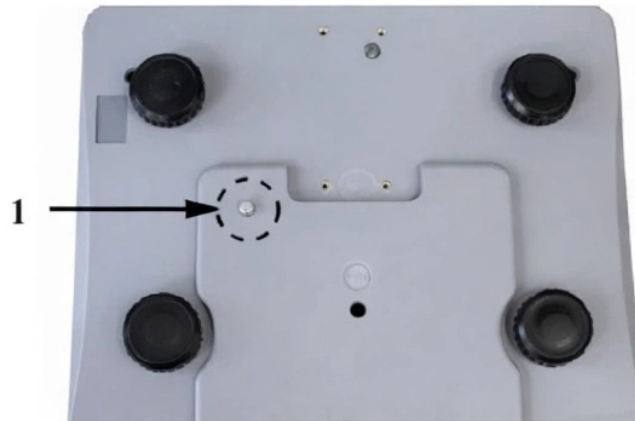
Major display deviations (incorrect weighing results) may be experienced should electromagnetic fields (e.g. due to mobile phones or radio equipment), static electricity accumulations or instable power supply occur. Change location or remove source of interference.

5.2 Unpacking/installation

Carefully remove the balance from the packaging, remove plastic cover and setup balance at the intended workstation.



Ensure that transport guard has been removed (only existing in 6kg & 3kg models)



To loosen the transport guard screw out transport screw [1] anticlockwise.

For transportation screw down the transport screw till to the stop in clockwise direction.

Levelling



Level balance with foot screws until the air bubble of the water balance is in scribed circle.

5.2.1 Scope of delivery / serial accessories

- Balance
- Mains power supply
- Operating instructions

5.3 Mains connection

Power is supplied via the external mains adapter. The stated voltage value must be the same as the local voltage.

Only use original ACZET mains adapters. Using other makes requires consent by ACZET.

5.4 Rechargeable battery operation (option)

The internal battery is charged with the supplied mains cable.

Before the first use, the rechargeable battery should be charged by connecting it to the mains power cable for at least 15 hours. The operating time of the battery is about. 90h. Charging time until complete recharging ca. 12h.

To save battery life, the background light can be switched off in the menu (See chap.. 11 menu).

An arrow [▲] appearing on the weight display below the battery icon  indicates that the capacity of the rechargeable battery is low. The balance will be ready to operate for about another 10 hrs., then it will switch off automatically. Connect the power cable as soon as possible to load the rechargeable battery.

5.5 Connection of peripheral devices

Before connecting or disconnecting of additional devices (printer, PC) to the data interface, always disconnect the balance from the power supply.

With your balance, only use accessories and peripheral devices by ACZET, as they are ideally tuned to your balance.

5.6 Initial Commissioning

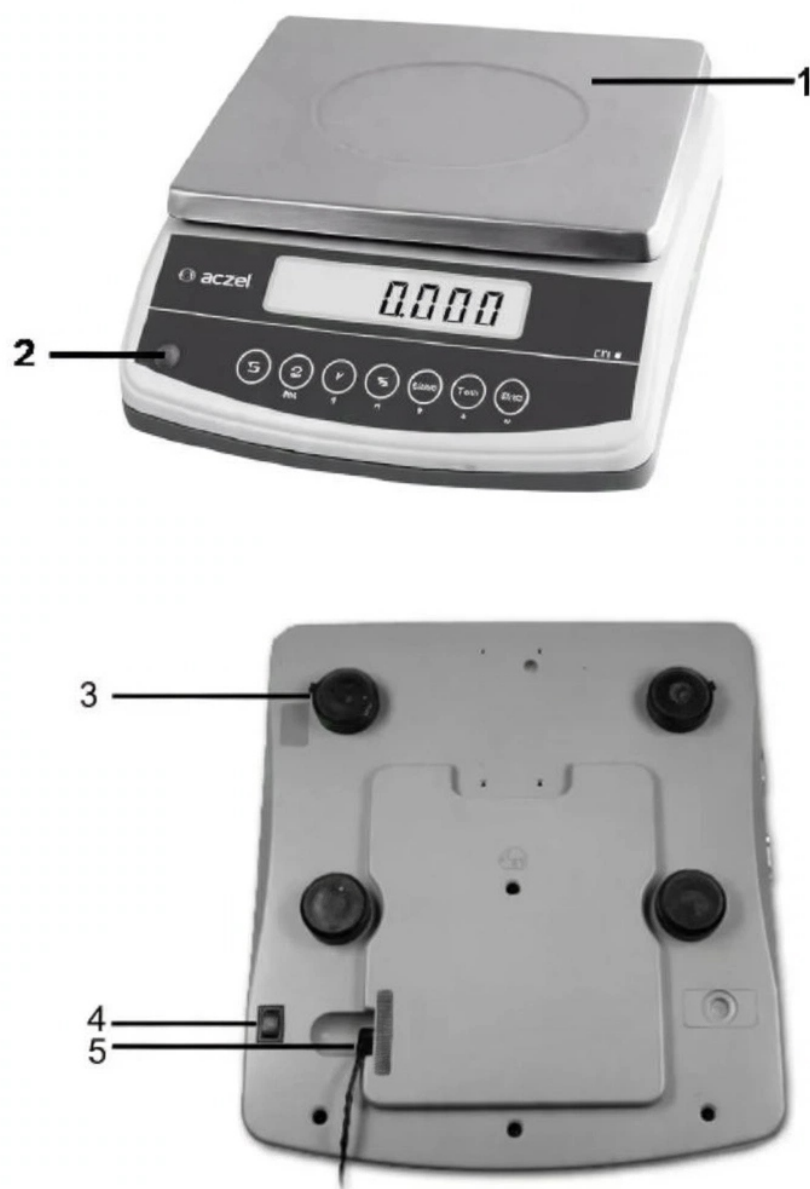
In order to obtain exact results with the electronic balances, your balance must have reached the operating temperature (see warming up time chap. 1).

During this warming up time the balance must be connected to the power supply (mains, accumulator or battery).

The accuracy of the balance depends on the local acceleration of gravity.

Strictly observe hints in chapter Calibration.

6. Appliance overview



- 1. Weighing plate / rechargeable battery compartment (under weighing plate)
- 2. Bubble level
- 3. Footscrews
- 4. ON/OFF switch
- 5. Mains adapter connection

7. Overview of displays



	Display	Designation	Description
1		The battery capacity display	Appears when the capacity of the battery is getting low
2		Stability Display	Scales are in a steady state
3	ZERO	Zeroing display	Should the balance not display exactly zero despite empty scale pan, press the button. The balance will be set to zero after a short standby time.
4	NET	Net weight display	Displays the net weight
5	Gross	Gross weight Display	Showing gross weight
6		Tolerance check checkweighing	Load above (HI), below (LO) or within (OK) tolerance range
7		Power supply connected	Icon is glowing for power supply via power pack.

8. Keyboard overview



	Butoon	Designation	Function
1		Unit-Key	Weighing units switch-over
2		Print button	Print : Data transfer via interface Save value to memory if memory function automatic is disabled ESC : Return to weighing mode
3		Function key	F : Changes between weighing mode and quantity counting mode C : Delete displayed value
4		Percentage key	% : Weight value displayed in % ◀ : Move to the left by one decimal point
5		Tolerance key Check-weighing	TOL : Enter upper, lower or both limits ▶ : Move to the right by one decimal point
6		Tare Key	Tare : Tare balance ▲ : Increase displayed value
7		Zeroing key	0 : Reset scales to zero ▲ : Confirm entered value or select function

9. Calibration

As the acceleration value due to gravity is not the same at every location on earth, each balance must be coordinated - in compliance with the underlying physical weighing principle - to the existing acceleration due to gravity at its place of location (only if the balance has not already been adjusted to the location in the factory). This adjustment process must be carried out for the first commissioning, after each change of location as well as in case of fluctuating environment temperature. To receive accurate measuring values it is also recommended to adjust the balance periodically in weighing operation.

9.1 Calibration Procedure

- Switch on balance Whilst balance is carrying out self-test (counts down from 99... to 00...)  and  press at the same time. "UnLoad" will be displayed, followed by flashing numeric value.



(Example)

- Change by pressing the navigation keys (See manual chap. 8); select desired setting; currently enabled digit will be flashing.

(Example)

- Confirm value by  "Load" will be displayed.

- Place adjustment weight, stability display appears
- Now press  key to confirm the calibration.

- After the adjustment the balance will carry out a self-test. Remove adjusting weight during self test, balance will return into weighing mode automatically. In case of an adjustment error or incorrect adjusting weight the display will show an error message, repeat adjustment process.

9.2 Linearization

Linearity shows the greatest deviation of a weight display on the scale to the value of the respective test weight according to plus and minus over the entire weighing range.

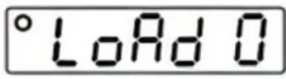
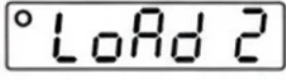
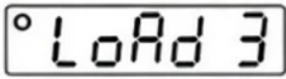
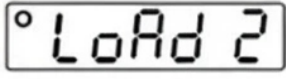
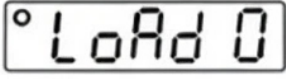
If linearity deviation is discovered during a testing instrument control, you can improve this by means of linearization.

- Carrying out linearization is restricted to specialist staff possessing well acquainted with the workings of weighing scales.
- The test weights to be used must be adapted to the weighing scale's specifications.
- Observe stable environmental conditions. Stabilisation requires a certain warm-up time.
- After successful linearization you will have to carry out calibration.

Tab. 1: Linearization points

Adjustment Weight	3 kg Model	6 kg Model	15 kg Model	30 kg Model
1	0 kg	0 kg	0 kg	0 kg
2	1 kg	2 kg	5 kg	10 kg
3	2 kg	4 kg	10 kg	20 kg
4	3 kg	6 kg	15 kg	30 kg

9.2.1 Linearization Procedure

Operation	Display
How to carry out linearization: Switch on the balance and during the selftest press the and  the  button at the same time. „LoAd 0“ followed by LoAd 1” will be displayed.	  
- Place the second adjustment weight. - After the apparition of the stability display, „LoAd 2“ will be displayed	
- Put on the third adjustment weight - After the apparition of the stability display, „LoAd 3“ will be displayed	
- Put on the forth adjustment weight (max load) - After the apparition of the stability display, „LoAd 2“ will be displayed	
- Third adjustment weight - After the apparition of the stability display, „LoAd 1“ will be displayed	
- Second adjustment weight - After the apparition of the stability display, „LoAd 0“ will be displayed	
- First adjustment weight (weighing plate empty) - After successful linearization the balance automatically returns to weighing mode.	

In case of an adjustment error or incorrect adjusting weight the display will show an error message; repeat linearization process.

10. Operation

10.1 Weighing



- Turn on the scales by pressing the ON/OFF button underneath the scales on the right.
The balance will carry out a self-test. The balance is ready for weighing when the weight display „0.0“ appears.

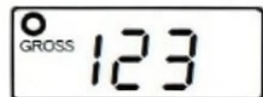


When required, the scales can be reset to zero at any time using .

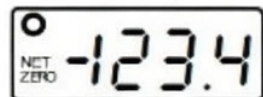
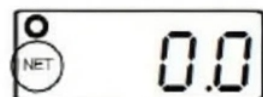
Printout example :

N 0.500kg

10.2 Weighing with tare

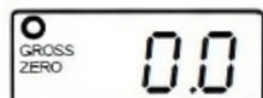


(Example)



- Deposit weighing receptacles
- After successful stop check press the  button.

The zero display and the symbol NET will appear. The weight of the container is now internally saved.
- When the weighing container is removed, its weight will be shown as a negative value.
- The taring process can be repeated any number of times, e.g. when adding several components for a mixture (adding). The limit is reached when the whole weighing range is exhausted.
- To delete the tare value, remove load from weighing plate and press .



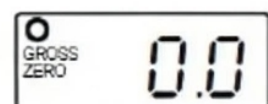
Printout example :

Net weight :

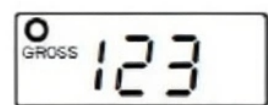
N 0.500kg

10.3 Percent weighing

Percent weighing allows to display weight in percent, in relation to a reference weight.



- Unload scales and set to zero

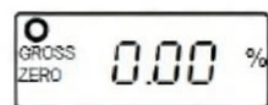


(Example)

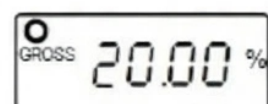


- Put a reference weight on the weighing plate, which corresponds to 100%

- Press  100.00 % will appear on the display



- Remove the reference weight
The display will return to 0.00 %



- Place a sample The display will show the percentage value of the sample in relation to the reference value.

- To return to gram / kilo mode, press 

Printout example :

Percent :

G 199.99%

10.4 Parts counting

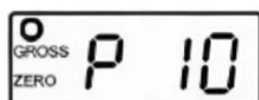
Before the balance can count parts, it must know the average part weight (i.e. reference). Proceed by putting on a certain number of the parts to be counted. The balance determines the total weight and divides it by the number of parts (the so-called reference quantity). Counting is then carried out on the basis of the calculated average piece weight.



The higher the reference quantity the higher the counting exactness.



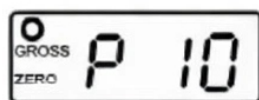
(example)



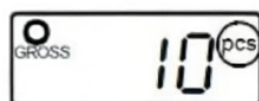
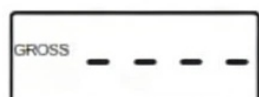
- Place the reference quantity

- Press  the scales will change to quantity counting mode
Reference quantity of 10, P 10 will appear.

- Reference quantities of 10, 20, 50, 100 and 200 can be set by pressing .



(example)



- Confirm by pressing .

You will briefly see a line on the screen before the scales show the respective quantity

- To change between reference weight, total weight and quantity, press the  key.

- To return to weighing mode, press the  key.

Printout example:

Parts counting:

G.	0.500 kg	Reference weight
50 g/pcs		Average parts weight
10 pcs		Number of parts

10.5 Weighing with tolerance range

You can set an upper or lower limit when weighing with tolerance range and thus ensure that the weighed load remains exactly within the set limits.

Exceeding or dropping below the tolerance range is indicated by an audio sound or optical signal.

Audio signal:

The audio sound depends on the setting in menu block “BEEP“ (See chap. 11 menu).

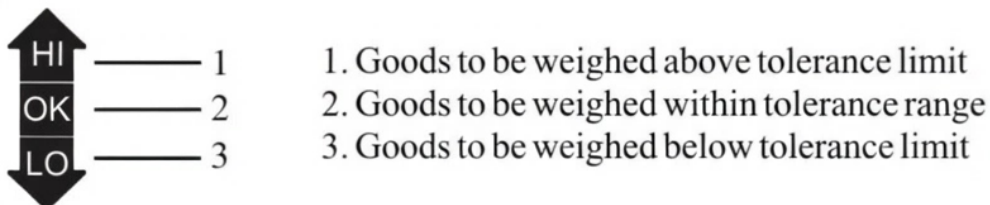
Options :

- 0 No audio sound during tolerance weighing
- 1 An acoustic signal sounds when load is within tolerance limits
- 2 An acoustic signal sounds when load is beyond tolerance limits

Optical signal:

The arrow symbols indicate whether load is within the two set limits.

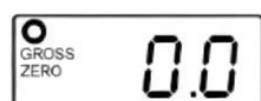
The icons provide the following information:

**10.5.1 Traffic light function**

When using a traffic light, the following can be displayed :

red lamp	Goods to be weighed above tolerance limit.
yellow lamp	Goods to be weighed below tolerance limit.
green lamp	Goods to be weighed within tolerance range.

Setting



- Unload scales and set to zero



- Press
 The left digit will be flashing and icon HI will be displayed



- Enter upper limit by pressing and .

(Example)



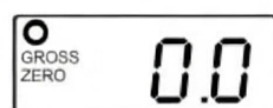
- Confirm upper limit by pressing .
 The weighing scales will change to the prompt for entering the lower limit.



- Enter lower limit by pressing and .

(Example)

- Confirm lower limit by pressing .



- The scales will change to zero display.



To reset the enter value to zero, Press

Weighing with tolerance range

- Tare when using a weighing container
- Put on goods to be weighed, tolerance control is started

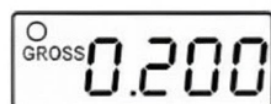


- The tolerance control is not active when the weight is under 20d.
- To finish tolerance weighing, set both limit to zero by pressing

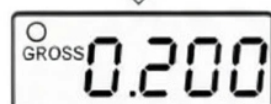
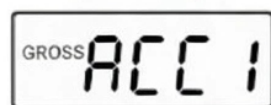
10.6 Manual totalizing

This function is used to add the individual weighing values to the summation memory and, if a printer is connected to provide a printout when the stability display appear and the  key pressed.

(For details how to set this function see chap. 11 menu "ACC on")



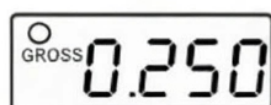
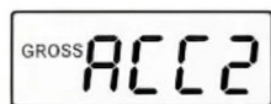
(Example)



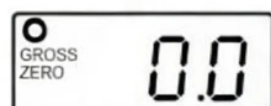
(Example)



(Example)



(Example)



- Place load A
Wait until stability display appears
- Press 
ACC 1 followed by the weighing value will appear and the weighing value will be saved to the summation memory and possibly printed.
- Remove load A
Further loads can only be added after the display has returned to zero.
- Place load B
Wait until stability display appears ○
- Press  again
ACC 2, followed by the total weight will be displayed and the weighing value added to the summation memory and possibly printed.
- Remove load B
Further loads can only be added after the display has returned to zero.
- Add more weighed goods as described before. Please note that the balance must be unloaded between the individual weighing procedures.
- You can repeat this process until the capacity of the scales is exhausted

Display of the save weighing data

- With the weighing platform unloaded, press  and the number of weighing processes, followed by the total weight will be displayed for 2 sec and afterwards printed.

Delete weighing data:

- With the weighing platform unloaded, press  followed by . The data in the summation memory are deleted.

Printout example

1st weighing:

No.	1
G	0.200 kg
C	0.200 kg

2. weighing

No.	2
G	0.050 kg
C	0.250 kg

3. weighing

No.	3
G	2.000 kg
C	2.250 kg

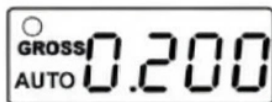
Number of weighings / total:

No.	3
C	2.250 kg

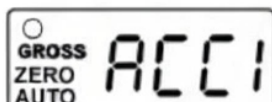
10.7 Automatic adding-up

This function is used to automatically add individual weighing values to the summation memory and to receive a printout from a possibly connected optional printer.

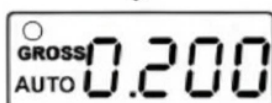
For details on how to set this function see chap. 11 menu: „ACC on")



- Place load A
After stabilisation control has taken place, you will hear an audio sound. The weighing value will be saved to the summation memory.

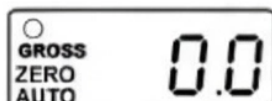


- Remove load A
ACC 1, followed by the weighing value will be displayed and possibly printed.

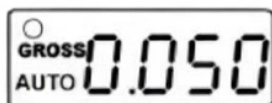


(Example)

Afterwards the weighing scales change to zero display.



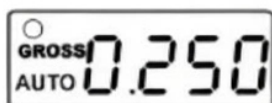
- Place goods to be weighed B.
After the standstill control sounds a signal tone.
The weighing value is added into the total adding memory.



- Remove load B

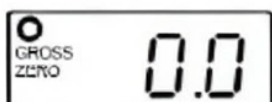


- ACC 2, followed by the total weight will be displayed and possibly printed.



(Example)

Afterwards the weighing scales change to zero display.



- Add more weighed goods as described before.
Please note that the balance must be unloaded between the individual weighing procedures.
- You can repeat this process until the capacity of the scales is exhausted.

Display of the saved weighing data

- With the weighing platform unloaded, press  and the number of weighing processes, followed by the total weight will be displayed for 2 sec and afterwards printed.

Delete weighing data:

- With the weighing platform unloaded, press  followed by . The data in the summation memory are deleted.

Printout example

1st weighing:

No. 1
G 0.200 kg
C 0.200 kg

2. weighing

No. 2
G 0.050 kg
C 0.250 kg

3. weighing

No. 3
G 2.000 kg
C 2.250 kg

Number of weighings / total:

No. 3
C 2.250 kg

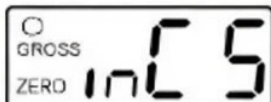


The two following items limit the totalizing process.

- totalize max. 99 times.
- number of digits displayed

11. The Menu

11.1 Navigation in the menu:

Call up menu 	In weighing mode press  and  at the same time The first menu item InC 5 will be displayed
Select menu block	With help of , the individual menu items can be selected one after the other.
Change Setting	Switch into the available setting using .
Acknowledge setting / exit the menu	Either save by pressing  or cancel by pressing .
Return to weighing mode	Press to exit menu .

12. Data output

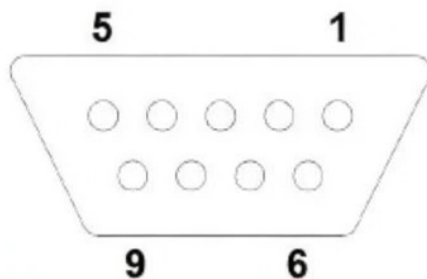
12.1 RS232 interface (optional)

The RS 232 interface allows a bi-directional data exchange from the balance to external devices. This data exchange is asynchronous using ASCII - Code.

12.1.1 Technical data

- ASCII code
- 8 data bits
- Baud rate selectable at 600, 1200, 2400, 4800, 9600 bps
- Miniature plug-in necessary (9 pole D-Sub)
- No parity
- For operation with interface faultless operation is only ensured with the correct ACZET interface cable (max. 2m)

12.1.2 Pin allocation of balance output bushing:



Pin 2 : Output
Pin 3 : Input, not use
Pin 4 : Signal ground

12.1.3 Explanation of the data transfer

Example :

Header1	,	Header2	,	-/space	W1	W2	W3	W4	W5	W6	W7	,	unit	terminator
---------	---	---------	---	---------	----	----	----	----	----	----	----	---	------	------------

Header1	2 byte, St or US, ST=weighing value stable, US=weighing value instable
Header2	2 byte, G or N, G=gross weight, N= net weight
space	Blank
W1-W7	Weight value with decimal position
Unit	2 byte, kg or lb
Terminator	<CR> <LF> (CR=Carriage return) (LF= Line Feed)

14. Instant help

In case of an error in the program process, briefly turn off the balance and disconnect from power supply. The weighing process must then be restarted from the beginning.

Help

Fault	Possible cause
The displayed weight does not glow.	• The balance is not switched on. • Mains power supply interrupted (mains cable defective). • Power supply interrupted. • Rechargeable battery inserted incorrectly or empty
The displayed weight is permanently changing	• Draught/air movement • Table/floor vibrations • Weighing plate has contact with other objects. • Electromagnetic fields / static charging (choose different location/switch off interfering device if possible)
The weighing result is obviously incorrect	• The display of the balance is not at zero • Adjustment is no longer correct. • Great fluctuations in temperature. • Warm-up time was ignored. • Electromagnetic fields / static charging (choose different location/switch off interfering device if possible)
Weight variation or calibration failure	• Check transport Lock is removed or not, if any • Prefer Linearity (see. chapter 9.2)

Should other error messages occur, switch balance off and then on again. If the error message remains inform manufacturer.