

Electronic Analytical Balance

Operation Manual



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1 Technical data

ES-E Series Electronic Analytical Balance (External Weights Calibration)

Model	ES-E120B	ES-E210B	ES-E220B	ES-E320B
Readability (d)	0.1 mg			
Capacity (Max)	120g	210g	220g	320g
Repeatability	±0.1mg			±0.15mg
Linearity	±0.2mg			±0.3mg
Recommended adjusting weight not supplied (class)	100 g (E2)	100g/200g (E2)	100g/200g (E2)	100g/200g (E2)
Stabilization time	2.5 sec			
Warm-up time	30-60 min			
Weighing units	g, oz, ct, lb			
Smallest part weight for piece counting	0.1 mg			
Reference quantities at piece counting	5, 10, 20, 50,100			
weighing pan (stainless steel)	ø 90 mm			
Net weight (kg)	6			
Permissible ambient condition	+10° C to +30° C			
Humidity of air	20 ~ 85 % relative (not condensing)			
Power supply unit input voltage	AC 230 V, 50-60 Hz			
Interface	RS232C			

ES-E Series Electronic Analytical Balance (Internal Weights Calibration)

Model	ES-E120A	ES-E210A	ES-E220A	ES-E320A
Readability (d)	0.1 mg			
Capacity (Max)	120g	210g	220g	320g
Repeatability	±0.1mg			±0.15mg
Linearity	± 0.2mg			±0.3mg
Recommended adjusting weight not supplied (class)	100 g (E2)	100g/200g (E2)	100g/200g (E2)	100g/200g (E2)
Stabilization time	2.5 sec			
Warm-up time	30-60 min			
Weighing units	g, oz, ct, lb			
Smallest part weight for piece counting	0.1 mg			
Reference quantities at piece counting	5, 10, 20, 50,100			
weighing pan (stainless steel)	ø 90 mm			
Net weight (kg)	6			
Permissible ambient condition	+10° C to +30° C			
Humidity of air	20 ~ 85 % relative (not condensing)			
Power supply unit input voltage	AC 230 V, 50-60 Hz			
Interface	RS232C			

ES-E Electronic Analytical Balance (0.01mg, External Weights Calibration)

Model	ES1035B	ES1055B	ES1085B	ES2035B	ES2055B	ES2085B	ES1205B
Capacity (Max)	120g/ 31g	120g/ 51g	120g/ 82g	220g/ 31g	220g/ 51g	220g/ 82g	120g
Readability (d)	0.1 mg/0.01mg						0.01mg
Repeatability	±0.1mg/±0.02mg						±0.02mg
Linearity	±0.1mg/±0.02mg						±0.02mg
Recommended adjusting weight not supplied (class)	100g (E2)						
Stabilization time	2.5 s/6 s						6 s
Warm-up time	30-60 min						
Weighing units	g, oz, ct, lb						
Smallest part weight for piece counting	0.1 mg						
Reference quantities at piece counting	5, 10, 20, 50, 100						
weighing pan (stainless steel)	ø 90 mm						
Net weight (kg)	6						
Permissible ambient condition	+10° C to +30° C						
Humidity of air	20 ~ 85 % relative (not condensing)						
Power supply unit input voltage	AC 230 V, 50-60 Hz						
Interface	RS232C						

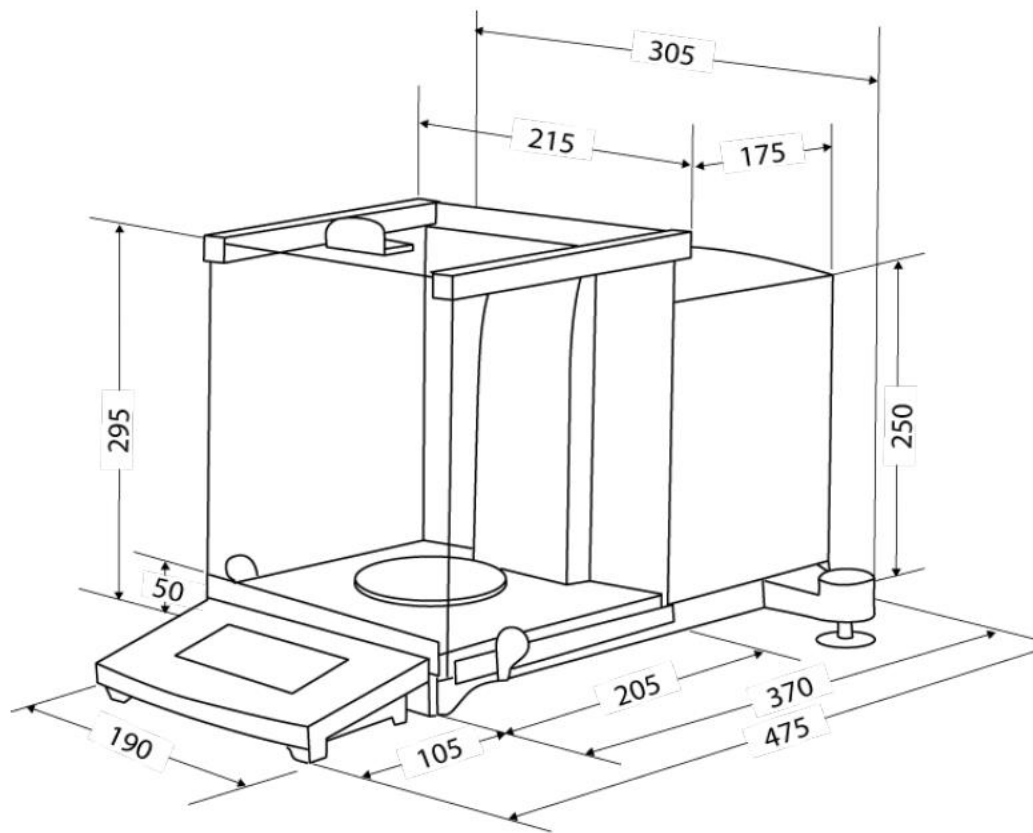
ES-E Electronic Analytical Balance (0.01mg, Internal Weights Calibration)

Model	ES1035 A	ES1055 A	ES1085 A	ES2035 A	ES2055 A	ES2085 A	ES1205A
Capacity (Max)	120g/ 31g	120g/ 51g	120g/ 82g	220g/ 31g	220g/ 51g	220g/ 82g	120g
Readability (d)	0.1 mg/0.01mg						0.01mg
Repeatability	±0.1mg/±0.02mg						±0.02mg
Linearity	±0.1mg/±0.02mg						±0.02mg
Stabilization time	2.5 s/6 s						6 s
Warm-up time	30-60 min						
Weighing units	g, oz, ct, lb						
Smallest part weight for piece counting	0.1 mg						
Reference quantities at piece counting	5, 10, 20, 50, 100						
weighing pan (stainless steel)	ø 90 mm						
Net weight (kg)	6						
Permissible ambient condition	+10° C to +30° C						
Humidity of air	20 ~ 85 % relative (not condensing)						
Power supply unit input voltage	AC 230 V, 50-60 Hz						
Interface	RS232C						

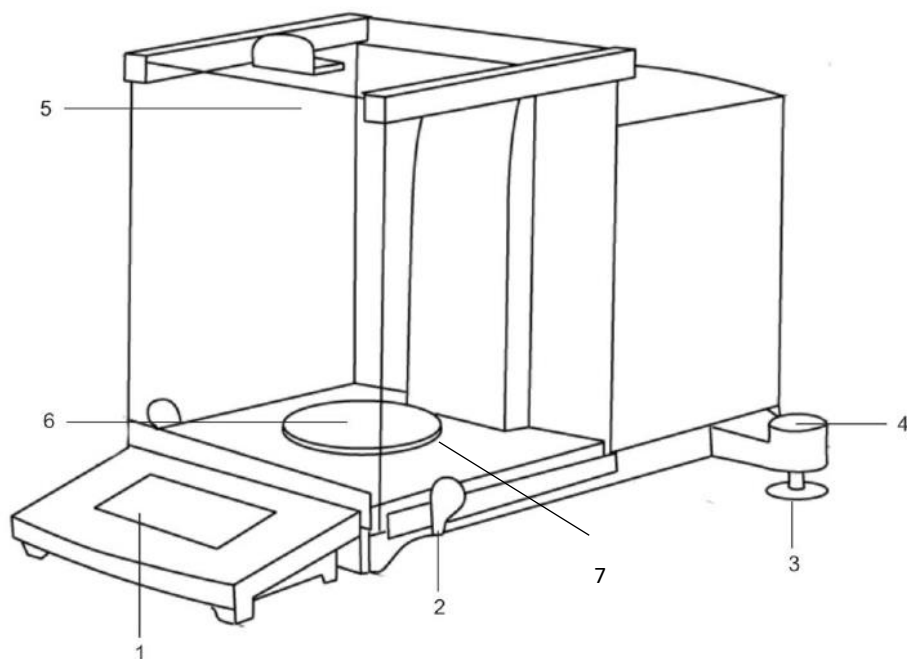
ES-E Series Density Balance (External Weights Calibration)

Model	ES-E120D	ES-E220D
Readability (d)	0.1 mg	
Density readability	0.0001g/cm ³	
Capacity (Max)	120g	220g
Recommended sample weight (g)	>10	
Repeatability	±0.1mg	
Linearity	±0.2mg	
Recommended adjusting weight not supplied (class)	100g (E2)	
Stabilization time	2.5 sec	
Warm-up time	30-60 min	
Smallest part weight for piece counting	0.1 mg	
weighing pan (stainless steel)	ø 90 mm	
Net weight (kg)	6	
Permissible ambient Condition	+10° C to +30° C	
Humidity of air	20 ~ 85 % relative (not condensing)	
Power supply unit input voltage	AC 230 V, 50-60 Hz	
Interface	RS232C	

1.1 Dimensions (mm)

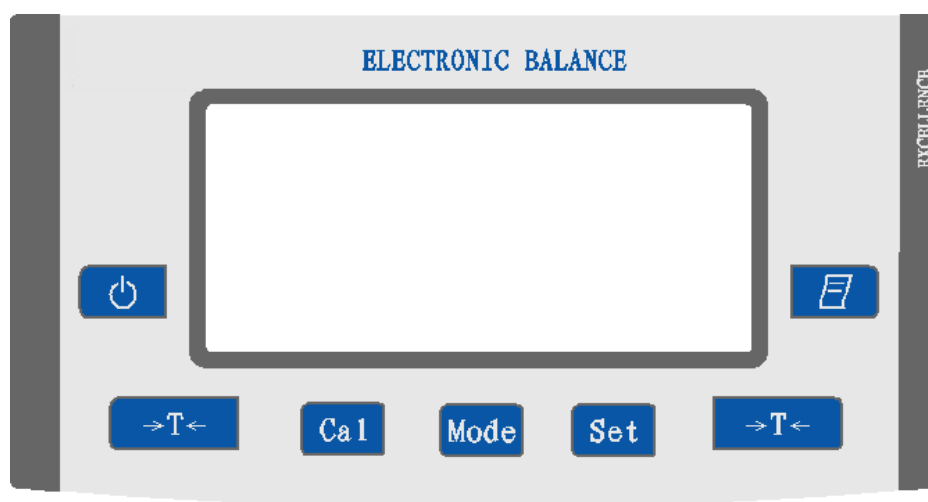


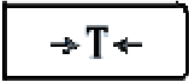
2 Appliance overview



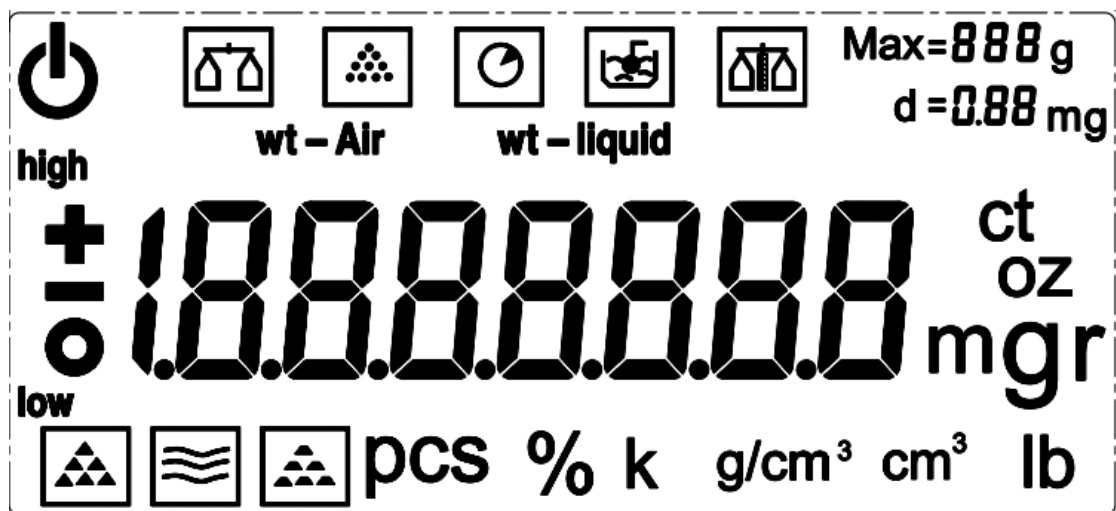
Position	Design
1	Display
2	Handle for operation of the side windshield doors
3	Foot Screws
4	Bubble Level
5	Windshield
6	Weighing Pan
7	Draft ring and guard

2.1 Keyboard Overview



Button	Function
	· Turn on/off · Exit Menu
	· Calibration
	· Taring · Zeroing · Save setting
	· Convert weighing unit · Selecting an application
	· Save the reference value · Switch on/off backlight (pressing the button twice)
	· Change setting in the menu · Print out the displayed value

2.2 Overview of display



Number	Display	Description
1		Display of stable values
2		The balance is in stand-by mode
3	g	Weighing Unit "Gram"
4	ct	Weighing Unit "Carat"
5	Lb	Weighing Unit "Pound"
6	oz	Weighing Unit "Ounce"
7	pcs	parts counting
8	g/cm³	Density Unit
9		Normal Weighing Mode
10		Parts Counting Mode
11		Percentage Determination Mode
12		Density Measurement Mode
13		Weight Checking Mode

14	k	Gold (carat)
15	Max=888 g	Max Capacity of the balance
16	d =0.88 mg	Min Readability
17	wt – Air	Sample Weight in the air (Density Measurement Mode)
18	wt – liquid	Sample Weight in the Liquid (Density Measurement Mode)
19	+	Positive Weighing Value
20	—	Negative Weighing Value
21	high	Weight-Checking Mode-overload
22	low	Weight-Checking Mode- underload
23		Solid Density Measurement Mode
24		Liquid Density Measurement Mode
25		Gold Density Measurement Mode

3 Basic Information (General)

3.1 Intended 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 pan. As soon as a stable weighing value is reached, the weighing value can be read.

3.2 Improper Use

- Do not use balance for dynamic add-on weighing procedures, if small amounts of goods to be weighed are removed or added. The “stability compensation” installed in the balance may result in displaying an incorrect measuring value! (Example: Slowly draining fluids from a container on the balance.)
- Do not leave permanent load on the weighing pan. This may damage the measuring system.
- Overloading exceeding the stated maximum load (max capacity) of a device must be strictly avoided. Please unload a possibly existing tare load, or this could possibly damage the instrument.
- Never operate balance in explosive environment. The balance 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.

3.3 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

3.4 Parts inspection

In the framework of quality assurance the measuring-related properties of the balance and, if applicable, the testing weight, must be checked regularly. The responsible user must define a suitable interval as well as type and scope of this test.

4 Basic Safety Precautions

4.1 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 this balance.

4.2 Personnel training

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

5 Transport and Storage

5.1 Testing upon acceptance

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

5.2 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.

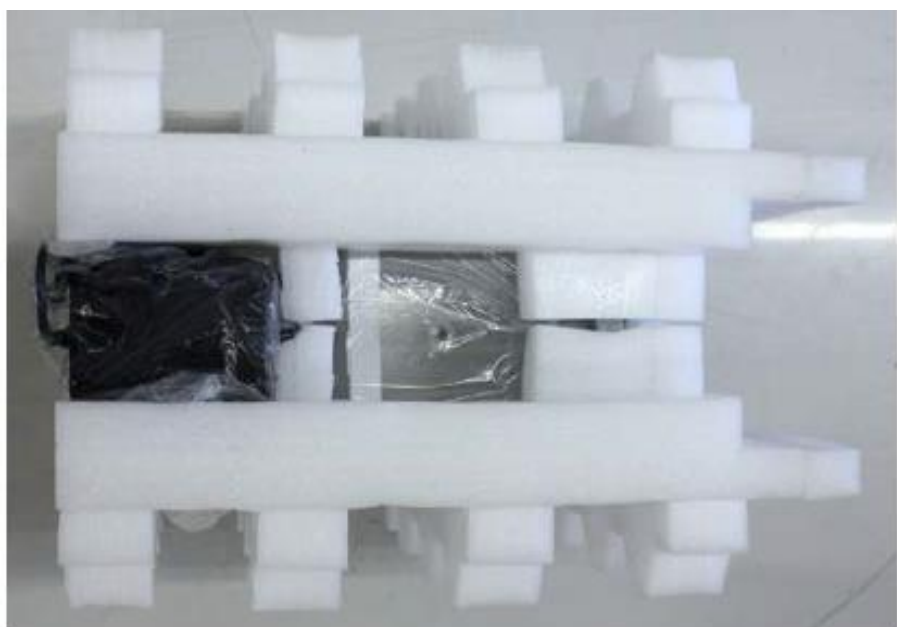
→Pack display unit, weighing pan + accessories and power supply

unit separately.

→Secure glass windshield against slipping (e.g. using an adhesive strip).

→Reattach possibly supplied transport securing devices.→Secure all parts
against shifting and damage as depicted





6 Unpacking, Setup and Commissioning

6.1 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.

On the installation site observe the following:

- Place the balance on a firm, level 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 draught 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.

If electronic-magnetic fields or static charge occur, or if the power supply is unstable major deviations on the display (incorrect weighing results) are possible. In that case, the location must be changed.

6.2 Unpacking, checking and installation

Open packaging and remove all parts carefully.

Verify that there has been no damage and that all packing items are present.

Scope of delivery / accessories

1. Balance
2. Display Unit
3. Weighing pan
4. Weighing pan support
5. Draft ring
6. Bottom sheet (round)
7. Mains adapter
8. Power plug
9. User Manual

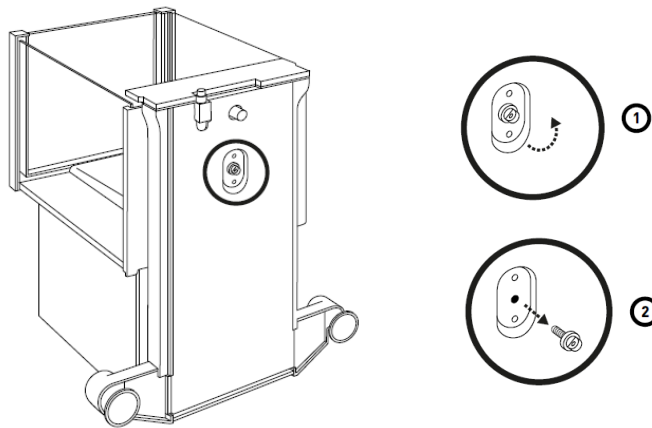


Prior to any installation and assembly works, the balance must be separated from the mains supply.

→Remove the transport securing from the lower side of the balance.



Please remove the screw placed at the bottom side of the scale .



→Install the balance at the intended workplace.

The right place is decisive for the accuracy of the weighing results of analytic balances.

→Put the following parts upon in the right order

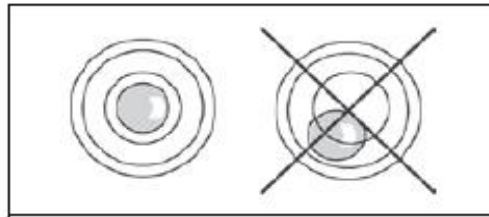
- Round bottom sheet
- Draft ring
- Weighing pan support
- Weighing pan

→Connect the display unit with the balance.

As the terminal is not rigidly assembled to the balance, it can be freely placed in the vicinity of the balance but not further away than this is permitted by the length of the cable.

6.3 Leveling

Level balance with foot screws until the bubble level of the balance is in the prescribed circle.



Attention: Check leveling regularly.

6.4 Electric power supply



Select a country-specific mains plug and plug it into the mains adapter.
Check, whether the voltage acceptance on the scales is set correctly.



Do not connect the scales to the power grid unless the information on the instrument (sticker) matches the local mains voltage.
Only use DAT original mains adapter. Using other makes requires consent by DAT.

Important:



- Prior to commissioning check the mains cable for damage.
- Make sure that the mains adapter will not be damaged by liquids.
- The mains plug must be accessible at any time.

Connect the mains adapter to the connecting socket on the backside of the balance and to the power mains.

The display unit lights up. As soon as the balance is supplied with energy, the indicator



is displayed.



6.5 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.

6.6 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 DAT, as they are ideally tuned to your balance.

7 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 Calibration 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.

Observe stable environmental conditions. A warming up time (see chapter 1) is required for stabilization. Ensure that there are no objects on the weighing pan.

Attention:

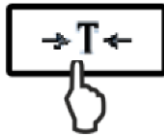
- Carry out Calibration as near as possible to the balance's maximum weight (required Calibration weight see chap. 1).
- Observe stable environmental conditions. Stabilization requires a certain warm-up time.
- Ensure that there are no objects on the weighing pan.

7.1 Calibration with recommended Calibration weight

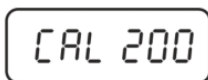
We recommend to carry out all Calibrations as close as possible to the maximum load of the balance.



Press **CAL** key until „CAL 100“ is displayed.



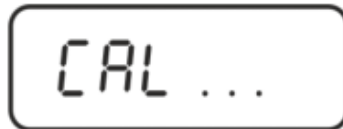
Press **TARE** key to select „CAL 200“



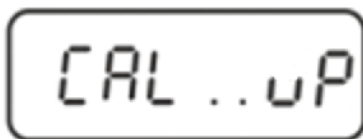
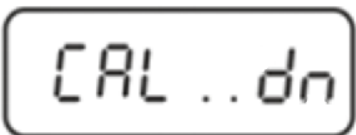
Press **CAL** key



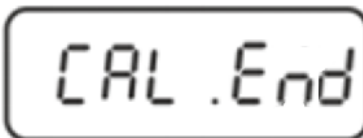
The display
Put the required
the
center of the
doors.



shows “CAL... dn” after several seconds.
Calibration weight (200 g) carefully in
weighing pan and close the windshield



Take away Calibration weight when it displays CAL...UP.



The calibration is over when it displays CAL...END

After successful Calibration the balance automatically returns to weighing mode.

7.1.1 Calibration with 100 g-weight

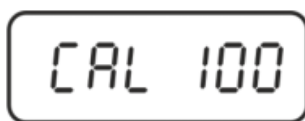
Calibration is also possible with a weight of 100 g, but is not optimal for technical measuring (except for balances with 120g capacity).



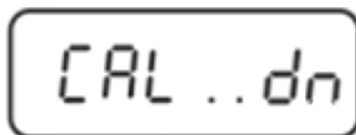
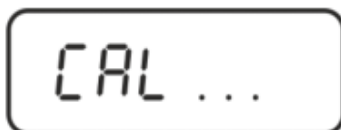
Press CAL key until „CAL



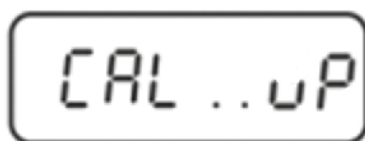
100“ is displayed.



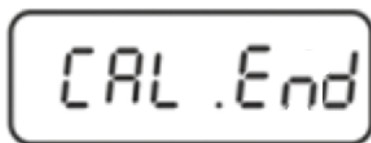
Press CAL key



Put the Calibration weight (100 g) carefully in the centre of the weighing pan and close the windshield doors when it displays CAL...dn.



Take away Calibration weight when it displays CAL...UP.



The calibration is over when it displays CAL...END

After successful Calibration the balance automatically returns to weighing mode.

7.2 Internal weights calibration (only fit for internal calibration balances)

7.2.1 Full-automatic internal calibration

1. The balance will go through a full-automatic calibration after power on.

2. The balance will automatically go through internal weights calibration after a temperature change of 1.5°C.

3. The balance will automatically go through internal weights calibration every two hours.

Important: No operations are allowed during calibration.

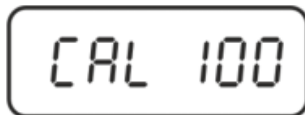
7.2.2 Semi-automatic internal calibration (one-key calibration)

1. Ensure that the balance is set to internal calibration mode (C1-0)

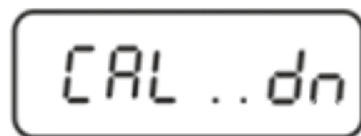
2. When users need to calibrate the balance, press CAL key and the balance will be automatically calibrated.



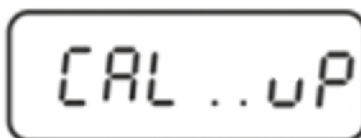
Press **CAL** key until „CAL 100“ is displayed.



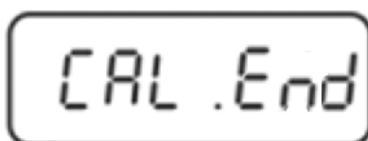
Press **CAL** key



The balance automatically loads a internal weight



The balance automatically unloads the internal weight



The calibration is over when it displays CAL...END
After successful Calibration the balance automatically returns to weighing mode.

Important:

1. Adjust the level of the balance before calibration.
2. The balance needs a preheat time for more than 30 minutes.

8 Basic Operation

8.1 Start-up



As soon as the balance is supplied with energy, the indicator [P] is displayed.



To switch on press the **ON/OFF** key.



The balance carries out a display test.

As soon as the weight display appears, the balance is ready for weighing.

8.2 Switch into stand-by mode



Press **ON/OFF** key, the display disappears and the indicator [P] is displayed.

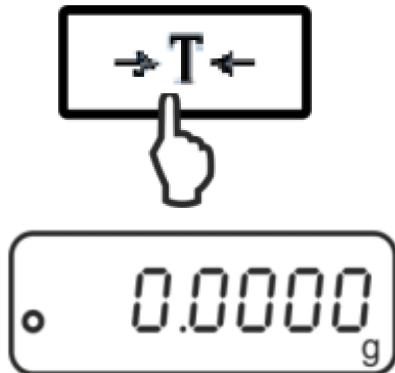


Important:

- In stand-by mode, the balance is ready for operation immediately after switching-on without warm-up.
- To switch off the balance completely, disconnect the cable from the mains.
- The balance starts in the mode, in which it has been switched off.

8.3 Zeroing

In order to obtain optimal weighing results, reset the balance to zero before weighing.



Unload the balance.
Press **TARE** key.

Wait until the zero display appears.

8.4 Sample Weighing



Place the goods to be weighed and close the windshield.

Wait for stable display and read weighing result.

- Overloading exceeding the stated maximum load (max capacity) of a device must be strictly avoided. Please unload a possibly existing tare load, or this could possibly damage the instrument.
- Exceeding the maximum load is indicated by the display "E ". Unload weighing system or reduce preload.

8.5 Unit Conversion

By repeated pressing of the **MODE** key the weighed value can be switched over to the available weighing and application units.

g ⇌ oz ⇌ ct ⇌ lb ⇌ Pcs ⇌ % ⇌ mg

8.6 Weighing with tare

The dead weight of any weighing container may be tared away by pressing TARE key, so the following weighing procedures show the net weight of the goods to be weighed.



Set balance to zero



Place an empty weighing container. The result is displayed.



Wait for stable display, then press **TARE** key



The zero display appears.



Weigh the material, the net weight will be indicated

Attention:

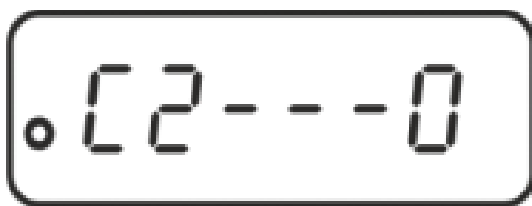
- When the balance is unloaded the saved taring value is displayed with negative sign.
- To delete the stored tare value, remove load from weighing pan and press TARE key.

9 Applications

9.1 Parts counting

Before the balance can count parts, it must know the average part weight (i.e. the 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.

1. Select the reference piece number



In weighing mode call up menu item „C2“, see chap. 10.1

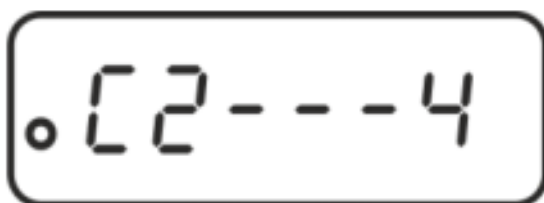


Select the desired reference number of pieces using PRINT key.

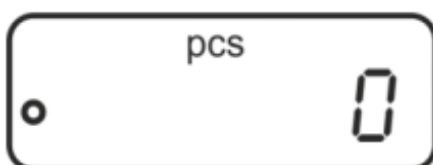
Confirm setting by pressing **TARE** key.

Exit menu using **ON/OFF** key: Confirm query „SAVE“ by pressing **TARE** key. The balance returns automatically into weighing mode

2. Call application



Press the **MODE** key repeatedly until „Pcs“ is displayed.



3. Zeroing/taring



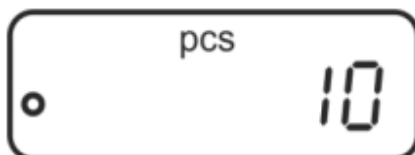
Press **TARE** key to set the balance to zero or to tare when using a weighing container.

4. Weigh-in reference parts

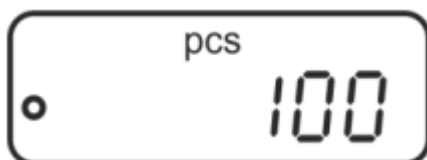


Place as many counted pieces as required by the set reference piece number.

Press SET key to save the reference. The balance is now in parts counting mode and counts all units on the weighing pan.



5. Count the items



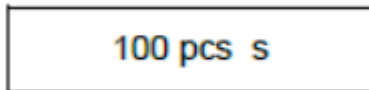
Place load on weighing pan and read the number of pieces.

6. Switch-over display between number of items and weight



Use the MODE key to switch-over the display to the available units, see chap. 8.5

7. Printing



The displayed value will be printed out by connecting an optional printer and pressing **PRINT** key.

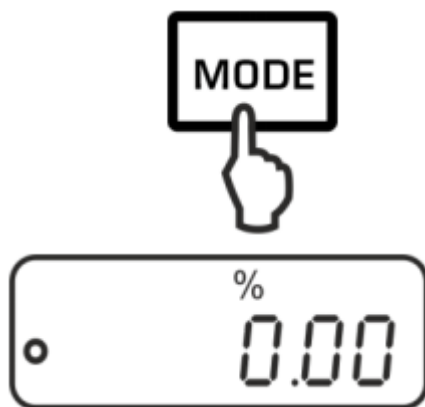
Attention:

- Take care of the minimum weight of the piece (see chap. 1 „Technical data“).
- The reference weight will remain stored even after the balance is turned off until the reference is reset.

9.2 Percent determination

Percentage calculation facilitates weight display in percent related to a reference weight equivalent to 100 %.

1. Call application



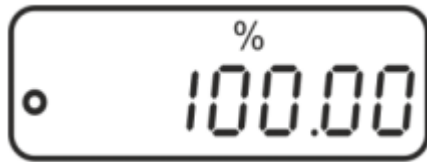
Press **MODE** key several times until „%“ is displayed.

2. Reference setting (100 % value)

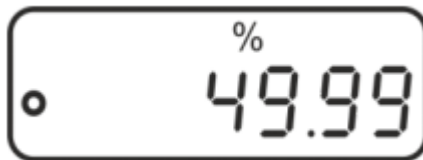


Put a reference weight which corresponds to 100 %.
Store reference by pressing **SET** key.

3. Remove reference weight.



4. Percent determination



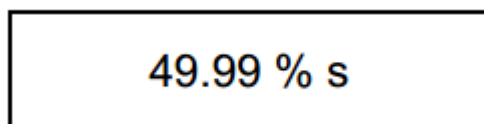
Place goods to be weighed on balance. The weight of the sample is displayed in percentage in terms of the reference weight.

5. Switch-over the display between percentage and weight



Use **MODE** key to switch-over the display to the available units, see chap. 8.5

6. Printing



The displayed value will be printed out by connecting an optional printer and pressing **PRINT** key.

The reference weight (100 %) will remain stored even after the balance is turned off until the reference is reset.

10 Menu

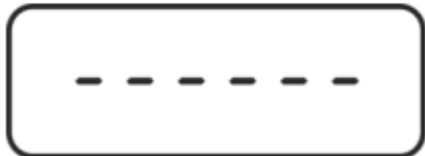
10.1 Navigation in the menu

1、 Access to menu

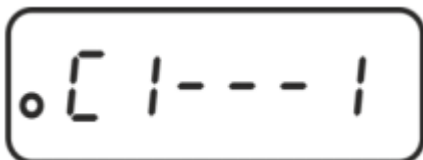
then the **PRINT** key. The first menu item, „C1“ showing the current setting will be displayed.



In weighing mode press first the **SET** key



then the **PRINT** key.

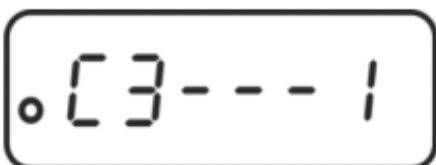
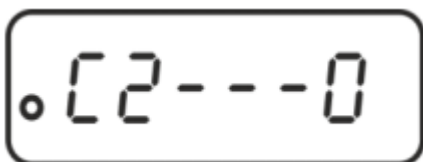


The first menu item, „C1“ showing the current setting will be displayed.

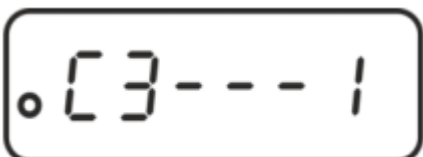
2、 Select menu items



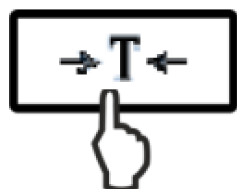
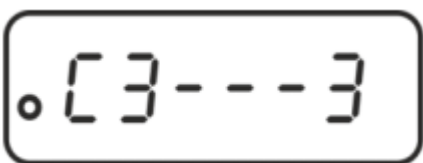
Press **TARE** key to select the individual menu items showing the current settings one by one.



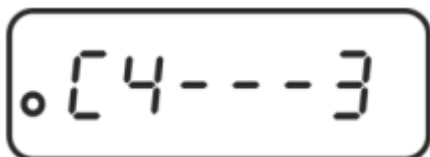
3、Change settings



Press **PRINT** key to change the setting of a selected menu item. Each time the **PRINT** key is pressed the next setting will be displayed.



Confirm setting with **TARE** key, the next menu item will be displayed. Either carry out more settings or exit and save menu (see step 4 or 5)



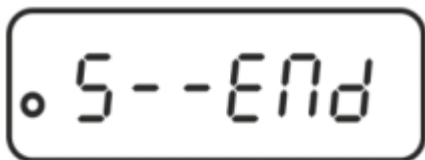
4、 How to save settings



Press ON/OFF key, „SAVE“ will be displayed.



Any changes carried out are stored by pressing **TARE** key. The balance returns automatically into weighing mode.



10.2 Menu overview

Menu item	Settings	Description
C1: Calibration mode	C1 - 0	Internal weights calibration (only applicable for internal calibration balance)
	C1 - 1	External weights calibration (only applicable for external calibration balance)
C2: Reference quantity	C2 - 0*	10
	C2 - 1	20
	C2 - 2	50
	C2 - 3	100
	C2 - 4	1000
C3: zero point correction	C3 - 0*	No zero tracking
	C3 - 1	1D Zero-point Tracking
	C3 - 2	2D Zero-point Tracking
	C3 - 3	3D Zero-point Tracking
	C3 - 4	4D Zero-point Tracking
	C3 - 5	5D Zero-point Tracking
	C3 - 6	Factory setting mode
C4: Baud rate	C4 - 0	1200
	C4 - 1	2400
	C4 - 2	4800
	C4 - 3*	9600
C5: Data output	C5 - 0	Automatic output of stable weighing values
	C5 - 1	Via remote control command
	C5 - 2	Continuous data output
	C5 - 3*	Output for stable and unstable weighing values after pressing PRINT key
C6: Sound by pressing the button	C6 - 0*	switched on
	C6 - 1	switched off
C7: Motor rotates	C7 - 0	the motor of internal calibration balance rotates
	C7 - 1	the motor of internal calibration balance does not rotate

C8:Anti-interference degree	C8 - 0*	Low anti-interference degree
	C8 - 1	Medium anti-interference degree
	C8 - 2	High anti-interference degree
	C8 - 3	Not applicable

* factory setting

11 RS232C-interface

For the connection of a peripheral device (printer, computer) the balance is as per series equipped with a RS232C-interface.

The following conditions must be met to provide successful communication between the weighing balance and the peripheral devices.

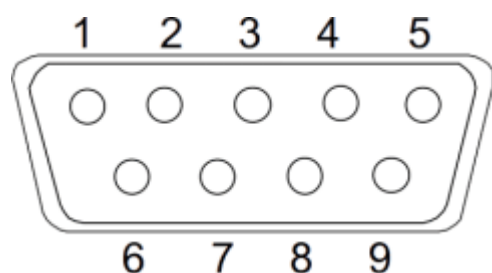
- Connect balance using a suitable cable with the interface of the peripheral device. Faultless
- Communication parameters (baud rate, bits and parity) of balance and peripheral device must match.

This data exchange is asynchronous using ASCII - Code.

11.1 Technical data

Connection

DB9 pin Terminal Male



Pin 2: Transmit data
Pin 3: Receive data
Pin 5: Signal ground

Baud rate

1200 / 2400 / 4800 / 9600 optional

Parity

8 bits, no parity / 1 stop bit / 1 start bit

11.2 Interface cable:

Balance

PC

9-poles

9-poles

2 ————— 2
 3 ————— 3
 5 ————— 5

Balance

Printer

9-poles

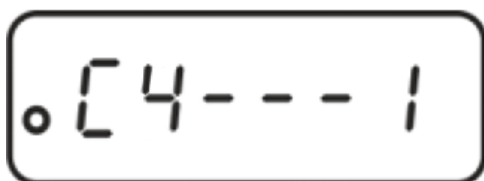
25-poles

2 ————— 2
 3 ————— 3
 5 ————— 7

11.3 Interface parameters

11.3.1 Baud rate

In this menu point the data transfer is adapted to different RS232C-peripheral devices. The baud rate determines the speed of the data transfer via the serial interface. For a faultless data transfer, balance and peripheral device must be set to the same value.



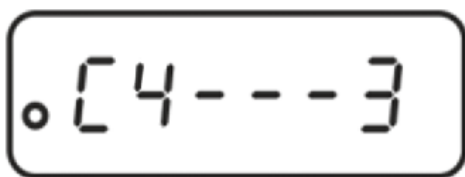
Call up menu item „C4“.



Use **PRINT** key to select the desired setting.

Options:

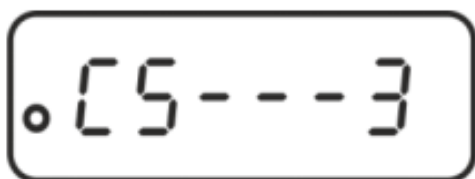
C4 - 0 1200 baud
 C4 - 1 2400 Baud
 C4 - 2 4800 baud
 C4 - 3 9600 baud



Save / back to weighing mode.

11.3.2 Output condition

The data transfer type is determined in this menu item.



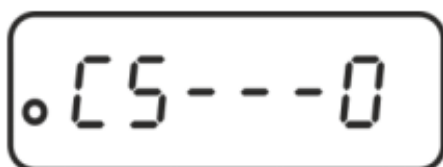
Call up menu item „C5“.



Use **PRINT** key to select the desired setting.

Options:

- C5-0 Automatic output of stable weighing values
- C5-1 Via remote control command
- C5-2 Continuous data output
- C5-3 Output for stable and unstable weighing values after pressing **PRINT** key



Save / back to weighing mode.

11.5 Remote control instructions

Command		Function
O	4F	Function as ON/OFF key
T	54	Function as TARE key
C	43	Function as CAL key
M	4D	Function as MODE key
P	50	Function as PRINT key

12 Servicing, maintenance, disposal



Before any maintenance, cleaning and repair work disconnect the appliance from the operating power supply.

12.1 Cleaning

Please do not use aggressive cleaning agents (solvents or similar agents), but a cloth dampened with mild soap suds. Ensure that no liquid penetrates into the device. Polish with a dry soft cloth.

Loose residue sample/powder can be removed carefully with a brush or manual vacuum cleaner.

Spilled weighing goods must be removed immediately.

12.2 Servicing, maintenance

- The appliance may only be opened by trained service technicians who are authorized by DAT.
- Before opening, disconnect from power supply.

13 Trouble-shooting

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.

Fault	Possible Cause
The display screen is not bright.	• The balance is not switched on. • The mains supply connection has been interrupted (mains cable not plugged in/faulty) • Power supply interrupted
The weight value is not stable.	• Draught/air movement • Table/floor vibrations • Weighing pan has contact with other objects. • Electromagnetic fields / static charging (choose a different location/switch off interfering device if possible)
The weighing result is obviously incorrect	• The display of the balance is not at zero • Calibration is no longer correct. • The balance is on an uneven surface. • Great fluctuations in temperature. • Warm-up time was ignored. • Electromagnetic fields / static charging (choose a different location/switch off interfering device if possible)

Technical data is subject to change without prior notice.