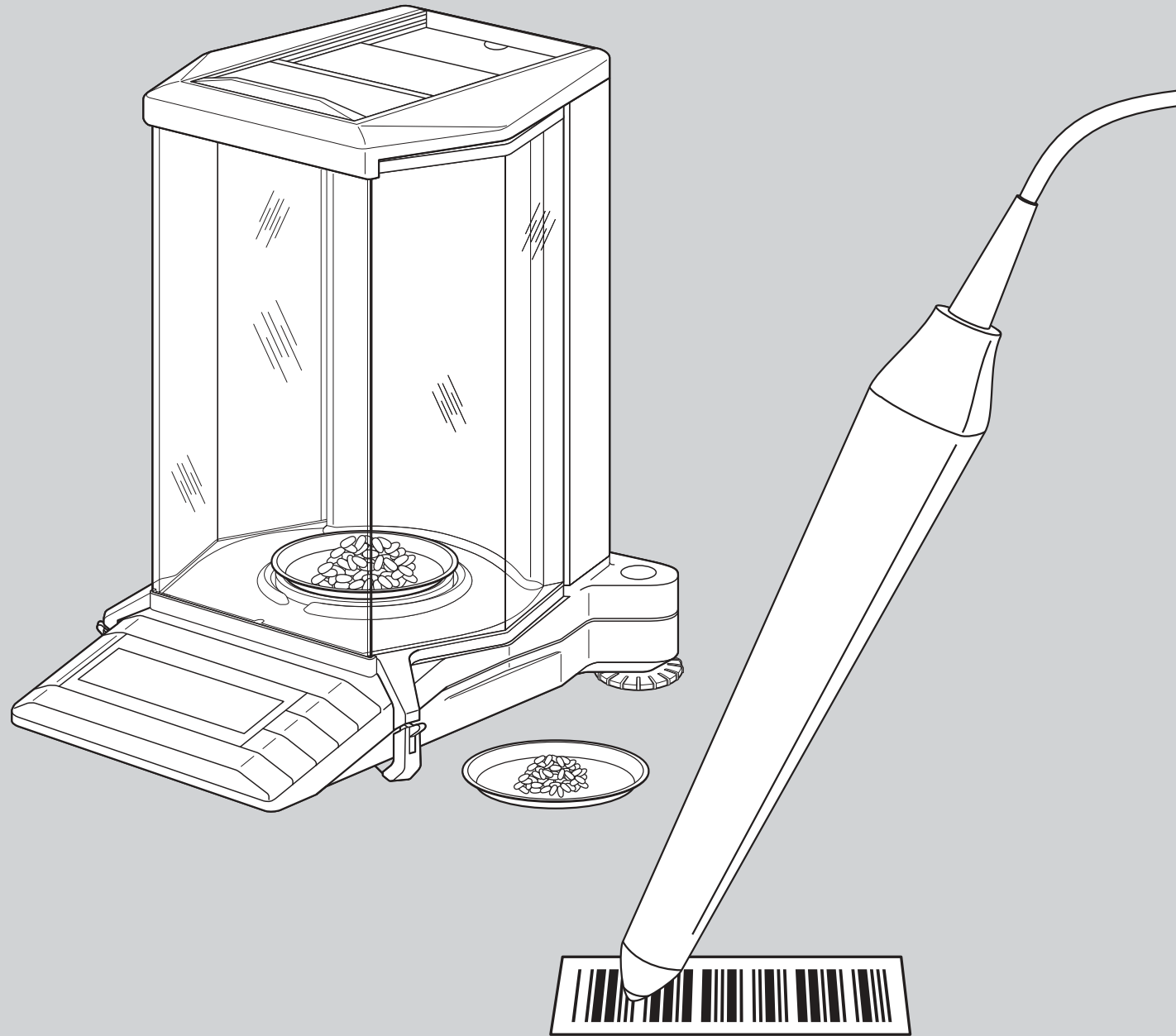


Operating instructions

METTLER TOLEDO
Differential weighing
software with LC-BCR
Bar-Code Reader
for G balances

METTLER **TOLEDO**






General balance settings

Your will find detailed information on the general balance settings in the operating instructions of your balance.





Setting vibration adapter

The vibration adapter is used to match your balance to the ambient conditions (vibrations, drafts at location):

-  Setting for normal ambient conditions (factory setting)
-  Setting for unstable surroundings
-  Setting for virtually disturbance-free, stable surroundings





Setting weighing process adapter

The weighing process adapter is used to match your balance to different types of weighings (absolute weighings, fine additions, etc.)

-  Universal setting (factory setting)
-  Fine addition
-  Special applications
-  Absolute weighing

Selecting repeatability

The better the repeatability, the longer the weighing operation.

-  Good repeatability (factory setting)
-  Very good repeatability
-  Best possible repeatability
-  Normal repeatability

Resetting balance

With the appropriate bar-code command, you can reset all menu settings to the factory setting and clear the weighing data of all memory positions. **Use of this command results in the loss of all individual menu settings and all weighing data stored in the database!**

Adjustment (calibration)

You will find detailed information on the adjustment (calibration) in the operating instructions of your balance. The following functions can be initiated directly by means of bar-code commands:

- Internal adjustment (calibration)
- External adjustment (calibration)
- Test with internal weight
- Test with external weight
- Selection of a different weight

General balance settings

Setting vibration adapter

Each time this bar code is read in, the next setting of the vibration adapter is selected.



Setting weighing process adapter

Each time this bar code is read in, the next setting of the weighing process adapter is selected.



Selecting repeatability

Each time this bar code is read in, the next setting of the repeatability is selected.



Resetting balance

Warning: When the balance is reset, all menu settings are reset to the factory setting and all weighing data in the database are lost!



The balance acknowledges the resetting with the message "r done".

Adjustment (calibration)

Internal adjustment (calib.)

Perform adjustment (calibration) with internal weight.



External adjustment (calib.)

Perform adjustment (calibration) with external weight.



Internal test

Perform test with internal weight.



External test

Perform test with external weight.



Select a different weight

Select a different weight for the external adjustment (calibration).



Automatic weight detection

AdEt. ON

Automatic weight detection switched on (factory setting): In each operation, the balance automatically detects the weight change and transfers this on stability.

AdEt. OFF

Automatic weight detection switched off: In each operation, you must confirm the loading or removal of the weight using the bar-code command "Confirm/YES".

Position selection

AUTO POS.

Automatic position selection (factory setting): The balance automatically selects the first memory position which does not contain a value for the selected operation.

MAN. POS.

Manual position selection: For each operation, the balance starts with memory position 1. You then select the desired memory position with the bar-code command "Go to memory position".

Taring function

tArA YES

Taring function switched on (factory setting): Setting for work with weighing containers which need to be tared.

tArA no

Taring function switched off: Setting for work without weighing containers.

Record format

Sh. Pr int

Short format (factory setting): The record includes the number of the current memory position, the determined weight values (tare, initial weighing, back weighing) and the result of the differential weighing in percent.

Lo. Pr int

Long record: In addition to the data which appear in the short record, long records include the identification of each sample, the current date and time of each individual weighing operation (tare, initial weighing, back weighing) and the result of the differential weighing in grams.

Printer setting

OFFL inE

Collective record ("offline", factory setting): The weighing data are not printed out until you press the "E" key briefly in the weighing mode. The record contains the stored data of all completed differential weighings.

OnL inE

Continuous record ("online"): All weighing data are automatically printed out immediately following the weighing operation.

Automatic weight detection

Switch on automatic weight detection



Switch off automatic weight detection



Position selection

Automatic position selection



Manual position selection



Taring function

Switch on taring function



Switch off taring function



Record format

Short format



Long format



Printer setting

Collective record



Continuous record



**Process
settings**

Taring and weighing-in (in a single cycle)

Precondition: Taring function must be switched on (see section "Process settings". If the automatic weight detection is switched off, the loading and removal of weights in taring and weighing-in must be confirmed with the bar-code command "Confirm/YES".

The operation comprises the following individual steps:

Clear database (optional)

In the weighing mode, execute the bar-code command "Clear database". All weighing data will be lost!

Call up taring and weighing-in function

Execute bar-code command "Taring and weighing-in in a single cycle".

With automatic position selection, the first memory position which does not contain a tare value is displayed, with **manual position selection**, memory position 1 is displayed.

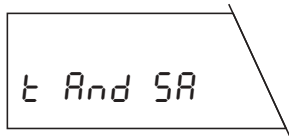
Select memory position (optional)

Select bar-code command "Go to memory position", read in desired number using BC keyboard and close with "Confirm/YES" or "←".

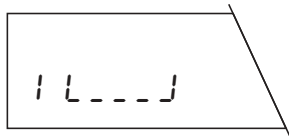
Execute ID functions (optional)

At this point you can execute the following optional ID functions:

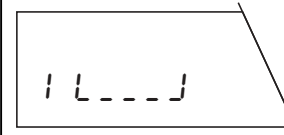
- Use numbers of the memory positions as sample IDs
- Assign own bar code as sample ID



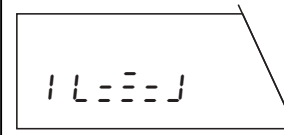
t And SA



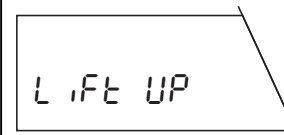
1 L _ _ _ J



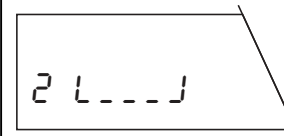
1 L _ _ _ J



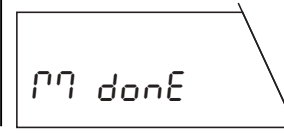
1 L = = = J



L ,Ft UP



2 L _ _ _ J



r7 done

- Read sample ID (bar codes only)
- Assign any character string as sample ID (using bar-code keyboard)
- Delete sample ID

You will find detailed information on the ID functions in sections 10.2 and 10.3 of the operating instructions of the differential weighing software.

Tare weighing container

Place empty weighing container on pan.

Weigh in sample

Add sample to container.

Remove weighing container and sample

Lift off weighing container and sample.

Close taring and weighing-in operation

Perform another taring and initial weighing or ...

... close the function "Taring and weighing-in in a single cycle" with the bar-code command "End measurement procedure".

Taring and weighing-in (procedure and basic commands)

1. Clear database (optional)

2. **Call up taring and weighing-in function:**



3. Select memory position (optional)

4. ID functions (optional)

5. **End measurement procedure:**



General commands

Confirm/Yes or "←":



Abort/No or "ESC":



Clear database

Clear database:
(possible only in weighing mode!)



Confirm clearance

Select memory position

Go to memory position:



Select memory position:

Enter number using
BC keyboard and confirm
with "←"

ID Functions

Assign sample ID:

**Use numbers of the memory positions
as sample IDs:**
(possibly only in weighing mode!)



Assign bar code as sample ID:



Read in own bar code

**Assign any character string
as sample ID:**



Enter character string using
BC keyboard and close entry
with "←"

Read sample ID:
(bar codes only)

Read in own bar code

Delete sample ID:



Confirm deletion

**Taring and
weighing-in**

Taring as a separate step

Precondition: Taring function must be switched on (see section "Process settings". If the automatic weight detection is switched off, the loading and removal of weights in taring must be confirmed with the bar-code command "Confirm/YES".

The operation comprises the following individual steps:

Clear database (optional)

In the weighing mode, execute the bar-code command "Clear database". All weighing data will be lost!

Call up taring function

Execute bar-code command "Separate taring".

With **automatic position selection**, the first memory position which does not contain a tare value is displayed, with **manual position selection**, memory position 1 is displayed.

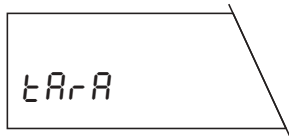
Select memory position (optional)

Select bar-code command "Go to memory position", read in desired number using BC keyboard and close with "Confirm/YES" or "↵".

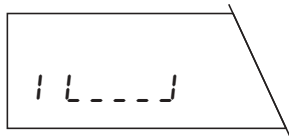
Execute ID functions (optional)

At this point you can execute the following optional ID functions:

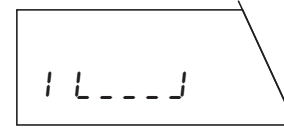
- Use numbers of the memory positions as sample IDs
- Assign own bar code as sample ID



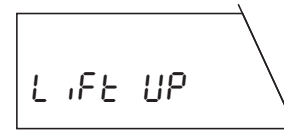
tArA



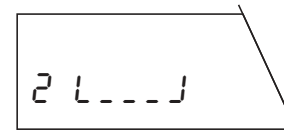
1 L----J



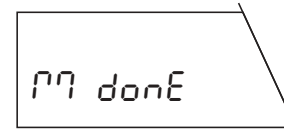
1 L----J



Lift UP



2 L----J



r7 done

- Read sample ID (bar codes only)
- Assign any character string as sample ID (using bar-code keyboard)
- Delete sample ID

You will find detailed information on the ID functions in sections 10.2 and 10.3 of the operating instructions for differential weighing software.

Tare weighing container

Place empty weighing container on pan.

Remove weighing container

Lift off weighing container.

Transfer first tare to all memory positions (optional)

Select bar-code command "First tare to all memory positions". This command can be executed only if no tare values are stored in the database!

Close taring operation

Perform another taring or ...

... close the function "Separate taring" with the bar-code command "End measurement procedure".

Taring as a separate step (procedure and basic commands)

1. Clear database (optional)

2. **Call up taring function:**



3. Select memory position (optional)

4. ID functions (optional)

5. Transfer first tare to all memory positions (optional)

6. **End measurement procedure:**



General commands

Confirm/Yes or "↵":



Abort/No or "ESC":



Clear database

Clear database:

(possible only in weighing mode!)



Confirm clearance

Select memory position

Go to memory position:



Select memory position:

Enter number using BC keyboard and confirm with "↵"

ID Functions

Assign sample ID:

Use numbers of the memory positions as sample IDs:

(possibly only in weighing mode!)



Assign bar code as sample ID:



Read in own bar code

Assign any character string as sample ID:



Enter character string using BC keyboard and close entry with "↵"

Read sample ID:

(bar codes only)

Read in own bar code

Delete sample ID:



Confirm deletion

Transfer first tare to all memory positions

Transfer first tare to all memory positions:

(possible only if no tare values are stored)



Taring as a separate step

Weighing-in as a separate step

Precondition: At least one tare value must be available or the taring function must be switched off (see section "Process settings". If the automatic weight detection is switched off, the loading and removal of weights in weighing-in must be confirmed with the bar-code command "Confirm/YES".

The operation comprises the following individual steps:

Clear database (optional)

In the weighing mode, execute the bar-code command "Clear database". All weighing data will be lost!

Call up weighing-in function

Execute bar-code command "Separate weighing-in".

With automatic position selection, the first memory position which does not contain an initial weight is displayed, with **manual position selection**, memory position 1 is displayed.

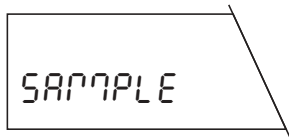
Select memory position (optional)

Select bar-code command "Go to memory position", read in desired number using BC keyboard and close with "Confirm/YES" or "←".

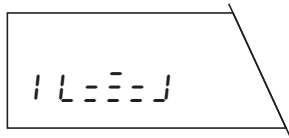
Execute ID functions (optional)

At this point you can execute the following optional ID functions:

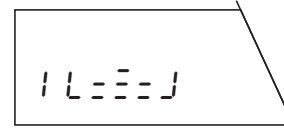
- Use numbers of the memory positions as sample IDs
- Assign own bar code as sample ID



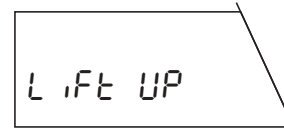
SAMPLE



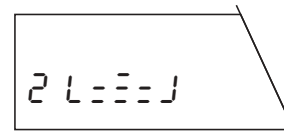
1 L=EE=J



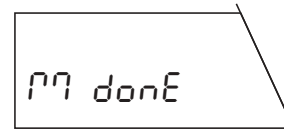
1 L=EE=J



LIFT UP



2 L=EE=J



?? done

- Read sample ID (bar codes only)
- Assign any character string as sample ID (using bar-code keyboard)
- Delete sample ID

You will find detailed information on the ID functions in sections 10.2 and 10.3 of the operating instructions for differential weighing software.

Weigh in sample

Place sample (with weighing container if you are working with tare) on pan.

Remove sample

Lift off sample (and weighing container if used).

Close weighing-in operation

Perform another initial weighing or ...

... close the function "Separate weighing in" with the bar-code command "End measurement procedure".

Weighing-in as a separate step (procedure + basic commands)

1. Clear database (optional)

2. Call up weighing-in function:



3. Select memory position (optional)

4. ID functions (optional)

5. End measurement procedure:



General commands

Confirm/Yes or "←":



Abort/No or "ESC":



Clear database

Clear database:

(possible only in weighing mode!)



Confirm clearance

Select memory position

Go to memory position:



Select memory position:

Enter number using BC keyboard and confirm with "←"

ID Functions

Assign sample ID:

Use numbers of the memory positions as sample IDs:

(possibly only in weighing mode!)



Assign bar code as sample ID:



Read in own bar code

Assign any character string as sample ID:



Enter character string using BC keyboard and close entry with "←"

Read sample ID:

(bar codes only)

Read in own bar code

Delete sample ID:



Confirm deletion

Weighing-in as a separate step

Differential weighing

Precondition: At least one initial weight must be available. If the automatic weight detection is switched off, the loading and removal of the sample in back weighing must be confirmed with the bar-code command "Confirm/YES".

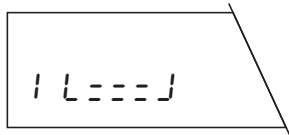
The operation comprises the following individual steps:



d IFF

Call up differential weighing function

Execute bar-code command "Differential weighing".



1 L====J

With automatic position selection, the first memory position which does not contain a differential weighing value is displayed, with **manual position selection**, memory position 1 is displayed. Note: The manual position selection allows multiple differential weighings.

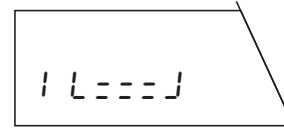
Select memory position (optional)

Select bar-code command "Go to memory position", read in desired number using BC keyboard and close with "Confirm/YES" or "←".

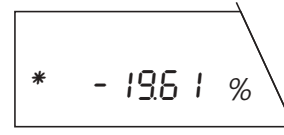
Execute ID functions (optional)

At this point you can execute the following optional ID functions:

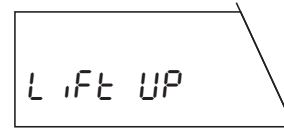
- Use numbers of the memory positions as sample IDs
- Assign own bar code as sample ID
- Read sample ID (bar codes only)



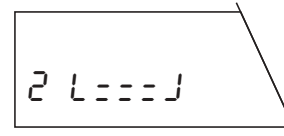
1 L====J



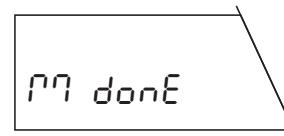
* - 1961 %



L IFF UP



2 L====J



?? done

- Assign any character string as sample ID (using bar-code keyboard)
- Delete sample ID

You will find detailed information on the ID functions in sections 10.2 and 10.3 of the operating instructions for the differential weighing software.

Back weigh sample

Place sample (with weighing container if you are working with tare) on pan.

The **result of the differential weighing** is shown briefly.

Remove sample

Lift off sample (and weighing container if used).

Close differential weighing operation

Perform another back weighing or ...

... close the function "Differential weighing" with the bar-code command "End measurement procedure".

Differential weighing (procedure and basic commands)

1. Call up differential weighing:



2. Select memory position (optional)

3. ID functions (optional)

4. End measurement procedure:



General commands

Confirm/Yes or "←":



Abort/No or "ESC":



Select memory position

Go to memory position:



Select memory position:

Enter number using BC keyboard and confirm with "←"

ID Functions

Assign sample ID:

Use numbers of the memory positions as sample IDs:

(possibly only in weighing mode!)



Assign bar code as sample ID:



Read in own bar code

Assign any character string as sample ID:



Enter character string using BC keyboard and close entry with "←"

Read sample ID:

(bar codes only)

Read in own bar code

Delete sample ID:



Confirm deletion

Differential weighing

Error messages

In work with the bar-code reader. error messages draw your attention to the existence of incorrect operation or that the differential weighing software could not interpret a bar code.

noT USEd

The bar code read in is known, but the associated command can not be executed at present.

This message always appears when the selected command can not be executed in the current operational mode of the balance (e.g. if you attempt to set the vibration adapter in the differential weighing mode).

no Code

The bar code read in is unknown

You have read in a bar code which the differential weighing software can not interpret.

USEd

The sample identification read in is already in use

You have attempted to assign a sample identification which has already been assigned to a memory position.

ILLEGAL

The bar code read in is inadmissible

You have read in a bar code which may not be used (e.g. you have tried to use a bar-code command as a sample identification).

noACCESS

The selected memory position is already occupied.

This message appears only with automatic position selection. You have selected a memory position (with the command "Go to memory position" or by reading in your own bar code) which already contains a value for the selected operation (e.g. you wish to determine a tare value for the selected memory position, but a tare value already exists).

not SEt

No sample identification available

You have attempted to delete a sample ID with the command "Delete sample ID", but the selected memory position contains no sample ID.

DATA End

The balance displays the message "Data End" and returns to the weighing mode.

The balance can not find a memory position which it can assign to the planned operation. This may be the case if there is no free memory position available or if you wish to back weigh a sample but there is no memory position which contains a tare or initial weight (in such a case, the balance has no possibility to assign the back weighing to a memory position).

Notes on working with the bar code keyboard

The bar code keyboard (BC keyboard) is based on a normal PC keyboard. Please note the following information:

ESC

With the bar code "ESC" you can abort the entry at any particular point. Characters already read in are ignored.



With the bar code "←", you can delete wrong entries character by character. This code can also be used to delete an existing sample ID completely or partly.



If you select the bar code "⇧ Shift", the next character appears in uppercase and a switch is then automatically made to lowercase.



With the bar code "⇧ Caps" you can switch permanently to uppercase, which remains active until you press "⇧ Caps" again.

Space

With the bar code "Space", you can insert a space.



With the bar code "↵", you can close your entry and store it. The storage is confirmed briefly by the message "Stored".

net 12r-

Mettler-Toledo GmbH

20-Jan-1995	14:22	
3	T	2.6070 g
20-Jan-1995	14:23	
3	NE	20.6126 g
20-Jan-1995	14:27	
3	NR	9.2898 g

-11.3228 g

Diff.: -54.93 %
=====

*r-to 12do

In the entry of characters and numbers using the bar code keyboard, please note the following **information**:

While the 7-segment display of the balance can not show all characters properly, these are shown correctly on the printed records (compare display and printout opposite).

The display of the balance can show only 8 characters at the same time, with longer entries (max. 20 characters) the text is shifted to the left and an asterisk displayed to indicate this.

BC keyboard



ESC



1



2



3



4



5



6



7



8



9



0



Q



W



E



R



T



Z



U



I



O



P



A



S



D



F



G



H



J



K



L



 **Caps**



Y



X



C



V



B



N



M



.



-



 **Shift**



Space

Bar-code keyboard: Please fold out

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of value of all METTLER TOLEDO products for years to come.
Please send for full details about our attractive terms of service.
Thank you.**



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METTLER TOLEDO

Operating instructions

METTLER TOLEDO

Differential weighing software for G balances



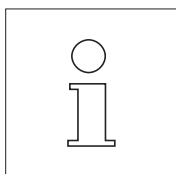
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1. Introduction

1.1 Before you start

Our thanks for purchasing the differential weighing software for your METTLER TOLEDO balance. This software enables you to perform differential weighings and store the measured values of **up to 99 samples**. Thanks to the integrated database and simple operation, the differential weighing software is especially suitable for **routine measurements under production conditions**. The differential weighing software is basically intended only for G balances equipped with a LocalCAN universal interface (AG, PG, PG-S with LC-G option).



These instructions describe work with the differential weighing software; they presuppose that you are familiar with the operation of your balance. You will find the appropriate information in the operating instructions and short-form operating instructions you received with your balance.

The operating instructions for the differential weighing software are available in different languages (see list in section 9). Please contact your METTLER TOLEDO dealer if you need the instructions in another language.



Please read and comply with all cautionary notes listed in the operating instructions of your balance.



The differential weighing software is designed for operation with the **optional METTLER TOLEDO LC-BCR Bar-Code Reader**. The bar-code reader can be operated only when attached to a LocalCAN universal interface (see also balance models mentioned above). Operations marked by the symbol opposite can be performed quickly and conveniently with the bar-code reader.

1.2 Important information on differential weighing

The principle of differential weighing

Differential weighing involves the investigation of one or more samples for weight changes. The first step comprises determination of the initial weight of the sample. Certain components are then added to or separated from the sample. Such operations include drying, centrifuging, filtering, ashing, vapor deposition, coating, etc. After treatment, the sample is reweighed (back weighing). This final weight is used as the basis for calculation of the result, which is normally shown as a content value in the form of a percentage of the initial weight.

The differential weighing software handles up to 99 samples, controls the work routine and calculates the results, which you can then print out if desired.

Three different operating techniques are available to perform differential weighings and are supported by the differential weighing software. These three methods of operation are described briefly in what follows.

Method 1 (with taring and weighing-in in a single cycle)

This is the simplest method as the tare of the weighing container and the initial weight (net weight) of the sample are determined in a single operation:

	Step 1 Tare and determine initial weight	Step 2 Remove or add components	Step 3 Back weighing	Step 4 Print out results
Sample 1				<pre> ----- RUECKWAEGUNG ----- 1 T 2.6066 g 1 NE 1.9520 g 1 NR 0.3401 g Diff.: -82.58 % ===== 2 T 2.6070 g 2 NE 19.3709 g 2 NR 0.3382 g Diff.: -98.25 % ===== 3 T 2.6070 g 3 NE 21.4677 g 3 NR 0.4482 g Diff.: -97.91 % ===== </pre>
Sample 2				
•				
•				
Sample n				
(n = 1...99)				

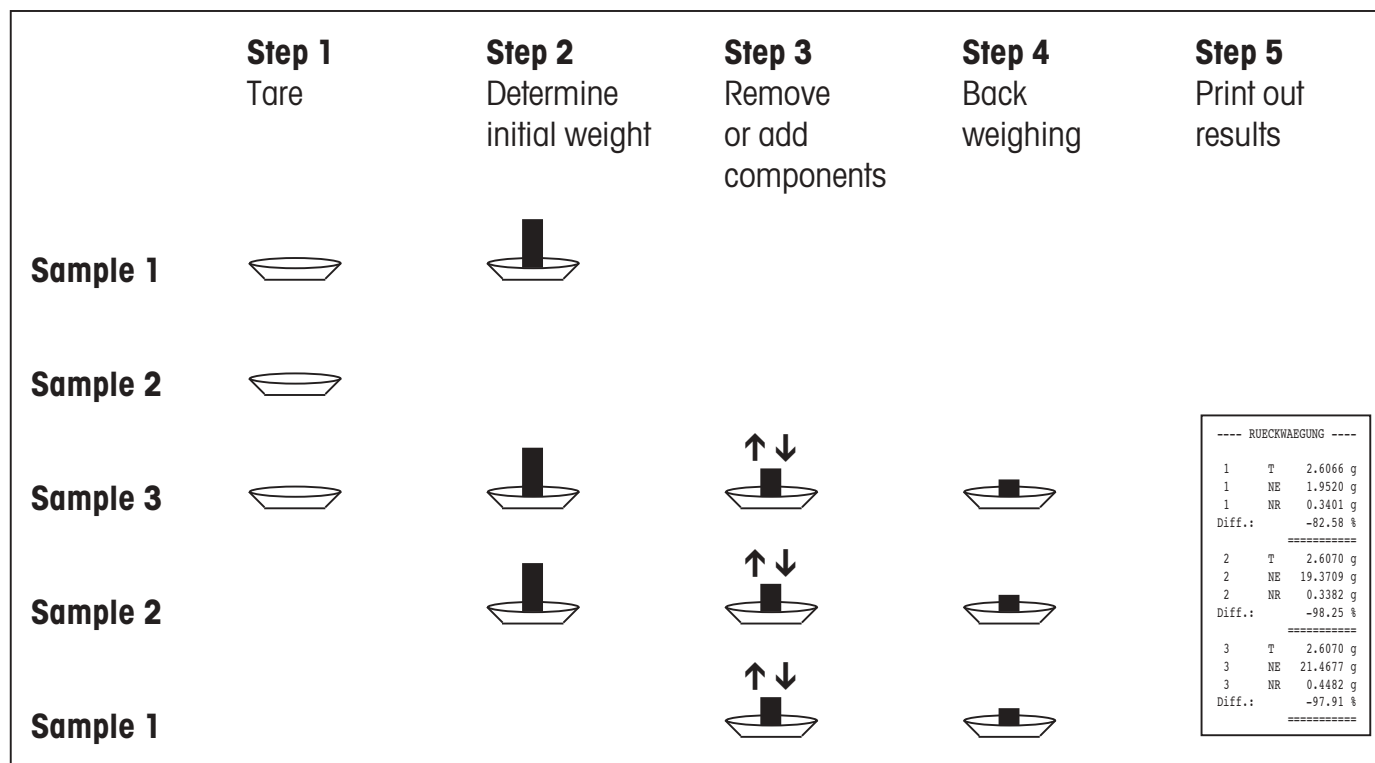
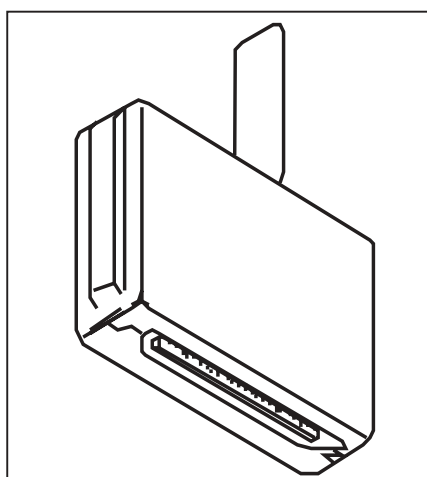
Method 2 (with separate taring and weighing-in)

In this method the weight of the weighing container (tare) and the initial weight (net weight) of the sample are determined in separate operations. With this method, all weighing containers are first tared before the determination of all initial weights in a second operation:

	Step 1 Tare	Step 2 Determine initial weight	Step 3 Remove or add components	Step 4 Back weighing	Step 5 Print out results
Sample 1					<pre> ----- RUECKWAEGUNG ----- 1 T 2.6066 g 1 NE 1.9520 g 1 NR 0.3401 g Diff.: -82.58 % ===== 2 T 2.6070 g 2 NE 19.3709 g 2 NR 0.3382 g Diff.: -98.25 % ===== 3 T 2.6070 g 3 NE 21.4677 g 3 NR 0.4482 g Diff.: -97.91 % ===== </pre>
Sample 2					
•					
•					
Sample n					
(n = 1...99)					

Method 3 (free working)

Whereas in methods 1 and 2 it is mandatory to follow the sample sequence, method 3 allows free working, i.e. taring, determination of the initial weight and back weighing can be performed as single steps for each sample. It is thus not mandatory to perform all 3 steps for a particular sample before continuing with the next sample. The following diagram is intended only as **an example of the free way of working**:

**1.3 Standard equipment****Differential weighing software 238495 (with bar-code reader):**

- Software application cassette (see illustration opposite)
- Operating instructions for the differential weighing software (this document)
- METTLER TOLEDO LC-BCR Bar-Code Reader
- Instructions for operating the differential weighing software with the LC-BCR Bar-Code Reader

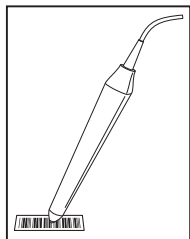
Differential weighing software 238494 (without bar-code reader):

- Software application cassette (see illustration opposite)
- Operating instructions for differential weighing software (this document)
- Instructions for operating the differential weighing software with the LC-BCR Bar-Code Reader

Please check that the standard equipment is complete. If any item is missing, please contact your METTLER TOLEDO dealer.

1.4 Options

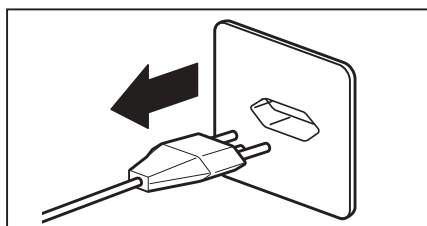
For recording the measurement results, we recommend one of the two **METTLER TOLEDO printers LC-P45 or LC-P43**. The automatic result recording of all weighings saves you time-consuming transcription by hand and ensures the traceability of the weighing results.



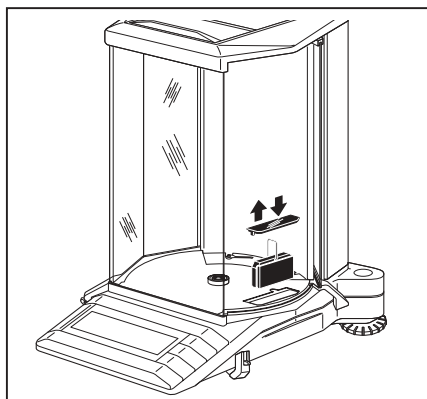
The optional METTLER TOLEDO LC-BCR **Bar-Code Reader** facilitates operation of the weighing system and offers you additional functions. You can use the bar-code reader to call up all differential weighing functions and the basic settings of your balance directly without recourse to the longer menu route. The bar-code reader can be operated only when attached to a LocalCAN universal interface (balance models, see section 1.1).

2. Installation of the application cassette

The differential weighing software is accommodated on an application cassette. This section describes the installation of the application cassette using the example of an AG balance.



Switch the balance off by pressing and holding the **"On/Off"** key and **then disconnect it from the power supply.**

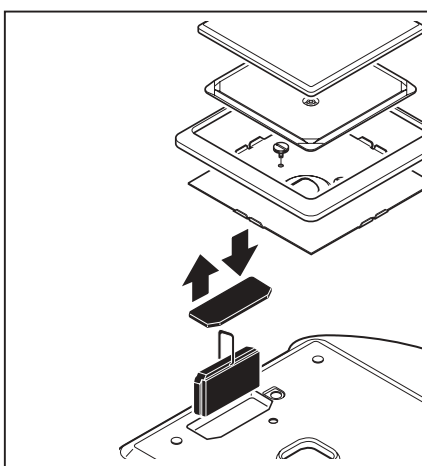


AG balances

First remove the weighing pan (also the draft shield element if used) and then the weighing chamber baseplate.

Remove the cover above the application cassette.

Hold the installed standard cassette by its clip and pull it up and out of the holder.



PG-S balances

Remove the weighing pan, the weighing pan support and the draft shield element.

Remove the knurled screws and the fastening plate (and protective cover if used) and the transparent cover over the application cassette.

Note:

With PG/SG balances the cassette is located on the underside of the balance (see PG/SG operating instructions).

Hold the installed standard cassette by its clip and pull it up and out of its holder.

For both balance models

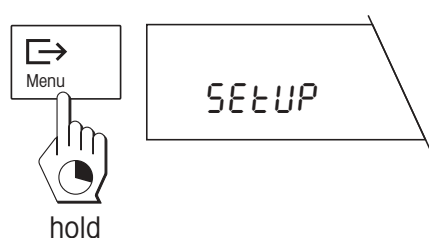
Insert the application cassette with the differential weighing software and press it down as far as it will go. Push down the clip of the cassette.

Put transparent cover back in place and then reassemble your balance in the reverse sequence.

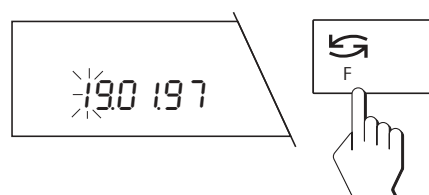
Your balance is now ready for work with the differential weighing software.

3. Setting date and time

To ensure the date and time appear correctly on the result records of the METTLER TOLEDO LC-P43 and LC-P45 printers, you should first set the built-in clock.



Press and hold the **"Menu"** key until the display shown opposite appears. The balance is now in the setting mode for the date and time.

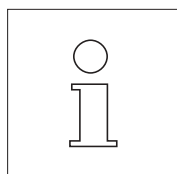


Enter the current **date** in the format DD.MM.YY: The first number of the date flashes and can now be changed with the **"F"** key.

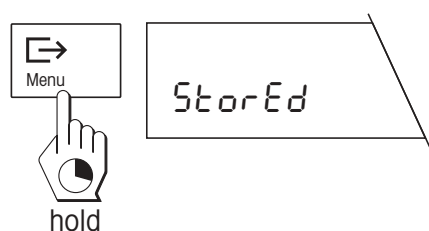


Press the **"E→"** key briefly to select the second number, which you can now change with the **"F"** key.

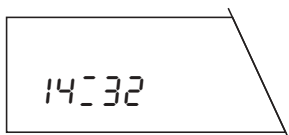
Change the remaining numbers of the date as described above.



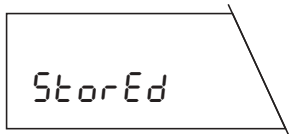
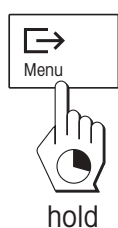
The **European date format** (day – month – year) is preset in the factory. As an alternative, you can select the American date and time representation under the menu option "Date format" (see section 4).



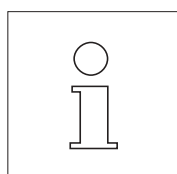
After you have finished setting the date, press the **"Menu"** key until storage of the date is confirmed.



After storage of the date, the display for entry of the **time** appears (hours:minutes). To change the time, follow exactly the same procedure as for changing the date.



After you have entered all numbers of the time, press the **"Menu"** key until storage of the time is confirmed. The balance then automatically returns to the weighing mode.



Thanks to the back-up battery in the application cassette, date and time are stored in **a fail-safe manner** (you will find instructions on how to change the battery in section 8).

On attachment of a METTLER TOLEDO LC-P45 Printer, the **date and time settings of the balance are active** and override the corresponding settings of the printer.

4. The menu

Changing the application cassette also changes the menu of your balance:

In the menu option "Functions" you can select whether you would like to perform only normal weighings ("F none") or also differential weighings ("F diff").

There is only one menu option available for selection of the weighing unit. The selectable units correspond to those of a normal G balance.

The menu options "Vibration adapter", "Weighing process adapter" and "Repeatability" offer you the same setting possibilities as with a normal G balance.

The menu option "Date format" allows you to choose between the European and American date and time representation. With the METTLER TOLEDO printers, date and time are printed out in the selected format.

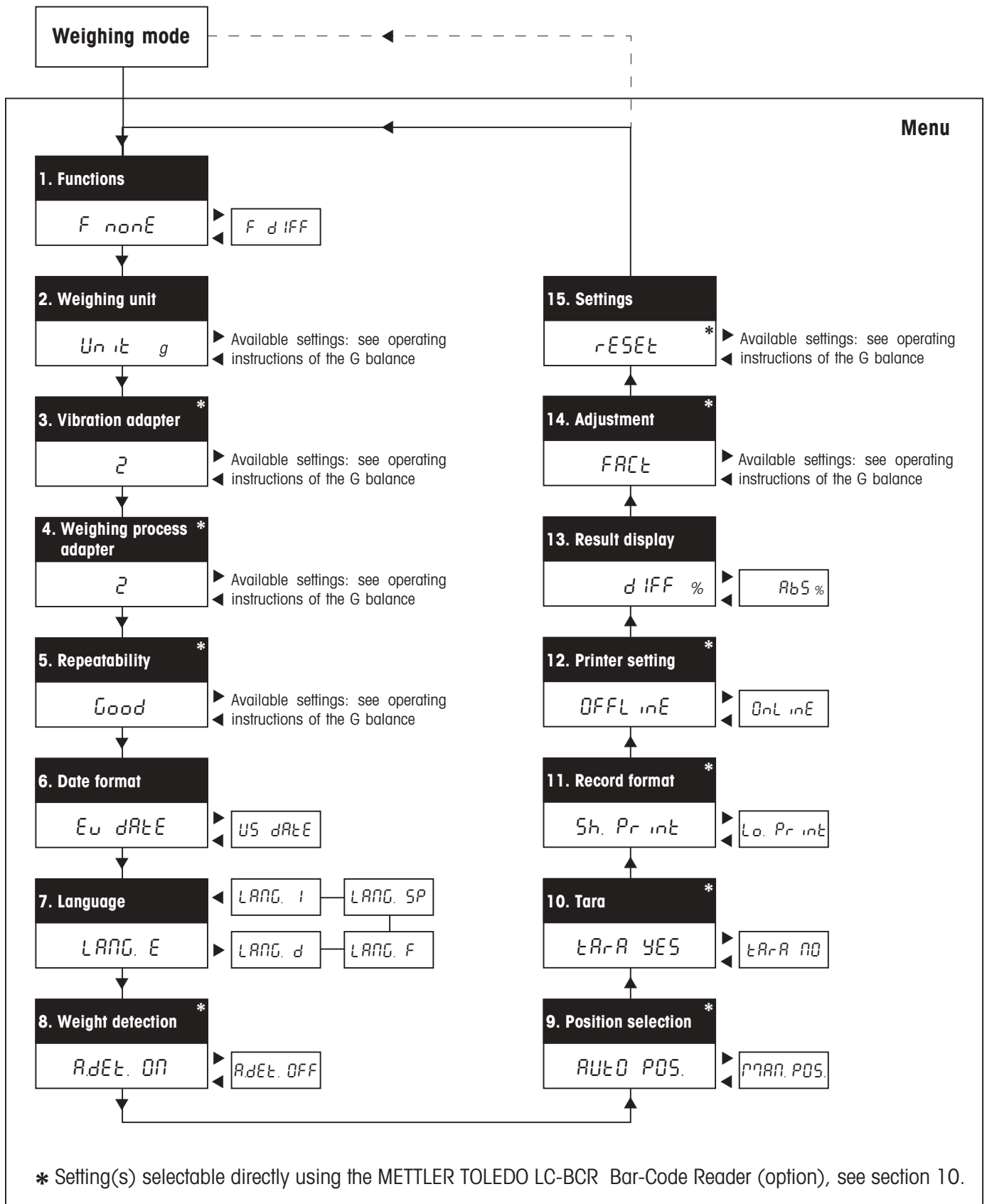
You can select the language in which the records should be printed. English, German, French, Spanish and Italian are available. This setting affects the record printout, but not the dialog with the balance.

The menu options "Weight detection", "Position selection", "Tare", "Record format", "Printer setting" and "Result display" offer specific setting possibilities for differential weighing. You will find detailed information on these menu options in section 5.3.

The menu options "Adjustment (calibration)", "Adjustment information (calibration information)" and "Settings" correspond to those of a normal G balance. **Note:** The "Reset" command in the menu option "Settings" not only resets all menu settings to the factory setting, but also deletes all weighing results in the database.

Operation of the menu is the same as with the standard application cassette (see operating instructions of the balance). If you possess the optional METTLER TOLEDO LC-BCR Bar-Code Reader, several functions are directly accessible without recourse to the menu. You will find instructions on how to work with the bar-code reader in section 10.

Menu overview



5. Selection of the default settings for differential weighing

In this section you will learn which values the **differential weighing software** can store and the **preset options** you can use to adapt the differential weighing system to meet your needs. Many settings are directly accessible via **bar codes**, presupposing you have a METTLER TOLEDO LC-BCR Bar-Code Reader (option). Such settings are marked by the bar-code symbol. You will find additional information on working with bar codes in section 10 and in the instructions for operating the differential weighing software with the LC-BCR bar-code reader.

5.1 Notes on storing the measured values

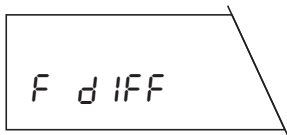
The differential weighing software can store the measured values of up to 99 samples. Each memory position can accommodate the following 3 values of a sample:

- Tare weight (weight of the empty weighing container)
- Initial weight (weight of the weighed-in sample)
- Final weight (weight of the sample in back weighing).

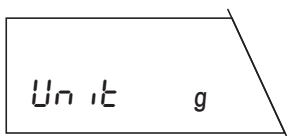
The stored values are preserved even on power failure or if the balance is disconnected from the power supply. However, you can naturally delete the values at any time to start a new weighing series.

5.2 General default settings

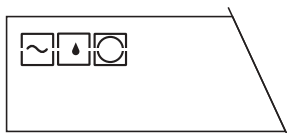
Menu options 1–7 contain general preset options for operation of the balance.



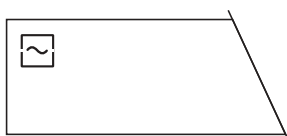
In the first menu option you select the **function** "F diff" if you wish to perform differential weighings. For normal weighing operation, select "F none" (factory setting).



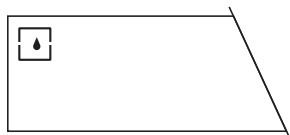
In the second menu option you select the **weighing unit** for normal weighings. As the available weighing units depend on the balance type, please consult the operating instructions of your balance.



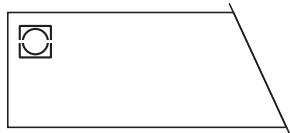
Menu options 3 to 5 are used to **match the balance to the operating conditions**. You will find detailed information on the following settings in the operating instructions of your balance:



Vibration adapter (menu option 3)



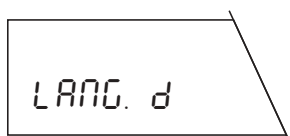
Weighing process adapter (menu option 4)



Repeatability (menu option 5)



In the sixth menu option you can choose between the European (factory setting) and American **date and time format**. If a METTLER TOLEDO printer is attached, the date and time are printed out in the selected format.



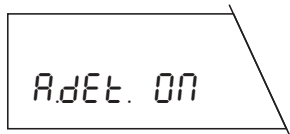
In the seventh menu option you select the **language** for the record printouts. You have available English ("LANG. E", factory setting), German ("LANG. d"), French ("LANG. F"), Spanish ("LANG. SP") and Italian ("LANG. I"). **This setting affects the record printouts, but not the dialog with the balance.**

5.3 Default settings for differential weighing

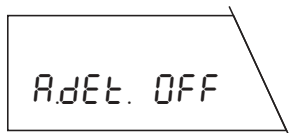
In menu options 8–13 you select specific settings for the differential weighing. You can thus match the weighing system to your personal way of working.

Automatic weight detection (menu option 8)

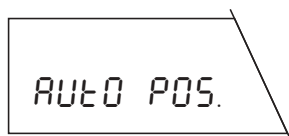
In this menu option you define whether the balance should work with or without automatic weight detection.



Automatic weight detection switched on (factory setting): For each operation (taring, weighing-in, back weighing, lifting off weight), the balance automatically detects the weight change and transfers this on stability. This setting saves you the keystroke used to confirm that a weight has been placed on or removed from the pan.



Automatic weight detection switched off: For each operation, you must manually confirm that the weight has been placed on the pan or removed from it by briefly pressing the "E→" key. This setting is advisable for dispensing as with automatic weight detection there is a danger that the balance will transfer the weight before the dispensing operation is at an end.



Position selection (menu option 9)

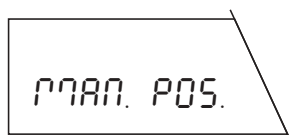
In this menu option you specify whether the balance should work with automatic or manual position selection:

Automatic position selection (factory setting): The balance automatically checks the status of all memory positions, i.e. it determines what values (tare weight, initial weight, final weight) each position already contains. It then automatically moves to the first position which does not contain a value for the selected operation (taring, weighing-in, back weighing).

Example

You have already tared 10 weighing containers at memory positions 1–10. The memory positions 11–15 **already contain tare and initial weights**. Irrespective of the operation you are performing, the balance automatically selects the correct memory position:

- If you **tare** a weighing container, the balance automatically selects memory position 16 as this is the first position which does not contain a tare weight.
- If you **weigh in** a sample, the balance automatically selects memory position 1 as although this position contains a tare weight it is the first which does not contain an initial weight.
- If you **back weigh** a sample, the balance selects memory position 11 as this position is the first position which contains a tare weight and an initial weight (these two values must be available for a differential weighing operation to be performed).

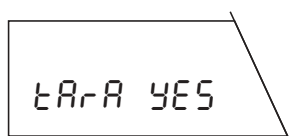


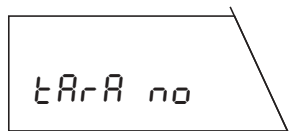
Manual position selection: For every operation the balance starts at memory position 1. You then select the desired memory position by briefly pressing the "G" key the required number of times. If you wish to perform several differential weighings for one memory position, you must select this setting as the automatic position selection does not allow multiple differential weighings.

Taring function (menu option 10)

In this menu option you can switch the taring function on or off.

Taring function switched on (factory setting): Select this setting if you are working with weighing containers which require taring.





Taring function switched off: Select this setting if you work without weighing containers and consequently do not require the taring function. With this setting the functions "Taring" and "Taring and weighing-in" are no longer available. You will find details of these functions in section 6.

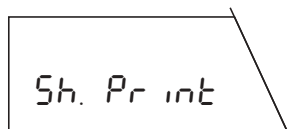


Warning!

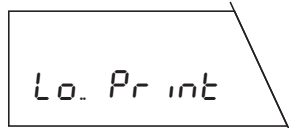
When the taring function is switched (from "Tara YES" to "Tara no" and vice versa), all weight values stored in the database will be lost!

Record format (menu option 11)

In this menu option you can select the extent of detail of the printed records. This menu option is important only if your balance is connected to a printer. You will find examples and illustrations of records in section 6.



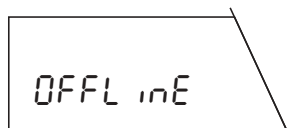
Short record (factory setting): The record contains the number of the current memory position, the determined weight values (tare, initial weight, final weight) and the result of the differential weighing in percent.



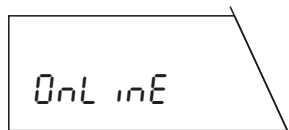
Long record: In addition to the data which appear in the short record, long records contain the identification of each sample, the current date and time of each individual weighing operation (taring, weighing-in, back weighing) and the result of the differential weighing in grams.

Printer setting (menu option 12)

In this menu option you specify whether the printer (if used) should provide a record of every single weighing operation continuously or whether you wish to print out a collective record at a particular time.



Collective record ("offline", factory setting): The weighing data are not printed out until you briefly press the "E" key in the weighing mode. The record contains the stored data of all completed differential weighings.



Continuous record ("online"): All weighing data are automatically printed out immediately following the weighing operation.

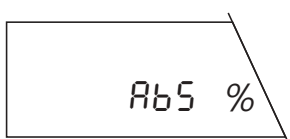
Result display (menu option 13)

In this menu option you specify the form in which the result of the differential weighing should be displayed. The following settings are available:



$$\frac{B - A}{A} * 100\%$$

Weight difference in % (factory setting): The weighing result shows the weight change of the sample as a percentage of the initial weight (100%). Depending on the nature of the weight change, the result has a plus (increase) or minus (decrease) sign. The percent weight difference is calculated using the formula shown opposite with "A" representing the initial weight and "B" the final weight.



$$\frac{B}{A} * 100\%$$

Weight after differential weighing in %: The weighing result shows the final weight as a percentage of the initial weight. The weight of the initial weighing is used as the reference value (100%). The result should always be positive. The percent weight following the differential weighing is calculated using the formula shown opposite with "A" representing the initial weight and "B" the final weight.

6. Taring, weighing-in and back weighing

In all the following descriptions, it is assumed that you have activated ("F diff") in the menu option "Function". Each differential weighing operation comprises the three work steps "taring" (if you work with weighing containers), "weighing-in" and "back weighing". For the work steps "taring" and "weighing-in" you have the following possibilities available:

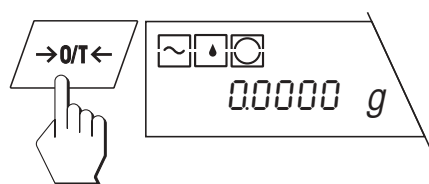
- taring and weighing-in of a sample in a single cycle
- separate taring and weighing-in of a sample.

These possibilities and the back weighing are described separately in the following sections.

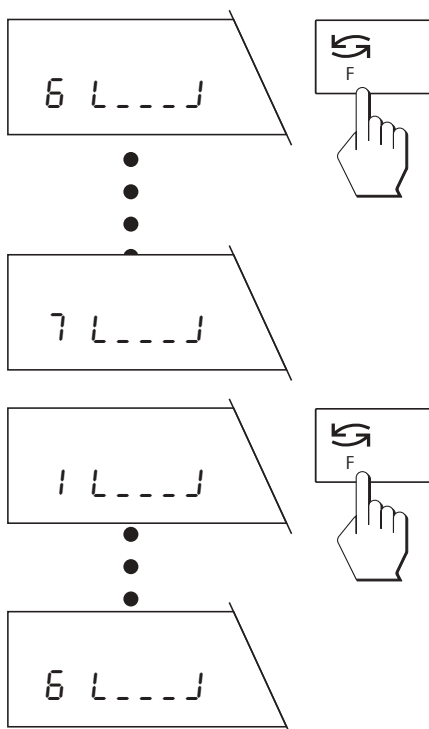
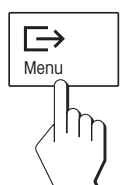
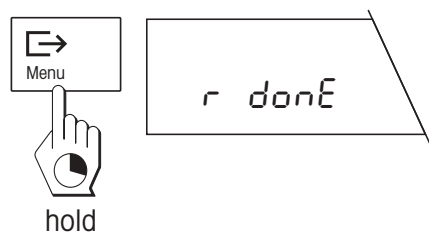
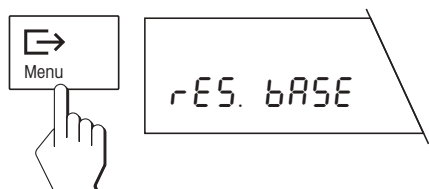
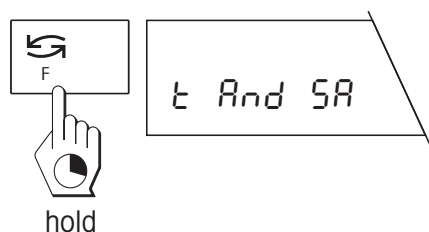
Note: You can terminate each weighing operation at any time by briefly pressing the "C" (cancel) key.

6.1 Taring and weighing-in in a single cycle

This method is available only if the taring function is activated in the menu ("Tara YES", factory setting)! The method allows taring and weighing-in in a single operation.



Unload the weighing pan and then briefly press the "→0/T←" key to set the display to zero.



Call up taring and weighing-in function

Press and hold the "F" key until the balance displays the weighing options. The first option that appears is "Taring and weighing-in" (tare and sample).

Briefly press the "Menu" key to start the taring and weighing-in cycle. If no bar-code reader is attached and data are already stored in the data-base, you are asked if you wish to clear the database. This inquiry does not appear if you have connected a bar-code reader!

Clearing the database:

If you wish to delete all existing data, press and hold the "Menu" key until deletion is confirmed.

Continue working with existing database:

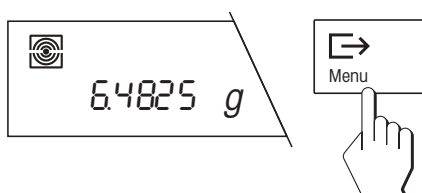
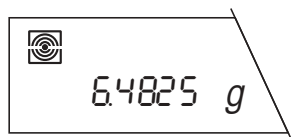
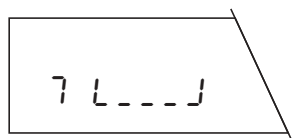
If you wish to continue working with the existing data, press the "Menu" key **briefly**.

Select memory position

If the **automatic position selection** is activated in the menu ("AUTO POS."), the display shows the first memory position which does contain a tare value, position 6 in the example opposite (if you have cleared the database or it does not contain a value, position 1 always appears). If you do not wish to accept the suggested memory position, you can select a different position by pressing the "F" key the required number of times. Positions which already contain a tare value can not be selected and are automatically skipped.

With **manual position selection** ("MAN POS."), memory position 1 always appears and you must select the desired memory position yourself by briefly pressing the "F" key the required number of times.

Care: In contrast to automatic position selection, it is possible to select a memory position which already contains a tare and an initial weight. In such a case, the existing data will be overwritten on taring and weighing-in.

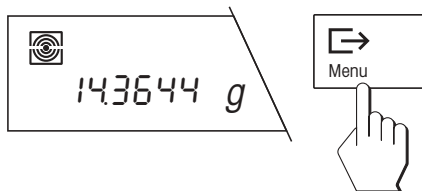
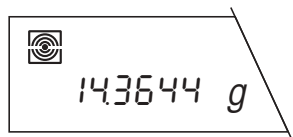
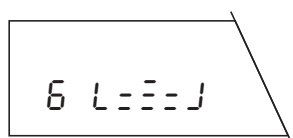


Tare weighing container

The flashing weighing container symbol in the display now prompts you to place the container on the pan. Place container on weighing pan.

If the **automatic weight detection is switched on** ("A.det ON", factory setting), the tare weight will be automatically stored on stability.

If the **automatic weight detection is switched off** ("A.det OFF"), briefly press the "↵" key to store the tare weight.

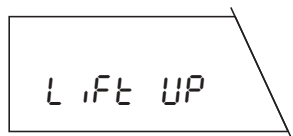


Weigh in sample

After storage of the tare weight, the flashing sample symbol prompts you to add the weighing sample to the weighing container.

If the **automatic weight detection is switched on** ("A.det ON", factory setting), the weight of the sample will be automatically stored on stability.

If the **automatic weight detection is switched off** ("A.det OFF"), briefly press the "↵" key to store the sample weight.



Remove weighing container and sample

After storage of the sample weight you are prompted to remove the weighing container and the sample.

If the **automatic weight detection is switched on** ("A.det ON", factory setting), the balance automatically detects the removal of the weighing sample.

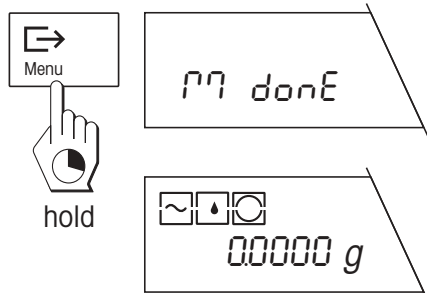
If the **automatic weight detection is switched off** ("A.det OFF"), briefly press the "↵" key after removal of the sample.

Close taring and weighing-in operation

After removal of the weighing container and sample, the next memory position is displayed. You can now either:

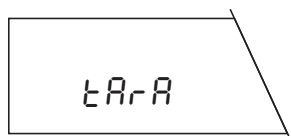
Perform another taring and weighing-in as described above or ...

... close the function "Taring and weighing-in" by pressing and holding the "☞" key. Completion of the weighing operation is confirmed in the display and the balance then automatically returns to the weighing mode.



6.2 Separate taring of the weighing container

This method is available only if the taring function is activated on the menu ("Tara YES", factory setting)! The method is used if several weighing containers have first to be tared followed by weighing-in of the sample(s) (separate weighing-in of the sample(s) is described in the next section).



Press and hold the "F" key until the balance displays the weighing options. Select the function "Taring" (Tara) by briefly pressing the "☞" key the required number of times.

Perform all other operations as described in the previous section; only the step "Weigh in sample" is omitted.

6.3 Separate weighing-in of the sample

This method is suitable for the weighing-in of several samples in succession (separate taring of one or more weighing containers is described in the previous section). You then have the function "Sample" available even if you **have switched off the taring function in the menu ("Tara no")**.

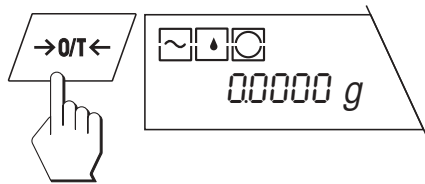


Press and hold the "F" key until the balance displays the weighing options. Select the function "Sample" by briefly pressing the "☞" key the required number of times.

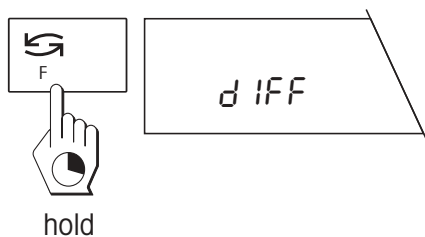
Perform all further operations exactly as described in section 6.1; only the step "Tare weighing container" is omitted.

6.4 Single and multiple differential weighings of the sample

A back weighing is the final step in every differential measurement. A differential weighing operation is possible only if at least one memory position is available which already contains an initial weight.

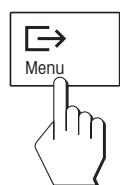


Unload the weighing pan and then briefly press the "→0/T←" key to set the display to zero.

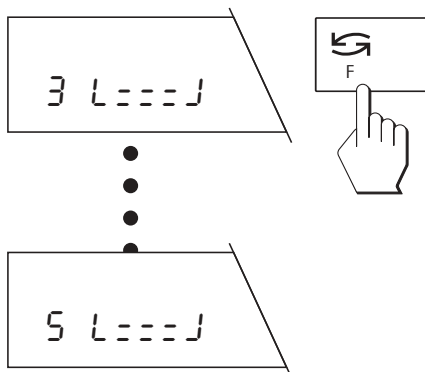


Calling up differential weighing function

Press and hold the "F" key until the balance displays the weighing options. Briefly press the "↺" key repeatedly until the function "Differential weighing" is displayed.



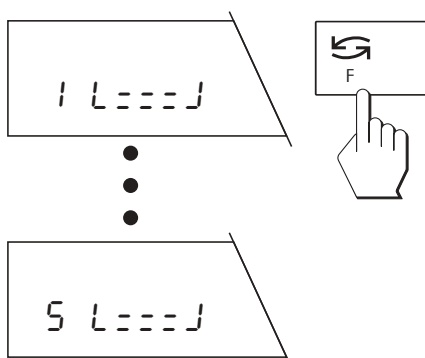
Briefly press the "↻" key to start the differential weighing operation.



Select memory position

If the **automatic position selection** is activated in the menu ("AUTO POS.", factory setting), the display shows the first memory position which already contains an initial weight, but no final weight.

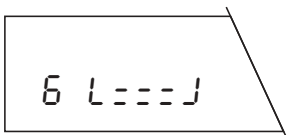
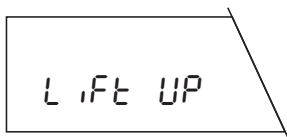
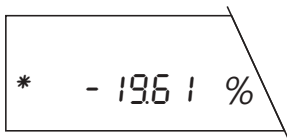
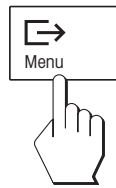
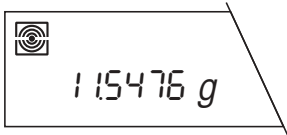
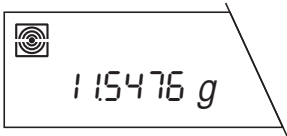
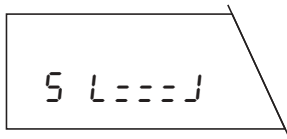
If you do not wish to accept the suggested memory position, you can select another position by pressing the "↺" key the required number of times. Positions which already contain a final weight can not be selected and are automatically skipped.



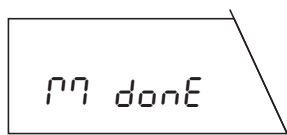
With **manual position selection** ("MAN POS."), memory position 1 always appears and you must select the desired memory position for the final weight yourself by briefly pressing the "↺" key the required number of times.

Multiple differential weighing operations

With manual position selection it is possible to select a memory position which already contains a final weight. In such a case, the existing value will be overwritten by the new final weight. Such **multiple differential weighing operations** are marked on the record by an index (see section 6.5). Up to 99 differential weighings are possible per memory position.



hold



Perform a back weighing

The flashing differential weighing symbol prompts you to place the weighing container (if you are working with one) and the sample on the pan. Place the container plus sample on the weighing pan.

If the **automatic weight detection is switched on** ("A.det ON", factory setting), the final weight will be stored on stability.

If the **automatic weight detection is switched off** ("A.det OFF"), briefly press the "Menu" key to store the final weight.

The result of the differential weighing operation appears briefly in the display.

Remove weighing container and sample

After the display of the differential weighing result, you are prompted to remove the weighing container and the sample.

If the **automatic weight detection is switched on** ("A.det ON", factory setting), the balance automatically detects the removal of the weighing sample.

If the **automatic weight detection is switched off** ("A.det OFF"), briefly press the "Menu" key after removing the weighing sample.

Close the differential weighing operation

After removal of the weighing container and the sample, the next memory position is displayed (when the automatic position selection is activated, the next position which does not contain a final value). You can now ...

... perform another back weighing or ...

... close the function "Differential weighing" by pressing and holding the "Menu" key. Completion of the weighing process is confirmed in the display and the balance automatically returns to the weighing mode.

6.5 Records

If your balance is connected to an optional printer from METTLER TOLEDO, you can print out a detailed record of your differential weighing operations. Recording of the results supports work practices in compliance with ISO/GLP. In the menu you can specify defaults for the result recording. You can select whether you wish to print out a long or a short record. In addition to the weighing data, the long record also contains the time and date of each weighing, the sample identification and the result of the differential weighing in grams. The menu also allows you to choose between a **collective record** and a **continuous record**. The two records are described below in brief.

```

----- RUECKWAEGUNG -----

 1      T      2.6066 g
 1      NE     1.9520 g
 1      NR     0.3401 g
Diff.:      -82.58 %
=====
 3      T      2.6070 g
 3      NE    19.3709 g
 3      NR     0.3382 g
Diff.:      -98.25 %
=====
 4      T      2.6070 g
 4      NE    21.4677 g
 4 [ 2] NR     0.4482 g
Diff.:      -97.91 %
=====

Unterschrift:
.....
----- ENDE -----

```

```

-- TARA+EINWAEGUNG --
 1      T      2.6066 g
 1      NE     4.8098 g
 2      T      2.8532 g
 2      NE    20.7121 g
----- RUECKWAEGUNG -----
 2      NR     4.1108 g
Diff.:      -80.15 %
=====
----- RUECKWAEGUNG -----
 1      NR     4.0832 g
Diff.:      -15.11 %
=====

```

Collective record

You can print the collective record (factory setting) at any time by briefly pressing the "↵" key when in the weighing mode. While the data are being printed out, the display shows the message "Printout". This record contains all memory positions (in ascending order) with **completed differential weighings**. Memory positions which do not contain a value or which hold only tare and/or initial weights are not recorded. The following values are printed out for every memory position:

- Tare weight ("T")
- Net initial weight ("NE")
- Net final weight ("NR")
- Result of the differential weighing ("Diff. %" or "Abs. %")

The illustration opposite shows an example of a collective record in short form. In this example, as memory position 2 contains no or incomplete data the values have not been printed out in the record. The index [2] next to the final value of memory position 4 indicates that two back weighings (multiple differential weighing) have been performed.

Continuous record

In the continuous record, **all weighing data** (tare weight "T", net initial weight "NE", Net final weight "NR", differential weighing result "Diff. %" or "Abs. %") are automatically printed out immediately following the particular weighing operation.

The illustration opposite shows the example of a continuous record in short form. In this example, taring and weighing-in were first performed for memory position 1 then for position 2. The back weighings were performed in the reverse order.

Note

Even if you have selected the continuous record in the menu, by pressing the "↵" key you can **always print out the collective record**.

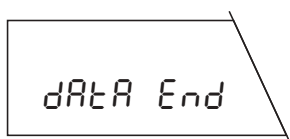
6.6 What if...?

If your balance suddenly returns to the weighing mode during a differential weighing operation, please check for the presence of one of the following symptoms:



The balance returns abruptly to the weighing mode

You have waited more than 45 seconds before executing the required action (e.g. placing the weighing container on the pan). The balance automatically returns to the weighing mode. Any values already determined will be stored.



The balance displays the message "Data End" and returns to the weighing mode

The balance can not find a memory position to which it can assign the intended operation. This may be the case if no free memory position is available or if you wish to back weigh a sample but no memory position is available which already contains an initial weight (in this case, the balance has no possibility to assign the differential weighing operation to a memory position).

Please also note the list of error messages in the operating instructions of your balance.

7. Inquiry of the stored values via a PC

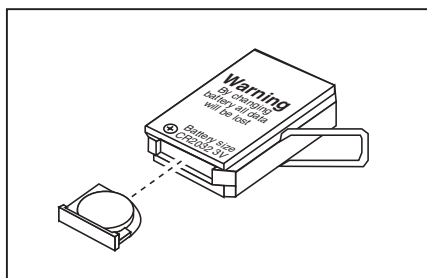
If your balance is connected to a PC by one of the interface cables available from METTLER TOLEDO (LC-RS25 or LC-RS9) and you have an appropriate communications program, you can transfer the values stored in the built-in database to the PC.

BW80

Enter the command shown opposite on your PC and then close it with the carriage return key (ENTER or RETURN key). The contents of all memory positions of the database which contain at least one value will then be transferred to the PC. The end of the data transfer is shown by the expression "EOB" (**E**nd **O**f **B**lock) .

8. Changing the back-up battery

The application cassette of the differential weighing software contains a back-up battery which ensures that your settings and measured values remain stored even on power failure or after disconnection of the balance from the power supply. If you discover data loss, possibly the back-up battery is discharged. Change the battery as follows:



- Remove the application cassette from the balance in reverse order to the installation (see section 2).
- Pull the battery compartment out of the application cassette and remove the old battery.
- Insert a new battery of the same type (CR2032, 3 V) and push the battery compartment back into the application cassette.
- Insert the application cassette in the balance (see section 2).
- Level the balance as described in the balance operating instructions.
- Reenter all your settings (date, time and menu settings).

9. Operating instructions in foreign languages

The **operating instructions for the differential weighing software** and the **operating instructions for the LC-BCR Bar-Code Reader** are at present available in the following languages:

Language	Order number
German	11780055
English	11780056
French	11780057
Spanish	11780058
Italian	11780060

Please contact your METTLER TOLEDO dealer if you require operating instructions in another language.

10. Working with the bar-code reader

The **optional METTLER TOLEDO LC-BCR Bar-Code Reader** (order number 229 145) facilitates and speeds up work with the differential weighing software and also opens up additional functions. However, the bar-code reader can be operated only via a LocalCAN universal interface. Connection is possible with the following G balances: AG, PG, PG-S with LC-G option. In this section you will find directions on the proper handling of the bar-code reader and a description of the available functions. You will find information on practical work with bar codes in the **instructions for operation of the differential weighing software with the LC-BCR Bar-Code Reader**. The instructions also include a **bar-code keyboard**, which makes work with the bar-code reader more convenient and also allows the entry of alphanumeric characters.

10.1 Handling the bar-code reader

- Hold the reader like a ballpoint pen or a fountain pen.
- Move the reader across the bar code vertically to the surface at a moderate speed. When a code has been read successfully, a short beep sounds as confirmation. The reading direction (from left to right or right to left) is immaterial for the recognition.
- Ensure that the lens at the tip of the bar-code reader is always clean.

10.2 Bar-code commands

The command set of the bar-code reader supports 8 categories of commands and functions. In what follows, you will find a short overview of all bar-code commands arranged by category. Those commands which are available only with the bar-code reader are explained in detail.

General balance settings

With these 3 commands you can match your balance to the ambient and operating conditions:

- Set vibration adapter
- Set weighing process adapter
- Select repeatability

General commands

This category comprises the following 4 commands:

- Reset balance: Resets all menu settings to the factory settings and clears the database (all individual menu settings and all stored weighing data will be lost!)
- Clear database: Deletes all weighing data in the database (the menu settings are retained).
- Confirm/YES: With this command you accept the proposed option.
- End measurement process: Closes the current measurement process. The balance then returns to the weighing mode.
- Abort/No: Abort procedure or reject the proposed option.

Commands for the adjustment (calibration)

You will find detailed information on adjustment (calibration) and testing in the operating instructions of your balance. The following 5 commands are available:

- Internal adjustment (calibration)
- External adjustment (calibration)
- Test with internal weight
- Test with external weight
- Select different weight

Settings for differential weighing

With these ten commands you match the differential weighing system to the way you work. These settings correspond to those in menu options 8–12 described in section 5.3:

- Switch automatic weight detection on or off
- Automatic or manual position selection
- Switch taring function on or off
- Select short or long record
- Select collective or continuous record

Function selection

With these 4 commands you can start the individual differential weighing functions:

- Taring and weighing-in in a single cycle
- Separate taring of the weighing container
- Separate weighing-in of the sample
- Back weighing of the sample

Transfer of the first tare to all memory positions

This command is available only via the bar code and only with the function "Separate taring". If you call up this command after taring of the first weighing container, the tare value will be transferred to all memory positions. This command is very useful if you always work with weighing containers which all weigh the same. The command can be executed only if no other tare values are stored (otherwise, you must first clear the database with the appropriate command).

Direct selection of memory positions

The direct selection of memory positions is available only via the bar code. With the command "Go to memory position" you tell the balance that you would like to select a memory position directly. With the numeric commands (0...9) of the bar-code keyboard, you select the desired memory position. After entry of the position number, you must initiate the selection with the "←" command.

Sample identification (Sample IDs)

With these commands, which are **available only via bar codes**, you can assign any identification to each memory position. The sample identifications are printed out on all records and thus facilitate the unambig-

uous assignment of the measured values to the individual samples. The following possibilities are available for the entry of sample IDs.:

- You can use the numbers of the 99 memory positions (1...99) as sample identification.
- You can use any bar codes as sample identification. You can also read such sample IDs later. This offers you the opportunity to select the appropriate memory position for further work steps directly.
- You can use any character string (letters and numbers) as sample IDs. This allows you to enter comments on the individual samples.

Work with sample identifications is explained in the following section.

10.3 Working with sample identifications

The following examples illustrate the work with the different types of sample identifications.

Assign sample ID

For assignment of sample IDs to the individual memory positions, you have available the 3 possibilities described above. These are explained individually in what follows.



Use numbers of the memory positions as sample IDs

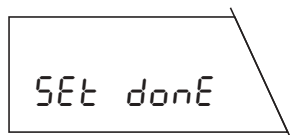
Important:

To execute this command, the balance must be in the weighing mode, in other words no function (taring, weighing-in or back weighing) must be selected!

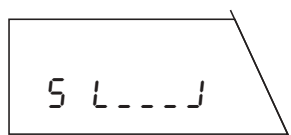
This command is executable only if no sample identifications are stored! If sample IDs are already stored and you still wish to execute the command, you must first clear the database with the appropriate command (this deletes all stored sample IDs).



Use the bar-code reader to initiate the command "Use numbers of the memory positions as sample IDs".



The balance briefly confirms the execution of the command and then returns to the weighing mode.



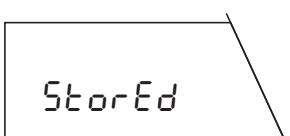
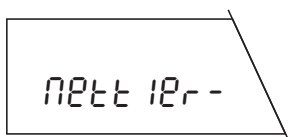
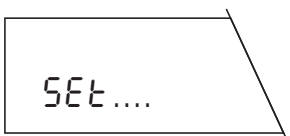
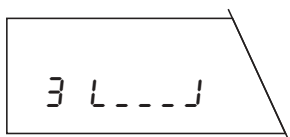
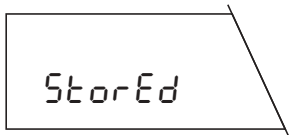
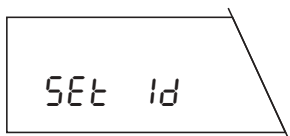
Assign bar code as sample ID

Call up the desired function, e.g. "Separate taring".

To assign a bar code to the current memory position as sample ID, proceed as follows:



Use the bar-code reader to initiate the command "Assign bar code as sample ID".



ID: Mettler-Toledo GmbH		
20-Jan-1995	14:22	
3	T	2.6070 g

The balance now prompts you to read in your own bar code (you will find a list of the readable codes in the instructions you received with the bar-code reader). This code is usually affixed directly to the weighing container, e.g. in the form of a sticker.

Run the bar-code reader over your own bar code. The balance briefly confirms the storage of your code and you can then continue with your work (in this example with taring) in the usual fashion.

Assign any character string as sample ID

Call up the desired function, e.g. "Taring and weighing-in".

To assign any character string to the current memory position as sample ID, proceed as follows:

Use the bar-code reader to initiate the command "Assign any character string as sample ID".

The balance now prompts you to read in the character string you wish to use as a sample ID (if the current memory position already has a sample ID, this will appear instead of the prompt shown opposite).

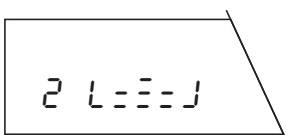
Use the bar-code reader to enter the desired character string. You will find the bar-code keyboard and explanations on its use in the instructions for operation of the differential weighing software with the LC-BCR Bar-Code Reader.

As soon as you have entered the entire character string, close the entry. Storage of the sample ID is briefly confirmed and you can then continue with your work (in this example taring and weighing-in) in the usual fashion.

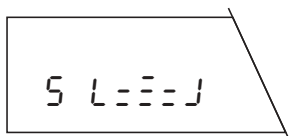
The header of a record shown opposite illustrates how the sample ID is printed out.

Reading sample ID

If you have used as bar code as a sample ID, you can read this code and hence select the associated memory position directly to execute a further work step (e.g. separate weighing-in):



Call up the desired function, e.g. "Separate weighing-in". With automatic position selection, the balance automatically selects the first memory position which does not contain an initial weight, in this case memory position 2 (with manual position recognition, the balance always selects memory position 1).

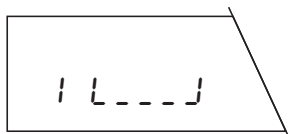


Run the bar-code reader across your own bar code. The balance now selects the memory position assigned to the code directly (in this example position 5).

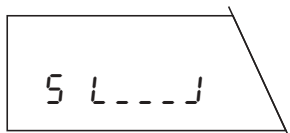
You can now continue with your work (in this example with weighing-in) in the usual fashion. You can also read in your own code for direct selection of the memory positions associated with other steps (e.g. back weighing).

Deleting sample ID

To delete the sample identification of a particular memory position, proceed as follows:

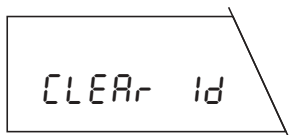


Ensure that the manual position selection is switched on and select any function (e.g. taring) to enter the differential weighing mode.



Select the memory position whose sample ID you wish to delete. If you have selected a bar code as a sample ID, read in the bar code and the balance selects the corresponding position. If you have used memory position numbers or a character string as a sample ID, you must select the position with the command "Go to memory position"

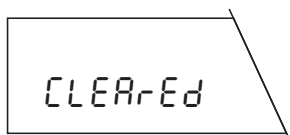
Use the bar-code reader to initiate the command "Delete sample ID".



The balance asks whether you really wish to delete the sample identification number.



Execute the bar-code command "Confirm/YES" to delete the sample identification number (if you do not wish to delete the number, select the command "Abort/No" instead).



The balance confirms deletion of the sample identification number.

10.4 Error messages in work with the bar-code reader

The error messages which can appear during work with the bar-code reader are listed in the **instructions for operation of the differential weighing software with the LC-BCR Bar-Code Reader**.

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Subject to technical changes and to the availability of the
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