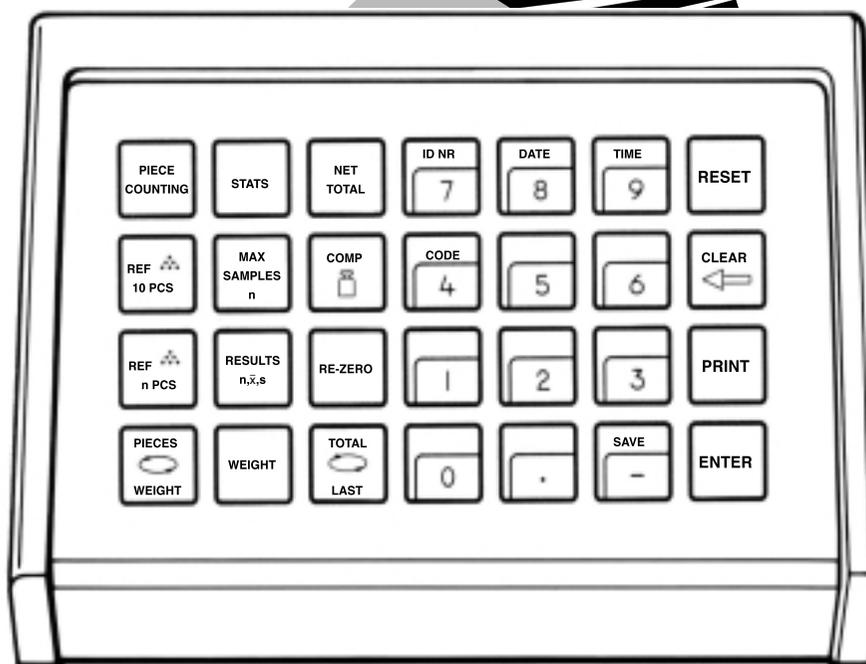


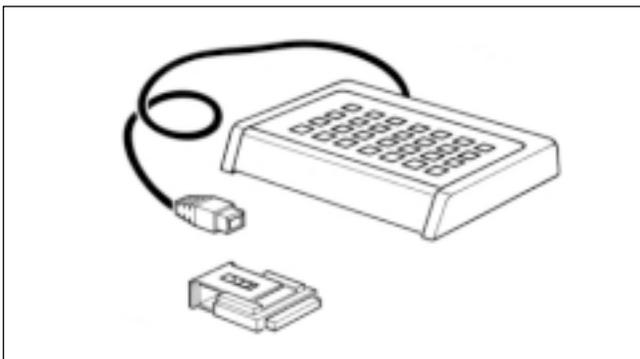
# Operating instructions

## METTLER TOLEDO PharmaPac-M



**METTLER TOLEDO**

## The METTLER TOLEDO PharmaPac-M



The METTLER TOLEDO PharmaPac-M has been developed especially for use in the pharmacy lab. It comprises a terminal (input keypad) and a plug-in program cassette. Connected to METTLER TOLEDO balances employing M technology, the PharmaPac-M provides an extremely easy way of performing the three most commonly required tasks in the lab.

- Net total weighing: Weighing in of any number of components from zero, with the possibility of calling up the net total at any time. With target weight setting, weighing-in aid (DeltaTrac) is activated.
- Piece counting: For counting or determining an unknown number of items with the aid of a freely selectable reference piece number or a fixed quantity of 10.
- Statistics: For a number of weighed samples, the balance calculates the average weight and the standard deviation.

The METTLER DeltaTrac (weighing-in aid or dynamic graphic display) is described in detail on the following two pages.

When METTLER TOLEDO balances of the SM series are used, there is a possibility to work with the SM terminal instead of the PharmaPac-M terminal. Further details are given in the section "SM keypad" on pages 14 through 17.

## To connect the terminal and other units

Two connection sockets at the rear of the balance are provided for the following units:

- Socket "DATA I/O": Units with RS232C or CL interface, e.g. GA44 Printer (for GA44 in the configuration register, section I-Face; select standard setting: S.Stb, b 2400 and interval 1 s)
- Socket "GM": PharmaPac-M terminal and GM units with adapter plug

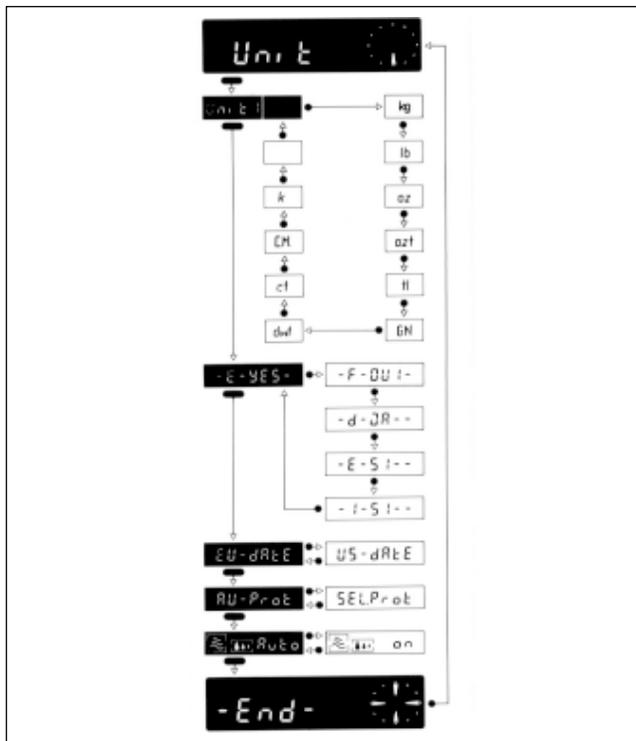
The coding pins in the sockets prevent improper connection.

## To insert the program cassette

Insertion of the program cassette is described in the Operating Instructions of the balance used.

- Notes:**
- Before changing the program cassette, disconnect power cord of the balance (with SM balances, press key [OFF]).
  - Replace standard program cassette by PharmaPac-M cassette.
  - Please keep the standard cassette; it may be useful in subsequent use without the PharmaPac-M.

## Configuration register with PharmaPac-M



The PharmaPac-M can be adapted to units specific to the application. In the section -Unit- of the configuration register (see Operating Instructions of the balance, "Configuration"), the following can be selected whatever the standard software of the balance:

Language: -E -Yes- = English (standard setting)  
 -F -Oui- = French  
 -d -Ja- = German  
 -E -Si- = Spanish  
 -I -Si- = Italian

Date: EU date = day, month, year (standard setting)  
 US date = month, day, year

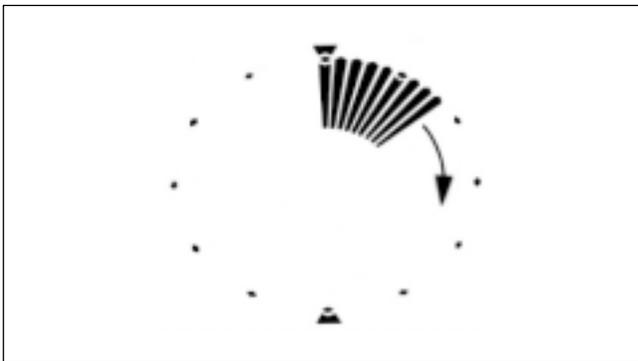
Printout: Au-Prot = printout automatic, depending on the application (standard setting)  
 SELProt = printout only with [PRINT] key

- Notes:**
- If the configuration register cannot be selected, check whether the jumper of the program cassette is in position "unsecured" (cf. Operating Instructions of the balance, "Configuration").
  - Reset does not reset language and date.

## The METTLER DeltaTrac

With METTLER TOLEDO balances employing M technology, the DeltaTrac can be used as a weighing-in aid or as a dynamic graphic display. Depending on the application, the DeltaTrac displays “target weight” when the weight on the balance corresponds to the preset (keyed in) weight value or the piece number. The display has two accuracy ranges for coarse and fine weighing.

Operation of the DeltaTrac is illustrated here with a weighing in (net total application).

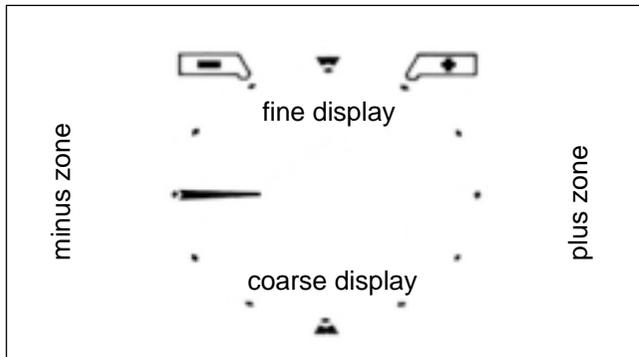


### Dynamic graphic display

A container is placed on the balance and tared with the control bar.

As long as no entries are made via the keypad, the display continues to function as though the PharmaPac-M were not connected.

The segments of the dynamic graphic display show the container weight; the digital readout remains at zero (container tared).



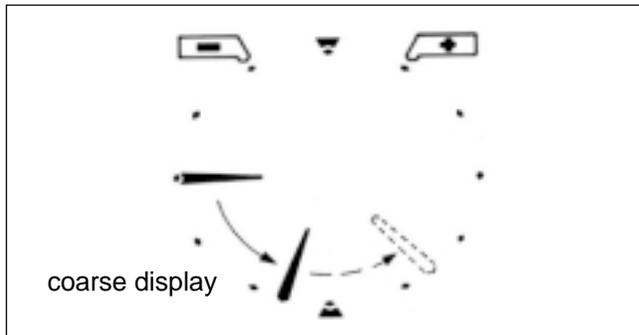
### Weighing-in aid

The keys [NET TOTAL] and [COMP 

The radial bars indicating the container weight are blanked out. A horizontal bar appears at the “9 o’clock” position. This is the coarse display and the 9 o’clock position is the zero position (no material has been weighed yet).

Think of the graphic display, which is like a clock face, as being divided into a lower and upper half. The lower half shows the coarse reading, the upper half is the fine readout.

If the bars are in the left-hand half, the weight is below the target value. However, if the bars are in the right-hand half, the weight is greater than the target value.



### Weighing-in, coarse

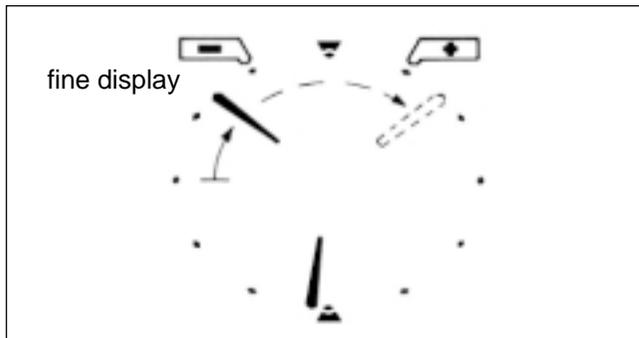
Material to be weighed is added at a brisk rate.

The bar previously pointing in a horizontal direction now rotates downwards.

With 1/3 of the weight, it shows “8 o’clock”, with 2/3 “7 o’clock”.

The target weight is reached when the bar points vertically downwards (“6 o’clock”).

(If more material is added, i.e. overfilling, the bar moves from the 6 o’clock position towards 3 o’clock: shown dashed in the illustration. The 3 o’clock position denotes 100% overfill. The bar remains in this position even if more material is added.)



### Weighing-in, fine

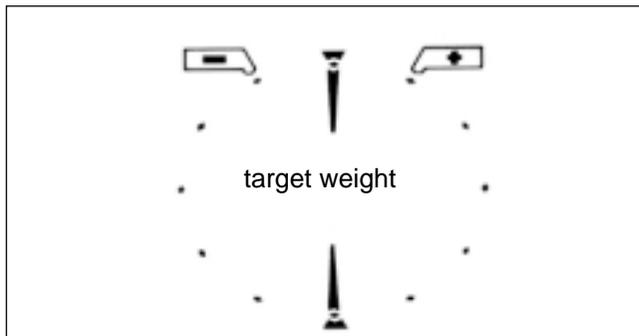
When the coarse pointer is just before the 6 o’clock position, the fine pointer appears.

It also begins at the “9 o’clock” position and moves towards the “12 o’clock” position.

Each step in the pointer’s progress corresponds to 0.5% of the target weight. The target weight is reached at the 12 o’clock position (accuracy  $\pm 0.25\%$  of target weight).

(If still more material is added, i.e. overfilling, the fine pointer moves on towards the 3 o’clock position: shown dashed in the illustration. The 3 o’clock position signifies 7.5% overfilling. The fine pointer remains in this position even if filling continues.

At the same time, the coarse pointer moves from 6 o’clock in the direction 3 o’clock.)



### Target weight

When the exact target weight ( $\pm 0.25\%$ ) is reached, the fine and coarse pointers form a vertical line between 12 and 6 o’clock.

Tolerance markers are provided to the left and right of the 12 o’clock position.

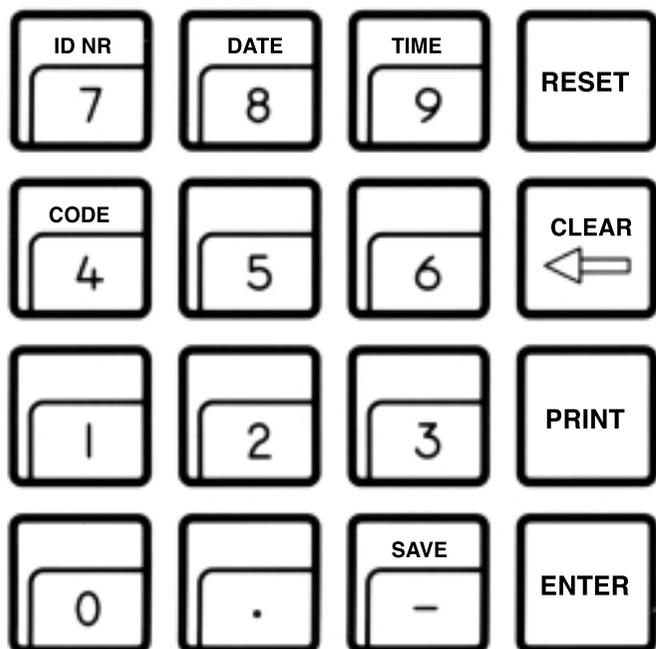
They indicate a tolerance range of  $\pm 2.5\%$  of the target weight.

If an accuracy of  $\pm 0.25\%$  is not sufficient, material can be introduced at a brisk rate with the weighing-in aid until the fine pointer is positioned just before 12 o’clock; the digital readout then provides further guidance.

The pointers jump back to 9 o’clock when the component weight is stored by pressing the [RE-ZERO] key or [ENTER] after a new entry with [COMP ].

## Functions of general system keys

If a printer is connected, the date, time, identification number and code, if inputted, are printed out at the top of the printout. On power failure, the printout inscription is cleared.



[ID NR] Begin entry of identification number with max. 7 digits and 6 decimal points (e.g. user or workstation). Cleared by pressing [RESET].

[DATE] Begin date entry (always 6 digits). The calendar runs until a power failure occurs. Cleared by overwriting with "0".

[TIME] Begin time entry (00...24 h; 6 digits, hours, minutes, seconds). The clock runs until a power failure occurs. Cleared by overwriting with "0".

[CODE] Begin entry of the code number with max. 7 digits and 6 decimal points, e.g. to identify each weighing task of a series. Printed out immediately after entry and then cleared automatically.

[RESET] Clears all entries except for date and time. [RESET] must always be pressed before a new weighing task.

[CLEAR] Clears the entry of the last numeric key pressed (numeric keypad), then the next to last, etc. provided [ENTER] has not yet been pressed.

[PRINT] Manual print command to print out entries or results which are not printed out automatically (by an application).

[ENTER] Concludes the numerical input on the numeric keypad.

[SAVE] Saves maximum 3 stored values in addition to the application and the weighing modes (statistics only) to prevent loss on power failure. Use [SAVE] only if power failure likely. For details, see applications.

## To enter values

Three steps are needed to enter numbers with the numeric keypad ([0]...[9], [,] [-]):

1. Select desired function  
The selected function determines what type of value follows, e.g. a reference piece number or a target weight. The balance is now in the value entry mode. The keys [ID NR] [DATE] [TIME] and [CODE] have two functions: When pressed once, the appropriate function is selected. As pressing the keys activates the numeric keypad, the keys become numeric keys of this keypad.
2. Input the value on the numeric keypad
3. Press [ENTER] key  
The value entry mode is terminated and the value assigned to the appropriate function.

### Corrections

Wrong entries which have already been closed with [ENTER] must be corrected by reinputting them. Entries not yet closed with [ENTER] can be cleared with [CLEAR].

### Examples

The keys mentioned should be pressed in the specified sequence:

To enter date (for EU date)	e.g. 30.7.87	[DATE] [3] [0] [0] [7] [8] [7] [ENTER]
To enter time	e.g. 9.45.38	[TIME] [0] [9] [4] [5] [3] [8] [ENTER]
To enter a component weight in grams	e.g. 83.5 g	[NET TOTAL] [COMP 
To enter a reference piece number	e.g. 27 PCS	[PIECE COUNTING] [REF...n PCS] [2] [7] [ENTER]

## Net total (information)

### Typical tasks and possibilities

- Weighing in each component from zero (when weight entered with weighing-in aid).
- Net total (sum of component weights) can be called up at any time.
- Addition of top-up component (e.g. liquid) from net total to weight of formulation (add-weighing).

### Specific key functions

### Notes



Activates the application [NET TOTAL] and the 3 related keys. Indicated by LED. Cleared by [RESET] or selection of another application.



Begin entry of component weight. Switches weighing-in aid to coarse and fine display. Target weight is displayed when preset weight reached.



Adds effective component weight to net total. Sets digital readout and weighing-in aid to zero (ready for next component).



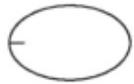
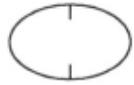
Switches between current component weight and net total so far.  
(If key [RE-ZERO] has already been pressed, current component weight is zero.) The weighing-in aid shows the total weight.

- Minimum entry = 1 digit
- Procedure when working without input of component weight (DeltaTrac as graphic display [RESET] - [NET TOTAL] - load weight - [RE-ZERO] - load next weight.
- To enable the DeltaTrac to function as a graphic display during a net total weighing, press [COMP ] [0]. In order that the DeltaTrac again switches to weighing-in aid, a component weight is again inputted.
- The application and the 1st component weight can be protected against loss on power failure with [SAVE].
- Clearing of all saved values with [RESET] [SAVE].

## Net total (example)

Task: 1st component 1000 g; 2nd component 125 g; fill with liquid to 2500 g

(balance type PM4600 DeltaRange)

Procedure	Press keys	Display	Printout
Place container on balance, select application net total, tare	[NET TOTAL]	409.86 g  0.00 g 	<pre> ----- NET TOTAL ----- 15.12.87          09:42  1*Comp  1000.00  g Weight   1003.6   g  2*Comp   125.00  g Weight   122.96   g Total    1126.6   g -----  Total      2501.1  g ----- </pre>
Key in weight of 1st component (1000 g)	[COMP ] [1] [0] [0] [0] [ENTER]	0.00 g 	
Weigh in 1st component (slightly too much in this case)		1003.6 g 	
Store true weight of 1st component	[RE-ZERO]	0.00 g 	
Key in weight of 2nd component (125 g)	[COMP  ] [1] [2] [5] [ENTER]	0.00 g 	
Weigh in second component (slightly too little in this case)		122.96 g 	
Store true weight of 2nd component	[RE-ZERO]	0.00 g 	
Call up net total so far	[TOTAL/ LAST] [PRINT]	1126.6 g 	
Fill to 2500 g	[PRINT]	2501.1 g 	

## Piece counting (information)

### Typical tasks and possibilities

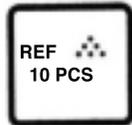
- Piece counting with fixed reference number of 10. Reference optimization possible.
- Piece counting with freely selectable reference number. Reference optimization possible.
- Switching from quantity to weight unit possible at any time.

### Specific key functions

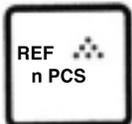
### Notes



Activates the application piece counting and the 3 related keys (indicated by LED). Cleared by [RESET] or by selection of another application.



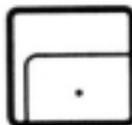
Sets the weight on the balance equal to 10 pieces and switches unit to PCS.



Begin entering a reference piece number. Sets the weight on the digital readout equal to the reference quantity inputted with the numeric keypad and switches unit to PCS.



Switch between current piece number and weight (in the selected weight unit). Piece number is displayed.



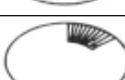
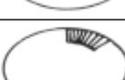
When in piece counting mode, pressing the key [.] causes the current reference piece weight to appear for about 4 seconds.

- Minimum reference weight = 10 digits, otherwise "Add" lights up
- Minimum piece weight = 1/4 digit
- Reference optimization:  
In order to improve the counting accuracy, it can be useful to optimize the reference piece weight, i.e. when working with low piece weights and a large number of pieces.  
  
Procedure:
  - Determine reference piece weight with small number of pieces.
  - Place larger number of pieces on the balance; larger number is displayed.
  - Press [ENTER]. This optimizes the reference piece weight.
  - Even greater piece numbers can now be counted.
- Application and reference piece number can be protected against power failure with [SAVE].
- Clearance of protected values with [RESET] [SAVE].

## Piece counting (example)

Task: Count 160 items into a container with reference optimization, reference = 5 items, time and date set,  
reference piece weight = ? g

(balance type PM4600 DeltaRange)

Procedure	Press keys	Display	Printout
Select application piece counting	[PIECE COUNTING]	0.00 g 	<pre> ----- PIECE COUNTING ----- 12.09.87          10:15 Ref. Opt *Ref. -W   15.403 g out of    27    PCS ----- 12.09.87          10:19 *Ref. -W   15.403 g out of    27    PCS Count     160    PCS ----- </pre>
Place container on balance, tare	Control bar	0.00 g 	
Place reference items in container (5 in this case)		75.92 g 	
Enter reference piece number	[REF n PCS] [5] [ENTER]	5 PCS 	
Increase piece number		27 PCS 	
Optimize reference weight	[ENTER]	27 PCS 	
Call up reference piece weight	[:]	15.403 g 	
Place items in container until piece number is reached	[PRINT]	160 PCS 	
Switch from piece number to weight	[PIECES/ WEIGHT]	2462.2 g 	

## Statistics (information)

### Typical tasks and possibilities

- Determining mean value ( $\bar{x}$ ) from a number of weighed samples
- Determining standard deviation ( $s$ ) from a number of weighed samples
- Choice of number of weighed samples as well as single or cumulative weighing mode

### Specific key functions

### Notes



Activates the application statistics and the 3 related keys (indicated by LED). Clearance by [RESET] or selection of another application. 2 weighing modes can be selected if sample number display is zero.



Begin entering maximum number of samples (sample number entry is not obligatory). When the inputted number of samples is reached, "End" lights up.



Press once to show the mean value  $\bar{x}$ .  
Press twice to show the standard deviation  $s$ .  
Press three times to show the sample number  $n$ .



When the sample number is displayed, the zero setting can be called up with the key [WEIGHT]. If the displayed value is not zero, tare.

- Weighing modes

[CLEAR] = single weighing (default)

[2] = cumulative weighing (display: ---xy--A)

- Animal weighing is possible with the statistics application. Selection of animal weighing and start of the measuring cycle are described in the Operating Instructions of the balance.  
(Difference: The animal weighing cannot be triggered via the control bar of the AM/ PM balances when the PharmaPac-M cassette is inserted.)
- The weight difference from previous mean value must be within  $\pm 50\%$ . If the weight is accepted, the sample number and weight OK display appear.
- Sample number 2...255
- Application, maximum sample number and weighing modes can be protected against power failure with [SAVE].
- Clearance of protected values with [RESET] [SAVE]

## Statistics (example)

Task: Weighing series with 3 samples, single weighing mode, check zero setting, time and date set.

(balance type PM4600 DeltaRange)

Procedure	Press keys	Display	Printout
Select application statistics	[STATS]	--- 0 ---	<pre> ----- STATS ----- 12.09.87          10:45 *Max. n          3   1          24.29 g   2          22.15 g   3          23.57 g *n              3 *Mean x          23.337 g *Std. s          1.089 g ----- </pre>
Key in maximum sample number (3)	[MAX SAMPLES n] [3] [ENTER]	--- 0 ---	
Load 1st sample, then remove		24.29 g	
Load 2nd sample, then remove		22.15 g	
Check zero Tare if necessary	[WEIGHT] Control bar	0.03 g 0.00 g	
Load 3rd sample		23.57 g	
Remove 3rd sample		End	
Call up result: - mean value - standard deviation - sample number	[RESULTS n, $\bar{x}$ ,s] [RESULTS n, $\bar{x}$ ,s] [RESULTS n, $\bar{x}$ ,s]	23.337 g S 1.089 g --- 3 ---	

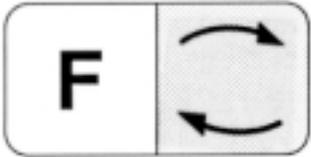
## Operation of METTLER TOLEDO SM balances with the SM terminal



With METTLER TOLEDO balances of the SM type, the most important commands can also be executed with the balance terminal. After the selection of an application and inputting and saving the values, the PharmaPac-M can therefore be removed until a change in the setting is desired. The SM terminal can not be used to alter the inputted values.

### Notes

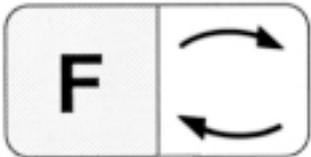
- Values which are not saved with [SAVE] are lost when the balance is switched off or on power failure.
- If no values are saved before switching off the balance or before a power failure, the [F] key on the SM terminal has no function.
- Clearance of saved values is performed with the keys [RESET] [SAVE] of the PharmaPac-M terminal.

**Net total with the SM terminal**

Switching between current component weight and previous net total.  
Corresponds to the key [TOTAL/ LAST] of the PharmaPac-M keypad.

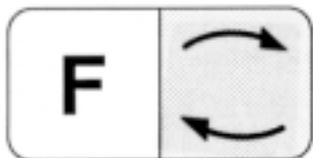


Corresponds to the [PRINT] key of the PharmaPac-M keypad.



Corresponds to the [RE-ZERO] key of the PharmaPac-M keypad.

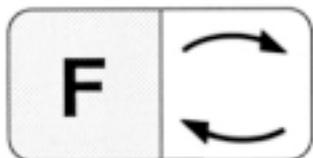
## Piece counting with the SM terminal



Switching between current piece number and weighing mode (corresponds to key [PIECES/WEIGHT] of the PharmaPac-M keypad).



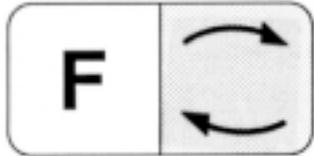
Corresponds to the key [PRINT] of the PharmaPac-M keypad.



Sets the weight on the digital display equal to the saved reference piece number or 10 items (cf. Notes). The reference piece number can not be changed with the SM terminal.

### Notes

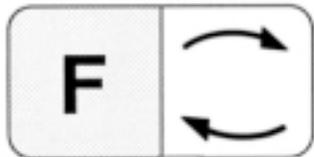
- If only the application is saved with [PIECE COUNTING] [SAVE], the reference piece number is 10.
- If the application together with the reference piece number selected by you is saved, piece counting is performed with the saved value.
- On entry of the reference piece number selected, the balance must be loaded.

**Statistics with the SM terminal**

Switching between statistics and weighing mode.



Corresponds to the [PRINT] key of the PharmaPac-M keypad.



Corresponds to the [RESULTS n,  $\bar{x}$ , s] key of the PharmaPac-M keypad.

**Notes**

- If only the application is saved with [STATS] [SAVE], the maximum sample number is 255.
- If the application together with the sample number selected by you (MAX n) is saved, the statistics are terminated when this value is reached and the results printed out.
- Without the PharmaPac-M, the weighing mode (single or cumulative weighing mode) can not be changed.

## Error messages

<b>Err 0</b>	Display/ calculation range exceeded	Weighed number of items is larger than approx. 8'000'000
<b>Err 1</b>	Time for input or value transfer exceeded	Entry was not ended after about 30 seconds or a weight value needed for calculation has not been transferred.
<b>Err 2</b>	Input value too high	Target weight or plus tolerance greater than balance capacity.
<b>Err 3</b>	Piece weight too small	Piece weight smaller than 1/4 digit or reference weight smaller than 10 digits.
<b>Err 5</b>	Date or time not complete or implausible	Format for both entries: XX.XX.XX (6 digit) EU date: DD.MM.YY US date: MM.DD.YY
<b>Err 8</b>	Sample number too large	Sample number entry greater than 255.

All these error messages are displayed for about 5 seconds. The balance then displays the weight again. The cause of the error display is ignored.

Other error messages do not originate with the PharmaPac-M and are explained in the Operating Instructions of the balance in question.

## What's wrong if ...?

- |  |   |
|--|---|
| . . . ----- is displayed?  | An entry is not yet possible since the system is still occupied with a printing task or is waiting for a stable weight value.   |
| . . . <b>Add</b> is displayed?   | In the determination of the reference piece weight, too few items were loaded and hence the accuracy of the counting results would be too low.  |
| . . . the star in the top left of the display flashes?                           | The reference piece weight is between 1 and 1/4 digit.  |
| . . . the counting system is in an indefinite condition?                         | Press [RESET] key, if necessary switch balance off, then on. Inputs and printout parameters are cleared by this.  |
| . . . the display does not react to weight changes on the pan?                   | System is in enter mode. Close with [ENTER] is expected or clear with [CLEAR].  |
| . . . the GA44 Printer prints only<br>🌸🌸🌸🌸🌸🌸?                                    | Wrong baud rate (transmission speed) setting (see Operating Instructions of the balance).   |
| . . . the GA44 Printer does not print every line in the record?                  | <p>The printing interval is set wrongly (correct setting is 1 second, see Operating Instructions of the balance).</p> <ul style="list-style-type: none"> <li>- The printing speed is too low. The time for 20 cm paper feed should be 23...27 seconds (see GA44 Operating Instructions)</li> <li>- Printout "Sel.Prot" in the configuration register section -Unit- is selected. Select "Au-Prot".</li> </ul> |
| . . . the printer prints continuously or after every deflection of weighing pan? | Set configuration of the interface in accordance with the balance Operating Instructions to S.Stb (send stable values).   |
| . . . no commands can be entered via terminal of the SM balance?                 | Entries not saved with [SAVE] are cleared on switching off the SM balance or on power failure. The entries must be reinputted via the PharmaPac-M keypad and saved.   |

**To give your METTLER TOLEDO product an assured future:  
METTLER TOLEDO Service preserves the quality, measurement  
accuracy and value of METTLER TOLEDO products for years to come.  
Please send for full details of our attractive service conditions.  
Thanks in advance**



P702166

Subject to technical changes and to the availability  
of the accessories supplied with the instruments.

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