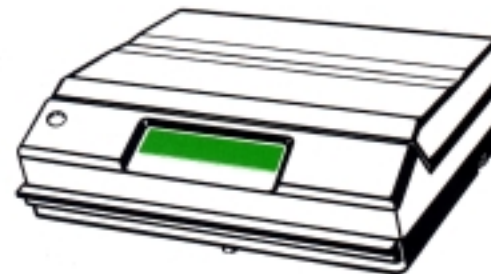


Mettler

Electronic precision balances

- PE11** 11000 g/0.1 g
- PE12** 12 kg/1 g
- PE16** 16000 g/0.1 g
- PE24** 24 kg/1 g
- PE22 DeltaRange** 24 kg/1 g
2000 g/0.1 g



Operating Instructions

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<p>Switching display on</p> <p>Switching display off</p>		<p>(a) Switching on: With no load on pan (3), briefly press control bar (1); all segments of display (5) light up for a few seconds.</p> <p>18888888 Make sure all segments of display are o.k.!</p> <p>Display now changes to zero with the same number of decimals as the readability of the balance (see technical specifications).</p> <p>(b) Switching off: Briefly raise control bar (1); display (5) is blanked out.</p> <p>Recommendation: <u>Never disconnect</u> balance from its <u>power supply</u>.</p>
<p>Checking the calibration</p>		<p>Select desired unit of weight (see back page).</p> <ul style="list-style-type: none"> - Make sure balance is level (see back page). - Briefly press control bar (1); zero appears on display (5). - Place calibration weight (4 kg) on pan; when stability detector signal (16) is off, read result. <p>If display indicates value of calibration weight to last decimal, balance is o.k. If not, calibrate again (see back page).</p>
<p>Taring</p>		<ul style="list-style-type: none"> - Place (tare) container on pan; display (5) indicates its weight. - Briefly press control bar (1), i.e., tare; display changes to zero. <p>Still available for weighing-in: Weighing range less weight of container.</p> <p>Please note: If balance is tared while unstable, i.e., while stability detector signal (16) is still on, display is blanked out until stability is achieved. Only then will zero appear.</p>
<p>Reading weight values</p>		<p>When filling-in quickly to vicinity of target weight, watch front digits of display; in fine dispensing, watch mostly the last digits. Please note: If weight is added rapidly, the last decimal (17) of the PE11, PE16 and PE22 is blanked out temporarily, but appears again during fine dispensing.</p> <p>* PE22: Goes out only in fine range (up to 2000 g). PE11, PE16, PE22: Does not go out in the <-> unit.</p> <p>Weight values should only be read when stability detector signal (16) has gone out.</p>
<p>Fine Range (PE22 DeltaRange only)</p>		<ul style="list-style-type: none"> - The PE22 has two weighing ranges: Coarse range: 0...24000 g, readable to 1 g Fine range: 0... 2000 g, readable to 0.1 g <p>Fine range can be moved by taring to any place within the entire weighing range. When fine range is exceeded, the decimal is blanked out. From then on, weighing is in coarse range.</p>
<p>Weighing-in</p>		<ul style="list-style-type: none"> - Place (tare) container on pan. - Tare; display changes to zero. - Fill in material to desired target weight. <p>If different materials are to be weighed in one after the other, each weight value can be tared and the next weighing started from zero (PE22: at first in fine range), until combined weight of container and material reaches end of weighing range (see technical specifications).</p>
<p>Weighing-out</p>		<ul style="list-style-type: none"> - Place (tare) container with material on pan. - Tare; display changes to zero. - Remove weighing material as needed; display indicates weight of removed material with negative sign in front.
<p>Check-weighing (plus/minus checking)</p>		<ul style="list-style-type: none"> - Place target value on pan; display shows weight. - Tare; display changes to zero. - Remove target weight; display changes to show target weight with negative sign in front (e.g., -1000.0 g). - Place weighing object that is to be compared with target weight on pan. If object is lighter than target weight, difference is displayed with negative sign in front (e.g., -1000.0 g + 993.5 g = -6.5 g).



Operating elements and connections

- (1) Single control bar
 - (2) Level indicator
 - (3) Weighing pan
 - (4) Leveling screws
 - (5) Display
 - (6) DATA I/O connection socket
 - (7) GE connection socket
 - (8) Fuse holder
 - (9) Power cable connection socket
- (6) and (7) function only if the P/C board for OPTION 016 or OPTION 017 has been installed.

Location

- Use a stable surface that is free of vibrations and as level as possible.
- No large temperature fluctuations.
- Avoid direct irradiation by the sun.
- Location should be free from drafts.

Leveling

- Turn the two leveling screws (4) until bubble in level indicator (2) is in the middle of the small circle.

Connecting the power cable

- Plug power-line cable (15) into power cable socket (9).
- Recommendation: Never disconnect balance from its power supply.

Selecting the unit of weight

The balance can indicate weight values not only in gram (g) or kilogram (kg), but also in nonmetric units.

Conversion factors

Taels	1 tl	≈ 37.4375 g
	1 g	≈ 0.026711185 tl
Pounds	1 lb	≈ 453.59237 g
	1 g	≈ 0.002204623 lb
Troy ounces	1 ozt	≈ 31.1034768 g
	1 g	≈ 0.032150747 ozt
Ounces	1 oz	≈ 28.349523125 g
	1 g	≈ 0.035273962 oz
Carats*	1 ct	≈ 0.2 g
	1 g	≈ 5 ct
Pennyweights	1 dwt	≈ 1.55517384 g
	1 g	≈ 0.643014931 dwt

* Carat is only available in the PE11, PE16, PE22

Please note: If a balance is to be certified, the unit of weight must be selected in advance.

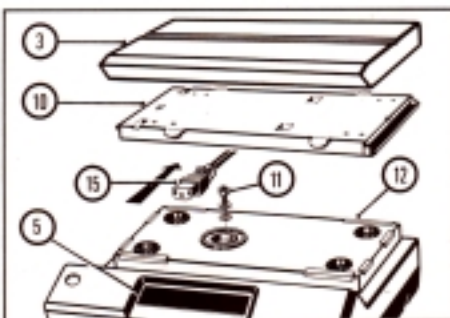
- Disconnect power cable (15).
- Press down control bar (1) and hold it down until power cable is again plugged in. The word "Unit" appears on display (5). At the right side of the display, the units of weight light up one after the other.
- When the desired unit appears, release the control bar. First all the segments light up as in a normal switch-on procedure, then zero is displayed.

PREPARATION

Checking the operating voltage

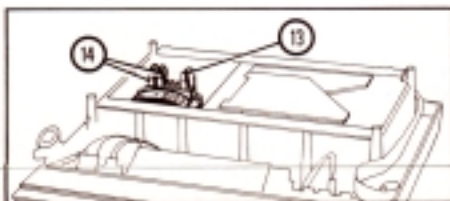
Make sure the voltage set at the factory (see yellow sticker at power cable connection socket (9)) agrees with the local power line voltage. If necessary:

Adjust operating voltage as follows:



Power cable (15) must not be connected!
Reason: If the power cable is connected, the inside of the balance is under electric tension, even though display (5) does not light.

- If already installed, remove weighing pan (3) and pan support (10).
- Unscrew screw (11).
- Carefully remove upper housing (12) together with in-use cover.



- Make sure voltage selector (13) is set on pin that corresponds to local power line voltage. If it is not, change setting accordingly.

Connection:
100 V for 95 V or 105 V power
115 V for 110 V or 120 V power
200 V for 190 V or 210 V power
230 V for 220 V or 240 V power

Warning: The two connectors (14) must not be interchanged.

- Carefully reinstall upper housing (12) together with in-use cover.
- Install pan support (10).
- Install weighing pan (3), (also remove plastic cover from pan if still in place).

Calibrating

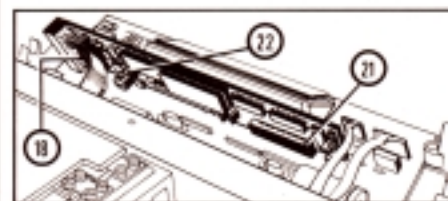
Please note: With certified balances, the calibration can be checked, but must not be changed. Before calibrating, the balance must remain connected to its power source for at least 30 minutes (warm-up time).

- Press control bar (1) until ←CAL→ lights up on display (5), then release. ←CAL→ is now displayed.
- Place calibration weight (4 kg) on pan; the balance will now calibrate itself automatically.

At the end of the calibration process, the weight of the calibration piece is displayed in the selected weight unit.

PE12, PE22, PE24	PE11, PE16
4.000 kg	4.0000 kg
4000 g	4000.0 g
106.8 tl	106.84 tl
8.82 lb	8.818 lb
128.6 ozt	128.60 ozt
141.1 oz	141.10 oz
2572 dwt	2572.1 dwt
20000 ct (only PE22)	20000 ct

How to install OPTION 016/017



- Disconnect power cable.
- Open balance housing.
- Connect coupling (18) of flat band cable to contact strip of P/C board (coding prevents incorrect connections).
- Lower P/C board so that flat connector snaps into contact strip (21) of balance P/C board.
- Insert screw (22) of P/C board into threaded hole of balance P/C board and tighten.
- Close balance housing.
- Plug in power cable.

MAINTENANCE

Cleaning

Regularly clean weighing pan, in-use cover and balance housing. Be sure to avoid strong solvents and to prevent all liquids from penetrating inside the balance housing.

Replacing the in-use cover

If already installed, remove weighing pan and pan support. Then:

- Loosen in-use cover at joints and pull off carefully towards the top.

Install in reverse order. Important: In-use cover must be joined properly (pull off protective paper before applying stickers at joints).

Please note: Replacement in-use covers are supplied in sets of 2.

Replacing the microfuse

- Disconnect power cable.
- Turn fuse holder (8) counterclockwise and remove.
- Replace defective fuse with a new 200 mA T fuse.
- Insert fuse holder, press in gently and turn clockwise until tight.

- Insert power cable and switch on display.

ACCESSORIES

Optional equipment	Order No.
Set of calibration weights (2 × 2000 g)	48317
GD hanger	41622
OPTION 016 (CL/RS232C, unidirectional)	48330
OPTION 017 (CL, bidirectional)	59817
Other accessories on request	

Standard equipment	Order No.
Weighing pan	48972
Pan support	48905
In-use cover	48922
Power cable	depending on country
Microfuses (set of 3 slow-blowing 200 mA T)	20181
Screwdriver	50279

WHAT IF...

... the entire display no longer lights up?

Then...

- display is not switched on.
- power cable is not plugged in.
- no power on the line.
- microfuse is defective. If malfunction is repeated, check operating voltage and fuse rating. If both are o.k., call in Mettler Service.

... only the upper segments of the display light up?

... weighing range has been exceeded.

... only the lower segments of the display light up?

- balance is defective: Call in Mettler Service.
- weighing pan or pan support has not been installed.
- balance was switched on with load on pan: tare without load.

... weighing result is unstable?

- there are drafts or balance table is not stable.
- weighing object is restless (e.g., when weighing laboratory animals).

... weighing result is obviously wrong?

- balance is placed on an incline.
- calibration is incorrect.

... "no CAL" lights up when balance is calibrated?

- no calibration weight or an incorrect calibration weight was placed on pan when "CAL" was displayed.

... the balance is blocked or displays chaotic signs, "OFF" or "ERROR"?

- electronic system is malfunctioning: disconnect power cable and plug it in again, then press control bar.
- balance is defective. Call in Mettler Service.

... balance does not indicate up to its full load?

- install empty weighing pan, then disconnect power cable and plug it in again.

SPECIFICATIONS

	PE11	PE12	PE16	PE22 DeltaRange	PE24
Weighing range	11000 g	12 kg	16000 g	24 kg 2000 g	24 kg
Readability	0.1 g	1 g	0.1 g	1 g 0.1 g	1 g
Tare range (subtractive)	11000 g	12 kg	16000 g	24 kg	24 kg
Admissible ambient conditions (during operation)	- Temperature: 0...+40°C - Altitude: -500...+6000 m - Relative humidity (noncondensing): 15...85% - Vibrations: 0.3 m/s ²				
Reproducibility (s)	0.05 g	0.3 g	0.05 g	0.3 g 0.1 g	0.3 g
Linearity	± 0.2 g	± 1 g	± 0.2 g	± 1 g ± 0.2 g	± 1 g
Stabilization time (typical)	~ 2.5 s	~ 1.5 s	~ 2.5 s	~ 2.5 s	~ 1.5 s
Display change	0.2 s	0.2 s	0.2 s	0.2 s	0.2 s
Sensitivity drift (10...30°C)	± 4 · 10 ⁻⁴ /°C	± 4 · 10 ⁻⁴ /°C	± 4 · 10 ⁻⁴ /°C	± 4 · 10 ⁻⁴ /°C	± 4 · 10 ⁻⁴ /°C
Result deviation (with balance inclined by 1:1000)	± 0.1 g	± 1 g	± 0.1 g	± 1 g	± 1 g
Power supply	- Voltage, adjustable: 100 V/115 V/200 V/230 V - Tolerance: +10%/-15% - Frequency: 50...60 Hz - Power consumption: ~ 9 VA				
Weighing pan (stainless steel)	350 × 230 mm				
Housing dimensions (W × D × H)	360 × 340 × 135 mm				
Weight	12.8 kg				