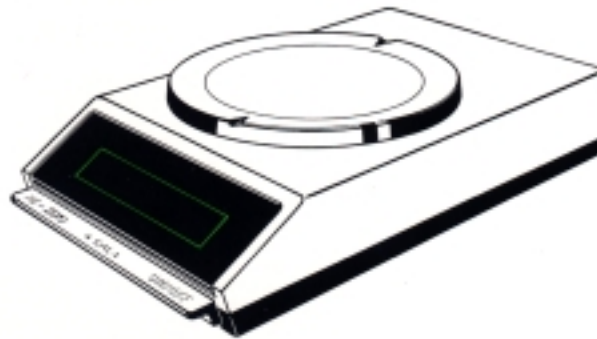


Mettler

Electronic precision balances

- PE 160** 160 g/ 0.001 g
- PE 300** 310 g/ 0.01 g
- PE 600** 610 g/ 0.01 g
- PE 1600** 1600 g/ 0.01 g

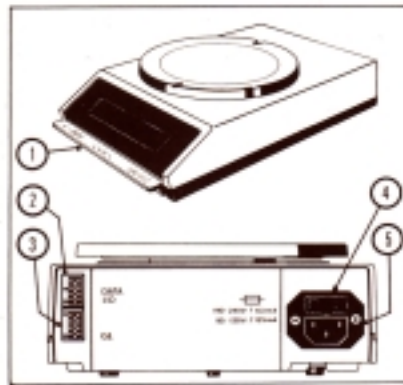


Operating Instructions

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<p>Switching on the display</p>		<p>- With the pan empty, briefly press the single control bar (1); all display segments light up for several seconds:</p> <p>This allows you to make a check of the display. Then the display indicates zero, with as many decimal places as the balance model readability permits, e.g.: 0.000 g in the PE160 0.00 g in the PE300/PE600/PE1600.</p>
<p>Switching off the display</p>		<p>- Lift the single control bar (1); the display is switched off.</p> <p>Recommendation: When possible, always leave the power-line cable plugged in.</p>
<p>Checking calibration</p>		<p>- Briefly press the single control bar (1); zero appears in the display.</p> <p>- Place test weight on pan: PE160/PE300: 100 g PE600: 500 g PE1600: 1000 g.</p> <p>- Read the display after the ring symbol (15) (stability detector) has been blanked out.</p> <p>If the balance displays the weight of the test weight accurately to the last decimal place, calibration is okay. If not, the balance must be calibrated.</p>
<p>Selecting a weight unit</p>		<p>- Disconnect power-line cable (14).</p> <p>- Press the control bar (1) and hold it down. With the bar pressed, connect power-line cable (14).</p> <p>- The display indicates now "Unit-". On the right of the display, the weight units light up in succession.</p> <p>- When the desired weight unit lights up, release the control bar (1).</p> <p>- The display indicates all the numerals and characters (in the same way as when being switched on) and then follows the zero display.</p> <p>Note: In certified balances, the weight unit must be selected <u>before</u> certification is carried out.</p>
<p>Taring</p>		<p>- Place a container on the pan: its weight is displayed.</p> <p>- Briefly press the control bar (1), i.e. tare: The balance displays zero. The balance weighing range - minus the container weight - is now available for weighing.</p> <p>If bar (1) is pressed while there is instability - i.e., while the pilot (15) of the stability detector is on -, the entire display goes out until stability is achieved; then the balance displays zero.</p>
<p>Reading results</p>		<p>While filling in steadily, pay attention to the first two digits (16) only until in the range of the target weight.</p> <p>While filling in very slowly towards the target weight, pay carefully attention to the digits to the right (17).</p> <p>When weight is increasing quickly, the last digit (18) blanks out temporarily; when weighing in slowly, this digit reappears.</p> <p>Note: Read weight display when stability detector (15) no longer lights.</p>
<p>Weighing-in</p>		<p>- Place the container on the weighing pan. Its weight is displayed.</p> <p>- Tare by pressing control bar (1); the balance displays zero.</p> <p>- Fill in object to be weighed up to the desired target weight.</p> <p>If several components must be weighed in, one after the other, each weighing can be tared out and the next weighing can proceed <u>from zero</u> until the combined weight of container and objects reaches the end of the weighing range:</p> <p>PE160: 160 g/PE300: 310 g/PE600: 610 g/PE1600: 1600 g</p>
<p>Weighing out</p>		<p>- Place container with the substance on the weighing pan.</p> <p>- Tare; the balance displays zero.</p> <p>- Remove some of the substance; the weight of the removed substance appears in the display with a negative sign in front.</p>



Operating elements and connectors

- (1) Single control bar
 - (2) Connection socket for the data interface
 - (3) Connection socket for Mettler GE instruments
 - (4) Fuse holder (with spare fuse)
 - (5) Power-line connection socket
- (2) and (3) are present only if an Option 016/017 has been installed (optional equipment).

PRELIMINARY STEPS

Checking the operating voltage

Check to see if the operating voltage setting (see yellow sticker over power-line connection socket) agrees with the local power-line voltage. If necessary:

Setting the operating voltage



Before doing so, make sure that the power-line cable (14) is disconnected!

When the power-line cable is connected, the balance electronics are powered, even though the display does not light up!

- Remove screw (8).
- Carefully remove housing cover (10) with in-use cover, if installed.



- Check whether the voltage selector jumper (11) is plugged onto the pin that is labeled with your local power-line voltage.
 - If necessary, change position of voltage selector (11) and plug it onto the correct pin.
- Admissible power-line voltages:
- 95 V, 105 V / install 125 mA slow blowing
 - 110 V, 120 V / microfuse
 - 190 V, 210 V / install 63 mA slow blowing
 - 220 V, 240 V / microfuse

Note: When switching the operating voltage from 95...120 V to 190...240 V (or vice versa), the microfuse must be changed. The two jumper plugs (12) must not be changed.

- Carefully set the housing cover (10) down onto the balance.
- Insert screw (8) and tighten.
- If still in place, remove protective coating from weighing pan.
- Place the pan support (7) onto the conical peg (6).
- Place the weighing pan (5) on the pan support.

Installing the draft shield (PE160)



The base (19) is installed in the factory. If it was subsequently removed, proceed as follows:

- Remove weighing pan and pan support.
- Place base (19) on the balance and turn it clockwise until it stops.
- Place pan support and weighing pan on balance.
- Depending on the height of the draft shield required, place low or high middle section (20) on the base.
- Place cover (21) with the two snaps on the middle section.

If wished, a glass draft shield can be ordered for the PE160/PE300, see ACCESSORIES.

Location

- Stable base, that is vibration-free and horizontal.
- No large temperature fluctuations.
- Avoid direct sunlight.
- Find a location free of drafts.

Calibrating the balance

Before calibrating, the balance must be left connected to the power supply for at least 30 minutes (warm-up time). Recommendation: When possible, always leave the power-line cable plugged in.

- Press the control bar (1) until the display indicates "-----", then release the control bar.
- "-CAL-" appears in the display.
- Place test weight on pan, i.e., 100 g for the PE160/PE300, 500 g for the PE600 or 1000 g for the PE1600.

Now the balance automatically performs its own calibration. After calibration is completed, the display indicates: 100.000 g in the PE160, 100.00 g in the PE300, 500.00 g in the PE600 or 1000.00 g in the PE1600.

Note: If no weight or a weight different from 100 g / 500 g / 1000 g is placed on the pan while the balance is displaying "-CAL-", first "no CAL" appears, then zero.

This means that calibration has not been carried out.

Note:

- Regular calibration assures the accuracy of the balance.
- Calibration is always carried out in the same manner, regardless of the weight unit that has been selected. The displayed value can be converted by using the table provided.
- The balance should be recalibrated every time its location is changed.
- Certified models can be checked, but not recalibrated.

Selecting the weight unit

In addition to the weight unit g, PE balances can also be set to read in other weight units. These can be freely selected by the user. The following units can be selected: g, lb, oz, oz, ct, dwt and kg (without PE160).

- Note: with certified balances, the weight unit must be selected before certification is carried out.
- The number of decimal places depends on the balance model and the weight unit selected.

Conversion factors

Ounce	1 oz	Δ 28.349523125 g
	1 g	Δ 0.035273962 oz
Pound	1 lb	Δ 453.59237 g
	1 g	Δ 0.002204623 lb
Pennyweight	1 dwt	Δ 1.55517384 g
	1 g	Δ 0.643014931 dwt
Troy Ounces	1 ozt	Δ 31.1034768 g
	1 g	Δ 0.032150747 ozt
Grain	1 GN	Δ 0.06479891 g
	1 g	Δ 15.43235835 GN
Carat	1 ct	Δ 0.2 g
	1 g	Δ 5 ct
Tael	1 tl	Δ 37.4375 g
	1 g	Δ 0.026711185 tl

MAINTENANCE

Changing the in-use cover

- First hook up in-use cover (25) on the rear of balance housing and then pull it tight at the balance front.

- Place retaining ring (26) in the PE160, the draft shield base (19) then turn clockwise to stop position. (Spare in-use covers are sold in sets of 5.)

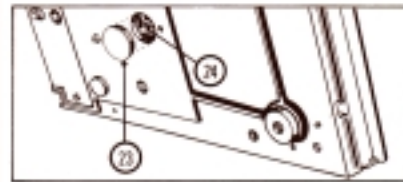
Cleaning

When needed, clean the balance housing and weighing pan. However, do not use any strong solvents on the housing because they can damage the finish.

Note: Do not turn the balance onto its top because this can damage the weighing cell.

ADDITIONAL CAPABILITIES

Below-the-balance weighing



The balance is equipped so that weighings can be carried out below the balance. When this is done, the object is attached directly to the weighing cell; this requires an opening in the weighing table.

- Remove weighing pan and pan support. Tip the balance onto its side (do not place it upside down).
- Remove cover (23).
- Attach hanger for the object to be weighed onto the small hook (24).
- Place balance back onto its feet, place pan support and pan back on balance.
- With the hanger attached, press the tare bar, then place object on hanger or attach it to hanger.

ACCESSORIES

Optional equipment

Calibration weight	100 g for PE160/PE300	47900
	500 g for PE600	48307
	1000 g for PE1600	47905
016 Data Output Option (CL/RS232C)		48330
017 Data Interface Option (DI)		59817
Level indicator kit		47659
Microfuses (set of 3)	125 mA slow-blowing	26172
	63 mA slow-blowing	46328
Glass draft shield (PE160/PE300)		43970

Application Packages:
LabPac / ProPac / StatPac / CountPac / DataPac
GemPac I / GemPac II

Standard equipment

Screwdriver		50279
In-use cover		47646
Retainer ring		41156
(with PE300/PE600/PE1600)		
Weighing pan	PE160/PE300	47085
	PE600/PE1600	47086
Pan support	PE160/PE300	47081
	PE600/PE1600	47082
Plastic draft shield with 2 sections		47910
(for PE300/PE600/PE1600 only on request)		
Power-line cable	Depends on country	

TECHNICAL DATA

	PE160	PE300	PE600	PE1600
Weighing range	160 g	310 g	610 g	1600 g
Readability	0.001 g	0.01 g	0.01 g	0.01 g
Taring range (subtractive)	160 g	310 g	610 g	1600 g
Admissible ambient conditions (during operation)				
- Temperature	0...+40°C			
- Altitude	-500...+6000 m			
- Relative humidity (non-condensing)	15...85%			
- Vibration	0.3 m/s ²			
Reproducibility (standard deviation)				
Linearity	0.0005 g ± 0.002 g	0.005 g ± 0.01 g	0.005 g ± 0.01 g	0.005 g ± 0.02 g
Stabilization time (typically)				
Display sequence	2.5 s	1.5 s	2.5 s	2.5 s
Sensitivity drift (10...30°C)	± 4 · 10 ⁻⁶ /°C	± 8 · 10 ⁻⁶ /°C	± 8 · 10 ⁻⁶ /°C	± 4 · 10 ⁻⁶ /°C
Result deviation (with balance inclined by 1:1000)	± 0.003 g	± 0.01 g	± 0.01 g	± 0.03 g
Power supply				
- Voltage, adjustable	100 V / 115 V / 200 V / 230 V			
- Tolerance	+10% / -15%			
- Frequency	50...60 Hz			
- Power consumption	approx. 6 VA			
Weighing pan (stainless steel)				
Housing dimensions (W x D x H)	∅ 130 mm 195 x 310 x 67 mm	∅ 150 mm 195 x 310 x 67 mm		
Weight	3.7 kg	3.7 kg		

WHAT'S WRONG IF...

- ... the entire display does not light up?
- ... only the lower segments light up in the display?
- ... only the upper segments of the display light up?
- ... "OFF" is displayed?
- ... the weighing result is not stable?
- ... the weighing result is obviously incorrect?
- ... "no Cal" appears in the display when calibrating the balance?
- ... the balance displays nonsense symbols or is blocked?
- ... the balance displays "ERROR"?

Then...

- The display has not been switched on. Briefly press the single control bar.
- The power-line cable has not been plugged in.
- There is no power reaching the instrument.
- The microfuse is defective.
- If the fuse blows repeatedly, check the operating voltage setting and the fuse rating. If both are correct, contact Mettler-Service.
- The weighing pan has not been installed.
- The balance was switched on with a weight on the pan. Remedy: remove weight and press tare.
- Weight on pan is too heavy (weighing range is exceeded).
- Power was out: Check the two power cable connectors for tight fit. Again switch on balance by pressing control bar.
- Control bar was not pressed down all the way when power was switched on.
- Drafts are present.
- The in-use cover is not installed properly.
- The weighing table is not stable.
- The operating voltage setting is not correct.
- The balance has been placed on an uneven surface.
- The balance needs to be recalibrated.
- Tare was not pressed before the weighing.
- Object on pan touching draft shield (if installed).
- An incorrect pan support has been installed on the PE600/PE1600.
- An incorrect calibration weight has been used
- The electronics are malfunctioning. Disconnect the power-line cable, plug it back in, then press the single control bar.
- There is a defect in the balance electronics; contact Mettler Service.