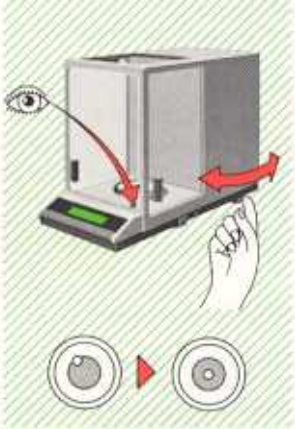
Operating Instructions

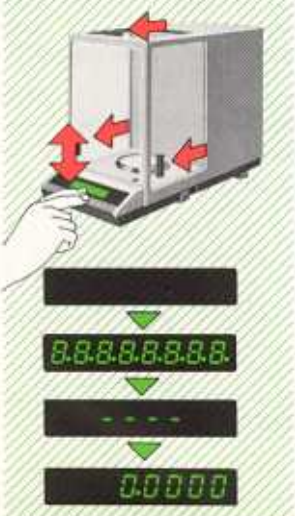
METTLER
Analytical balance
AE 260 DeltaRange

METTLER

Leveling the balance	Calibrating the balance	Integration time	Stability detector	Taring; weighing
	100.0000 g internal	Steps 1/2/3	Steps 1/2/off	Coarse range: 0...205 g Readability: 0.001 g DeltaRange: 60 g Readability: 0.0001 g

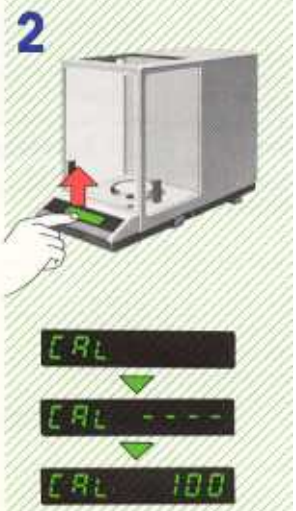


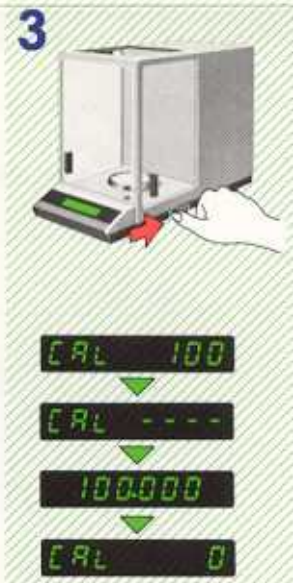
Switching the display on

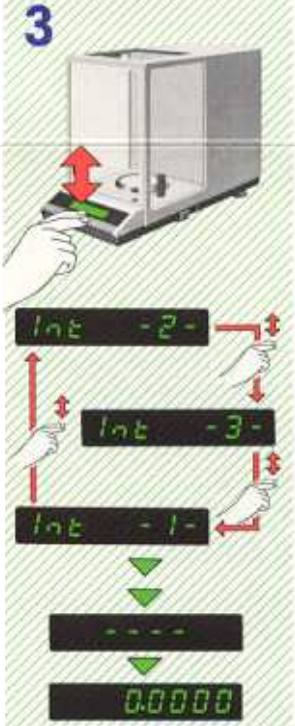


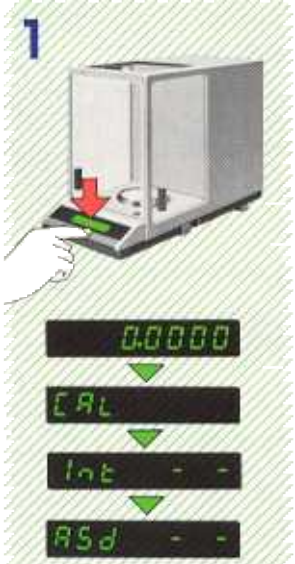
Switching the display off

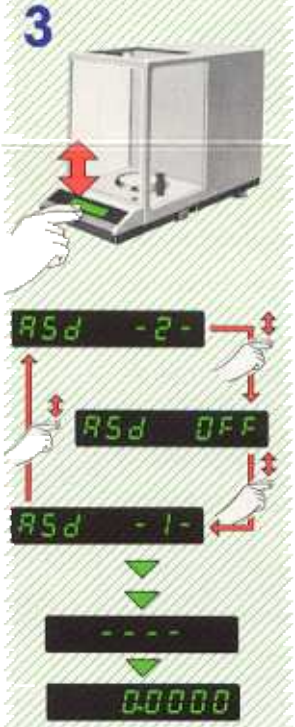
Short-form operating instructions

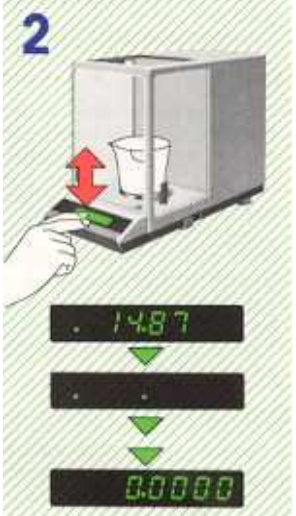












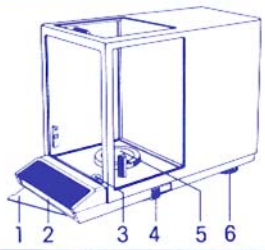
Headquarters: Mettler Instrumente AG, CH-8606 Greifensee, Switzerland, Tel. (01) 944 22 11, Telex 54592

A Mettler Instrumente Gesellschaft mbH., A-1030 Wien, Baumgasse 72, Tel. (0222) 78 91 07 △, Telex 114890
B SA H.V.L. NV, Chaussée de Louvain 1026–1048, B-1140 Brussels, Tel. (02) 720 48 30, Telex 21084
CH Mettler Verkauf und Service Schweiz, Greifenseestrasse 25, CH-8604 Volketswil, Tel. (01) 945 16 16, Telex 56170
D Mettler-Waagen GmbH, Postfach 110840, D-6300 Giessen, Tel. (0641) 507-0, Telex 482912
F Sofranie S.A., boîte postale 14 – Z.A.E., 18–20, av. de la Pépinière, F-78220 Viroflay, France, Tél. (1) 30 24 13 14, Télex 696840
GB Mettler Instruments Ltd., Abbey Barn Road, High Wycombe, Buckinghamshire HP111QW, Tel. (0494) 450 202, Telex 837564
I Mettler Strumenti s.r.l., Via Vialba, 42–44, I-20026 Novate Milanese, Tel. (02) 35 66 825, Telex 315078
NL Mettler Instrumenten B.V., Postbus 6006, 4000 HA Tiel, Holland, Tel. (03440) 11311*, Telex 70179
USA Mettler Instrument Corporation, Box 71, Hightstown, N.J.08520, USA. Tel. (609) 448-3000. Telex 843352

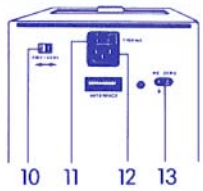
METTLER AE260 DeltaRange

Operating elements and connections

1 Brief Operating Instructions
2 Single control bar
3 Level indicator
4 Calibration lever
5 Weighing pan / windshield ring
6 Leveling screw



10 Voltage selector
11 Microfuse
12 Power line connection socket
13 Socket for handkey / foot pedal



Preliminary steps

Checking the operating voltage

The operating voltage setting must agree with your local power-line voltage; please check this setting and, if needed, change it.

Admissible power-line voltage in the switch positions:
115 V: 92 V...132 V
220 V: 184 V...265 V

Location

- A stable location; as free from vibration as possible.
- Make sure there are no large temperature fluctuations.
- Avoid direct sunlight and drafts.
- Connect the power cable at the work station.

Installing the weighing pan and the windshield ring; leveling the balance

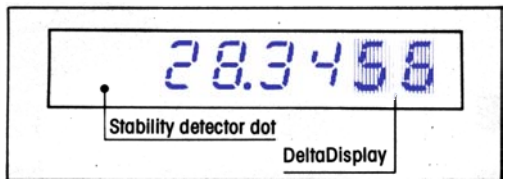
Please note:
The display indicates four decimal places in the DeltaRange (60 g). If the DeltaRange is exceeded, the last decimal place blanks out. By pressing the bar again to tare, it is possible to again use the DeltaRange (described in the Paragraph entitled, "Weighing-in").

Weighing-in (ASd 1 or 2)

- Open the sliding glass door.
- Fill in substance up to the desired target weight (to read the weight accurately, the door must be closed).

If different components are to be weighed, one after the other, into the same container, it is possible to tare after each weighing and start the next weighing from zero (up to 60 g in the DeltaRange). This can be done until the tare container and all the components together reach the end of the weighing range:

DeltaDisplay:

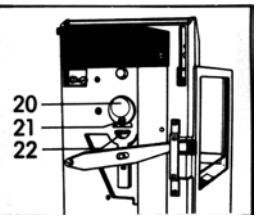


The DeltaDisplay switches on automatically when weighing in substances quickly; the last two digits in the DeltaRange or the last digit in the coarse range are blanked out and the display change sequence speeds up. This allows the increase in weight to be followed better. When weighing in slowly towards the target weight, the two digits (DeltaRange) or the last digit in the coarse range switch back on.
The display change sequence remains rapid. Only when weight changes are very small does the balance switch back to the normal display change with the full number of decimal places.

Stability detector:
When stability is achieved (determined by the step se-

Further capabilities

20 Cover
21 Screw
22 Hook



GD hanger (for weighing below the balance)

- Open all sliding glass doors.
- Remove the weighing pan.
- Place the balance on its back.
- Loosen the screw on the bottom of the balance.
- Swing the cover to one side.
- Retighten the screw.

A hook is visible in the opening; the object or substance can be weighed by attaching a hanger from this hook.

- Place the balance back on its feet, place the weighing pan back on and level the balance.
- With the hanger attached to the hook, press tare.

Note: The weighing pan does not have to be placed back on if the hanger is at least as heavy as the pan. The hanger is not available from METTLER!

Care and maintenance

Cleaning

A cloth with some soapy water is sufficient to clean the weighing pan and housing. Do not use any strong solvents. To remove residues from the weighing chamber, use the small artist's brush that is included in the balance standard equipment (do not blow air through the chamber).

Replacing the microfuse

- Disconnect the power cable.
- Turn out the fuse holder (in the power-line connection socket) with a screwdriver.

- Place weighing pan on balance; the conical peg centers the pan in the opening in the base of the weighing chamber.
- The two leveling screws should be adjusted so that the bubble is in the middle of the circle.

Whenever the location of the balance is changed, the balance should be releveled.

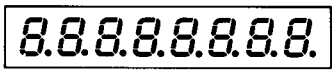
Operation

Short-form operating instructions

Short-form operating instructions can be found on a card that swings out from underneath the balance housing.

Switching the display on/off

- Briefly press the single control bar; all display segments light up for several seconds:



- Afterwards, the display automatically sets itself to zero.
- Lightly lift the control bar; the display is switched off.

Calibration

Make absolutely sure:
The balance must be left connected to the power supply for at least 60 minutes before "calibrating".

- Press and hold the single control bar until -CAL- appears in the display, then release control bar. The display changes to CAL----, then to CAL 100 (blinks).
- Move calibration lever all the way to the rear; the display changes to CAL----, followed by 100.000, then to CAL 0 (blinks).
- Move calibration lever all the way back towards the front of the balance; the display changes to ----, followed by zero.

Measuring cycle / measuring accuracy

By selecting a particular integration cycle, as well as a particular stability detection step, the balance can be configured according to your weighing location and needs.

Integration time:
Step 1: Used for very stable, vibration-free weighing table (short measuring cycle).
Step 2: Normal setting.
Step 3: Used for unfavorable ambient conditions (long measuring cycle).

- Press the control bar and hold it until -Int- appears in the display, then release the control bar.
- Immediately press the control bar briefly; the display will change to the next step.
- Stop at the step you wish to use and wait for the display to return to the weighing mode (zero).

Stability detector:
Step 1: Great sensitivity (long pause before data are released).
Step 2: Less sensitivity (short pause before data are released).
Normal setting.
off Step: The stability detector is switched off. Make sure that when this is the case, DeltaDisplay is also switched off (described in Paragraph entitled, "Weighing-in").

- Press the control bar and hold until -ASd- appears in the display, then release control bar.
- Immediately press control bar again briefly; the display changes to the next step.
- Stop at the step you wish to use and wait for the display returns to the weighing mode (zero).

Note: After selecting the integration time, you can go directly to the selection of the stability detector setting by holding the control bar down.

Taring

- Open the sliding glass door.
- Place a tare container on the weighing pan.
- Close the sliding glass door.
- Press the control bar briefly; the display changes to zero.

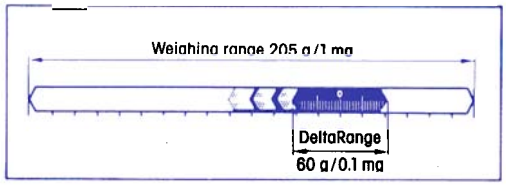
Note: It is possible to carry out external taring by using the handkey or foot pedal from the "accessories, optional" (connection sockets on rear of balance).

The weight of the container is now tared out. To weigh-in, the balance weighing range – minus the weight of the tare container – is now available.

display goes out.
The result is then stable.

Note: When the green dot lights up in the display, the data interface is blocked; when the green dot goes out (stability), the data interface is unblocked.

DeltaRange:



Your AE260 has a coarse range from 0...205 g; in this range, readability is 1 mg. The DeltaRange (fine range) turns your "milligram balance" into an "analytical balance". This means that the readability is increased to 0.1 mg in a range of 60 g (by pressing tare each time, it can be moved throughout the entire weighing range). Every time the fine range is exceeded, the last decimal goes out; you are then weighing in the coarse range.

- Place the fuse holder back on.
- Plug the power-line cable back in.

Accessories

Optional equipment		Order No.
– Windshield ring, can be stacked: 1 unit		38594
– Tweezers, 210 mm long (with plastic tips)		70209
– Density (specific gravity) determination kit		33340
– Foot pedal		46278
– Handkey		42500
– Microfuses, 160 mA slow-blowing (set of 3)		55144
– Data interfaces:		
011 Option – CL/RS232C unidirectional		38750
012 Option – CL/RS232C bidirectional		38751
013 Option – IEEE488		38752
040 Data Output (unidirectional mode)		38795

Standard equipment		
– Power-line cable	neutral	87576
	Switzerland	87920
	Germany	87925
	USA	88668
– Weighing pan, 80 mm dia.		38590
– Centering disk (for windshield ring)		38609
– Hair-bristle brush		70114
– Windshield ring		38689

Specifications

AE 260 DeltaRange

		60 g DeltaRange	200 g
Readability		0.1 mg	1 mg
Weighing range		0...60 g	0...205 g
Tare range (subtractive)		0...60 g	0...205 g
Reproducibility (standard deviation)		0.1 mg	0.5 mg
Linearity		±0.2 mg	±1 mg
Stabilization time (typically)		5 sec	
Integration time (adjustable)		1.5/3/6 sec	
Display sequence	– Mettler DeltaDisplay off	0.4 sec	
	– Mettler DeltaDisplay on	0.2/0.4 sec	
Stability detector – Sensitivity selectable in three steps		1/2/off	
Sensitivity drift (10...30°C)			
Calibration weight (built-in), adjusted to an apparent mass of 8.0 g/cm³ in an air density of 1200 mg/l		100 g, adjusted to ±0.1 mg	
Dimensions:	Weighing pan (stainless steel)	80 mm dia.	
	Open space above weighing pan	215 mm	
	Balance housing (W x D x H)	205 x 410 x 290 mm	
	Net weight	10.3 kg	
Power supply:	Voltage, adjustable	115 V/220 V	
	Admissible voltage range	92...132 V, 184...265 V	
	Frequency	50...60 Hz	
	Power consumption	10 VA	
Admissible ambient conditions during operation:			
Temperature		10...40°C	
Relative humidity (non-condensing)		25...85%	

What's wrong if...

...	then...
... the entire display does not light up?	– no power reaching the instrument. – the fuse is defective. – a temporary power failure has taken place. (Press the control bar.)
... the OFF display appears?	– the weighing range has been exceeded. – the calibration weight has been activated. – there was weight on the pan when the instrument was switched on. – the weighing pan is not installed.
... only the upper horizontal segments light up in the display?	– there was weight on the pan when the instrument was switched on. – there are too many drafts. – the weighing table is unstable. – the integration time setting is too low. – the object being weighed is not at room temperature.
only the lower horizontal segments light up in the display?	– the balance must be calibrated or has been calibrated using the wrong external weight.
the weighing result is unstable?	– a temporary malfunction has occurred (pull out power cable and plug it back in). – the weighing table or the load is too unsteady (close sliding glass doors, set a longer integration time and/or change the stability detection setting). – the weighing pan was not unloaded before calibrating the balance, or the wrong external calibration weight was used (return to the weighing mode by pressing and holding the control bar). – a temporary malfunction has occured (recalibrate balance). – the weighing table or the load is too unsteady (close sliding glass doors, set a longer integration time and/or change the stability detection setting).
the weighing result is obviously incorrect?	
only a portion of the display lights up?	
the middle horizontal segments in the display are blinking (for more than 30 sec)?	
CAL Err appears in the display?	
no CAL appears in the display?	
a zero display does not appear after pressing tare?	

 ME-702504 Printed in Switzerland 1.5/8702/2.12

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