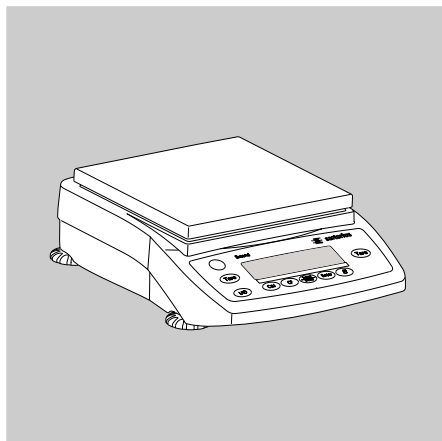
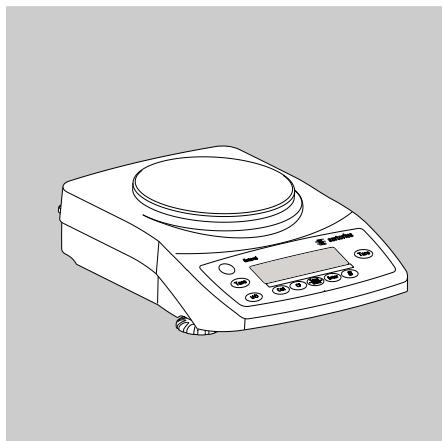
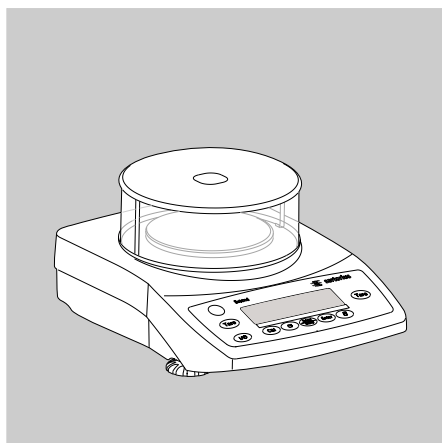
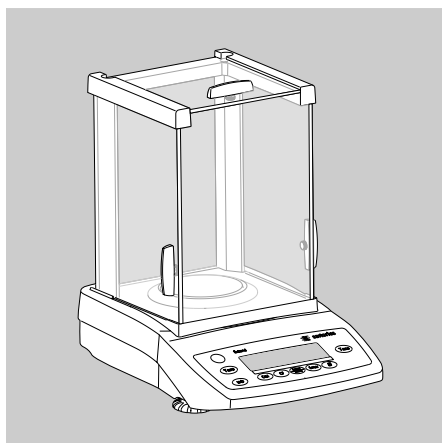


Operating Instructions

Sartorius Extend Series Sartorius Gem and Gold Extend

Electronic Analytical and Precision Balances and Precious Metal Scales



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Symbols

The following symbols are used in these instructions:

- indicates required steps
- indicates steps required only under certain conditions
- > describes what happens after you have performed a particular step
- indicates an item in a list



indicates a hazard

Warnings and Safety Precautions

Safety

- To prevent damage to the equipment, please read these operating instructions carefully before using the balance/scale.



Do not use this equipment in hazardous areas.



The balance/scale may be opened only by trained service technicians.



Disconnect the balance/scale from power before connecting or disconnecting peripheral devices.



If you operate the balance/scale under ambient conditions subject to higher safety standards, you must comply with the applicable installation regulations.



Exposure to excessive electromagnetic interference can cause the readout value to change. Once the disturbance has ceased, the instrument can be used again in accordance with its intended purpose.

Make sure that no liquid enters the equipment housing; use only a slightly moistened cloth to clean the balance/scale.



Installation

Make sure the voltage rating printed on the power supply is identical to your local line voltage.

- Proceed with extreme caution when using pre-wired RS-232 connecting cables, as the pin assignments may not be compatible with Sartorius equipment. Before connecting the cable, check all pin assignments against the cabling diagrams and disconnect any lines that are assigned differently.



If there is visible damage to the equipment or power cord, disconnect the equipment from power and lock it in a secure place to ensure that it cannot be used for the time being.

- Connect only Sartorius accessories and options, as these are optimally designed for use with your Extend balance/scale. The operator shall be solely responsible for installation and testing of any modifications to Sartorius equipment, including connection of cables or equipment not supplied by Sartorius. On request, Sartorius will be happy to provide information on operating specifications (in accordance with the Standards for defined immunity to interference).
- Do not open the balance/scale housing. If the seal is broken, this will result in forfeiture of all claims under the manufacturer's warranty.
- If you have any problems with your balance/scale, contact your local Sartorius customer service center.

Getting Started

Storage and Shipping Conditions

- Do not expose the balance/scale to extreme temperatures, moisture, shocks, blows or vibration.

Unpacking the Equipment

- After unpacking the equipment, please check it immediately for any external damage.
- If you detect any damage, proceed as directed in the chapter entitled “Care and Maintenance,” under “Safety Inspection.”
- Save the box and all parts of the packaging for any future transport. Disconnect all cables before packing the balance/scale for shipping.

Equipment Supplied

- Balance/scale
- Weighing pan
- Pan support (only for models with a round weighing pan)
- Gem tray (GK and GW models only)
- AC adapter

Additional equipment supplied with models ED224S, ED124S, GK1203, GK1403, GK703, GK303:

- Draft shield chamber with sliding doors
- Shield ring
- Shield plate
- Dust cover

Additional equipment supplied with models ED423S-DS, ED323S-DS, ED153-DS:

- Draft shield chamber with sliding doors

Additional equipment supplied with models GK3102, GK2202:

- Metal disk
- Draft shield chamber with sliding doors

Additional equipment supplied with models ED623S(-CW), ED523S-PCE, ED423S(-CW), ED323S(-CW), ED153(-CW):

- Round glass draft shield with cover

Installation

Choose a location that is not subject to the following negative influences:

- Heat (heater or direct sunlight)
- Drafts from open windows and doors
- Excessive vibration during weighing
- Excessive moisture

Conditioning the Balance/Scale

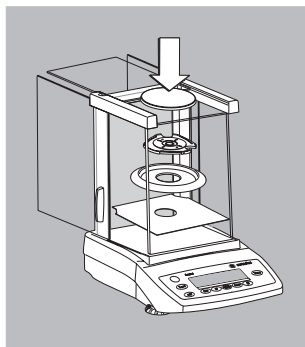
Moisture in the air can condense on cold surfaces whenever the equipment is moved to a substantially warmer place. To avoid the effects of condensation, condition the weighing instrument for 2 hours at room temperature, leaving it unplugged from AC power.

Seal on Balances/Scales Verified for Use in Legal Metrology in the EU*:

EU legislation requires that a control seal be affixed to verified balances/scales. The control seal consists of a sticker with the “Sartorius” logo. If the seal is broken, the verification becomes null and void and the balance/scale must be re-verified.

* Including the Signatories of the Agreement on the European Economic Area

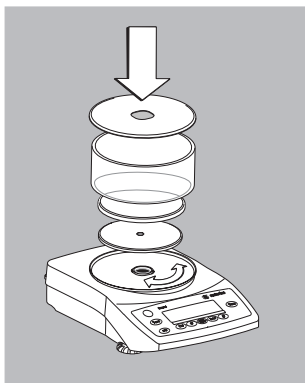
Installation



Setting Up the Balance/Scale

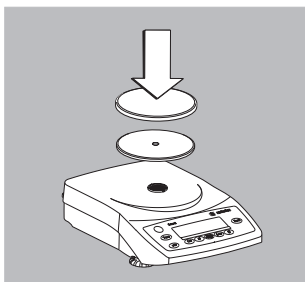
Instruments with sliding-door draft shield chamber:

- Place components inside the chamber in the following order:
 - Shield plate
 - ED models, GK1403, GK1203, GK703 and GK303: shield ring (not on versions ED423S-DS, ED323S-DS, ED153-DS)
 - GK3102, GK2202: disk
 - Pan support
 - Weighing pan
 - Gem tray (GK models only)



Instruments with a round glass draft shield:

- Position the components listed below in the order given:
 - Place the lower lid on the balance/scale with the raised edge facing upwards and turn it until it is firmly in position
 - Pan support
 - Weighing pan
 - Glass draft shield
 - Gem tray (GK models only)
 - Place the upper lid on the draft shield with the raised edge facing downwards

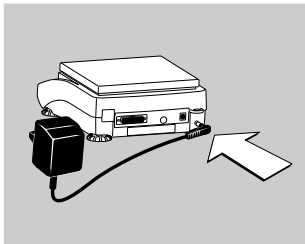


Instruments with a round weighing pan

- Position the components listed below in the order given:
 - Pan support
 - Weighing pan
 - Weighing bowl (GW models only)

Instruments with a rectangular weighing pan:

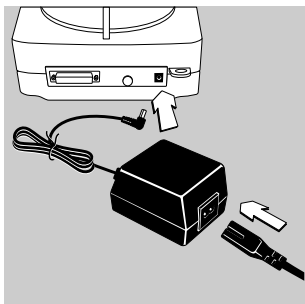
- Place the weighing pan on the balance/scale
- Weighing bowl (GW models only)



Connecting the Balance/Scale to AC Power/ Safety Precautions

Use only original Sartorius AC adapters. For use within Europe: part no. 6971412

- Connect the angle plug to the balance/scale
- Connect the AC adapter to the wall outlet (mains)



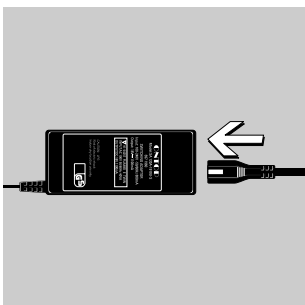
AC Adapter with Country-specific Power Cord

Some models come with separate country-specific power cords for the AC adapter. In Europe, use only original Sartorius AC adapter part no. 6971983.

- Connect the angle plug to the balance/scale
- Select the power cord for your area and connect it to the AC adapter
- Plug the power cord into the wall outlet (mains)

Use an original Sartorius AC adapter with a wide input voltage range (100 to 240 V~), order no. 6971966, and replaceable power cord:

6900900 (Europe)
6900901 (US/CDN)
6971945 (UK)
6900905 (AUS)
6900902 (ZA)



Safety Precautions

Plug-in AC Adapter and Benchtop AC Adapter
6971983:

The AC adapter rated to Class 2 can be plugged into any wall outlet without additional safety precautions.

Benchtop AC Adapter 6971966:

The AC adapter rated to Class 1 can be plugged into any wall outlet without additional safety precautions.

The ground terminal is connected to the balance/scale housing, which can be additionally grounded for operation. The data interface is also electrically connected to the balance/scale housing (ground).

NOTE: This equipment has been tested and found to comply with the limits pursuant to part 15 of FCC Rules.

These limits are designed to provide reasonable protection against harmful interference. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with these instructions, may cause harmful interference to radio communications.

For information on the specific limits and class of this equipment, please refer to the Declaration of Conformity. Depending on the particular class, you are either required or requested to correct the interference.

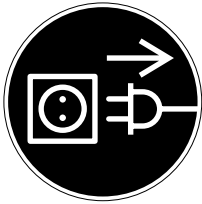
If you have a Class A digital device, you need to comply with the FCC statement as follows: "Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense."

If you have a Class B digital device, please read and follow the FCC information given below:

"However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

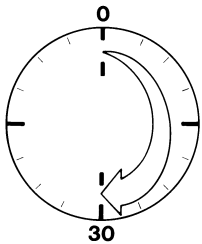
- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help."

Before you operate this equipment, check which FCC class (Class A or Class B) it has according to the Declaration of Conformity included. Be sure to observe the information of this Declaration.



Connecting Electronic Peripheral Devices

- Make sure to unplug the balance/scale from AC power before you connect or disconnect a peripheral device (printer or computer) to or from the interface port.



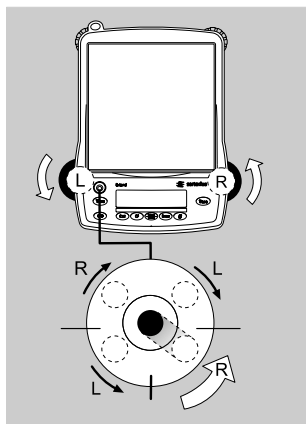
Warmup Time

To ensure accurate results, the balance/scale must warm up for 30 minutes before operation. Only after this time will the instrument have reached the required operating temperature.

Using Verified Balances/Scales in Legal Metrology in the EU*:

- Make sure to allow the equipment to warm up for at least 24 hours after initial connection to AC power or after a relatively long power outage.

* Including the Signatories of the Agreement on the European Economic Area



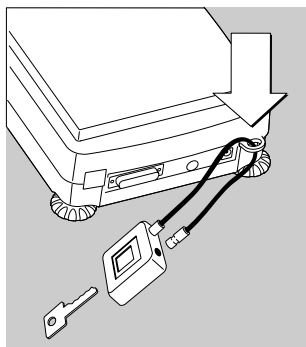
Leveling the Balance/Scale

Purpose:

- To compensate for unevenness at the place of installation

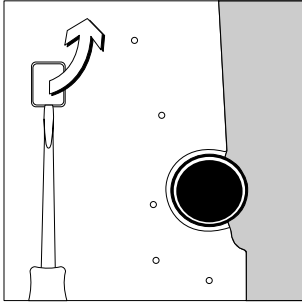
Always level the balance/scale again any time after it has been moved to a different location. Only the 2 front feet are adjusted to level the balance/scale.

- Retract the two rear feet (only on models with a rectangular weighing pan).
 - Turn the 2 front feet as shown in the diagram until the air bubble is centered within the circle of the level indicator.
- > In most cases this will require several adjustment steps.
- On models with a rectangular weighing pan: extend the 2 rear feet until they touch the surface on which the balance/scale rests.



Anti-theft Locking Device

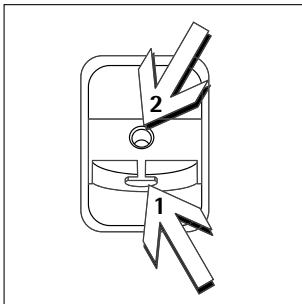
- To secure the balance/scale at the place of installation, fasten a chain or a lock to the lug located on the rear panel of the balance/scale.



Below-Balance/Scale Weighing

A port for a below-balance/scale weighing hanger is located on the bottom of the balance/scale.

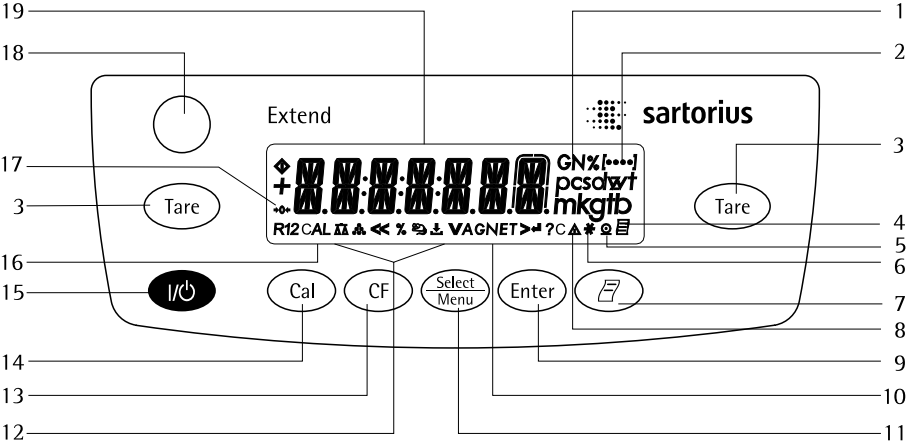
- Below-balance/scale weighing is not permitted in legal metrology.
- Open cover plate on the bottom of the balance/scale.
Important: set the balance/scale on its side to access the cover plate. DO NOT turn the balance/scale upside-down!



- Using the built-in hook **1**: Attach the sample (e.g., using a suspension wire) to the hanger.
- Bore hole **2** (not on models ED153., ED822., ED8201, ED5201, or ED2201): Carefully fasten the special hanger, or order a hanger directly from Sartorius.
- Install a shield for protection against drafts if necessary.

Operation

Overview of Display and Operating Elements



Position	Designation	Position	Designation
1	Weight units	13	Delete (Clear Function) This key is generally used to cancel functions:
2	Menu level indicator		– Quit application program
3	Taring		– Cancel calibration/adjustment routine Exit the operating menu
4	Symbol: “GLP printing mode active”	14	Start calibration/adjustment routine
5	Symbol: “Printing mode active”	15	On/off
6	Symbol: “Application program active”	16	Symbol: Calibration/adjustment function
7	Data output: Press this key to send readout values to the built-in data interface.	17	Symbols for zero range (verified models only)
8	Calculated-value indicator (i.e., not a weight value)	18	Level indicator
9	Start an application program	19	Weight value displayed in selected weight unit
10	Symbol: Gross or net value		Symbols:
11	Select an application program Open the operating menu	<<	Save settings and exit the operating menu
12	Symbols for active application (ΔΔ, ΔΔ, %, ΔΔ, ΔΔ, A, C)	<	One menu level higher
		V	Scroll through menu items
		>	Next item on current menu level
		↵	Select a parameter setting

Basic Weighing Function

Features

- Taring the balance/scale
- Printing weights

Using Verified Balances/Scales as Legal Measuring Instruments in the EU*:

The type-approval certificate for verification applies only to non-automatic weighing instruments. For automatic operation with or without auxiliary measuring devices, you must comply with the regulations applicable to the place of installation.



- Before using the balance/scale as a legal measuring instrument, calibrate and adjust it at the place of use using the built-in motorized calibration weight; for details, see “Calibration/Adjustment” in this chapter.
- The temperature range (°C) indicated on the verification label may not be exceeded during operation.

Example:


BD ED 200

Ⓜ +10°C to +30°C

Preparation


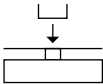

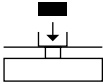

- Switch on the balance/scale: Press 
- Tare the balance/scale, if necessary:
Press 
- If necessary, change the configuration settings:
see the chapter entitled “Configuration”
- If desired, load the factory settings:
see the chapter entitled “Configuration”

Additional Functions

- Switching off the balance/scale:
Press 

* Including the Signatories of the Agreement on the European Economic Area

Example
Simple Weighing

Step	Key (or instruction)	Display/Printout
1. Switch on the balance/scale Self-test is performed, followed by automatic initial tare function.		0.0 g
2. Place container on weighing pan (in this example: 11.5 g).		+ 11.5 g
3. Tare the balance/scale		0.0 g
4. Place sample in container (in this example: 132 g).		+ 132.0 g
5. Print weight.		N + 132.0 g

Calibration and Adjustment

Purpose

Calibration is the determination of any difference between the measured value displayed and the true weight (mass) of a sample. Adjustment is the correction of this difference, or its reduction to an allowable level within maximum permissible error limits.

Using Verified Balances/Scales as Legal Measuring Instruments in the EU*: Before using your balance/scale as a legal measuring instrument, internal calibration must be performed at the place of installation.

Features

Calibration/adjustment can be performed only when:

- there is no load on the balance/scale,
- the balance/scale is tared, and
- the internal signal is stable.
- the weight displayed for the sample on the balance/scale must not differ from the nominal weight by more than 2%.

If these conditions are not met, an error message is displayed ("ERR 02").

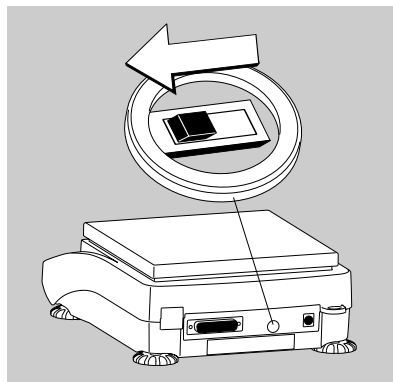
You can use any of the following weight units in calibration/adjustment: *CAL UNIT: GRAMS, KILOGR. or POUNDS* (not for verified models)

External Calibration in Verified Balances/Scales

- When the balance/scale is used in legal metrology, external calibration is blocked as follows:
- The setting of the menu access switch is locked (see "To block calibration/adjustment")
- The cap over the menu access switch is sealed

To block calibration/adjustment:

- Select *CAL.-ADJ.: BLOCKED* in the menu
- Close the menu access switch on the back of the balance/scale



For details on generating an ISO/GLP-compliant printout of calibration/adjustment results, see page 42.

Following calibration/adjustment, the application program is cleared.

Internal Calibration/Adjustment

In the operating menu, select *CAL.-ADJ.: CAL.INT.* before beginning. The built-in motorized calibration weight is applied and removed automatically for internal calibration.

- Select calibration/adjustment:
Press **Cal**
- > The built-in weight is applied automatically
- > The balance/scale is adjusted
- > The built-in calibration weight is removed.

* Including the Signatories of the Agreement on the European Economic Area

Internal Calibration/Adjustment (Only on Models with a Built-in Motorized Calibration Weight)



Standard feature on the following models:

- Models with a readability of 0.1 mg
- ED...-CW models
- GK... models
- GW... models
- Verified models (with the ...CE suffix)

Set the following parameters:



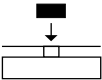
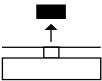
SETUP: BAL.SCAL.: CAL.-ADJ.: CAL.INT. (menu code 1.1.9.4)

The built-in motorized calibration weight is applied and removed automatically for internal calibration.

Step	Key (or instruction)	Display
1. Tare the balance/scale		0.0 g
2. Start calibration		CAL.INT.
The built-in weight is applied automatically		CAL.RUN.
3. Calibration/adjustment executed		CAL.END
4. The built-in weight is removed		0.0 g

External Calibration







Parameters (changes in factory settings):
SETUP: BAL.SCAL.: CAL.-ADJ.: CAL.EXT. (menu code 1.1.9.1)
The required calibration weight is configured at the factory (see "Specifications")

Step	Key (or instruction)	Display
1. Tare the balance/scale		0.0 g
2. Start calibration. Once you store the zero point the required calibration weight is prompted (flashing display)		CAL.EXT. - 5000.0 g
3. Apply the prompted calibration weight (in this example: 5000 g) Weight too light: a minus sign "-" is shown Weight too heavy: a plus sign "+" is shown The display stops flashing as soon as the weight value is within the defined limit.		5000.0 g
4. Calibration/adjustment executed; then the calibration weight is displayed		CAL.END + 5000.0 g
5. Remove the calibration weight		0.0 g

Configuration (Operating Menu)

You can configure the balance/scale; i.e., adapt it to individual requirements.

Functions of the Keys during Configuration


Symbol	Key	Function
V		Scroll through menu items
>		One menu level lower
↵		Confirm menu item
	 (press and hold)	Save settings and exit menu from any position
<<		Save settings and exit menu
<		One menu level higher
[••••]		Indicates menu level

Menu Navigation

Example: Setting the Language

Step	Key (or instruction)	Display
1. Open the menu: In weighing mode: first menu item is shown	(hold)	APPLIC.
2. Scroll upward within the menu level; after the last menu code, the first code is displayed again	Repeatedly: 	INPUT ... LANGUAG.
3. Select menu level (scrolls to the right)		ENGLISH °
5. Change setting: Scroll until the desired setting is shown		ESPAÑOL
6. Confirm the menu code; “o” indicates the active setting		ESPAÑOL °
7. Return to the next higher menu level (from the fourth level) ○ Set other menu items as desired	 ,	LENGUA
8. Save settings and exit menu or ○ Exit menu without saving changes	Repeatedly: 	
> Restart your application		0.0 g

Parameter Settings: Menu

Level 1 [●]	Level 2 [●●]	Level 3 [●●●]	Menu code
SETUP	BAL.SCAL. Balance/scale parameters	AMBIENT Ambient conditions	1. 1. 1.
		APP.FILT. Application filter	1. 1. 2.
		STAB.RNG. Stability range	1. 1. 3.
		TARING Taring ¹⁾	1. 1. 5.
		AUTOZER. Auto zero	1. 1. 6.
		WT.UNIT Basic weight unit	1. 1. 7.
		DISPLAY Display accuracy ¹⁾	1. 1. 8.
		CAL./ADJ. Function of the  key	1. 1. 9.
		CAL.UNIT Weight unit for calibration ¹⁾	1. 1. 11.
	INTERF. Interface	BAUD Baud rate	1. 5. 1.
		PARITY Parity	1. 5. 2.
		STOPBIT Number of stop bits	1. 5. 3.
		HANDSHK Handshake mode	1. 5. 4.
		DATABIT Number of data bits	1. 5. 5.
	PRINT.OUT Settings for print function	DAT.REC. Output: SBI (ASCII) or printout	1. 5. 6.
		PRINT (manual/automatic)	1. 6. 1.
		STOPAUT. Stop automatic printing	1. 6. 2.
		AUT.CYCL. Time-dependent autom. printing	1. 6. 3.
		TAR./PART. Tare bal./scale after ind. print	1. 6. 4.
		PRT.INIT. Printout of appl. parameters	1. 6. 5.
		FORMAT Line format for printout	1. 6. 6.
		GLP ISO/GLP-compliant printout	1. 6. 7.
		TIME: 12/24 h	1. 6. 8.
	EXTRAS Additional functions	DATE: Format	1. 6. 9.
		MENU	1. 8. 1.
		SIGNAL Acoustic signal (beep)	1. 8. 2.
		KEYS Keypad	1. 8. 3.
		EXT.KEY External switch function	1. 8. 4.
	RESET	ONMODE Power-on mode	1. 8. 5.
		BACKLIT Display backlighting	1. 8. 6.
		MENU Factory settings	1. 9. 1.
APPLIC. Application programs	WEIGH		2. 1.
	UNIT Toggle wt. unit	DISP.DIG. Display accuracy ¹⁾	2. 2. 2.
	COUNT. Counting	RESOLUT. Resolution	2. 3. 1.
		REF.UPDT. Autom. ref. sample updating	2. 3. 2.
	PERCENT Weighing in percent	DEC.PLCS Decimal places	2. 4. 1.
	NET-TOT Net-total formulation	COMP.PRT. Printout of components	2. 5. 1.
	TOTAL Totalizing	COMP.PRT. Printout of components	2. 6. 1.
	ANIMALW. Animal weighing	ACTIVITY. Animal activity	2. 7. 1.
		START	2. 7. 2.
	CALE. Calculation	METHOD (operator)	2. 8. 1.
INPUT Input	DENSITY Density determination	DEC.PLCS Decimal places	2. 8. 2.
		DEC.PLCS Decimal places	2. 9. 1.
	IDNO.	ID input; max. 7 characters	3. 1.
	INFO Information	Display software ver., serial no., model	4. 1./2./3.
LANGUAG.	ENGLISH (factory setting)		5. 1.
	DEUTSCH German		5. 2.
	FRANC. French		5. 3.
	ITAL. Italian		5. 4.
	ESPAÑOL Spanish		5. 5.
	CODES Menu shows codes (not texts)		5. 6.

¹⁾ Setting cannot be changed on verified balances/scales


Parameter Settings: Overview

o = Factory setting √ = User-defined setting

Level 1 [•]	Level 2 [••]	Level 3 [•••]	Level 4 [••••]	Menu code
SETUP	BAL.SCAL.	AMBIENT	V.STABLE Very stable	1. 1. 1. 1
	Balance/scale parameters	Ambient conditions (Filter adaptation)	o STABLE	1. 1. 1. 2
			UNSTABL	1. 1. 1. 3
			V.UNSTBL. Very unstable	1. 1. 1. 4
		APP.FILT.	o FINAL.RD. Final readout mode	1. 1. 2. 1
		Application filter	FILLING Filling mode	1. 1. 2. 2
		STAB.RNG.	1/4 DIG. (digit)	1. 1. 3. 1
		Stability range	1/2 DIG.	1. 1. 3. 2
			1 - DIGIT	1. 1. 3. 3
			o 2 - DIGIT	1. 1. 3. 4
			4 - DIGIT	1. 1. 3. 5
			8 - DIGIT ¹⁾	1. 1. 3. 6
		TARING ¹⁾	W/O STAB W/o stability)	1. 1. 5. 1
		Taring	o W/ STAB After stability)	1. 1. 5. 2
		AUTOZER.	OFF	1. 1. 6. 1
		Auto zero	o ON	1. 1. 6. 2
		WT.UNIT	For list of units, see	1. 1. 7. 1
		Basic weight through unit	"Toggling between Weight Units"	1. 1. 7. 23
		DISP.DIG. ¹⁾	o ALL	1. 1. 8. 1
		Display accuracy	MINUS 1	1. 1. 8. 2
			DIVIS. 1 1 interval	1. 1. 8. 6
		CAL./ADJ.	o CAL.EXT. External cal./adj. ¹⁾	1. 1. 9. 1
		Function of the	CAL.INT. Internal cal./adj. ²⁾	1. 1. 9. 2
		Cal key	BLOCKED Cal key blocked	1. 1. 3. 3
		CAL.UNIT. Unit ¹⁾	o GRAMS	1. 1.11. 1
		for calibration	KILOGR. Kilograms	1. 1.11. 2
		weight	POUNDS	1. 1.11. 3







¹⁾ Setting cannot be changed on verified balances/scales

²⁾ Only on models with built-in motorized calibration weight

Level 1 [•]	Level 2 [••]	Level 3 [•••]	Level 4 [••••]	Menu code
SETUP	INTERF. Interface	B ^{AUD} rate	600 o 1200 2400 4800 9600 19200	1. 5. 1. 3 1. 5. 1. 4 1. 5. 1. 5 1. 5. 1. 6 1. 5. 1. 7 1. 5. 1. 8
		P ^{ARITY} Parity	o 000 EVEN NONE	1. 5. 2. 3 1. 5. 2. 4 1. 5. 2. 5
		S ^{TOPBIT} No. of stop bits	o 1 BIT 2 BITS	1. 5. 3. 1 1. 5. 3. 2
		H ^{ANDSHK.} Handshake mode	o S ^{FTWARE} H ^{ARDWARE} NONE	1. 5. 4. 1 1. 5. 4. 2 1. 5. 4. 3
		D ^{ATABIT} No. of data bits	o 7 BITS 8 BITS	1. 5. 5. 1 1. 5. 5. 2
		D ^{AT.REC.} Com- munication mode	o S ^{BI} (ASCII) ¹⁾ o P ^{RINTER} (GLP-printout)	1. 5. 6. 1 1. 5. 6. 2
	P ^{RINT. OUT} Printing fct.	P ^{RINT} (manual/ automatic)	o M ^{AN. W/O} W/o stability M ^{AN. WITH} W/ stability o A ^{UT. W/O} Autom. w/o stability A ^{UT. WITH.} Autom. w/ stability	1. 6. 1. 1 1. 6. 1. 2 1. 6. 1. 3 1. 6. 1. 4
		S ^{TOPAUT.} Stop automatic printing	o O ^{FF} Not possible O ^N Use print key 	1. 6. 2. 1 1. 6. 2. 2
		A ^{UT. CYCL.} Time-dependent autom. printing	o E ^{ACH/AL} (1 display update) A ^{FTER 2} (2 display updates)	1. 6. 3. 1 1. 6. 3. 2
		T ^{AR./PRT.} Tare the bal./scale after individual printout	o O ^{FF} O ^N	1. 6. 4. 1 1. 6. 4. 2

¹⁾ Note concerning verified balances/scales as legal measuring instruments in the EU*:
 In the setting "SBI", the non-verified display digit is not automatically identified.
 Please take the corresponding measures or adjust the settings on the peripheral device.

* Including the signatories of the Agreement on the European Economic Area.

Level 1 [•]	Level 2 [••]	Level 3 [•••]	Level 4 [••••]	Menu code
SETUP	PRNT.OUT Printing fct.	PRT.INIT.	OFF	1. 6. 5. 1
		Printing application parameters	o ALL All parameters	1. 6. 5. 2
			MAINPAR. Main parameters	1. 6. 5. 2
		FORMAT Line	16 CHAR. 16 characters (w/o ID)	1. 6. 6. 1
		format for printout	o 22 CHAR. 22 characters (w/ ID)	1. 6. 6. 2
		GLP Printout as ISO/GLP-compliant	o OFF	1. 6. 7. 1
			CAL.-ADJ. Only for calib./adj.	1. 6. 7. 2
			ALWAYS All printouts	1. 6. 7. 3
		TIME	24H 24-hour format	1. 6. 8. 1
			12H 12-hour format "AM/PM"	1. 6. 8. 2
		DATE	DD.MM.YY Day/month/year	1. 6. 9. 1
			MM.DD.YY Month/day/year	1. 6. 9. 2
	EXTRAS Additional functions	MENU	o CANEDIT Can change settings	1. 8. 1. 1
			RD.ONLY Read only	1. 8. 1. 2
		SIGNAL	OFF	1. 8. 2. 1
		Acoustic signal	o ON	1. 8. 2. 2
		KEYS	o FREE	1. 8. 3. 1
		Keypad	LOCKED	1. 8. 3. 2
		EXT.KEY Function of the external switch	o PRINT 	1. 8. 4. 1
			Z/TARE 	1. 8. 4. 2
			CAL. 	1. 8. 4. 3
			SELECT 	1. 8. 4. 4
			CF 	1. 8. 4. 5
			ENTER 	1. 8. 4. 6
		ON MODE Power-on mode	o OFF / ON Off/on/standby	1. 8. 5. 1
			STANDBY On/standby	1. 8. 5. 2
			AUTO ON Auto on	1. 8. 5. 3
		BACKLIT Display backlighting	OFF	1. 8. 6. 1
			o ON	1. 8. 6. 2
RESET	Reset menu	MENU Factory settings	YES Restore fcty. settings	1. 9. 1. 1
			o NO Do not restore settings	1. 9. 1. 2

Level 1 [•]	Level 2 [••]	Level 3 [•••]	Level 4 [••••]	Menu code
APPLIC. Applic. programs	WEIGH			2. 1.
	UNIT	DISP.DIG. ¹⁾	o ALL	2. 2. 2. 1
	Toggle units	Display accuracy	MINUS 1	2. 2. 2. 2
			DIVIS. 1 1 interval	2. 2. 2. 6
	COUNTING	RESOLUT.	o DISP.ACC. Display accuracy	2. 3. 1. 1
		Resolution	10-FOLD 10 times > disp.	2. 3. 1. 2
		REF.UPDT.	o OFF	2. 3. 2. 1
		Autom. reference updating	AUTO	2. 3. 2. 2
	PERCENT ²⁾	DEC.PLCS	NONE No dec. places	2. 4. 1. 1
	Weighing in percent	Decimal places	1 DEC.PL. 1 decimal place	2. 4. 1. 2
			2 DEC.PL. 2 decimal places	2. 4. 1. 3
			3 DEC.PL. 3 decimal places	2. 4. 1. 4
	NET-TOT	COMP.PRT.	OFF	2. 5. 1. 1
	Net-total	Component printout	o ON	2. 5. 1. 2
	TOTAL ²⁾	COMP.PRT.	OFF	2. 6. 1. 1
	Totalizing	Component printout	o ON	2. 6. 1. 2
	ANIMALW. ²⁾	ACTIVITY.	CALM Fluct.: 2% of test obj.)	2. 7. 1. 1
	Animal weighing	Animal activity	o ACTIVE (fluct.: 5% of test obj.)	2. 7. 1. 2
			o INACTIVE (fluct.: 20% of test obj.)	2. 7. 1. 3
		START	MANUAL	2. 7. 2. 1
			o AUTO. Automatic	2. 7. 2. 2
	CALC. ²⁾	METHOD	o MUL. Multiplier	2. 8. 1. 1
	Calculation	(operator)	DIV. Divisor	2. 8. 1. 2
		DEC.PLCS	NONE No dec. places	2. 8. 2. 1
	Decimal places		1 DEC.PL. 1 decimal place	2. 8. 2. 2
			2 DEC.PL. 2 decimal places	2. 8. 2. 3
			3 DEC.PL. 3 decimal places	2. 8. 2. 4
	DENSITY ²⁾	DEC.PLCS	NONE No dec. places	2. 9. 1. 1
	Density determination	Decimal places	1 DEC.PL. 1 decimal place	2. 9. 1. 2


¹⁾ Setting cannot be changed on verified balances/scales

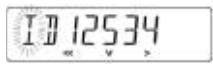


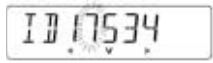


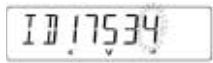


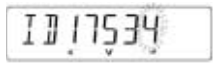


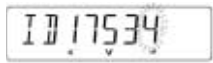

²⁾ not on ED...-PCE models

ID Number for ISO/GLP-compliant Data Record



Level 1 [•]	Level 2 [••]	Level 3 [•••]	Menu code
INPUT	ID NO.	ID input; max. 7 characters Permitted characters: 0 to 9; A to Z; dash/hyphen; space	3. 1.

Function of the Keys when Entering ID Numbers

 key: Press and hold to repeat

Display	Key	Display symbol	Function
	First position:		
		>	Go to next position
		V	Select current position
	Middle positions:		
		<<	Exit without saving changes
		V	Select current position
	Last position:		
		>	Go to next position
		<	Go to previous position
	Last position:		
		V	Select current position
		<	Go to previous position
	Last position:		
		↵	Store and exit

Device Information

Level 1 [•]	Level 2 [••]	Level 3 [•••]	Example	Menu code
INFO Information	VERSION	Show software version	REL.32.02	4. 1.
	SER. NO.	Show serial number (To toggle focus between upper and lower display sections, press )	1080 1234	4. 2.
	MODEL	Show model designation (to change focus from upper to middle to lower display section and back, press )	E162025	4. 3.

Display of Menu Items: Text or Codes

LANGUAG.	ENGLISH (factory setting)	5. 1.
	DEUTSCH German	5. 2.
	FRANC. French	5. 3.
	ITAL. Italian	5. 4.
	ESPAÑOL Spanish	5. 5.
	CODES Menu shows codes (not texts)	5. 6.

Application Programs

Using Verified Balances/Scales as Legal Measuring Instruments in the EU*:


All application programs can be selected on balances/scales used as legal measuring instruments.

Calculated values are alternately indicated with the following symbols:

- Percent = %
- Piece count (Counting) = pcs
- Computed value = o,△

* Including the Signatories of the Agreement on the European Economic Area

Counting

Display symbol: 

Purpose


With the Counting program you can determine the number of parts that each have approximately equal weight. To do this, a known number of parts (the reference sample quantity) is weighed first, and the individual piece weight (reference weight) is calculated from this result. Thus the number of parts subsequently placed on the balance/scale can be determined from their weight.

Changing the Reference Sample Quantity


Activate function:

Press the  key

Select the desired reference sample quantity (1 to 100):

In increments of 1: Press the  key briefly

In increments of 10:

Press and hold the  key.

The quantity is stored in battery-backed memory.

Reference Sample Updating

Automatic reference sample updating optimizes the counting accuracy. You can activate or deactivate this function in the menu.

Automatic reference sample updating is performed when the requirements, including the specified stability criterion, have been met.




The abbreviation *OPT*, for “optimizing”, is displayed briefly with the new reference sample quantity.

Preparation

- Select the Counting application in the menu:
see “Configuration.”
- Set the following parameters:

APPLIC. Application program

COUNT.

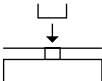

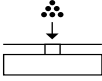




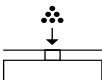


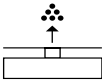

	<i>RESOLUT.</i> Resolution	
		<i>DISP. ACC.</i> Display accuracy <i>10-FOLD</i> 10-fold higher
	<i>REF. UPDT.</i> Autom. ref. sample updating	
		<i>OFF</i> Display accuracy <i>AUTOM.</i> Automatic

o = Factory setting

Printout: Counting

<i>nRef</i>	+	10	:	Reference sample quantity
<i>wRef</i>	+	21.14 g	:	Reference weight
<i>Qnt</i>	+	500 pcs	:	Calculated quantity

Example: Counting parts of equal weight
 Parameter settings: *APPLIC.: COUNT.* (menu code 2. 3.)

Step	Key (or instruction)	Display/Data output
1. Place empty container on the balance/scale		+ 22.6 g
2. Tare the balance/scale		0.0 g
3. Add reference sample quantity to container (in this example: 20 pcs)		
4. Changing the reference sample quantity:		REF 10 pcs
5. Select reference sample quantity: In increments of 1 (1, 2, 3, etc. to 100) In increments of 10 (10, 20, etc. to 100)	Repeatedly:  Press briefly  press and hold	REF 20 pcs
6. Confirm selected reference sample quantity and start application The current reference weight remains stored until a new reference is set or the power supply is interrupted		+ 20 pcs * nRef 20 pcs wRef 1.07 g
7. Add desired number of pieces		+ 500 pcs
8. If desired, print quantity		Qnt + 500 pcs
9. Toggle display between mean piece weight, weight, quantity	Repeatedly: 	1.07 g Δ* + 535.0 g * + 500 pcs *
10. Unload the balance/scale		- 2 pcs *
11. Repeat as needed, starting from Step 7		
12. Delete reference value		0.0 g

Weighing in Percent


Display symbol: %

Purpose


This application program allows you to obtain weight readouts in percent which are in proportion to a reference weight.


Changing the Reference Percentage

Activate function:

Press the  key

Select the desired reference (1 to 100):

In increments of 1: Press the  key briefly

In increments of 10: Press and hold the  key.

The percentage is stored in battery-backed memory.

Preparation

- Select the Weighing in percent application in the menu: see "Configuration."

- Set the following parameters:

APPLIC. Application program

└ *PERCENT* Weighing in percent¹⁾

└ *DEC.PLCS.* Decimal places

- └ *NONE* No decimal places
- └ *o 1 DEC.PL.* 1 decimal place
- └ *2 DEC.PL.* 2 decimal places
- └ *3 DEC.PL.* 3 decimal places



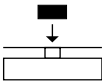

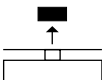
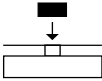




o = Factory setting

¹⁾ not on ED...-PCE models

Printout: Weighing in percent

pRef	100	: Reference percentage
Wxx%	111.6 g	: Reference weight net xx% for selected reference percentage
Prc	+ 94.9 %	: Calculated reference percentage

Example: Determining residual weight in percentParameter settings: *APPLIC.: PERCENT* (menu code 2. 4.)Reference percentage: *REF 100%*

Step	Key (or instruction)	Display/Data output
1. Tare the balance/scale		0.0 g
2. Information: Enter reference percentage (Changing the reference: see the previous page)		REF 100 %
3. Place sample equal to 100% on the balance/scale (in this example: 111.6 g)		
4. Initialize the balance/scale The current reference weight remains stored until a new reference is set or the power supply is interrupted		+ 100.0 % * pRef 100 % Wxx% 111.6 g
5. Remove sample (e.g., for drying)		
6. Place unknown weight on balance/scale (in this example: 322.5 g)		+ 94.9 % *
7. If desired, print percentage		Prc + 94.9 %
8. Toggle display between weight and percentage	Repeatedly: 	+ 105.9 g * + 94.9 % *
9. Clear display of residual weight and reference percentage		+ 105.9 g
10. If desired, print net residual weight		N + 105.9 g

Calculation


Display symbol: C

Purpose


With this application program you can calculate weight value using a multiplier or divisor. This can be used, for example, to determine the weight per unit area, or “gsm” weight (grams per square meter), of paper.

Setting the Factor or Divisor


Activate function:

Press the  key

Select a number of up to 7 digits and, if needed, one decimal point (0.000001 to 9999999):

In increments of 1: Press the  key briefly

To increase the value without pressing repeatedly:

Press and hold the  key.

The selected operator is stored in battery-backed memory.

Preparation

- Select the Calculation application in the menu:
see “Configuration.”

- Set the following parameters:

APPLIC. Application program

└ *CALC.* Calculation¹⁾

└ *METHOD* Operator

└ o *MUL.* Multiplier
 DIV. Divisor

DEC.PLCS. Decimal places

└ *NONE* No decimal places
└ o *1 DEC.PL.* 1 decimal place
 2 DEC.PL. 2 decimal places
 3 DEC.PL. 3 decimal places

o = Factory setting

¹⁾ not on ED...-PCE models

Printout: Calculation









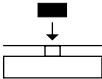


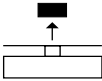
MuL	+	1.2634	:	Multiplier
Div	+	0.6237	:	Divisor
Res	+	79.7	o	: Result

Example:


Calculating the weight per unit area of paper: An A4 sheet of paper is used in this example, with surface dimensions of $0.210\text{ m} \times 0.297\text{ m} = 0.06237\text{ m}^2$. To determine the weight per unit area, the total weight is divided by the surface.

Parameter settings:

APPLIC.: CALC.: METHOD: DIV. (menu code 2. 8. 1. 2)

Step	Key (or instruction)	Display/Data output
1. Tare the balance/scale		0.00 g
2. Activate divisor input		-----0.
3. Set the divisor (in this example:0.06237): Position the decimal point, Enter numerals	 , 5x  , 2x  , Repeatedly or press and hold;  ,  , etc.	--.00000 --.06000 --.06237
4. Store the divisor and initialize the balance/scale The current divisor remains stored in battery-backed memory until the setting is changed		+ 0.0 ° Div 0.6237
5. Weight per unit area: Place an A4 sheet of paper on the balance/scale		+ 79.7 ° *
6. If desired, print result		Res + 79.7 °
7. Toggle display between weight and calculated value	Repeatedly: 	+ 4.97 g * + 79.7 ° *
8. Unload the balance/scale		+ 0.0 ° *
9. Repeat as needed, starting from Step 5		

Animal Weighing/Averaging


Display symbol: 

Purpose


Use this program to determine the weights of unstable samples (e.g., live animals) or to determine weights under unstable ambient conditions. With this program, the balance/scale calculates the weight as the average of a defined number of individual weighing operations (also referred to as “subweighing operations”).


Changing the Number of Subweighing Operations

Activate function:

Press the  key

Select the desired number of measurement (1 to 100):

In increments of 1: Press the  key briefly

In increments of 10: Press and hold the  key.

The selected number of measurements is stored in battery-backed memory.

Preparation

- Select the Animal weighing application in the menu:
see “Configuration.”

- Set the following parameters:

APPLIC. Application program

└─ ANIMALW. Animal weighing¹⁾

└─ ACTIVITY. Animal activity

└─ CALM Stable readout

└─ o ACTIVE Unstable

└─ V.ACTIVE Very unstable readout

└─ START

└─ MANUAL

└─ o AUTOM. Automatic

o = Factory setting

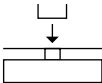





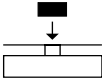
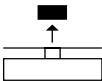
¹⁾ not on ED...-PCE models

Printout: Animal weighing


mDef	20	: Number of sub-weighing operations
x-Net +	410.1 g	: Calculated average

Example: Determining animal weight with automatic start and 20 subweighing operations (measurements)

Parameter settings: *APPLIC.: ANIMALW.* (menu code 2. 7.)

Step	Key (or instruction)	Display/Data output
1. Place animal weighing bowl on the balance/scale		22.6 g
2. Tare the balance/scale		0.0 g
3. Change the number of subweighing operations:		REF 30
4. Set number of measurements: In increments of 1 (1, 2, 3, etc. to 100) In increments of 10 (10, 20, etc. to 100)	Repeatedly: Press briefly   press and hold	REF 20
5. Confirm number of measurements and start automatic animal weighing The number of measurements remains stored in battery-backed memory until the setting is changed		+ 0.0 g *
6. Place first animal in bowl. The balance/scale delays the start of measurements until the difference between 2 measurements meets the criterion		888 20 19 1
7. Read off the result The result is displayed with the “*” symbol (= calculated value) and remains displayed until the sample (animal) is removed from the load plate (bowl)		+ 410.1 g Δ* mDef 20 x-Net + 410.1 g
8. Unload the balance/scale		+ 0.0 g *
9. Weigh next animal (if des.)		
Next weighing series begins automatically		



Net-total Formulation

Display symbol: 

Purpose

With this application program you can weigh in different components up to a defined total. You can print out both the total weight and the individual weights of the components.

Features

- Weigh up to 99 components from “0” to a defined total component weight.
- Store component weights (“Store xx comp.”), with
 - display zeroed automatically after value is stored, and
 - automatic printout
- Clear component memory following cancellation of the weighing sequence (by pressing ) and printout of the total weight.
- Toggling between component weight and total weight by pressing and holding  (< 2 sec).
- Printout of the total of the individual component weights (**T-Comp**)

Preparation

- Select the Net-total application in the menu:
see “Configuration.”

- Set the following parameters:

```

APPLIC. Application program
├── NET-TOTL. Net-total formulation1)
│   ├── COMP.PRT. Printout of components
│   │   ├── OFF
│   │   └── 0 ON
  
```

0 = Factory setting

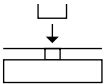

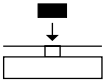

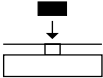



¹⁾ Factory setting on ED...-PCE models

Printout: Net-total formulation


Comp 2+ 278.1 g	: Second component
T-Comp+ 2117.5 g	: Sum of components

Example: Counting parts into a container

Parameter settings:
APPLIC.: NET-TOT (menu code 2. 5.)

Step	Key (or instruction)	Display/Data output
1. Place empty container on the balance/scale.		65.0 g
2. Tare the balance/scale		0.0 g
3. Add first component		+ 120.5 g
4. Store component data		+ 0.0 g * NET Comp 1+ 120.5 g
5. Add next component		+ 70.5 g * NET
6. Store component data		+ 0.0 g * NET Comp 2+ 70.5 g
7. Weigh in further components as desired	Repeat steps 5 and 6	
8. Fill to desired final value view the current total weight value:		+ 191.0 g *
9. Print total weight and clear the component memory		+ 2117.5 g T-Comp+ 2117.5 g



Totalizing

Display symbol: 

Purpose

With this application program you can add values from successive, mutually independent weight values to a total that exceeds the capacity of the balance/scale.

Features

- Totalizing memory for up to 99 values
- Store component weights ("Store xx comp."), with automatic printout
- Toggle display between the current individual weight value and the value in totalizing memory by pressing 
- Printout of the total of the individual component weights (**S-Comp**)
- To close the application program and print the total weight: press 

Preparation

- Select the Totalizing application in the menu:
see "Configuration."
- Set the following parameters:

APPLIC. Application program

└ TOTAL Totalizing¹⁾

└└ COMP.PRT. Printout of components

└└└ OFF
└└└ 0 ON

0 = Factory setting


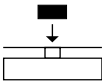

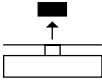
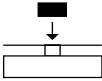



¹⁾ not on ED...-PCE models

Printout: Totalizing

Comp 2+	278.1 g	: Second component
S-Comp+	2117.5 g	: Totalizing memory

Example: Totalizing weight values

Parameter settings:
APPLIC.: TOTAL: COMP.PRT: ON (menu code 2. 6. 1. 2)

Step	Key (or instruction)	Display/Data output
1. Tare the balance/scale		0.0 g
2. Place sample balance/scale (in this example: 380 g)		+ 380.0 g
3. Store value in memory		+ 380.0 g * Comp 1+ 380.0 g
4. Remove sample		+ 0.0 g *
5. Place the next sample on the balance/scale (in this example, 575 g)		+ 575.0 g *
6. Store value in memory		+ 955.0 g * + 575.0 g * Comp 2+ 575.0 g
7. View the value in totalizing memory		+ 955.0 g Δ*
8. Weigh in further components as desired	Repeat steps 5 and 6	
9. Print total weight and clear the totalizing memory		0.0 g S-Comp+ 2117.5 g

Mass Unit Conversion

Purpose









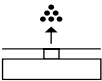

With this application program you can change the weight value displayed from the basic weight unit to any of 4 application weight units (see table on next page).

Features

- Set the basic unit and display accuracy in the Setup menu: see “Configuration.”
- Set the application weight units and display accuracies in the Application menu.
- These settings are stored in battery-backed memory.
- The basic unit is active when the balance/scale is powered up.

Example: Change display from the basic unit (in this example, grams [g]) to pounds [lb] and then to Troy ounces [ozt].

Set the following parameters: *APPLIC.: UNIT* (code 2. 2.)


Step	Key (or instruction)	Display/Data output
Preparation:		
1. Begin selection of an application weight unit		NONE ° [.]]
2. Select an application unit; in this example, pounds (see table on next page)	Repeatedly: 	POUNDS
3. Confirm the weight unit (pounds)		POUNDS °
4. Select the next application weight unit; in this example: Troy ounces (see table on next page)	 , Repeatedly: 	NONE ° [..] TROY OZ.
5. Confirm weight unit (Troy ounces)		TROY OZ. °
6. Select other application units if desired (max. 4 total) (otherwise, confirm NONE by pressing )		[...]
7. Store selection		0.00 g
Conversion:		
8. Place sample on balance/scale		+ 100.00 g
9. Toggle unit for weight value	Repeatedly: 	+ 0.22046 lb + 3.5275 ozt

The following weight units are available in your Extend balance/scale (in legal metrology, only units permitted by national law are available):


Menu item	Unit	Conversion factor	Display symbol
1) USERDEF. ¹⁾	Grams	1,000000000000	o
2) GRAMS (Factory setting)	Grams	1.000000000000	g
3) KILOGR.	Kilograms	0.001000000000	kg
4) CARATS	Carats	5.000000000000	o
5) POUNDS	Pounds	0.00220462260	lb
6) OUNCES	Ounces	0.03527396200	oz
7) TROY OZ.	Troy ounces	0.03215074700	ozt
8) HKTAEI	Hong Kong tael	0.02671725000	tl
9) SING.TAEI	Singapore tael	0.02645544638	tl
10) TWN.TAEI	Taiwanese tael	0.02666666000	tl
11) GRAINS	Grains	15.4323583500	GN
12) PENNY.WT.	Pennyweights	0.64301493100	dwt
13) MILLIGR.	Milligrams	1000.000000000	mg
14) PT.P.LB.	Parts per pound	1.12876677120	o
15) CHN.TAEI	Chinese tael	0.02645547175	tl
16) MOMMES	mommies	0.266700000000	m
17) AUSTRICT.	Austrian carats	5.000000000000	Kt
18) TOLA	Tola	0.08573333810	o
19) BAHT	Baht	0.06578947436	b
20) MESGHAL	Mesghal	0.217000000000	o
21) TONS	Tons	0.000001000000	t
22) LB / OZ ²⁾	Pounds : ounces	0.03527396200	lb oz
23) NEWTON	Newton	0.00980665000	N

¹⁾ = User-defined weight unit; can be loaded in the balance/scale over an optional RS-232 or USB interface using a computer program.

²⁾ = The format for display of pounds/ounces cannot be changed: xx.yy.yy x=lb, y=oz

 Some weight units may be blocked from use in legal metrology, depending on national verification laws.

Density Determination

Display symbol: 

Purpose




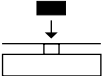

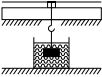



This application program lets you determine the density of solid substances using the buoyancy method. You can have results displayed with one decimal place, or no decimal places: see “Configuration.”

Note: the sample holder and suspension wire used in the example below are not included with the balance/scale.

Parameter settings:

APPLIC.: DENSITY; DEC.PLCS: 1 DEC.PL. (menu code 2. 9. 1. 2)

Example: Determining the density of a solid sample.

Step	Key (or instruction)	Display/Data output
1. Attach sample holder to suspension wire		
2. Tare the balance/scale		0.0 g
3. Start application program		
4. Confirm “AIR” display		AIR ?
5. Determine the weight of the sample in air: Place sample on the balance/scale		+ 20.0 g *
6. Store value for weight in air		
7. Remove sample from the balance/scale		WATER ?
8. Determine weight in liquid: place sample in holder		
9. Confirm “WATER” display		0.0 g *
10. Immerse sample in liquid		+ 15.0 g *
11. Store value for weight in liquid, view result, and print		+ 4.0 ^o *
		Wa + 20.0 g
		WfL + 15.0 g
		Rho 4.0 o
12. Delete result		
13. Repeat as desired, starting from Step 3.		

ISO/GLP-compliant Printout/Record

Features

You can have device information, ID texts and date and time printed before (GLP header) and after (GLP footer) the values of a weighing series. These parameters include:

GLP header:

- Date
- Time at beginning of measurement
- Balance/scale manufacturer
- Balance/scale model
- Balance/scale serial number
- Software version number
- Identification number of the current sampling operation

GLP footer:

- Date
- Time at end of measurement
- Field for operator signature

△ Operating the Balance/Scale with a Verifiable ISO/GLP Printer:

- Connect a Sartorius data printer designed for ISO/GLP documentation (e.g., the YDP03-OCE printer) to the balance/scale.

Configuration

- Setting menu codes for the printout (see "Configuration"):
- ISO/GLP-compliant printout or record only for calibration/adjustment:
`SETUP: PRNT.OUT: GLP: CAL.-ADJ.`
(menu code 1. 6. 7. 2) or
ISO/GLP-compliant printout or record always on: `SETUP: PRNT.OUT: GLP: ALWAYS ON` (code 1. 6. 7. 3)
- Line format for printout: include data ID codes (22 characters; factory setting):
`SETUP: PRNT.OUT: FORMAT: 22 CHAR.`

(menu code 1. 6. 6. 2)

- Formats for time:

`SETUP: PRNT.OUT: TIME: 24 H`

(menu code 1. 6. 8. 1) or

`SETUP: PRNT.OUT: TIME: 12 H`

(menu code 1. 6. 8. 2)

- Formats for date:

`SETUP: PRNT.OUT: DATE: DD.MM.YY`

(menu code 1. 6. 9. 1) or

`SETUP: PRNT.OUT: DATE: MMM.DD.YY`

(menu code 1. 6. 9. 2)

- △ No ISO/GLP-compliant record is output if any of the following settings are configured:


`SETUP: PRNT.OUT PRINT: AUT.W/O` or

`AUT.WITH` (menu code 1. 6. 1. 3, 1. 6. 1.


4,) or `FORMAT: 16 CHAR.` (menu code

1. 6. 6. 1)

Function Keys

Transfer header and first measured value: press 

- > The header is included with the first printout/data record.


To output header and reference data automatically when an application program is active: press 

Exit the application:

- 1) To send the GLP footer:

press 

- 2) Quit application program:

press  again

The ISO/GLP-compliant printout can contain the following lines:

-----	Dotted line
17-Aug-2005 10:15	Date/time (beginning of measurement)
SARTORIUS	Balance/scale manufacturer
Mod. ED8201	Model
Ser. no. 10105355	Balance/scale serial number
Ver. no. 00-32-02	Software version
ID 2690 923	ID.
-----	Dotted line
L ID	Measurement series no.
nRef 10 pcs	Counting: reference sample quantity
wRef 21.14 g	Counting: reference weight
Qnt + 567 pcs	Counting result
-----	Dotted line
17-Aug-2005 10:20	Date/time (end of measurement)
Name :	Field for operator signature
	Blank line
-----	Dotted line

ISO/GLP-compliant printout for external calibration/adjustment:

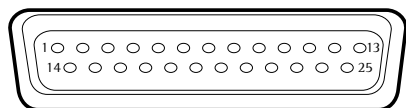
-----	Dotted line
17-Aug-2005 10:30	Date/time (beginning of measurement)
SARTORIUS	Balance/scale manufacturer
Mod. ED8201	Model
Ser. no. 10105352	Balance/scale serial number
Ver. no. 00-32-02	Software version
ID 2690 923	ID.
-----	Dotted line
Cal. Ext. Test	Calibration/adjustment mode
Set + 5000.0 g	Calibration weight
Diff. + 0.2 g	Difference determined in calibration
Cal. Ext. Complete	Confirmation of completed calibration procedure
Diff. 0.0 g	Difference from target following adjustment
-----	Dotted line
17-Aug-2005 10:32	Date/time (end of measurement)
Name :	Field for operator signature
	Blank line
-----	Dotted line

Data Interface

Purpose

Your balance/scale comes equipped with an interface port for connection to a computer or other peripheral device. You can use an on-line computer to change, start and/or monitor the functions of the balance/scale and the application programs.

Female interface connector



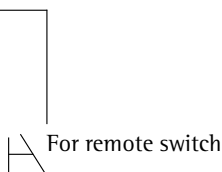
Pin Assignment Chart, 25-pin female interface connector, RS-232:

- Pin 1: Shield
- Pin 2: Data output (TxD)
- Pin 3: Data input (RxD)
- Pin 4: Internal ground (GND)
- Pin 5: Clear to Send (CTS)
- Pin 6: Not connected
- Pin 7: Internal ground (GND)
- Pin 8: Internal ground (GND)
- Pin 9: Not connected
- Pin 10: Not connected
- Pin 11: +12 V
(operating voltage for Sartorius printer)
- Pin 12: Reset _ Out *)
- Pin 13: +5 V output
- Pin 14: Internal ground (GND)
- Pin 15: Universal remote switch
- Pin 16: Not connected
- Pin 17: Not connected
- Pin 18: Not connected
- Pin 19: Not connected
- Pin 20: Data Terminal Ready (DTR)
- Pin 21: Not connected
- Pin 22: Not connected
- Pin 23: Not connected
- Pin 24: Not connected
- Pin 25: +5 V output

Preparation

You can set these parameters for other devices in the Setup menu (see the chapter entitled “Configuring the Balance/Scale”). You will also find a detailed description of the available data interface commands in the file “Data Interface Descriptions for ED, GK and GW Models”, which you can download from the Sartorius website (www.sartorius.com “Download Center”).





The many and versatile properties of these balances/scales can be fully utilized for printing out records of the results when you connect your balance/scale to a Sartorius data printer. The recording capability for printouts makes it easy for you to work in compliance with ISO/GLP.



*) = Hardware restart

Troubleshooting Guide

Error codes are shown on the main display for approx. 2 seconds. The program then returns automatically to the previous mode.

Display	Cause	Solution
No segments appear on the display	No AC power is available The power supply is not plugged in	Check the AC power supply Plug in the power supply
HIGH	The load exceeds the balance/scale capacity	Unload the balance/scale
LOW or ERR 54	Something is touching the weighing pan	Move the object that is touching the weighing pan
APP.ERR.	Cannot store data: Load on weighing pan too light or no sample on pan while application is active	Increase load
DIS.ERR.	Data output not compatible with output format	Change the configuration in the operating menu
PRT.ERR.	Interface port for printer output is blocked	Reset the menu factory settings, or Contact your local Sartorius Service Center
ERR 02	Calibration parameter not met; e.g.: – balance/scale not tared – load on weighing pan	Calibrate only when zero is displayed – Press  to tare the balance/scale – Unload the balance/scale
ERR 10	The  key is blocked when there is data in the second tare memory (net-total); only 1 tare function can be used at a time	Press  to clear the tare memory and release the tare key
ERR 11	Tare memory not allowed	Press 
The weight readout changes constantly	Unstable ambient conditions (excessive vibration or draft) at the place of installation A foreign object is caught between weighing pan and balance/scale housing	Set up the balance/scale in another area Remove the foreign object
The weight readout is obviously wrong	The balance/scale was not calibrated/adjusted Balance/scale not tared before weighing	Calibrate/adjust the balance/scale Tare or zero the balance/scale before weighing

If any other errors occur, contact your local Sartorius Service Center.

Contact information: Please point your Internet browser to: <http://www.sartorius.com>

Care and Maintenance

Service

On request, Sartorius can offer you an individual service contract.

Repairs

Repair work must be performed by trained service technicians. Any attempt by untrained persons to perform repairs may result in considerable hazards for the user.

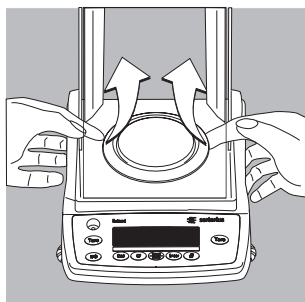
Cleaning

- Unplug the AC adapter from the wall outlet (mains supply). If you have an interface cable connected to the balance/scale port, unplug it from the port.
 - ⚠ Make sure that no liquid enters the balance/scale housing.
 - Clean the balance/scale using a piece of cloth which has been wet with a mild detergent (soap)
 - The plastic upper and lower segments of the balance/scale housing are protected by a special coating, so that they will not be damaged by acetone used for cleaning.
 - ⚠ Do not use acetone or aggressive cleaning agents on the following parts: keypad overlay, power jack, data interface or any other plastic parts
 - After cleaning, wipe down the balance/scale with a soft, dry cloth.
- On analytical balances remove and clean the weighing pan as follows:
- Reach beneath the shield disk and lift it carefully, together with the pan support, to avoid damaging the weighing system.

- ⚠ Make sure that no liquid enters the balance/scale housing.

Cleaning Stainless Steel Surfaces

Clean all stainless steel parts regularly. Remove the stainless steel weighing pan and thoroughly clean it separately. Use a damp cloth or sponge to clean stainless steel parts on the balance/scale. You can use any household cleaning agent that is suitable for use on stainless steel. Clean stainless steel surfaces only by wiping them down. Then rinse the equipment thoroughly, making sure to remove all residues. Afterwards, allow the equipment to dry. If desired, you can apply oil to the cleaned surfaces as additional protection.



Recycling

Safety Inspection

If there is any indication that safe operation of the balance/scale is no longer warranted:

- Turn off the power and disconnect the equipment from AC power immediately.
- > Lock the equipment in a secure place to ensure that it cannot be used for the time being.

Notify your nearest Sartorius Service Center. Repair work must be performed by trained service technicians.

We recommend having the power supply inspected by a certified electrician at regular intervals, according to the following checklist:

- Insulating resistance: > 7 megaohms measured with a constant voltage of at least 500 volts at a 500 K-ohm load
- Leakage current: < 0.05 mA measured with a properly calibrated multimeter

Information and Instructions on Disposal and Repairs

Packaging that is no longer required must be disposed of at the local waste disposal facility. The packaging is made of environmentally friendly materials that can be used as secondary raw materials.



The equipment, including accessories and batteries, does not belong in your regular household waste.

The EU legislation requires its Member States to collect electrical and electronic equipment and disposed of it separately from other unsorted municipal waste with the aim of recycling it.

In Germany and many other countries, Sartorius AG takes care of the return and legally compliant disposal of its electrical and electronic equipment on its own. These products may not be placed with the household waste or brought to collection centers run by local public disposal operations – not even by small commercial operators.

For disposal in Germany and in the other Member States of the European Economic Area (EEA), please contact our service technicians on location or our Service Center in Goettingen, Germany:

Sartorius AG
Service Center
Weender Landstrasse 94-108
37075 Goettingen, Germany

In countries that are not members of the European Economic Area (EEA) or where no Sartorius affiliates, subsidiaries, dealers or distributors are located, please contact your local authorities or a commercial disposal operator.

Prior to disposal and/or scrapping of the equipment, any batteries should be removed and disposed of in local collection boxes.

Sartorius AG, its affiliates, subsidiaries, dealers and distributors will not take back equipment contaminated with hazardous materials (ABC contamination) – either for repair or disposal. Please refer to the accompanying leaflet/manual or visit our Internet website (www.sartorius.com) for comprehensive information that includes our service addresses to contact if you plan to send your equipment in for repairs or proper disposal.

Overview

Specifications

Specifications		
Built-in motorized calibration weight		All models with the designation suffix ED...-CW, GK..., GW.... or with a readability of 0.0001 g and all verified models
AC power source/power requirements, voltage, frequency		AC adapter 230 V or 115 25 V, +15% to – 20%, 48–60 Hz
Power consumption	VA	maximum 16; typical 8 (STNG6)
Approx. hours of operation with the YRB05Z rechargeable battery pack (backlighting on)	h	35

Ambient Conditions

The specifications given here are ensured under the following ambient conditions:

Operating temperature range	+10 to +30°C (273 to 303 K, 50 to 86°F)
Allowable ambient operating temperature	+5 to +40°C (41 to 104°F)

Proper functioning is ensured within an ambient operating temperature range of 5 to 40°C (41 to 104°F).

Specifications for Individual Models

Model		ED224S	ED124S	GK1403
Weighing capacity		220 g	120 g	1400 ct
Readability		0.0001 g	0.0001 g	0.001 ct
Tare range (subtractive)		220 g	120 g	1400 ct
Repeatability (std. deviation)	≤±	0.0001 g	0.0001 g	0.001 ct
Linearity	≤±	0.0002 g	0.0002 g	0.002 ct
Response time (average)	s	2.5	2.5	1.5
Sensitivity drift within +10 to +30°C	≤±/K	2 · 10 ⁻⁶		
Adaptation to ambient conditions		By selection of 1 of 4 optimized filter levels; display update: 0.1–0.4 (depends on filter level selected)		
External calibration weight (of at least accuracy class...)	g	200 (E2)	100 (E2)	200 (E2)
Net weight, approx.:	kg	4.8	4.8	4.7
Weighing pan size	mm	90 Ø	90 Ø	90 Ø
Whg. chamber height	mm	230	230	160
Dimensions (WxDxH)	mm	230 × 303 × 330		230 × 303 × 260

Model		GK1203	GK703/ GK703-ST	GK303
Weighing capacity		1200 ct	700 ct	300 ct
Readability		0.001 ct	0.001 ct	0.001 ct
Tare range (subtractive)		1200 ct	700 ct	300 ct
Repeatability (std. deviation)	≤±	0.001 ct	0.001 ct	0.001 ct
Linearity	≤±	0.002 ct	0.002 ct	0.002 ct
Response time (average)	s	1.5	1.5	1.5
Sensitivity drift within +10 to +30°C	≤±/K	2 · 10 ⁻⁶		
Adaptation to ambient conditions		By selection of 1 of 4 optimized filter levels; display update: 0.1–0.4 (depends on filter level selected)		
External calibration weight (of at least accuracy class...)	g	200 (E2)	100 (F2)	50 (F2)
Net weight, approx.:	kg	4.7	4.7	4.7
Weighing pan size	mm	90 Ø	90 Ø/35 Ø	90 Ø
Whg. chamber height	mm	160	160/38	160
Dimensions (WxDxH)	mm	230 × 303 × 260	Model GK703-ST: 230 × 303 × 138	

Specifications for Individual Models

Model		ED623S ED623S-CW	ED423S ED423S-CW ED423S-DS	ED323S ED323S-CW ED323S-DS
Weighing capacity		620 g	420 g	320 g
Readability		0.001 g	0.001 g	0.001 g
Tare range (subtractive)		620 g	420 g	320 g
Repeatability (std. deviation)	≤±	0.001 g	0.001 g	0.001 g
Linearity	≤±	0.002 g	0.002 g	0.002 g
Response time (average)	s	1	1	1.1
Sensitivity drift within +10 to +30°C	≤±/K	2 · 10 ⁻⁶	2 · 10 ⁻⁶	2 · 10 ⁻⁶
Adaptation to ambient conditions		By selection of 1 of 4 optimized filter levels; display update: 0.05–0.4 (depends on filter level selected)		
External calibration weight (of at least accuracy class...)	g	500 (E2)	200 (E2)	200 (F1)
Net weight, approx:	kg	3.2 3.6	3.2 3.6 4.4	3.2 3.6 4.4
Weighing pan size	mm	115 Ø	115 Ø	115 Ø
Dimensions (WxDxH)	mm	230 × 303 × 136	230 × 303 × 136 ED...-DS: 230 × 303 × 330	

Model		ED153 ED153-CW ED153-DS	GK3102	GK2202
Weighing capacity		150 g	3100 ct	2200 ct
Readability		0.001 g	0.005 ct	0.005 ct
Tare range (subtractive)		150 g	3100 ct	2200 ct
Repeatability (std. deviation)	≤±	0.001 g	0.005 ct	0.005 ct
Linearity	≤±	0.002 g	0.01 ct	0.01 ct
Response time (average)	s	1.3	1	1
Sensitivity drift within +10 to +30°C	≤±/K	3.3 · 10 ⁻⁶	2 · 10 ⁻⁶	2 · 10 ⁻⁶
Adaptation to ambient conditions		By selection of 1 of 4 optimized filter levels; display update: 0.05–0.4 (depends on filter level selected)		
External calibration weight (of at least accuracy class...)	g	100 (F1)	500 (E2)	200 (E2)
Net weight, approx:	kg	2.6 3.0 3.8	4.4	4.4
Weighing pan size	mm	115 Ø	115 Ø	115 Ø
Dimensions (WxDxH)	mm	230 × 303 × 136 ED...-DS: 230 × 303 × 330	230 × 303 × 260	

Model		ED6202S GW6202 ED6202S-CW	ED4202S ED4202S -CW	ED3202S GW3202 ED3202S-CW	ED2202S ED2202S -CW	ED822 ED822 -CW
Weighing capacity	g	6200	4200	3200	2200	820
Readability	g	0.01	0.01	0.01	0.01	0.01
Tare range (subtractive)	g	6200	4200	3200	2200	820
Repeatability (std. deviation)	≤±g	0.01	0.01	0.01	0.01	0.01
Linearity	≤±g	0.02	0.02	0.02	0.02	0.02
Stabilization time (typical)	s	1.1	1.1	1.1	1.1	1.0
Sensitivity drift within +10 to +30°C	≤±/K	2 · 10 ⁻⁶	2 · 10 ⁻⁶	2 · 10 ⁻⁶	2 · 10 ⁻⁶	5 · 10 ⁻⁶
Adaptation to ambient conditions		By selection of 1 of 4 optimized filter levels; display update: 0.05–0.4 (depends on filter level selected)				
External calibration weight (of at least accuracy class...)	g	5000 (E2)	2000 (E2)	2000 (F1)	2000 (F1)	500 (F2)
Net weight, approx:	kg	3.1 3.1 3.5	3.1 3.1 3.5	3.1 3.1 3.5	3.1 3.1 3.5	2 2 2.6
Weighing pan size	mm	180 × 180	180 × 180	180 × 180	180 × 180	150 Ø
Dimensions (WxDxH)	mm	230 × 303 × 91				230×303×87

Model		ED8201 ED8201-CW	GW7201	ED5201 ED5201-CW	ED2201 ED2201-CW
Weighing capacity	g	8200	7200	5200	2200
Readability	g	0.1	0.1	0.1	0.1
Tare range (subtractive)	g	8200	7200	5200	2200
Repeatability (std. deviation)	≤±g	0.1	0.1	0.1	0.1
Linearity	≤±g	0.1	0.1	0.1	0.1
Response time (average)	s	1	1	1	1
Sensitivity drift within +10 to +30°C	≤±/K	10 · 10 ⁻⁶			
Adaptation to ambient conditions		By selection of 1 of 4 optimized filter levels; display update: 0.05–0.4 (depends on filter level selected)			
External calibration weight (of at least accuracy class...)	g	5000 (F2)	5000 (F2)	5000 (F2)	2000 (F2)
Net weight, approx.:	kg	2.7 3.5	2.7	2.7 3.5	2.7 3.5
Weighing pan size	mm	180 × 180			
Dimensions (WxDxH)	mm	230 × 303 × 91			

Verified Models with EC-type Approval: Specifications

Model	ED224S-OCE, ED224S-PCE	ED124S-OCE	GK1203-OCE	GK703-OCE
Type	BD ED 100	BD ED 100	BD ED 100	BD ED 100
Accuracy class ¹⁾	Ⓢ	Ⓢ	Ⓢ	Ⓢ
Weighing capacity, Max ¹⁾	220 g	120 g	1200 ct	700 ct
Scale interval d ¹⁾	0.0001 g	0.0001 g	0.001 ct	0.001 ct
Tare range (subtractive)	≤ 100% of the maximum capacity			
Verification scale interval e ¹⁾	0.001 g	0.001 g	0.01 ct	0.01 ct
Minimum capacity, Min ¹⁾	0.01 g	0.01 g	0.1 ct	0.1 ct
Response time (average) s	2.5	2.5	1.5	1.5
Range of use according to CD ¹⁾	0.01 g – 220 g	0.01 g – 120 g	0.1 ct – 1200 ct	0.1 ct – 700 ct
Allowable ambient operating temperature °C	+17 to +27 (+63°F to +80°F)			
Net weight, approx. kg	4.8	4.8	4.7	4.7
Weighing pan size mm	90 Ø	90 Ø	90 Ø	90 Ø
Weighing pan size mm	230	230	160	160
Dimensions (WxDxH) mm	230 × 303 × 330			

Model	ED623S-OCE	ED523S-PCE	ED423S-OCE	ED323S-OCE	ED153-OCE, ED153-PCE
Type	BD ED 200	BD ED 200	BD ED 200	BD ED 200	BD ED 200
Accuracy class ¹⁾	Ⓢ	Ⓢ	Ⓢ	Ⓢ	Ⓢ
Weighing capacity, Max ¹⁾ g	620	520	420	320	150
Scale interval d ¹⁾ g	0.001	0.001	0.001	0.001	0.001
Tare range (subtractive)	≤ 100% of the maximum capacity				
Verification scale interval e ¹⁾ g	0.01	0.01	0.01	0.01	0.01
Minimum capacity, Min ¹⁾ g	0.02	0.02	0.02	0.02	0.02
Response time (average) s	1	1	1	1	1
Range of use according to CD ¹⁾ g	0.02 – 620	0.02 – 520	0.02 – 420	0.02 – 320	0.02 – 150
Allowable ambient operating temperature °C	+10 to +30 (+50°F to +86°F)				
Net weight, approx. kg	3.6				
Weighing pan size mm	115 Ø				
Dimensions (WxDxH) mm	230 × 303 × 136				

¹⁾ CD = Council Directive 90/384/EEC for non-automatic weighing instruments;
applicable to the European Economic Area

Verified Models with EC-type Approval: Specifications

Model		ED6202S-OCE, GW6202-OCE	ED4202S-OCE, ED4202S-PCE	ED3202S-OCE, GW3202-OCE	ED2202S-OCE
Type		BD ED 200	BD ED 200	BD ED 200	BD ED 200
Accuracy class ¹⁾		Ⓔ	Ⓔ	Ⓔ	Ⓔ
Weighing capacity, Max ¹⁾	g	6200	4200	3200	2200
Scale interval d ¹⁾	g	0.01	0.01	0.01	0.01
Tare range (subtractive)		≤ 100% of the maximum capacity			
Verification scale interval e ¹⁾	g	0.1	0.1	0.1	0.1
Minimum capacity, Min ¹⁾	g	0.5	0.5	0.5	0.5
Response time (average)	s	1.1	1.1	1.1	1.1
Range of use according to CD ¹⁾	g	0.5 – 6200	0.5 – 4200	0.5 – 3200	0.5 – 2200
Allowable ambient operating temperature	°C	+10 to +30 (+50°F to +86°F)			
Net weight, approx.	kg	3.5			
Weighing pan size	mm	180 × 180			
Dimensions (WxD×H)	mm	230 × 303 × 91			

Model		ED822-OCE	ED8201-OCE	ED5201-OCE	ED2201-OCE
Type		BD ED 200	BD ED 200	BD ED 200	BD ED 200
Accuracy class ¹⁾		Ⓔ	Ⓔ	Ⓔ	Ⓔ
Weighing capacity, Max ¹⁾	g	820	8200	5200	2200
Scale interval d ¹⁾	g	0.01	0.1	0.1	0.1
Tare range (subtractive)		≤ 100% of the maximum capacity			
Verification scale interval e ¹⁾	g	0.1	1	1	0.1
Minimum capacity, Min ¹⁾	g	0.5	5	5	5
Response time (average)	s	1.1	1	1	1.1
Range of use according to CD ¹⁾	g	0.5 – 820	5 – 8200	5 – 5200	5 – 2200
Allowable ambient operating temperature	°C	+10 to +30 (+50°F to +86°F)			
Net weight, approx.	kg	3.5			
Weighing pan size	mm	180 × 180			
Dimensions (WxD×H)	mm	230 × 303 × 91			

¹⁾ CD = Council Directive 90/384/EEC for non-automatic weighing instruments; applicable to the European Economic Area

Accessories

External calibration weights:			
For model	Accuracy class	Weight in grams	Order no.:
ED423S/...-DS	E2	200	YCW5228-00
ED623S	E2	500	YCW5528-00
ED4202S	E2	2000	YCW6228-00
ED6202S, GW6202	E2	5000	YCW6528-00
ED153S/...-DS	F1	100	YCW5138-00
ED323S/...-DS	F1	200	YCW5238-00
ED3202S, ED2202S	F1	2000	YCW6238-00
ED822	F2	500	YCW5548-00
ED2201	F2	2000	YCW6248-00
ED8201, ED5201	F2	5000	YCW6548-00
or alternatively	± 25 mg	5000	YSS653-00

Product
Data printer
 with date, time, statistics
 evaluation, transaction
 counter functions and LCD

Order No.
YDP03-OCE

Remote display ¹⁾, reflective
 (for connection to
 data interface port)

YRD02Z

External rechargeable battery pack
YRB05Z
 With battery-level indicator (LED);
 can be recharged using the AC
 adapter (charge time for completely
 discharged battery pack: 15 hours);
 see "Specifications" for hours of operation.
 To recharge the battery pack:
 Unplug the AC adapter from the balance/scale
 and plug it into the battery pack

SartoConnect ¹⁾,
 data transfer software for direct
 transmission of weight values
 to another program (e.g., MS Excel)
 – with RS-232C
 connecting cable, length:
 1 m (~20 in)
 – with RS-232C
 connecting cable, length:
 5 m (~16 ft)
 – with RS-232C
 connecting cable, length:
 15 m (~50 ft)

YSC01L

YSC01L5

YSC01L15

Product
Density determination kit¹⁾
 – for ED224S, ED124S

YDK01LP

Standard Operating Procedure
 optimum use of your balance/scale
 in quality-management systems

YSL01E

Industrial AC adapter, model ING2,
 protection rating: IP65 in accordance
 with EN 60529
 – for 230 V
 – for 120 V

69 71899

69 71500

Data cable
 – for connecting a computer
 with a USB port
 – for computer connection,
 25-pin
 – for computer connection, 9-pin

YCC01-USBM2




7357312

7357314

Adapter cable
 from D-Sub 25-pin male
 connector to D-Sub 9-contact
 female connector; length: 0.25 m

6965619

¹⁾ Not for verified models

Universal remote control switch	Order No.
for remote control of the following functions:	
 ,  ,  or a function key (see “Configuration” for details):	
Foot switch with T-connector	YFS01
Hand switch with T-connector	YHS02
T-connector	YTC01
Note:	
The T-connector is not intended for connecting multiple intelligent peripheral devices, such as PCs or YDP03-OCE printers.	
Ionizing blower for eliminating static electricity	
– 220 V	YIB01-ODR
– 110 V	YIB01-OUR
Stat-Pen anti-static device for eliminating electrostatic charges on samples and containers (100 V to 230 V, 50/60 Hz)	YSTP01
Anti-vibration balance/scale table	
– for precise, reliable weighing operations	YWT01
– made of cast stone with shock absorbers	YWT03
Bracket for wall mounting	YWT04
Gem trays/Weighing bowls	
– 300 ml, weight: 86 g, stainless steel	6407
– 1000 ml, wt.: 240 g, stainless steel	641211
– 500 ml	641212
– 300 ml, wt.: 22 g, aluminum	69641304
– 110 ml, 90 mm Ø, aluminum	69GP0003
– 270 ml, wt.: 62 g, 137 mm Ø, stainless steel	YWP03G
– 62 mm Ø, stainless steel	6910848
– 85 ml, 70 mm Ø, aluminum	YWP06G
– 180 ml, 90 mm Ø, aluminum	YWP05G
– 174 mm Ø, stainless steel	YWP04G



Declaration of Conformity to Council Directives 89/336/EEC and 73/23/EEC (amended by Directive 93/68/EEC)

The electronic precision weighing instrument of the series
ED/GK/GW/XX.....-.....

meets the applicable requirements of the test standards listed below, in conjunction with the associated power supplies, auxiliary peripheral devices and installation equipment listed in Annex A2 (see Annex A1 for a technical description and a list of the individual versions).

1. Electromagnetic Compatibility

1.1 Source for 89/336/EEC: Official Journal of the European Communities, No. 2004/C98/05

EN 61326 Electrical equipment for measurement, control and laboratory use
EMC requirements

Limitation of emissions: Residential areas, Class B

Defined immunity to interference: Industrial areas, continuous unmonitored operation

2. Safety of Electrical Equipment

2.1 Source for 73/23/EEC: Official Journal of the European Communities, No. 2004/C103/02

EN 61010 Safety requirements for electrical equipment for
measurement, control and laboratory use

Part 1: General requirements

EN 60950-1 Information technology equipment

Safety

Part 1: General requirements

Sartorius AG
37070 Goettingen, Germany
2005

W. Obermann
Senior Vice President, R&D
Electronic Engineering
Mechatronics Division

Dr. D. Klausgrete
Head of
International Certification Management
Mechatronics Division

Declaration of Type Conformity to Directive No. 90/384/EEC

This declaration is valid for non-automatic electromechanical weighing instruments for use in legal metrology. These weighing instruments accepted for legal metrological verification have an EC Type-approval Certificate. The model(s) concerned is/are listed below along with the associated type, accuracy class, and EC type-approval certificate number:

Model	Type	Accuracy Class	EC Type Approval No.
ED...-OCE	BD ED 100	I	D06-09-006
ED...-PCE	BD ED 100	I	D06-09-006
GK...-OCE	BD ED 100	I	D06-09-006
ED...-OCE	BD ED 200	II	D06-09-006
ED...-PCE	BD ED 200	II	D06-09-006
GW...-OCE	BD ED 200	II	D06-09-006

SARTORIUS AG declares that its weighing instrument types comply with the requirements of the Council Directive on non-automatic weighing instruments, no. 90/384/EEC of 20 June 1990; the associated European Standard "Metrological aspects of non-automatic weighing instruments," No. EN 45501; the amended, currently valid versions of the national laws and decrees concerning legal metrology and verification in the Member States of the European Union (EU) and the Signatories of the Agreement on the European Economic Area, which have adopted this Council Directive into their national laws; and with the requirements stipulated on the Type-Approval Certificate for verification. This Declaration of Type Conformity is valid only if the ID label on the weighing instrument has the CE mark of conformity and the green metrology sticker with the stamped

letter "M" (the two-digit number in large print stands for the year in which the mark has been affixed):




If these marks are not on the ID label, this Declaration of Type Conformity is not valid. Validity can be obtained, for example, by submitting the weighing instrument for final action to be taken by an authorized representative of SARTORIUS AG. The validity of this Declaration of Type Conformity shall expire upon any tampering with, repair or modification of this weighing instrument or, in some Member States, on the date of expiration. This declaration applies only to the weighing instrument without peripheral devices.

The operator of this weighing instrument shall be responsible for obtaining an authorized renewal of the verification, such as subsequent or periodic verification, of the weighing instrument for use as a legal measuring instrument.

Sartorius AG
37070 Göttingen, Germany
Signed in Göttingen, 08.05.2006


Dr. G. Maaz
President of the Mechatronics Division


J. Rehwald
Head of the Production Department
Mechatronics / Weighing Technology Division

Physikalisch-Technische Bundesanstalt

Braunschweig und Berlin



EG-Bauartzulassung

EC type-approval certificate

Zulassungsinhaber: Sartorius AG

Issued to:

Weender Landstr. 94-108
37075 Göttingen

Rechtsbezug:
In accordance with:

§ 13 des Gesetzes über das Mess- und Eichwesen (*verification act*) vom/dated 23. März 1992 (BGBl. I S. 711), zuletzt geändert am (*last amended on*) 25.11.2003 (BGBl. I S. 2304), in Verbindung mit Richtlinie (*In connection with council directive*) 90/384/EWG, geändert durch (*amended by*) 93/68/EWG

Bauart:
In respect of:

Nichtselbsttätige elektromechanische Waage mit oder ohne Hebelwerk
Nonautomatic electromechanical weighing instrument with or without lever system

Typ / Type:

BD ED 100, BD ED 200

- Ⓛ Max 50...240 g, e = 1...2 mg, n ≤ 240000
Ⓜ Max 1...8200 g, e = 0,01...1 g, n ≤ 62000

Zulassungsnummer:

D06-09-006 1. Revision

Approval number:

Gültig bis:

06.02.2016

Valid until:

Anzahl der Seiten:

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Number of pages:

Geschäftszeichen:

PTB-1.12-4023582

Reference No.:

Benannte Stelle:

0102

Notified Body:

Im Auftrag
By order

Braunschweig, 03.05.2006


Marcus Link



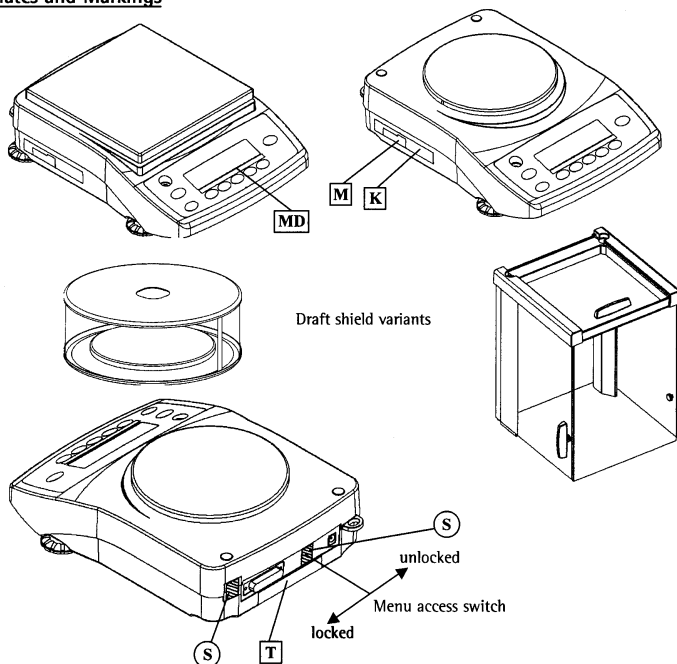
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R3-0023

Die Hauptmerkmale, Zulassungsbedingungen und Auflagen sind in der Anlage enthalten, die Bestandteil der Revision der EG-Bauartzulassung ist. Hinweise und eine Rechtsbehelfsbelehrung befinden sich auf der ersten Seite der Anlage.

The principal characteristics, approval conditions and special conditions, if any, are set out in the Annex which forms an integral part of this Revision of the EC type-approval certificate. For notes and information on legal remedies, see first page of the Annex.

Plates and Markings



(S) Protective seal

[K] Descriptive plate with **CE** mark of conformity

[M] Mark for EC verification (green metrology sticker)

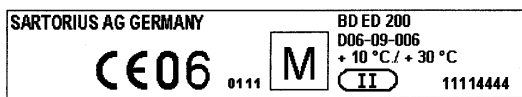
[MD] Metrological data
Max, Min, e and d

[T] Plate with model
designation

Example of plate with model designation [T]



Example of descriptive plate on a verified weighing instrument [K]



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Sartorius AG reserves the
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technology, features,
specifications and design of the
equipment without notice.

Status:
July 2006, Sartorius AG,
Goettingen, Germany