

Operating Instructions

Sartorius Competence | Sartorius Gem^{plus}

CP, GC and GP Models

Electronic Semimicro- and Analytical Precision Balances and Precious Metal Scales





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The models of the CP, GP and GC Series are precision weighing instruments designed for the measurement of mass, covering a range from 0.01 mg to 34 kg.

CP, GP and GC models meet the highest requirements on the accuracy and reliability of weighing results through the following features:

- Efficient filtering-out of unfavorable ambient conditions, such as vibration, drafts, etc.
- Stable and reproducible weighing results
- Excellent readability under any lighting conditions
- Rugged, durable weighing system

These weighing instruments save work and speed up simple routine applications through these features:

- Extremely fast response times
- Built-in applications (counting, animal weighing, weighing in percent, etc.)
- Total ease of operation
- ISO/GLP-compliant recording capability for printouts
- Serial RS-232 port for optional connection to a PC

4 | Warnings and Safety Precautions

The balance/scale has been constructed in accordance with the European Directives as well as international regulations and standards for operation of electrical equipment, electromagnetic compatibility, and stipulated safety requirements. Improper use or handling, however, can result in damage and/ or injury.

To prevent damage to the equipment, please read these operating instructions carefully before using your balance/scale. Keep these instructions in a safe place. Follow the instructions below to ensure safe and trouble-free operation of your balance/scale:

- \triangle Do not use this balance/scale in a hazardous area/location.
- ▲ Make sure that the voltage rating printed on the AC adapter is identical to your local line voltage.
- ▲ Warning when using pre-wired RS-232 connecting cables: The pin assignments in RS-232 cables purchased from other manufacturers may be incompatible with Sartorius balances/scales. Be sure to check the pin assignment against the chart on page 61 before connecting the cable, and disconnect any lines marked "Internally Connected".

 The only way to switch the power off completely is to disconnect the AC adapter.

IP ratings:

- Models with readabilities ≥ 10 mg meet IP53 requirements
- Models with readabilities ≤ 1 mg meet IP32 requirements
- AC adapters meet IP20 requirements
- Connect only Sartorius accessories and options, as these are optimally designed for use with your Sartorius balance/scale.
- Protect the AC adapter and the weighing instrument from contact with liquids.

When cleaning your balance/scale, make sure that no liquid enters the balance/scale housing; use only a slightly moistened cloth to clean the balance/scale.

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 office, dealer or service center

Warranty

Do not miss out on the benefits of our full warranty. Complete the warranty registration card, indicating the date of installation, and return the card to your Sartorius office or dealer.

Storage and Shipping Conditions

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

Unpacking the Equipment

 After unpacking the balance/scale, check it immediately for any visible damage as a result of rough handling during shipment

If you see any sign of damage: proceed as directed in the section on "Safety Inspection" in the chapter entitled "Care and Maintenance."

It is a good idea to save the box and all parts of the packaging until you have successfully installed your balance/scale. Only the original packaging provides the best protection for shipment. Before packing your balance/scale, unplug all connected cables to prevent damage.

Equipment Supplied

The equipment supplied includes the components listed below:

CP Balances with Readability of 0.1 mg; GC Scales

- Balance/scale with display and control unit
- Draft shield with base plate
- AC adapter
- Weighing pan
- Shield disk
- Dust cover
- Gem tray (GC scales only)

CP Balances with Readability of 1 mg

- Balance with display and control unit
- Draft shield with cover
- AC adapter
- Weighing pan
- Pan support
- Base plate

CP Balances with Readability of 0.01 g/0.1 g, GP Scales

- Balance/scale with display and control unit
- AC adapter
- Weighing pan
- Pan support (model CP622 only)
- Gem tray (GP scales only)

CP34001S, CP34001P, CP16001S, CP12001S, CP34000

- Balance with display and control unit
- AC adapter
- Weighing pan

Installation Instructions

Your balance/scale is designed to provide reliable weighing results under normal ambient conditions. When choosing a location to set up your balance/scale, observe the following so that you will be able to work with added speed and accuracy:

- Set up the balance/scale on a stable, even surface
- Avoid placing the balance/scale in close proximity to a heater or otherwise exposing the balance/scale to heat or direct sunlight
- Protect the balance/scale from drafts that come from open windows or doors
- Avoid exposing the balance/scale to extreme vibrations during weighing
- Protect the balance/scale from aggressive chemical vapors
- Do not expose the balance/scale to extreme moisture over long periods
- Level the balance/scale at the place of installation

Conditioning the Balance/Scale: Moisture in the air can condense on the surfaces of a cold balance/scale whenever it is brought into a substantially warmer place. If you transfer the balance/scale to a warmer area, make sure to condition it for about 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 of accuracy class (II). The control seal consists of a sticker with the "Sartorius" logo. This seal will be irreparably damaged if you attempt to remove it. If the seal is broken, the validity of verification will become void and you must have your balance/scale re-verified.

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







Balances/Scales with an Analytical Draft Shield Chamber:

- ▲ Move the sliding lock on the back of the draft shield to the right (open position)
- Position the draft carefully on the balance/scale
- Secure the draft shield in position by moving the sliding lock device on the back of the balance/scale to the left

- Place the components listed below inside the chamber in the order given:
- Base plate
- Shield disk
- Weighing pan
- Gem tray (GC models only)







Balances/Scales with a 3-sided Draft Shield:

- Place the draft shield on the balance/scale with the cover opening in front on the right
- Turn the draft shield clockwise until it is firmly in position
- Place the components listed below inside the chamber in the order given:
- Base plate
- Pan support
- Weighing pan
- Accessing the weighing chamber from the side: Pull out the side panels one at a time

CP622

- Place the components listed below on the balance/scale in the order given:
- Pan support
- Weighing pan





Balances/Scales with a Rectangular Weighing Pan and a Weighing Capacity of up to 10 kg

- Place the components listed below on the balance/scale in the order given:
- Weighing pan
- Gem tray (GP scales only)

Balances/Scales with a Rectangular Weighing Pan and a Weighing Capacity over 10 kg

• Place the weighing pan on the balance/scale

Connecting the Balance/Scale to AC Power/Safety Precautions ○ Use only original Sartorius AC adapters.

- The protection rating on the AC adapter is IP20 in accordance with EN60529.
- See the "Accessories" for information on using an IP65-protected industrial AC adapter or an external rechargeable battery pack with your balance/scale.

Balances/Scales with an AC Adapter and a Weighing Capacity up to 10 kg:

 Insert the right-angle plug into the jack on the balance/scale

Connect the power cable to the AC adapter (on balances/scales with weighing capacities of up to 10 kg)

Use an original Sartorius AC adapter with a wide input voltage range (85 ... 265 V~), order number 6971960, and replaceable power cable:
6971953 (Europe)
6971954 (US/CDN)
6971955 (UK)
6971956 (AUS)
6971957 (ZA)







Balances/Scales with a Weighing Capacity of over 10 kg:

Insert the right-angle plug into the jack and tighten the screw.



Safety Precautions

The AC adapter rated to Class 2 can be plugged into any wall outlet without any additional safety precautions. The ground or earth terminal is connected to the balance/scale housing, which can be additionally grounded, if required. The data interface is also electrically connected to the balance/scale housing (ground).

Information on Radio Frequency Interference

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference, when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference, in which case the user, at his own expense, will be required to take whatever measures may be required to correct the interference.



Connecting Electronic Peripheral Devices

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

Warmup Time

To deliver exact results, the balance/scale must warm up for at least 30 minutes after initial connection to AC power or after a relatively long power outage. Only after this time will the balance/scale have reached the required operating temperature.

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

 The balance/scale must warm up for at least 24 hours after initial connection to AC power.

Leveling the Balance/Scale Purpose

- To compensate for unevenness at the place of installation.
- To achieve perfectly horizontal positioning of the balance/scale for consistent reproducibility

Always level the balance/scale again after any time it has been moved.

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







Leveling Balances/Scales with a Weighing Capacity of up to 10 kg Only the 2 front feet are used for leveling.

- Retract the 2 rear feet (on models with rectangular weighing pans only).
- 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
- For weighing heavy samples: Extend the 2 rear feet until they touch the surface on which the balance/scale rests (on models with rectangular weighing pans only).

Leveling Balances/Scales with a Weighing Capacity over 10 kg

 Adjust the leveling feet until the air bubble is centered within the circle of the level indicator

Antitheft Locking Device on Balances/ Scales with a Weighing Capacity of up to 10 kg

To fasten an antitheft locking device, use the lug located on the rear panel of the balance/scale.

• Secure the balance/scale at the place of installation, e.g., with a chain or a lock.



Overview of Display and Operating Elements

Designation	Description	Designation	Description
1	Weight units	10	Delete (Clear Function)
2	Tare function:		This key is generally used to
	Press here to tare the weight		interrupt/cancel functions;
	of any container so that the		for example:
	readout shows the net weight of samples.		 to end an application program
3	Symbol indicating that a GLP- compliant printout is being		 to interrupt calibration/ adjustment routines
	generated	11	On/Off key:
4	Symbol indicating that a		Switches the display on/off.
	printout is being generated		(The balance/scale may remain
5	Symbol indicating data in		in standby mode, depending
	memory, when using the		on the settings.)
	net-total formulation program	12	Symbol indicating that the
6	Data output function:		calibration/adjustment
	Press this key to send		function is active
	displayed values over the	13	Symbol indicating that the
	built-in data interface to a		animal weighing program
	DataPrint printer or a PC.		is active, with
7	Function key:		automatic-start function
	Starts an application program	14	Symbol indicating stand-by
8	Symbol indicating the active		mode or zero range
	program	15	Weight readout in the selected
9	Press here to start calibration/ adjustment		weight unit

Purpose

The basic weighing function is always accessible and can be used alone or in combination with an application program (counting, weighing in percent, etc.).

Features

- Taring the balance/scale
 You can tare the balance/scale within the entire weighing range.
- Assigning IDs to weights (as needed)
- Printing weights

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

This balance/scale is not allowed to be used for weighing goods intended for direct sale to the public.

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

- Before using the balance/scale as a legal measuring instrument, calibrate and adjust it at the place of use: see the "Calibration/ Adjustment" section in this chapter
- The temperature range (°C) indicated on the verification label may not be exceeded during operation

Example: BD BC 200 (II) +10 ... +30 °C

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





EESE 100 %

٩

0

0.0 g

Preparation

A circle displayed in the upper right-hand corner indicates that the balance/scale has been disconnected from power (the power cable was unplugged or due to power failure).

- Turn on the balance/scale: Press
- > All symbols on the display light up briefly.
- > The balance/scale performs a display test.
- To change configurations: see the chapter entitled "Configuring the Balance/Scale"
- To load factory-set default configurations: see "Configuring the Balance/Scale" (menu code 9 - - ?)
- To tare the balance/scale: Press (TARE)

When the balance/scale is switched on, the \diamondsuit is displayed until you press a key. If the \diamondsuit symbol is displayed during operation, this indicates that the processor is performing a function and cannot receive further commands at the moment.

Additional Functions

Turning off the balance/scale: Press

A circle in the upper right-hand corner indicates that the balance/scale has been switched off and is in stand-by mode.





Below-Balance/Scale Weighing

A port for a below-balance/scale weighing hanger is located on the bottom of the balance/scale. You can order the hanger directly from Sartorius for balances/scales with a weighing capacity over 12 kg (see "Accessories").

- Open cover plate on the bottom of the balance/scale.
- Using the built-in hook (1): Attach the sample (e.g., using a suspension wire) to the hook
- Bore hole (2): Carefully fasten the special hook, or order a hook directly from Sartorius.
- If necessary, install a shield for protection against drafts

Important Note Concerning Verified Balances/Scales Approved for Use as Legal Measuring Instruments in the EU*: The below-balance/scale weighing port may not be opened or used when an approved balance/scale is being operated as a legal measuring instrument.

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Example Simple Weighing

Setting in Balance/Scale Operating Menu: Line format for printout: For other applications/GLP (722)

Step	Key (or instruction)	Displa	ay/Output	
 Turn on the balance/scale Self-test is performed, followed by automatic initial tare function. 	(O)	+	0.0 g	
 Place container on balance/scale (in this example: 11.5 g). 		+	l 1.5 g	
3. Tare the balance/scale.	TARE	+	0.0 g	
 Place sample in container on balance/scale (in this example: 132 g). 		+	132.0 g	
6. Print weight.	٢	N	+ 132	.0 g

Purpose

Calibration is the determination of the difference between the weight readout and the true weight (mass) of a sample. Calibration does not entail making any changes within the balance/scale.

Adjustment is the correction of any difference between the measured value displayed and the true weight (mass) of the sample, or the reduction of the difference to an allowable level within the 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, you must perform "internal calibration" at the place of installation after the warmup period.

Features

Calibration/adjustment can be performed only when

- there is no load on the balance/scale,
- the balance/scale is tared,
- the internal signal is stable.

If these conditions are not met, an error message is displayed ($E_{\Gamma\Gamma}$ $\Box 2$).

Adjustment can be performed

- automatically following calibration (menu code / 10 /) or
- manually, at operator discretion, after calibration (+ 10 2)

The weight displayed for the sample on the balance/scale must not differ from the nominal weight by more than 2%.

You can block calibration/adjustment of the balance/scale:

- Select menu code 1 9 7, and
- Close the menu access switch on the back of the balance/scale

You can have the calibration/adjustment results documented in a ISO/GLP-compliant printout (see page 52).

External Calibration in Verified Balances/ Scales of Accuracy Class ${\rm I\!I}$

- External calibration can be made accessible only after removing the verification control seal.
- > In this case, the validity of the verification becomes void and the balance/scale must be re-verified.

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

Calibration/Adjustment Sequence

You can configure the operating menu so that:

- adjustment automatically follows calibration in a single operation (1 10 1), or
- the operator chooses whether to end the calibration/adjustment routine or have adjustment performed (+ 12 2)

If there is no deviation, or if the difference is within the effective requirements for accuracy of measurements, it is not necessary to adjust the balance/ scale. In this case, you can end the calibration routine following calibration. Two keys are active at that point:

Factory Settings

Calibration adjustment mode for models without built-in motorized calibration weight: External calibration (+ 9 +)

Calibration adjustment mode for models with built-in motorized calibration weight: Internal calibration (+9=3)

Calibration/adjustment sequence: Adjustment automatically follows calibration in a single operation (+ 12 +1)

Weight unit for calibration: grams (+ + + +)

ISO/GLP-compliant printout: off (8 10 1)

- CAL = start adjustment
- CF = end the calibration/ adjustment routine

Internal Calibration (for models with built-in calibration weight only)

The built-in calibration weight is standard equipment on all verified balances/scales and on the following standard (non-verified) models: CP225D, CP324S, CP224S, CP64, GC1603P, GC803S, GC803P

Settings:

Calibration/adjustment mode: Internal calibration/adjustment (menu code + 9 3)

There is a motorized calibration weight within the balance/scale housing which is applied and removed automatically for internal calibration.

Step	Key (or instruction)	Display	
1. Turn on balance/scale, if necessary.	(U)	0.0 g	
2. Tare the balance/scale, if necessary.	TARE	0.0 g	
 Start calibration/adjustment Internal weight is applied automatically. 	CAL	C CAL	
 Balance/scale is calibrated (displayed only if menu code ↓ □ 2 is set). 		– 0.2 g CAL	
 If the menu code for "calibration and adjustment in a single step" (1 10 1) is set, the balance/scale is adjusted automatically now. 		CAL EE	
6. Internal weight is unloaded.		0.0 g	

External Calibration

Settings:

Calibration/adjustment mode: External calibration/adjustment (menu code + 9 +)

The weight required for calibration/adjustment is defined in the factory settings (see "Specifications").

Key (or instruction)	Display
(U)	0.0 g
TARE	0.0 g
	+ 5000.0 CAL
U Contraction of the second se	5000.0 CAL
	+ 5000.0 g CAL 0.0 g
	Key (or instruction)

Purpose

You can configure your balance/scale to meet individual requirements by selecting from parameter settings in a software menu.

Key functions during configuration:

Activate the settings menu: Press ඟ to turn the balance/scale off and back on again. While all display segments are lit, press TARE briefly

Scroll upward \uparrow : press (AL) Scroll right \rightarrow : press (B) Confirm input: press (TARE) Store settings and exit menu: Press and hold (TARE) (2 sec.)

• Print Current Settings

- At the 3rd menu level (lowest level):
 Press and hold
- > Printout: (Example) Menu 7 1 1
- At the 2nd menu level: Press and hold (2)
- > Printout (Example)

Menu	7	1	1
Menu	7	2	1
Menu	7	3	1

- At the 1st menu level: Press and hold (2)
- > All current settings are printed.

Setting the Parameters (Menu Codes) Example: Adapting the balance/scale to "very unstable" ambient conditions (menu code *+ + 4*).

Step		Key (or instruction)	Display
1. Turn off the bala	nce/scale.	(VU)	
2. Turn on the balar	nce/scale and	(U)	
while all segments are displayed:	5	(TARE) briefly	-o-sautocal 茲 R8 % 本 95 ½ L GNETA i Q 目
 Scroll upward wit menu level; after menu code, the fi code is displayed 	hin a the last rst again.	CAL repeatedly	2 9 1
3. Select the second (scroll to the right	level :).	٢	1 1
4. Select the third le (scroll to the right	vel :).	٢	: :2∘
5. 3 rd menu level: Scroll until the de number is shown.	sired	(CAL) repeatedly	114
 Confirm change; on display indicat active setting 	"o" es	TARE	40
 Return to higher in (from the 3rd level) 	menu level).	٢	1
\bigcirc Set other codes as	desired.	Q, CAL	
7. Store settings and the menu	l exit	Press and hold $\overline{(TARE)}$ (2 sec.)	
or			
 Exit menu withou changes. 	t storing	U	
> Restart applicatio	n.		0.0 g

Parameter Settings (Overview) o Factory settings √ User-defined setting

	Menu level 1	Menu	level 2	Menulevel	3 Factory setting
Menu —	– 1 Weighing	1 1	Adapt filter (ambient conditions)	1 1 1 -1 1 2 -1 1 3 -1 1 4	Very stable conditions o Stable conditions Unstable conditions Very unstable conditions
		-12	Application filter	1 2 1 1 2 2	o Final readout Filling mode
		-1 3	Stability range The stability symbol is displayed when the value is stable within this number of digits.	1 3 1 -1 3 2 -1 3 3 -1 3 4 -1 3 5 -1 3 6	1/4 digit 1/2 digit 1 digit o 2 digits 4 digits 8 digits*
		-15	Tare function* ———	1 5 1 1 5 2	Without stability o After stability
		-16	Auto zero	1 6 1 1 6 2	o On Off
		-17	Weight unit 1 ———	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	Grams (Display: o)* o Grams (Display: g) Kilograms Carats Pounds* Ounces* Troy ounces* Hong Kong taels* Singapore taels* Taiwanese taels* Grains* Pennyweights* Milligrams Parts per pound* Chinese taels* Mommes* Austrian carats* Tola* Baht* Mesghal*
		└18	see next page		
L	– 2 through 9 –	see ne	ext pages		

* = Setting cannot be changed on verified balances/scales



* = Setting cannot be changed on verified balances/scales

¹) = Not available on balances/scales of accuracy class \square

²) = On models with built-in motorized calibration weight only



* = Setting cannot be changed on verified balances/scales

well	well2	wel3	setting
Menule	Menuic	Menuic	Factory Menu IL
Menu — 1 through 6 — —	- see previous pages		
- 7 Printing with application programs	7 1 Print — application- parameter	7 1 1 7 1 2 7 1 3	Off On; all parameters On; main parameters ony
	7 2 Line format of printout	7 2 1 7 2 2	For raw data (16 characters) For other apps (22 characters)
	7 3 Printout with Net total program	7 3 1 3 1 7 3 1	 Autom. printout of last net value Autom. printout of tare value
- 8 Extra functions	- 8 1 Menu *	8 1 1 0 8 1 2	 Parameter settings alterable Parameter settings read only
	- 8 2 Acoustic signal —	$\begin{bmatrix} 8 & 2 & 1 \\ 8 & 2 & 2 \end{bmatrix}$	o On Off
	- 8 3 Keypad —	$\begin{bmatrix} 8 & 3 & 1 \\ 8 & 3 & 2 \end{bmatrix}$	Accessible Blocked
	8 4 External switch ——— function	8 4 1 -8 4 2 -8 4 3 -8 4 4 -8 4 5	 lev TARE key (a) key (c) key (c) key
	8 5 Power-on mode — for balance/scale	8 5 1 0 8 5 3 8 5 4	 Off/on/standby Off/on Automatic on
	8 8 Reference balance/ ———— scale	8 8 1 6 8 8 2 8 8 3 8 8 4	 Off On for QC scale On for FB/FC/LA/LP balance/scale On for isi-terminal
	- 8 10 ISO/GLP-compliant printout	8 10 1 6 8 10 2 8 10 3	 No ISO/GLP printout For calibration/adjustment only Always on
9 Reset menu	9 – Factory settings	9 − 1 9 − 2 0	Restore Do not restore

* = Setting cannot be changed on verified balances/scales

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30 Setting IDs, Time, Date and Display Brightness

Purpose

Configuring measurement environment parameters for ISO/GLP-compliant data records. Setting date and time (for ISO/GLPcompliant records only). Adapting display to ambient lighting conditions.

Features

- Enter up to 8 characters to identify a measurement series. Permissible characters include the numbers 0 through 9, the dash or minus sign ("–") and spaces. Leading zeroes are output as spaces.
- Date and time of beginning and end of series recorded.
- Display brightness ¹):
 0 = off, levels of brightness: 1 through 9

Activate the ID number, date and time configuration menu:

Press 🕡 to turn the balance/scale off and back on again. While all display segments are lit, press TARE briefly

Scroll upward \uparrow : press CAL Scroll right \rightarrow : press (2)

Press (TARE) to confirm input and toggle between ID number, time and date. Store settings and exit menu: Press and hold (TARE) (2 sec.)

¹) No display backlighting on models CP225D and CP225D-0CE

Example: Setting the time, date and display brightness

Step	Key (or instruction)	Display
1. Turn off the balance/scale.	(U)	
2. Turn on the balance/scale and	(VU)	±8.8.8.8.8.8.8.8.8.8.8.8.8.8.8.8.8.8.8.
while all segments are displayed:	F briefly	
\bigcirc Move cursor in 8-character ID.	© repeatedly	
\bigcirc Set or change ID.	CAL repeatedly	-3
3. Confirm ID and activate time.	TARE	H 10. 14. I I
4. Select 24-hour clock ("H") or 12-hour clock, ("P").	CAL	H 10. 14. 19
5. Toggle between hours, minutes and seconds.	٩	H 10. 15. 19
6. Synchronize seconds with reference clock.	CAL	H 10. 15.00
7. Confirm time and activate date	TARE	29.JAn.0 I
 Set date "Day", "Month", and if desired, set "Year". 	CAL repeatedly, CAL repeatedly, CAL repeatedly, CAL repeatedly	0 I.JAn.0 I 22.APr.0 I
Confirm date and activate display brightness.	TARE	22.APr.0 I

Step		Key (or instruction)	Display	
9. Set display brig	htness.	CAL repeatedly	LANP 1	
10. Store settings and exit the menu or		Press and hold $\overline{\text{TARE}}$ (2 sec.)	± = = = = = = = = = = = = =	
 Exit menu with storing change 	out s.			
> Restart applica	tion.		0.0 g	

Function Keys

F: Start application program/ Store component.

F	Toggle between component
press and	weight and total weight
hold for	(net-total formulation);
\geq 2 seconds:	change reference quantity
	(counting), reference
	percentage (weighing in
	percent) or number of measure-
	ments (animal weighing)

CF: End application program; delete

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. Non-metric vales are indicated as follows:

- Percent = %
- Piece count (counting) = pcs
- Computed value = $0, \Delta$

* including the Signatories of the Agreement on the European Economic Area Menu code: 2 16

Display symbol: 🕹

Purpose

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

Features

- Tare function
- 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 (print application parameters); either
 - of the last component weight (net value) or
 - of the total weight (tare value)
- Clear component memory when weighing series is canceled by pressing (F); total weight printed if "Print all parameters" is selected in the operating menu; otherwise, the normal net weight printout is generated (() key).
- Toggling between component weight and total weight by pressing and holding (F).
- Printout of the total of the individual component weights (T COMP)

Preparation

Set parameters for Net-Total Formulation:

- Select the application program in the operating menu
- Set parameters for automatic printout when component stored
- 2 Application programs
- └─ 2 / Program selection

2 / 6 Net-total

7 Print for Application

- 7 / Print application parameters

		ר . ר ר	 	1 2 0 5	Off On; all parameters On; only main parameters
٦	Ę	Pr	int	tout	of net-total formulation data
		ר . ר	3 3	10 2	Autom. print of last net value Autom. print of tare value

- o = Factory setting

Printout of Net-total Formulation Data

Comp2	+	278.1	g :
T COMP	+	2117.5	g :
T1	+	1821.5	g :
N 1	+	278.1	g:
N		2099.6	g:

Second component Sum of components Tare weight (2nd tare memory) Net weight = Gross – Tare – 2nd Tare memory Net weight = Gross – Tare

Example: Counting parts into a container

Settings: Application program: Net-total formulation 2 + 6; Print application parameters: On, print all 7 + 2; Line format for printout: 22 characters 7 2 2; Automatic printout of last net value 7 3 +

Step	Key (or instruction)	Display/Output	
1. Turn on the balance/scale, if necessary			
2. Place empty container on the balance/scale.		+ 65.0 g	
3. Tare the balance/scale.	TARE .]	0.0 g	
4. Add first component.		+ 120.5 g	
5. Store component data.	4	0.0 g _{№F} COMP1 + 120.5 g	
6. Add next component.		+ 70.5 g	
7. Store component data.	F	$0.0 g_{Net}$	
8. Weigh in further components if desired.	Repeat steps 5 and 6.	y	
9. Fill to target if desired.	Press and hold F (2 sec.)	+ 19 1.0 g G	

36 |
Step	Key (or instruction)	Display/Output			
10. Add last component.		+ ¦2.5g G			
11. Store component data.	F	0.0g _{Net} COMP 3+ 12.5 g			
12. Display total weight.	CF	+ 203.5g T COMP+ 203.5g			

Menu code: 2 14

Display symbol: 📩

Purpose

With the Counting program you can determine the number of parts that each have approximately equal weight.

Features

- The minimum load is equal to one digit, defined according to the resolution of the active weight unit.
- Press and hold the F key (2 seconds) to set the reference sample quantity.
- Configure the resolution used when reference sample quantity is stored and piece counts are calculated.
- Optional automatic output of the piece count and average piece weight to the data interface port when the menu code 7 +2 (print application parameters) is set.
- Long-term storage of the last reference sample quantity "nRef" entered.
- Toggling between piece count and weight by pressing F.

Function Keys

(F): Begin determination of piece weight

> Application program initialized with predefined reference sample quantity.

(CF):

End application program; clear initialization data

Changing the reference sample quantity:

- Press and hold F (2 sec.)
- Current reference sample quantity is displayed.
- Press F briefly to change the value; press repeatedly until the desired reference sample quantity is displayed. Quantities to choose from: 1, 2, 5, 10, 20, 50, 100.
- Store setting in long-term memory: Press and hold (F).

Reference Sample Updating

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

Automatic reference sample updating is performed when:

- the criterion for the stability parameter selected in the menu has been met
- the current piece count is less than twice the original piece count
- the current piece count is less than 100 × the initialization value
- the internally calculated piece count (such as 17.24 pcs) differs by less than ± 0.3 pcs from the whole number (17 pcs in this example)
- > The abbreviation oPL, for "optimizing", is displayed briefly with the new reference sample quantity.

Reference Weighing

(Counting with two balances/scales)

Purpose:

Use of a reference balance/scale affords higher precision in counting large amounts of parts. The CP balance is used to determine the reference weight. The following terminals can be used for sample weighing in conjunction with a reference balance/scale:

- QC scale (menu code 8 8 2)
- FB/FC/LA/LP series balances/scales (menu code 8 8 3)
- isi terminal (menu code 8 8 Ч)
- Please order the required connecting cables directly from Sartorius

The following settings must have the same configurations in both balances/scales:

- "Counting" program
- Weight units
- All data interface parameters Settings in the CP balance:
- Set menu codes 7 1 2 and 7 2 2

Preparation

operating menu

Set parameters for the "Counting" program: O Select the application program in the

- Set the following parameters:
- Application programs

-2 | Program selection

3 Application parameters

☐ 3 5 Storage parameter

→ ∃ 5 ¦ With stability (internal resolution) → ∃ 5 2 o With higher stability

Application parameters for Counting

- 4 | Autom. ref. sample updating

8 Extra functions

- 8 8 Reference balance/scale

LP models

- 8 8 4 On for isi terminals

o = Factory setting

Printout: Counting

nRef	+	10		:
wRef	+	21.14	g	:
Qnt	+	500	pcs	:

Reference sample quantity Reference weight Calculated quantity

Example: Counting pieces of equal weight

Settings:

Menu: Counting program (menu code 2 +4), Print application parameters: On; all parameters (menu code 7 +2), Line format for printout: 22 characters (menu code 7 2 2)

Ste	р	Key (or instruction)	Display/Output			
1.	Turn on the balance/scale, if necessary.					
2.	Place empty container on the balance/scale.		+ 22.6 g			
3.	Tare the balance/scale.	TARE	0.0 g			
4.	Add reference sample quantity to container (in this example: 10 pcs).					
5.	Initialize the balance/scale.	1	FEF 10 (briefly) + 2.14 g + 10 pcs			
			nRef + 10 pcs wRef + 2.14 g			
6.	Add desired number of pieces.		+ 500 pcs			
7.	Print piece count, if desired.	٢	Qnt + 500 pcs			
8.	Display weight.	F	+ 1070.0 g			
9.	Display piece count.	(F)	+ 500 pcs			
10.	Unload the balance/scale.	11 R	- 511 pcs			
11.	Repeat as necessary, starting from Step 6.					
12.	Delete reference sample quantity.	CF	0.0 g			

Menu code: 2 15

Display symbol: %

Purpose

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

Features

- The minimum load is equal to one digit, defined according to the resolution of the active weight unit.
- Press and hold the F key (2 seconds) to set the reference percentage
- Storage parameter (rounding-off factor) for storing the reference weight to calculate the percentage can be configured.
- Configuration of decimal places displayed with a percentage.
- Optional automatic output of the reference weight "Wxx%" and reference percentage to the data interface port when the menu code 7 +2 (print application parameters) is set.

- Long-term storage of the last reference percentage "pRef" entered.
- Toggling between percentage and weight by pressing (F).

Function Keys

F: Begin calculation of percentage

> Current weight value stored as reference weight "Wxx%" to be loaded at initialization.

CF: End application program; clear initialization data

Changing the reference percentage:

- Press and hold **F** (2 sec.)
- > Current reference percentage is displayed.
- Press F briefly to change the value; press repeatedly until the desired reference percentage is displayed.
 Quantities to choose from: 1, 2, 5, 10, 20, 50, 100.
- Store setting in long-term memory: Press and hold (F).

Preparation

Set parameters for the "Weighing in Percent" program:

- \bigcirc Select the application program in the operating menu
- Set the following parameters:
- **2** Application programs
- 2 | Program selection

-2 + 5 Weighing in percent

3 Application parameters

- 3 5 Storage parameter

-35 to With stability (internal resolution) - 3 5 2 With higher stability

- ☐ ∃ 6 Decimal places
 - _ ∃ 5 ¦ none -36201 decimal place
 - $-3 \overline{6} \overline{3}$ 2 decimal places $-3 \overline{6} \overline{4}$ 3 decimal places
- o = Factory setting

Printout: Weighing in Percent

pRef	+	100	%:
Wxx%	+	111.6	g :
Prc	+	94.7	%:

Reference percentage Reference weight net xx% Calculated reference percentage

Example: Determining residual weight in percent

Settings:

Menu: Weighing in percent program (menu code 2 +5), Print application parameters: On; all parameters (menu code 7 +2), Line format for printout: 22 characters (menu code 7 2 2) Reference percentage: *FEF* +00%

Ste	р	Key (or instruction)	Display/Output					
1.	Turn on the balance/scale, if necessary.	CU)						
2.	Place empty container on balance/scale.		+ 22.6 g					
3.	Tare the balance/scale.	TARE	0.0 g					
4.	Place sample equal to 100% of reference percentage on the balance/scale (in this example: 111.6 g).							
5.	Initialize the balance/scale.	1	$ \overrightarrow{FF} = \begin{bmatrix} I \square \square \\ I \square \square \\ I \square \end{bmatrix} $ (displayed briefly) + $I \square \square \square \%$ pRef + 100% WXX [®] + $111 6 \%$					
6.	Remove container; for example to treat sample (in this example the sample is now dried).	, ,	in a second s					
7.	Place container with sample on the balance/scale again (after treatment).		+ 94.9 %					
8.	Optional: print percentage.	٢	Prc + 94.9 %					
9.	Display residual weight and delete reference value.	(F)	+ 105.9 g					
10.	Optional: print net residual weight.	٢	N + 105.9 g					

Menu code: 2 17

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").

Features

- Animal weighing started manually or automatically
- Minimum load threshold for starting animal weighing:
 - for automatic start: 100 display intervals
 - for manual start:
 50 display intervals
- Automatic start:

Begin the averaging operation by pressing (F). "AUTO" is displayed during weighing to indicate that the following values will be averaged automatically. Animal activity: Averaging begins automatically once two subweights are measured within a predefined tolerance range (calm = 2%, normal = 5%, active = 20%).

- Number of weighing operations for calculation of an average mDef can be set before the beginning of each series.
- Number of remaining weighing operations in the current series is shown during weighing.

- Arithmetic average displayed as a result in the pre-set weight unit (identified by the ▲). The ④ symbol flashes during this time.
- Toggling between weighed and calculated results by pressing F (after initialization)
- Unload threshold is one-half of the minimum load.
- Balance/scale returns to the basic weighing mode when unloaded; i.e., when the load is below the unload threshold

Function Keys

F: Activate animal weighing program

CF):

End application program; delete result; interrupt measuring operation.

Changing the number of subweighing operations:

- Press and hold (F) (2 sec.)
- Current number of subweighing operations is displayed.
- Press F briefly to change the value; press repeatedly until the desired number is displayed.
 Quantities to choose from: 5, 10, 20, 50, 100.
- Store setting in long-term memory: Press and hold (F).

Preparation

Set parameters for the "Animal Weighing" program:

- \bigcirc Select the application program in the operating menu
- Set the following parameters:
- **2** Application programs
- └─2 / Program selection

217 Animal weighing

3 Application parameters

- ∃ 7 Animal activity
- ∃ 7 / Calm (2% of the animal/object)
- ∃ 7 2 o Normal (5% of the animal/object)
- ∃ 7 2 o Calm (20% of the animal/object)
- ∃ 8 Calm (20% of the animal/object)
- ∃ 8 Start
- ∃ 8 / Manual
- ∃ 8 2 o Automatic

o = Factory setting

Printout: Animal Weighing

mDef		20	:
x-Net	+	401.1 g	:

Number of subweighing operations Calculated average

Example: Determining animal weight with automatic start of 20 subweighing operations

Settings:

Menu: Animal weighing program (menu code 2 + 7), Print application parameters: On; all parameters (menu code 7 + 2), Line format for printout: 22 characters (menu code 7 2 2)

Step	Key (or instruction)	Display/Output
 Turn on the balance/scale, if necessary. 		
2. Place animal weighing bowl on the balance.		+ 22.6 g
3. Tare the balance/scale.	TARE	0.0 g
4. Place 1st animal in bowl.		Weight value fluctuates due to animal activity.
5. Start automatic animal weighing. The balance/scale delays starting the subweighing operation until successive subweights lie within the range defined.	, F	888 20 19 18
 After 20 subweighing operation the arithmetic average "x-Net" is displayed. 	s	+ 410.1g <u>A</u> mDef 20 x-Net + 410.1g
7. Unload the balance/scale.		0.0 g

8. Weigh next animal (if applicable)

Next weighing series begins automatically

Menu code: 2 12

Display symbol: R +

Purpose

With this application program you can switch the display of a weight value back and forth between two weight units.

Configure the "Toggle Weight Units" application in the operating menu: See "Configuring the Balance/Scale," menu code 2 + 2: Toggle weight units (factory setting in GC and GP scales)

Menu code		Unit	Conversion	Display	Printout
Weight unit 1	Weight unit 2				
171	3 I Io	Grams * 1)	1.0000000000	0	0
1720	051 E	Grams ²)	1.0000000000	g	g
ГТЭ	3 1 3	Kilograms 3)	0.0010000000	kg	kg
1740	3 1 4	Carats	5.0000000000	ct	ct
175	3 1 5	Pounds*	0.00220462260	lb	lb
176	3 1 6	Ounces*	0.03527396200	0Z	0Z
ררו	3 I T	Troy ounces*	0.03215074700	ozt	ozt
8 רו	3 1 8	Hong Kong taels*	0.02671725000	tl	tlh
פרו	3 / S	Singapore taels*	0.02645544638	tl	tls
סו ר ו	3 I IO	Taiwanese taels*	0.02666666000	tl	tlt
וורו	3	Grain*	15.4323583500	GN	GN
1712	3 12	Pennyweights*	0.64301493100	dwt	dwt
בו ר ו	OEI I E	Milligrams	1000.00000000	mg	mg
1 7 14	3 I I4	Parts per pounds*	1.12876677120	0	/lb
I 7 IS	3 15	Chinese taels*	0.02645547175	tl	tlc
1716	3 16	Mommes*	0.26670000000	m	mom
רו ר ו	3 I I	Austrian carats*	5.0000000000	К	К
1 א ר ו	3 I I8	Tola*	0.08573333810	t	tol
1 7 19	3 I I9	Baht*	0.06578947437	b	bat
I 7 20	3 I 20	Mesghal*	0.21700000000	m	MS

o = Factory setting, depends on model

* = Not available in verified balances/scales

¹) = GP3202: readability with Taiwanese taels reduced by one decimal place

²) = GC1603P, GC 803P/S: readability 0.0002 g; GC2502: readability 0.001 g

³) = Not available in verified balances/scales of accuracy class \bigcirc

Function

• Press (F) to toggle between weight unit 1 and weight unit 2.

Purpose

You can generate a printout of weights as well as other measured values and identification codes for documentation purposes. You can format the printout to meet individual requirements.

Features

Printouts generated automatically or manually (at the press of a key): weight or calculated value is output.

Line format: Each value printed with up to 6 preceding characters for identification

Print application parameters: Printout of initialization values before printing measurement results.

ISO/GLP-compliant printout: Printout of ambient characteristics.

Printouts generated automatically or by pressing (2), dependent on or independent of stability You can have the following values output automatically when using the application programs if menu code 7 + 2 is configured (printout with data ID codes):

- Net-total: Component or total weight
- Counting: Reference sample quantity (nRef) Reference weight for one piece (average piece weight; wRef)
- Weighing in percent: Reference percentage (pRef) Reference weight (Wxx%)
- Animal weighing/averaging: Number of subweighing operations (Mdef) Calculated average (x-Net)

Factory Settings

Print manual/automatic: Individual printout dependent on stability: Manual at stability (menu code 5 + 2)

Line format:

Up to 6 characters at the beginning of each line to identify the weight or calculated value: Print net, tare, or gross value, reference sample quantity, or average piece weight with ID (menu code $7 \neq 2$).

Print application parameters: Printout of one or more initialization values for the active application program: On (menu code 7 + 2)

ISO/GLP-compliant printout: No ISO/GLP-compliant printout (menu code 윤 1월 1) Auto print:

Automatic printout of weight values: No default setting; see print manual/ automatic (menu code $\beta + 2$) Automatic printout after each display cycle (menu code $\beta = 3 +$), cannot be interrupted by pressing (a) (menu code $\beta = 2 - 2$)

• Set the following parameters: See "Configuring the Balance/Scale" Printout without Data ID Codes:

The value currently displayed is printed (weight or calculated value with unit)		+ + +	1530.0 58.562 253 88.2	g ozt pcs %	Weight in grams Weight in Troy ounces Piece count Percentage
Printout with Data ID Codes:					
The current value displayed can be printed with a data ID code of up to 6 characters at the beginning of the line.	ID N T1 Qnt Prc	+ + +	12345 153.0 23.4 253 88.23	5678 g g pcs %	Identification* Current net weight Value in 2nd tare memory Piece count Percentage * = on ISO/GLP records only
Print Application Parameters:					
You can generate a print- out of one or more of the values configured for initialization of an appli- cation as soon as you initialize the balance/scale.	Comp7 T COMF nRef WRef Wxx%	+ + + +	278.1 21.14 10 21.14 1200.0	a a a	Net-total: 7 th compo- nent weight Net-total: Total Counting: Reference sample quantity Counting: Reference weight Weighing in percent: Reference weight
Auto Finit.					
You can have the weight readout printed automatically.	N Stat Stat Stat	+	153.0 L H	g	Net weight Display blank Display underload Display overload

Features

You can have the parameters pertaining to the ambient weighing conditions 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

The record is output to a Sartorius data printer or a computer.

Settings

- Set the following menu codes (see "Configuring the Balance/Scale"):
- ISO/GLP-compliant record after calibration/adjustment only: menu code B □ 2; or ISO/GLP-compliant record always on: menu code B □ 3
- Line format for printout: With data ID codes
 22 characters: menu code 722
- ▲ No ISO/GLP-compliant record is output if any of the following settings are configured: menu codes 6 14, 6 15, 6 16 (automatic printout) and 72 1

Function Keys

Press (2) to output header and first measured value.

> Header is output the first time is pressed

To output header and reference data automatically with an application program active: Press (F)

End an application:

- 1) Output GLP footer: Press CF
- 2) End application program: Press CF

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

			Dotted line
17-Ja	n-20	01 10:15	Date/time (beginning of measurement)
S	ARTO	RIUS AG	Balance/scale manufacturer
Mod.		CP8201	Balance/scale model
Ser.	no.	10105355	Balance/scale serial number
Ver.	no.	00-13-01	Software version
ID		2690 923	ID ID
			Dotted line
LID			Measurement series no.
nRef	+	10 pcs	Counting: Reference sample quantity
wRef	+	21.14 g	Counting: Reference weight
Qnt	+	235 pcs	Counting result
Qnt	+	567 pcs	Counting result
			Dotted line
17 – Ja	n-20	01 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-Jan-2001 10:30	Date/time (beginning of measurement)
SARTORIUS AG	Balance/scale manufacturer
Mod. CP8201	Balance/scale model
Ser. no. 10105355	Balance/scale serial number
Ver. no. 00-13-01	Software version
ID 2690 923	ID
	Dotted line
Cal. Ext.	Calibration/adjustment mode
Set + 5000.0 g	Calibration weight
Diff. + 0.2 g	Difference after calibration
Cal. Ext. Complete	Confirmation of completed calibration
Diff. + 0.0 g	Difference from nominal value after calibration
	Dotted line
17-Jan-2001 10:32	Date/time (end of measurement)
Name:	Field for operator signature
	Blank line
	Dotted line

Purpose

Your balance/scale is 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.

Features

Type of interface: Serial interface Operating mode: Full duplex Standard: RS-232 Transmission rates: 150; 300; 600; 1200; 2400; 4800; 9600; 19200 baud Parity: Mark, space, odd, even Character format: 1 start bit, 7-bit ASCII, parity, 1 or 2 stop bits Handshake: 2-wire interface: via software (XON/XOFF); 4-wire interface: via hardware handshake lines (CTS/DTR) Operating mode: SBI Data output format of the balance/scale: 16 or 22 characters Factory settings:

Transmission rate: 1200 baud (5 1 4) Parity: Odd (5 2 3) Stop bits: 1 stop bit (5 3 1) Handshake: Hardware, 2 characters after CTS (5 4 2) Operating mode: Standard SBI (5 5 4) Print manually/automatically: Manual at stability (6 1 2)

Preparation

• see "Pin Assignments" and "Pin Assignment Chart"

Output Format with 16 Characters

Display segments that are not activated are output as spaces.

The following characters can be output, depending on the characters displayed on the balance/scale:

Normal Operation

Position	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	+				D	D	D	D	D	D	*	U	υ	U	CR	LF
or	_		•	•		•			•	•		*	*	*		
or	*		*	*	*	*	*	*	*	*						
or					0	0	0	0	0	0						
	Construction of the sector															
*:	Spac	e,					CR:		C	arria	je ret	urn				
D:	Digit	torle	etter				LF:		L	ine fe	ed					
0:	Unit	symi	100													
Special Cod	Special Codes															
Position	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
					*	*	*	*	*	*	*	*	*	*	CR	LF
or							Н	*								
or							L	*								
or							С	*								
*.	Spac	e					Н:		C)verlo	ad					
C:	Calik	oratio	n/adj	justm	ent		L:		ι	Inder	oad					
Error Codes	5															
Position	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
				Е	r	r	*	#	#	#	*	*	*	*	CR	LF
*:	Spac	e														

#: Error code number

Data output example: + 1255.7 g

Position	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	+	*	*	*	1	2	5	5	•	7	*	g	*	*	CR	LF
Position 1: Position 2: Positions 3– Position 11: Positions 12	10: -14:	Plus Space Weig Space Unit	s or m ce ght w ce t sym	ninus /ith a bol o	sign deci r spa	or sp mal p ce	ace oint;	leadi	ing z	eros =	= spa	ce				
Position 15: Position 16:		Carr Line	iage feed	retur	1											

Data Output with an ID Code (22 Characters)

When data is output with an ID code, the ID code (consisting of 6 characters) precedes the data with the 16-character format. These 6 characters identify the following value.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
1	1	1	1	1	1	+	*	D	D	D	D	D	D	D	D	*	U	U	U	CR	LF
	*	*	*	*	*	-											*	*	*		
						*		*	*	*	*	*	*	*	*						
										0	0	0	0	0	0						
1: *: D:	1D Spa Dig	code ace jit oi	e cha r lett	ract	er	U: Unit symbol ') CR: Carriage return LF: Line feed															

¹) depends on balance/scale type; e.g., not all units and characters are available on balances verified for use in legal metrology

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<u>_</u>	•		
× -	nacin		00
	שלנום	гоо	153
-			

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
S	t	а	t	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	CR	LF
												Н	*								
												L	*								
*:	Spa	ace									H: L:	יי 0י 10	verlo nder	ad Ioad							
Erro	or Co	des																			
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
S	t	а	t	*	*	*	*	*	Е	r	r	*	#	#	#	*	*	*	*	CR	LF
*:	Spa	ace 1D	cod	e							# #	# #:	Er	ror r	umb	oer					
	cł	narac	cters	1	Mea	ninç	J														
		S	tat	t	Status																
			Т	1	Tare T1																
			1	N	Net N																
			N ′	1	Net N1																
	C	Com	рхх	x	Net	-tota	al: C	omp	oner	nt no).										
		ГС	0 M I	Ρ	Net	-tota	al: To	otal	weig	hed	in										
			Qnt	t	Cou	ntin	g: Q	uan	tity												
		W	R e -	f	Cou	ntin	g: R	efere	ence	weię	ght										
		n	R e -	f	Cou	ntin	g: R	efere	ence	sam	ple c	lnau	tity								
			Pro	С	Wei	ghin	g in	perc	cent:	Ref	eren	ce pe	ercer	itage	-						
		W	хх	%	Wei	ghin	g in	perc	cent:	Ref	eren	ce w	eigh	t							
		р	Re	f	Wei	ghin	g in	perc	cent:	Ref	eren	ce pe	ercer	ntage	-						
		m	De	f	Anii	mal v	weig	hing	j: No	. of	mea	surei	nent	ts re	nain	ing					
		x –	Net	t	Anii	mal v	weig	hinc	r: Cal	cula	ted a	avera	age								

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Data Input Format

You can connect a computer to your balance/scale to send commands via the balance/scale interface port to control balance/scale functions and applications.

The commands sent are control commands and may have different formats. Control commands consist of up to 4 characters. Each character must be transmitted according to the settings configured in the operating menu for data transmission.

Format for Control Commands

i onnue i or ee			manas						
Format 1: E	sc	!	CR	LF					
Format 2: E	sc	!	#	_	CR	1	F		
Esc: Escape			CR: C	arriage 1	return (opt	tion	al)		
!: Commar	id char	act	er LF: Li	ne feed	(optional))			
Command cha	aracter		Format 1:						
	!		Meaning						
	К		Weighing m	ode 1 (v	ery stable	cor	ndit	ions)	
	L		Weighing m	ode 2 (s	table cond	ditic	ons)		
	М		Weighing m	ode 3 (u	unstable co	ond	itio	ns)	
	Ν		Weighing m	ode 4 (v	ery unstal	ble (con	ditions)	
	0		Block keys						
	Р		(2) key (p	rint, aut	to print; a	ctiv	ate	or block)	
	R		Release keys						
	S		Restart/Self-	test					
	Т		TARE key						
	Z		Internal cali	oration/	adjustmer	nt*			
Command cha	aracter		Format 2:						
	!#		Meaning						
	f0		Function ke	y (F)					
	f1		Function ke	y CAL					
	s3		CF key						
	x0		Perform inte	rnal cal	ibration*				
	x1		Print balanc	e/scale i	model				
	x2		Print weighi	ng cell s	serial num	ber	_		

* = for models with built-in motorized calibration weight only

Synchronization

During data communication between the balance/scale and an on-line device (computer), messages consisting of ASCII characters are transmitted via the interface. For error-free data communication, the parameters for baud rate, parity, handshake mode and character format must be the same for both units.

You can set these parameters in the Setup menu so that they match those of the on-line device. You can also define parameters in the balance/scale to make data output dependent on various conditions. The conditions that can be configured are described under each of the application program descriptions.

If you do not plug a peripheral device into the balance/scale interface port, this will not generate an error message.

Handshake

The balance/scale interface (Sartorius Scale Interface = SBI) has transmit and receive buffers. You can define the handshake parameter in the Setup menu:

- Hardware handshake (CTS/DTR)
- Software handshake (XON, XOFF)

Hardware Handshake

With a 4-wire interface, 1 more character can be transmitted after CTS (Clear to Send).

Software Handshake

The software handshake is controlled via XON and XOFF. When a device is switched on, XON must be transmitted to enable any connected device to communicate.

Data Output by Print Command

The print command can be transmitted by pressing (a) or by a software command (Esc P).

Automatic Data Output

In the "auto print" operating mode, data is output to the interface port without a print command. You can choose to have data output automatically at defined print intervals with or without the stability parameter. Whichever parameter you select, the data will be output as the readouts appear on the balance/scale display. The display update frequency depends on the settings for "Adapting the filter" (1 1 x) and "Timedependent automatic printing" (6 3 x). If you select the auto print setting, data will be transmitted immediately the moment you turn on the balance/scale. In the operating menu, you can define whether automatic printing can be stopped by pressing (2).

Faster Output Speeds

If you require output speeds faster than 10 Hz, please contact Sartorius for information.

Female interface connector:

25-contact D-Submini DB25S with screw-lock hardware

Male connector used (please use connectors with the same specifications): 25-pin D-Submini DB25 with integrated shielded cable clamp assembly (Amp 826 985-1C) and fastening screws (Amp type 164868-1)

Marning When Using Pre-wired RS-232 Connecting Cables:

RS-232 cables purchased from other manufacturers often have incorrect pin assignments for use with Sartorius balances/scales. Be sure to check the pin assignment against the chart below before connecting the cable, and disconnect any lines marked "Internally Connected" (e.g., pin 6). Failure to do so may damage or even completely ruin your balance/scale and/or peripheral device.

Pin Assignment Chart:

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: Internally connected Pin 7: Internal ground (GND) Pin 8: Internal ground (GND) Pin 9: Reset _ In *) Pin 10: Not connected Pin 11: +12 V Pin 12: Reset Out *) For remote switch Pin 13: + 5 V 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: Ground input for external supply voltage Pin 22: Not connected Pin 23: Not connected Pin 24: Ext. supply voltage input + 12 ... 30 V Pin 25: + 5 V *) = Hardware restart

62 | Cabling Diagram

- For connecting a computer or other peripheral device to the balance/scale using the RS-232-C/V24 protocol and cables up to 15 m (50 ft.) long.





Type of cable: AWG 24 specification

Error codes are shown on the main display for 2 seconds. The program then returns automatically to the previous mode (e.g., weighing).

Display	Cause	Solution
No segments appear on the display	No AC power is available The AC adapter is not plugged in	Check the AC power supply Plug in the AC adapter
Н	The load exceeds the balance/scale capacity	Unload the balance/scale
L or Err 54	Something is touching the load plate	Move the object that is touching the load place
Err D I	Data output not compatible with output format	Change the configuration in the operating menu
Err 02	Calibration parameter not met; e.g.: – balance/scale not zeroed	Calibrate only when zero is displayed Press (TARE) to zero the balance/scale Unload the balance/scale
Err 10	The TABE 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 CF to clear the tare memory and release the tare key
Err 11	Tare memory not allowed	Press TARE
Err 22	Weight is too light or there is no sample on the balance/scale	Increase the weight on the balance/scale
Err 30	Interface port for printer output is blocked	Reset the menu (restore factory settings) or Contact your local Sartorius Service Center

Display	Cause	Solution			
Err 235 on the CP225D	Connecting cable not connected correctly	Connect the cable correctly			
	Connection to junction on a different balance/scale	Connect the equipment correctly			
The weight readout changes constantly	Unstable ambient conditions A foreign object is caught between the load plate and the balance/scale frame	Set up the balance/scale in another area Remove the foreign object			
The weight readout is obviously wrong	The balance/scale has not been calibrated/adjusted The balance/scale was not zeroed 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: www.sartorius.com

Service

Regular servicing by a Sartorius technician will extend the service life of your balance/scale and ensure its continued weighing accuracy. Sartorius can offer you service contracts, with your choice of regular maintenance intervals ranging from 1 month to 2 years.

The optimum maintenance interval depends on the operating conditions at the place of installation and on the individual tolerance requirements.

Repairs

Repair work must be performed by trained service technicians. Any attempt by untrained persons to perform repairs may lead to 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
- ▲ Do not use any aggressive cleaning agents (solvents or similar agents)
- Clean the balance/scale using a piece of cloth which has been wet with a mild detergent (soap)
- After cleaning, wipe down the balance/scale with a soft, dry cloth



Cleaning the Weighing Chamber and Draft Shield

- Open the draft shield cover and take out the removable parts
- Use a hand-held vacuum cleaner and mini-hose to remove any powdered sample material carefully.
- Use blotting paper to remove any liquid sample material.
- On models with a 3-sided draft shield, pull the 3 draft shield walls upwards to remove, if necessary.

Safety Inspection

If there is any indication that safe operation of the balance/scale with the AC adapter 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

Safe operation of the balance/scale with the AC adapter is no longer ensured when:

- there is visible damage to the AC adapter.
- the AC adapter no longer functions properly.
- the AC adapter has been stored for a relatively long period under unfavorable conditions.
 Maintenance and repair work may be performed only by service technicians who are authorized by Sartorius and who
- have access to the required maintenance manuals.
- have attended the relevant service training courses.

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

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

To ensure safe shipment, your balance/scale has been packaged using environmentally friendly materials. After successful installation of the balance/scale, you should return this packaging for recycling.

For information on recycling options, including recycling of old weighing equipment, contact your municipal waste disposal center or local recycling depot.

Specifications

Competence Series

Model		CP225D	CP324S	CP224S	CP124S	CP64
Weighing capacity	g	40/80/220	320	220	120	64
Readability	mg	0.01/0.01/0.1	0.1	0.1	0.1	0.1
Tare range (subtractive)	g	-220	-320	-220	-120	-64
Repeatability (std. deviation)	≤±mg	0.02/0.05/0.1	0.2	0.1	0.1	0.1
Linearity	≤±mg	0.03/0.1/0.2	0.3	0.2	0.2	0.2
Response time (average)	s	≤ 12/3	≤ 3	≤ 2	≤ 2	≤ 2
Operating temperature range	°C	+10 +30 °C (50°	° to 86° F)			
Allowable ambient operating temperature	°C	+5 +40 °C (41°F	F to 104°F)			
Sensitivity drift within +10 +30 °C	≤±/K	1.10-6				
External calibration weight (of at least accuracy class)	g	200 (E2)	200 + 100 (E2)	200 (E2)	100 (E2)	50 (E2)
Net weight, approx.	kg	7.6	6.5	6.5	6.5	6.5
Pan size (inner diameter)*	mm	80 Ø				
Pan surface*	cm ²	64				
Weighing chamber height (from pan to cover)	mm	232				
Dimensions (W×D×H)	mm	213×342×340				
AC power source/ Power requirements	V~	AC adapter, 230 V (protection rating	or 115 V, +15% IP20)	o20%		
Frequency	Hz	48 - 60				
Power consumption (average)	VA	maximum 16; typi	cal 8			
Approx. hours of operation with the YRB08Z rechargeable battery pack	h	20	22	22	22	22
Selectable weight units		Grams, kilograms, Hong Kong taels, S pennyweights, mil mommes, Austrian	carats, pounds, Singapore taels, ligrams, parts po carats, tola, ba	ounces, Troy ou Taiwanese taels er pound, Chine ht and mesghal	unces, s, grains, se taels,	
Built-in interface Format: Parity: Transmission rates: Handshake mode:		RS-232/V24-V28 7-bit ASCII, 1 start Mark, odd, even or 150 to 19,200 bau Software or hardw	: bit, 1 or 2 stop r space Id are	bits		



* Three-sided weighing pan: \emptyset = Diameter of inner circle. The cross-hatched section can be fully utilized.

Gem ^{plus} Series					
Model		GC1603P	GC803S	GC803P	GC2502
Weighing capacity	ct	800/1600	800	400/800	2500 (500 g)
Readability	ct	0.001/0.01	0.001	0.001/0.01	0.01 1)
Tare range (subtractive)	ct	-1600	-800	-800	-2500
Repeatability (std. deviation)	≤± ct	0.001/0.01	0.001	0.001/0.01	0.01
Linearity	≤± ct	0.002	0.001	0.001	0.01
Response time (average)	S	≤ 2			
Operating temperature range	°C	+10 +30 °C (5	D°F to 86°F)		
Allowable ambient operating temperature	°C	+5 +40 °C (41	°F to 104°F)		
Sensitivity drift within +10 +30 °C	≤±/K	1.10-6	1.10-6	1.10-6	2 ·10 ⁻⁶
External calibration weight (of at least accuracy class)	g	200 + 100 (E2)	100 (E2)	100 (E2)	200 (F1)
Net weight, approx.	kg	6.1			
Pan size (inner diameter)*	mm	80 Ø	80 Ø	80 Ø	110Ø
Pan surface*	cm ²	64	64	64	120
Weighing chamber height (from pan to cover)	mm	162			
Dimensions (W×D×H)	mm	213×342×270			
AC power source/ Power requirements	٧~	AC adapter, 230 (protection rating	V or 115 V, +159 J IP20)	%20%	
Frequency	Hz	48 - 60			
Power consumption (average)	VA	maximum 16; ty	oical 8		
Approx. hours of operation with the YRB08Z					
rechargeable battery pack	h	22	22	22	27
Selectable weight units		Grams, kilograms Hong Kong taels, pennyweights, m mommes, Austria	, carats, pounds, , Singapore taels illigrams, parts p in carats, tola, ba	, ounces, Troy oun , Taiwanese taels, g er pound, Chinese aht and mesghal	ces, grains, taels,
Built-in interface Format: Parity: Transmission rates: Handshake mode:		RS-232/V24-V28 7-bit ASCII, 1 sta Mark, odd, even 150 to 19,200 ba Software or hard	rt bit, 1 or 2 stoj or space jud ware	p bits	

¹) For readability 0.005 ct, select menu code 1 8 1 or 3 2 1 (see "Configuring the Balance/Scale")



* Three-sided weighing pan: \emptyset = Diameter of inner circle. The cross-hatched section can be fully utilized.

Competence Series

Model		CP423S	CP323S	CP323P	CP153			
Weighing capacity	g	420	320	80/160/320	150			
Readability	g	0.001	0.001	0.001/0.002/ 0.005	0.001			
Tare range (subtractive)	g	-420	-320	-320	-150			
Repeatability (std. deviation)	≤± g	0.001	0.001	0.001/0.001/ 0.003	0.001			
Linearity	≤± g	0.002	0.002	0.002/0.002/ 0.005	0.001			
Response time (average)	S	≤ 1.5						
Operating temperature range	°C	+10+30 °C (50°	F to 86°F)					
Allowable ambient operating temperature	°C	0+40 °C (32°F t	o 104°F)					
Sensitivity drift within +10+30 °C	≤±/K	2.10-6						
External calibration weight (of at least accuracy class)	g	200 (F1)	200 (F1)	100 (F1)	100 (F1)			
Net weight, approx.	kg	3.7						
Pan size (inner diameter)*	mm	110 Ø						
Pan surface*	cm ²	120						
Weighing chamber height (from pan to cover)	mm	50						
Dimensions (W×D×H)	mm	213×342×153						
AC power source/ Power requirements	V~	AC adapter, 230 V (protection rating)	′ or 115 V, +15% IP20)	20%				
Frequency	Hz	48 - 60						
Power consumption (average)	VA	maximum 16; typi	cal 8					
Approx. hours of operation with the YRB08Z	h	27						
Colorate ballery pack	n	27		т				
Selectable weight units		Grams, kilograms, carats, pounds, ounces, Troy ounces, Hong Kong taels, Singapore taels, Taiwanese taels, grains, pennyweights, milligrams, parts per pound, Chinese taels, mommes, Austrian carats, tola, baht and mesghal						
Built-in interface Format: Parity: Transmission rates: Handshake mode:		RS-232/V24-V28 7-bit ASCII, 1 start Mark, odd, even or 150 to 19,200 bau Software or hardw	bit, 1 or 2 stop bi space d are	its				



* Three-sided weighing pan: \varnothing = Diameter of inner circle. The cross-hatched section can be fully utilized.

Competence and Gem^{plus} Series

Model		CP4202S	CP3202S, GP3202	CP3202P	CP2202S
Weighing capacity	g	4200	3200	800/1600/ 3200	2200
Readability	g	0.01	0.01	0.01/0.02/ 0.05	0.01
Tare range (subtractive)	g	-4200	-3200	-3200	-2200
Repeatability (std. deviation)	≤± g	0.01	0.01	0.01/0.01/0.03	0.01
Linearity	≤± g	0.02	0.02	0.02/0.02/0.05	0.02
Response time (average)	S	≤ 1.5			
Operating temperature range	°C	+10+30 °C (50°	F to 86°F)		
Allowable ambient operating temperature	°C	0+40 °C (32°F t	o 104°F)		
Sensitivity drift within +10+30 °C	≤±/K	2.10-6			
External calibration weight (of at least accuracy class)	g	2000 (F1)	2000 (F1)	1000 (F1)	1000 (F1)
Net weight, approx.	kg	4.0			
Pan size	mm	190×204			
Pan surface	cm ²	369			
Dimensions (W×D×H)	mm	213×342×88			
AC power source/ Power requirements	V~	AC adapter, 230 V (protection rating	/ or 115 V, +15% IP20)	20%	
Frequency	Hz	48 - 60			
Power consumption (average)	VA	maximum 16; typi	cal 8		
Approx. hours of operation with the YRB08Z					
rechargeable battery pack	h	27			
Selectable weight units		Grams, kilograms, Hong Kong taels, S pennyweights, mil mommes, Austrian	carats, pounds, ou Singapore taels, Ta ligrams, parts per p carats, tola, baht	inces, Troy ounces iwanese taels, gra pound, Chinese ta and mesghal	s, ins, els,
Built-in interface Format: Parity: Transmission rates: Handshake mode:		RS-232/V24-V28 7-bit ASCII, 1 start Mark, odd, even of 150 to 19,200 bau Software or hardw	t bit, 1 or 2 stop bi r space d are	its	

Competence Series

Model		CP622	CP8201, GP8201	CP6201	CP4201	CP2201		
Weighing capacity	g	620	8200	6200	4200	2200		
Readability (scale interval)	g	0.01	0.1	0.1	0.1	0.1		
Tare range (subtractive)	g	-620	-8200	-6200	-4200	-2200		
Repeatability (std. deviation)	≤±g	0.01	0.1	0.1	0.1	0.1		
Linearity	≤±g	0.02	0.2	0.2	0.2	0.2		
Response time (average)	S	≤ 1						
Operating temperature range	°C	+10+30 °C (!	50°F to 86°F)					
Allowable ambient operating temperature	°C	0+40 °C (32°	'F to 104°F)					
Sensitivity drift within +10+30 °C	≤±/K	5 ·10 ⁻⁶	5 ·10 ⁻⁶	5 ·10 ⁻⁶	10 · 10 ⁻⁶	10 · 10 ⁻⁶		
External calibration weight (of at least accuracy class)	g	500 (F2)	5000 (F1)	5000 (F2)	2000 (F2)	2000 (F2)		
Net weight. approx.	kg	2.8	3.6	3.6	3.6	3.6		
Pan size	mm	154 Ø*	190×204	190×204	190×204	190×204		
Pan surface	cm ²	227*	369	369	369	369		
Dimensions (W×D×H)	mm	213x342x90						
AC power source/ power requirements	V~	AC adapter, 23 (protection rati	10 V or 115 V, +1 ng 1P20)	5%20%				
Frequency	Hz	48 - 60						
Power consumption (average)	VA	maximum 16; t	ypical 8					
Approx. hours of operation with the YRB05Z rechargeable battery pack	h	40						
Selectable weight units		Grams, kilograms, carats, pounds, ounces, Troy ounces, Hong Kong taels, Singapore taels, Taiwanese taels, grains, pennyweights, milligrams, parts per pound, Chinese taels, mommes, Austrian carats, tola, baht and mesghal						
Built-in interface Format: Parity: Transmission rates: Handshake mode:		RS-232/V24-V2 7-bit ASCII, 1 s Mark, odd, even 150 to 19,200 Software or har	28 tart bit, 1 or 2 st n or space baud rdware	op bits				



* Three-sided weighing pan: \emptyset = Diameter of inner circle. The cross-hatched section can be fully utilized.
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|------------|------------|------------------|------|
| 1 0 100 10 | 0 + 0 10 0 | ~ ` ~ ~ ~ | 1.00 |
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| | | | |

Model		CP34001S	CP34001P	CP16001S	CP12001S	CP34000
Weighing capacity	kg	34	8/16/34	16	12	34
Readability (scale interval)	g	0.1	0.1/0.2/0.5	0.1	0.1	1
Tare range (subtractive)	kg	-34	-34	-16	-12	-34
Repeatability (std. deviation)	≤±g	0.1	0.05/0.05/0.1	0.05	0.05	0.5
Linearity	≤±g	0.2	0.2	0.2	0.2	0.5
Response time (average)	S	≤ 2	≤ 2	≤ 2	≤ 2	≤ 1.5
Operating temperature range	°C	+10+30 °C (50	D°F to 86°F)			
Allowable ambient operating temperature	°C	0+40 °C (32°F	5 to 104°F)			
Sensitivity drift within +10+30 °C	≤±/K	2.10-6				
External calibration weight (of at least accuracy class)	kg	10 (F1)	10 (F2)	10 (F1)	10 (F1)	10 (F2)
Net weight, approx.	kg	16				
Pan size	mm	300x400				
Dimensions (W×D×H)	mm	313×532×120				
AC power source/ Power requirements	V~	AC adapter, 230 (protection ratin) V or 115 V, g 1P20)			
Frequency	Hz	48 - 60				
Power consumption (average)	VA	maximum 16; ty	pical 8			
Approx. hours of operation with the YRB06Z						
rechargeable battery pack	h	22				
Selectable weight units		Grams, kilogram Hong Kong taels pennyweights, m mommes, Austria	s, carats, pounds, , Singapore taels, nilligrams, parts p an carats, tola, ba	ounces, Troy o , Taiwanese tael er pound, Chine aht and mesghal	unces, s, grains, ese taels,	
Built-in interface Format: Parity: Transmission rates: Handshake mode:		RS-232/V24-V28 7-bit ASCII, 1 sta Mark, odd, even 150 to 19,200 b Software or hard	3 art bit, 1 or 2 stor or space aud ware	o bits		

74 | Accessories (Options)



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Product Data printer with date/time, statistics evaluation and transaction counter functions and LCD	Order No. YDP03-0CE
Remote display, reflective (data interface required)	YRD02Z
Remote display, transmissive (for overhead projectors) (data interface required)	YRD13Z
 External rechargeable battery pack for models with weighing capacities under 10 kg for models with weighing capacities over 10 kg with battery-level indicator (LED); can be recharged using the AC adapter (time it takes to charge the discharged battery pack: 15 hours); see "Specifications" for hours of operation 	YRB05Z YRB06Z
To recharge the battery pack: – Unplug the AC adapter from the balance/scale and plug it into the battery pack	
 Carrying case for models with analytical draft shield chamber for models with weighing capacities up to 10 kg and without analytical 	YDB01CP
draft shield chamber	YDB02CP



Calibration weights:

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For model:	Accuracy class (01ML)	Weight in grams	Order no.:
CP64	E2	1x50	YCW4528
CP124S, GC803S, GC803P	E2	1×100	YCW5128
CP323P, CP153	F1	1×100	YCW5138
CP225D, CP224S	E2	1×200	YCW5228
CP324S, GC1603P	E2	1×200+ 1×100	YCW5228+ YCW5128
CP423S, CP323S, GC2502	F1	1×200	YCW5238
CP622	F2	1×500	YCW5548
CP3202P, CP2202S	F1	1×1000	YCW6138
CP4202S, CP3202S, GP3202, CP4201, CP2201	F1	1×2000	YCW6238
CP8201, CP6201	F1	1×5000	YCW6538
CP34001S, CP34001P, CP16001S, CP12001S, CP34000	F1	1×10000	YCW7138
SartoConnect data transfer softw for connecting your Sartorius bal the Windows 95, 98 or NT operat This software lets you transfer the to any PC application program (e.g.	are ance/scale to a PC i ing system. data recorded by yo i., Excel).	r unning ur balance/scale	YSC01L
Density determination kit for CP225D, CP324S, CP124S, CP6	64		YDK01
Antistatic weighing pan for CP225D, CP324S, CP124S, CP6	64		YWP01CP
Dust cover for precision balances/scales			Information on request

	Product Industrial AC adapter, model ING1 for balances/scales with weighing capacities of up to 10 kg; protection rating: IP65 in accordance with DIN VDE 0470/ DIN FN 60529	Order No.
-	for 230 V	69 71476
-	for 120 V	69 71480
	Industrial AC adapter, model ING2 for balances/scales with weighing capacities over 10 kg; protection rating: IP65 in accordance with DIN VDE 0470/ DIN EN 60529	
-	for 230 V	69 71899
-	tor 120 V	69 /1500
-	Analytical draft shield chamber for CP423S, CP323S, CP323P, CP153, GC2502	YDS01CP
-	Draft shield cover with opening for CP423S, CP323S, CP323P, CP153, GC2502	YDS02CP
-	Data cable for PC-connection, 25-pin for PC-connection, 9-pin	7357312 7357314
	Adapter: D-Sub 25-pin to D-Sub 9-position; length: 0.25 m	6965619
	Universal remote control switch for remote control of one of the following functions (configured in the balance/scale menu): (a), (TARE), (CF) or (F) (see "Configuring the Balance/Scale" for details):	
	Foot switch with T-connector	YFS01
	Hand switch with T-connector	YHS02
⚠	T-connector The T-connector is not intended for use with multiple intelligent peripheral devices, such as PCs or YDP03-0CE printers.	YTC01

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Declaration of Conformity to Council Directives 89/336/EEC and 73/23/EEC

The electronic precision weighing instrument of the series CP/GP/GC

meets the requirements of the test standards listed below, in conjunction with the associated power supplies, auxiliary peripheral devices and installation equipment.

1. Electromagnetic Compatibility 1.1 Searce for 99/335/EEC: EC Official Journal, No. 2000/C99/03

EN 61326-1 Destrical equipment for measurement, control and laboratory use EMC requirements Part 1: Descript expansionents.

Generic pression standard IN 90081-1 Residential, conventati and light industry IN 50081-2 Industrial environment Deseric immunity standard IN 50082-1 Residential, commercial and light industry IN 50082-2 Industrial environment

Safety of Electrical Equipment
 Searce for 72(22)(EEC: EC Official Journal, No. 2000)(C106)(58)

EN 61010 Safety regulærnents for electrical equipment for messurement, control and laboratory use Part 1: General requirements 10 60800 Safety of information technology equipment including electrical business equipment.

Sertarian AB 17070 Gonttingen, Ocemanie 2001

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