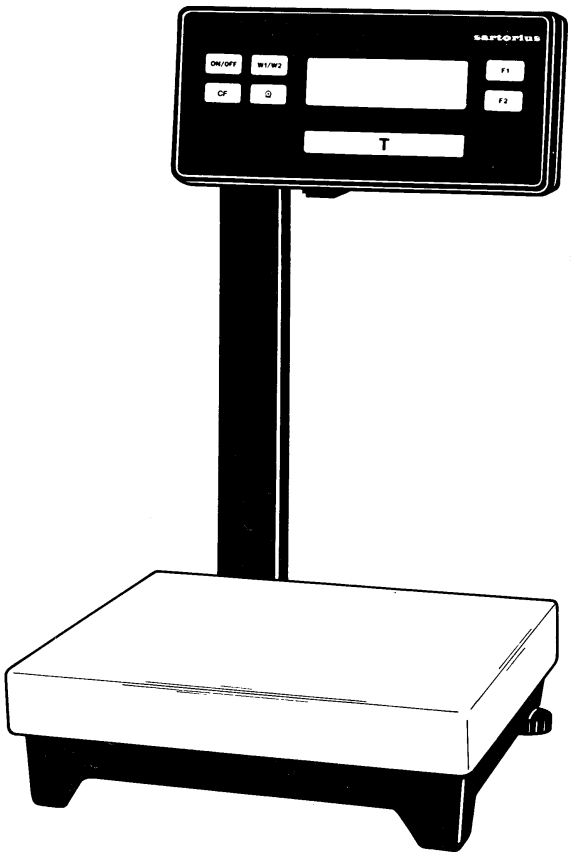
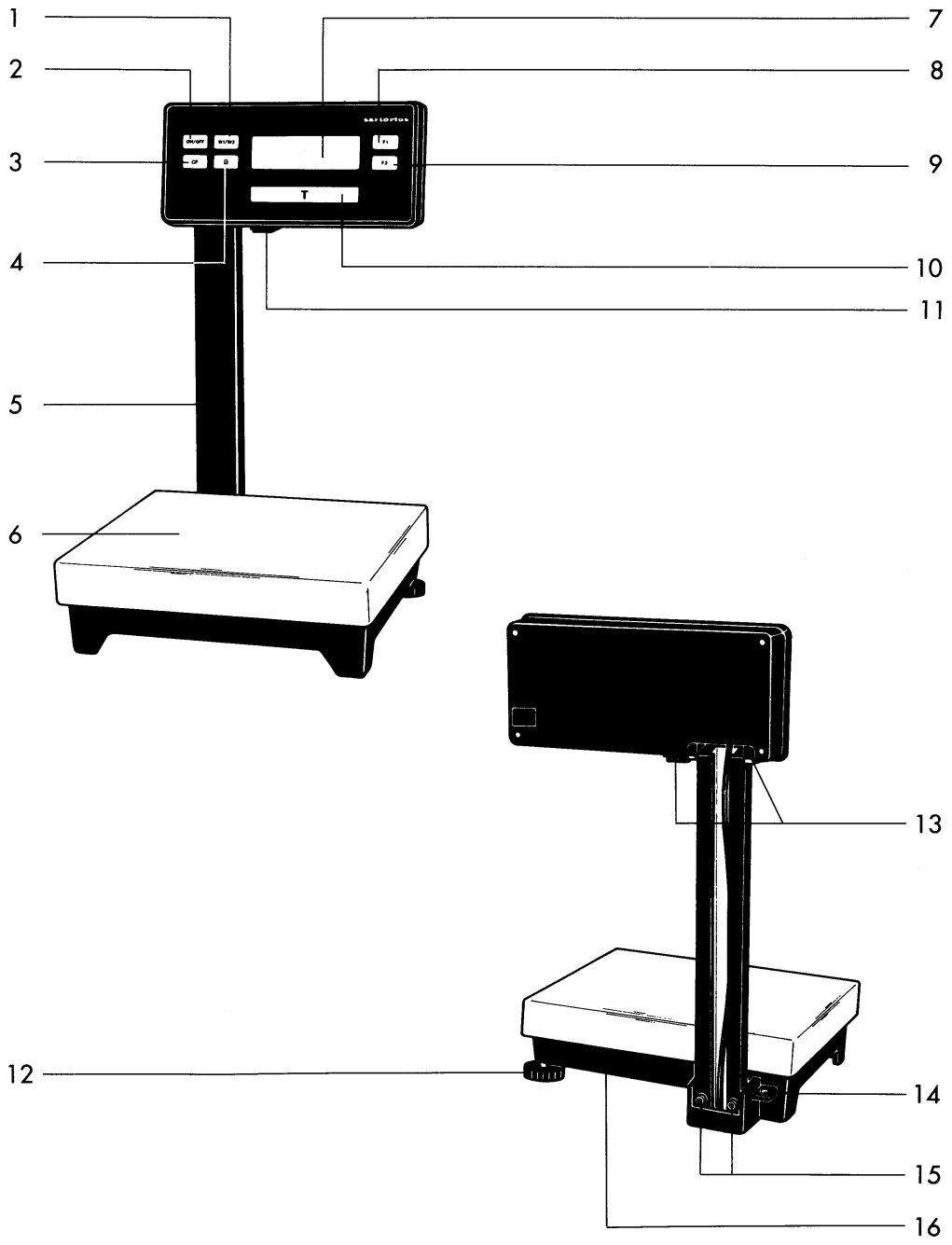
98648-003-53

Sartorius
QS 4000, QS 8, QS 8000 A, QS 16000 B

Electronic Precision Scales
Installation and Operating Instruction



sartorius



1	Toggle key	9	F2 key
2	ON/OFF key	10	Tara control
3	CF key	11	AC jack
4	Print key	12	Levelling foot
5	Support arm	13	Retainers for the display unit
6	Weighing platform	14	Lug for attaching an antitheft locking device
7	Weight display	15	Fastening screws for the support arm
8	F1 key	16	Lug for weighing below the scale

Contents

Important Note to Users

Make sure to carefully read and follow sections marked with this symbol - they contain safety instructions.

If you turn the scale off in the battery Operation mode and you are not recharging the external rechargeable battery pack, YRB04Z, using line current, you should also turn the battery pack off. 'In this way, you can prevent the battery from becoming discharged.

Information on Radio-Frequency Interference:

Warning!
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 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.

About the Product

With this Sartorius Scale, you have acquired a high-quality electronic weighing Instrument that will ease your daily work load.

Please read these installation and operating instructions carefully before operating your new scale.

Warranty

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

Storage and Shipping Conditions

Allowable storage temperature: -40°C ... +70°C
-40°F ... +158°F

After unpacking the scale, please check it immediately for any visible damage as a result of rough handling during shipment.
If this is the case, proceed as directed in the section entitled "Safety Inspection."

Save all parts of the packaging and the box because you might need to ship your scale.
Before packing your scale, unplug all connected cables to prevent damage.

Do not expose the scale unnecessarily to extreme temperatures, moisture, shocks, blows or vibrations.

Equipment Supplied

The equipment supplied includes the following components:

- Scale with display unit
- Weighing platform
- AC adapter
- 4 mm Allen wrench

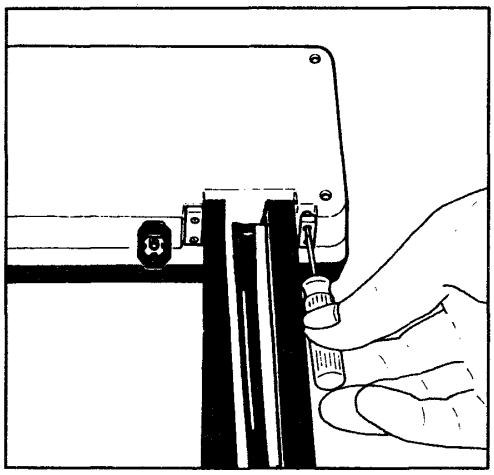
How to Mount the Display Unit

Installing the Interface Cable

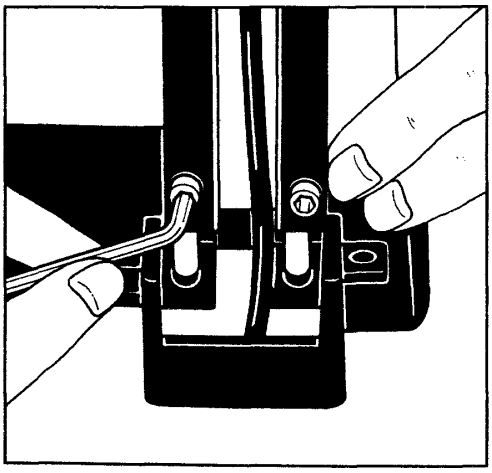
The interface cable should only be installed by a qualified Sartorius service technician.

Ask for separate instructions that describe how to install the interface cable.

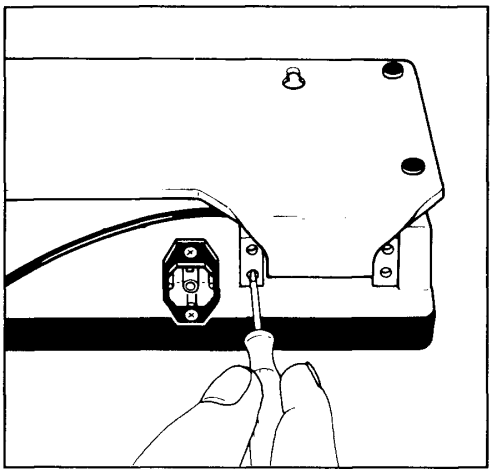
Converting the Raised Display Configuration for Bench top or Wall Mounting
(optional; order number: YDH01TS)



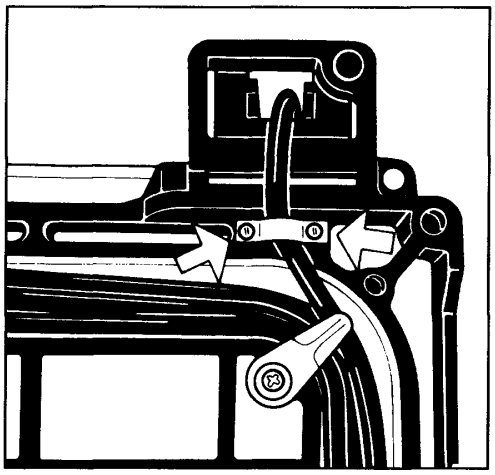
— Remove the retainers securing the support arm **(13)** from the display head
— Detach the display head



— Remove the two fastening screws **(15)** from the support arm
— Detach the support arm



— Secure the display holder on the display head using the retainers



Unscrew the cable clamp from the rear side of the scale.

Uncoil the cable as far as required and then reattach the cable clamp

Installation Instructions

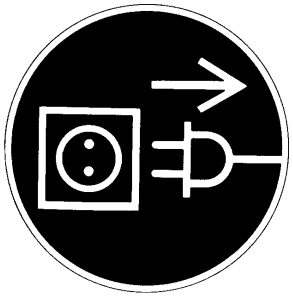
Choose a suitable place to set up your scale.
It should not be exposed to the following:

- heat radiation
- drafts
- vibrations
- aggressive conditions

The QS4000, QS 8, QS8000A and QS16000B are not allowed to be used in hazardous areas/locations, because they do not have an EX approval certifying them as electrical apparatus for potentially explosive atmospheres (Declaration of Conformity).

Your Sartorius Scale provides accurate readouts even when it is exposed to unfavourable ambient conditions.

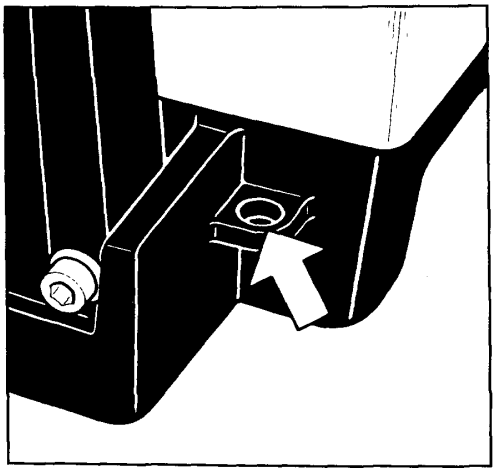
You can adapt the scale to your requirements simply by changing the menu code settings in the scale operating menu (see p. 12).



Connecting Electronic Devices (Peripherals)

Make sure to unplug the AC adapter from line power before you connect or disconnect any peripherals from the scale.

In case you have any problems with your scale, contact your nearest Sartorius Service Centre.



Antitheft Locking Device

To fasten an antitheft locking device, use the lug **(14)** located on the rear panel of the scale.

Startup

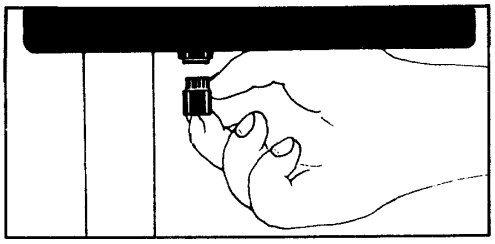
Place the weighing platform on the scale.

Connecting the Scale to AC Power

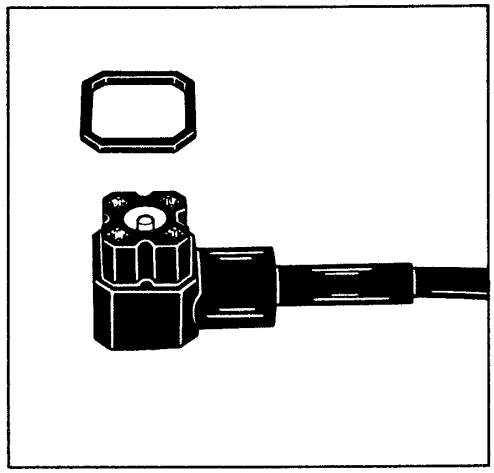
The scale is powered by an AC adapter. Make sure that the voltage rating printed on this unit is identical to your local line voltage rating.

If the voltage rating specified on the AC adapter or the plug design does not match the rating or Standard you use, please contact your Sartorius dealer.

When you use the scale and associated equipment, you must comply with the national electrical code and applicable safety regulations of your country.



Insert the right-angle plug into the jack on the scale and tighten the screw using a screwdriver.

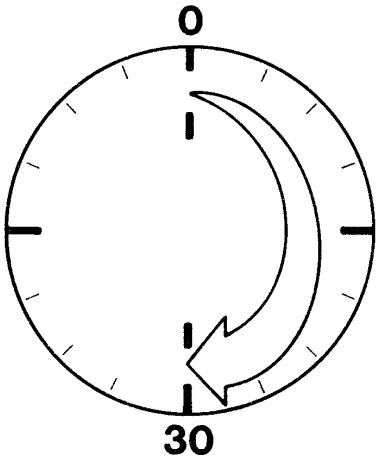


The IP 65 protection rating is ensured only if the square rubber gasket is installed and the plug is securely connected to form a leak-tight seal. (Accessory number of the rubber gasket: 6971915)

Now insert the AC adapter in a wall outlet.

Use only original Sartorius AC adapters. Use of AC adapters from other manufacturers, even if these units have an approval identification marking from a national testing laboratory, requires the consent of a certified Sartorius technician.

Operation

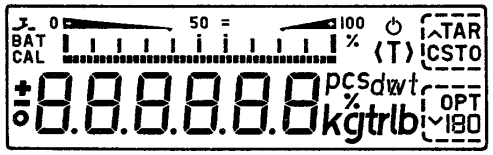


After you have initially plugged your scale into a wall outlet, allow it to warm up for at least 30 minutes.

Turning the Display On and Off

Press the ON/OFF key to turn the display on or off (2).

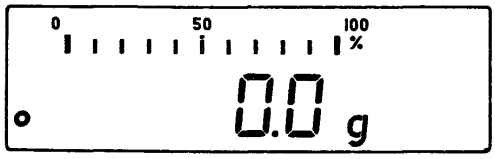
Self-Test



After the power has been turned on, a fest of all essential electronic functions is run automatically.

The self-test ends with the readout: **"0.0 g"**.

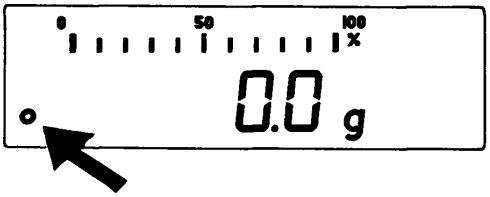
Weighing



Place your sample on the platform **(6)** to determine the weight.
Read off the weight in the display **(7)** when the weight unit (in this case **"g"**) appears as the stability symbol

In addition to grams, this scale gives you a variety of other menu-definable international weight unit options.

Select the weight unit you desire from the fable (**page 14 or 18**) and change the code in the scale operating menu.



Taring

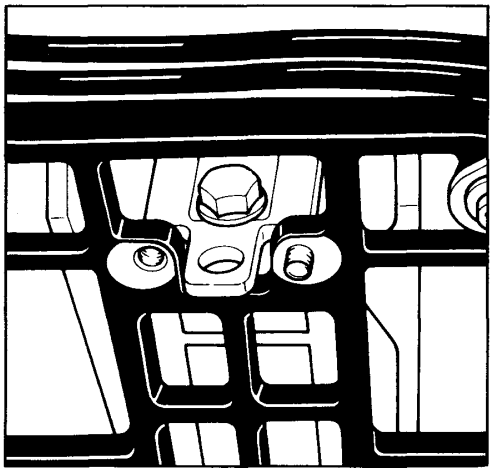
If you wish to use a Container, or if the weight display does not indicate **"0.0 g"**, press the tare control to zero the display.

The small circle in the lower left-hand comer (see arrow) shows that the scale has been exactly tared so the display reads **"0.0".**

Auto Zero

This scale has an automatic tracking function known as "Auto Zero" (can be turned off by menu code -see "Scale Operating Menu").
Changes off zero less than 0.5 of a digit per second will be set to zero automatically.

Weighing Below the Scale



A lug for weighing below the scale is located on the bottom of the scale.

Using a Suspension wire or hook, you can attach the object or sample that you wish to weigh.

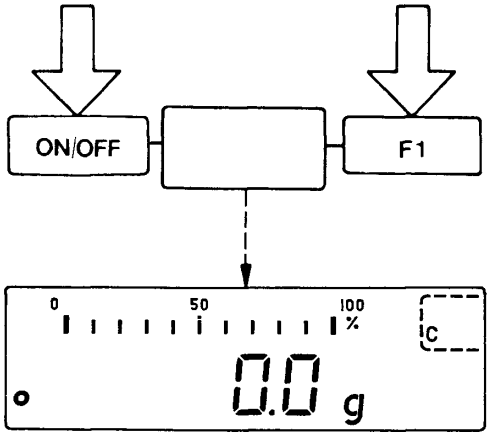
A common application for weighing below the scale involves immersing a sample in a special atmosphere (medium for a reaction).

Calibration

Have your scale checked and, if necessary, recalibrated on the basis of a regular system maintenance schedule.

To calibrate, you need an accurate calibration weight.

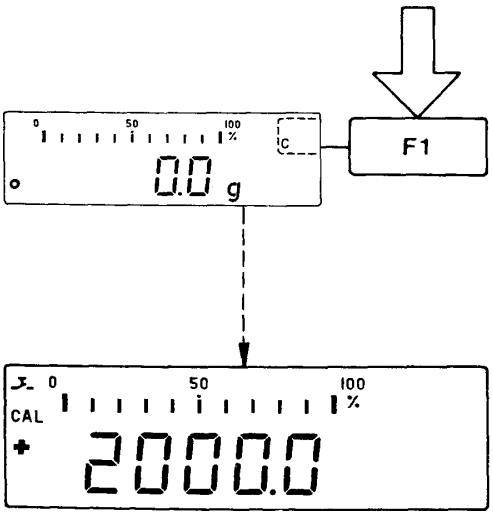
Model	**QS 4000**	**QS 8, QS 8000A**	**QS 16000B**
Weight	1 x 2000 g	1 x 5000 g	1 x 10000 g
Weight class	F2	F2	F2



With the scale tumed off, hold down the F 1 key and briefly press the ON/OFF key **(2)**.

Upon completion of the automatic self-test, release the F 1 key as soon as **"C"** is displayed.

Unload the scale and press the tare control to zero the display.



When the display shows a zero readout, press the F1 key **(8)**.
"CAL" and the calibration weight readout will now be displayed.

Centre the calibration weight(s) on the weighing platform.

Now the weight unit symbol is displayed. It indicates the end of the calibration procedure.

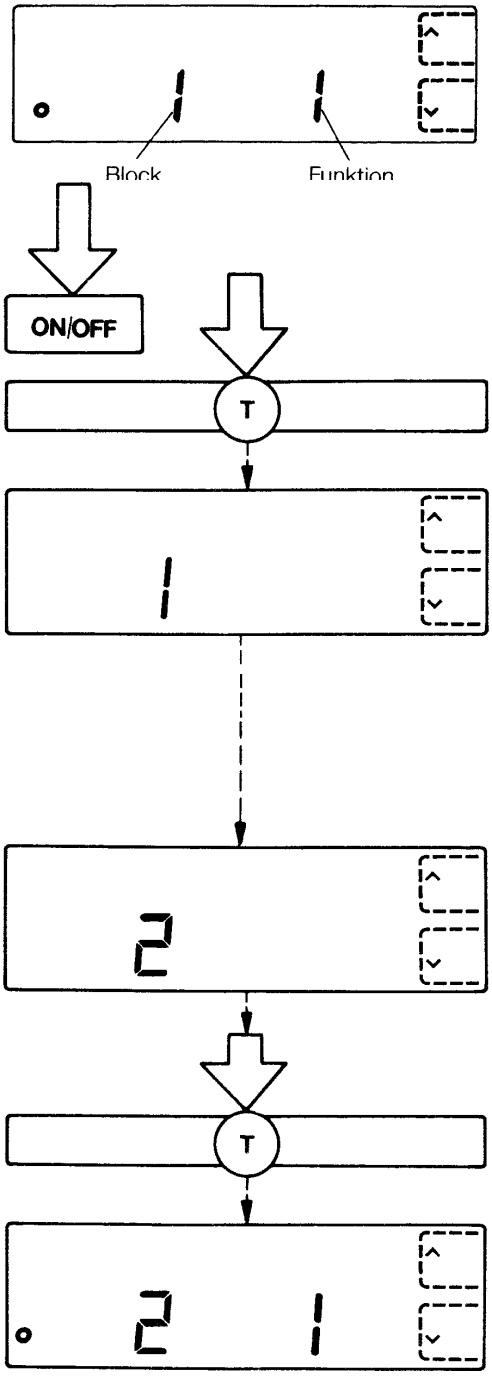
After calibration, use the ON/OFF key (2) to turn the scale off and back on again so that you will have direct access to the dedicated application programs re-selected by menu code.

Scale Operating Menu

At the factory, we have set the codes for the scale operating menu so you do not need to make any changes if you only want to weigh under normal ambient conditions.

If you have special operating requirements or wish to use the built-in dedicated application programs, you can access the scale operating menu to change the settings to meet your individual needs.

The "codes" for the menu settings are used to select the various functions in the scale operating menu.
Each code consists of a left-hand number for the function group and a right-hand number for a function within a group.



How to access the scale operating menu:

With the scale turned off, hold down the tare control **(10)** and briefly press the ON/OFF key **(2)**.

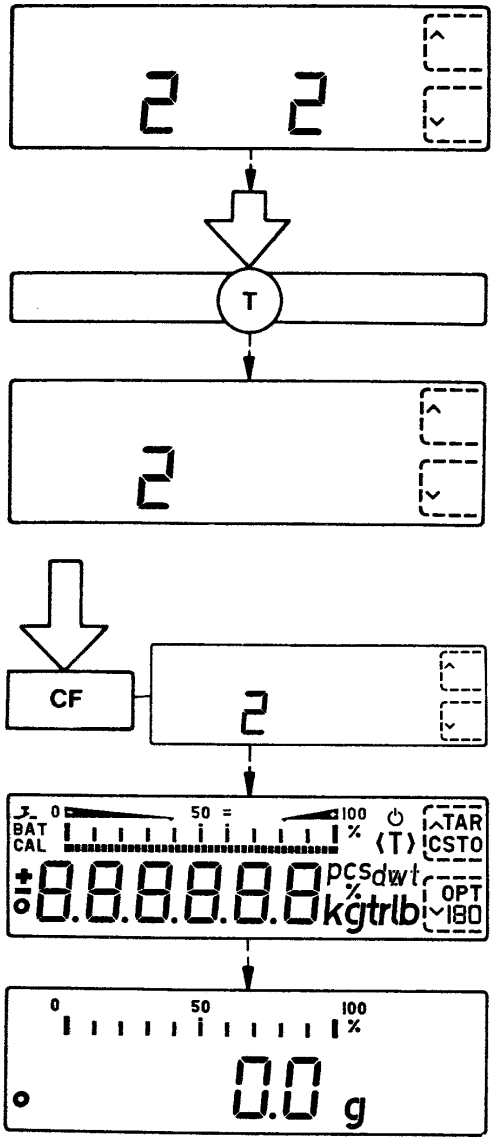
Release the tare control when **"1"** is displayed.

To check a menu code setting, select the desired code number

using the F1 key

and then press the tare control to set the next number.

The **"o"** symbol indicates the current menu code setting.



To change the menu code setting, select the right-hand number by pressing

the F 1 or the F2 key

and confirm it by pressing the tare control **(10)**. Afterwards, the left-hand number will be displayed.

How to return to the weighing mode:

Press the **"CF"** key **(3)** to store the setting you have just changed and to return to the weighing mode.

Afterwards, the automatic self-test will be run, and the scale will then return to the weighing mode.

A new code setting will not be stored if you turn off the scale by pressing the ON/OFF key.

List of the Programmable menu Code Settings

Menu of the Balance Operating Program (active parameters)

W1 W2

W1 Code	W2 Code	W1	W2	Weight Units	Toggle between units by pressing the **W1/W2**-key
		Factory Setting			
1	1	2	1	■ Grams	■ g
1	2	2	2	Kilograms	kg
1	3	2	3	Carats	ct
1	4	2	4	Pounds	lb
1	5	2	5	Ounces	oz
1	6	2	6	Troy Ounces	ozt
1	7	2	7	Hongkong taels	tl
1	8	2	8	Singapur taels	tl
1	9	2	9	Taiwan taels	tl
1	10	2	10	Grains	gr
1	11	2	11	Pennyweights	dwt
1	12	2	12	Parts/Pound	o
2	13			**Weighing in % Mode** (activate using **F2**) 100,0 % (one decimal place)	
2	14			100,00 % (two decimal places)	
2	15			**Parts Counting Mode** (activate using **F2**) Reference sample quantity: 10, 20, 50 or 100 (determination of the reference sample weight according to internal resolution)	
2	16			Reference sample quantity: 10, 20, 50 or 100 (determination of the reference sample weight according to the display resolution)	
3	1		■	No function assigned	
3	2			Net total/ 2nd tare memory (activate using **F1**)	

Over/Under Checkweighing/Classification & Sorting/Filling (activate using F1).
Besides the weight display, the Sartorius Graphic Guide (bar graph) also appears with a scaled-up middle range between the tolerance limits as an efficient convenience feature to help you during filling and checkweighing.

3	3	Absolute weight readout (± 2,5 % tolerance limits)
3	4	Readout of the weight difference (± 2,5 % tolerance limits)
3	5	Absolute weight readout (± 5 % tolerance limits)
3	6	Readout of the weight difference (± 5 % tolerance limits)

■ = Factory setting

Code			Ambient Conditions
4	1		Very stable
4	2	■	Stable
4	3		Unstable

Stability Range
Within the weight range, the weight readout will be displayed along with the weight unit as a stability symbol.

Code			
5	1		0,25 digit
5	2		0,5 digit
5	3		1 digit
5	4		2 digits
5	5	■	4 digits
5	6		8 digits
5	7		16 digits
5	8		32 digits

Code			Tare Parameter
6	1		Without stability control (the tare command is immediately executed)
6	2	■	At stability (the Tare command is stored until the scale has stabilized and is then executed)

Auto Zero
The scale features an automatic zero tracking function known as “Auto Zero”. Changes off zero ≤ 0,5 of a digit per second are automatically set to zero.

Code			
7	1		OFF
7	2	■	ON

Data Output Parameter
(only if the scale has a built-in interface)

Code			
8	1		Print on request when key is pressed regardless of stability
8	2	■	Print on request when key is pressed and readout is stable
8	3		Automatic output synchronous with display regardless of stability
8	4		Automatic output synchronous with display regardless at stability

■ = Factory setting

Automatic Shutoff (Battery Saver) and Backlit Weight Display
If you are using the rechargeable battery Option, turn the automatic shutoff function an and the back-lighting off to increase the hours of battery Operation so that you do not need to recharge the batteries so often. Here is how the battery saver function works: If there has not been a change in a weight read-out for at least 2 minutes or you have not pressed a key during this time, "⏻" will be displayed.
After another 2 minutes, the scale will shut off if it has not been used in the meantime.

Code		Automatic shutoff	Backlighting
91		ON	OFF
92		OFF	OFF
93		ON	ON
94	■	OFF	ON

Code		Linear Range Display/ Sartorius Graphic Guide (Bar Graph)
101	■	ON
102		OFF

■ = Factory setting

Dedicated Application Programs

Mass Unit Conversion (p. 18):
You can have a weight displayed in two selected units.

Weighing in Percent (p. 19):
A target weight is stored as 100% and other samples can be weighed and displayed as a percentage of this weight.

Applications:
Determination of the weight loss upon drying, sieve analysis of powdery and granular substances, among others

Parts Counting (p. 20):
Counting with a fixed reference sample quantity and the reference sample updating function

Applications:
Warehousing, production, quality control in receiving and shipping departments

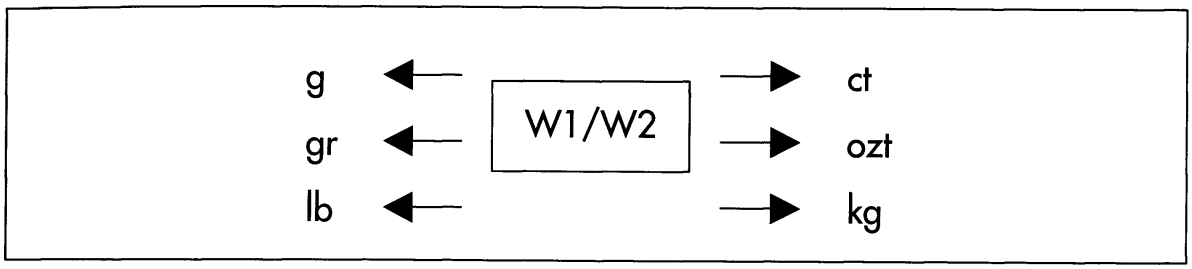
NetTotal/2nd Tare Memory (p. 22):
Ideal for simple compounding/storing the tare weight

Applications:
Mixing, filling, compounding components in production

Over/Under Checkweighing/
Classification &Sorting/Filling (p. 23):
Checkweighing of semi finished and finished products; checking packages and kits for completeness in quality control; final packaging; filling liquids, powders and granules

Please note:
All application examples apply to scales with a display accuracy of one place after the decimal point. However, these examples are comparable for scales that do not indicate a decimal.

Mass Conversion

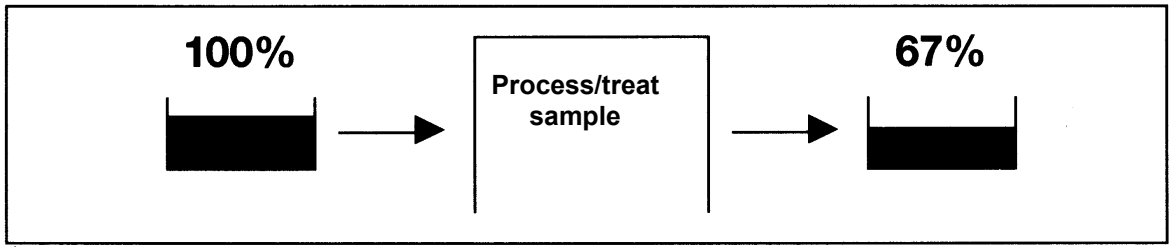


You can combine two units of your choice.

Select the initial unit by setting any of the **codes from 1 1** to **1 12**;
select conversion unit via **codes 2 1** to **2 12**

Code		1 1*	1 2	1 3*	1 4	1 5	1 6	1 7	1 8	1 9	1 10	1 11	1 12
	Unit	g	kg	ct	lb	oz	ozt	tlh	tls	tlt	gr	dwt	p/lb
2 1*	g	-	x	x	x	x	x	x	x	x	x	x	x
2 2	kg	x	-	x	x	x	x	x	x	x	x	x	x
2 3*	ct	x	x	-	x	x	x	x	x	x	x	x	x
2 4	lb	x	x	x	-	x	x	x	x	x	x	x	x
2 5	oz	x	x	x	x	-	x	x	x	x	x	x	x
2 6	ozt	x	x	x	x	x	-	x	x	x	x	x	x
2 7	tlh	x	x	x	x	x	x	-	x	x	x	x	x
2 8	tls	x	x	x	x	x	x	x	-	x	x	x	x
2 9	tlt	x	x	x	x	x	x	x	x	-	x	x	x
2 10	gr	x	x	x	x	x	x	x	x	x	-	x	x
2 11	dwt	x	x	x	x	x	x	x	x	x	x	-	x
2 12	p/lb	x	x	x	x	x	x	x	x	x	x	x	-

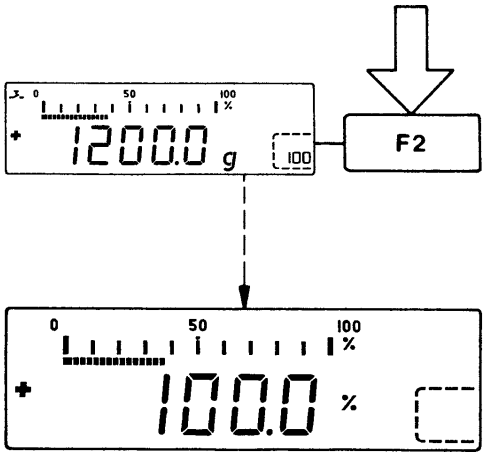
Weight in Percents



For a readout with one decimal place, select:
code 2 13;
for a readout with two decimal places, select:
Code 2 14

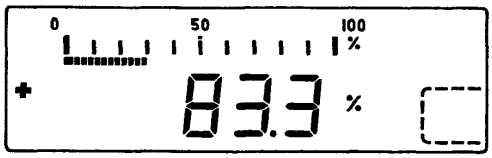
Press the **F2** key **(9)** to store a weight as 100%.

Load the sample

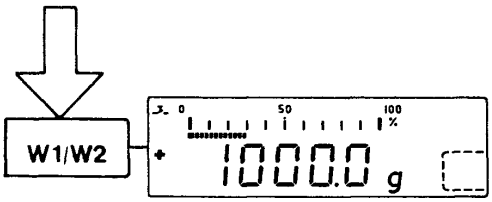


To store the weight as 100%:

Press the **F2** key **(9)**.



Process/treat sample — load sample again



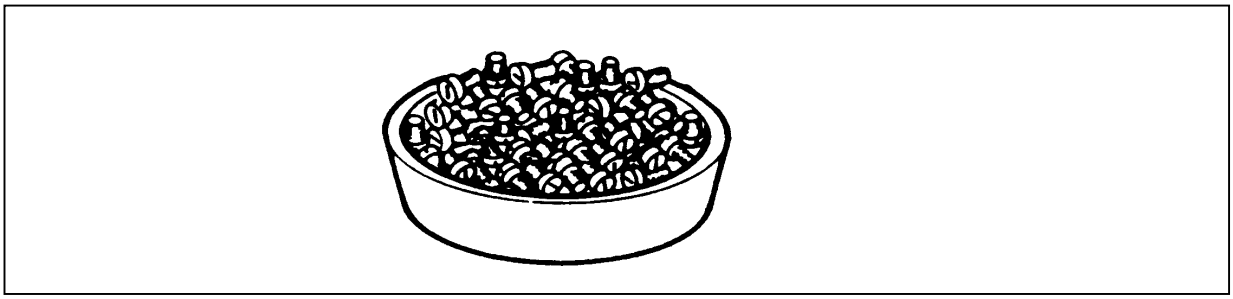
To toggle between readout in percents ⇔ weight readout, press the **toggle** key **(1)** labelled **W1/W2.**

The **CF** key **(3)** clears the stored factor for calculating the weight percentages.

Important Note:
When a target weight is stored as 100%, the number of decimal places will be decreased automatically if the sample is too light to display the full number of decimal places.

Parts Counting

(with a Fixed Reference Sample Quantity and the Reference Sample Updating Function)

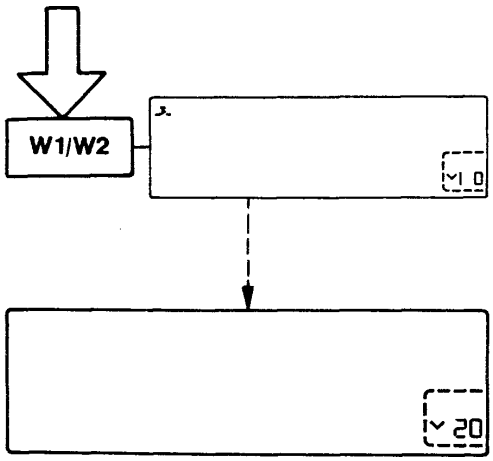


Code 2 15 (determination of the reference sample weight according to internal resolution)

Code 2 16 (determination of the reference weight according to the display resolution)

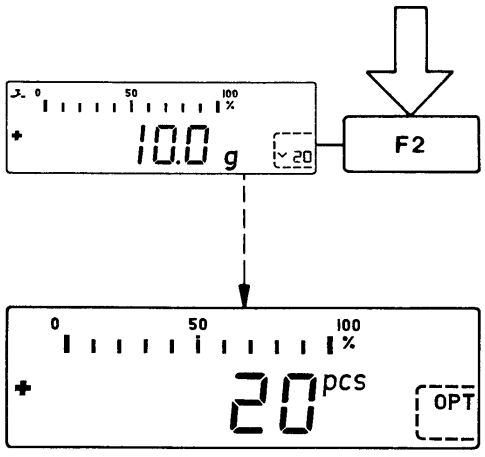
Reference sample quantity **10/20/50/100**

pcs = pieces (for piece count)



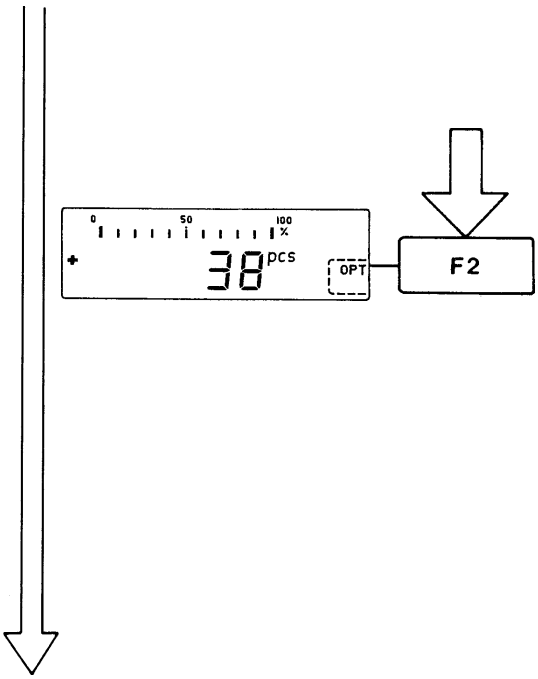
To change the reference sample quantity (10, 20, 50 or 100 parts):

Press the toggle key **(1)** labelled **W1/W2**



Load reference sample (e. g. 20 parts) ; store reference sample weight for 20 parts.

Press the **F2** key **(9)**.



Reference Sample Updating

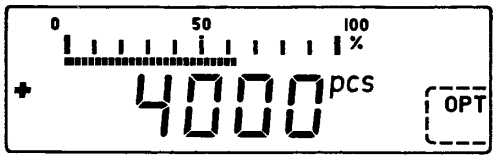
Optional:
Add additional reference components

For this function, approximately double the initial reference sample quantity.
The average piece weight will be recalculated to meet high accuracy requirements.

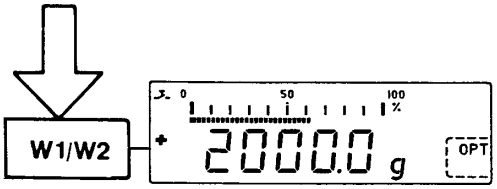
Press the **F2** key **(9)**.

The display briefly goes blank and then comes on again to indicate that the average piece weight has been recalculated.

This procedure can be repeated as often as you wish.



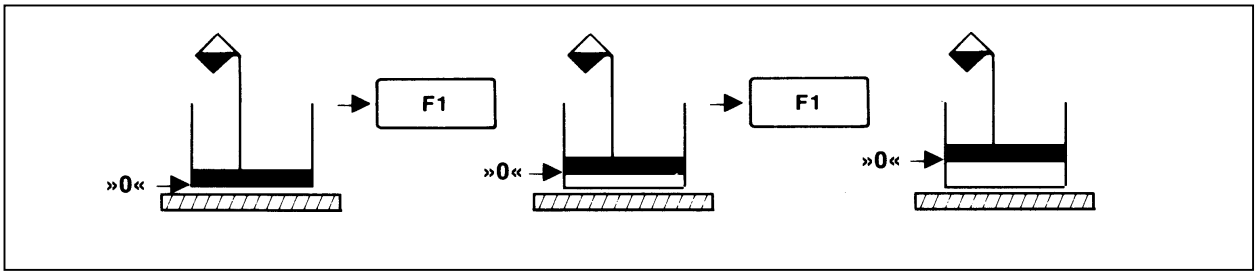
Load sample or parts to count.



To toggle between piece count and weight readouts:

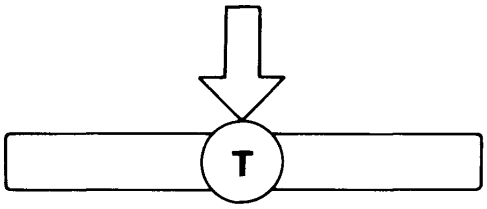
Press the **toggle** key **(3)** clears the value stored to compute the piece count and terminates the counting procedure.

Net Total/2nd Tare memory

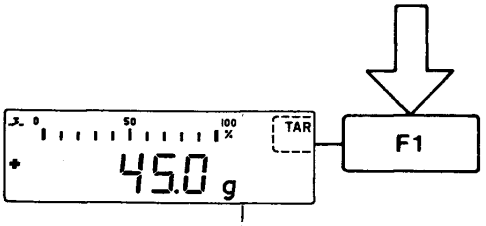


Code 3 2

This application program is ideal for simple compounding/formulation.

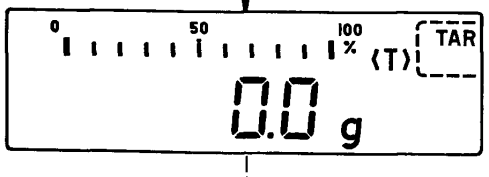


Place empty container on the scale and tare.



Weigh in and store 1st component:

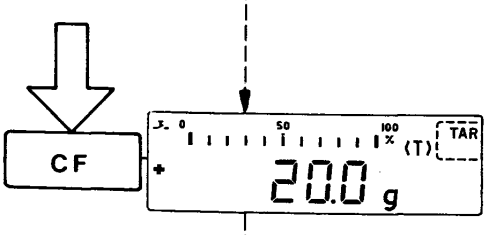
Press the **F1** key **(8)**.

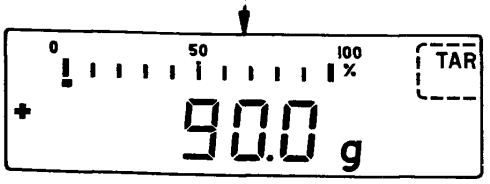


Weigh in additional components and store:

Pres the **F1** key **(8)**.

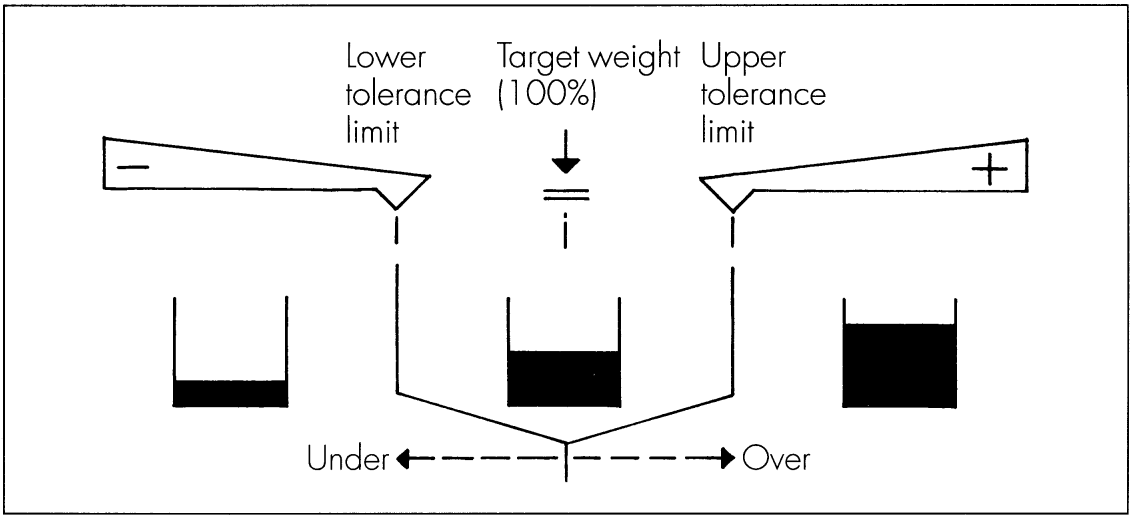
Weigh in the last component.





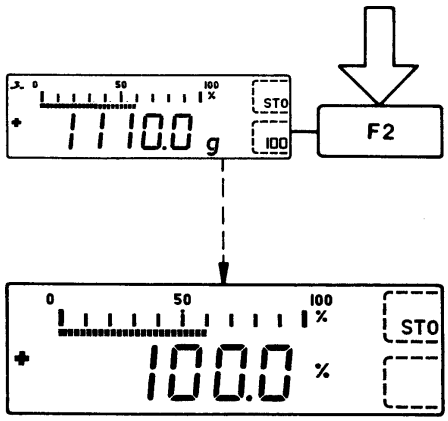
Press the **CF** key **(3)** to have the net total weight displayed and to the final target weight, if necessary.

Over/Under Checkweighing/ Classification & Sorting/Filling



Total weight readout	Tolerance limits ± 2,5 %	**Code 3 3**
Total weight readout	Tolerance limits ± 2,5 %	**Code 3 4**
Total weight readout	Tolerance limits ± 5 %	**Code 3 5**
Total weight readout	Tolerance limits ± 5 %	**Code 3 6**

You can combine the over/under checkweighing/ classification & sorting/filling function with:		
Mass unit conversion (toggling):	**Code 2 1** to	**Code 2 12**
Weighing-in-percent function:	**Code 2 13** or	**Code 2 14**
Parts counting function:	**Code 2 15** or	**Code 2 16**

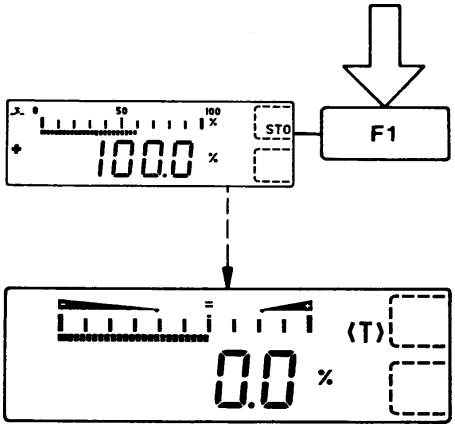


Example:

Checkweighing with readout of the weight difference in percent **(codes 2 13 and 3 4)**

Load reference sample and store as **100 %**

Press the **F2** key **(9).**



To store target weight (100%)

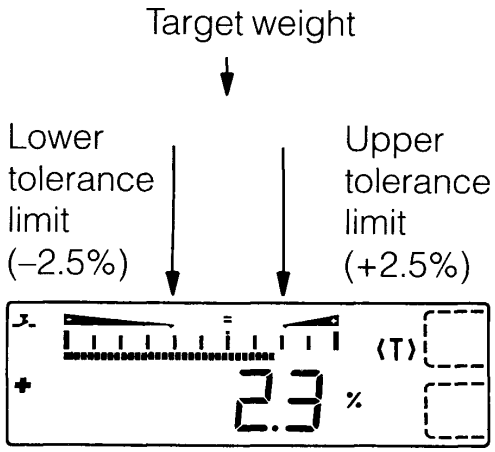
Press The **F1** key **(8)**.

If **"E"** is indicated, the weight of the sample is too light to be displayed.

Minimum loads:

Model	**Tolerance limits**	
	± 2,5 %	**± 5 %**
QS 4000	4 g	2 g
QS 8000 A, QS 8	8 g	4 g
QS 16000 B	20 g	10 g

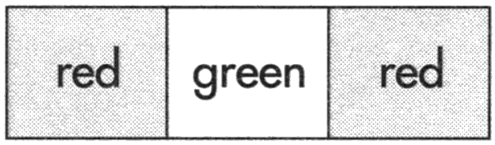
Press the **"CF"** key **(3)** and increase the reference sample weight.



Load the sample/work piece or package you wish to check.

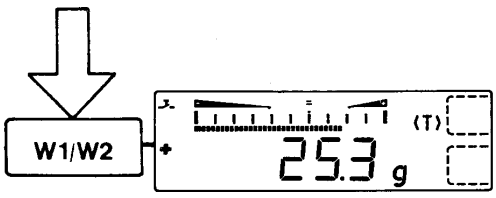
With the convenient Sartorius Graphic Guide (bar graph), you will be able to tell immediately whether your sample, component or package is within the tolerance limits.

The digital display shows the difference from the target weight in percent.



The YRD 10 Z 3-segment checkweighing display (optional) will show you whether your sample is within the tolerance limits.

- green segment lights up: sample within tolerance limits
- red segment lights up: sample out of tolerance limits



To toggle between the readouts in percent and weight:

Press the **toggle** key **(1)** labelled **W1/W2.**

The **CF** key **(3)** clears the value stored.

Troubleshooting Guide

Problem …	**Causes ...**	**Remedy**
No segments appear on the weight display **(7)**	- NO AC power available - The AC adapter has not been plugged in - The scale shuts off automatically	- Check the power supply - Plug in the AC adapter - Press the ON/OFF key or set code 92/94 (see “Scale Operating Menu”)
The display shows **“L“**	- The weighing platform is not in place	- Position the platform
The display shows **“H“**	- The load exceeds capacity of the scale	- unload the scale
The weight readout changes constantly	- Unstable ambient conditions - Too much vibration or the scale is exposed to a draft - The sample does not have a stable weight	- Set up the scale in another area - Access the menu to select the proper code for the particular type of weighing environment
The special symbol “ ⏀ “ does not go out in the display	- The scale processor is busy processing a function and will not accept another command to perform any other function at this time	- Press the ON/OFF key to turn the scale off and on again
The display shows **“E“**	- The reference sample quantity is too small or has not been stored - A zero readout was not displayed when the F1 key **(8)** was pressed to calibrate - The scale is loaded	- Press the CF key **(3)** and increase the reference sample weight - Press the CF key; then press the F1 key **(8)** again - Unload the scale
The weight readout is obviously wrong	- The scale has not been calibrated - The scale was not tared before weighing	- Calibrate the scale - Tare before weighing

Care and Maintenance

Servicing

The seals affixed to this equipment indicate that only authorized service technicians are allowed to open the equipment and perform maintenance work so that safe and trouble-free Operation of the equipment is ensured and the warranty remains in effect.

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

Cleaning

Please do not use any aggressive cleaning agents (solvents or similar agents). Instead, use a cloth which has been wet with a mild detergent to clean the scale. After cleaning, wipe down the scale with a soft, dry piece of cloth.

The I P 65 protection rating according to DIN 40050 does not allow the use of pressurized water (wash down using a hose or high pressure cleaning equipment) to clean the scale.

Safety Inspection

If there is any indication that safe Operation of the scale along with the AC adapter is no longer warranted, turn off the power and unplug the equipment from the electrical outlet immediately.

Lock the equipment in a secure place to ensure that it cannot be used for the time being.

In this case, notify your local Sartorius Service Center or the International Technical Support Group.

Only authorized Sartorius service technicians who have the proper manuals are allowed to perform maintenance and repair work on the equipment.

Safe Operation of the 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

Interface Description (Option)

If you wish to record weight data using Sartorius Data printer, just plug the printer connector into the interface port of the scale
You do not need to adjust any settings!

General Specifications

Type of interface	Serial point-to-point connection
Operating mode	Asynchronous, simplex
Standard	V24-V28, RS232C-S
Handshake line	Clear to Send (CTS) Data Terminal Ready (DTR)
Initialization of interface	External or automatic print of command depending on code selected (8 1 to 8 4)
Character coding	7-Bit-ASCII
Transmission rate	1200 Baud
Parity	Odd
Synchronization	1 start-bit, 1 stop bit
Data output format	16 characters 1st: character: + or - sign 16th. character: line feed (LF)
Additional port lines for over/under checkweighing	4, for upper/lower limits tolerance range and target

Data Output Format

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
+ - -	-	-	-	Z	Z .	Z .	Z .	Z .	Z	-	g k o	- g z	- - t	CR	LF

1st character:	Plus or minus sign or space
2nd to 4th characters:	Space
5th to 10th characters:	Digit, space or decimal point
11thcharacter :	Space
12th to 14th characters:	Symbol, letter or space
15th character:	Carriage return
16th character:	Line feed

Data Output Parameters
(Codes 8 1 to 8 4)

Data can be transferred to the Output port depending on the particular stability state of the weighing system (stability parameter).

You can choose to have data transferred at stability only or regardless of stability.

If you opt to have data transferred only when the weighing system has stabilized, an output command will remain stored until the system has stabilized.

For the auto print setting, weight data are continuously transferred, If you have additionally selected the stability parameter for this Option, only data with a stability symbol will be output. Data is output continuously the moment you turn on the power.
To stop and start automatic data transfer, press the print key.

Data Output

Each Signal received by the RxD line will initiate data transfer.

Interfacing Devices with the Scale (RS Interface)

Please note that the interface port is electrically connected to the protective grounding conductor of the scale housing. The cabling supplied as accessory components is shielded and electrically connected on both ends to the cases of the connectors. This electrical connection may result in interference caused by ground loops or by transient currents if you have grounded the housing or connected the protective grounding conductor for line power. If necessary, connect an equipotential bonding conductor to the scale.

Pin Assignment for the interface

Female Interface Connector:

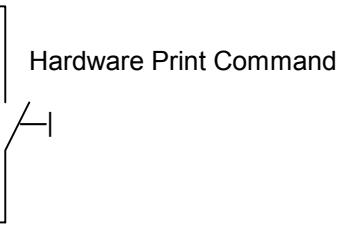
25-position D submini, DB25S with screw lock hardware for cable gland

Male Connector Required:

25-psition D submini, DB25S with shielded cable clamp assembly (Amp Type 826 982-1) and fastening screws (mate screws for female screw lock) (Amp Type 164 868-1)

Pin Assignment:

Pin 1: Protective Ground
Pin 2: Data Output (TxD)
Pin 3: Data Input (RxD)
Pin 4: Not Connected
Pin 5: Clear to Send (CTS)
Pin 6: Not Connected
Pin 7: Internal Ground
Pin 8: Internal Ground
Pin 9: Not Connected
Pin 10: Not Connected
Pin 11: +12 V
Pin 12: +10 V
Pin 13: +5 V
Pin 14: Internal Ground
Pin 15:
Pin 16: Connected
Pin 17: Connected
Pin 18: Connected
Pin 19: 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

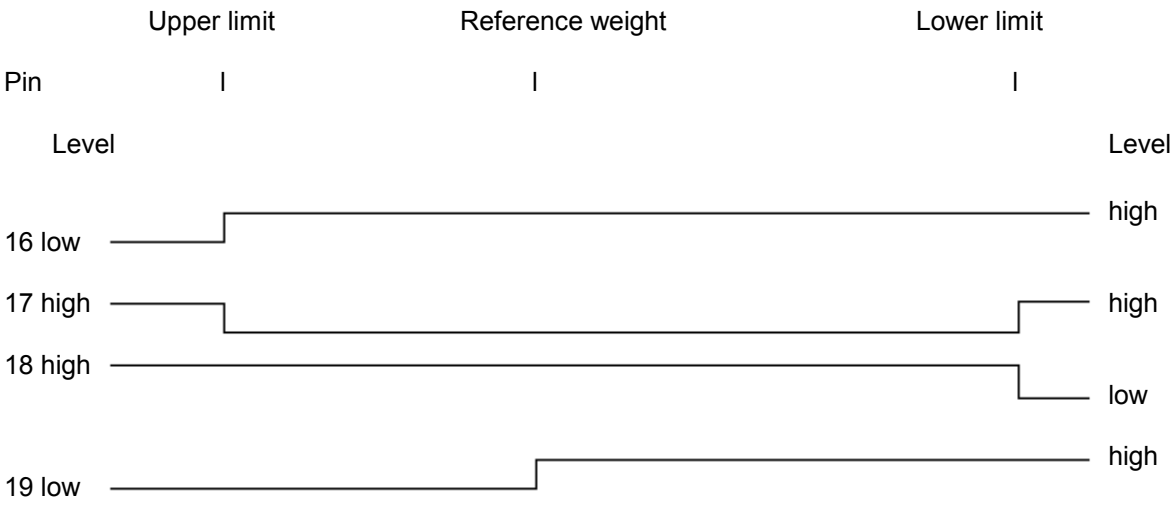


Pin 16 can be modified by the Sartorius Technical Service Support Team to be used as a data output port for over/under checkweighing or for the hardware tare (Please see the next page for more information).

Over/Under Checkweighing Ports

If you have selected the menu code for over/under checkweighing, the levels (+5 V) of four data output port lines (processor ports) can be used to control an external on-line display instrument.

The levels of the data output ports will change according to various patterns, depending on the reference or target weight and the upper and lower weight limits.



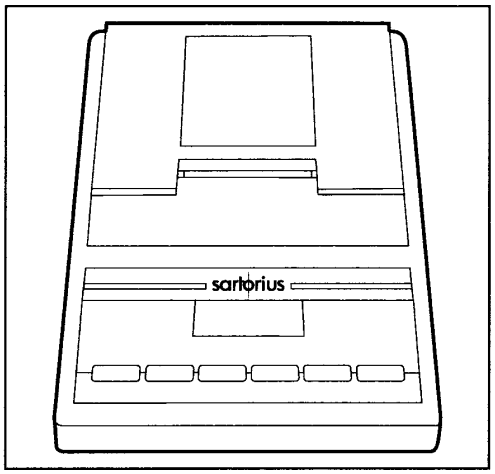
Import Note

As a rule, the power must be amplified externally via a suitable amplification stage.
We will be glad to provide you with advice — just give us or your Sartorius dealer a call.

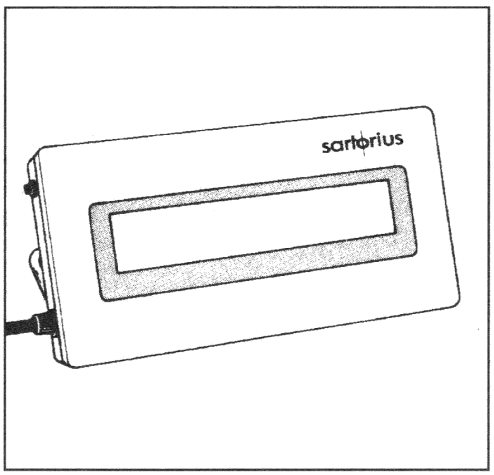
Accessories

External rechargeable battery pack

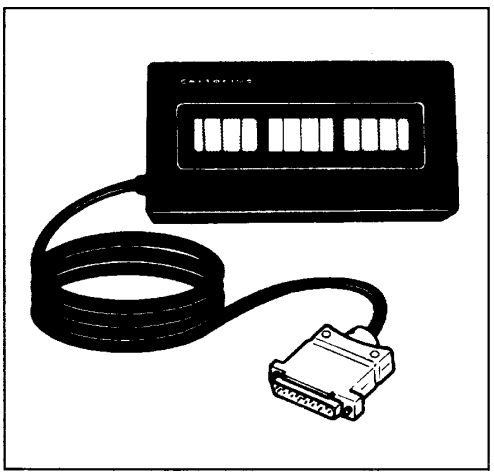
When used with a backlit weight display,
a fully charged battery pack will allow you
to operate the scale for the number of hours indicated below — 29,0 h YRB04 Z



Data printer YDP 03-0CE
with date/time, statistical
evaluation data,
transaction counter function and LCD



Additional remote display
(can be connected via the data interface)
— LCD, reflective YRD 12 Z
— LCD for overhead projectors,
transmissive YRD 13 Z



3-segment checkweighing display YRD 10 Z

Calibration weight	
1 x 2000 g	YCW 6228
1 x 5000 g	YCW 6538
1 x 10000 g	YCW 7138
Display holder	YDH 01 TS
Data interface (for connecting a Sartorius Data Printer, PC, etc.)	YDO 01 TS

Specifications

Model		**QS 4000**	**QS 8**	**QS 8000 A**	**QS 16000 B**
Capacity	g	4000	8000	8000	16000
Readability	g	0,1	1,0	0,2	0,5
Tare range (by subtraction)	g	-4000	-8000	-8000	-16000
Standard deviation	g	≤ ±0,1	≤ ±1,0	≤ ±0,2	≤ ±0,5
Max. linearity	g	≤ ±0,1	≤ ±1,0	≤ ±0,2	≤ ±0,5
Stabilization (typical)	s	2,0			
Display update (can be set externally)	s	0,1 top 0,4			
Adaptation to operating requirements and ambient conditions		by selection of 1 of 3 optimised filter levels			
Stability range (can be set externally)	d	0,25 to 32			
Allowable ambient temperature range during operation	K	273-313 (0 °C bis +40 °C)			
Moisture-proof rating acc. to DIN 40 040		Class F, non-condensing			
Dust and water protection rating acc. to DIN 40050/IEC 529		IP 65 = NEMA 4 (scale)			
Sensitivity drift within 10 ... 30 °C	ppm/°C	≤ ±7,5			
Platform size	mm	265 x 215			
Scale housing (B x D x H)	mm	265 x 252,5 x 83 265 x 277 x 434 (scale with raised display)			
Net weight, ca.	kg	5,5			
Power consumption	VA	8 (typical)			
Power requirements AC adapter, model: — 6971886 (Euro) — 6971888 (GB)	 V V	 230, 50 — 60 Hz 240, 50 — 60 Hz			

CE Marking

CE

The CE marking affixed to the equipment indicates that the equipment complies with the following Directive:

Council Directive 89/336/EEC "Electromagnetic Compatibility (EMC)"

This Directive regulates the use of equipment that can cause electromagnetic interference orwhose functioning can be influenced by such interference.

Applicable European Standards:

Limitation	EN 50081-1	Residential, commercial and light industry of
emissions:	EN 50081-2	Industrial environment
Defined	EN 50082-1	Residential, to interference commercial
immunity:		and light industry
	pr EN 50082-2	Industrial environment

Important Note:

The operator shall be responsible for any modifications to Sartorius equipment and for any connections of equipment not supplied by Sartorius and must check and, if necessary, correct these modifications and connections. On request, Sartorius will provide information on the minimum operating specifications (in accordance with the Standards listed above for defined immunity to interference).

Sartorius AG
✉ 37070 Göttingen
Weender Landstraße 94–108, 37075 Göttingen
☎ (0551) 308-0, FAX (0551) 308-3289

Internet: http://www.sartorius.com

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