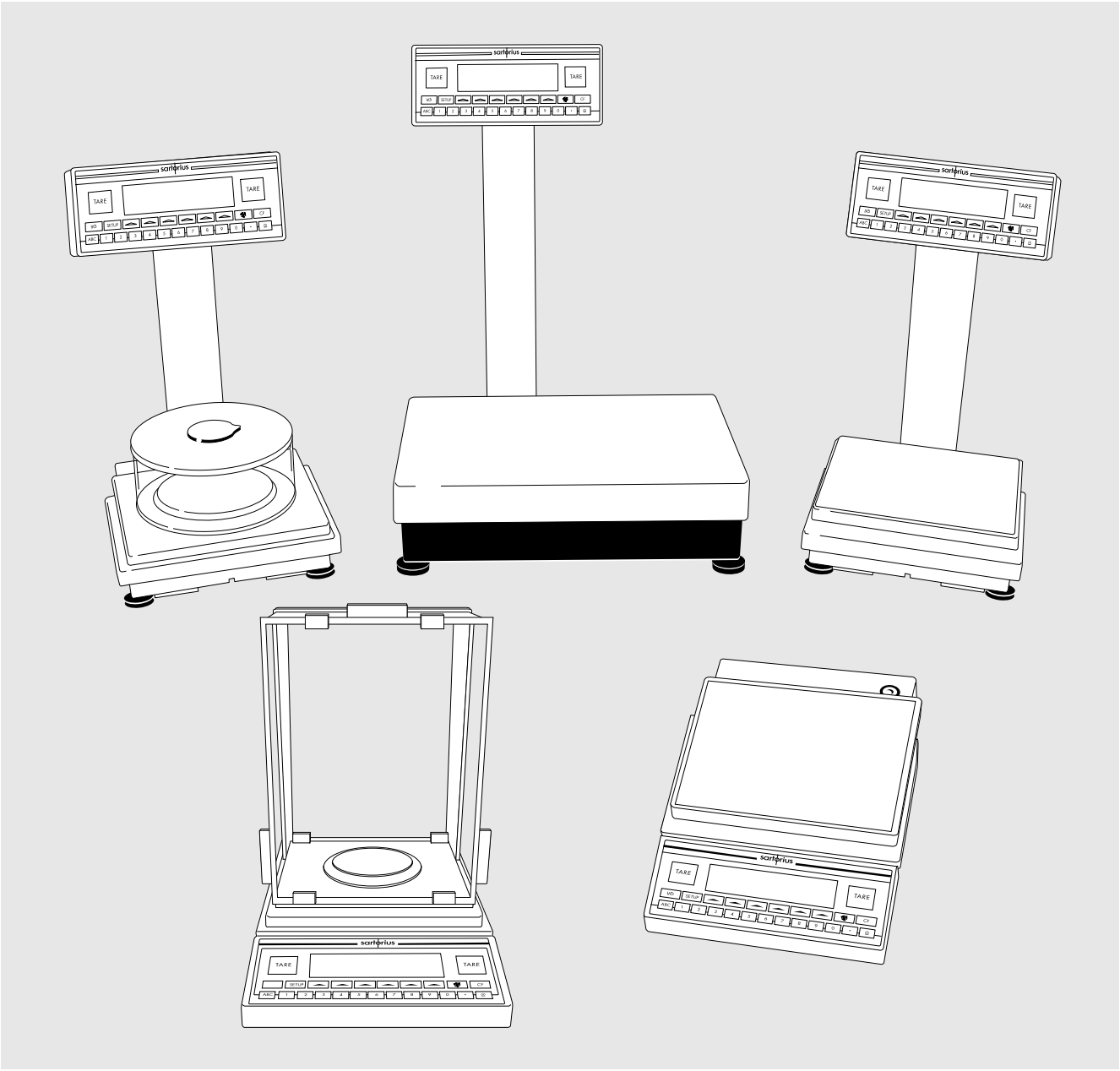
98648-008-15

Sartorius ProControl Terminal

Industrial Weighing Technology

Electronic Analytical and Precision Balances/Scales
Equipped with a Terminal Program for Average Weight Control
of Prepackaged Products. For Use with the Sartorius ProControl II or Sartorius ProControl for Windows Central Program

Operating Instructions



sartorius

Intended Use

The FC…0CEQN and FCG…0CEQN scales and LA…0CEQN balances are designed for use in automatic, computer-controlled sampling for evaluation of prepackaged products and fill quantities.

You can use the sampling data to optimize the filling process and for official documentation to show that the process meets prepackage requirements for precision in filling.

You can use attribute testing to access quality criteria that go beyond the determination of weighed values.

The …0CEQN terminal offers the following features:

- On-line connection to a central computer running a Sartorius ProControl program for managing product base data and processing weighed values and entries for attribute testing
- Most recently processed base data (up to 10 data records) stored in local memory
- Choice of sampling, tare weighing or test weighing function
- Weight values saved manually or automatically
- Statistical evaluations that meet legal requirements
- Output of filling machine adjustment recommendations for optimizing the production process

For advice on the use of these applications, just call or fax:

Telephone: +49 (0) 551 308-3818

Telefax: +49 (0) 551 308-3791

Contents

Warning and Safety Precautions

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

Read these operating instructions thoroughly before using your balance/scale to prevent damage to the equipment. Keep these instructions in a safe place.

Follow the instructions below to ensure safe and trouble-free operation of your balance/scale:

⚠ 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

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

– The balance/scale housing is protected as listed below against dust deposits and splashes of water:
  – FCG...EDE models: IP65 protection
  – Precision scales: IP54 protection
  – Analytical balances: IP32 protection

– Protect the AC adapter from contact with liquids

– Connect only Sartorius accessories and options, as these are optimally designed for use with your balance/scale

Do not open the balance/scale housing. If the seal is broken, all claims under the manufacturer's warranty are forfeit.

In case you have any problems with your balance/scale:

○ Contact your local Sartorius office, dealer or service center

Operating Design

These instructions assume that the weighing instrument is connected to a central computer, which is running the Sartorius ProControl II or Sartorius ProControl for Windows program. The product data (base data records) is managed in the central computer (also referred to as the "host").

When you enter the product, machine and lot (or batch) numbers for the product you wish to process, the corresponding data record is transferred from the host to the ...0CEQN terminal.

At the conclusion of sampling, the measured data is automatically sent to the host, where it is saved in the central memory and evaluated.

Sampling data is also evaluated in the ...0CEQN terminal.
Up to 10 of the last data records processed are saved locally and can be processed off-line. This data line is automatically sent to the host computer as soon as the connection is made.

The FC...0CEQN and FCG...0CEQN scales and LA...0CEQN balances consist of a weighing cell and a display and control unit. In addition to the choice of power supply (via AC adapter or external rechargeable battery pack), your balance/scale also has an interface port for connecting a peripheral device, such as a bar code scanner.

The display and control unit and the weighing cell can be set up separately. Operation of ...0CEQN scales follows a uniform "philosophy" which is described in this manual.

Keys

Your ...0CEQN balance/scale is operated by using the keys on the display and control unit.

Function Keys (Soft Keys)

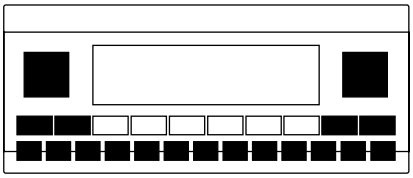
The current function of a soft key is indicated in the bottom line of the display. In the example shown below,

<<:	Exit the setup menu
Basic:	Basic settings
App:	Application menu
Info:	Scale data
Menu:	Scale operating menu
Input:	User data input

The function keys are numbered F1 through F6, from right to left.

Labeled Keys

These keys always have the function indicated, but are not available at all times. Availability of these functions depends on the current operating status and menu settings.



Display

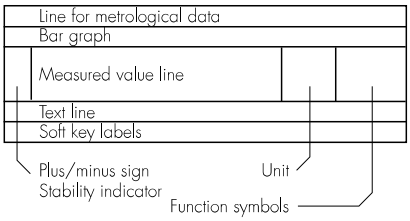
There are two fundamentally different types of display:

– weight readout

– operating menu settings (setup) and evaluation

Weight Readout

This display is divided into eight sections.



Line for Metrological Data:

When used in legal metrology, the following metrological specifications are shown here:

Max Maximum capacity of the balance/scale

Min Minimum capacity of the balance/scale, i.e., the minimum weight allowed when the balance/scale is used in legal metrology

e Verification scale interval of the balance/scale

d Readability: indicates the verification scale interval of the balance/scale

On standard balances/scales, only **Max** and **d** are shown.

Bar Graph:

The bar graph indicates how much of the balance's/scale's capacity is "used up" by the current load.

The following symbols may be displayed here:

0% Lower load limit

100% Upper load limit

Bar graph showing 10% intervals

Plus/Minus Sign, Stability Indicator:

A plus or minus sign (**+** or **−**) is shown here for a weight value, or the **o** symbol, indicating that the verified or verifiable scale has been zeroed or tared.

Measured Value Line:

This section shows the weight value or alphanumeric input.

Note Concerning Verified Balances/ Scales Approved for Use as Legal Measuring Instruments in the EU*:

For verified balances/scales that have a verification scale interval **e** greater than the scale interval **d**, the last digit on the display is bordered.

Unit and Stability:

When the balance/scale reaches stability, the weight unit is displayed here.

The ⚠ symbol may be displayed for readouts on a balance/scale verified for legal metrology. However, these readouts can only be used for standard applications (not in legal metrology/not legal for trade).

Function Symbol:

The following symbol may be displayed here:

⚠ Calibration/adjustment in progress

Text Line:

Additional information is displayed here (e.g., operator guidance prompts, product data, etc.).

Soft Key Labels:

This line shows abbreviations or symbols indicating the current soft key functions. The following symbols may be shown here:

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

<< Exit sampling, etc.

< Return to previous display

^ Scroll one line up

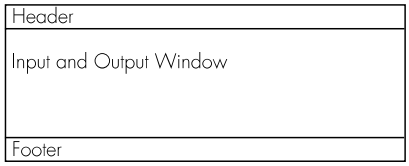
v Scroll one line down

> Confirm selected setting

↵ Confirm the selected or manually entered value

Display for Menu Parameter Settings (Setup) and Evaluation

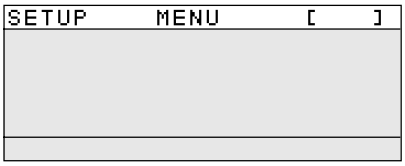
This display is divided into three sections.



Header

The header indicates the function of the current screen page. In the Setup program, the current menu path is shown here.

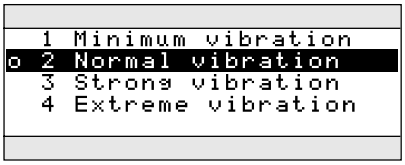
Example in the "Setup/Menu" path:



Input and Output Window

This window contains either detailed information (e.g., on the selected product) or a pick list. When you select an item, it is highlighted in the display. You can also enter information in an active field in this window using the alphanumeric keys.

Example in the "Setup/Menu" path:

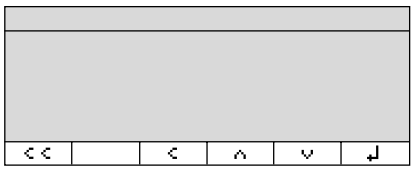


The following symbol may be displayed in this window:

o selected menu setting

Footer

The bottom line shows symbols and/or abbreviations to indicate soft key functions. The abbreviations are usually self-explanatory.



The arrows shown in this line indicate the following functions:

- << Return to Setup menu (in the Setup menu: save settings and exit the Setup program)
- < Go back to the higher menu level
- > Show submenu items under the active menu item
- ^ Move upward in the input/output window
- v Move downward in the input/output window
- ↵ Set the selected menu parameter

Data Input

You can enter data either using the keys or with a bar code scanner.

Numeric Input

To enter numbers:
Press the [1] [2] … [0] [·] keys

To store numbers entered: Press the corresponding soft key (i.e., the arrow key under the appropriate abbreviation in the bottom line of the display)

To interrupt/cancel numeric input:
Press [CF]

Alphabetic Input

- To enter letters or characters: First press the [ABC] key

> Letters are displayed in the bottom line

- To select a different letter: Press the corresponding soft key to change the letter shown (i.e., the arrow key under the letter displayed)
- To select the letter/character shown: Press the corresponding soft key

> The selected letter is shown in the display

○ Enter the next letter/character, if desired, as above.

○ Exit alphabetic input mode: Enter a number or press [CF] or [ABC]

- To store a word: Press the ↵ soft key
- To delete a word: Press [CF]

Parameter Settings

The parameters for configuration are in the basic settings, the application menu and the balance/scale operating menu. These menus have several levels.

- To set parameters: press [SETUP] and then the appropriate soft key (e.g., APP. for the application menu)
- To move within a menu level: use the ^ and v soft keys

To select a parameter:

- Press ^ or v repeatedly until the desired setting is selected (displayed inversely)
- Confirm your selection by pressing the ↵ soft key

To change the numeric value of a parameter:

- Press ^ or v repeatedly until the desired setting is selected (displayed inversely)
- Enter the desired number using the [1] [2] … [0] [·] keys
- Confirm your selection by pressing the ↵ soft key

To return to the Setup/Select level:

- Press the << soft key

See the chapter entitled "Configuring the Balance/Scale" for a complete description of all parameters.

To save the parameter settings and exit the Setup menu: press the << soft key

To cancel the parameter setting operation: press [I/⏻]

Product Search (only in local memory)

To find a long product name towards the end of the alphabet (e.g., peanut butter cookies)

- Enter a character string (e.g., P)
- Press the v soft key

> The first data entry after this string is displayed in the product list (e.g., peanut butter cookies)

or

- Enter a character string (e.g., P)
- Press the ^ soft key

> The first data entry before this string is displayed in the product list (e.g., nougat rolls)

Data Output

Data is output to the evaluation display (input/output window).

Evaluation Display

Results of test weighing, tare weighing, and sampling are shown in this window.

Interface Port

The data interface on your terminal must be set to the "Sartonet" mode (factory setting) for connection to the host computer. Each …0CEQN terminal connected must be assigned a valid address (1 through 31). Both of these settings are described in detail in the chapter entitled "Configuring the Balance/Scale," under "Balance/Scale Menu Parameters."

Error Codes

If you press a key that has no function, or which is blocked at a certain point in an application program, a double-beep is sounded as an acoustic signal (if the key has no function).

The response to an operator error is identical in all models. See the chapter entitled "Error Codes" for a detailed description.

Saving Settings

Saving Parameter Settings

The settings configured are stored in the balance's/scale's non-volatile memory.
You can also reset the balance/scale to the original settings.

Restricting User Access

You can assign a password to restrict access to the following menus:

- Basic settings (**Basic**)
- Balance/scale operating menu (**Menu**)
- User data (**Input**)

You can also restrict access to each of the following functions separately:

- Tare weighing
- Test weighing
- Enter density value
- Delete last sample or weighed-in (tare/gross) value

Saving Measured and Calculated Values

On-line Mode:

In the on-line operating mode, the data collected is sent to the central, or host, computer.

The values for the last 10 base data records loaded are additionally saved in the …0CEQN terminal.

Off-line Mode:

You can continue to work off-line with the last 10 base data records if the terminal becomes disconnected from the central computer. Only the calculated values collected during off-line operation are saved, and not the weight values. The results are sent to the host as soon as the connection to the terminal is re-established.

Getting Started

Storage and Shipping Conditions

Allowable storage temperature:
+5 °C ...+40 °C
+41°F ...+104°F

The packaging has been designed to ensure that the balance/scale will not be damaged even if it is dropped from a height of 80 centimeters (about 31 inches). Do not expose the equipment to extreme temperatures, jolts, impact, vibration or moisture.

Unpacking the Balance/Scale

- ● After unpacking the balance/ scale, 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 chapter entitled "Care and Maintenance," under the section on "Safety Inspection."
- ○ Note: The display and control unit is permanently attached to the weighing cell by a cable.

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. The strip of cardboard between the display and control unit and the weighing platform is important for protecting the equipment during shipment!

Warranty

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

Verification 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 consits 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.

Equipment Supplied

The equipment supplied includes the components listed below:

FC06BBE-S0CEQN
- Complete scale with data interface port
- AC adapter
- Column for display and control unit
- Display unit retainer
- Dust cover
- Shield disk
- Pan support
- Glass draft shield cylinder
- Draft shield cover
- Load plate

FC6CCE-H0CEQN,
FC2CCE-S0CEQN
- Complete scale with data interface port
- AC adapter
- Column for display and control unit
- Display unit retainer
- Dust cover
- Pan draft shield
- Load plate

FC12CCE-S0CEQN,
FC6CCE-S0CEQN,
FC12CCE-I0CEQN
- Complete scale with data interface port
- AC adapter
- Column for display and control unit
- Display unit retainer
- Dust cover
- Load plate

FCG34EDE-P0CEQN,
FCG16EDE-H0CEQN,
FCG12EDE-P0CEQN
- Complete scale with data interface port
- AC adapter
- Column for display and control unit
- Display unit retainer
- Load plate

LA230P-0CEQN
- Balance with display and control unit
- AC adapter
- Dust cover
- Bushing (pan adapter)
- Shield plate
- Shield disk
- Weighing pan

LA220-0CEQN
- Balance with display and control unit
- AC adapter
- Column for display and control unit
- Dust cover
- Weighing pan

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

Installation Instructions

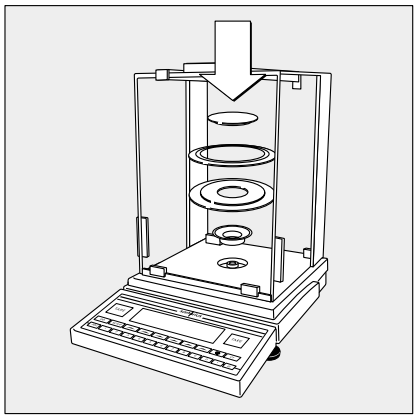
The Sartorius balances/scales are designed to provide reliable weighing results under normal ambient conditions in the laboratory and in industry. When choosing a location to set up your balance/scale, observe the following so that you will be able to work with added speed and accuracy:

- 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

Conditioning the Balance/Scale

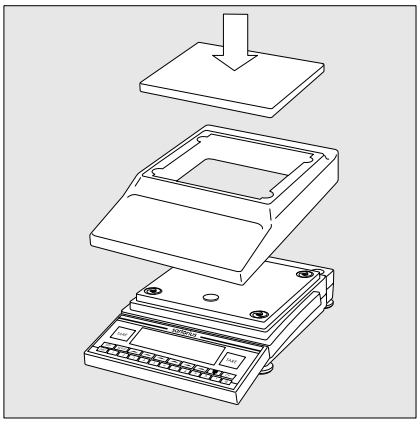
Moisture in the air can condense on the surfaces of a cold balance/scale whenever it is brought into a substantially warmer place. If you transfer the scale to a warmer area, make sure to condition it for about 2 hours at room temperature, leaving it unplugged from AC power. Afterwards, if you keep the balance/scale connected to AC power, the continuous positive difference in temperature between the inside of the balance/scale and the outside will practically rule out the effects of moisture condensation.

Setting up the Balance (LA…0CEQN models)



LA 230P-0CEQN

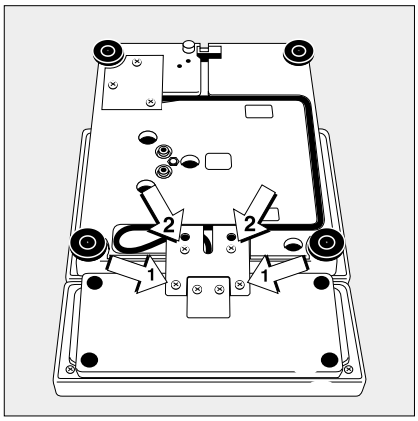
- Place the component listed below on the balance in the order given:
  - Pan adapter (bushing)
  - Shield plate
  - Shield disk
  - Weighing pan



LA 2200-0CEQN

- Place the components listed below on the balance in the order given:
  - Dust cover
  - Weighing pan

Separate Operation of the Display and Control Unit (LA…0CEQN models)



- Turn the balance upside down and lay it on a padded surface to avoid damage to the weighing system
- Use a screwdriver to remove the 2 screws from the display unit retainer
- Remove the display and control unit

> Cable length: 55 cm (approx. 21 inches)

○ See the chapter entitled "Accessories" for information on longer cables

○ If you wish to use a longer cable, it must be installed by an authorized Sartorius service technician

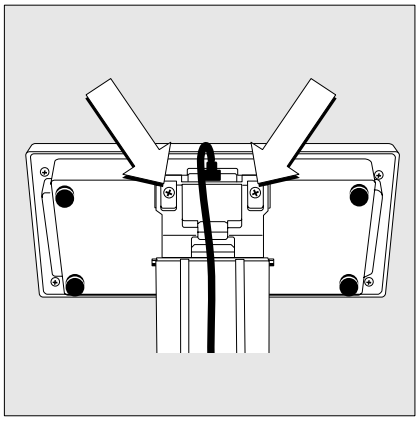
Setting up the Display and Control Unit (FC…0CEQN models)

You can set up the display and control unit in one of three ways:

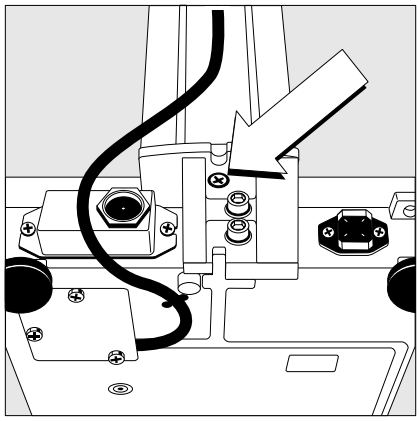
- on the column, which is then fastened to the back of the scale
- on the retainer, which is then fastened to the front of the scale
- on the retainer, separate from the scale

FC06BBE-S0CEQN, FC6CCE-H0CEQN, FC2CCE-S0CEQN, FC12CCE-S0CEQN, FC6CCE-S0CEQN, FC12CCE-I0CEQN

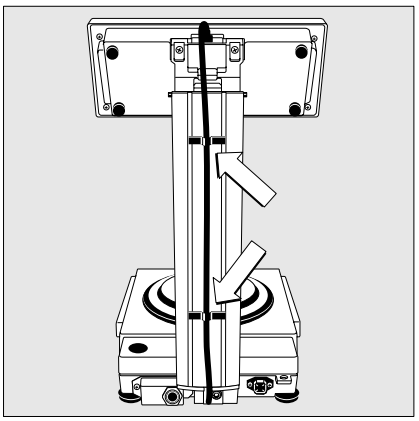
Mounting on the Column



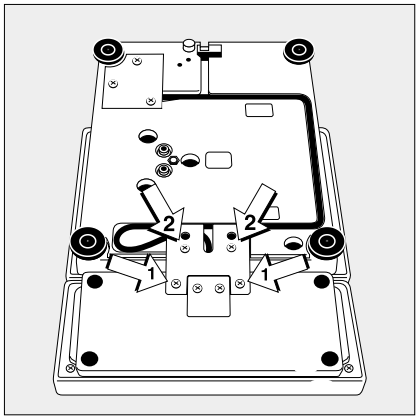
- Fasten the display and control unit to the column using the two Phillips screws supplied



- Fasten the column to the scale using the screws supplied



- Press the cable into the two clamps on the back of the display unit retainer and then press it into the channel (raceway) on the bottom of the scale

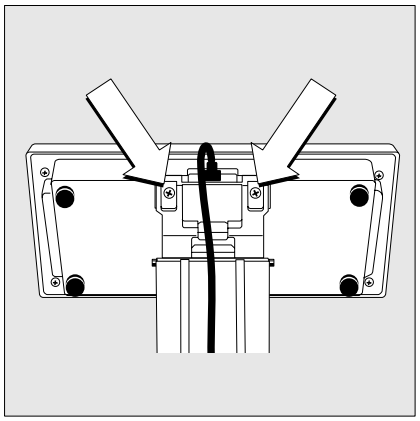


Installing the Display and Control Unit on the Retainer

- To mount on the front of the scale or to operate the display and control unit separate from the scale:
- Fasten the retainer to the display and control unit using the 2 Phillips screws supplied (**1**) (4 x 12 mm)
- To fasten the retainer to the front of the scale:
  Turn the scale over; place it on a cushioned surface to avoid damaging the weighing system
- Fasten the retainer to the scale using the 2 Phillips screws supplied (**2**) (4 x 12 mm)
- Press the cable into the channel (raceway) as shown in the illustration

> Cable length: 55 cm (approximately 21 inches)

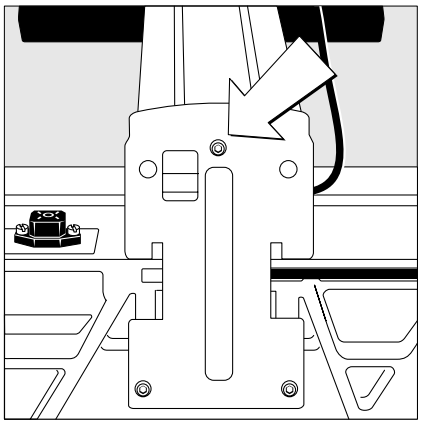
○ To order a longer cable, see the section entitled "Accessories"



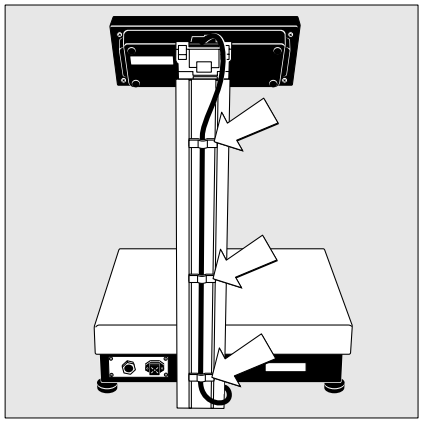
FCG34EDE-P0CEQN, FCG16EDE-H0CEQN, FCG12EDE-P0CEQN

Mounting on the Column

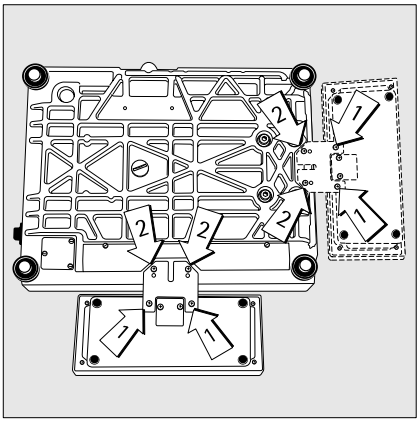
- Fasten the display and control unit to the column using the screws supplied



- Fasten the column to the scale using the screws supplied

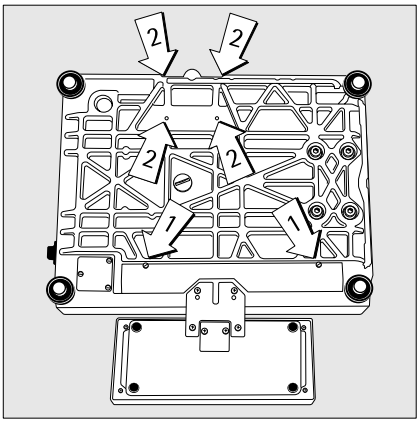


- Press the cable into the three clamps on the back of the column and into the raceway (channel) on the bottom of the scale



Fastening the Display and Control Unit to the Front of the Weighing Platform

- Turn the scale over and place it on a cushioned surface to prevent damage to the weighing system
- Remove the column retainer from the scale
- Fasten the display and control unit retainer to the display and control unit using the 2 Phillips head screws supplied (**1**) (M4x8)
- Fastening the retainer to the scale:
  Fasten the retainer to the scale using the Phillips head screws supplied (**2**) (M4x8)



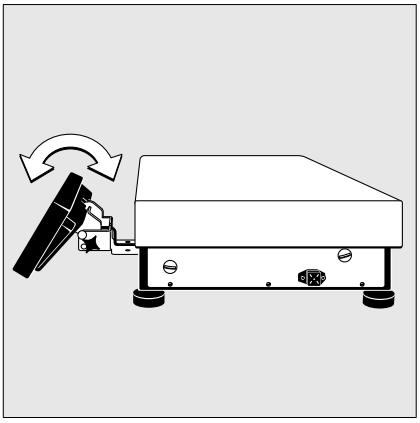
- Press the cable into the raceway (channel)
- Replace the cover on the cable raceway (**1**)
- Close the 4 bore holes using the caps supplied (**2**)

Remote Operation of the Display and Control Unit

- Turn the scale over and place it on a cushioned surface to prevent damage to the weighing system
- Remove the column retainer from the scale
- Close the 4 bore holes using the caps supplied (**2**)

> Cable length: at least 80 cm (approximately 31 inches)

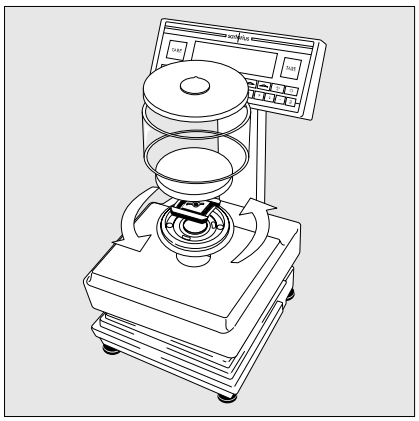
○ To order a longer cable, see the section entitled "Accessories"



Adjusting the Angle of the Display and Control Unit (only with Accessory YDH01F)

- Tilt the display and control unit to the desired position and tighten the knurled thumb screw to hold it in place.

Preparing the Scale (FC and FCG models)



FC06BBE-S0CEQN

- Place the components listed below on the scale in the order given:

– Dust cover

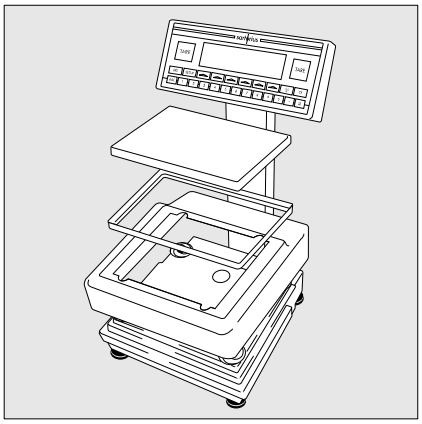
– Protective disk; turn counterclockwise until it stops and is secure

– Pan support

– Load plate

– Glass draft shield cylinder

– Draft shield cover



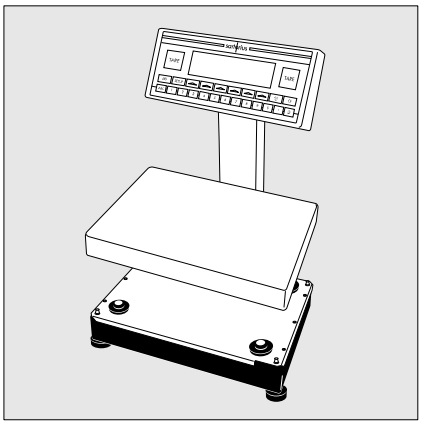
FC6CCE-H0CEQN, FC2CCE-S0CEQN, FC12CCE-S0CEQN, FC6CCE-S0CEQN, FC12CCE-I0CEQN

- Place the components listed below on the scale in the order given:

– Dust cover (remove the backing from the adhesive strip)

– Pan draft shield (depending on the scale model)

– Load plate



FCG34EDE-P0CEQN, FCG16EDE-H0CEQN, FCG12EDE-P0CEQN

- Place the load plate on the scale

Connecting the Balance/Scale to AC Power

- Check the voltage rating and the plug design

– If they do not match the rating or standard you use, contact your Sartorius office or dealer

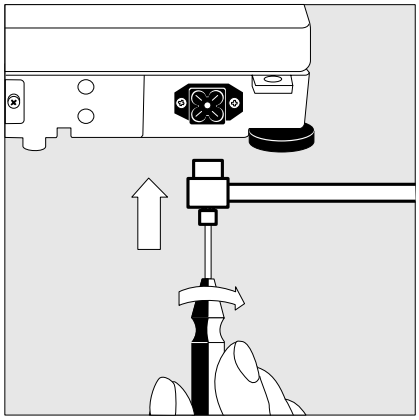
Use only

– Original Sartorius AC adapters

– AC adapters with a registered approval rating from a national testing laboratory

○ To use a main feeder cable from the ceiling or to mount a CEE plug, you will have to make appropriate arrangements with a certified specialist

○ See the chapter entitled "Accessories" for information on using an IP65-protected industrial AC adapter for LA models or an external rechargeable battery pack with your balance/scale



- Insert the right-angle plug into the jack and then tighten the screws
- Then insert the plug of the AC adapter into a wall outlet (mains)

Recharging the battery for storing configuration data:

Data is stored in battery-backed memory. When the balance/scale is disconnected from power, the data is stored for approximately 3 months. When the balance/scale is in the standby mode, this memory location uses the alternating current.

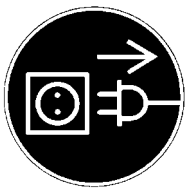
Safety Precautions

The AC adapter rated to Class 2 can be plugged into any wall outlet without requiring any additional safety precautions. The pole of the output voltage is connected to the balance/scale housing, which can be grounded for operation. The data interface is also electrically connected to the balance/scale housing (ground).

Note:

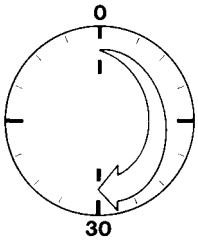
This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense. Changes or modifications not expressly approved by Sartorius AG could void the user's authority to operate the equipment.

Connecting Electronic Peripheral Devices



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

Warmup Time

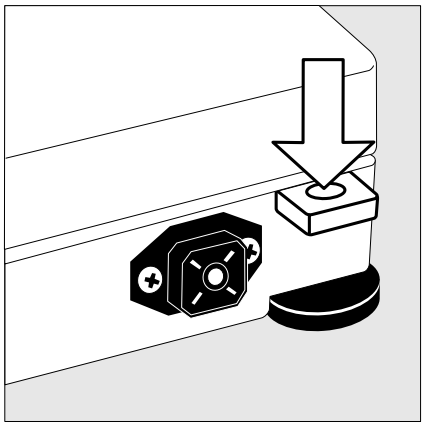


To deliver exact results, the balance/scale must warm up for at least 30 minutes after initial connection to AC power or after a relatively long power outage. Only after this time will the balance/scale have reached the required operating temperature.

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

- ○ The balance/scale must warm up for at least 24 hours after initial connection to AC power or after a relatively long power outage.
- ○ For balances and scales with a readability of ≤ 0.1 mg: wait until the automatic calibration/adjustment routine has ended.

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



Fastening an Antitheft Locking Device

○ Models FC06BBE-S0CEQN, FC6CCE-H0CEQN, FC2CCE-S0CEQN, FC12CCE-S0CEQN, FC6CCE-S0CEQN and FC12CCE-I0CEQN only

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

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

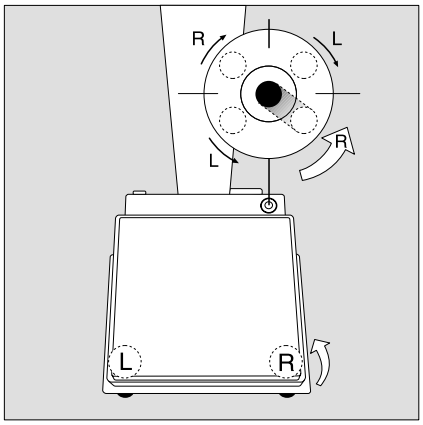
Leveling the Balance/Scale

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 scale again any time it is moved



Models FC06BBE-S0CEQN, FC6CCE-H0CEQN, FC2CCE-S0CEQN, FC12CCE-S0CEQN, FC6CCE-S0CEQN, FC12CCE-I0CEQN and LA…0CEQN:

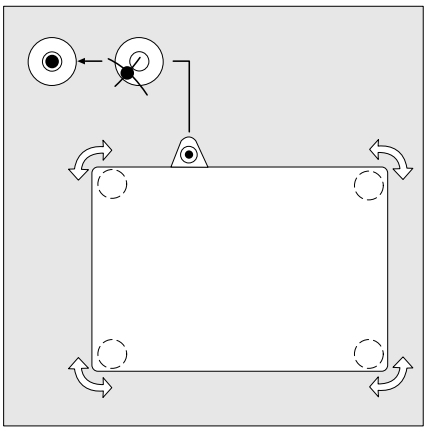
Only the 2 front feet are used for leveling.

● Turn the back feet in all the way (models with rectangular load plate only)

● Turn the 2 front feet as shown in the illustration until the air bubble is centered within the circle on the level indicator

> Several leveling steps are usually required.

● On all FC models, or when weighing heavy samples with LA models or when the YDH01LP display arm is attached:
Extend the 2 rear feet until they touch the surface on which the balance/scale rests



Models FCG…0CEQN

● Adjust the four leveling feet until the air bubble is centered within the circle on the level indicator

Setting the Language

> See the "Setting the Language" section in the chapter entitled "Configuring the Balance/Scale"

Setting the Date and Time

> See the "Setting the Date and Time" section in the chapter entitled "Configuring the Balance/Scale"

Setting the Network Address

> See the "Balance/Scale Operating Menu" section in the chapter entitled "Configuring the Balance/Scale;" configure an address by assigning a number from 1 to 31 (menu items **5 6 2** to **5 6 32**)

Configuring the Balance/Scale

Purpose

You can configure your balance/scale to meet individual requirements by entering user data and setting parameters in the Setup program.

The Setup menu is divided into five functions: basic settings, application menu, balance/scale data, balance/scale operating menu and user data input.

You can also configure the display to show specific information about the balance/scale (serial no., etc.).

Setting the Language

Features

You can choose from 6 languages for the information display:

1 German

2 English (factory setting)

3 English with US date/time format

4 French

5 Italian

6 Spanish

7 Dutch ("Setup: Basic," "Input," "Info" and "Menu" are in English, as are the information shown in the text line and soft key labels during calibration/adjustment)

Selecting the Language

- Enter the corresponding number
- Press SETUP
- Exit the Setup menu:
  Press << soft key

'Info' Display (Info)

Purpose

To have information about the equipment displayed

Display balance/scale Information

- Select the Setup program:
  Press SETUP

> "SETUP SELECTION" is displayed.

```
SETUP        SELECTION
Basic   => Basic settings
App     => Application menu
Info    => Balance/scale parameters
Menu    => Balance/scale menu
Input   => User data
 <<  |Basic |App  |Info |Menu |Input
```

- Select information:
  Press the Info soft key

> Information about the balance/scale is displayed (see also the "Data Output Functions" section in the chapter entitled "Operating the Balance/Scale"):

```
SETUP        INFO
Version no.:                01-39-15
Bal. ver. no.:              00-20-07
Model:                FC12CCE-I0CE0N
Serial no.:                 80204143
 <<
```

○ Print information:
Press ⊙/[PRINT]

> Example of a printout

```
Mod.   FC12CCE-IOCEQN
Ser. no.     80204143
Ver. no.     01-39-15
```

(Software version, display and control unit)

```
Ver. no.     00-20-07
```

(Software version, weighing platform)

- Return to
  SETUP SELECTION:
  Press the << soft key

Exiting the Setup menu

When you use the << soft key:

– The software is restarted if you have changed a setting.

– The software is not restarted if you have kept the same settings.
In this case, the program returns to its initial state before you press the SETUP key.

When you press the SETUP key:

– The Setup menu is exited and the software is generally restarted.

> Balance/scale returns to previous status

Entering User Data (Input)

Purpose

To display, input or change user data. You can block access to these data by assigning a password.

Features

You can display, input or change the following user data:

– Workstation number for the balance/scale ("ID;" max. 20 characters)*

– Batch/lot ("LID") and weight set number for calibration/adjustment ("WID") have no function here

– Exact calibration weight value for calibration/adjustment of the scale, e.g. for adjustment according to a DKD certificate (see the section on "Calibration/ Adjustment" in the chapter entitled "Operating the Balance/Scale")

– Time (hh.mm.ss; hh can be entered without a preceding zero)

– Date (dd.mm.yy, or mm.dd.yy when you select "English with US date/time" as the language)

– Contrast/angle of the display (enter a number from 0 to 4; factory setting: 2)

– Password for access to the Setup menu, which contains the "Basic settings," "Balance/Scale operating menu" and "Info" functions (max. 8 characters)*

*: If the last character of user data is a letter: conclude input by pressing ABC (or CF)

To delete user data:
Enter a · (decimal point) or a space and confirm, or press CF repeatedly until each character is deleted and then confirm
To delete the last character entered: Press CF (see the section on "Basic Settings" in the chapter entitled "Configuring the Balance/Scale")

Factory Setting

Password: No designation

If no password has been assigned, anyone can access the Setup:Input, Setup:Menu and Setup:Info functions without entering a password.

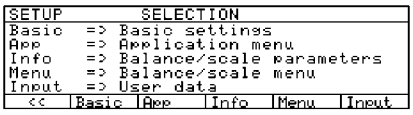
If you assign a password and then forget what the word is, you can use the General Password (see Appendix) to access these menus.

Preparation

Display existing user data

● Select the Setup program:
Press SETUP

> "SETUP SELECTION" is displayed.



● Select User Data:
Press the Input soft key

If you have already assigned a password:

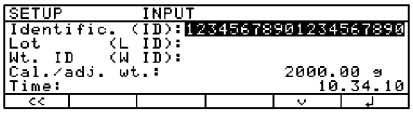
> The password prompt is displayed

○ If access is blocked by a password: enter the password using the alphanumeric keys

○ If the last character of the password is a letter: conclude input by pressing ABC (or CF)

● Press the ↵ soft key to confirm the password and display user data

> User data is displayed:



Enter/Change Password

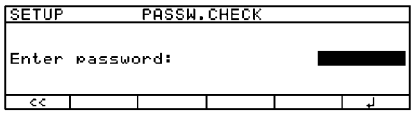
● Select the Setup program:
Press SETUP

> SETUP SELECTION is displayed

● Select Information:
Press the Input soft key

If you have already assigned a password:

> The password prompt is displayed



○ Enter the password

○ Press the ↵ soft key to confirm the password and display user data

● Write down the password here for easy reference:

Password = ...

If you assign a password and then forget what the word is:

○ Enter the General Password (see Appendix)

○ Press the ↵ soft key to confirm the password and display user data

> User data is displayed:

● Select the password-setting function: Press the v soft key repeatedly until

> Password: and any existing password are displayed

● New password: Enter the letters/numbers for the new password (max. 8 characters)*
If "none" is displayed as the password, this means no password has been assigned
To delete the password:
Enter · and confirm

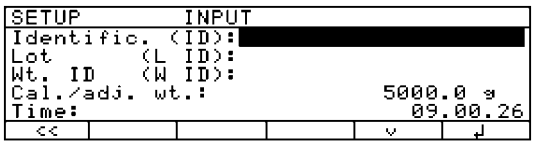
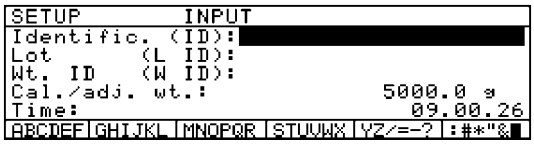
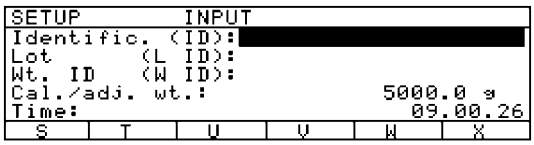
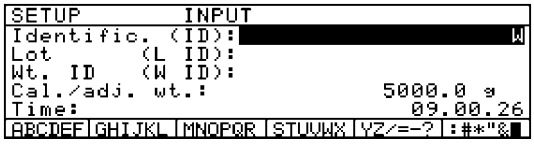
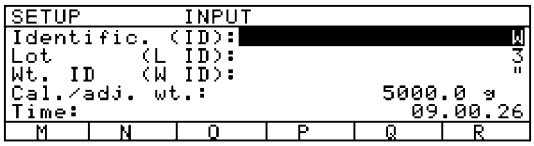
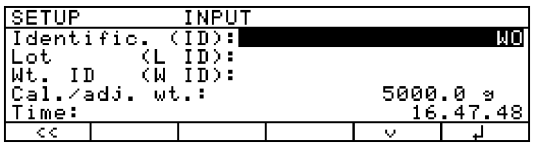
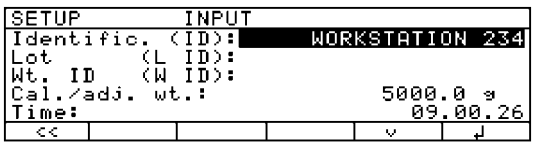
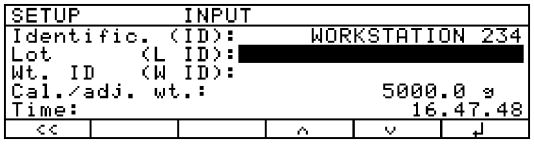
● To confirm: press the ↵ soft key

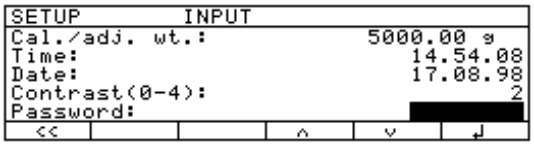
● Exit the Setup menu:
Press << soft key

> Restart the application

Practical Example 1:

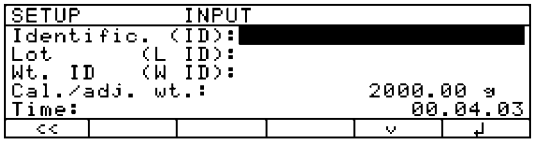
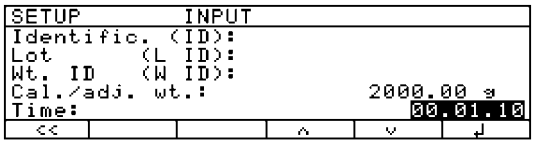
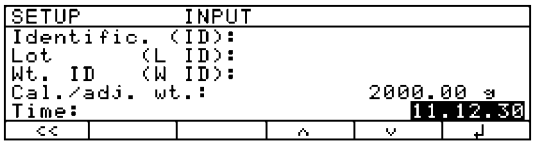
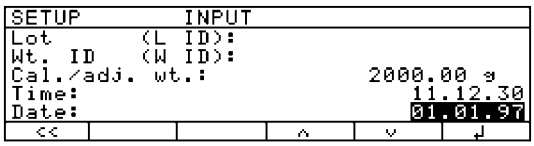
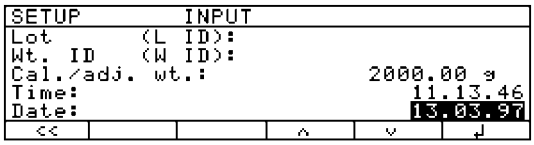
Enter "Workstation 234" as balance/scale ID; display and print other user data

Step	Key (or recommendation)	Display/Output
1. Select Setup:Input Display workstation ID (in this example: no ID assigned)	SETUP , then the **Input** soft key	
2. Before entering letters	ABC	
3. Select the letters group	**STUVWX** soft key	
4. Set the letter "W"	**W** soft key	
5. Enter the next letters of the balance/scale ID	**MNOPQR** soft key	
6. Set the letter "O"	**O** soft key	
7. Repeat steps 5 and 6 to enter the required letters	soft key …	
8. Enter the numbers 2, 3 and 4 If the last character entered is a letter: Conclude input of letters	2 3 4 ABC	
9. Store balance/scale ID	↵ soft key	

Step	Key (or recommendation)	Display/Output
10. Display other user data – Weight set ID – Calibration weight – Time – Date – Display contrast – Password	˅ soft key repeatedly	
11. Exit Setup:Input	<< soft key	

Practical Example 2:

Setting the date and time

Step	Key (or recommendation)	Display/Output
1. Select Setup:Input	SETUP, then the **Input** soft key	
2. Select the time	v soft key repeatedly	
3. Enter the time	1 1 · 1 2 · 3 0	
4. Synchronize the time with a reference clock. Once you set the time, the date-setting function is active.	↵ soft key	
5. Enter the date	1 3 · 0 3 · 9 7	
6. Store the date	↵ soft key	
7. Display other user data – Weight set ID – Calibration weight – Time – Date – Display contrast – Password	v or ^ soft key	
8. Exit Setup:Input	<< soft key	

Application Menu Parameters (APP)

Purpose

The balance/scale requires certain parameters to calculate weighing data. These parameters can either be loaded from the central computer by specifying product number and lot and machine IDs, or entered in the Application menu. This menu is divided into 2 parts, "Configuration" and "Password."

Configuration

Before performing sampling, tare weighing or test weighing you can select the desired product from the list of products saved in the local memory.

Once you have selected the product, you can enter additional data concerning the filling machine and the lot (batch). This data is referred to as "header data."

Configuring Header Data

Select Application:Configuration to configure:

- whether a prompt is displayed for input of operator data and, if so, whether the last operator entered should appear as the default here
- whether the operator ID is hidden during input (only asterisks ("*") shown)
- whether the lot designation must be entered
- whether the machine designation must be entered
- whether input of operator, lot and machine IDs should be prompted for each sample ("Enter always")

Restricting Access to Functions

Select Application: Password to change the password restricting access to the following functions:

- Tare weighing
- Test weighing
- Entering a density value
- Deleting the last sample or a value weighed-in for tare or gross calculation
- Attribute testing

Measured Data

Select the Application menu to configure:

- whether measured values are stored manually (by pressing ↵) or automatically
- whether the weighing instrument is automatically tared before each sample
- which of the following values are displayed at the conclusion of sampling:
  - Mean value
  - Long-term mean
  - Standard deviation
  - Variation coefficient
  - Lowest value ("Min")
  - Highest value ("Max")
  - Range (Max – Min)
  - Machine capability index C m
  - Machine capability index C mk
  - Sample size
  - Number of samples < –T2
  - Number of samples < –T1
  - Number of samples < –T
  - Number of samples > +T
  - Adjustment recommendation

Results are stored in a list. If this results list is empty, only measurement results are output (see also Example 2 on page 25).

- whether an error message indicated a measured value that exceeds a preset limit (–T2, –T1, –T or +T), known as an "outlier" or "out-of-tolerance value," must be acknowledged before the program can continue. Such an error message would read, for example, "–T2 ERROR."
- whether the maximum standard deviation must be acknowledged when it is reached
- whether "TOO LOW" or "TOO HIGH" should be displayed when a measured value exceeds preset "plausibility limits." These limits are set as percentages of deviation from the nominal fill quantity or the tare approximation value.

For gross measurements:

	U	–P	+P
Standard	50	75	125
50 percent	30	50	150
75 percent	10	25	175
90 percent	5	10	190

where:

NST: Nominal fill quantity + supplement + average tare [= 100%]
U: Unloading limit as a percentage of NST
–P: Lower plausibility limit as a percentage of NST
+P: Upper plausibility limit as a percentage of NST

For tare measurements:

	U	–P	+P
Standard	50	60	140
50 percent	30	50	150
75 percent	10	25	175
90 percent	5	10	190

where:

TA: Tare approximation [= 100%]
U: Unloading limit as a percentage of TA
–P: Lower plausibility limit as a percentage of TA
+P: Upper plausibility limit as a percentage of TA

- whether sample and attribute testing are activated by pressing a key, or automatically after a specified interval has elapsed (interval=0 to 240 minutes). If you set the interval to 0 minutes, a new test starts automatically as soon as the last test is finished. Configure this setting separately for each of the two test types (attribute and sample testing). See also Example 3 on page 26, and the sections entitled "Basic Weighing Function" and "Attribute Testing", under "Operating the Balance/Scale".

Preparation

● Select the Setup program: Press SETUP

> SETUP SELECTION is displayed

● Select the Application menu: Press the App soft key

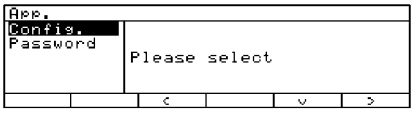
If a password has been assigned:

> The password prompt is displayed

● Enter the password

● Confirm the password entered: Press the ↵ soft key

> The Application menu is displayed (1st menu level):



○ To select the next item in the group: Press the v soft key (arrow down)

○ To select the previous item in the group: Press the ^ soft key (arrow up)

○ To select one item lower in the group: Press the > soft key (arrow right)

○ To return to the next level up: Press the < soft key (arrow left)

○ To confirm the selected menu item: Press the ↵ soft key

○ Return to the next higher menu level: Press the < soft key.

● Save settings and exit the Application menu: Press << soft key.

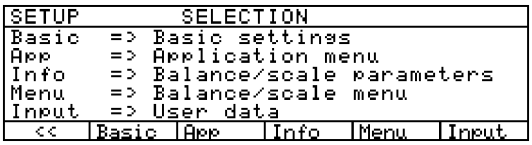
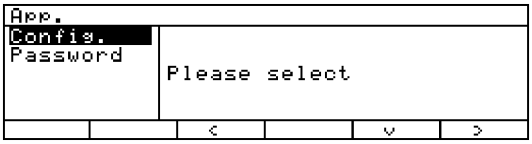
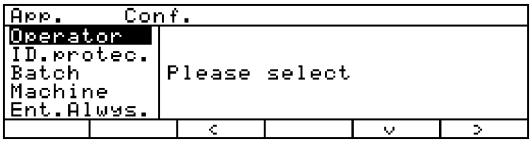
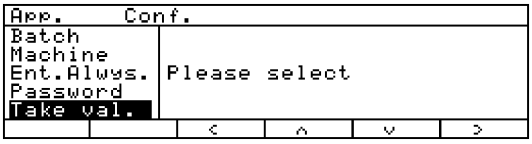
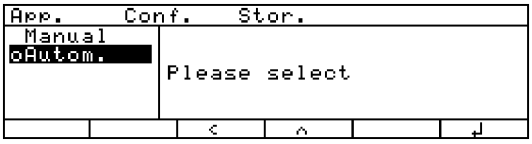
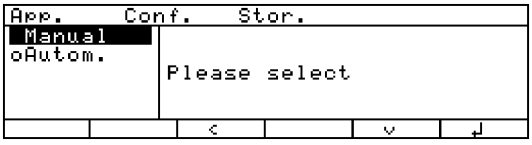
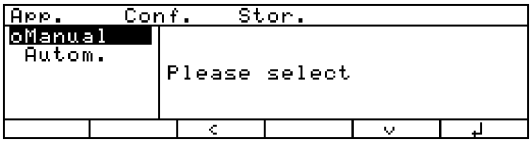
> Restart the application

Factory Settings

The factory-set configurations are marked with an "o" in the list starting on page 28.

Example 1

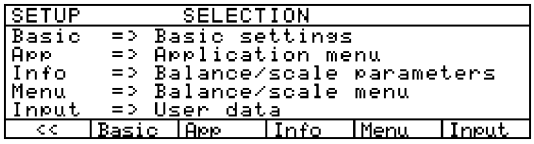
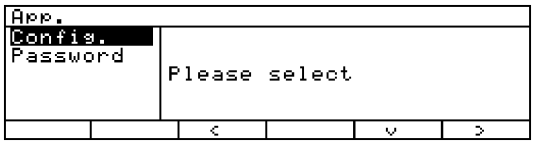
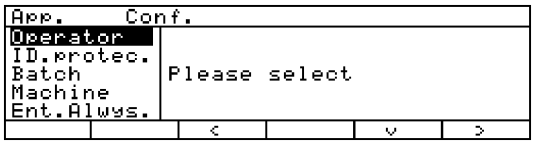
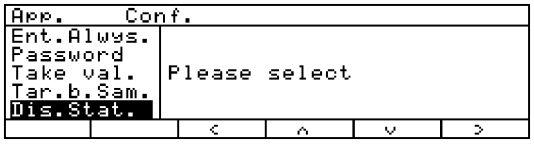
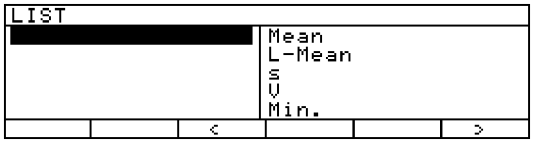
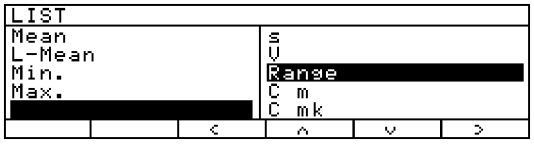
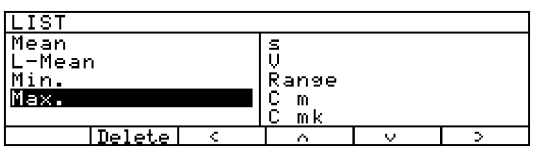
Set "Store values"* to "manual"

Step	Key (or recommendation)	Display/Output
1. Select Setup	SETUP	
2. Select "Application menu"	App soft key	
3. Menu level 1: Confirm selection of "Configuration" menu item and go to menu level 2	> soft key	
4. Menu level 2: Select "Take val."	v soft key repeatedly	
5. Confirm selection and go to menu level 3	> soft key	
6. Menu level 3: Select "manual"	^ soft key	
7. Confirm selection	↵ soft key	
8. Set other menu codes, if desired	< v ^ > soft keys	
9. Save settings and exit the Setup menu	<< soft key	

* On some instruments, "take value" is displayed

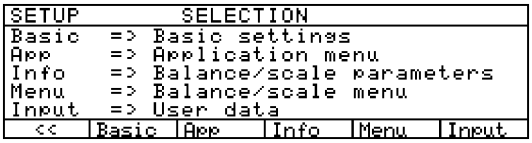
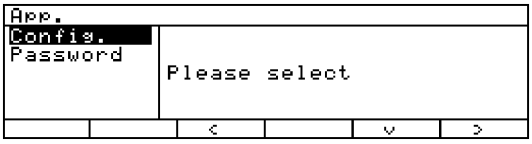
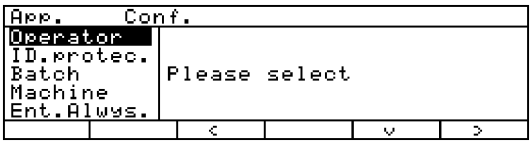
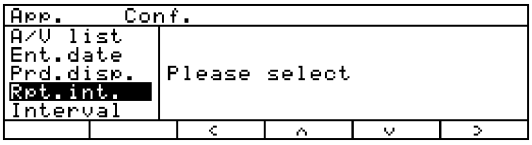
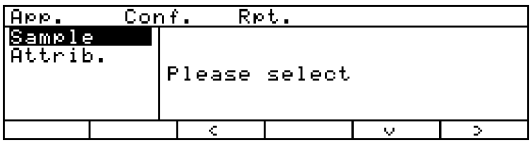
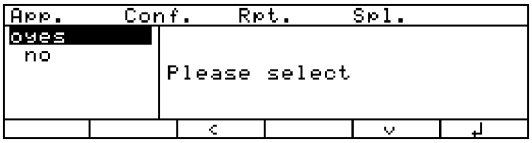
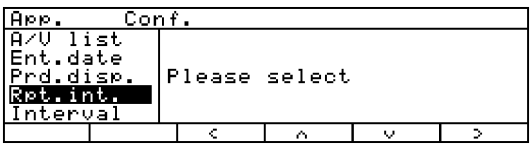
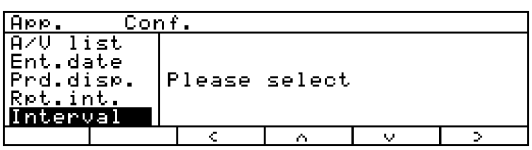
Example 2

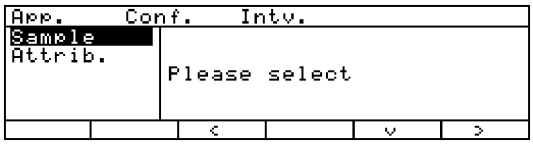
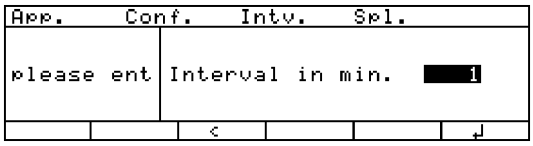
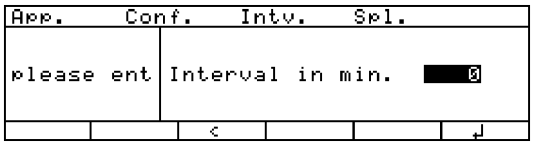
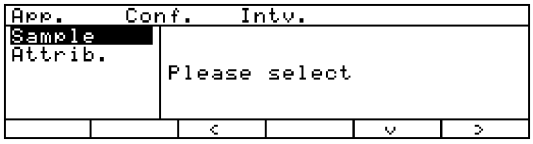
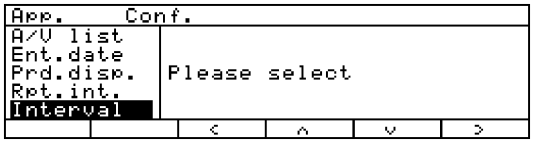
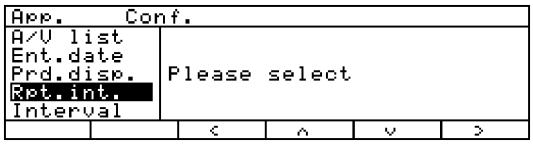
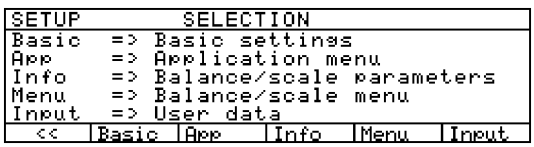
Configure results list

Step	Key (or recommendation)	Display/Output
1. Select Setup	SETUP	
2. Select "Application menu"	App soft key	
3. Menu level 1: Confirm selection of "Configuration" menu item and go to menu level 2	> soft key	
4. Menu level 2: Select "Dis.Stat."	v soft key repeatedly	
and confirm	> soft key	
5. Results list is shown (in this example: list is empty; factory setting: list includes all 15 statistics)	> soft key	
6. Select item in pick list to add to results list	v ^ soft keys	
and confirm (in this example: add the range ("Max – Min") to the list that already includes "Mean", "Long-term mean" and "Maximum")	↵ soft key	
7. Add other items as desired	v ^ soft keys; ↵ soft key	
8. To delete an item from the list: select the item in the list and delete it	< soft key v ^ soft keys Delete soft key	
9. Set other menu codes, if desired	< v ^ > soft keys	
10. Save settings and exit the Setup menu	<< soft key	

Example 3

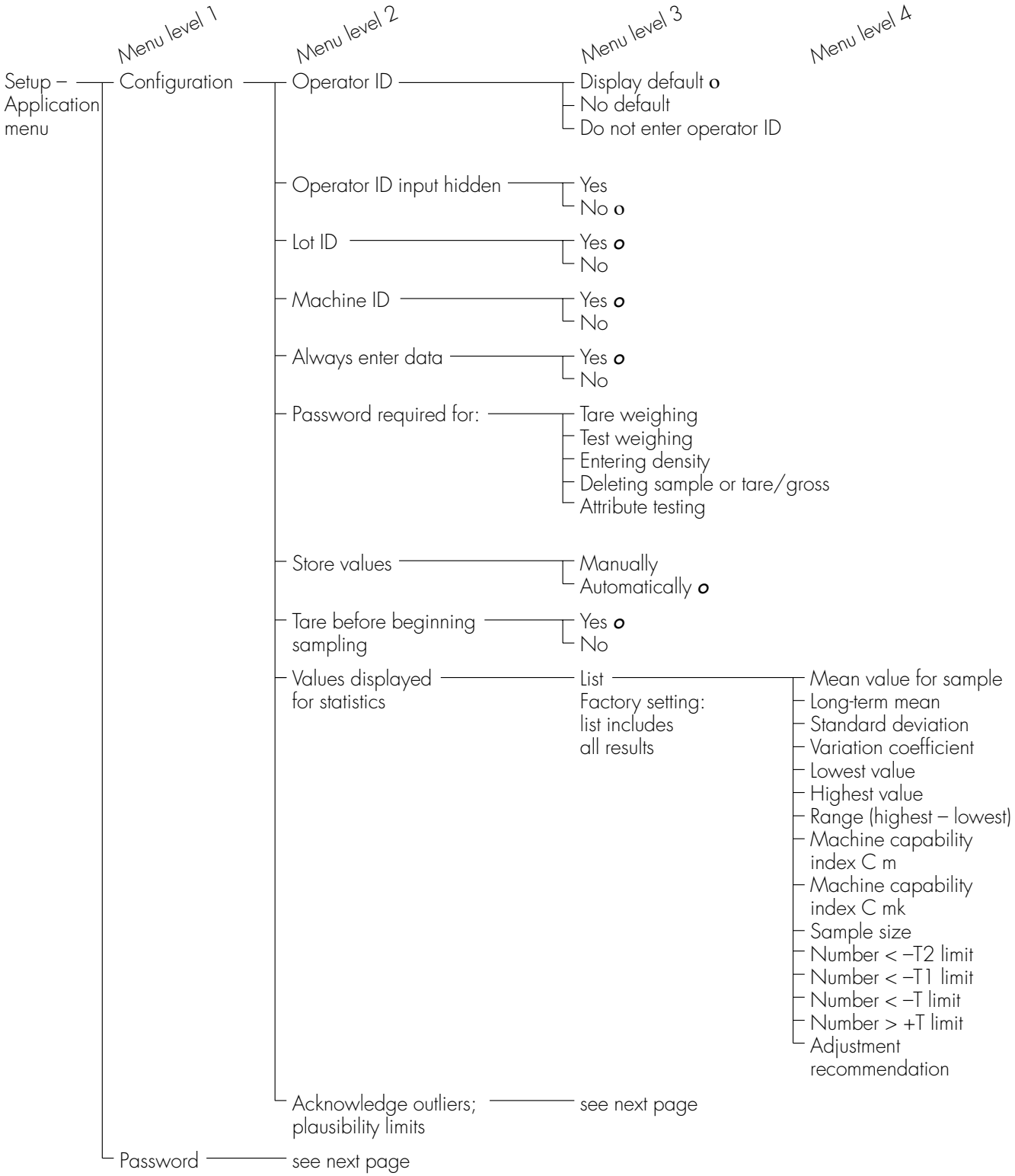
Set interval for sampling/attribute testing

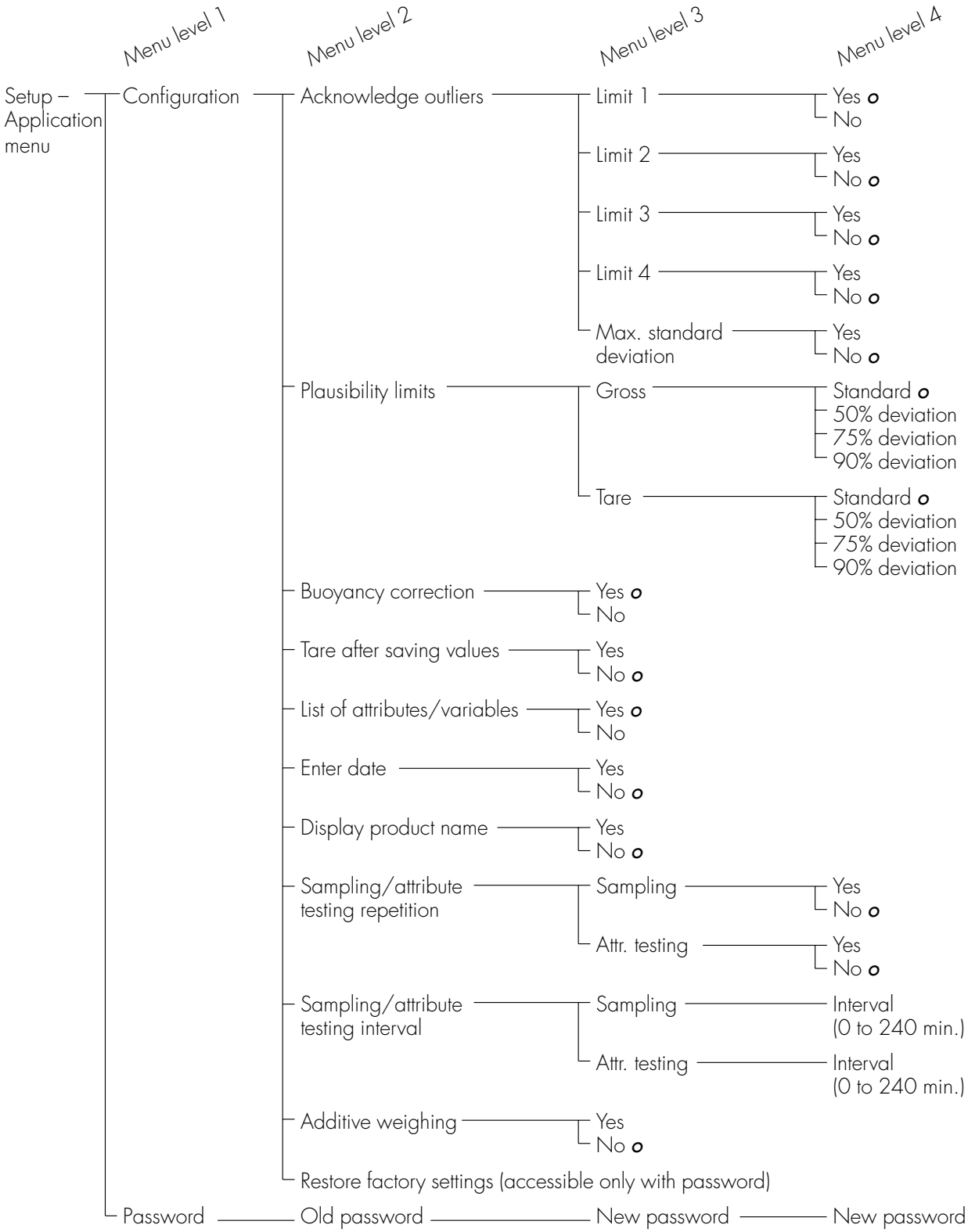
Step	Key (or recommendation)	Display/Output
1. Select Setup	SETUP	
2. Select "Application menu"	App soft key	
3. Confirm selection of "Configuration" menu item and go to level 2	> soft key	
4. Menu level 2: Select "Repetition Interval"	v soft key	
5. Confirm selection: menu for "Sampling" repetition interval is displayed	> soft key	
6. To set the interval for attribute testing rather than sampling, select "Attribute"	v soft key	
7. Confirm selected menu item (in this example, repetition interval for sampling) The "o" symbol indicates the active setting. If the setting is correct, skip to step 9.	> soft key	
8. Change setting as desired and confirm. The "o" symbol indicates the active setting.	v ^ soft keys ↵ soft key	
9. Return to next higher menu level ("Repetition interval")	< soft key	
10. Return to next higher menu level ("Configuration")	< soft key	
11. Menu level 2: Select "Interval"	v soft key	

Step	Key (or recommendation)	Display/Output
12. Confirm "Interval": Menu for selecting the sampling interval is displayed	> soft key	
13. To set the interval for attribute testing, select "Attribute"	v soft key	
14. Confirm selected menu item (in this example: sampling interval) The display shows the current value for the interval period. If the setting is correct, skip to step 16.	> soft key	
15. If desired, change the interval period (1 ≤ intervall [min.] ≤ 240 or "0" for immediate repetition) Example: enter "0" (new sample started automatically as soon as previous sampling is completed) and confirm	0 ↵ soft key	
16. Return to next higher menu level ("Interval")	< soft key	
17. Return to next higher menu level ("Configuration")	< soft key	
18. Menu level 2: If desired, set the repetition interval for attribute testing and interval period: repeat steps 5 through 17 for attribute testing	^ soft key	
19. Return to next higher menu level ("Application")	< soft key	
20. Save settings and exit the Setup menu	<< soft key	

Setup Parameters, "Application Menu" (Overview)

o Factory setting
√ User setting




Menu level 1
Menu level 2
Menu level 3
Menu level 4
Setup – Application menu
Configuration
Acknowledge outliers
Limit 1
Yes o
No
Limit 2
Yes
No o
Limit 3
Yes
No o
Limit 4
Yes
No o
Max. standard deviation
Yes
No o
Plausibility limits
Gross
Standard o
50% deviation
75% deviation
90% deviation
Tare
Standard o
50% deviation
75% deviation
90% deviation
Buoyancy correction
Yes o
No
Tare after saving values
Yes
No o
List of attributes/variables
Yes o
No
Enter date
Yes
No o
Display product name
Yes
No o
Sampling/attribute testing repetition
Sampling
Yes
No o
Attr. testing
Yes
No o
Sampling/attribute testing interval
Sampling
Interval (0 to 240 min.)
Attr. testing
Interval (0 to 240 min.)
Additive weighing
Yes
No o
Restore factory settings (accessible only with password)
Password
Old password
New password
New password

List of Parameters

Parameters under "Configuration"

Operator designation	Operator
Display default	with def. o
No default	no def.
Do not enter operator designation	none

Hide operator input	ID.protec.
Operator ID protected	yes
Not protected	no o

If "yes" is set for this parameter, only asterisks are displayed when the operator ID is entered; no default ID is displayed.

Batch (lot) designation	Batch
Enter lot number	yes o
Do not enter lot number	no

Machine designation	Machine
Enter machine number	yes o
Do not enter machine number	no

Always enter operator, machine and lot data	Ent.Alwys.
Always enter	yes o
Only enter at beginning of sampling or start of program	no

Restrict access to Password functions

You can restrict access to the following five functions. You can change the password. The password is not displayed when you enter it (only asterisks ("*") are shown).

Tare weighing		Tare wgh.
Old password	(blue)	****
Enter new password	(red)	***
Confirm new password by repeating input	(red)	***

Test weighing		Test wgh.
Old password	(blue)	****
Enter new password	(red)	***
Confirm new password by repeating input	(red)	***

Enter density value		Density
Old password	(blue)	****
Enter new password	(red)	***
Confirm new password by repeating input	(red)	***

Delete last measurement		Del.meas.
Old password	(blue)	****
Enter new password	(red)	***
Confirm new password by repeating input	(red)	***

Attribute testing		Attribut.
Old password	(blue)	****
Enter new password	(red)	***
Confirm new password by repeating input	(red)	***

Store weighed value	Take val.
Press key to store value	Manual
Store val. automatically	Autom. o

Tare before beginning sampling	Tar.b.Sam.
Yes	yes o
No	no

Values displayed for statistics	Dis.Stat.
Include in list	LIST

You can configure which of the following measured values is displayed (if any), as well as the order in which they appear. With the factory settings, all results are output.

Sampling average	Mean
Long-term average	L-Mean
Standard deviation	s
Variation coefficient	V
Lowest value	Min.
Highest value	Max.
Range (max. – min.)	Range
Machine capability index C m	C m
Machine capability index C mk	C mk
Sample size	n
Number < –T2 limit	n(-T2
Number < –T1 limit	n(-T1
Number < –T limit	n(-T
Number > +T limit	n)+T
Adj. recommendation	Adjust

Select the limits to be confirmed	Confirm
Limit 1 (–T2)	Limit 1
Limit 2 (–T1)	Limit 2
Limit 3 (–T or +T1)	Limit 3
Limit 4 (+T or +T2)	Limit 4
Maximum standard deviation	Std.Max.

Limit 1 (–T2)	Limit 1
Out-of-tolerance value must be acknowledged	yes o
Acknowledgment not required	no

Limit 2 (–T1)	Limit 2
Out-of-tolerance value must be acknowledged	yes
Acknowledgment not required	no o

Limit 3 (–T or +T1)	Limit 3
Out-of-tolerance value must be acknowledged	yes
Acknowledgment not required	no o

Limit 4 (+T or +T2)	Limit 4
Out-of-tolerance value must be acknowledged	yes
Acknowledgment not required	no o

Maximum standard deviation	Std.Max
Must be acknowledged	yes
Acknowledgment not required	no o

Select the plausibility limits	P.limits
Gross	Gross
Tare	Tare

Plausibility limit for gross weight	Gross
Standard	Standard o
Up to 50% error	50 PCT
Up to 75% error	75 PCT
Up to 90% error	90 PCT

See "Configuration" under "Configuring the Balance/Scale" for details.

Plausibility limit for tare weight	Tare
Standard	Standard o
Up to 50% error	50 PCT
Up to 75% error	75 PCT
Up to 90% error	90 PCT

See "Configuration" under "Configuring the Balance/Scale" for details.

Buoyancy correction	Dens.Corr.
Yes	yes o
No	no

Tare after value stored and scale unloaded	Tar.a.val.
Yes	yes
No	no o

Attribute list	A/V list
Yes	yes o
No	no

Enter date	Ent.date
Yes	yes
No	no o

Display product name	Prd.disp.
Display name	yes
Do not display name	no o

When "yes" is configured, the product name is appears for 2 sec. in the text line before sampling (after "Load data").

Repetition interval		Rpt.int.
Sample:	Sample	yes
		no o
Attr. testing:	Attrib.	yes
		no o

Testing interval		Interval
Sample:	Sample	0
Attr. testing:	Attrib.	0

Enter a value from 1 to 240 (= minutes) for the interval period, or enter 0 to have sampling/testing repeated immediately.

Additive weighing	Add.Wgh.
Tare after each weighed value	yes
Do not tare	no o

Restore factory settings

Reset	Fctry.set.
Reset	yes
Do not reset	no

This menu item is only displayed if access to the application menu is restricted by a password.
Select "yes" to restore all application parameters to the original factory settings.
Any passwords that have been assigned are deleted when you select this option.
Sampling results collected off-line are also deleted, as is base data that had been stored.

Restrict Access to Parameters

You can protect your parameter settings from unauthorized changes by requiring a password to be entered. The password you enter here is not displayed; only asterisks ("*") are shown.

Password	(example)	Password
Old password	(blue)	****
Enter new password	(red)	***
Confirm new password by repeating input	(red)	***

Balance/Scale Operating Menu (Menu)

Purpose

To configure the balance/scale, i.e., adapt the balance/scale to individual requirements by selecting from a list of parameter options in a menu. You can restrict access to this menu by assigning a password.

Features

The parameters are grouped together as follows (menu level 1):

1 Balance/scale functions

5 Interface

6 Print in weighing mode

8 Extra functions

9 Reset menu

Factory Settings

The factory-set configurations are marked with an " o " in the list starting on page 34.

Preparation

● Select the Setup program: Press SETUP

> SETUP SELECTION is displayed

● Select the balance/scale operating menu: Press the Menu soft key

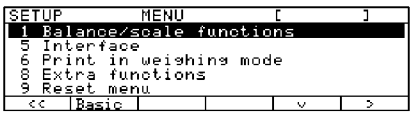
If a password has been assigned:

> The password prompt is displayed

● Enter the password

● Confirm the password entered: Press the ↵ soft key

> The balance/scale menu is displayed (1st menu level):



○ To select the next item in the group: Press the v soft key (arrow down)

○ To select the previous item in the group: Press ^ soft key (arrow up)

○ To select one item lower in the group: Press the > soft key (arrow right)

○ To return to the next level up: Press the < soft key (arrow left)

○ To confirm the selected menu item: Press the ↵ soft key

○ To toggle to Setup:Basic settings (see also page 37): Press the Basic soft key

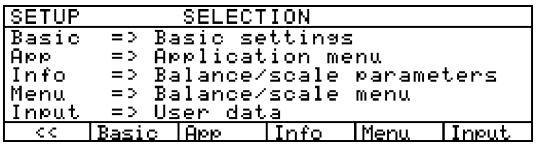
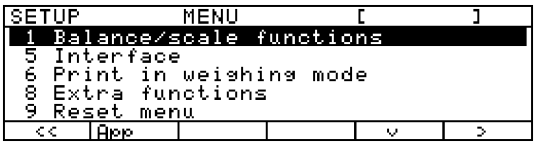
Additional Functions

● Save settings and exit the Setup menu: Press << soft key

> Restart the application

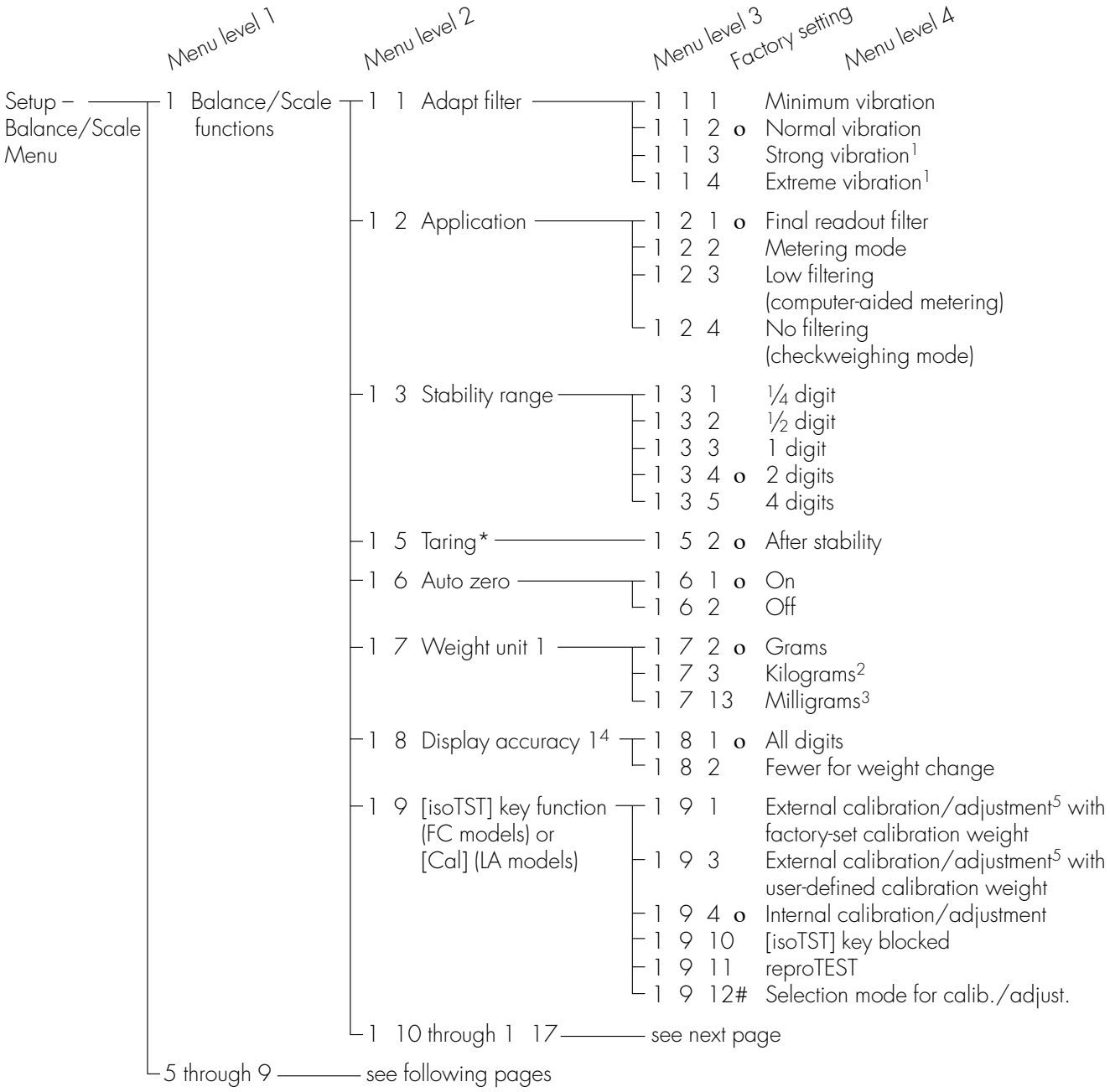
Practical Example

Adapt the balance/scale to ambient conditions of "extreme vibration."

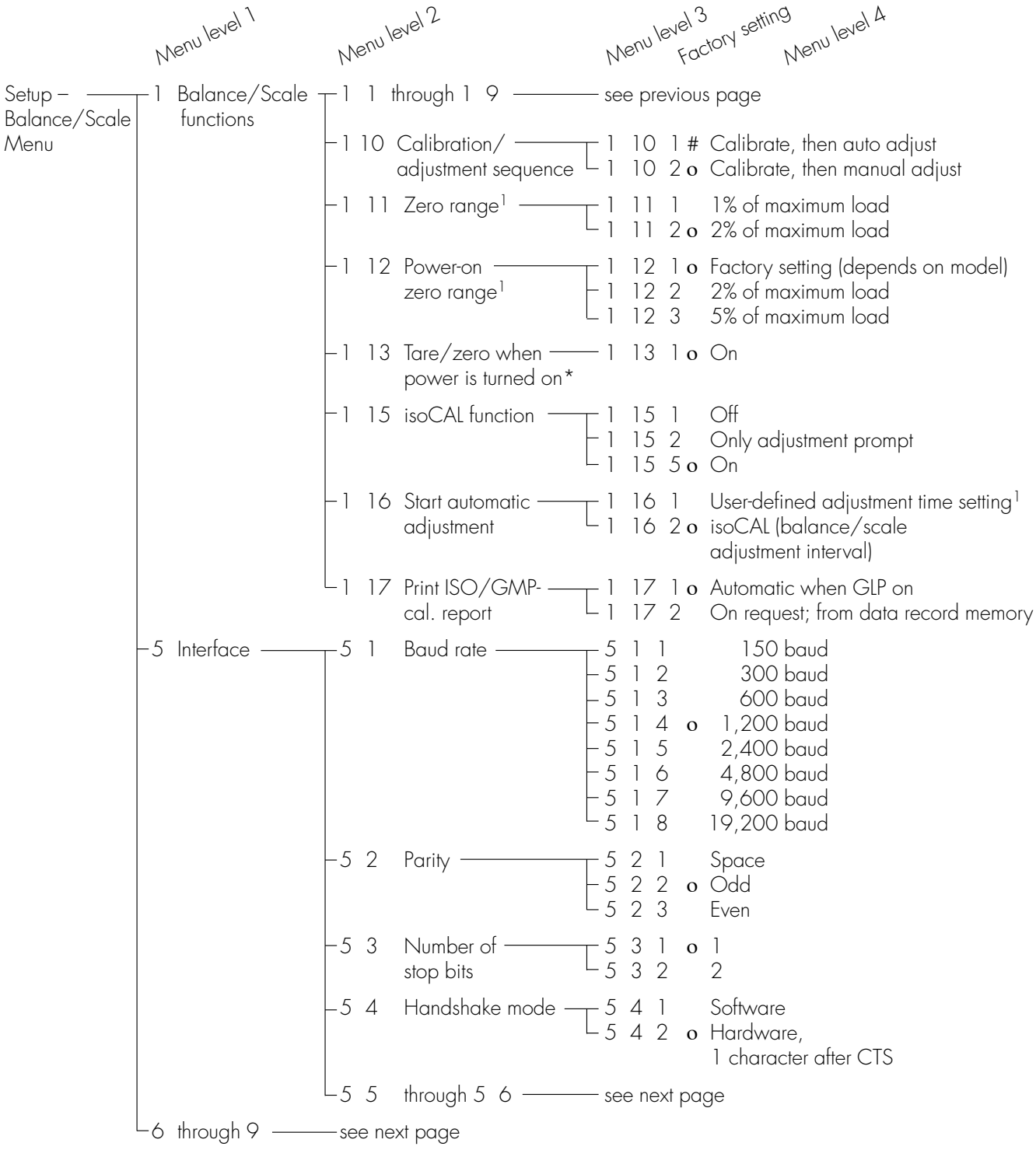
Step	Key (or recommendation)	Display/Output
1. Select Setup	SETUP	
2. Select the balance/scale menu	**Menu** soft key	
3. Confirm selection of balance/scale menu	> soft key	
4. Confirm selection of filter adaptation menu item	> soft key	
5. Menu level 3: Select the desired item	v soft key twice	
6. Confirm selection	↵ soft key	
7. Set other menu codes, if desired	< v ^ > soft keys	
8. Save settings and exit the Setup menu	<< soft key	

Balance/Scale Operating Menu

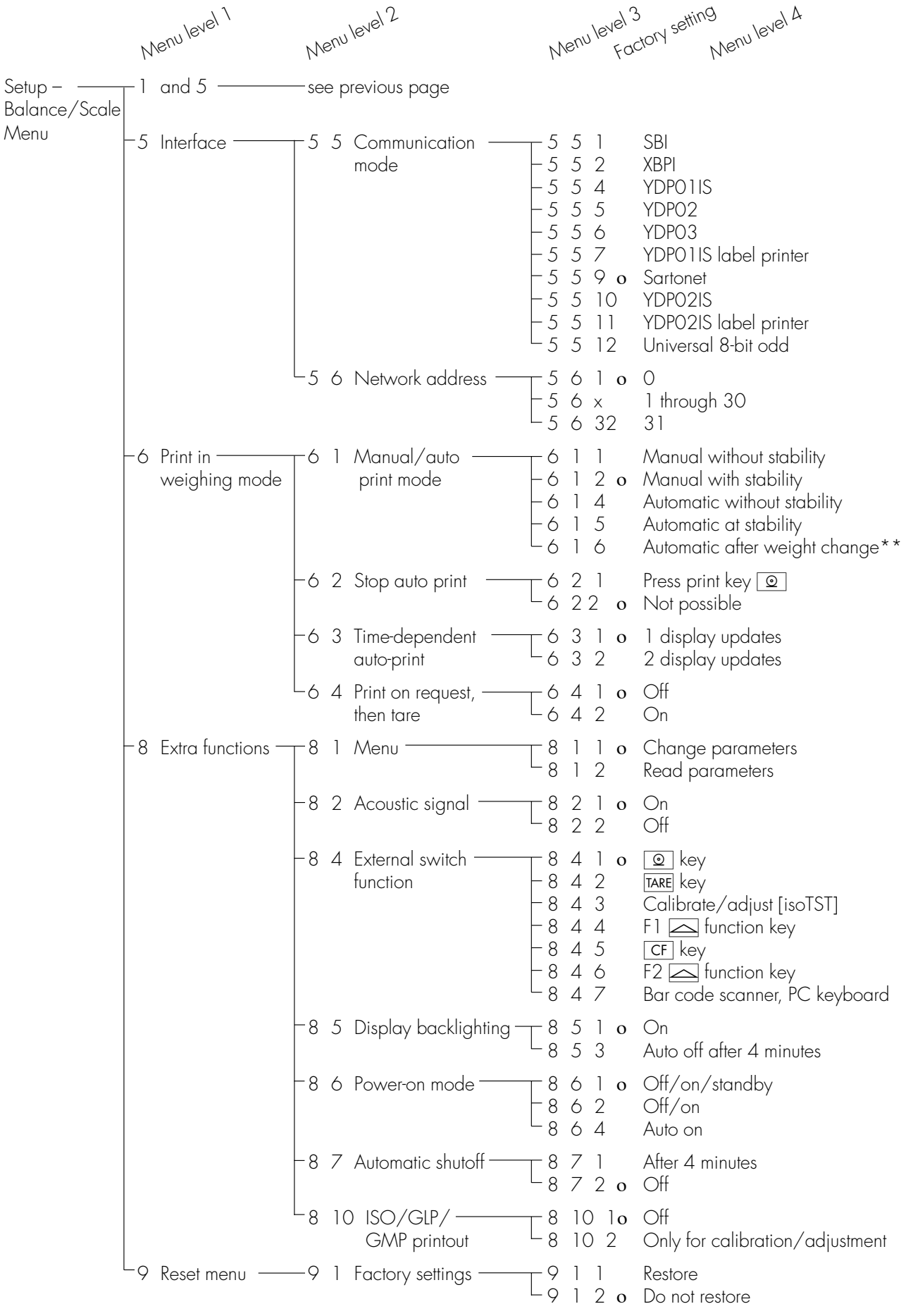
o Factory settings
√ User settings



1) Only for FC scales
2) Not for LA230P-0CEQN
3) Only for LA230P-0CEQN
4) Only for LA balances
5) Only calibration is possible for balances/scales verified for legal metrology
\# Setting only for LA balances
*= not available on verified balances/scales used in legal metrology in the E.U. and European Economic Area



[1]) Only for FC scales
Setting only for LA balances
*= not available on verified balances/scales used in legal metrology in the E.U. and European Economic Area



** = auto print when load change is > 10 d and stability: released at < 5 d

Basic Settings (Basic)

Purpose

To configure the balance/scale, i.e., adapt the balance/scale to individual requirements by selecting from a list of parameter options in a menu. You can restrict access to this menu by assigning a password.

Features

Keypad:

You can assign different functions to the CF key for deleting input.

When you delete input, you can either delete all the data input in a field, or only the last character entered.

CF function for inputs

You can block key functions; you can choose whether to block all keys (except I/⏻ and SETUP) or only the alphanumeric keys.

Block key functions

Display:

You can configure the display for your individual needs

Characters can be displayed in black on white or vice versa.

Background

You can suppress the bar graph display.

Digit size

10mm + bar graph + text display

13mm + text display

Factory Settings

The factory-set configurations are marked with an "*o*" in the list on page 39.

Preparation

● Select the Setup program:
Press SETUP

> **SETUP SELECTION** is displayed

● Select the Basic settings menu:
Press the **Basic** soft key

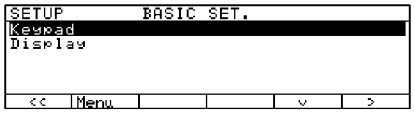
If a password has been assigned:

> The password prompt is displayed

● Enter the password

● Confirm the password entered:
Press the ↵ soft key

> The balance/scale menu is displayed (1st menu level):



○ To select the next item in the group:
Press the v soft key (arrow down)

○ To select the previous item in the group: Press the ^ soft key (arrow up)

○ To select one item lower in the group: Press the > soft key (arrow right)

○ To return to the next level up:
Press the < soft key (arrow left)

○ To confirm the selected menu item:
Press the ↵ soft key

○ To toggle to Setup:Menu (see also page 32):
Press the **Menu** soft key

Additional Functions

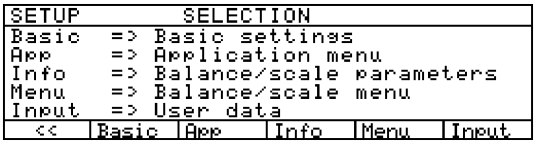
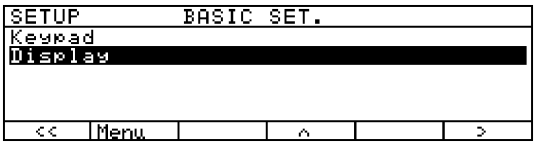
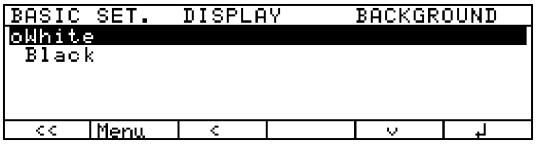
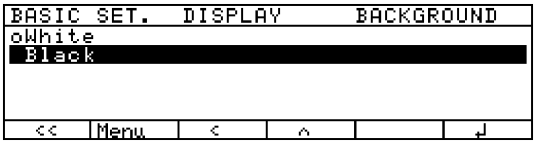
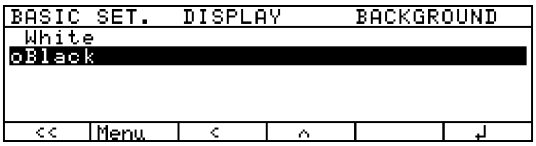
● Save settings and exit the Basic settings menu:
Press << soft key

> Restart the application

● Restore factory settings:
Set menu code **9 1 1** (see the chapter entitled "Balance/Scale Operating Menu")

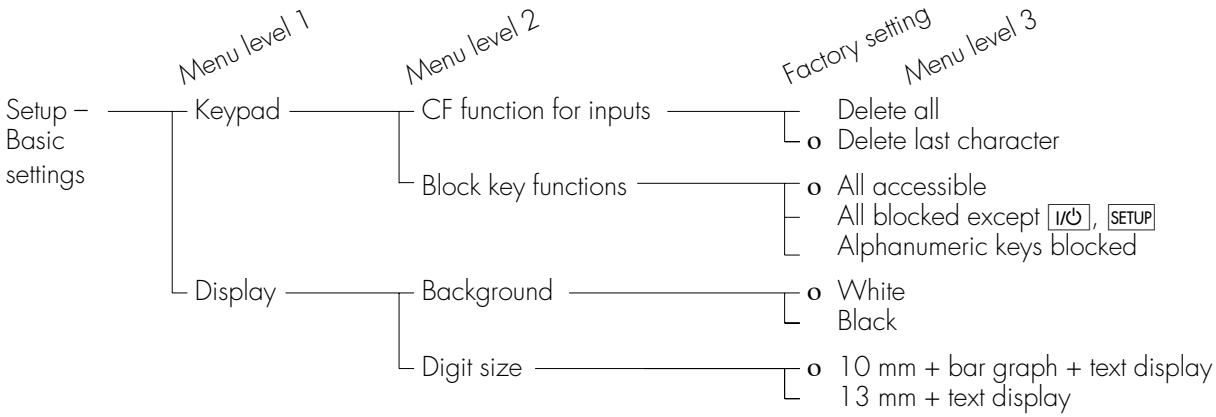
Practical Example

Display: White on black background

Step	Key (or recommendation)	Display/Output
1. Select Setup	SETUP	
2. Select Basic settings	**Basic** soft key	
3. Menu level 1: Select "Display"	v soft key	
4. Confirm selection	> soft key	
5. Select "Background"	> soft key	
6. Menu level 2: Select "Black"	v soft key	
7. Confirm	↵ soft key	
8. Set other menu codes, if desired	< v ^ > soft keys	
9. Save settings and exit the Setup menu	<< soft key	

Setup Parameters, "Basic Settings"

o Factory setting
√ User setting



Operating the Balance/Scale

After you turn on the ... 0CEQN balance/scale, a self-test of the weighing range is run.

At the conclusion of this self-test the balance/scale is ready to operate. The weight on the balance/scale is displayed on the readout, and the prompt "**Please press a key**" appears in the text line, if the balance/scale is in the on-line mode. In the off-line mode, the error message "**Not connected**" is displayed.

Calibration/Adjustment "isoTEST"**

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 this difference between the value displayed and the true weight (mass) of the sample, or the reduction of the difference to an allowable level within maximum permissible error limits.

** isoTEST = TEST in the U.S. and Canada; isoTEST function available only on FC models

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.

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

Features

The isoTEST function is only available on the FC scales. Start this function anytime at the press of a key to check a balance/scale used as inspection, measuring and test equipment. The balance/scale is calibrated and any deviation is displayed. Press the **Start** soft key to start adjustment. If you do not wish to have the balance/scale adjusted, press the **End** soft key to cancel the isoTEST.

Your balance/scale can be calibrated externally (balance/scale menu: **CAL/isoTST** key function; menu item **Ext. cal./ adj.: factory-def. wt.** or **Ext. cal./adj.:user-defined wt.**) or internally (**Internal cal./adjustment**).

For external calibration you can choose between the following options:

– Factory-defined weight by selecting **Ext. cal./adj.: factory-def. weight**

– User-defined weight by selecting **Ext. cal./adj.: user-defined wt.**

External adjustment can be performed

– automatically following calibration: **Cal., then auto adjust.** or,

– if desired, the adjustment operation can be started manually after calibration: **Cal., then manual adjust**

You can also configure whether the calibration mode

– is activated according to the specific setting (external/internal) or

– can be selected by the user after pressing the **isoTST** soft key: **Selection mode**.

You can have the balance/scale automatically display an adjustment prompt after a certain time interval has elapsed since the last calibration/adjustment or when the ambient temperature changes by a defined amount.

You can also configure the balance/scale to perform calibration and adjustment automatically (isoCAL) when the preset time(s) and/or temperature limit is reached: **On and reset application** or **On without resetting App**

Factory Settings of the Parameters

Calibration/adjustment mode:
FC scales: **Internal cal./ adjustment**

LA balances: **Selection mode**

Calibration/adjustment sequence:
FC scales: **Cal., then manual adjust.**

LA balances: **Calibrate, then auto adjust**

isoCAL function (automatic initiation of cal./adj. sequence): **On without resetting app**

External Calibration in Verified Scales of Accuracy Class (II)

– External calibration is blocked when the balance/scale is used in legal metrology (switch cover is sealed)

> External calibration can only be released after removing the verification control seal, in which case the validity of the verification becomes void and the balance/scale must be re-verified

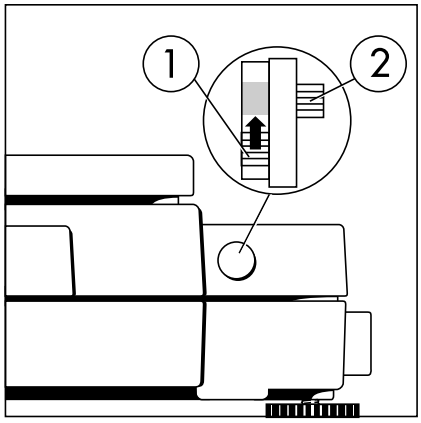
– External calibration can now be performed

External Calibration of Verified Balances of Accuracy Class (I) (only for LA230P-0CEQN model)

– External calibration is blocked when the balance is used in legal metrology

> External calibration can only be released after removing the verification control seal, in which case the validity of the verification becomes void and the balance must be re-verified – see next page

– External calibration can now be performed



Releasing Access to External Calibration on Verified Balances of Accuracy Class I (Model LA230P-0CEQN)

- Remove the covering plate from the back of the balance housing
- Move switch 1 in the direction of the arrow

> Switch down:
> external calibration accessible
> Switch up:
> external calibration blocked

Note:
Do not move Switch 2

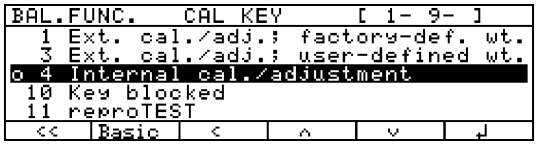
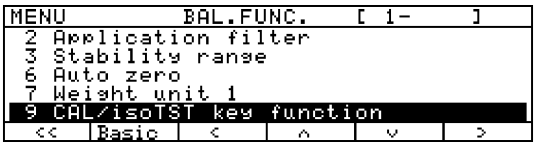
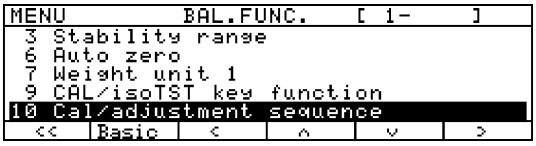
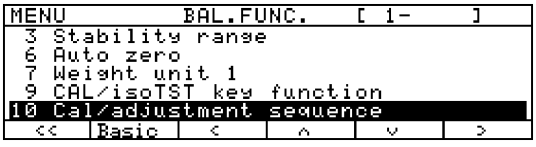
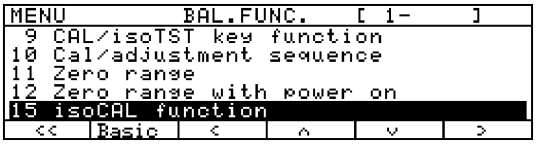
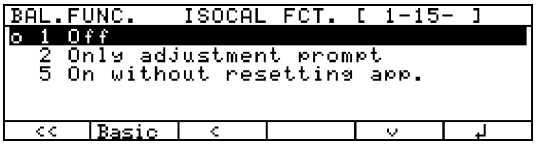
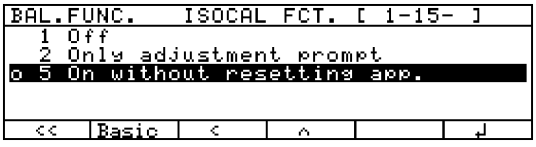
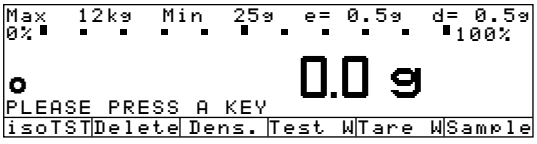
- At the end of the adjustment, move the switch back to position 1

Preparation

Set the parameters for calibration and adjustment; e.g., with manual calibration/adjustment, isoCAL off

Step	Key (or instruction)	Display/Output
1. Switch on the balance/scale	I/⏻	Sartorius logo Self test Max 12kg Min 25g e= 0.5g d= 0.5g 0% ▪ ▪ ▪ ▪ ▪ ▪ ▪ ▪ ▪ ▪ 100% o 0.0 g PLEASE PRESS A KEY isoTST | Delete | Dens. | Test W | Tare W | Sample
2. Select the Setup menu	SETUP	SETUP SELECTION Basic => Basic settings App => Application menu Info => Balance/scale parameters Menu => Balance/scale menu Input => User data << | Basic | App | Info | Menu | Input
3. Select the balance/scale menu	**Menu** soft key	SETUP MENU [ ] 1 Balance/scale functions 5 Interface 6 Print in weighing mode 8 Extra functions 9 Reset menu << | Basic | | | v | >
4. Select (confirm) balance/scale functions	> soft key	MENU BAL.FUNC. [1-] 1 Adapt filter 2 Application filter 3 Stability range 6 Auto zero 7 Weight unit 1 << | Basic | < | | v | >
5. Select CAL/isoTST key function	v soft key repeatedly	MENU BAL.FUNC. [1-] 2 Application filter 3 Stability range 6 Auto zero 7 Weight unit 1 9 CAL/isoTST key function << | Basic | < | ^ | v | >
and confirm	> soft key	BAL.FUNC. CAL KEY [1- 9-] 3 Ext. cal./adj.: user-defined wt. 4 Internal cal./adjustment 10 Key blocked 11 reproTEST o12 Selection mode << | Basic | < | ^ | | ↵

o = last setting selected

Step	Key (or instruction)	Display/Output
6. Select desired function and confirm (e.g., item 4)	^ soft key – repeatedly if necessary, ↵ soft key	
7. Exit CAL/isoTST function	< soft key	
8. Select Cal./adjustment sequence	v soft key	
and confirm	> soft key	 o = last selected setting
9. Select other settings, if desired and confirm (e.g., Calibration with manual adjustment)	v and ↵ soft keys	
10. Exit Cal./adjustment sequence	< soft key	
11. Select isoCAL function	v soft key 4 times	
and confirm	> soft key	 o = last setting selected
12. Select other settings, if desired and confirm (e.g., turn off isoCAL function)	^ soft key repeatedly ↵ soft key	
13. Save settings and exit the Setup menu	<< soft key	

Internal Calibration/Adjustment

First set either **Internal cal./adjustment** (factory setting for FC models) or **Selection mode** (factory setting for LA models) in the scale menu. Inside the scale housing is a built-in motorized calibration weight.

The internal calibration/adjustment sequence is as follows:

- Select the calibration function: Press the **isoTST** soft key twice (for FC models) or **Cal** (for LA models)

> The internal calibration weight is applied automatically

> The scale is calibrated

> If the setting "**Calibrate, then auto adjust**" (factory setting for LA models) is selected in the scale menu, the scale is now automatically adjusted

> If the setting "**Calibrate, then manual adjust**" (factory setting for FC models) is selected in the scale menu, the internal calibration routine is now ended without adjusting the scale (see "Calibration and Adjustment Sequence," next column)

> The internal calibration weight is removed

Calibration and Adjustment Sequence

In the Setup menu, you can configure the scale so that:

– calibration is always followed automatically by adjustment **Calibrate, then auto adjust** (factory setting for LA models) or

– you have the choice of ending the sequence or starting adjustment after calibration (factory setting for FC models) **Calibrate, then manual adjust**

If no error is determined in calibration, or the error is within the tolerance limits dictated by the degree of accuracy you require, it is not necessary to adjust the scale. In this case, you can end the calibration/adjustment sequence after calibration. There are 2 soft keys active at this point:

– **Start** to start adjustment

– **End** to end the sequence

Selecting the Calibration/ Adjustment Parameter

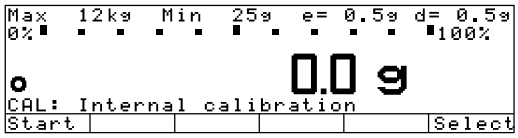
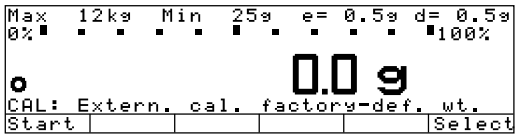
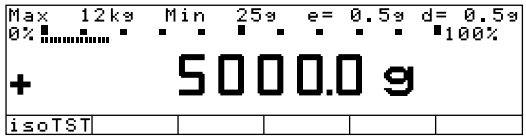
The setting **Selection mode** must be selected in the Setup menu (factory setting for LA models).
After pressing the **isoTST** soft key (for FC models) or **Cal** (for LA models), you can choose from among the following settings by pressing the **Select** soft key:

– External calibration/adjustment with the preset calibration weight: **Ext. cal./adj.: factory-def. wt.**
– External calibration/adjustment with a calibration weight defined by the user: **Ext. cal./ adj.:user-defined wt.**
– Internal calibration/adjustment **Internal cal./ adjustment**
– Reproducibility test **reproTEST**

● Start the desired routine:
Press the **isoTST** soft key again (for FC models) or **Cal** (for LA models)

In the selection mode: Perform external calibration followed by automatic adjustment with the factory-set weight

Configuration:
Factory settings

Step	Key(s) (or instruction)	Display/Output
1. Select Calibration	**isoTST** or **Cal** soft key	
2. Select external calibration/adjustment with factory-defined weight (for verified balances/scales, only "external adjustment" is possible)	**Select** soft key twice	
3. Start external calibration/ adjustment	**Start** soft key	
4. Place the weight on the balance/scale (e.g., 5,000.00 g) Minus sign –: Weight too low Plus sign +: Weight too high No plus/minus sign: Weight o.k.	Place weight on balance/scale	
This is displayed after calibration, for approx. 10 seconds: (on verified balance/scales, the difference between the displayed weight and the true weight (mass) is displayed)		
Display after adjustment:		
5. Unload the balance/scale		

External Calibration/Adjustment * with a User-Defined Calibration Weight

First set either **Ext. cal./adj.:user-defined wt.** or **Selection mode** (factory setting) in the balance/scale menu. You can define a weight for calibration/adjustment. External calibration/adjustment must be performed with weights that are traceable to a national standard and that have error limits which are at least 1/3 of the required tolerance of the display accuracy. The defined weight must equal at least 10% of the maximum balance/scale capacity.

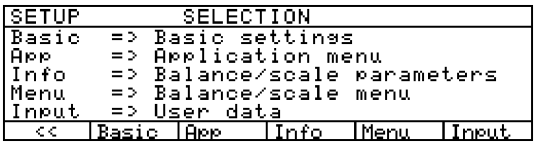
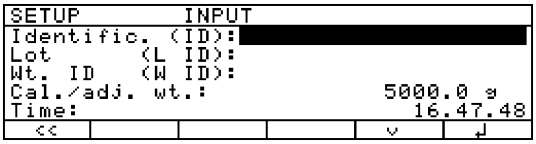
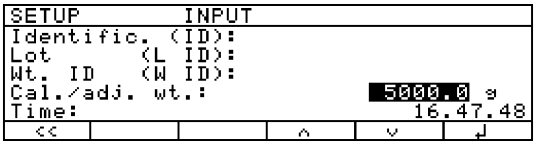
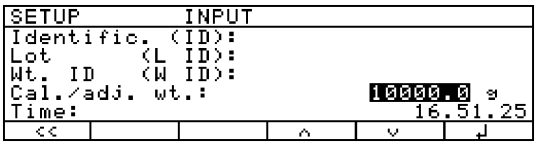
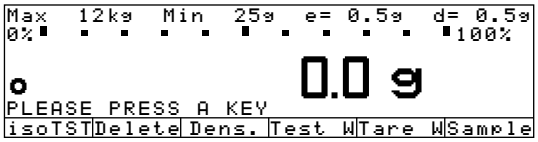
See page 44 for the external calibration/adjustment sequence. For this example, select "Ext. cal./adj.; user-defined weight".

The balance/scale has a factory-set weight value (see "Specifications").

To reset a user-defined calibration weight to the original factory setting:

○ Enter the factory-defined value manually (see "Specifications")

Define the Calibration Weight

Step	Key(s) (or instruction)	Display/Output
1. Select Setup	SETUP	
2. Select Input	**Input** soft key	
3. Select Calibration/adjustment weight	˅ soft key 3 times	 5000.00 = last setting selected
4. Enter calibration weight (e.g., 10000.00 g)	1 0 0 0 0 · 0	
and store	↲ soft key	
5. Exit the Setup menu	< < soft key	

* = for verified balances/scales of accuracy class (II), only "external adjustment" is possible

isoCAL: Automatic Calibration/Adjustment After a Change in Temperature

On without resetting the app. (factory setting) must be selected in the balance/scale menu.

The "isoCAL" display automatically begins flashing if the ambient temperature changes in relation to the temperature at the time of the last calibration/adjustment, or after a defined time interval has elapsed. The balance/scale is telling you that it wants to adjust itself.

This automatic calibration prompt is triggered when:

- The change in temperature or time interval is greater than that indicated in the table below
- The balance/scale is not in the Setup mode
- No number or letter input is active
- The load has not been changed within the last 2 minutes
- The balance/scale has not been operated within the last 2 minutes
- The load on the balance/scale does not exceed 2% of the maximum capacity
  - The verified balance/scale with a readability ≤ 0.1 mg is switched on after having been disconnected from AC power

When these requirements are met, **C** is displayed in the measured value line.

If the balance/scale is not operated and the load is not changed, internal calibration and adjustment starts after 15 seconds have elapsed.

In the Setup menu, you can configure the balance/scale so that it displays a calibration prompt, but does not perform the calibration/adjustment functions automatically
Only adjustment prompt

Switching OFF "isoCal" Function

on Verified Precision Scales of Accuracy Class (II) with a Readability ≥ 1 mg:

The scale continues to perform automatic calibration and adjustment outside the limited temperature range for legal metrology even if **Off** or **Only adjustment prompt** is selected in the Setup menu.

Limited temperature range:

- Balance/scale of accuracy class (I): +15 °C to +25 °C
- Balance/scale of accuracy class (II): +10 °C to +30 °C

Standard temperature range: –0 °C to +40 °C

Automatic adjustment must be shut off on verified balances and scales with a readability ≥ 1 mg for legal metrology:

- This function must be disabled after the balance/scale has been modified by Sartorius technical service

> After the function has been shut off, the balance/scale may only be operated within the legally limited temperature range

○ "isoCAL" cannot be switched off on verified balances and scales with a readability ≤ 0.1 mg

Fully automatic calibration and adjustment is activated according to the following criteria:

Model	At a change in temperature of	Following a time interval of
LA230P-0CEQN	1.5 Kelvin	4 h
LA2200-0CEQN	4 Kelvin	24 h
FC scales	10 Kelvin	–

Determination of the Reproducibility (reproTEST)

Definition

Reproducibility is the ability of the balance/scale to display identical readouts when it is loaded several times with the same weight under constant ambient conditions.
The standard deviation for a given number of measurements is used to quantify the reproducibility.

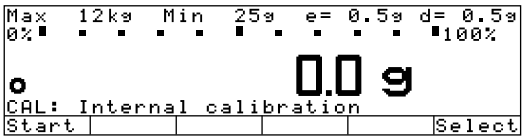
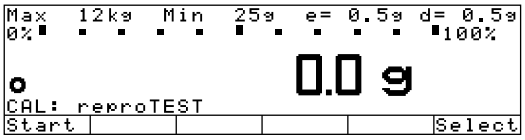
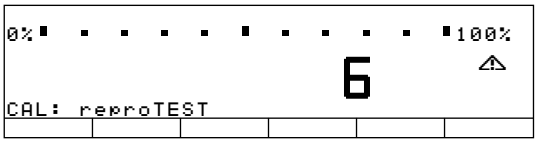
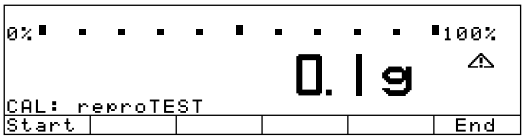
Purpose

The "reproTEST" function automatically determines the reproducibility of results (based on 6 individual measurements). In this way, the balance/scale determines one of the most important quantities in relation to the place of installation. The results are displayed with the balance's/scale's accuracy.

Preparation

- Turn on the balance/scale: Press I/⏻
- > The Sartorius logo is displayed
- > The balance/scale performs a self-test
- Select reproTEST in the Setup menu: Press SETUP
- Select the balance/scale menu: Press the **Menu** soft key
- Select either **reproTEST** or **Selection-mode** (factory setting): see "Configuring the Balance/Scale"
- Exit the Setup menu: Press << soft key

Check the Reproducibility of the Balance/Scale

Step	Key (or instruction)	Display/Output
1. If **reproTEST** is set: and proceed with step 4.	**isoTST/Cal** soft key	
If Selection mode is set: **Select reproTEST**	**isoTST/Cal** soft key	
2. Select reproTEST	**Select** soft key	
3. Start reproTEST	**Start** soft key	
4. Number of measurements is displayed; 6 measurements will now be performed		
The standard deviation is displayed		
		
5. End reproTEST or restart reproTEST	**End** soft key **Start** soft key	

Weighing Functions

You can configure whether weights are defined as average tare values, first tare then gross values or first gross then tare values by selecting the corresponding "Control mode" setting.

In the Application menu, you can define whether the instrument is tared automatically after each value is stored. The factory setting is "No" (= "Do not tare automatically"). Change this setting to perform additive weighing (for example, for checking tablets). With this function activated, add each sample to the weighing platform without removing the sample(s) already on the platform. See also the chapter entitled "Configuring the Balance/Scale".

Tare –> Gross (variable tare)

In sampling, the tare values must first be determined individually; then the containers are filled and weighed in the same order, this time calculated as gross values.

Gross –> Tare (destructive test)

If the filled containers are sealed when they come from the filling machine (e.g., bottles), the gross weight is measured first. Containers are then opened, emptied and the content measured as a tare value.

Average Tare

Select this mode for determining the nominal fill quantity with a defined tare value (average tare weight) that applies to all packages.

Base Data

Average weight control of prepackaged products is performed by evaluating samples of the products. There are large amounts of data to be managed and processed relating to the products and their containers or packaging. This data, known as base data, is stored in the central, or "host" computer.

The values from the last 10 base data records processed are additionally saved in the local memory. The program distinguishes between two locally stored data records when the data in at least one of the product, machine or lot fields is different.

Entering Base Data

Product data is only entered in the host computer, not at the terminal. When you perform sampling, the number of decimals on the display and the printout depends on the accuracy of the balance/scale used.

Data Search by Product, Machine or Lot

After you activate the sampling, tare weighing or test weighing function, you can scroll through a list of product names, machine IDs or lot IDs saved on the terminal.

Use the ^ v to scroll through the list.

Each list is sorted alphabetically on the display. You can speed up the search by

– using the ^ and v soft keys,

or

– by entering one or more of the first characters and pressing ^.

Changing Base Data

Product data can only be changed in the host computer, not at the terminal.

Deleting Base Data

Product data can only be changed in the host computer, not at the terminal.

Sampling

Regulations affecting prepackaged products require that the weight or volume of package contents does not go below a certain 'tolerable negative error' limit at the time of manufacture. This limit is called –T1 or –T2.

No more than 2% of the packages are allowed to exceed the specified negative error.

Prepackaged products with a negative error greater than double the tolerable negative error (–T1) are not allowed to be placed on the market; i.e., they may not be sold to the public (according to EU Directives). This lowest limit is known as –T2.

You can also configure a more stringent in-house limit in the central computer program, "–T," as well as an in-house upper limit, "+T," both independent of the above limits.

By sampling the products you can determine whether the fill quantities meet specified limits. For statistical determination of these values, the following must be entered in the program:

– tare weight,

– nominal fill quantity,

– density of liquid products, so the weight can be converted to a volume value, and

– if necessary, the supplement amount for products that decrease in weight after filling.

Performing a sampling series consists of the following steps:

– Enter header data

– Determine sample weights

– Compile statistics

Entering Header Data (Overview)

● Select sampling function

○ Enter operator ID

● Enter product number

○ Enter or select machine ID

○ Enter lot ID

The prompt(s) for entering

– operator ID
– machine ID
– lot ID

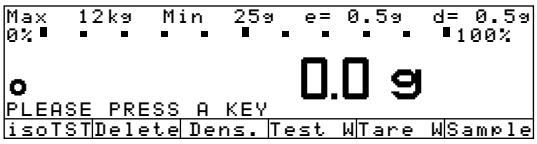
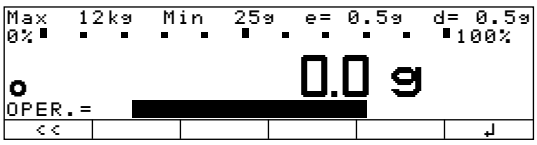
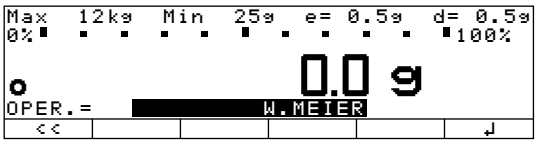
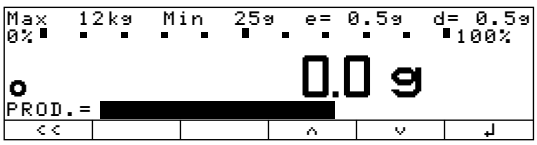
is/are only displayed if this has been configured in the Setup menu.

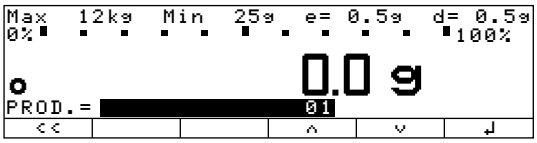
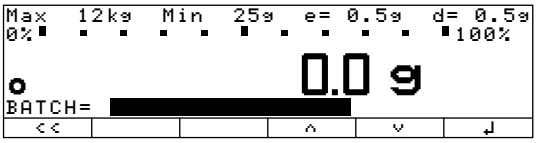
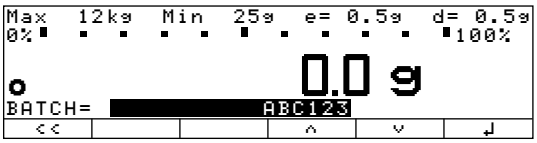
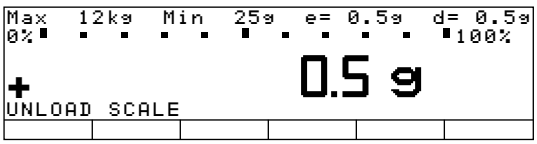
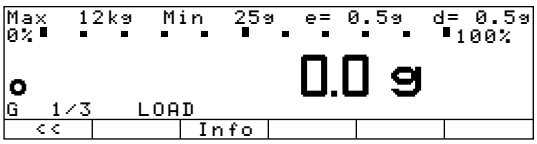
In the application setup menu, you can configure that the input of header data is not prompted before you exit the sampling mode (Setup: **App**: **Config**:**Ent.always**: **no**).

Entering Header Data for Sampling

with the settings:

Operating mode:	On-line
Product number:	01
Product name:	Choc.cookies
Enter operator ID:	DEFAULT: W.Meier
Enter machine ID:	no (the factory setting for this parameter is yes)
Enter lot ID:	yes
Enter density:	not applicable, because 0.0000 g/ml is set
Enter header ID every time:	yes
Control mode:	average tare
Sample size:	3
Tare weight:	20 g

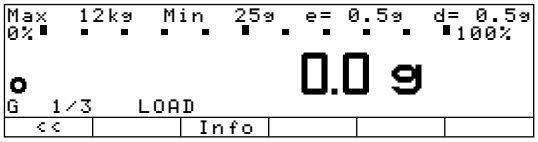
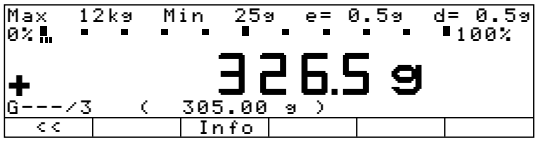
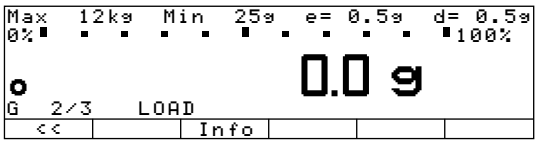
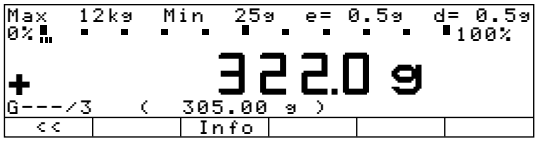
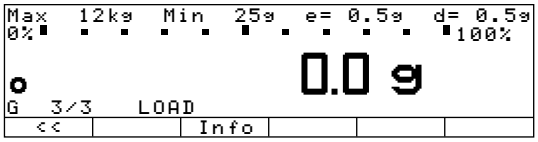
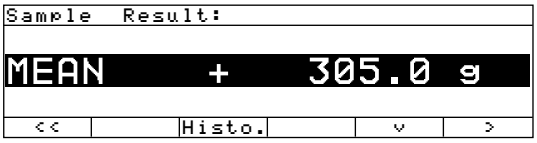
Step	Key (or instruction)	Display/Output
1. Turn on the balance/scale	I/⏻	Sartorius logo Self-test 
2. Select sampling	**Sample** soft key	
3. Enter operator ID (only after the 1st startup) or change (the last name entered here is displayed as the default input for the next sampling run)	ABC 1 2 3 … 0 ABC 1 2 3 … 0	
4. Confirm operator ID	↵ soft key	

Step	Key (or instruction)	Display/Output
5. Enter product number or search for product number in the …0CEQN memory (up to 10 of the most recent base data records are stored in the balance/scale memory)	0 1 ˅ soft key (repeatedly, if necessary)	
6. Confirm product number	↵ soft key	
7. Enter lot (batch) ID	ABC 1 2 3 … 0	
8. Confirm lot (batch) ID Data is loaded from host	↵ soft key	
9. Unload the balance/scale, or zero the balance/scale (if display is not ≠ 0.00)	TARE	

Collecting Sampling Data

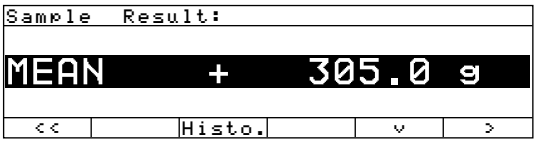
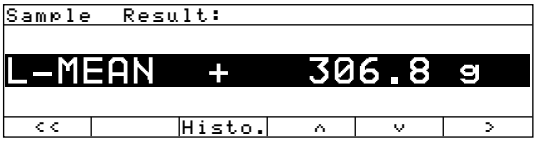
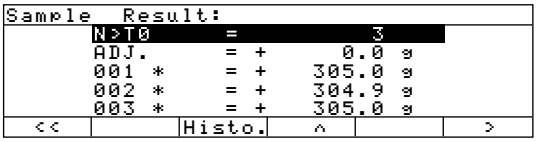
with the settings:

Control mode:	average tare
Sample size:	3
Store values:	automatically

Step	Key (or instruction)	Display/Output
Enter header data as described above (Steps 1 through 9)		
10. Weigh container 1, full, on the balance/scale	Place 1st filled container	
11. Unload the balance/scale	Remove container	
12. Weigh container 2, full, on the balance/scale	Place 2nd filled container	
13. Unload the balance/scale	Remove container	
14. Weigh container 3, full, on the balance/scale	Place 3rd filled container	
15. Unload the balance/scale	Remove container	

(You can define which of the results will be displayed first after sampling see the section entitled "Configuring the Balance/Scale", and the order in which they are displayed; under "List of Parameters")

Displaying the Evaluation

Step	Key (or instruction)	Display/Output
1. Collect sample data as described on the previous 2 pages		
2. Display characteristics of the evaluation and the individual values (individual values in large type)	v soft key (repeatedly, if necessary)	
3. Display characteristics of the evaluation and the individual values – overview (individual values in large type)	> soft key	

Skipping Measured Values

In the tare –> gross control mode, you can skip a gross value; for example, if the corresponding container is damaged after tare weighing. In this case, press the **Skip** soft key rather than performing the gross measurement. The same applies when working in the gross –> tare mode.

Confirming Out-of-Tolerance Values

When a value exceeds a tolerance limit (–T2, –T1, etc.), an error message is displayed ("**-T2 ERROR**," "**-T1 ERROR**," etc.). You can configure whether this message must be confirmed (**Applic:Config:Confirm: yes**). If automatic sampling is active, however, all outliers must be confirmed, regardless of this setting.

The message **-T2-Err.** error must always be confirmed.

Ending a Sampling Routine Before Completion

You can stop a sampling series in progress by pressing the **<<** soft key. The values measured up to that point are stored and can be evaluated.

Deleting a Sample

You can delete the last sampling run completely by pressing the **Delete** soft key.

This soft key label is only displayed when the basic settings are active.

Password Prompt

Password input is prompted when:

- the **Delete** soft key is pressed,
- tare weighing is activated,
- test weighing is activated, and when
- the density value is to be changed.

Start Sampling Automatically after a User-defined Interval Period has Elapsed

In the Application Setup menu you can configure the system to repeat sampling, i.e. to start a new sampling routine (and/or attribute testing; see also page 58) automatically after a user-defined interval has elapsed (factory setting: sampling not repeated automatically). With this setting, the control line for "set" is activated during sampling, and out-of-tolerance values (outliers) must be confirmed by pressing a key regardless of the "Confirm outliers" setting in the Application Setup menu. You can activate the control lines for "over", "under", and "equal to"; for example, to control a separate optical display (see the table on page 66). For details on the control lines, please see the interface description for the YDO-01IS, -02IS, -03IS and -04IS interfaces.

You can have sampling repeated automatically:

- after a defined interval of 1 to 240 minutes, or
- as soon as the previous sample is completed (enter "0" as the interval period)

Preparation

- Activate the Application Setup menu, select "Configuration: Repetition interval: Sampling" and set the desired interval period. The procedure is described in detail in "Application Setup" under "Configuring the Applications", Example 3.

Repeat Sampling at Defined Intervals

Start the first sampling or tare weighing routine ("Mean tare" only) by pressing the corresponding soft key. The "set" control line is activated; outliers activate the other control lines (see the table on page 66). Outliers must be confirmed, after which the control line in question is deactivated.

After sampling is concluded, the data collected is transferred to the central computer and the "set" control line is reset. The device is now in the "display results" state.

The timing of defined interval begins now. This state is not indicated on the display.

During this period, you can:

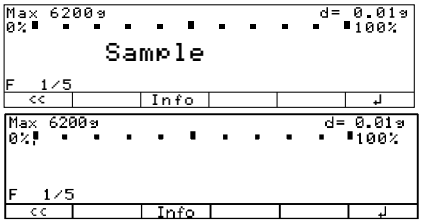
– start an attribute test.
  If the interval period elapses while attribute testing is active, the next sampling routine starts as soon as the attribute testing is concluded.

– start a new sampling routine manually.
  In this case, the timer for the sampling interval period is restarted as soon as the manually started sampling is concluded.

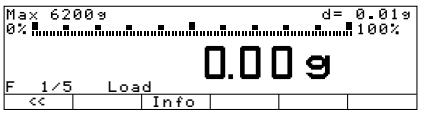
If "0" is set as the interval period, the next sampling routine begins as soon as the data from the previous sampling is sent to the central computer.

Once the defined interval has elapsed, the next sampling routine starts automatically:

> The data from the previous sampling is requested from the central computer and loaded in the terminal
> The "set" control line is activated
> The "Sampling" prompt flashes in the application line of the display



Press ↵ to confirm the sampling prompt. The first measurement is prompted.



To cancel a sampling routine that was started automatically:

Press the << soft key:

– when the "Sampling" prompt is displayed, or

– after confirming the "Sampling" prompt, when the first measurement is prompted.

After an automatic sampling routine is canceled, the next sampling must be started manually. After that sampling routine is finished, subsequent sampling routines are started automatically again.

Attribute testing with a defined repetition interval can run parallel to automatically repeated sampling, even if the interval period is not the same. If the interval defined for attribute testing runs out while sampling is being performed, the program starts the attribute testing as soon as the current sampling routine ends. The same applies if the sampling interval elapses during automatically repeated attribute testing. If the interval period is set to "0", however, either sampling or attribute testing is repeated continuously, depending which was started first.

Tare Weighing

When you are working with an average tare weight for containers in sampling, the tare weight must remain within defined limits.

With the tare weighing function you can determine whether the "average tare" control mode is allowable (configured in the Setup menu for each product).

You should collect at least 25 tare values for tare weighing.

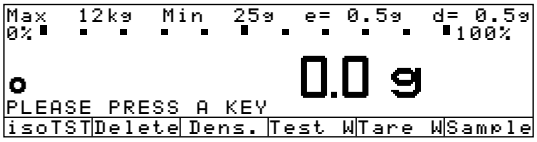
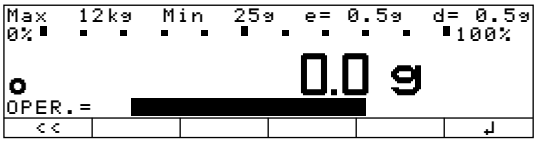
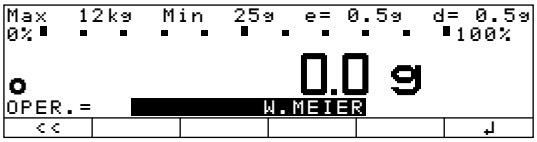
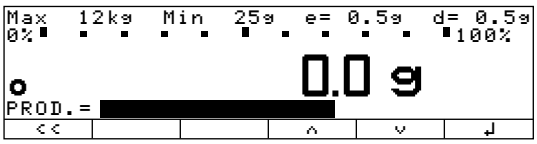
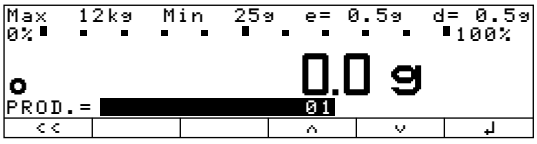
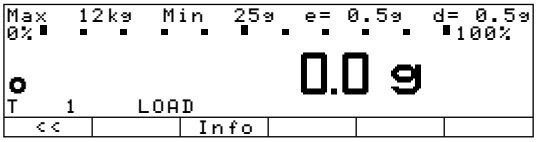
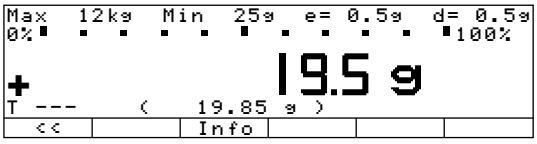
In the off-line mode, the first values registered are saved temporarily in the terminal; for this reason, you cannot weigh-in other tare values between the initial weighing and backweighing procedures.

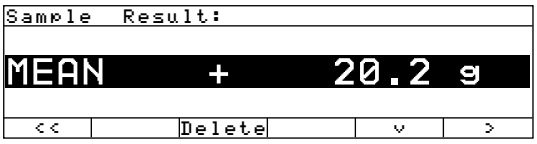
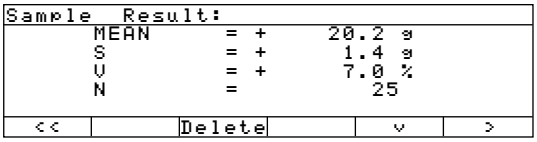
In a histogram of tare weights, the range from 50% to 150% of the tare weight is divided into categories of equal width.

Example: Tare Weighing to Determine Whether Individual Tare Values are Required

with the settings:

Operating mode:	On-line
Product number:	01
Product name:	Choc.cookies
Average tare weight:	20.00 g
Number of measurements:	25
Save values:	automatically

Step	Key(s) (or instruction)	Display/Output
1. Turn on the balance/scale	I/⏻	Sartorius logo Self-test 
2. Activate tare weighing	**Tare W** soft key	
3. Enter operator ID (only after the 1st startup) or change (the last name entered here is displayed as the default input for the next sampling run)	ABC 1 2 3 … 0 ABC 1 2 3 … 0	
4. Confirm operator ID	↵ soft key	
5. Enter product number or search for product number in local memory	0 1 v soft key (repeatedly, if necessary)	
6. Confirm product number	↵ soft key	
7. Weigh container	Place empty container on balance/scale	

Step	Key(s) (or instruction)	Display/Output
8. Unload the balance/scale	Remove the container	
9. Repeat steps 7 and 8 for the following 24 containers		
10. End tare weighing	<< soft key	
11. Display evaluation (individual values in large type)	v soft key	
12. Display evaluation (overview)	> soft key	

Test Weighing

The test weighing routine is identical to the sampling routine with the exception that the results are not stored in the long-term statistics.

Test weighing is performed to determine the optimal filling machine settings for the production process.

- Start test weighing:
  Press the **Test W** soft key
- Continue as for "sampling"

Attribute Testing

Intended Use

You can use attribute testing to assess the quality criteria of products that go beyond the determination of weighed values.

These quality criteria include, for example, the proper labeling, the legibility of the labeling, the pH, keeping within the 'best-by' date, etc.

Order of Input

Central Computer Running an SPC II Program:

In setup you can configure the following options: whether the user can choose the order of processing attributes and variables himself or whether the order is specified, e.g., first all attributes and then all variables or vice versa (Setup: Configuration: List of Attributes/Variables).

Central Computer Running an SPCfWin Program:

Attributes and variables are displayed in exactly the order that has been specified on the central computer.

Form of Input

When entering test results, you must differentiate between attributes, variables and 'best-by' date (special case of an attribute).

Attributes

When the attribute function is configured, you must enter the number of test items that do not met a specific requirement. "Label correct 10/3" thus means: 3 out of 10 test items were not labeled correctly.

The reference amount is either the sample size or the total number of samples. "Pallet correct 1/0" thus means: There were no rejections (0) on the pallet specified (there is only one).

The sample size is pre-determined in the central program on the computer and is equivalent to the number of test items intended for evaluation during attribute sampling.
Regardless of the defined sample size, sample-related attributes are rated as 0 = no rejections or 1 = attribute fulfilled.

The 'best-by' date is a classic example:

Possibility 1:

The inkjet printer is configured correctly; therefore, it labels all packages correctly.

Possibility 2:

All packages are labeled with the wrong date.

When the balance/scale is run with a central program SPCfWin, the intended sample size can also be set at "0". This special case lets you enter the sample size (the number of test items) during attribute sampling. The sample size can even be defined individually for different attributes (exception: For sample-related attributes this is either 1 or 0).

Variables

When the variable function is configured, you can enter the value of the variable either manually or via an interfaced balance/scale. The central computer defines how the data are to be entered.

'Best-by' Date

The 'best-by' date is a special case of an attribute. During attribute testing, either the date printed on the package is entered manually or the number of samples is entered that have exceeded their 'best-by' date.

Central Computer Running an SPC II Program:

In setup you can configure whether the date or the number of samples is entered (Setup: Configuration: Application: Enter date).

Features

- Testing of attributes and variables is only possible on-line.
  (The terminal must be connected to the central computer running on an SPC II or SPCfWin program)
- Maximum of 50 testing items (attributes/variables) per test
- Maximum of 25 variables per test
- Maximum of 120 samples per variable
- Attributes are displayed in a list
- Attributes and variables can be selected from a list (only with SPC II)
- Enter the 'best-by' date as a date or the number of samples that have exceeded that date
  (as specified by the SPCWin program on the central computer)
- Variables are input either by hand or determined by the balance/scale
- No record printout

Factory Setting of the Parameters (Only Applicable When Run with an SPC II Program)

List of attribute (select the order of processing attributes and variables): **Yes**

Enter date (for 'best-by' date): **No**

Soft Key Functions

Attr. Start attribute testing

Info When the attribute function is configured, press this soft key to display: Product name

When the variable function is configured, press this soft key to display:
Product name
Product number
Lower limit
Upper limit

When running SPCfWin, you can additionally display:
Lower tolerance limit
Upper tolerance limit

Preparation

- Switch on the balance/scale by pressing I/⏻
- > The Sartorius logo is displayed, self test is performed
- Configure the list of attributes/ variables and the date entry in setup by pressing SETUP
- Configure the parameters in the application menu by pressing the **App.** soft key
- Setup: Select Configuration by pressing the **>** soft key
- Select and confirm:
  - **A/V**: **Yes** or **No**
  - **Ent.Dat.**: **Yes** or **No**

See also "Menu parameter settings (Setup)": "Application Menu" (Overview)

- Save settings and exit the Setup menu by pressing **<<** soft key

Additional Functions

You can restrict access to attribute testing by requiring a password to be entered. Select (Setup: **App.**: **Configuration**: **Restrict access**: **Attribute**).

Start Attribute Testing Automatically after a User-defined Interval Period has Elapsed

In the Application Setup menu you can configure the system to repeat attribute testing, i.e. to start a new attribute testing routine (and/or sampling; see also page 52) automatically after a user-defined interval has elapsed (factory setting: attribute testing not repeated automatically). With this setting, the control line for "set" is activated during attribute testing (see the table on page 66). For details on the control lines, please see the interface description for the YDO-01IS, -02IS, -03IS and -04IS interfaces.

You can have attribute testing repeated automatically:

- after a defined interval of 1 to 240 minutes, or
- as soon as the previous attribute test is completed (enter "0" as the interval period)

Preparation

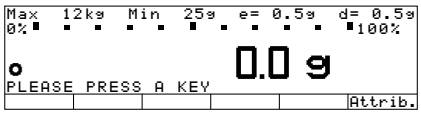
- Activate the Application Setup menu, select "Configuration: Repetition interval: Attribute testing" and set the desired interval period. The procedure is described in detail in "Application Setup" under "Configuring the Applications", Example 3.

Repeat Attribute Testing at Defined Intervals

Start the first attribute testing by pressing the ⏲ key and then the **Attrib.** soft key (see the example on page 59). The "set" control line is activated.

After attribute testing is concluded, the data collected is transferred to the central computer and the "set" control line is deactivated. The device is now in the basic operating state; "Please press a key" is displayed.

The timing of defined interval begins now. This state is not indicated on the display.



During this period, you can:

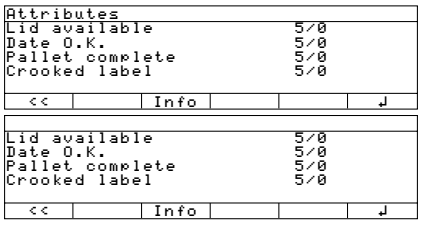
- start a sampling routine. If the interval period elapses while sampling is active, the next attribute testing routine starts as soon as the sampling is concluded.
- start a new attribute testing routine manually.

In this case, the timer for the attribute testing interval period is restarted as soon as the manually started attribute test is concluded.

If "0" is set as the interval period, the next attribute testing routine begins as soon as the data from the previous attribute test is sent to the central computer.

Once the defined interval has elapsed, the next attribute testing routine starts automatically:

> The data from the previous attribute test is requested from the central computer and loaded in the terminal
> The "set" control line is activated
> The "Attribute" prompt flashes in the application line of the display



Press ↵ to confirm the attribute testing prompt. The first test is prompted.

To cancel an attribute testing routine that was started automatically:

Press the << soft key:

- when the "Attribute" prompt is displayed, or
- after confirming the "Attribute" prompt, when the first test is prompted.

After an automatic attribute testing routine is canceled, the next attribute test must be started manually. After that test is finished, subsequent attribute testing routines are started automatically again.

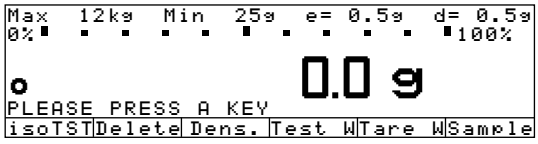
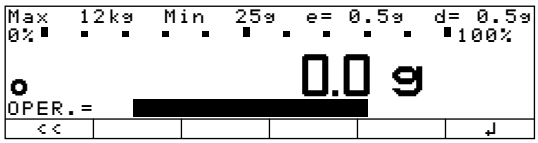
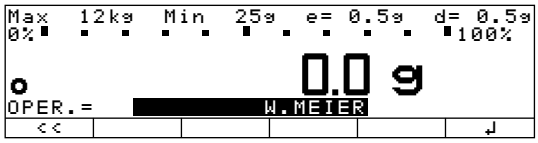
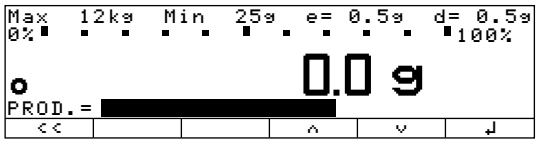
Sampling with a defined repetition interval can run parallel to automatically repeated attribute testing, even if the interval period is not the same. If the interval defined for sampling runs out while attribute testing is being performed, the program starts the sampling as soon as the current attribute testing routine ends. The same applies if the attribute testing interval elapses during automatically repeated sampling. If the interval period is set to "0", however, either sampling or attribute testing is repeated continuously, depending which was started first.

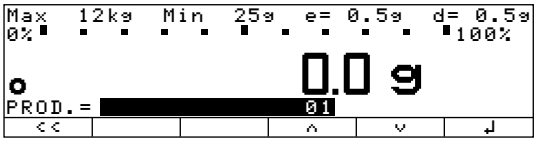
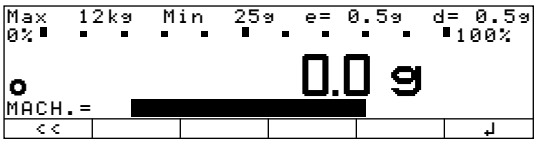
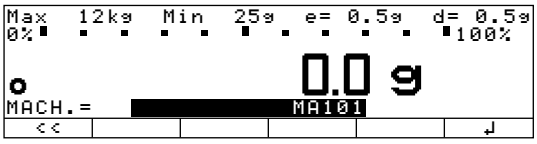
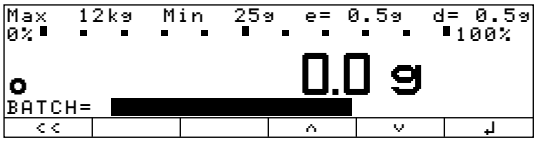
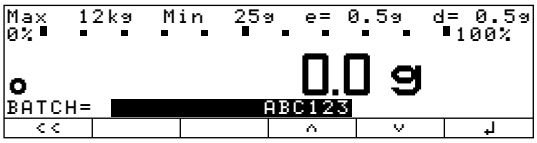
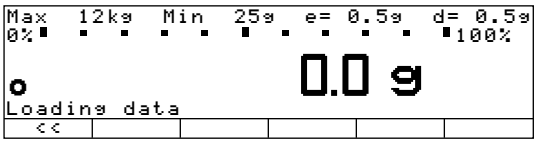
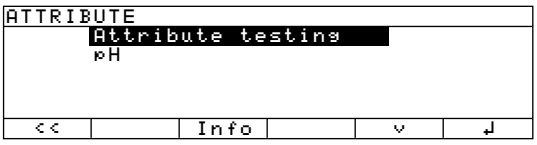
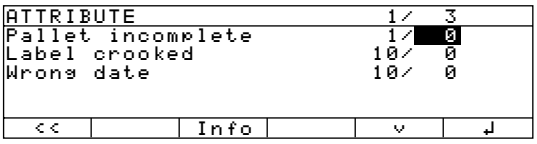
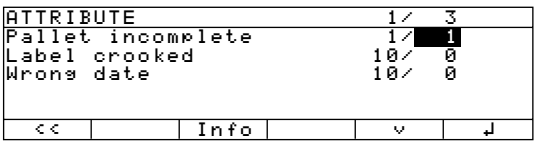
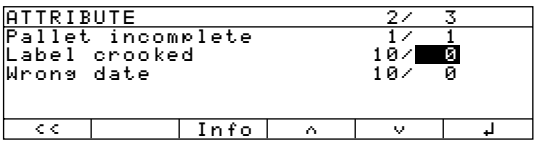
Example: Attribute Testing with an SPC II Program

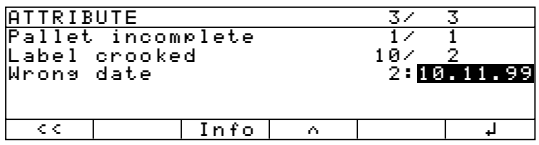
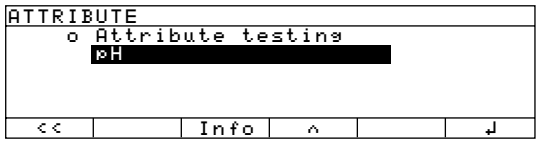
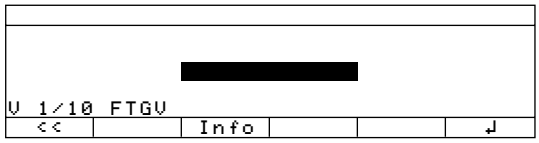
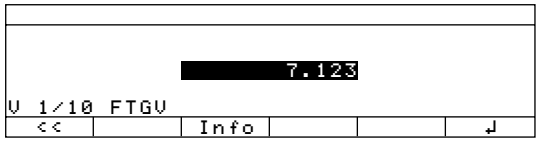
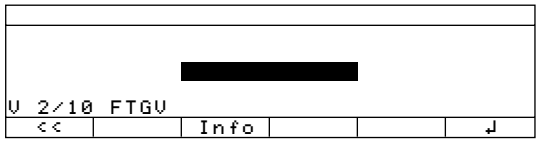
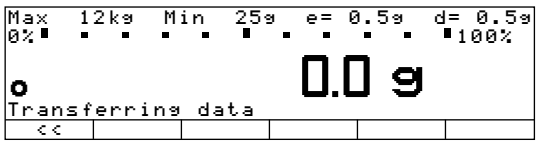
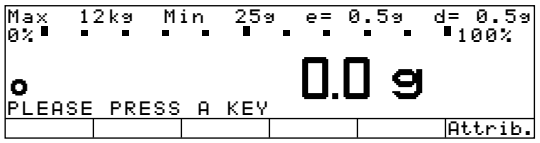
Testing of attributes, variables and the "best-by" date with an SPC II program. The "best-by" date should be entered as a date. The central computer specifies that the pallet, the labels, the "best-by" date and the pH have to be tested.

Presetting (different from factory setting):

Setup: Application: Configuration: Enter date: Yes

Step	Key(s) (or instruction)	Display/Output
1. Switch on balance/scale, if necessary	I/⏻	Sartorius logo Self test 
2. Select attribute testing	⏻ **Attrib.** soft key	
3. Enter operator ID (only when used for the first time) or change operator ID (when the next sample is placed on the balance/scale, the name of the last sample entered appears as default)	ABC 1 2 3 … 0 ABC 1 2 3 … 0	
4. Confirm operator ID	↵ soft key	

Step	Key(s) (or instruction)	Display/Output
5. Enter product number (here 01) or search in local product memory of the ... 0CEQN (at most the last 10 base data records are stored locally)	0 1 v soft key (repeatedly, if required)	
6. Confirm product number	↵ soft key	
7. Enter machine ID or search in local product memory	ABC 1 2 3 ... 0	
8. Confirm machine ID	↵ soft key	
9. Enter batch designation or search in local product memory	ABC 1 2 3 ... 0	
10. Confirm batch designation	↵ soft key	
Data is loaded from host.		
11. Select attribute testing (if variables, i.e., pH, should be tested here first, go to item 18)	↵ soft key	
12. Pallet complete: enter 0 or Pallet incomplete, enter 1 (in this example, pallet incomplete: 1)	1	
13. Confirm entry	↵ soft key	

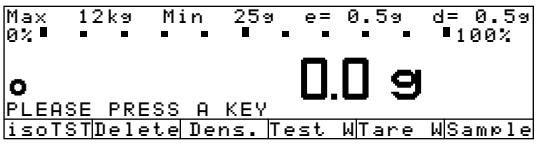
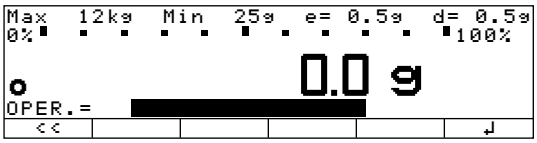
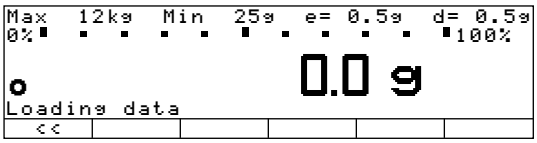
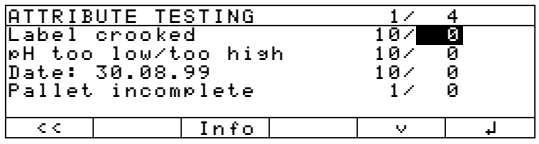
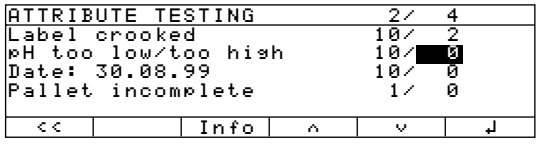
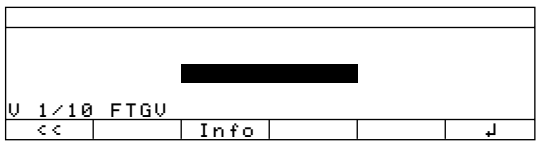
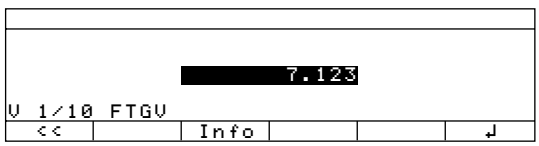
Step	Key(s) (or instruction)	Display/Output
14. Enter number of incorrect labels (in this example: 2) and confirm	[2] soft key ↵	
15. Enter 'best-by' date of sample number 1 (in this example 10/11/99) and confirm	[1] [0] [.] [1] [1] [.] [9] [9] ↵ soft key	
16. Repeat step 15 for all samples (the date of the last sample is displayed as default for the new sample)		
17. After the last sample exit attribute testing (o: Processing completed) (Exit entry, save data)	<< soft key (<< soft key)	
18. Confirm variable: pH	↵ soft key	
19. Enter pH for sample number 1 (from 10 samples) (in this example 7.123)	[7] [.] [1] [2] [3]	
20. Confirm value entered	↵ soft key	
21. Repeat steps 19 and 20 for all samples		
Attribute testing is automatically exited after the last sample. Data is transmitted to host.		
After the data transfer is complete, the following is displayed:		

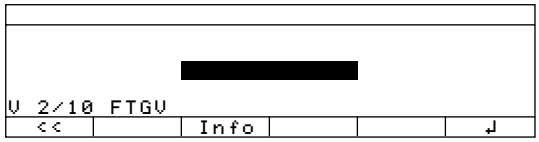
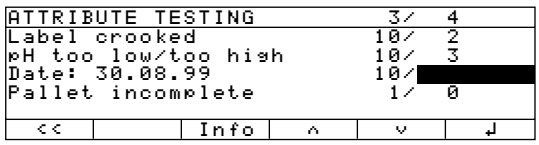
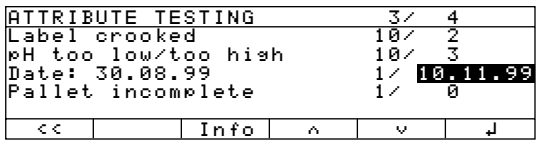
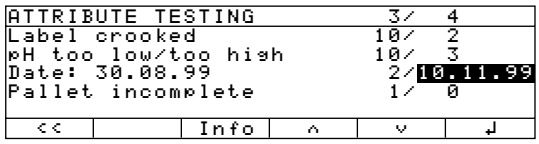
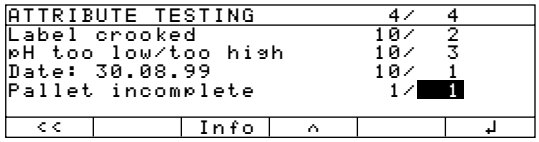
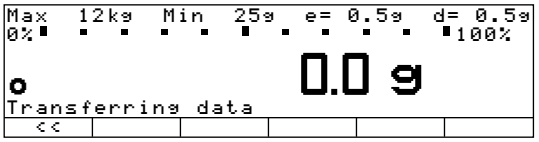
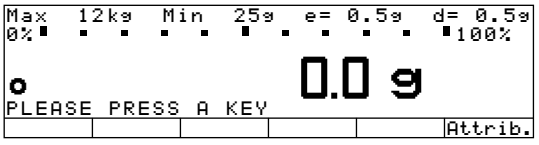
Example: Attribute Testing with an SPCfWin Program

Testing of attributes, variables and the "best-by" date with an SPCfWin Program. The targeted "best-by" date will be calculated by the central computer and appears as default on the terminal. The "best-by" date should be entered as a date. The central computer specifies that the pallet, the labels, the "best-by" date and the pH have to be tested.

Presetting (different from factory setting):

Does not apply when using an SPCfWin program

Step	Key(s) (or instruction)	Display/Output
1. Switch on balance/scale, if necessary	I/⏻	Sartorius logo Self test 
2. Select attribute testing	⏻ **Attrib.** soft key	
3. Enter header as shown in the example: Attribute testing with an SPC II program, step 3 to 8	ABC 1 2 3 … 0	
Data is loaded from host		
Data have been loaded		
4. Enter the number of incorrect labels (in this example: 2) and confirm	2 ↵ soft key	
5. Start entering variables for the pH	↵ soft key	
6. Enter the pH for sample number 1 (from 10 samples) in this example 7.123)	7 . 1 2 3	

Step	Key(s) (or instruction)	Display/Output
7. Confirm value entered	↲ soft key	
8. Repeat step 6 and 7 or all samples (in this example, 3 samples were outside the tolerance limits)		
9. Enter 'best-by' date for sample number 1 (in this example 10/11/99)	1 0 · 1 1 · 9 9	
10. Confirm entry	↲ soft key	
11. Repeat step 9 and 10 for all samples (the date of the last sample is displayed as default for the new sample)		
12. Pallet complete: enter 0 Pallet incomplete: enter 1 (in this example: enter 1) (one sample has exceeded the 'best-by' date)	1	
13. Pallet complete: enter 0 or	↲ soft key	
correct input if required	∨ ∧ soft keys	
14. End attribute testing. (Data is transmitted to host.)	<< soft key	
After the data transfer is complete, the following is displayed:		

Data Output Functions

The following options are available for data output:

– Display

– Output to COM port (I/O interface)

Display

Balance/Scale Data

Select Setup:Info to display the following scale data:

– Software version number
– Balance/scale version number
– Balance/scale model designation
– Balance/scale serial number

Select Setup:Input to display the user-definable scale data:

– Balance/scale ID
– Lot (batch) ID
– Weight set ID
– Calibration/adjustment weight
– Current time
– Current date
– Display contrast
– Password

Base Data

To view base data (displayed in the text line) during sampling, tare weighing or test weighing:

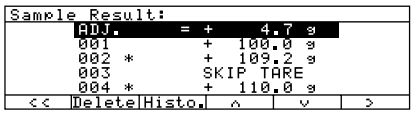
● Press the **Info** soft key

● To exit this display: Press the **<** soft key

Sampling Evaluation Data

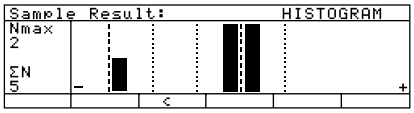
The following data are displayed after every test weighing or sampling routine:

– Mean sample value
– Long-term mean for the product
– Standard deviation
– Variation coefficient
– Lowest value
– Highest value
– Range of values (highest – lowest)
– Machine capability index C m
– Machine capability index C mk
– Sample size
– No. of measurements < –T2
– No. of measurements < –T1
– No. of measurements < –T
– No. of measurements > +T
– Adjustment recommendation
– Individual measured values



*: Out-of-tolerance values
SKIP TARE: This weighed-in value was canceled by pressing **Skip T**

– Histogram: Press the **Histo.** soft key to view a histogram



(Example)

Nmax: Number in highest column
ΣN: Sample size
1st line (dashes): –T2 limit
2nd line (dotted): –Tl limit
3rd line: (dotted): –T limit
4th line (dashes): Nominal fill quantity
5th line (dotted): +T limit

The following data is displayed after every tare weighing routine:

– Tare control mode
– Average tare value
– Standard deviation
– Variation coefficient
– Sample size

Input/Output Interface

Universal Remote Control Switch

You can connect a universal remote control switch (e.g., a foot switch) to the interface port. You can assign one of the following functions to the switch by setting the corresponding menu code:

- 1 (**Print key**, **[8-4-1]**)
- 2 (**Tare key**, **[8-4-2]**)
- 3 (**Calibration key**, **[8-4-3]**)
- 4 (**F1 function key**, **[8-4-4]**)
- 5 (**CF key**, **[8-4-5]**)
- 6 (**F2 function key**, **[8-4-6]**)
- 7 (**Bar code scanner**, **[8-4-7]**)
  (special connecting cable required)

Input/Output Interface

Universal remote control switch

Function	Menu item
⊙ key	**[8-4-1]**
TARE key	**[8-4-2]**
CAL key	**[8-4-3]**
F1 function key	**[8-4-4]**
CF key	**[8-4-5]**
F2 function key	**[8-4-6]**
Bar code scanner, PC keyboard	**[8-4-7]**

External Keyboard Function

To simplify input of data (such as base data), you can connect an external PC keyboard to the balance/scale. Plug it directly into the 5-contact DIN port of the optionally available double data interface, YDO05F or YDO06FG (see also "Pin Assignment Chart" on Page 66 and the section on "Accessories" in the "Overview" chapter).

Description of Functions

- You can enter the following characters:
  - All alphanumeric characters (for some you will need to use the SHIFT key): "a–z", "A–Z", "0–9", "space"
  - Special characters: »,.\+#<>!«$@%&/(|);=:_?*«
- Use the function keys below to enter the following characters or to activate the following functions:

F1:	TARE
F2:	SETUP
F3:	6 soft key
F4:	5 soft key
F5:	4 soft key
F6:	3 soft key
F7:	2 soft key
F8:	1 soft key
F9:	DISPLAY
F10:	ESCAPE
F11:	⊙
F12:	TARE
RETURN:	1 soft key
BACKSPACE:	ESCAPE
Cursor up:	3 soft key
Cursor left:	4 soft key
Cursor down:	2 soft key
Cursor right:	1 soft key
POS1:	6 soft key
ESC:	ESCAPE
PRINT:	⊙

- The NUM lock and CAPS lock functions are not supported
- You cannot switch to any country-specific keyboard configurations. The key codes supported by our software are designed for a German keyboard layout only (for example, the "Y" is in the place of "Z").

Interface Description

Features

Type of interface:	serial
Operating mode:	asynchronous semi-duplex
Standard:	RS-485
Transmission rates:	9,600 baud
Parity:	Even
Character transfer:	Sartonet protocol
Mode:	Sartonet
Network address:	1, 2, 3, ..., 30, 31

Pin Assignment Chart

Female Interface Connector:

12-contact, with screw-lock hardware for cable gland

Male Connector Required:

Type C091D, 12-pin round male connector with screw-lock hardware, Amphenol (IP65); Sartorius order no. 69QC0010.

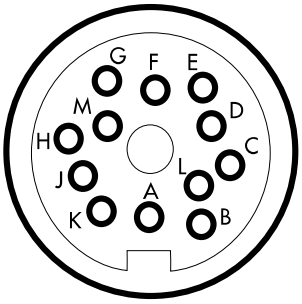
⚠ Warning When Using Pre-wired RS-232 Connecting Cables!

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". Failure to do so may damage or even completely ruin your balance/scale and/or peripheral device.

Connecting a Bar Code Scanner/External PC keyboard

You can plug a bar code scanner, YBR02FC (accessory), or an external PC keyboard (e.g., for entering base data) directly into the 5-contact DIN port of the optionally available double data interface, YDO05F or YDO06FG.
See also the section on "Accessories" in the "Overview" and "External Keyboard Function" on page 65.

Pin Assignment Chart for the 12-Contact Female Connector:

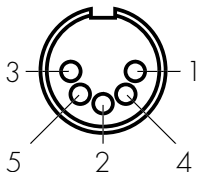


12-pin round connector	RS-485 signal	Program active Sampling	Program active Attribute testing	Out-of-tolerance values –T2	–T1	–T	+T
A	Control output "heavier"				X		X
B	RxD – TxD – N						
C	RxD – TxD – P						
D	Internally connected						
E	Signal GND						
F	+ 5V output						
G	Control output "lighter"					X	X
H	Internally connected						
J	Control output "Equal"			X			
K	Universal remote control switch*						
L	Control output "set"	X	X				
M	+ 12V output						

Connect shield with low ohms to the housing.

* For details, see "Universal Remote Control Switch" on page 65.

Pin Assignment Chart for the 5-Contact DIN Female Connector (YDO05F or YDO06FG Double Data, Optional)



Pin1: Keyboard Clock
Pin 2: Keyboard Data
Pin 3: Not Connected
Pin 4: Signal GND
Pin 5: +5 V

Preparation

- See page 69 for the cabling diagram

"Sartonet" Mode

Purpose

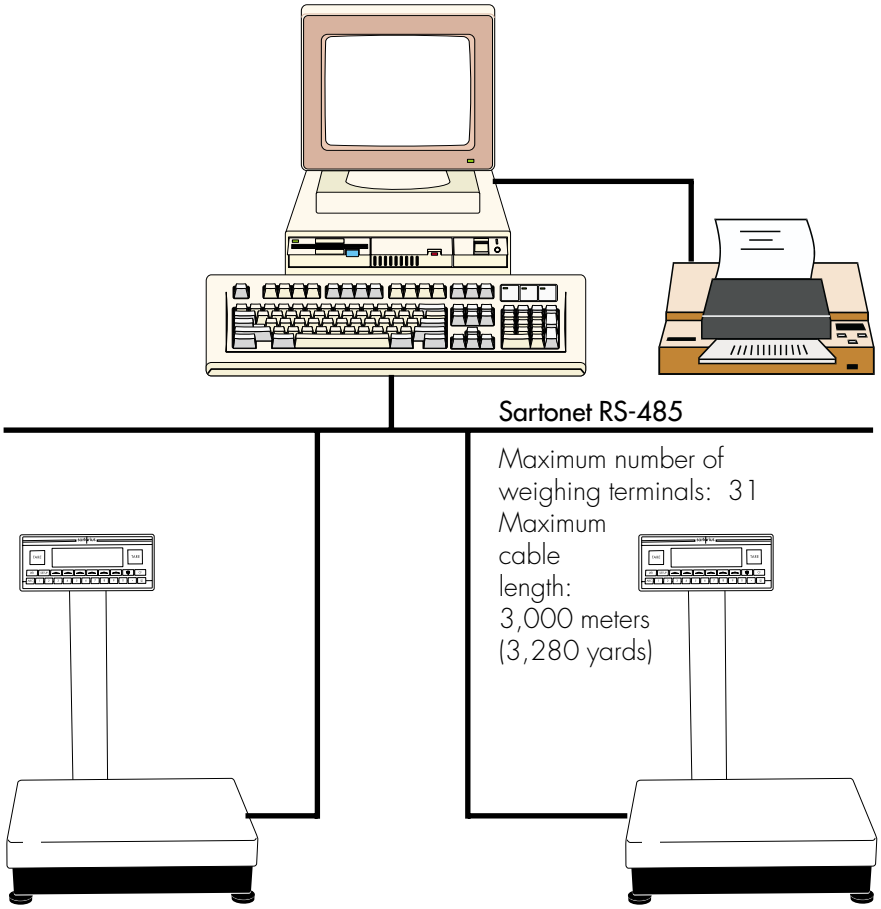
The Sartonet network system is based on a bus system. All clients are connected in parallel and data traffic is bi-directional. Up to 31 clients can be connected in addition to the host.

Available Features

The system controller regulates data transfer within the bus system. This controller is the "master." Each device connected has a number between 1 and 31 (inclusive) as a device address. These devices are the "slaves." Only the master can send Sartonet commands. The slave provides data for communication and the master determines when the data is processed. The typical resistance for this type of cable should be around 120 ohms. The master can consist of, for example, a PC with a Sartonet card installed.

Sartonet is a bus-type network with a maximum cable length of 3,000 meters (approximately 3,280 yards). The data cable is twisted pair with the specifications Lif YCY 2x2x 0.20/0.22 mm^2 AWG 24. The typical resistance for this type of cable should be around 120 ohms. The network is controlled by the master. The maximum number of terminals, including the master, is 32 (the number "0" is not used as an address). The master is treated electrically the same as a terminal, which means it can be installed at any physical point in the network.

System Configuration



Installation

Power:

It is important that you use high-quality cabling, installed with care, to ensure optimum immunity to interference. The Sartonet data lines leading out of the devices via the interfaces must be completely shielded and the shielding must lead out to the shield housing of the interface and the T-connectors at both ends. In a long network, shielding on both sides may cause compensating currents from the shielding. Normally, differential transmission protects the immunity of the signal transfer against interference. If such compensating currents affect this otherwise good immunity, then effective measures, such as grounding or installation of an equipotential bonding conductor, can be taken to prevent this from happening.

– More extensive instructions on the safe operation and intended installation are outlined in the standards

  DIN EN 50170 Part 2, "Universal Field Bus Systems"

  DIN EN 50178 "Installation of electronic equipment in high-voltage systems"

– The components or groups of devices that are powered by a separate source can also be connected to a transformer. One of the devices in this group must be then grounded.
– If possible, provide separate power supplies for each device in the Sartonet network.
– If the power supply used has strong interference or voltage fluctuation, a voltage regulator must be installed.

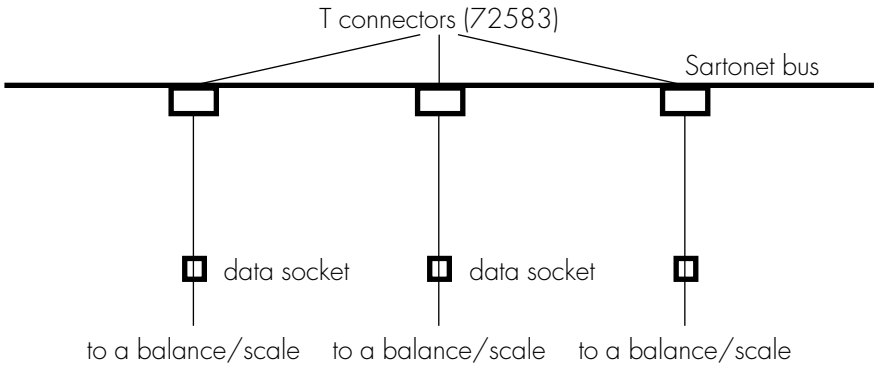
Data cables:

Even when the data cables are carefully shielded, they must not be installed in the same cable channels or boxes as the electrical cables. Cables from a separate power supply can be installed together with Sartonet data cable in separate channels.

Sartorius offers T connectors (order number 72583), data plugs (6906925) and data sockets (6906924) with IP65 protection for installation of the data cable.

⚠ A resistor with at least 120 ohms must be installed at each end of the data line.

⚠ The cable between device and T connector may not be longer than 15 meters (approximately 49 feet).



Operation

To increase resistance to interference, the Sartonet uses balance controlling in accordance with RS-485. The voltage difference between the two data cables is used for decoding on the receiving end. The data cables terminate in two 120-ohm resistors located near the ends of the transfer line. Radiation and other interference affect both data lines at the same time and to the same extent. The difference in signal is thus basically the same for each line. This allows greater cable lengths to be used.

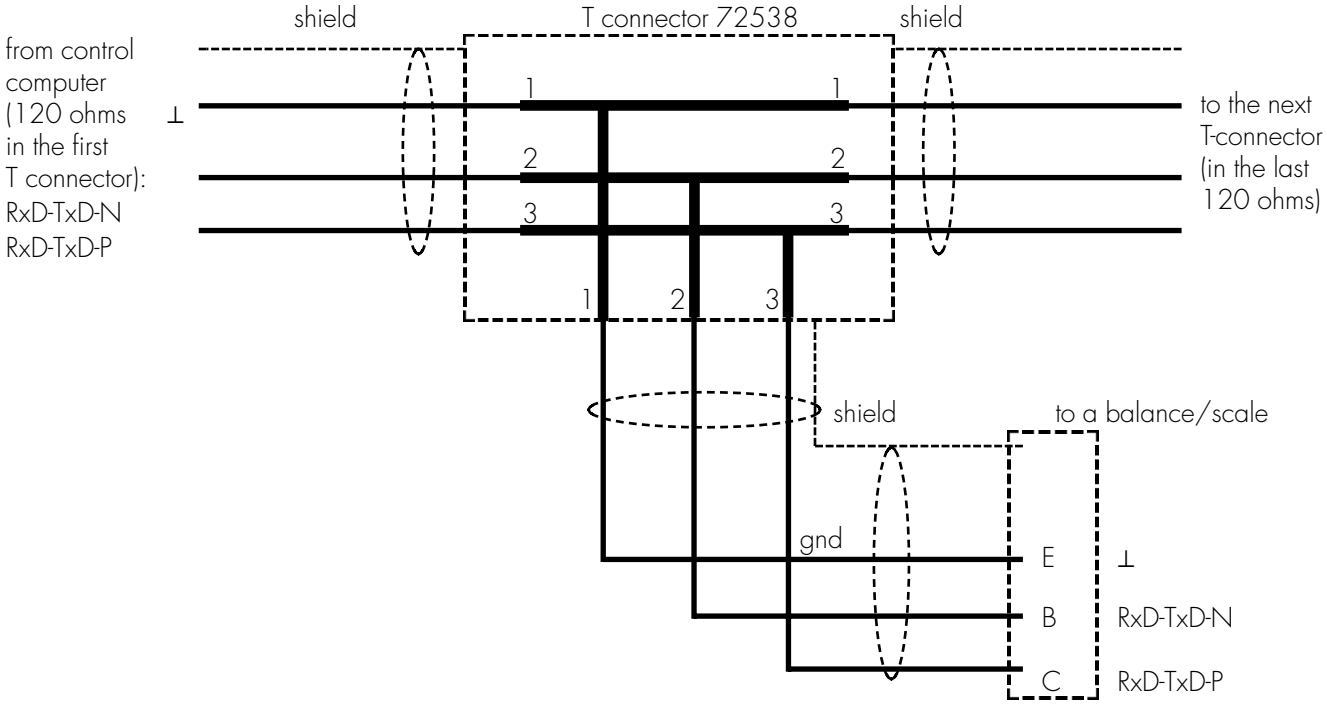
The maximum length of a Sartonet network is 3,000 meters (3,280 yards).

⚠ Make sure the phase is not twisted when you connect the cables. The polarity of data signals in the data cable must remain the same from the lead station to the substation.

⚠ The terminal resistors may only be used on each end of the data cable.

In a multi-point connection (several clients on one line), the master is responsible for controlling the system. It determines whether slaves send or receive data. Only the master can initiate data transfer. Each slave has a unique address for communication with the master.

Cabling Diagram



Cable: Lif YCY 2 x 2 x 0.20/0.22mm² AWG 24 (2 x twisted pair)
Order number: 69 06926 (by the meter)

Error Codes

Error codes are displayed in the main display or text line for 2 seconds.
The program then returns automatically to the previous status.

Display	Cause	Solution
No segments appear on the display	No AC power is available	Check the AC power supply
	The AC adapter is not plugged in	Plug in the AC adapter
	Automatic shutoff configured in Setup (code **8 7 1**)	Press I/⏻ to switch on the balance/scale or select code **8 7 2** in Setup ("no automatic shutoff")
H	The load exceeds the balance/scale capacity	Unload the balance/scale
L or **Err 54**	The weighing pan is not in place	Place the weighing pan on the balance/scale
Err 01 **> Display range**	Data output not compatible with output format	Change the configuration in the Setup menu
Err 02 **Cal. n. possible**	Calibration/adjustment condition not met, e.g., – Not tared – The balance/scale is loaded	Calibrate only when zero is displayed Press TARE to tare Unload the balance/scale
Err 03 **Cal./adj. interrupt**	Calibration/adjustment could not be completed within a certain time	Allow the balance/scale to warm up again and repeat the adjustment process
Err 06 **Int. wt. defective**	Built-in calibration weight is defective	Contact your local Sartorius Service Center
Err 07 **Function blocked**	Function not allowed in balances/scales verified for use in legal metrology	Contact your local Sartorius Service Center for information on-having the settings changed
Err 08* **<> zero range**	The load on the balance/scale is too heavy to zero the readout	Check whether the "power-on zero range" is set
Err 09* **< 0 not allowed**	Taring is not possible when the gross weight is ≤ zero	Zero the balance/scale
Err 10 **Tare fct. blocked**	Tare key and 2nd tare memory are blocked when there is data in the tare memory for the formulation application	Press CF to clear the formulation application; the tare key and 2nd tare memory are then accessible
Err 11 **Tare2 blocked**	Tare memory not allowed	Check the tare value entered
Err 12 **Tare2 > Max.**	Tare memory greater than weighing range or range limits	Check sample/container
Err 17 **Adj.-wt. Max.**	Internal adjustment is not possible because preload is too heavy	Reduce the preload or change the configuration
Invalid batch no.	The batch number entered was not found in the host	○ Create a new batch with this number – ○ Enter a different batch number
NEW BATCH!	With decentral batch management configured in the central computer, an unknown batch number was entered in the host	○ Press ↵ to confirm ○ Press CF to cancel

* = occurs only via the SBI interface (ESC f3_/f4_)

Display/Problem	Cause	Solution
INPUT ERROR	The product name entered was not found in the base data	Enter the product name correctly; if necessary, create a new product record
NO BATCH	There is no batch with this number in local memory	None
NO PRODUCT	No product found in memory	None
NO MACHINE	There is no machine with this number in local memory	None
NO BASE DATA	No base data found in the host computer for this product	○ Create this base data record in the host computer ○ Enter a different product designation
NOT CONNECTED	Terminal is off-line; no connection active between the host and the …-0CEQN terminal	○ Connect the cable to both the host and then …-0CEQN ○ Turn on the host In the off-line mode you can perform sampling on products for which base data records (max.10) have already been loaded in the terminal
INVALID OP. ID	No operator ID found in the host matching the ID entered	○ Create this operator ID in the host computer ○ Enter a different operator ID
+T-Err., -T-Err., -T1-Err. or -T2-Err.	Value exceeded or went below the tolerance limit	Confirm outlier: press ↵
TOO LOW	The weight on the balance/scale is < 0.75*(nominal fill quantity + supplement + average tare)	Unload the balance/scale
TOO HIGH	The weight on the balance/scale is > 1.25* (nominal fill quantity + supplement + average tare)	Unload the balance/scale
Err 101 through Err 104 "Checkerboard" pattern displayed continuously	Key is stuck; key pressed when switching on the balance/scale SETUP key pressed when switching on the balance/scale, or is stuck	Release key or Contact your local Sartorius Service Center
Err 340	Operating parameter (EEPROM) is wrong	Contact your local Sartorius Service Center
Err 341	Integrated rechargeable battery drained	Leave the balance/scale switched on for at least 10 h
No WP	Weighing platform is defective	Contact your local Sartorius Service Center
The weight readout changes constantly	Unstable ambient conditions Too much vibration, or the balance/scale is exposed to a draft A foreign object is caught between the pan and the balance/scale housing	Set up the balance/scale in another area Change Setup configurations to adapt the balance/scale to the ambient conditions Remove the foreign object
The weight readout is obviously wrong	The balance/scale has not been calibrated/adjusted The balance/scale was not tared before weighing The balance/scale is not level The dust cover is caught under the weighing pan	Calibrate/adjust the balance/scale Tare before weighing Level the balance/scale See "Replacing the Dust Cover" in the chapter "Care and Maintenance"

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

Care and Maintenance

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.

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 and will result in forfeiture of claims under the manufacturer's warranty.

Cleaning

⚠ Make sure that no dust or liquid enters the balance/scale housing

⚠ Do not use any aggressive cleaning agents (solvents or similar agents)

- Unplug the AC adapter from the wall outlet (mains supply)
- If you have a data cable connected to the interface, unplug it from the balance/scale
- Carefully remove any sample residue/spilled powder by using a brush or a hand-held vacuum cleaner
- 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

Replacing the Dust Cover

> Instructions for replacing a damaged dust cover

FC06BBE-S0CEQN

- Remove the following parts from the balance/scale:

– Draft shield cover

– Glass draft shield cylinder

– Weighing pan

– Pan support

– Shield disk: turn clockwise and lift off

– Old dust cover

- Place the new dust cover on the scale and press down on the front and back along the edges until it is seated firmly
- Place the shield disk on the balance/scale and turn it counterclockwise
- Follow the above instructions in reverse order when placing remaining parts back on the scale.

FC6CCE-H0CEQN,
FC2CCE-S0CEQN,
FC12CCE-S0CEQN,
FC6CCE-S0CEQN,
FC12CCE-I0CEQN
and for LA2200-0CEQN models

- Remove the following parts from the balance/scale:

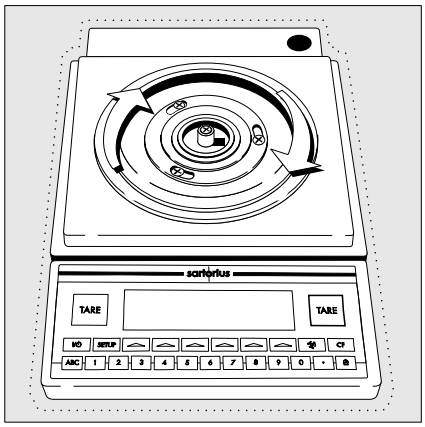
– Weighing pan

– Pan draft shield (depending on scale model)

– Old dust cover

- Place the new dust cover over the balance/scale (remove the backing from the adhesive surface)
- Follow the above instructions in reverse order when placing remaining parts back on the balance/scale.

⚠ The dust cover must not touch the weighing pan



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

In this case, notify your nearest Sartorius Service Center or the International Technical Support Unit based in Goettingen, Germany. Maintenance and repair work may only be performed by service technicians who are authorized by Sartorius and who

– have access to the required maintenance manuals

– have attended the relevant service training courses

Instructions for Recycling the Packaging

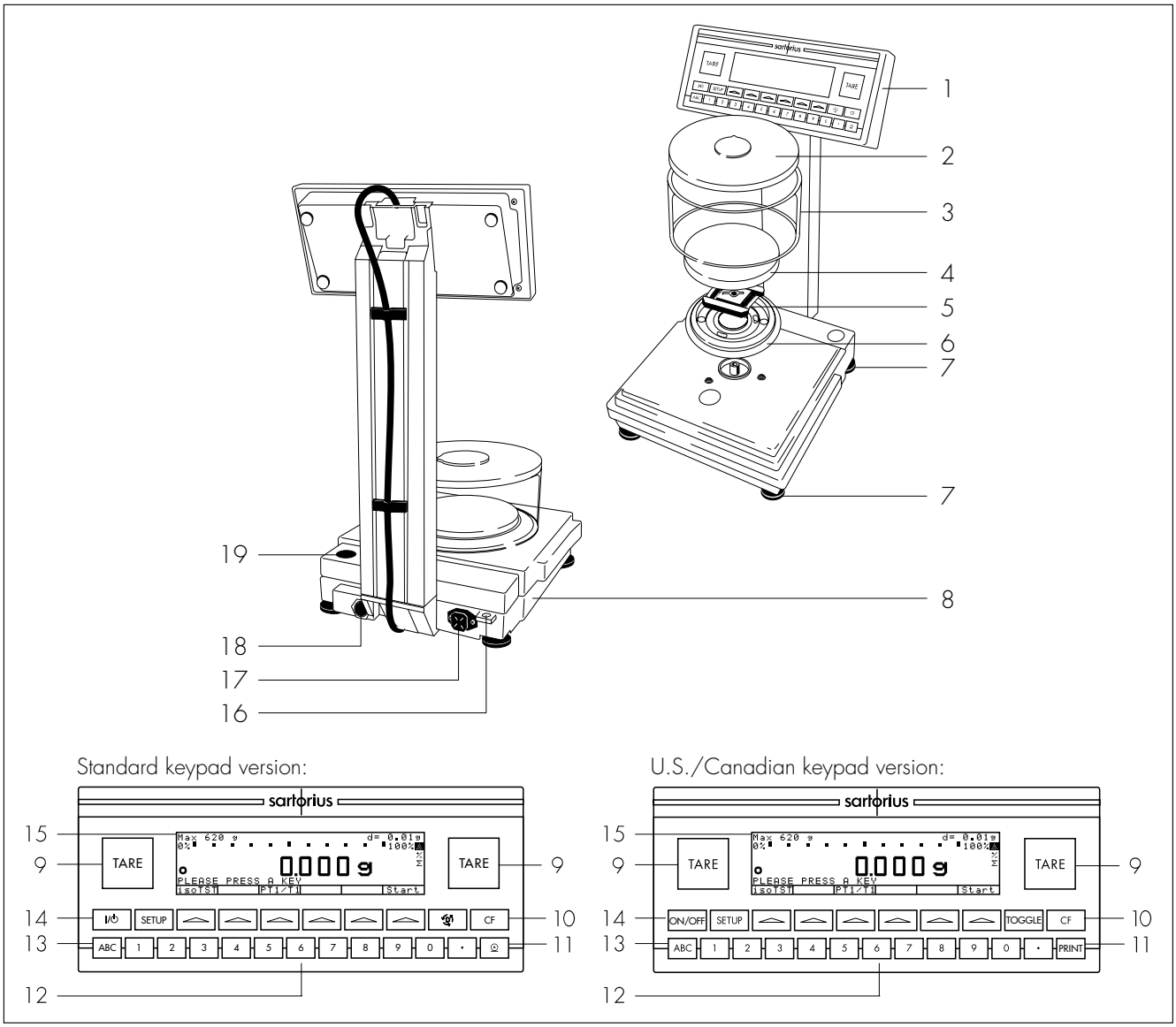
To ensure safe shipment, your balance/scale has been packaged using environmentally friendly materials. After successful installation of the balance/scale, you should return this packaging for recycling.

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

Overview

General Views of the Scales

FC06BBE-S0CEQN



No.	Designation	Order no. for replacement
1	Display and control unit	
2	Draft shield cover	69 LP0002
3	Glass draft shield cylinder	69 14290
4	Load plate	69 LP0004
5	Pan support	69 LP0005
6	Shield disk	69 LP0003
7	Leveling foot	69 B20005
8	Metrological ID label	
9	Tare key	
10	Function keys	
11	Print key	
12	Keys for numeric input	

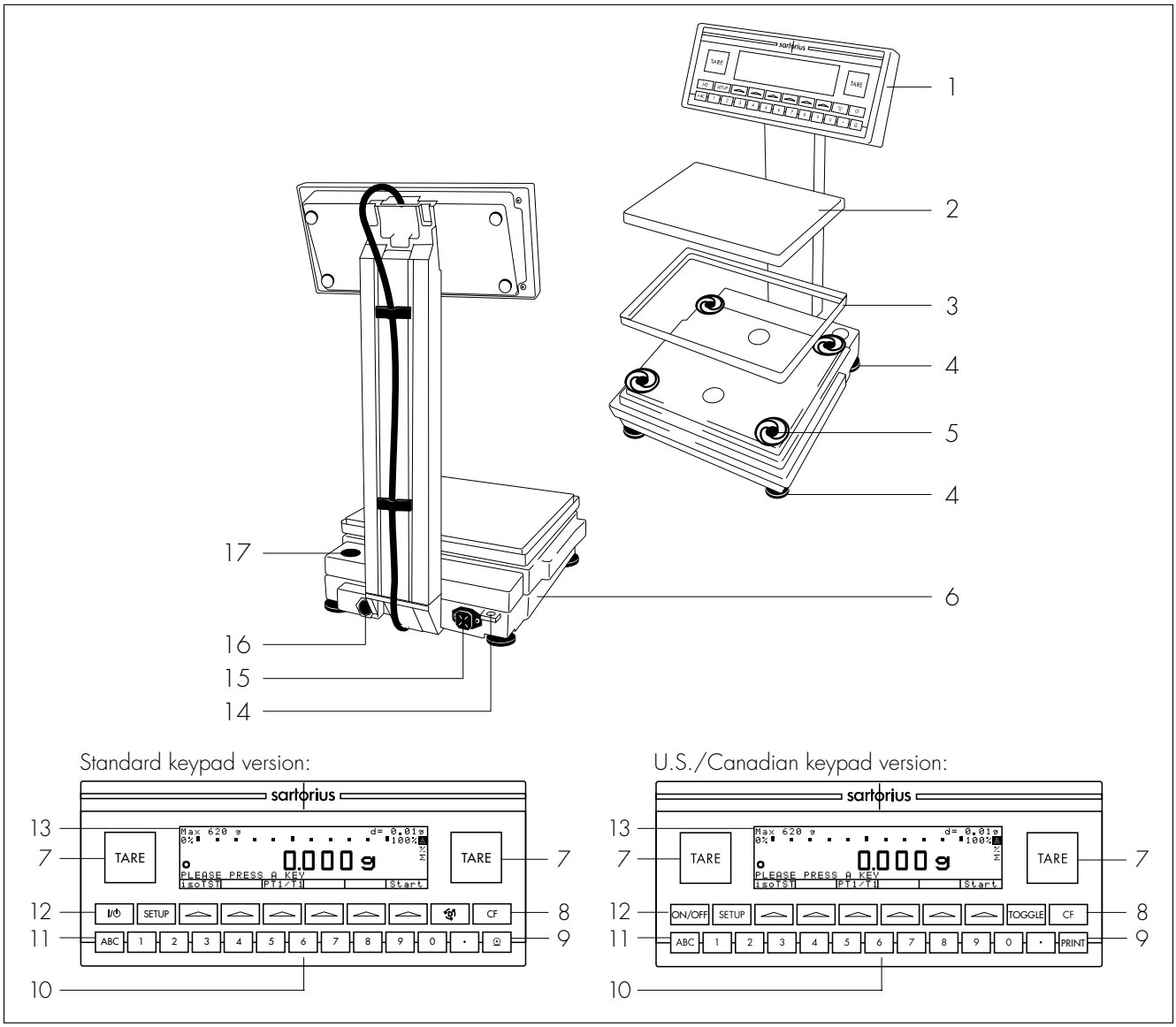
No.	Designation	Order no. for replacement
13	Toggle key for alphabetic input	
14	On/off key	
15	Weight display	
16	Lug for attaching an antitheft locking device	
17	DC jack	
18	Interface port	
19	Level indicator	

Not shown:

Dust cover for weighing platform	69 60FB01
Dust cover for display and control unit	69 60LP03
Protective caps and plugs (set)	69 B20009

General Views of the Scales

FC6CCE-H0CEQN, FC2CCE-S0CEQN, FC12CCE-S0CEQN, FC6CCE-S0CEQN, FC12CCE-I0CEQN



No.	Designation	Order no. for replacement
1	Display and control unit	
2	Load plate	69 LP0007
3	Pan draft shield (depending on model)	69 LP0008
4	Leveling foot	69 B20005
5	Shock absorber	69 LP0010
6	Metrological ID label	
7	Tare key	
8	Function keys	
9	Print key	
10	Keys for numeric input	
11	Toggle key for alphabetic input	

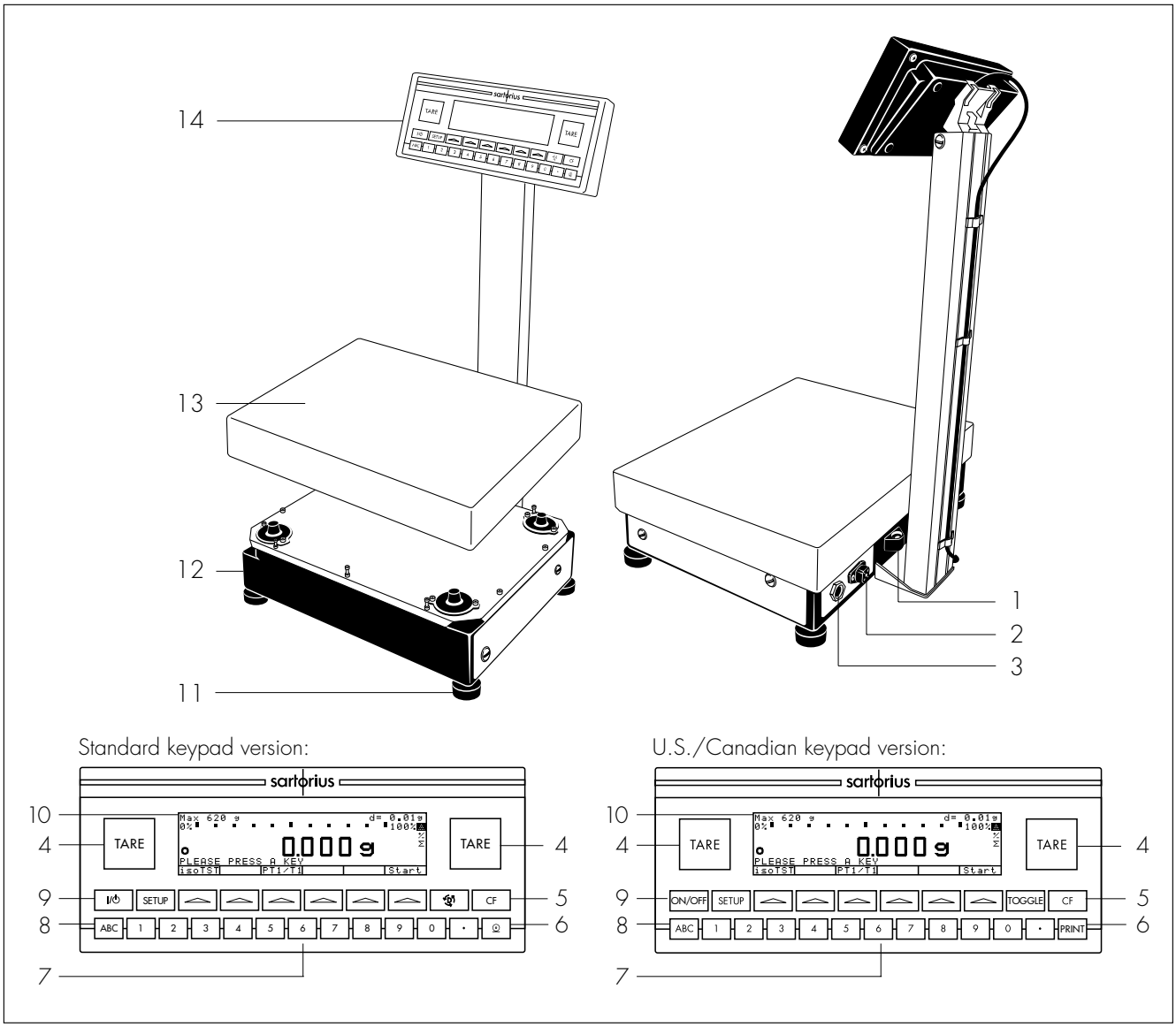
No.	Designation	Order no. for replacement
12	On/off key	
13	Weight display	
14	Lug for attaching an antitheft locking device	
15	DC jack	
16	Interface port	
17	Level indicator	

Not shown:

Dust cover for weighing platform	69 60FB02
Dust cover for display and control unit	69 60LP03
Protective caps and plugs (set)	69 B20009

General Views of the Scales

FCG34EDE-P0CEQN, FCG16EDE-H0CEQN, FCG12EDE-P0CEQN

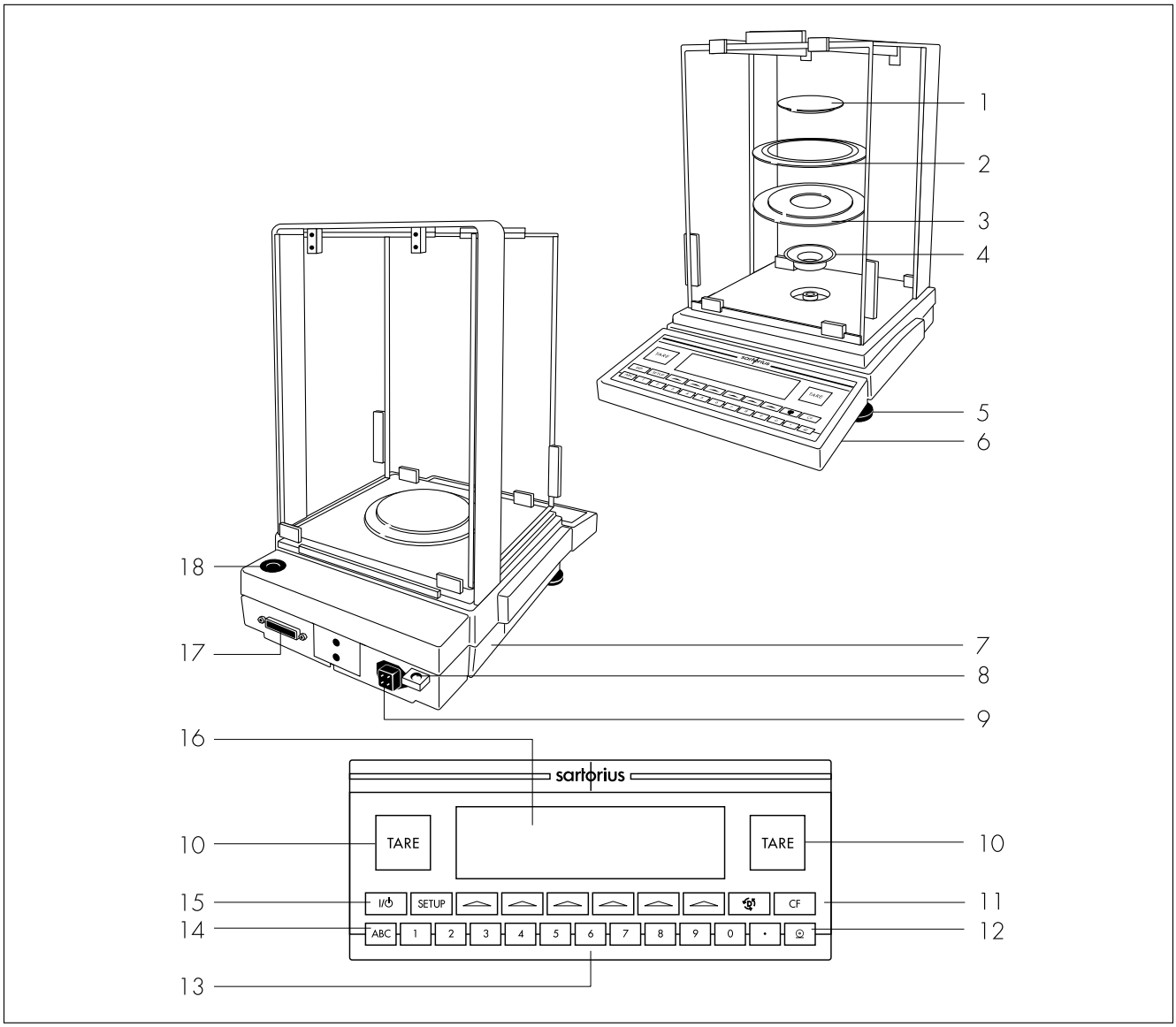


No.	Designation	Order no. for replacement
1	Level indicator	
2	Interface port	
3	DC jack	
4	Tare key	
5	Function keys	
6	Print key	
7	Keys for numeric input	
8	Toggle key for alphabetic input	
9	On/off key	

No.	Designation	Order no. for replacement
10	Weight display	
11	Leveling foot	69 LC0093
12	Metrological ID label	
13	Load plate	69 LC0106
14	Display and control unit	
	Not shown: Dust cover for display and control unit	69 60LP03

General Views of the Balances

LA230P-0CEQN



No.	Designation	Order no. for replacement
1	Weighing pan	69 LA0006
2	Shield disk	69 A20003
3	Shield plate	69 LA0008
4	Pan adapter (bushing)	69 LA0007
5	Leveling foot	69 B20005
6	Display and control unit	
7	Metrological ID label	
8	Lug for attaching an antiheft locking device	
9	DC jack	

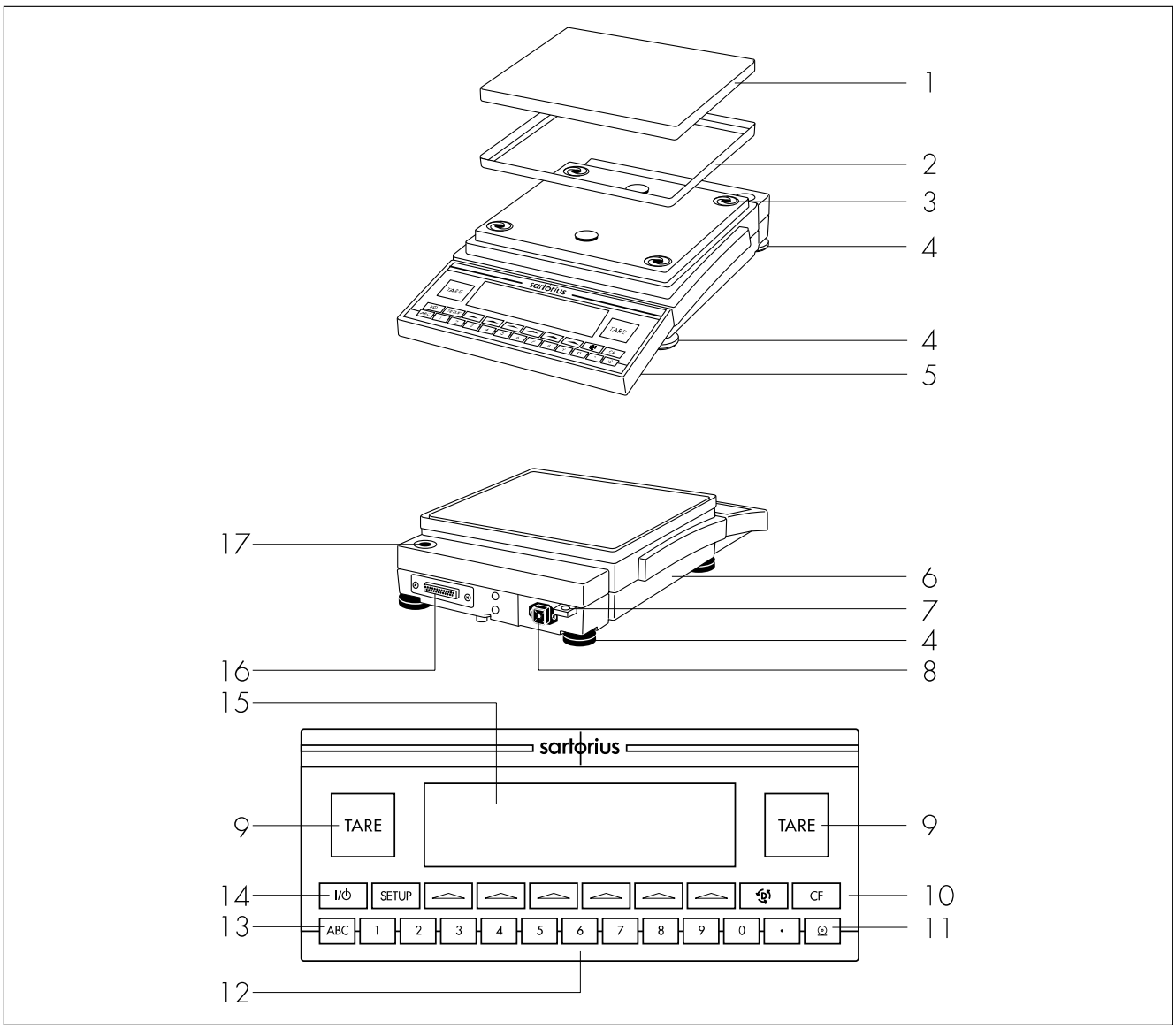
No.	Designation	Order no. for replacement
10	Tare key	
11	Function keys	
12	Print key	
13	Keys for numeric input	
14	Toggle key for alphabetic input	
15	On/off key	
16	Weight display	
17	Interface port	
18	Level indicator	

Not shown:

Dust cover	69 60LA01
Protective caps and plugs (set)	69 B20009

General Views of the Balances

LA2200-0CEQN



No.	Designation	Order no. for replacement
1	Weighing pan	69 LP0007
2	Draft shield	69 LP0008
3	Shock absorber	69 LP0010
4	Leveling foot	69 B20005
5	Display and control unit	
6	Metrological ID label	
7	Lug for attaching an antiheft locking device	
8	DC jack	
9	Tare key	
10	Function keys	

No.	Designation	Order no. for replacement
11	Print key	
12	Keys for numeric input	
13	Toggle key for alphabetic input	
14	On/off key	
15	Weight display	
16	Interface port	
17	Level indicator	
Not shown:		
	Dust cover	69 60LP02
	Protective caps and plugs (set)	69 B20009

Description of the Keys

Standard Function Keys

[I/⏻] key On/off switch

Switches the display on/off. The balance/scale remains in the standby mode.

[SETUP] key Configuring the balance/scale

– Access to the Setup program

  You can select:

  Basic
  Text-supported menu for adapting the keypad and display to individual requirements

  App
  Configure the program

  Info
  Display basic information about the equipment
  (e.g., model, serial no., software version)

  Menu
  Text-supported balance/scale operating menu for adapting functions to individual requirements

  Input
  Enter identifying information
  (e.g., scale ID)

[⌓] keys Function keys (F1 – F6)

– Select and start program functions
– Select and start calibration/ adjustment procedures
– Navigate within the Basic, App, Info, Menu and Input in the Setup program

[ABC] key

Press this key to enter letters and special characters (*, /, space, etc.)

[CF] key Clear

This key is used to cancel functions; i.e.:

– to delete or cancel input, or
– to stop a calibration/adjustment routine.
– The program then returns to the previous status

[TARE] keys Tare

2 large keys for starting the tare function. Ideally situated for both right-handed and left-handed operation.
Sets the readout to zero. With balances/scales that have the "PolyRange" weighing capacity structure, the fine range is available when this key is pressed.

[1] [2] … [9] [0] keys

For numeric input

[·] key

Define the decimal point position (conclude input of digits that come before the decimal point)

[⊙] key No function

[(D)] key Toggle to attribute testing

Attr. soft key
(is displayed after toggling with the [(D)] key)

Press this key to start the attribute testing function.

Skip T soft key
(Skip tare – gross value)

Press this key to skip a tare/gross value during backweighing (tare –> gross or gross –> tare weighing).

Dens. soft key

Enter a new density value

Sample soft key

Press this key to start the sampling function in one of the following control modes:

– Average tare
– Tare –> gross
– Gross –> tare

If you press this key again during sampling, the sampling series is stopped before it has been completed. The data collected up to that point is stored.

Tare W soft key (Tare weighing)

Press this key to start the tare weighing function. Press this key again to stop tare weighing.

Test W soft key (Test weighing)

Press this key to start test weighing in one of the following control modes:

– Average tare
– Tare –> gross
– Gross –> tare

If you press this key again during test weighing, the test weighing series is stopped before it has been completed. The data is not stored, but the evaluation data is output as with the "Sampling" function.

Info soft key

Press this key in conjunction with another function key to display memory data or current parameters.

Delete soft key (Correction key)

Delete the most recent sample or weighed-in value.

Specifications

Verified Models with EC Type Approval

General Specifications:

AC power source/power requirements	AC adapter, 230 or 115 V, +15% ... – 20%
Frequency	48 – 60 Hz
Operating temperature range	+ 10 ... + 30 °C (+50 ... +86°F)
Adaptation to ambient conditions	By selection of 1 of 4 optimized filter levels
Display update (depends on the filter level selected)	0.1 – 0.4
Power consumption	16 VA: maximum; 9 VA: average
Hours of operation with fully charged YRB06Z external battery pack, approx.	14 h
Selectable weight units	Grams, kilograms
Built-in interface	RS-485
Format: Parity: Transmission rate: Code:	8-bit ASCII, 1 start bit, 1 stop bit even 9,600 baud Sartonet

Specifications of the Individual Models:

Model		FC06BBE-S0CEQN	FC6CCE-H0CEQN	FC2CCE-S0CEQN
Type		iso TEST in conjunction with BD BF		
Accuracy class*		(II)	(II)	(II)
Scale interval, d*	g	0.001	0.01	0.01
Max. weighing capacity*	g	620	6,200	2,200
Verification interval, e*	g	0.01	0.1	0.1
Min. capacity*	g	0.02	0.5	0.5
Max. overload capacity	kg	3	25	10
Tare range (subtractive)		≤ 100% of the max. weighing capacity		
Electronically compensated preload (without restricting weighing range)	g	93	–	110
Max. preload when starting calibration/adjustment (scale must be zeroed)	g	110	5,200	1,300
Application range according to CD*	g	0.02 – 620	0.5 – 6,200	0.5 – 2,200
Response time (average)	s	1.5	1.5	1.5
Selectable weight units		Grams, kilograms		
Pan size	mm	Ø 130	218 x 200	218 x 200
Dimensions (W x D x H)	mm	240x294x86	240x294x86	240x294x86
Net weight, approx.	kg	7	8.4	7.3
Dust and water protection rating according to EN 60529		IP54		

* CD = Council Directive 90/384/EEC on non-automatic weighing instruments used within the European Economic Area

Specifications of the Individual Models:

Model		FC12CCE-S0CEQN	FC6CCE-S0CEQN	FC12CCE-I0CEQN
Type		iso TEST in conjunction with BD BF		
Accuracy class*		(II)	(II)	(II)
Scale interval, d*	g	0.1	0.1	0.5
Max. weighing capacity*	g	12,000	6,200	12,000
Verification interval, e*	g	1	1	0.5
Min. capacity*	g	5	5	25
Max. capacity	kg	50	50	50
Tare range (by subtraction)		≤ 100% of the max. weighing capacity		
Electronically compensated preload (without restricting weighing range)	g	1,200	1,240	1,200
Max. preload when starting calibration/adjustment (scale must be zeroed)	g	8,200	2,440	8,200
Application range according to CD*	g	5 – 12,000	5 – 6,200	25 – 12,000
Response time (average)	s	1	1	1
Selectable weight units		Grams, kilograms		
Pan size	mm	218 x 200	218 x 200	218 x 200
Dimensions (W x D x H)	mm	240 x 294 x 86		
Net weight, approx.	kg	6.9	6.9	6.9
Dust and water protection rating according to EN 60529		IP54		

Model		FCG34EDE-P0CEQN	FCG16EDE-H0CEQN	FCG12EDE-P0CEQN
Type		iso TEST in conjunction wit BF BF		
Accuracy class*		(II)	(II)	(II)
Scale interval, d*	g	0.1/0.2/0.5	0.1	0.1/0.2
Max. weighing capacity*	kg	8/16/34	16	6/12
Verification scale interval, e*	g	1	1	1
Min. capacity*	g	5	5	5
Tare range (subtractive)		≤ 100% of the max. weighing capacity		
Max. overload capacity	kg	130	130	130
Electronically compensated preload (without restricting weighing range)	kg	4	4	4
Max. preload when starting calibration/adjustment (scale must be zeroed)	kg	approx. 21	approx. 19	approx. 10
Application range according to CD*	g	5 – 34,000	5 – 16,000	5 – 12,000
Response time (average)	s	1.5	1.5	1.5
Selectable weight units		Grams, kilograms		
Load plate size	mm		300 x 400	
Net weight, approximate	kg		16	
Dust and water protection rating according to EN 60529		IP65		

* CD = Council Directive 90/384/EEC on non-automatic weighing instruments used within the European Economic Area

Specifications

Model		LA230P-0CEQN	LA2200-0CEQN
Type		iso TEST in conjunction with BC BF	iso TEST in conjunction with BD BF
Accuracy class *		Ⓘ	Ⓘ
Scale interval, d*	g	0.1/0.2/0.5	0.1
Max. weighing capacity, Max*	g	60/120/230	2,200
Verification scale interval, e*	g	0.001	0.1
Minimum capacity, Min*	g	0.01	5
Tare range (subtractive)		≤100% of the max. weighing capacity	
Application range according to CD*	g	0.01–230	5–2,200
Response time (average)	s	2	1
Allowable operating temperature range		273…313 K (0…+40°C, 32…104°F) with isoCAL[1] function	
Selectable weight units		Grams, kilograms	Grams, kilograms
External standard calibration weight value (of at least accuracy class…)	g	200 (E2)	
Other allowable standard calibration weight value (of at least accuracy class…)	g	100, 150 (E2)	
Pan size	mm	Ø 90	218 x 200
Dimensions (W x D x H)	mm	240 x 373 x 361	240 x 373 x 86
Net weight, approx.	kg	8.7	6.7
Dust and water protection rating according to EN 60529[2]		IP42	IP54

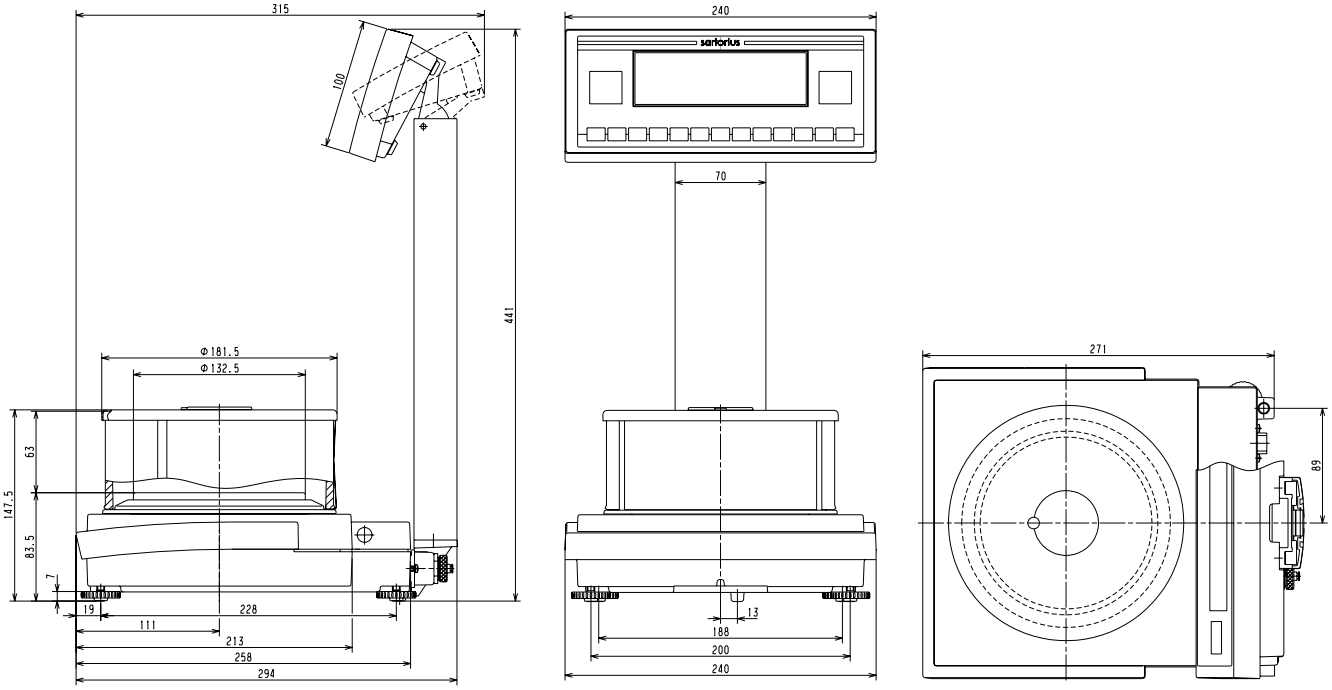
[1] = LA2200-0CEQN balance: After the "isoCAL" function has been disabled, the verified balance may only be operated within the legally restricted temperature range (only authorized Sartorius technical service engineers may modify the equipment) as follows: balances of accuracy class Ⓘ: +10°C to +30°C

[2] = Specially protected power supply: see the "Accessories" section

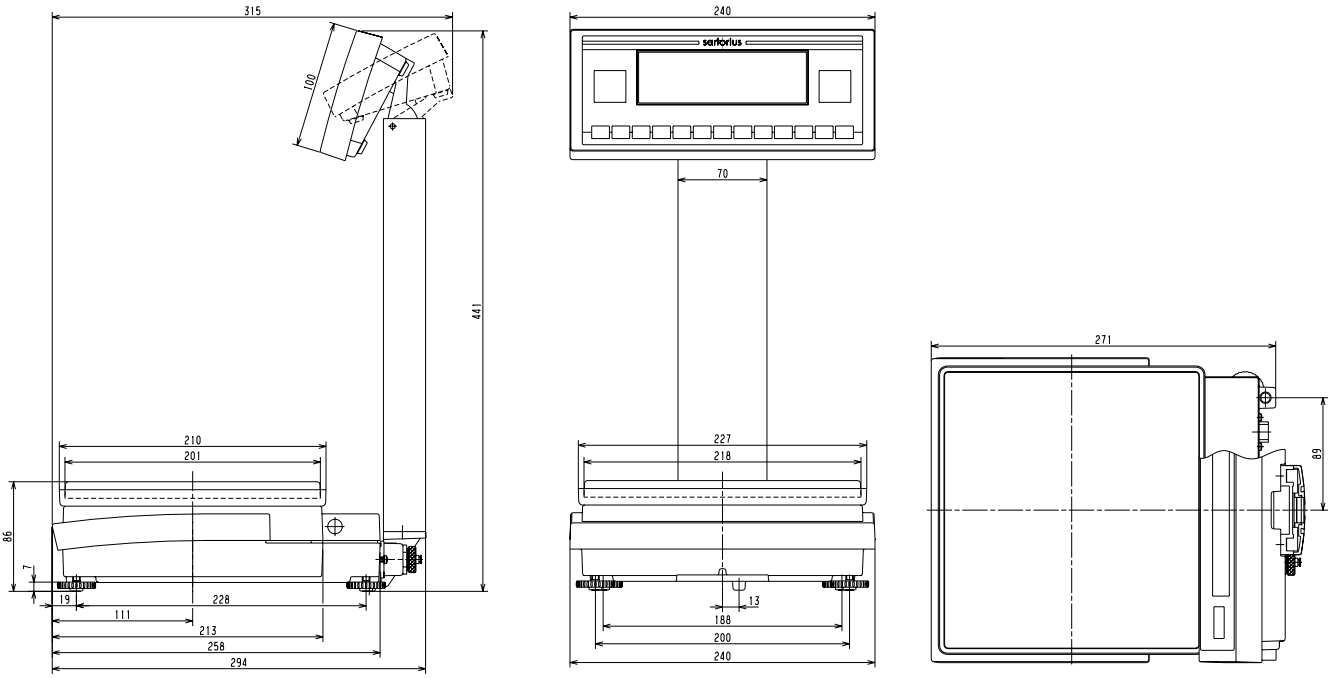
* CD = Council Directive 90/384/EEC on non-automatic weighing instruments used within the European Economic Area

Dimensions (Scale Drawings)

FC06BBE-S0CEQN

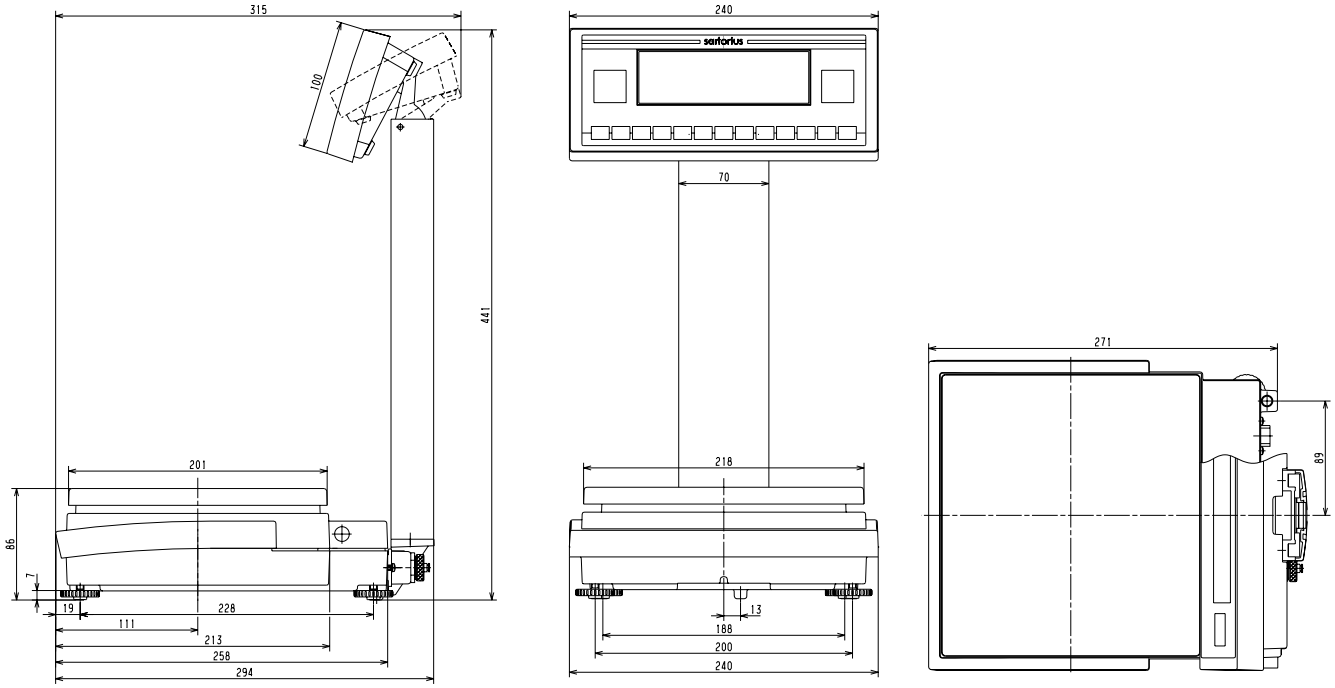


FC6CCE-H0CEQN, FC2CCE-S0CEQN

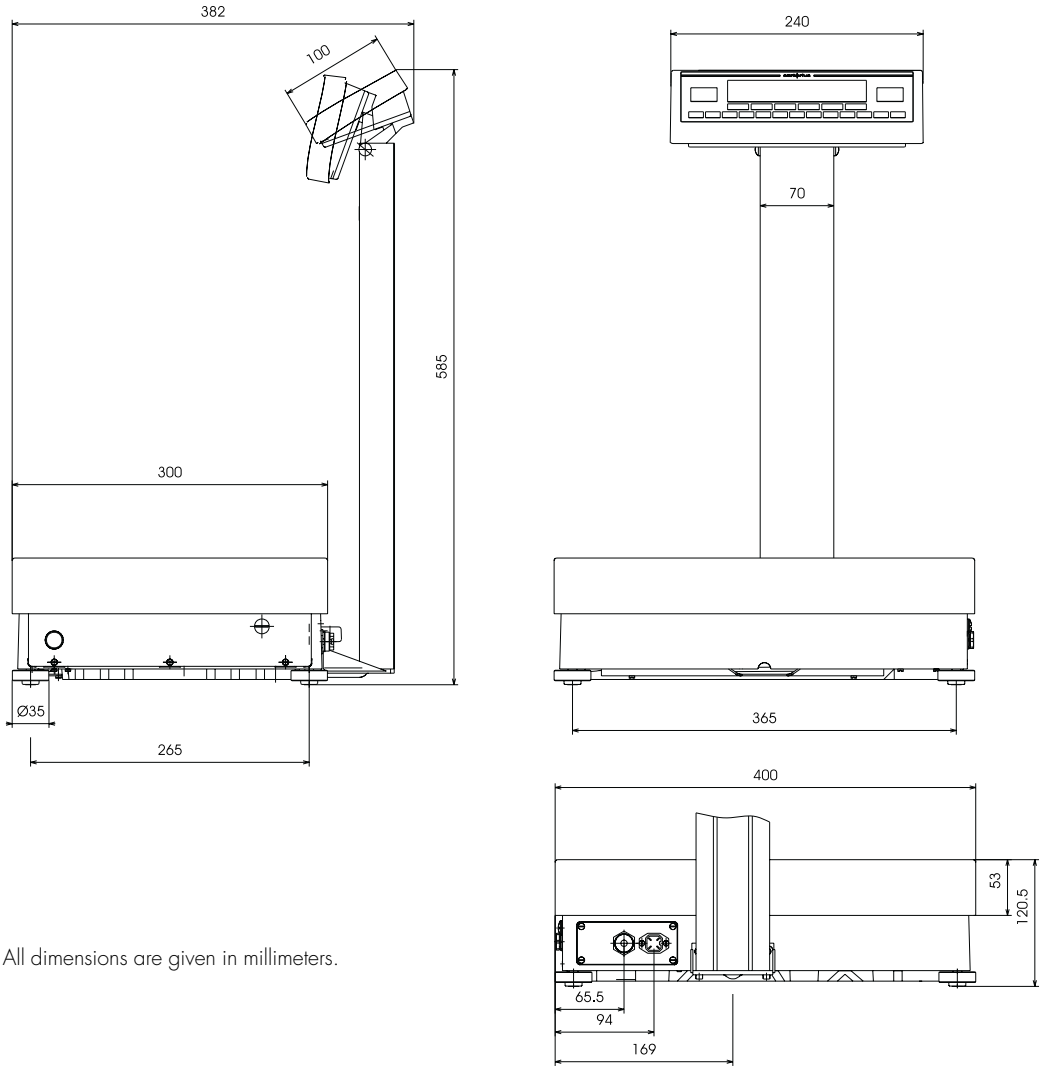


All dimensions are given in millimeters.

FC12CCE-S0CEQN, FC6CCE-S0CEQN, FC12CCE-I0CEQN

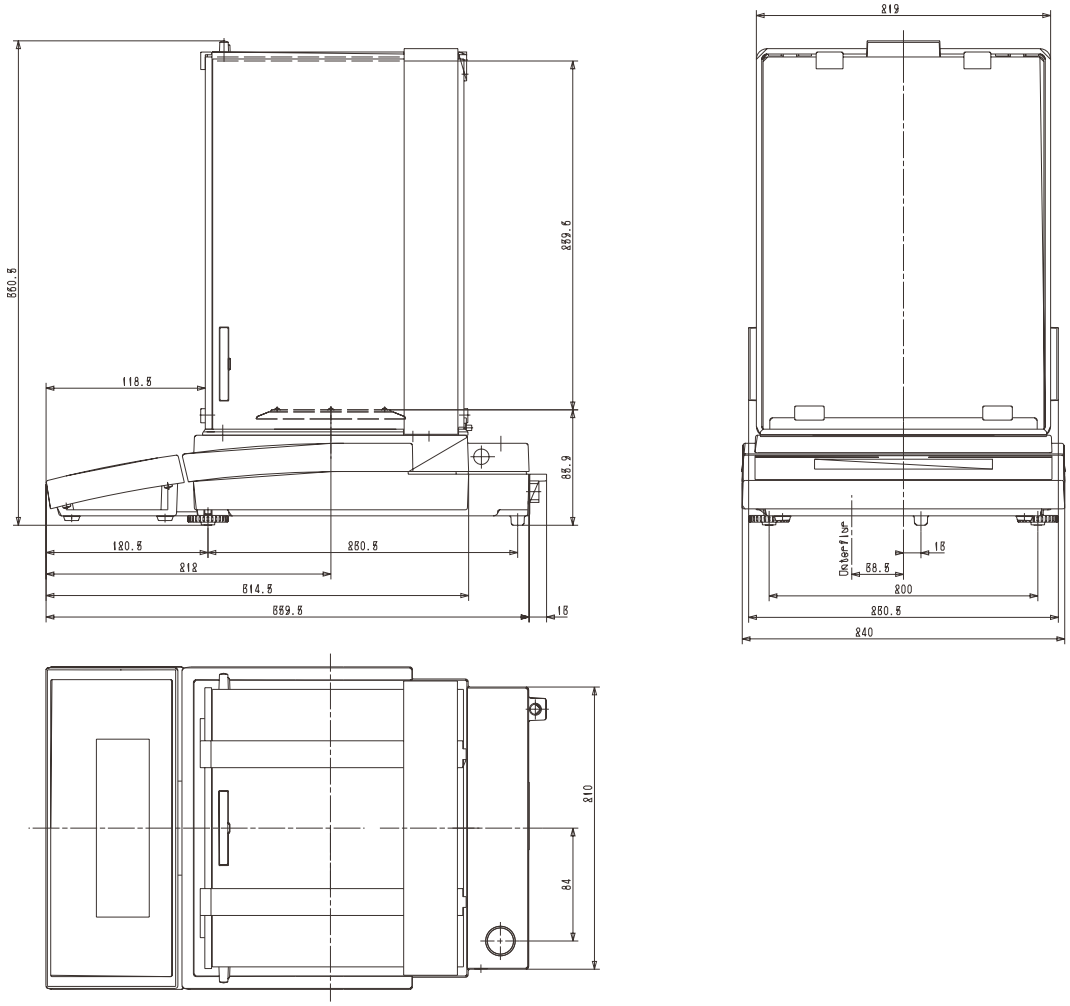


FCG34EDE-P0CEQN, FCG16EDE-H0CEQN, FCG12EDE-P0CEQN

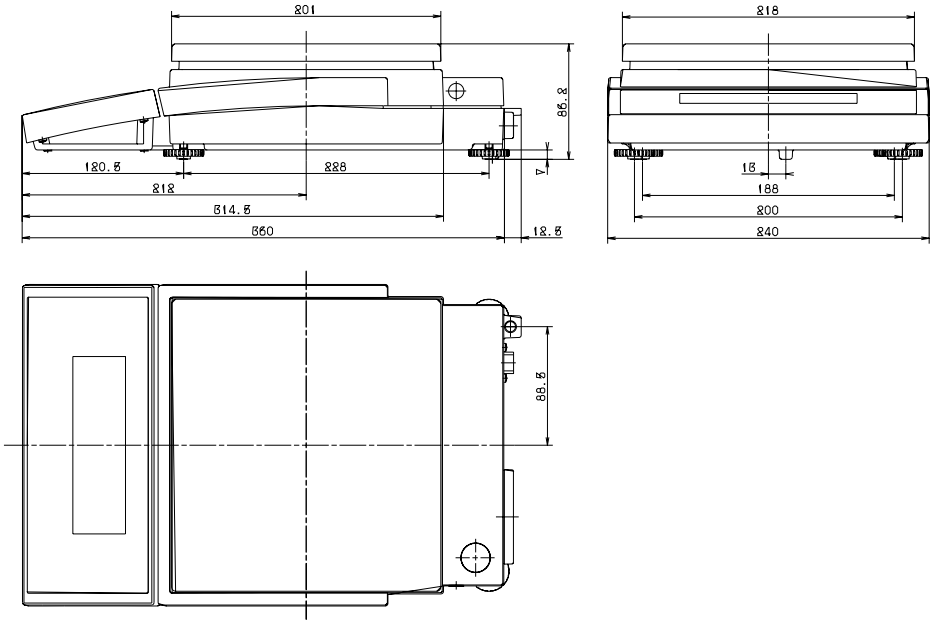


All dimensions are given in millimeters.

LA230P-0CEQN



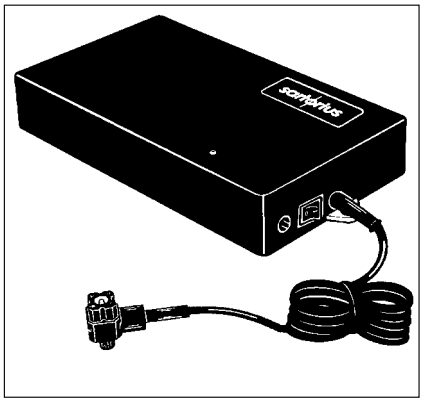
LA2200-0CEQN



All dimensions are given in millimeters.

Accessories (Options)

Product	Order No.
Bar Code Scanner With Tuchel keyboard port adapter cable (5-pin) and AC adapter (data interface YDO05F or YDO06FG required)	62200361
Double Data Interface RS-485 12-pin round socket and 5-pin Tuchel socket for connecting the Sartonet network and a bar code scanner	
– for scales with a weighing capacity ≤ 12 kg	YDO05F
– for FCG…EDE models	YDO06FG



External rechargeable battery pack > has a 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 > can be used in legal metrology	YRB06Z
AC adapter ING 2 (for LA models) with IP65 protection rating to DIN VDE 0470/IEC 529	
for 230 V	6971899
for 120 V	6971500
Universal remote control switch for remote control of one of the following functions (configured in the balance Setup): ⊙, TARE, ⊙D, F, CF	
Foot switch with T-connector	YFS01
Hand switch with T-connector	YHS02
T-Connector	YCT01
Connecting cable – Weighing platform to separate display and control unit (length: 2.70 m)	
for models with a weighing capacity ≤ 12 kg	YCC01-19M3
for FCG…EDE models	Information on request
Front-mounted tiltable display and control unit for FCG…EDE models	YDH01F
Support arm for LA2200-0CEQN (for raised display configuration)	YDH01LP
Antistatic pan for LA230P-0CEQN	YWP01LA
Carrying case for LA models	YDB01LP
Wrap-around load plate for FC6CCE-S, FC12CCE-S and FC12CCE-I models	YLP01
Calibration weights	Information on request

for all LA balances and FC scales, extensive assortment, optionally available with officially recognized DKD certificate

Declarations of Conformity

The CE Mark on Sartorius Equipment

In 1985, the Council of the European Community approved a resolution concerning a new approach to the technical harmonization and standardization of national regulations. The organization for monitoring compliance with the directives and standards concerning the CE marking is governed in the individual EU Member States through the implementation of the EC Directives adopted by the respective national laws. As of December 1993, the scope of validity for all EC Directives has been extended to the Member States of the European Union and the Signatories of the Agreement on the European Economic Area.

Sartorius complies with the EC Directives and European Standards in order to supply its customers with weighing instruments and related equipment that feature the latest advanced technology and provide many years of trouble-free service.

The CE mark may be affixed only to weighing instruments and associated equipment that comply with the applicable Directive(s):

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

Applicable European Standards:

Limitation of emissions:

EN 50081-1
Residential, commercial and light industry

EN 50081-2
Industrial environment

Defined immunity to interference:

EN 50082-1
Residential, commercial and light industry

EN 50082-2
Industrial environment

Important Note:

The operator shall be responsible for any modifications to Sartorius equipment and for any connections of cables or 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).

Council Directive 73/23/EEC "Electrical equipment designed for use within certain voltage limits"

Applicable European Standards:

EN 60950
Safety of information technology equipment including electrical business equipment

EN 61010
Safety requirements for electrical equipment for measurement, control and laboratory use
Part 1: General requirements

If you use electrical equipment in installations and under ambient conditions requiring higher safety standards, you must comply with the provisions as specified in the applicable regulations for installation in your country.

Weighing Instruments for Use in Legal Metrology: Council Directive 90/384/EEC "Non-automatic weighing instruments"

This Directive regulates the determination of mass in legal metrology.

For the respective Declaration of Type Conformity for weighing instruments that have been verified by Sartorius for use as legal measuring instruments and that have an EC Type-Approval Certificate, see the page after next.

This Directive also regulates the performance of the EC verification by the manufacturer, provided that an EC Type-Approval Certificate has been issued and the manufacturer has been accredited by an officer of a Notified Body registered at the Commission of the European Community for performing such verification.

Sartorius complies with EC Directive No. 90/384/EEC for non-automatic weighing instruments, which has been in effect since January 1, 1993, within the Single European Market, as well as the accreditation of the Quality Management System of Sartorius AG by Lower Saxony's Regional Administrative Department of Legal Metrology (Niedersächsisches Landesverwaltungsamt – Eichwesen) from February 15, 1993.

For additional information on the CE mark on Sartorius equipment, see Sartorius Publication No. W--0052-e93081.

"New Installation" Service

Initial verification is covered in our "New Installation" service package. In addition to initial verification, this package provides you with a series of important services which will guarantee you optimal results in working with your weighing instrument:

- Installation
- Startup
- Inspection
- Training
- Initial verification

If you would like Sartorius to perform initial verification of your weighing instrument, contact an authorized service representative.

"EC Verification" – A Service offered by Sartorius

Our service technicians are authorized to perform the verification* of your weighing instruments that are acceptable for legal metrological verification and can inspect and verify the metrological specifications at the place of installation within the Member States of the European Union and the Signatories of the Agreement on the European Economic Area.

Subsequent Verifications within the European Countries

The validity of the verification will become void in accordance with the national regulations of the country in which the weighing instrument is used. For information on verification and legal regulations currently applicable in your country, and to obtain the names of the persons to contact, please contact your local Sartorius office, dealer or service center.

* in accordance with the accreditation certificate issued to Sartorius AG

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

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

Model	Type	Accuracy Class	EC Type Approval No.	In Conjunction with Test Certificate	
				Type	Certificate No.
LA/LP...-.0CE	iso-TEST	(II) or (III)	D97-09-018	BA BF	D09-96.30
LA/LP...-.0CE	iso-TEST	(II) or (III)	D97-09-018	BB BD	D09-95.08
LA/LP...-.0CE	iso-TEST	(I)	D97-09-018	BC BF	D09-96.30
LA/LP...-.0CE	iso-TEST	(I), (II) or (III)	D97-09-018	BD BF	D09-96.30
LA/LP...-.0CE	iso-TEST	(II)	D97-09-018	BF BF	D09-96.30

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

If these marks are not on the ID label, this Declaration of Type Conformity is not valid. Validity can be obtained, for example, by submitting the weighing instrument for final action to be taken by an authorized representative of SARTORIUS AG. The period of validity of this Declaration of Type Conformity shall expire upon any tampering with, repair or modification of this weighing instrument or, in some Member States, on the date of expiration.
The operator of this weighing instrument shall be responsible for obtaining an authorized renewal of the verification, such as subsequent or periodic verification, of the weighing instrument for use as a legal measuring instrument.

Sartorius AG
37070 Goettingen, Germany
Signed in Göttingen, 17.10.2001

M. Warter
(Executive Board)

ppa. Maaz
Dr. G. Maaz
(Head of Technical Operations)

OAW–113-2/02.96
P106eb00.doc

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

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

Model	Type	Accuracy Class	EC Type Approval No.	In Conjunction with Test Certificate	
				Type	Certificate No.
FB/FC.....-.0CE	iso-TEST	II	D97-09-018	MA BF	D09-96.30
FB/FC.....-.0CE	iso-TEST	II	D97-09-018	BA BF	D09-96.30
FB/FC.....-.0CE	iso-TEST	II	D97-09-018	BB BD	D09-95.08
FBG/FCG.....-.0CE	iso-TEST	II	D97-09-018	BF BF	D09-96.30
FC.....-X.CE	iso-TEST	II	D97-09-018	MA BF	D09-96.30
FC.....-.XCE	iso-TEST	II	D97-09-018	BA BF	D09-96.30
FB/FC.....-.XCE	iso-TEST	II	D97-09-018	BD BF	D09-96.30
FBG/FCG.....-.XCE	iso-TEST	II	D97-09-018	BF BF	D09-96.30

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

If these marks are not on the ID label, this Declaration of Type Conformity is not valid. Validity can be obtained, for example, by submitting the weighing instrument for final action to be taken by an authorized representative of SARTORIUS AG. The period of validity of this Declaration of Type Conformity shall expire upon any tampering with, repair or modification of this weighing instrument or, in some Member States, on the date of expiration.
The operator of this weighing instrument shall be responsible for obtaining an authorized renewal of the verification, such as subsequent or periodic verification, of the weighing instrument for use as a legal measuring instrument.

Sartorius AG
37070 Goettingen, Germany
Signed in Göttingen, 29.10.2001

M. Warter
(Executive Board)

Dr. G. Maaz
(Head of Technical Operations)

OAW–113-2/02.96
P106ec00.doc

PTB

Physikalisch-Technische Bundesanstalt

Braunschweig und Berlin

EG-Bauartzulassung

EC type-approval certificate

Zulassungsinhaber: *Issued to:*	Sartorius AG Weender Landstraße 94-108 37075 Göttingen Bundesrepublik Deutschland
Rechtsbezug: *In accordance with:*	§ 13 des Gesetzes über das Meß- und Eichwesen *(verification act)* vom/*dated* 23. März 1992 (BGBl. I S. 711) in Verbindung mit Richtlinie *(in connection with council directive)* 90/384/EWG, geändert durch *(amended by)* 93/68/EWG
Bauart: *In respect of:*	Nichtselbsttätige elektromechanische Waage *Nonautomatic electromechanical weighing instrument* Typ/*type*: iso-TEST Genauigkeitsklasse/*class* (I), (II), (III), (IIII) Max 0,05 kg ... 300 t Option: Mehrteilungswaage, Mehrbereichswaage *Multi-interval instrument, multiple range instrument*
Zulassungsnummer: *Approval number:*	**D97-09-018 2. Revision**
Gültig bis: *Valid until:*	26.06.2007
Anzahl der Seiten: *Number of pages:*	11
Geschäftszeichen: *Reference No.:*	1.14 – 00035920
Benannte Stelle: *Notified Body:*	0102

Im Auftrag
By order

Link

PHYSIKALISCH-TECHNISCHE BUNDESANSTALT 40

Braunschweig, 24.07.2000

Siegel
Seal

394 06 b-rb

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

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

Physikalisch-Technische Bundesanstalt

Braunschweig und Berlin

Prüfschein

Test certificate

Ausgestellt für: *Issued to:*	Sartorius AG Weender Landstraße 94 – 108 37075 Göttingen Bundesrepublik Deutschland
Prüfgrundlage: *In accordance with:*	EN 45501 (1992), Nr.8.1, OIML R 76-1 (1992)
Gegenstand: *Object:*	Lastaufnehmer mit Wägezelle und Auswerteelektronik mit digitalem Ausgang als Modul einer elektromechanischen Waage zum Anschluß an geeignete Anzeige- und Bedienterminals *Load receptor with load cell and electronic device with digital output as module of an electromechanical weighing instrument for connection to suitable display- and operator-terminals* Typ / *type* **BA BF, BC BF, BD BF, BF BF, MA BF und MD BF**
Kennummer: *Serial number:*	---
Prüfscheinnummer: *Test certificate number:*	D09-96.30 4. Revision / *Revision 4*
Datum der Prüfung: *Date of Test:*	
Anzahl der Seiten: *Number of pages:*	10
Geschäftszeichen: *Reference No.:*	1.14 – 01052687
Benannte Stelle: *Notified Body:*	0102

Im Auftrag
By order

Link

PHYSIKALISCH-TECHNISCHE BUNDESANSTALT 40

Braunschweig, 2001-10-09

Siegel
Seal

392 00 e-rb

Hinweise siehe erste Seite der Anlage, die Bestandteil des Prüfscheines ist.
For notes, see first page of the Annex which forms an integral part of the test certificate.

Physikalisch-Technische Bundesanstalt

Braunschweig und Berlin

Test Certificate

N° D09-95.08 Revision 1

Testing of a

Weighing platform with electronic evaluation unit of type BB BD

issued by:	Physikalisch-Technische Bundesanstalt
issued to:	Sartorius AG Weender Landstraße 94-108 D-37075 Göttingen Federal Republic of Germany
in accordance with:	EN 45501 (1992) (This standard essentially corresponds to OIML Recommendation R 76-1, 1992 Edition
Object tested:	Weighing platform with load cell and electronic device with digital output as module of an electromechanical weighing instrument for connection to suitable display and operator terminals
Manufacturer:	Sartorius AG, Göttingen

The essential functions and characteristics of this module, the conditions to be observed and the specification of the relevant documentation are set out in the Appendix hereto. The module meets the requirements of EN 45501, as far as applicable; it may be used for purposes subject to legal control as module of an electromechanical weighing instrument provided that the conditions stated in EN 45501 and in the Appendix hereto are observed.

The Appendix is an integral part of this Test Certificate and comprises 5 pages.

This Revision 1 replaces Test Certificate D09-95.08 dated 15.03.1995, Reference N°. 1.13-5.070.

By order

Braunschweig, 14.07.1995
Reference No: 1.13-95.180

(Brandes)

Seal

Physikalisch-Technische Bundesanstalt
Bundesallee 100
D 38116 Braunschweig
Federal Republic of Germany

L.S.

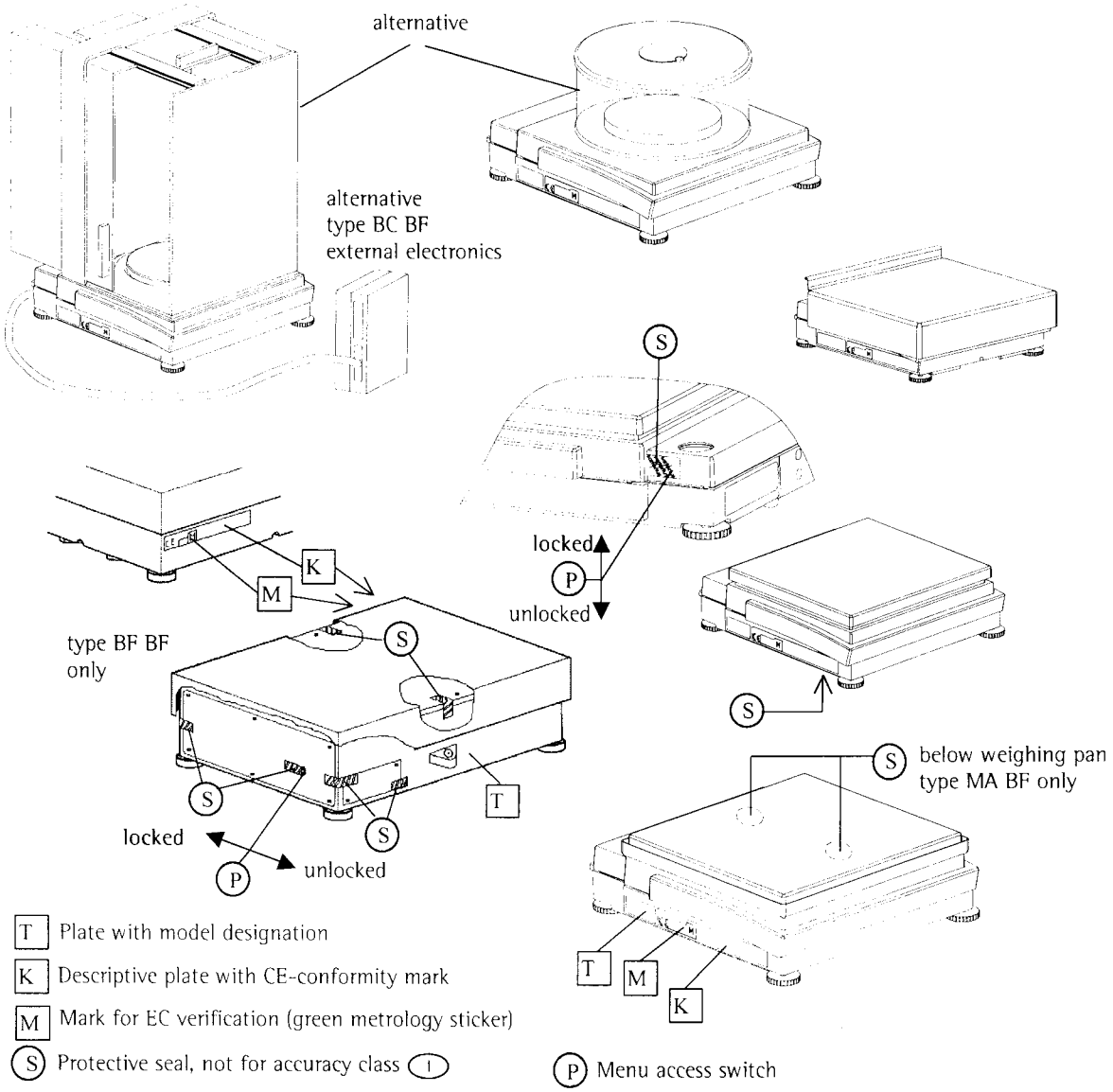
Further information and legal remedy instructions see over-leaf. Test certificates are valid only with signature and seal. This test certificate shall be reproduced only in full. Partial reproduction or modification only upon permission of the Physikalisch-Technische Bundesanstalt.

This is to certify that the above translation from the German language has been made at the Physikalisch-Technische Bundesanstalt. The original has been produced.

(G. Panagiotidis)
Foreign Languages Department

Braunschweig, May 28, 1998

Plates and Markings



T Plate with model designation

K Descriptive plate with CE-conformity mark

M Mark for EC verification (green metrology sticker)

S Protective seal, not for accuracy class (I)

P Menu access switch

Indicating and operator terminals isi..., YAC01LA..., YAC01LP..., YAC01FC..., YAC02FC..., front-mounted, raised (post-mounted) or positioned separately.
Alternative to terminal: PC with Sartorius Win Scale YSW03 software

Example of descriptive plate of the already verified weighing instrument K

SARTORIUS AG GÖTTINGEN Germany iso-TEST 12345678 D97-09-018
CE 00 0111 M
(II) +10°C / +30°C
Max 8200 g d= 0,01 g
Min 0,5 g e= 0,1 g

Example of plate with model designation T

Weighing module

BD BF
FC6CCE-H0CE D09-96.30
12345678

Indicating and operator terminal

SARTORIUS AG GÖTTINGEN Germany
YAC01LA -000FC
12345678

PPBF151001e

Type: BA BF, BC BF, BD BF, BF BF, MA BF, MD BF
EC Type-approval D97-09-018 + EC Test certificate D09-96.30

Index

Appendix

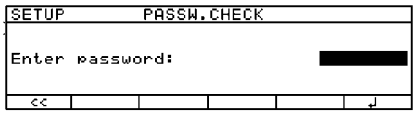
Entering the General Password

Enter/Change Password

- Select the Setup menu: Press SETUP

> SETUP SELECTION is displayed

- Select the user input function: Press the Input soft key



○ Enter the General Password (see below)

○ Confirm password: Press the ↵ soft key

> User data is displayed

- Select the password setting function: Press the CAL soft key repeatedly until

> Enter password: is displayed, together with the current password setting

- Define a new password: Enter letters/numbers for the new password (8 characters max.)

  To delete the current password: press · and confirm

- To confirm the new password: press the ↵ soft key
- Exit the Setup menu: Press << soft key

> Restart your application

General Password: 40414243

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