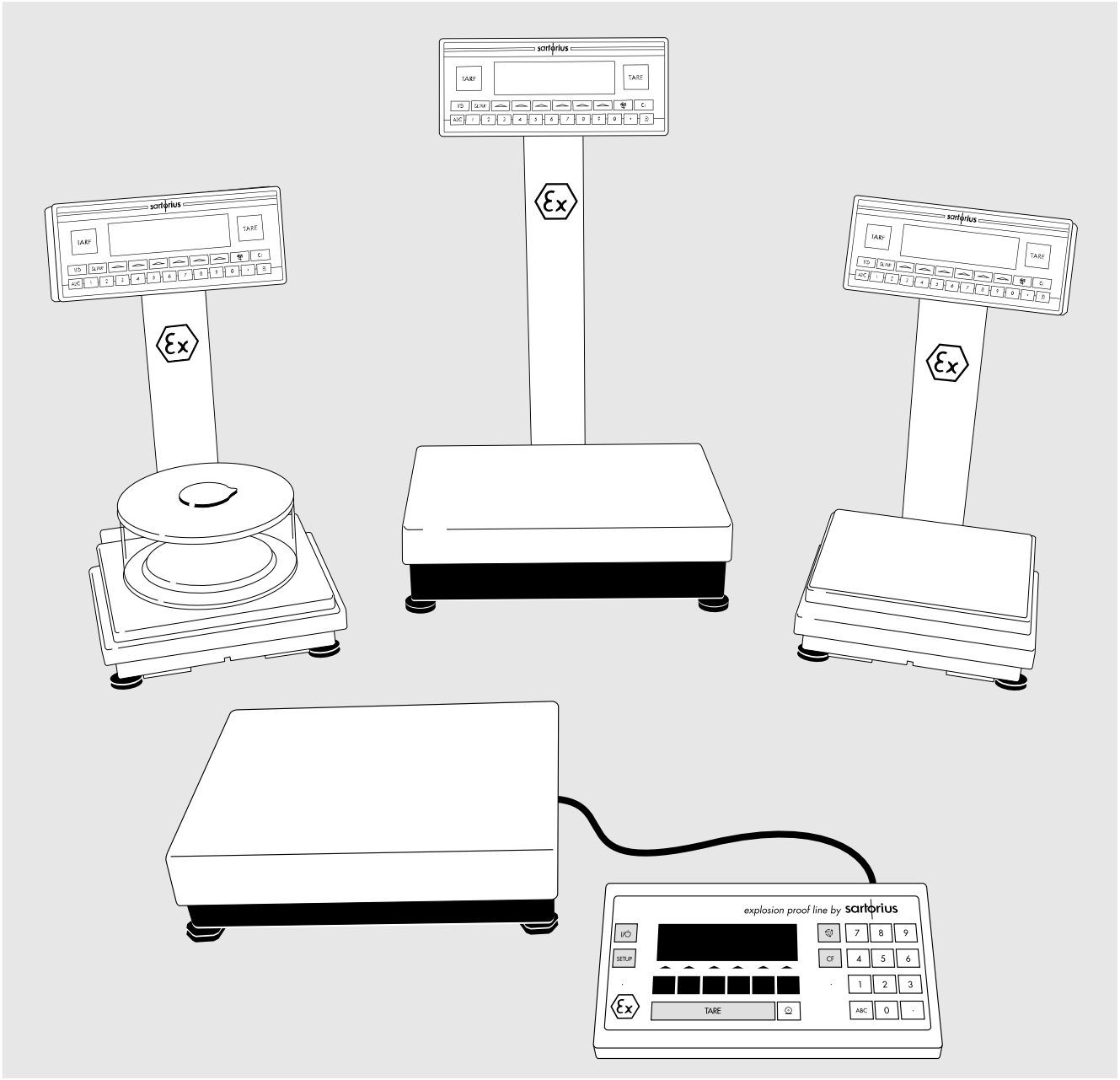
98648-007-35

Sartorius Factory Series

Industrial Weighing Technology

FC and FCA Models
Electronic Precision Scales
for Hazardous Areas/Locations
Operating Instructions



sartorius

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- Entering the General Password

Symbols

The following symbols are used in these instructions:

- ● indicates steps you must perform
- ○ indicates steps required only under certain conditions
- > describes what happens after you have performed a certain step
- – indicates an item in a list
- ⚠ indicates a hazard

Important Note to Users ⚠

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

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

Telephone: +49 (0) 551 308-3818
Telefax: +49 (0) 551 308-3791

Operating Design

The scales in the Factory Series consist of a weighing cell and a display and control unit. Besides an AC adapter, your scale also has an interface port for connecting a printer, computer, universal remote control switch, etc.

The display and control unit and the weighing cell can be set up separately.

Where not expressly indicated otherwise, the uses described in this manual apply to verified and verifiable scale versions* (indicated by the suffix "…CE" in the model number), as well as the standard version.

Combining Applications

You can combine the use of various application programs to meet your more complicated requirements.

Press the [D] key to select the desired application programs.

Keys

You can operate the scale either using the keys on the terminal or from a connected PC. This manual describes operation using the keys on the terminal.

Labeled Keys

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

* For the use in legal metrology in the EU and European Economic Area

Meaning

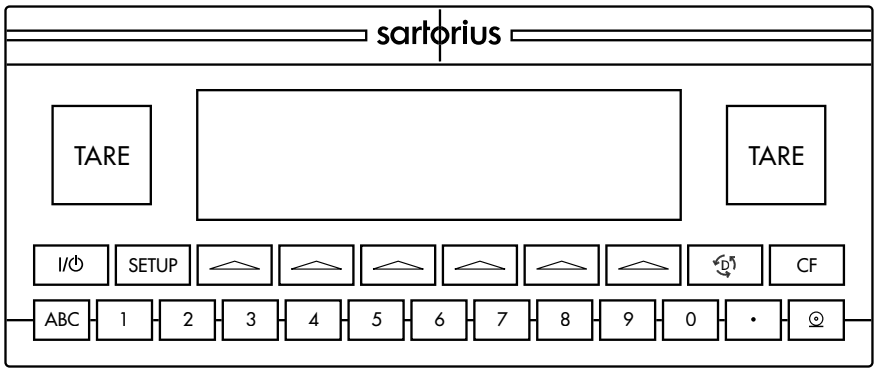
[ABC] Alphabetic keys
Please see section on "Text Input"

[I/⏻] On/off/standby key
Turns the scale on and off or switches it to the standby mode

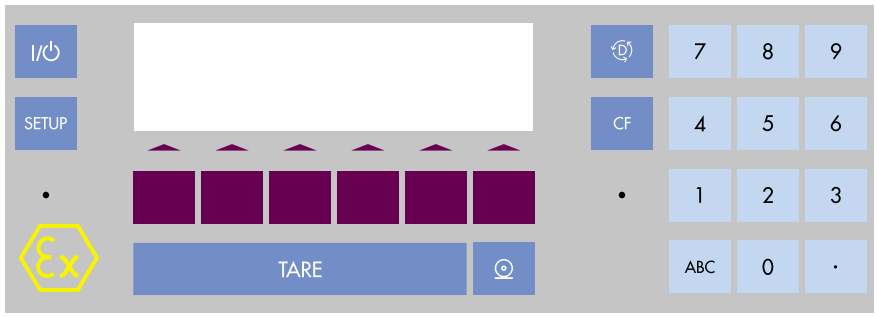
[SETUP] Menu settings
Accesses and exits the Setup

[D] Toggles to the next application program

FC Models:



FCA Models:



[CF] Clear Function
Deletes keypad input
Interrupts a calibration and adjustment routine in progress
Quits application programs

[⏻] Print key
Outputs displayed values or data logs to the interface port

[·] Enters a decimal point

[1] … [9] [0] keys
See the section on "Numeric Input"

[TARE] Tares the scale

Numeric Input

To enter numbers: press [1] … [9] [0] [·]

To store numbers entered: press the corresponding function key directly below the soft key label

To delete an entire numeric input digit by digit: press the [CF] key

Text Input

- To enter numbers: see the section on "Numeric Input"
- To enter letters or characters: press the [ABC] key

> Letters are displayed in the bottom line for selection

- To select a different letter: press the corresponding soft key to change the letter shown
- To select the letter/character shown: press the corresponding function key below the soft key label

> The selected letter is shown on the display

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

○ To exit the letter input mode e.g., if the last character entered is a letter): press the [ABC] key

- To store a word: press the corresponding function key (soft key), such as I D
- To delete an input character by character: press the [CF] key
- To delete user data: enter [·] or a space "■" and save

Keys

Your Factory scale is operated either through the keys on the display and control unit or via a connected PC. Operation through the scale keys is described in the following.

Function Keys (Soft Keys)

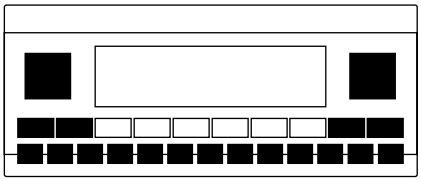
The current function of a soft key is indicated in the bottom line of the display. (In the example shown below,

`<<`: Exit the setup menu
`Config`: Printout
`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.



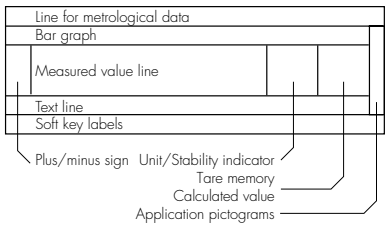
Display

There are two fundamentally different types of display:

– display of measured and calculated values
– display for menu parameter settings (setup)

Display of Measured and Calculated Values

This display is divided into nine sections.



Line for Metrological Data:

If the scale is verified for use in legal metrology, the following metrological specifications are shown here:

`Max` Maximum capacity of the scale

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

`e` Verification scale interval of the scale

`d` Readability: indicates the scale interval of the scale

`R1` Displayed when e = d

thru*

`R4` e = d

On standard scales, only `Max` and `d` are shown.

Bar Graph:

The bar graph indicates how much of the scale's capacity is "used up" by the current load; during check-weighing, t indicates the control limits.

The following symbols may be displayed here:

`0%` Lower load limit

`100%` Upper load limit

Bar graph showing 10% intervals

– Minimum for checkweighing

= Target for checkweighing

+ Maximum for checkweighing

Plus/Minus Sign, Stability Symbol:

A plus or minus sign (**+** or **–**) is shown here for a weight value (e.g., a calculated value when weighing in percent) or the **0** symbol, indicating that the verified or verifiable scale has been zeroed or tared.

Measured Value Line:

This section shows the weighed or calculated value or alphanumeric input.
Note Concerning Verified Scales Approved for Use as Legal Measuring Instruments in the EU**:

For verified scales that have a verification scale interval `e` not equal to the scale interval `d`, the last digit on the display is bordered.

Unit and Stability:
When the scale reaches stability, the weight unit or calculation unit is displayed here.

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

* thru = throug

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

Tare Memory, Calculated Values:

The symbols displayed here indicate when there is a value in one of the tare memory modules or when the value shown is a result of calculation rather than direct measurement.

These symbols are as follows:

⚠ Calculated value

NET 1 Tare memory used by an
NET 2 application program (e.g., formulation, second tare)

Application Pictograms:

The pictograms displayed here indicate the application(s) selected. The pictogram is displayed inversely when the corresponding application is active.

For example, the following symbols may be displayed simultaneously:

The counting application is active

Checkweighing is also active

Print

Data record

Text Line:

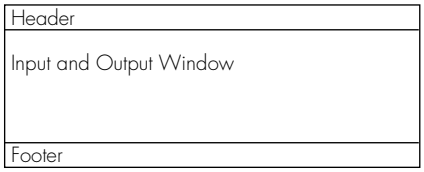
Additional information is displayed here (e.g., operator guidance prompts, name of the active program, etc.).

Soft Key Labels:

The current functions of the soft keys are indicated here; during calibration/adjustment, this line shows up- and down-arrows (^ and v) for selecting calibration and adjustment functions.

Display for Menu Parameter Settings (Setup)

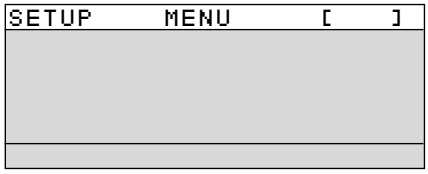
This display is divided into three sections.



Header

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

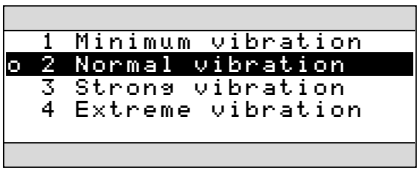
Example in the path "Setup/Menu":



Input and Output Window

This window contains either detailed information (e.g., on the active application) or a pick list. A selected item is displayed inversely. You can also enter information in an active field in this window using the alphanumeric keys.

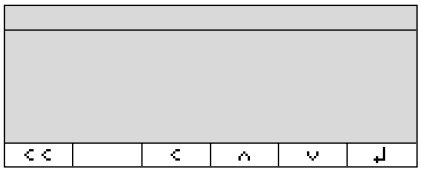
Example in the path "Setup/Menu":



The **o** symbol in this window indicates the current 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 selection level

> Show sub-items under the active item

^ Move upward in the input/output window

v Move downward in the input/output window

↵ Set the selected menu parameter

Input

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

(see also the example given on page 63)

- 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.

- To store a word: press the corresponding soft key (e.g., **S ID**)
- To delete a word: press [CF]

Parameter Settings

The parameters for configuration are in the application menu and the 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 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/⏻

Data Output

Your Factory scale is equipped with an interface port for connecting your choice of the following:

– Printer*

– Peripheral device (e.g., computer)*

– Universal remote control switch

* using a zener barrier (see also page 169)

Printer

You can configure the print functions to meet your individual requirements by selecting the corresponding menu code.

You can have printouts generated automatically, or by pressing ⎙; dependent on or independent of the stability or time parameters; with or without IDs; and as standard or ISO/GMP-compliant printouts.

ISO: International Organization for Standardization

GMP: Good Manufacturing Practice

See the section on "Data Output Functions" in the chapter entitled "Operating the Scale" for a detailed description of data output options.

Interface Port

Instead of a printer, you may choose to connect a different peripheral device, e.g. a computer (PC). With an on-line PC you can control both the weighing cell and the display unit of the Factory scale.

Request messages are sent via the interface to initiate functions in the weighing cell and in the display unit. Some of the functions generate response messages.

See the chapter entitled "Operating the Scale" under the section on "Data Output" for a detailed description of the interface port.

Error Codes

If you press a key that has no function, or which is blocked at a certain point in an application program, this error is indicated as follows:

– a double-beep is sounded as an acoustic signal if the key has no function

– a double-beep is sounded and a message is displayed for 2 seconds in the text line if the key function is not available at that time

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

Storing Settings

Storing Parameter Settings

The settings configured are stored in the scale's non-volatile memory. Additionally, the factory settings can be reloaded.

Saving Parameter Settings

You can assign passwords in order to block access to:

– printing function Config

– the application menu App

– the scale operating menu Menu and

– user data input functions Input

Configuring the Scale: FC Models

Purpose

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

The Setup menu is divided into five submenus: configurations, application menu, scale parameters, scale menu and user data.

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

Configuring the Scale for Use in Legal Metrology

Set the switch as described below to configure the following functions for use of the scale in legal metrology:

– Display: Verification scale interval: `e`; lower limit of the weighing capacity: `Min`

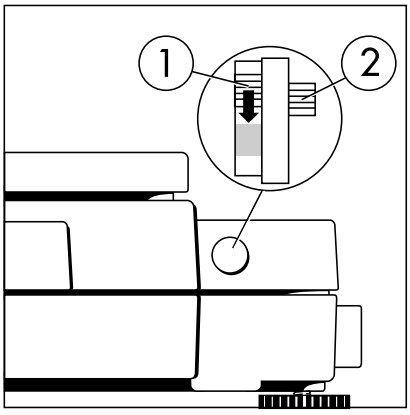
– External calibration blocked

– MP8-interface emulation blocked

● Remove the covering plate from the back of the scale housing

● Move Switch 1 in the direction of the arrow

FC ... BBE/CCE ...:



> Switch up: external calibration blocked (factory setting on verified scales)
Switch down: external calibration accessible

Setting the Language

Features

You can choose from 5 languages for the information display:

1 German

2 English (factory setting)

3 English with U.S. date/ time format

4 French

5 Italian

6 Spanish

Selecting the Language

● Enter the corresponding number

● Press SETUP

● Exit the Setup menu: Press the `<<` soft key

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 scale: ID (scale ID; 20 characters max.)*

– Weighing series number, to designate a series or lot: L ID (lot ID; 20 characters max.)*

– Weight set number for calibration/adjustment: W ID (weight ID; 14 characters max.)*

To delete user data: Enter a [·] (decimal point) or a space and confirm

To delete the last character entered: Press CF (see the section on "Basic Settings" in the chapter entitled "Operating the Scale")

– 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 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 Input, Application and Scale Menu functions (8 characters max.)*

– ID name (20 characters max.): the factory settings for these names are ID1, ID2, ID3 and ID4* The ID name(s) is(are) left-justified.

– Three calibration/adjustment times (hh.mm; hh can be entered without a preceding zero) Calibration/adjustment is repeated every day at the selected time settings (up to 3 maximum: for example, at 7:30, 12:00, 18:15)

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

To delete user data: Enter a [·] (decimal point) or a space and confirm

To delete the last character entered: Press CF (see the section on "Basic Settings" in the chapter entitled "Operating the Scale")

Factory Settings

Password: No designation

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

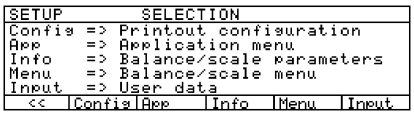
If you assign a password and then forget what the word is, you can use the General Password (see Appendix) to access these menus.

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:

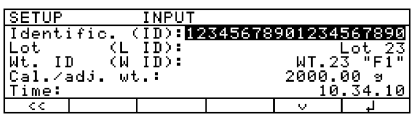
> The password prompt is displayed

○ 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

- Press ↵ to confirm the password

> User data is displayed:



Enter/Change Password

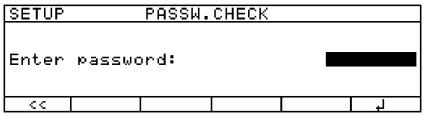
- Select the Setup program: Press SETUP

> **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 ↵ to confirm the password

> User data is displayed:

- 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 ↵ to confirm the password

> User data is displayed:

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

> **Password:** and any existing user 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

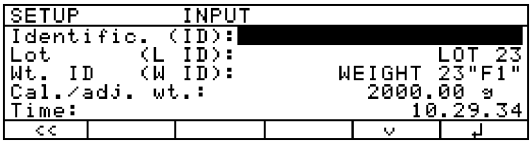
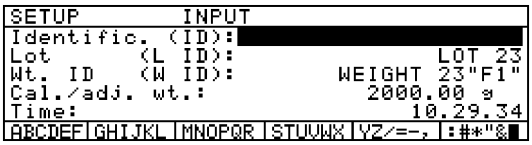
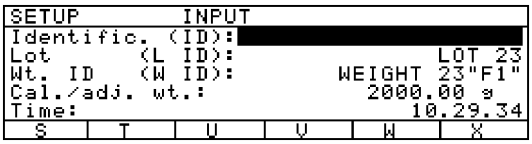
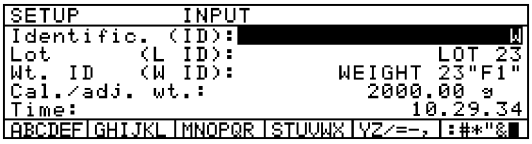
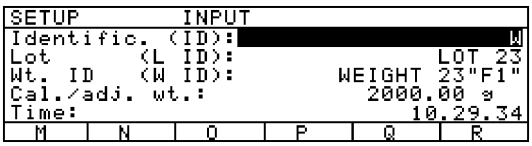
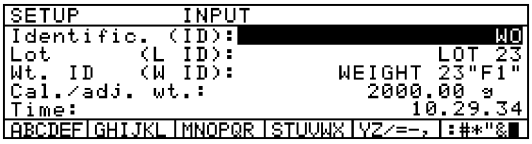
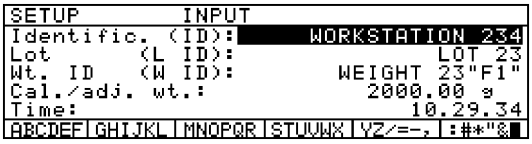
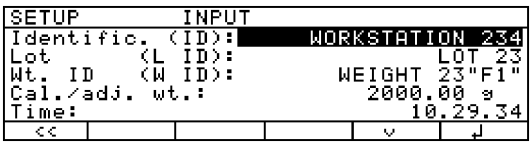
- To confirm: press the ↵ soft key

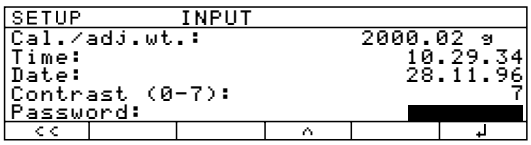
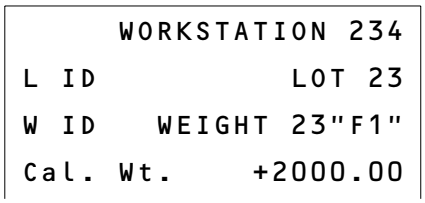
- Exit the Setup menu: Press the **<<** soft key

> Restart the application

Practical Example 1:

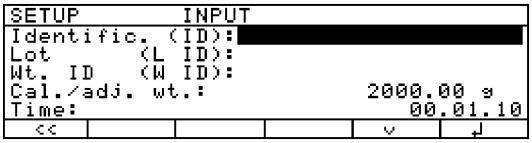
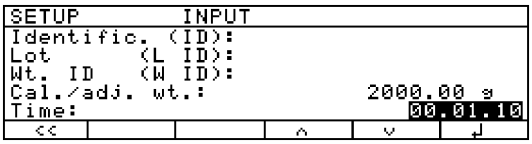
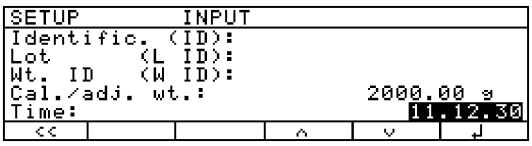
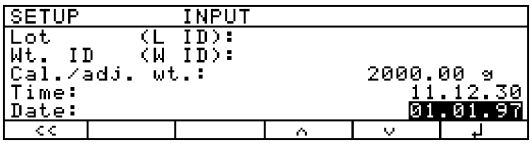
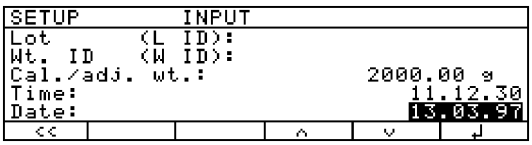
Enter "Workstation 234" as the scale ID; display and print other user data

Step	Key (or instruction)	Display/Output
1. Select Setup: Input Display workstation ID (in this example: no ID assigned)	Press SETUP, then the **Input** soft key	
2. Before entering letters: Then enter first letter of the workstation ID	Press ABC	
3. Select the letters group	Press the **STUVWX** soft key	
4. Select the letter "W"	Press the **W** soft key	
5. Enter the next letters of the workstation ID	Press the **ABCDEF** soft key	
6. Select the letter "A"	Press the **A** soft key	
7. Repeat steps 5 and 6 to enter the required letters	Soft key …	
8. Enter the numbers 234 If the last character entered is a letter: Conclude input of letters	2 3 4 ABC	
9. Store workstation ID	Press the ↵ soft key	

Step	Key (or instruction)	Display/Output
10. Display other user data – Lot number – Weight set ID – Calibration weight – Time – Date – Display contrast – Password – ID name – Three calibration/adjustment times	Press the ˅ soft key repeatedly	
11. Print user data (example)	⊙	
12. Exit Setup:Input	<< soft key	

Practical Example 2:

Setting the date and time

Step	Key (or instruction)	Display/Output
1. Select Setup:Input Display workstation ID	Press SETUP, then the Input soft key	
2. Select the time	Press the ∨ soft key	
3. Enter the time	1 1 · 1 2 · 3 0	
4. Set the selected time and restart the clock	Press the ↵ soft key	
5. Select the date	Press the ∨ soft key	
6. Enter the date	1 3 · 0 3 · 9 7	
7. Store the date	Press the ↵ soft key	
8. Display other user data – Lot number – Weight set ID – Calibration weight – Time – Date – Display contrast – Password – ID name – Three calibration/adjustment times	Press the ∨ or ∧ soft key	
9. Exit Setup:Input	<< soft key	

Application Menu Settings (App)

Purpose

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

Features

The simple weighing function is available at all times. You can select an application from each of the following groups. This means a number of combinations are possible.

Application 1

– Toggle between 2 weight units
– Counting
– Weighing in percent
– Animal weighing
– Recalculation
– Calculation
– Density determination
– Differential weighing

Application 2

– Checkweighing
– Time-controlled functions

Application 3

– Totalizing
– Formulation
– Statistics

In addition, you can assign 2 extra functions to each of the soft keys, in some cases (depends on the Setup configuration):

– 2nd tare memory
– Identification code
– Manual totalizing
– Product data memory

Factory Settings

The factory-set configurations are marked with an "o" in the list starting on page 15.

Preparation

● Select the Setup program: Press SETUP

> SETUP SELECTION is displayed

● Select the application menu: Press the App soft key

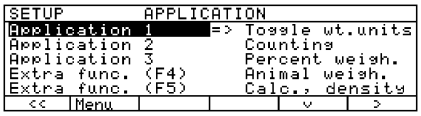
If a password has been assigned:

> The password prompt is displayed

● Enter the password using the numeric or alphabetic keys

● Confirm the password entered: Press the ↵ soft key

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



○ Select the next group: Press the v soft key (down arrow)

○ 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 (right arrow)

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

○ Confirm the selected menu item: Press the ↵ soft key

○ Move the highlight bar to the first menu item on the list: Press CF

○ Toggle to the Setup:Scale menu (see also page 24): Press the Menu soft key

Additional Functions

● Save settings and exit the application menu: Press SETUP

> Restart the application

● Print parameter settings:

– When the application menu is displayed: Press ⊙

> Printout (Example)

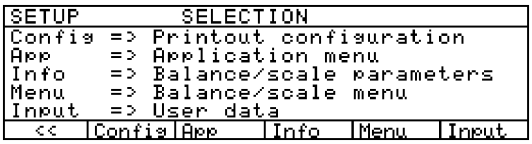
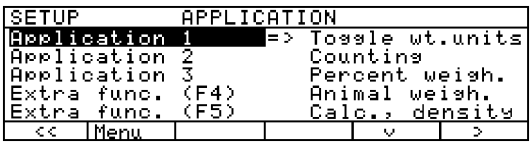
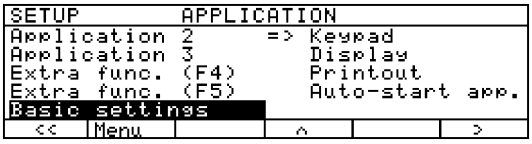
```
Application 1
--------------------
COUNTING
 Accuracy
  Display accuracy
 Average pieceweigh
  Automatic

Application 2
--------------------
Checkweighing
 Activation of port
  Within checkweighi
 Type of checkweighi
  Target, minimum, m
 Weight display mode
  Absolute value
 Automatic printout
  Off

Application 3
--------------------
Totalizing
```

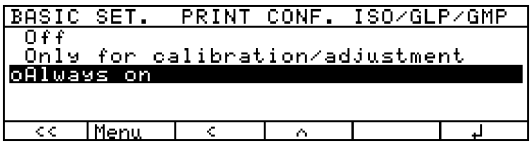
etc.

● To reset parameters to the factory settings: see the following chapter, entitled "Scale Operating Menu," and set menu code 9 1 1

Practical Example

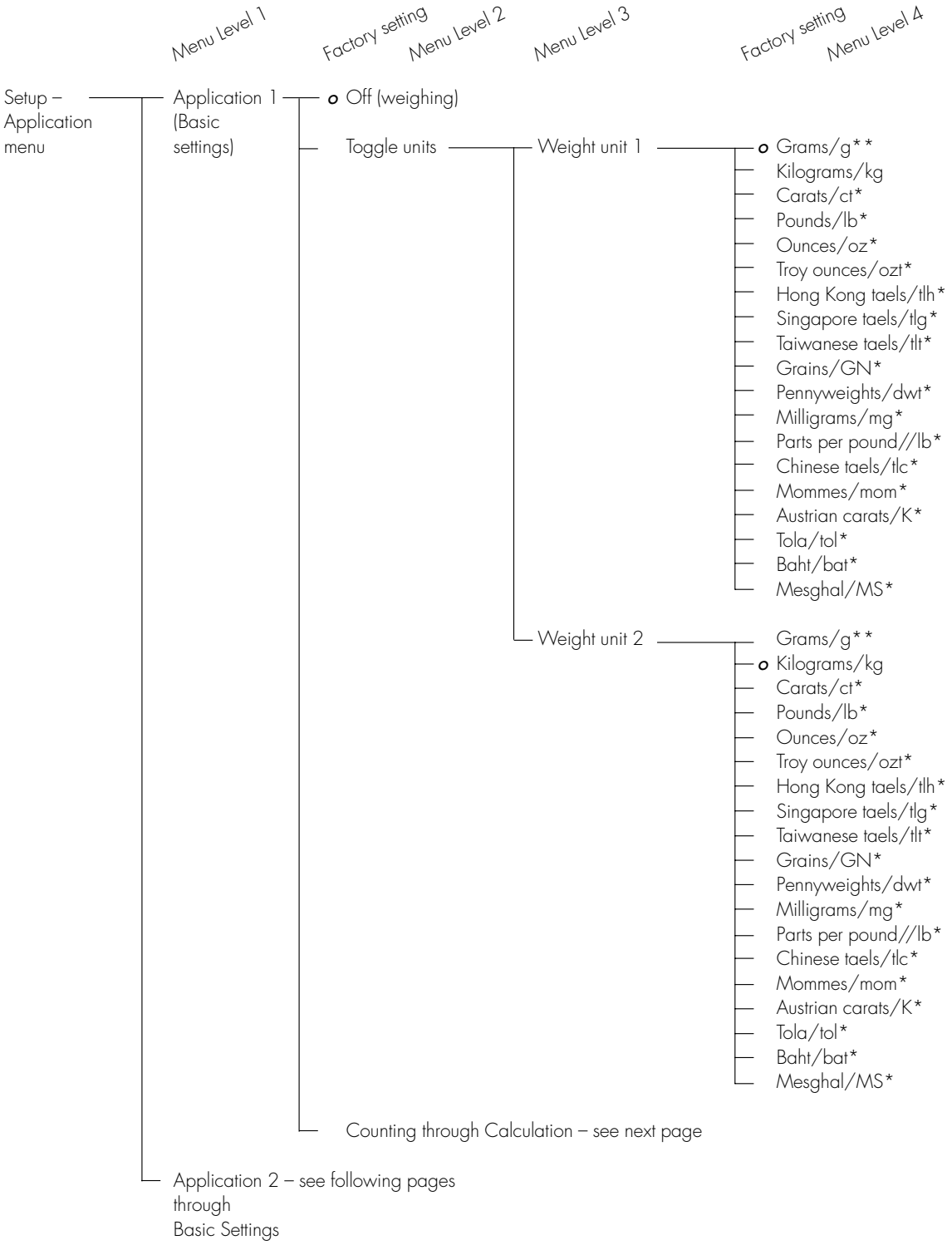
Make every printout an ISO/GMP-compliant printout

Step	Key (or instruction)	Display/Output
1. Select Setup	SETUP	
2. Select the application menu	Press the App soft key	
3. Menu level 1: Select Basic Settings	Press the v soft key repeatedly	
4. Confirm selection	Press the > soft key	
5. Menu level 2: Select Printout Configuration	Press the v soft key twice	
6. Confirm selection and go to menu level 3	Press the > soft key	
7. Menu level 3: Select "ISO/GMP Printout"	Press the v soft key twice	
8. Confirm selection and go to menu level 4	Press the > soft key	

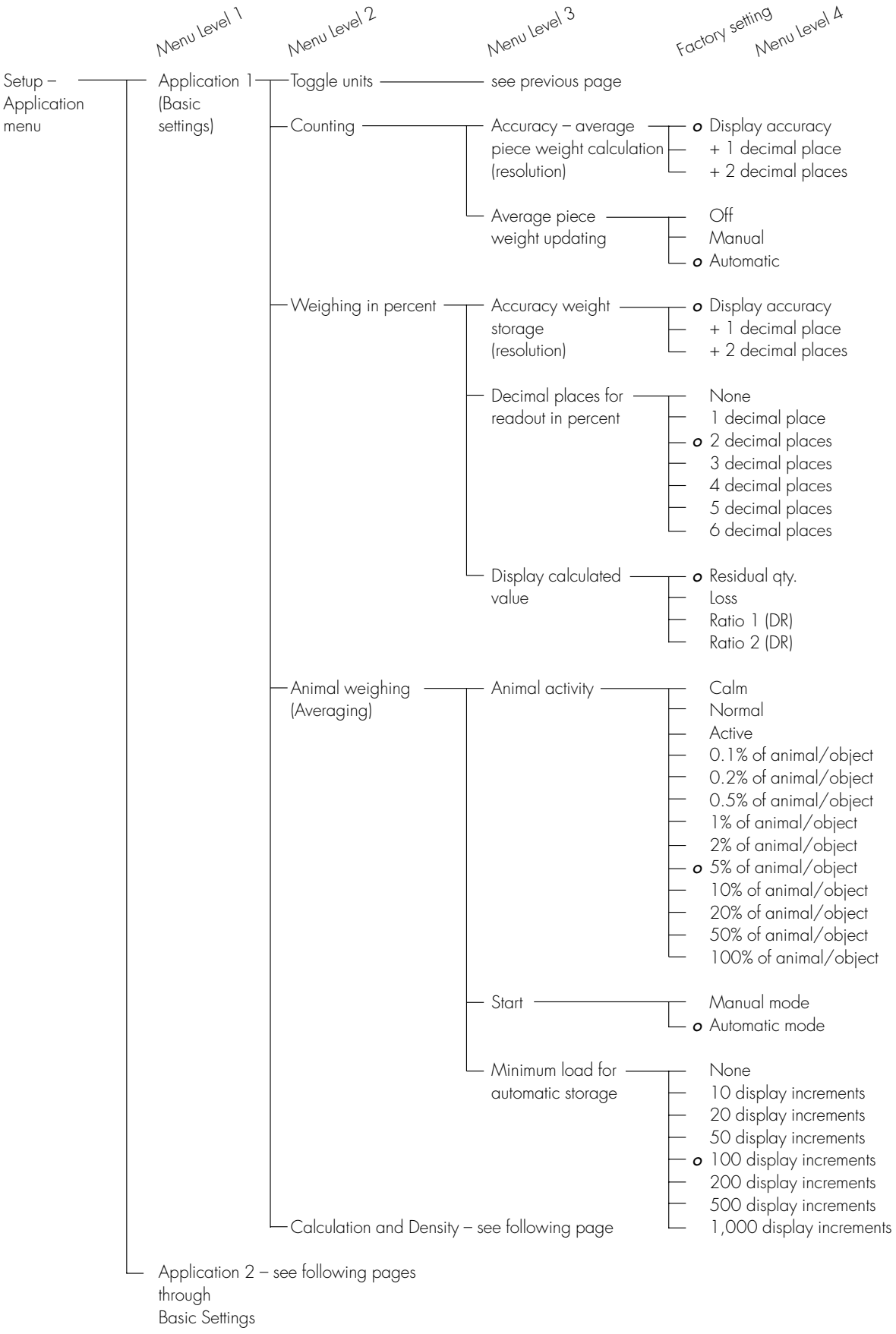
Step	Key (or instruction)	Display/Output
9. Menu level 4: Select "Always on"	Press the ˅ soft key twice	
10. Confirm selection	Press the ↵ soft key	
11. Set other menu codes, if desired	< ˅ ^ > soft keys	
12. Confirm setting and exit Setup menu	<< soft key	

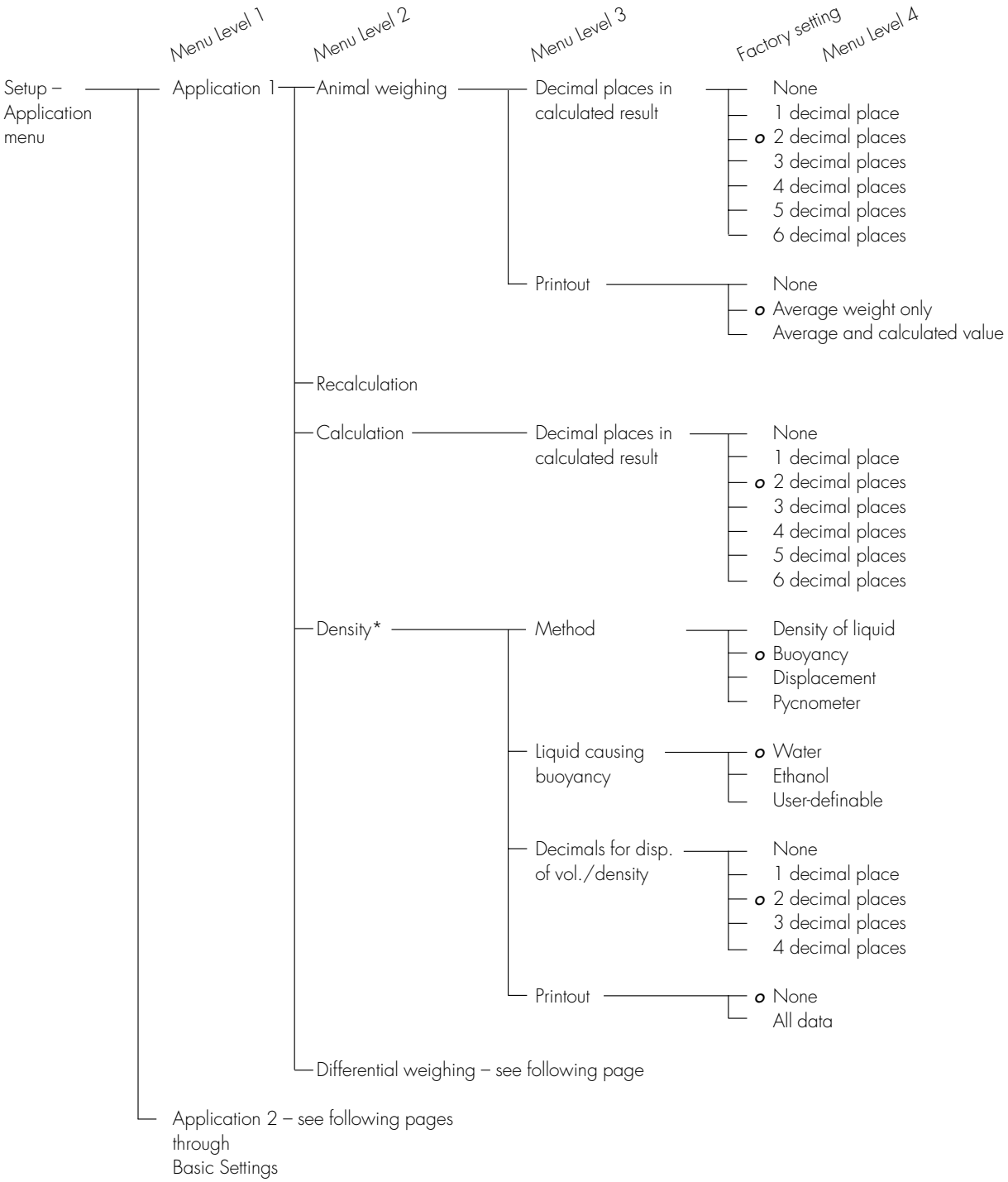
Setup Parameters "Application Menu" (Overview)

o Factory setting
√ User-defined setting

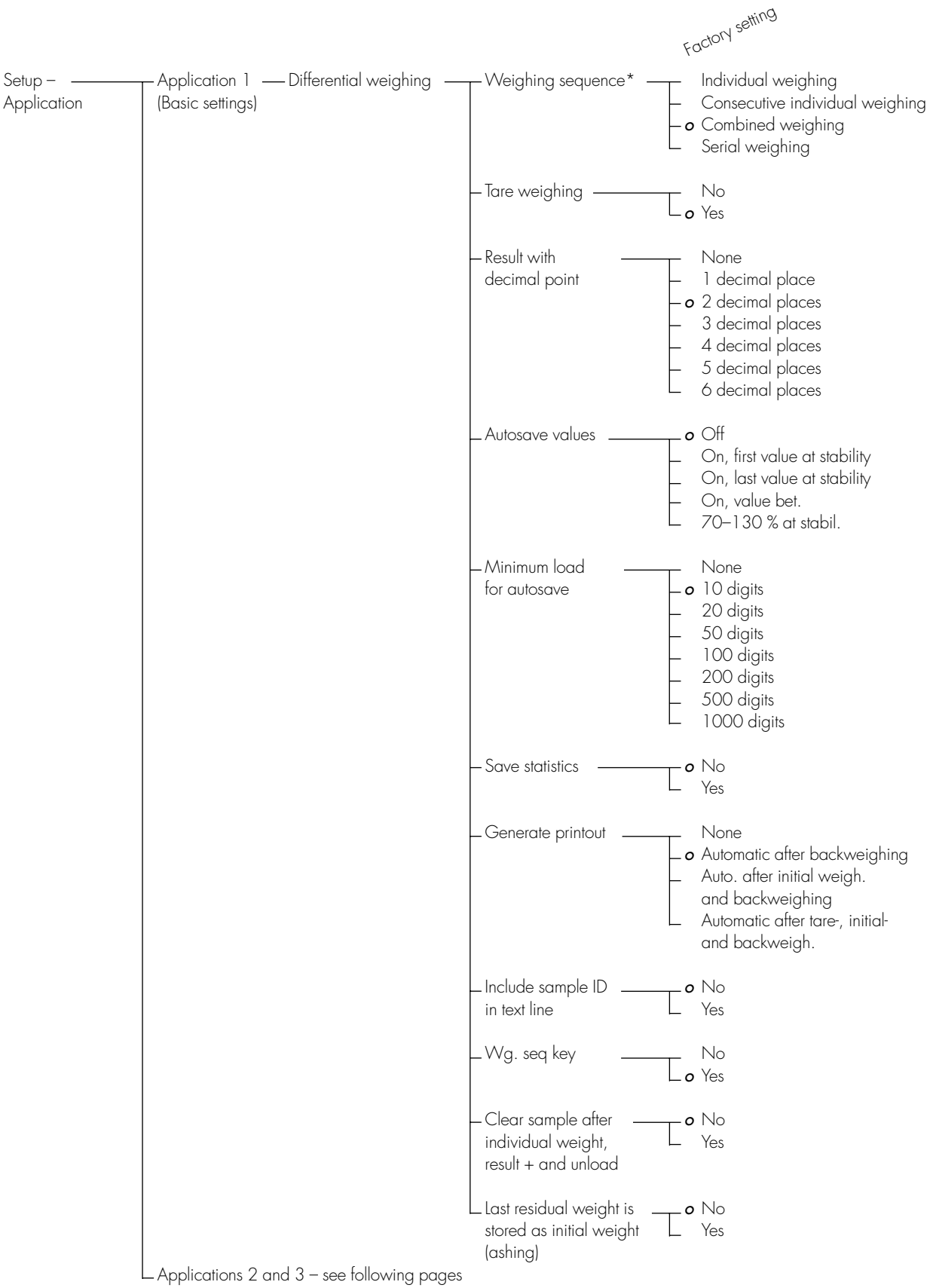


* = not applicable to verified scales used in legal metrology in the European Economic Area
** = not on model FC64EDE-SXCE

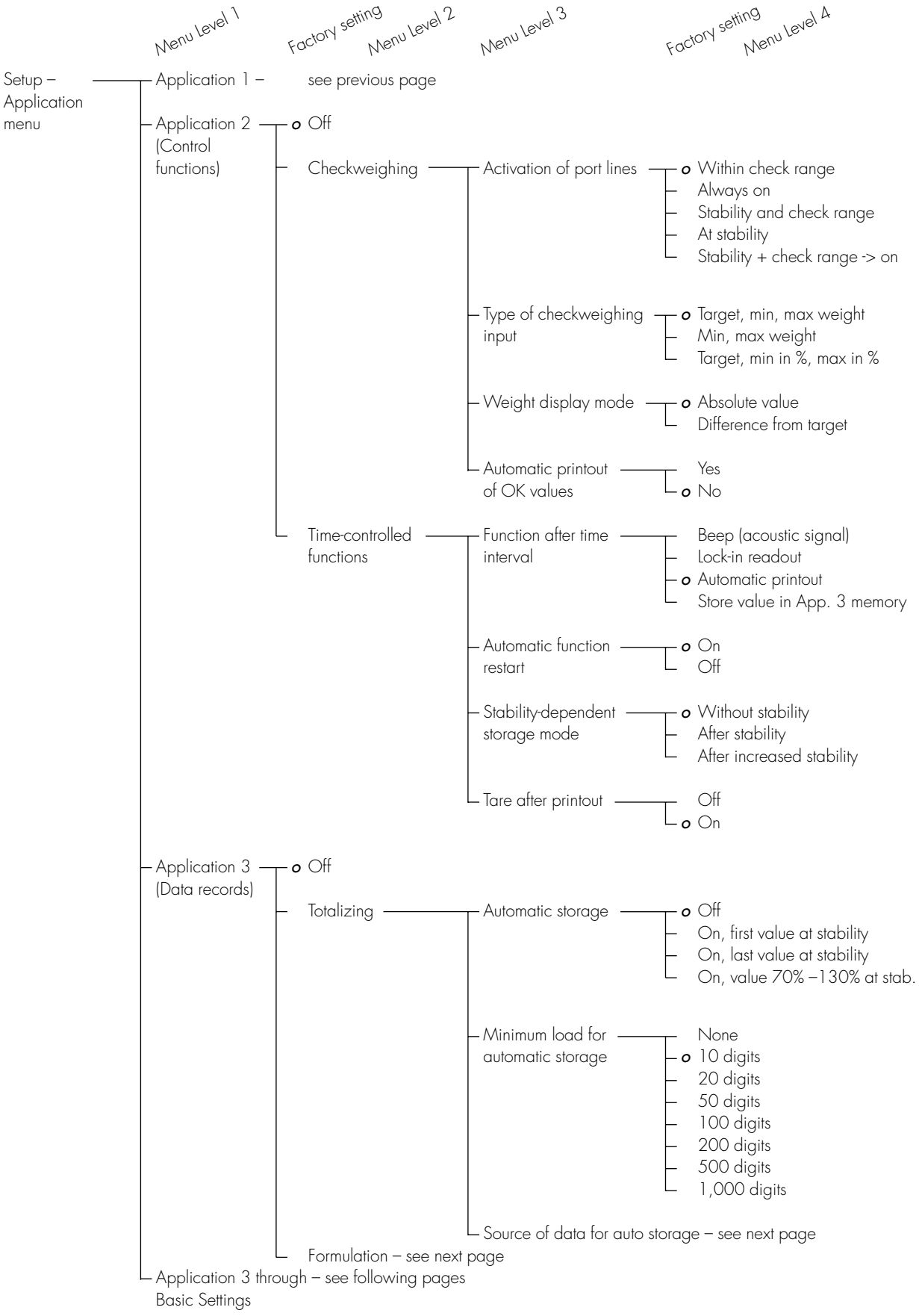

Menu Level 1
Menu Level 2
Menu Level 3
Factory setting
Menu Level 4
Setup – Application menu
Application 1 (Basic settings)
Toggle units
see previous page
Counting
Accuracy – average piece weight calculation (resolution)
o Display accuracy
+ 1 decimal place
+ 2 decimal places
Average piece weight updating
Off
Manual
o Automatic
Weighing in percent
Accuracy weight storage (resolution)
o Display accuracy
+ 1 decimal place
+ 2 decimal places
Decimal places for readout in percent
None
1 decimal place
o 2 decimal places
3 decimal places
4 decimal places
5 decimal places
6 decimal places
Display calculated value
o Residual qty.
Loss
Ratio 1 (DR)
Ratio 2 (DR)
Animal weighing (Averaging)
Animal activity
Calm
Normal
Active
0.1% of animal/object
0.2% of animal/object
0.5% of animal/object
1% of animal/object
2% of animal/object
o 5% of animal/object
10% of animal/object
20% of animal/object
50% of animal/object
100% of animal/object
Start
Manual mode
o Automatic mode
Minimum load for automatic storage
None
10 display increments
20 display increments
50 display increments
o 100 display increments
200 display increments
500 display increments
1,000 display increments
Calculation and Density – see following page
Application 2 – see following pages through Basic Settings

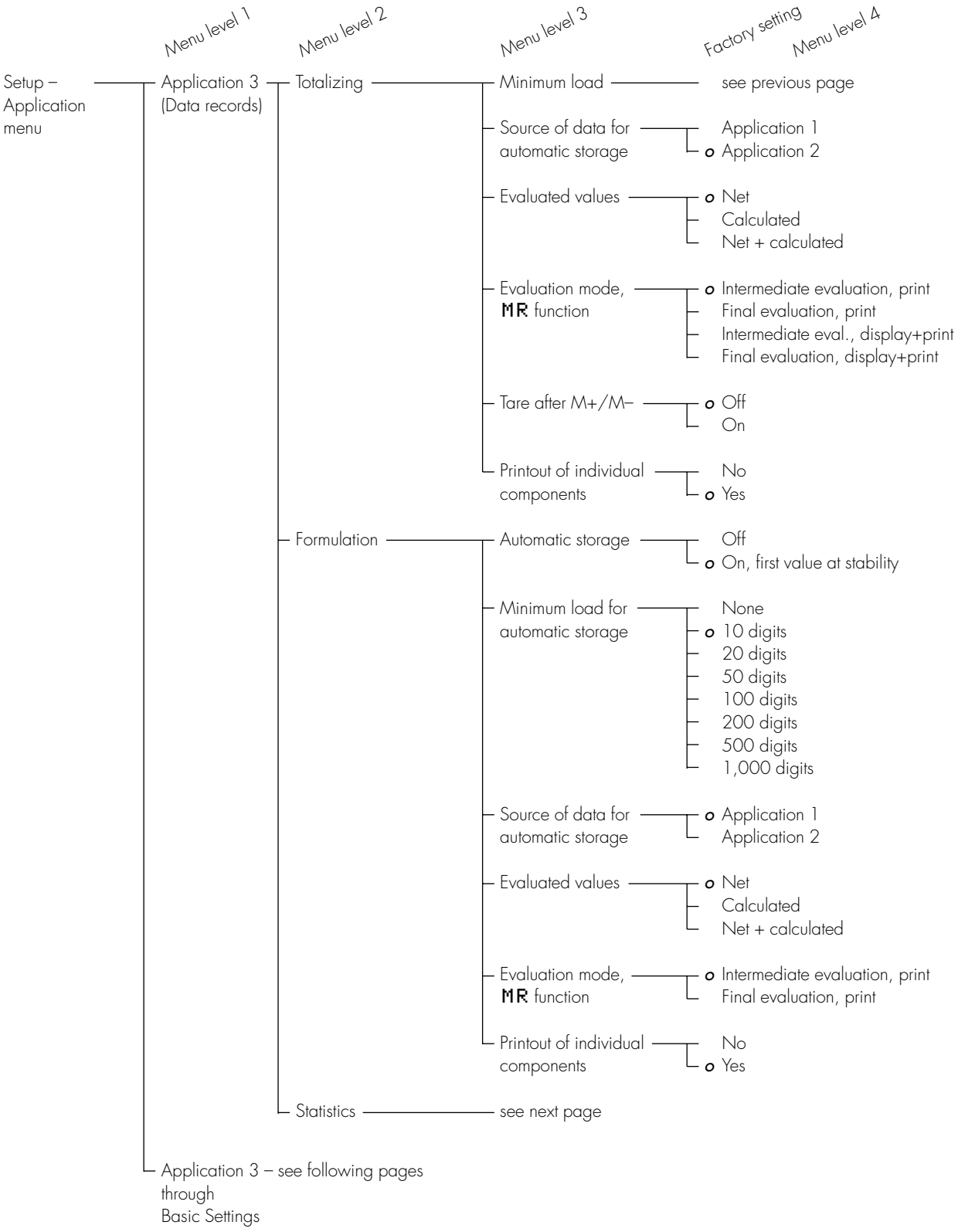


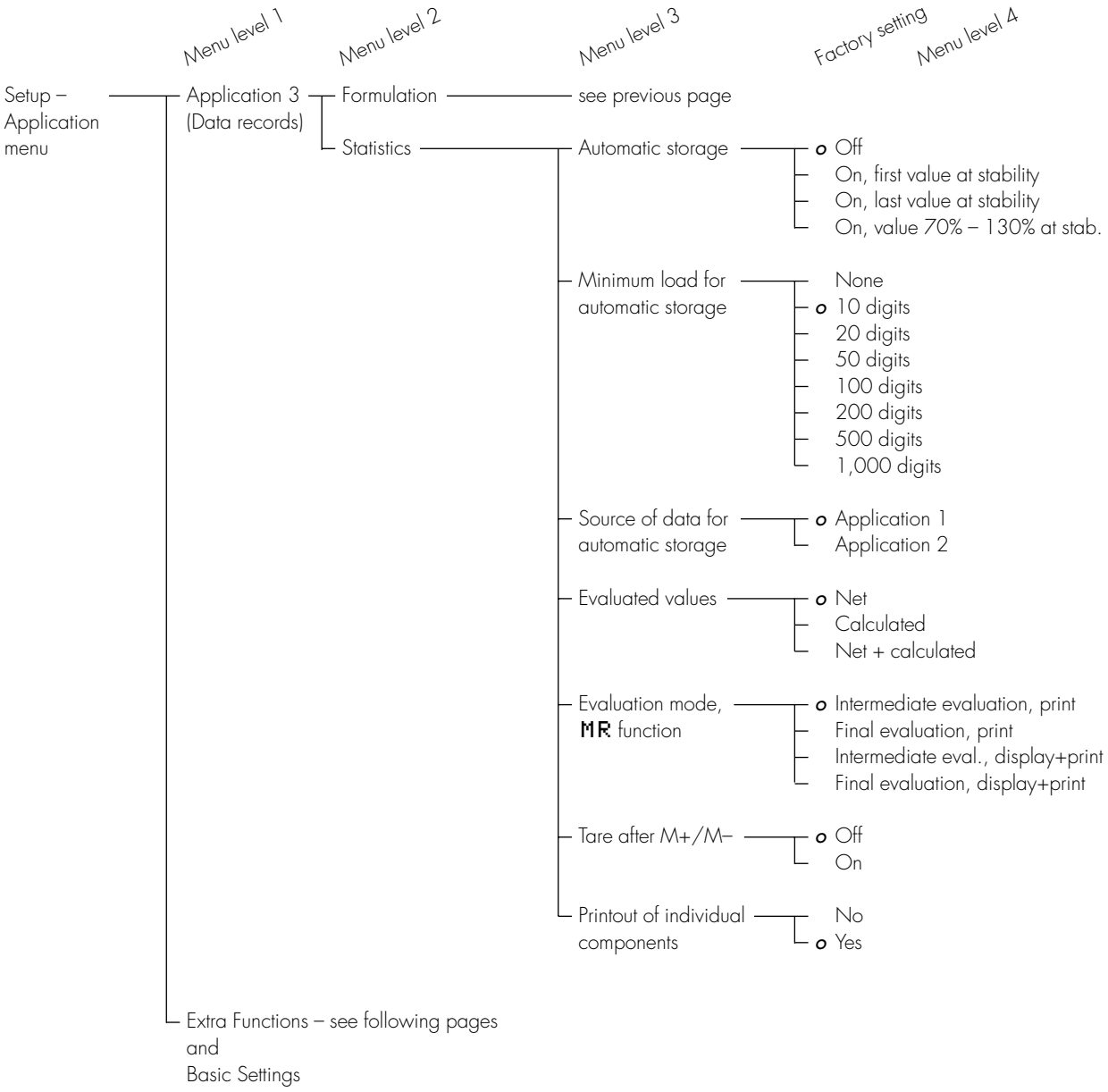
* = Instructions on density determination are available on the Internet, under http://www.sartorius.com/cgi-bin/wt/pdfdown.pl?todo=Gruppenauswahl&art=&menu=en&sprache =english in the PDF file on "Master^{pro} LA", or contact Sartorius.

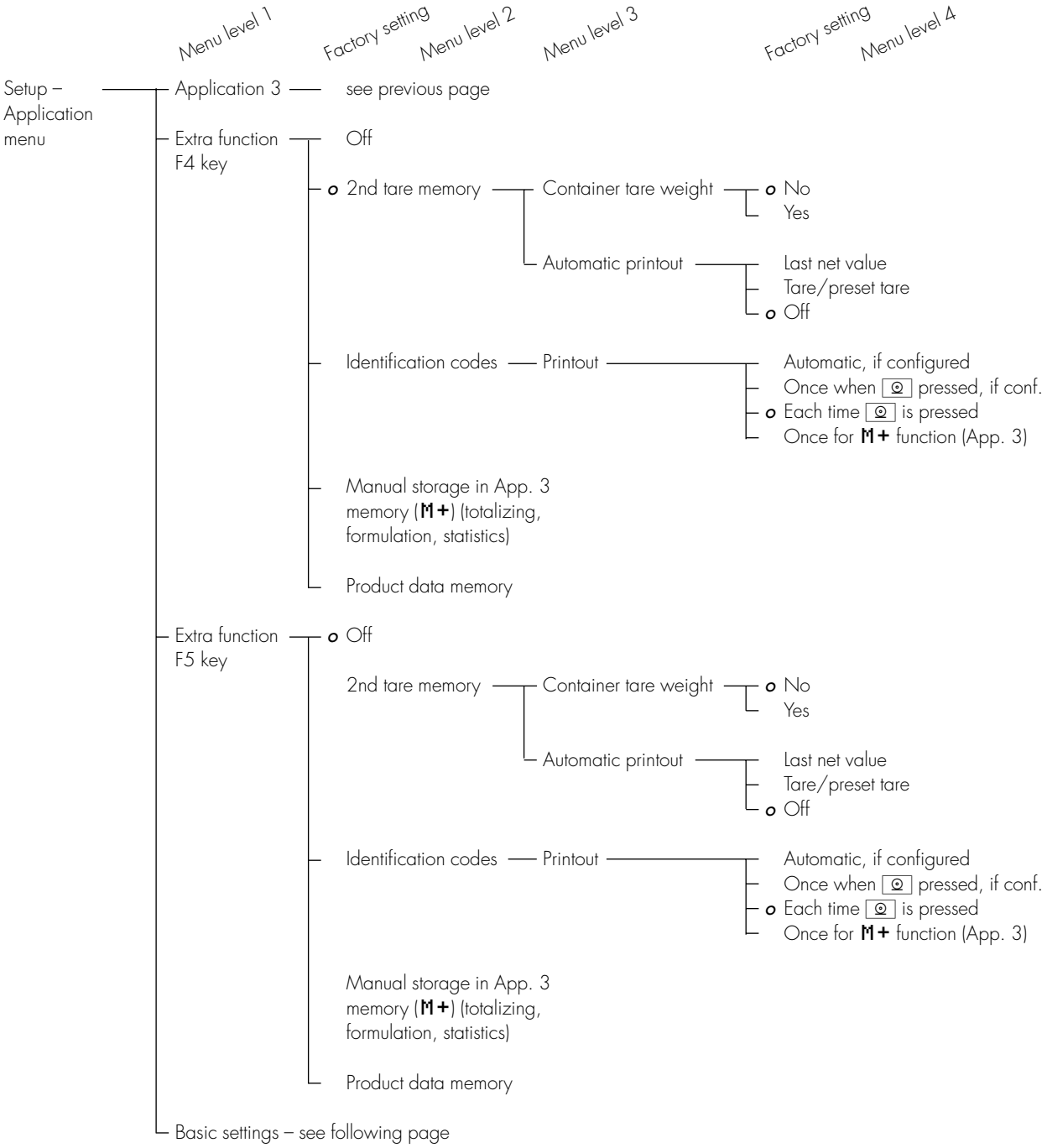


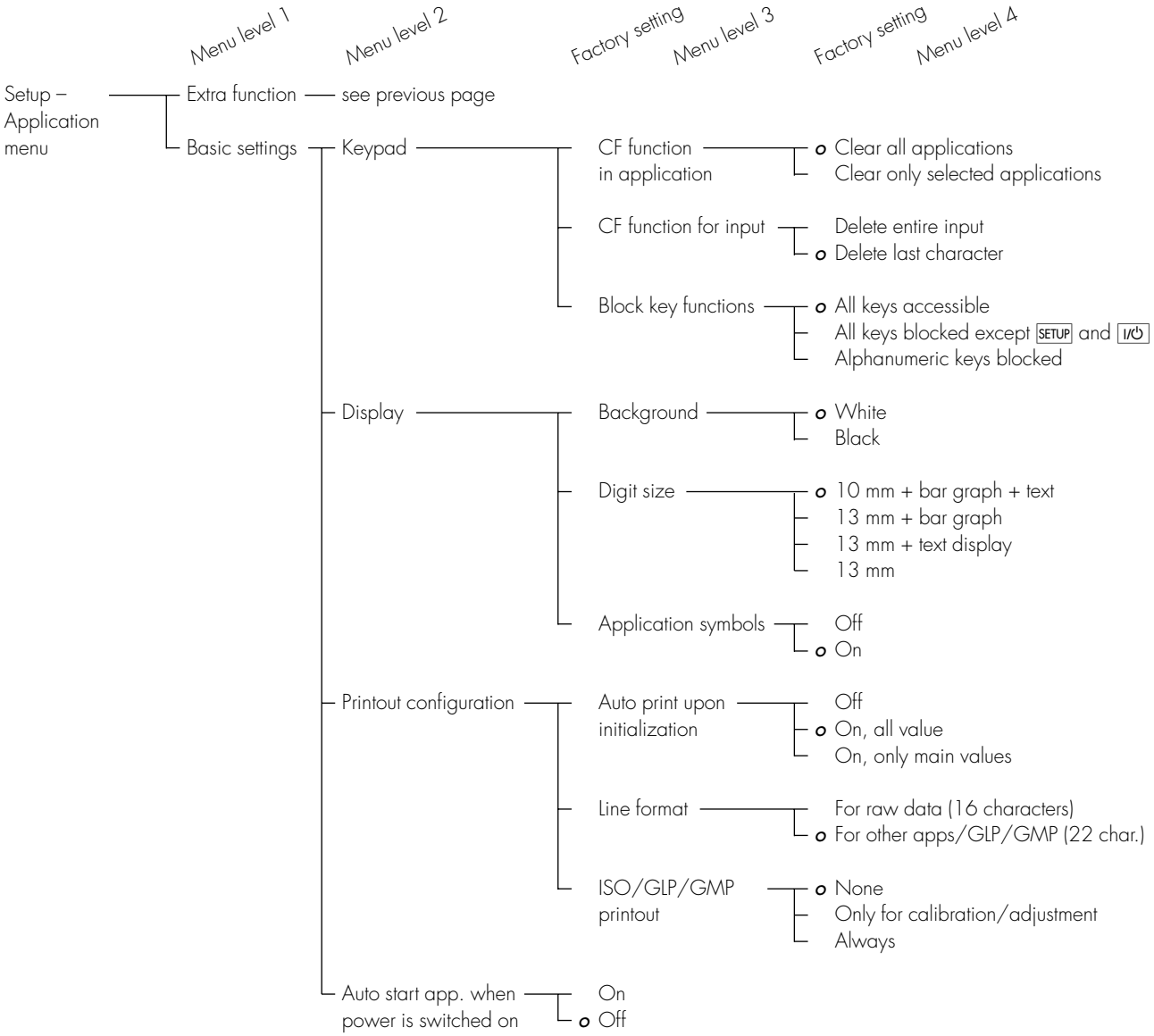
* = Setting can only be changed when the program is initially run and when the **Wg.seq.** key option is set to "No"


Menu Level 1
Factory setting
Menu Level 2
Menu Level 3
Factory setting
Menu Level 4
Setup – Application menu
Application 1 –
see previous page
Application 2 (Control functions)
o Off
Checkweighing
Activation of port lines
o Within check range
Always on
Stability and check range
At stability
Stability + check range -> on
Type of checkweighing input
o Target, min, max weight
Min, max weight
Target, min in %, max in %
Weight display mode
o Absolute value
Difference from target
Automatic printout of OK values
Yes
o No
Time-controlled functions
Function after time interval
Beep (acoustic signal)
Lock-in readout
o Automatic printout
Store value in App. 3 memory
Automatic function restart
o On
Off
Stability-dependent storage mode
o Without stability
After stability
After increased stability
Tare after printout
Off
o On
Application 3 (Data records)
o Off
Totalizing
Automatic storage
o Off
On, first value at stability
On, last value at stability
On, value 70% –130% at stab.
Minimum load for automatic storage
None
o 10 digits
20 digits
50 digits
100 digits
200 digits
500 digits
1,000 digits
Source of data for auto storage – see next page
Formulation – see next page
Application 3 through – see following pages
Basic Settings


Menu level 1
Menu level 2
Menu level 3
Factory setting
Menu level 4
Setup – Application menu
Application 3 (Data records)
Totalizing
Minimum load
see previous page
Source of data for automatic storage
Application 1
o Application 2
Evaluated values
o Net
Calculated
Net + calculated
Evaluation mode, MR function
o Intermediate evaluation, print
Final evaluation, print
Intermediate eval., display+print
Final evaluation, display+print
Tare after M+/M–
o Off
On
Printout of individual components
No
o Yes
Formulation
Automatic storage
Off
o On, first value at stability
Minimum load for automatic storage
None
o 10 digits
20 digits
50 digits
100 digits
200 digits
500 digits
1,000 digits
Source of data for automatic storage
o Application 1
Application 2
Evaluated values
o Net
Calculated
Net + calculated
Evaluation mode, MR function
o Intermediate evaluation, print
Final evaluation, print
Printout of individual components
No
o Yes
Statistics
see next page
Application 3 – see following pages through Basic Settings


Menu level 1
Menu level 2
Menu level 3
Factory setting
Menu level 4
Setup – Application menu
Application 3 (Data records)
Formulation
see previous page
Statistics
Automatic storage
o Off
On, first value at stability
On, last value at stability
On, value 70% – 130% at stab.
Minimum load for automatic storage
None
o 10 digits
20 digits
50 digits
100 digits
200 digits
500 digits
1,000 digits
Source of data for automatic storage
o Application 1
Application 2
Evaluated values
o Net
Calculated
Net + calculated
Evaluation mode, MR function
o Intermediate evaluation, print
Final evaluation, print
Intermediate eval., display+print
Final evaluation, display+print
Tare after M+/M–
o Off
On
Printout of individual components
No
o Yes
Extra Functions – see following pages and Basic Settings


Menu level 1
Factory setting
Menu level 2
Menu level 3
Factory setting
Menu level 4
Setup – Application menu
Application 3
see previous page
Extra function F4 key
Off
o 2nd tare memory
Container tare weight
o No
Yes
Automatic printout
Last net value
Tare/preset tare
o Off
Identification codes
Printout
Automatic, if configured
Once when pressed, if conf.
o Each time is pressed
Once for M+ function (App. 3)
Manual storage in App. 3 memory (M+) (totalizing, formulation, statistics)
Product data memory
Extra function F5 key
o Off
2nd tare memory
Container tare weight
o No
Yes
Automatic printout
Last net value
Tare/preset tare
o Off
Identification codes
Printout
Automatic, if configured
Once when pressed, if conf.
o Each time is pressed
Once for M+ function (App. 3)
Manual storage in App. 3 memory (M+) (totalizing, formulation, statistics)
Product data memory
Basic settings – see following page


Menu level 1
Menu level 2
Factory setting
Menu level 3
Factory setting
Menu level 4
Setup – Application menu
Extra function
see previous page
Basic settings
Keypad
CF function in application
o Clear all applications
Clear only selected applications
CF function for input
Delete entire input
o Delete last character
Block key functions
o All keys accessible
All keys blocked except SETUP and I/⏻
Alphanumeric keys blocked
Display
Background
o White
Black
Digit size
o 10 mm + bar graph + text
13 mm + bar graph
13 mm + text display
13 mm
Application symbols
Off
o On
Printout configuration
Auto print upon initialization
Off
o On, all value
On, only main values
Line format
For raw data (16 characters)
o For other apps/GLP/GMP (22 char.)
ISO/GLP/GMP printout
o None
Only for calibration/adjustment
Always
Auto start app. when power is switched on
On
o Off

Scale Operating Menu (Menu)

Purpose

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

Features

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

1 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 26.

Preparation

● Select the Setup program: Press SETUP

> SETUP SELECTION is displayed

● Select the scale menu: Press the Menu soft key

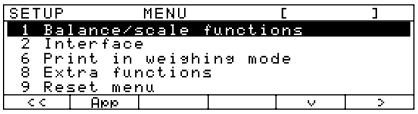
If a password has been assigned:

> The password prompt is displayed

● Enter the password

● Confirm the password entered: Press the ↵ soft key

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



○ Select the next 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)

○ Confirm the selected menu item: Press the ↵ soft key

○ Toggle to the Setup:Application menu (see also page 12): Press the App soft key

Additional Functions

● Save settings and exit the scale operating menu: Press SETUP

> Restart the application

● Print parameter settings:

– When the 3rd menu level is displayed: Press ⊙

> Printout (Example)

```
  6   1 Manual/auto pr
      2 Manual with s
```

– When the 2nd menu level is displayed: Press ⊙

> Printout (Example)

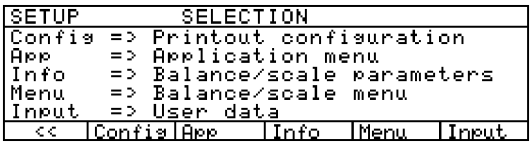
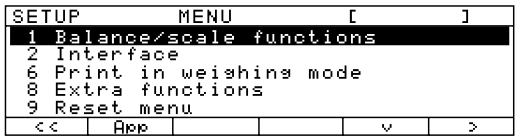
```
 6 Print in weighing
----------------------
 6   1 Manual/auto pr
     2 Manual with s
 6   2 Stop auto prin
     2 Not possible
 6   3 Time-dependent
     1 1 display upd
 6   4 Print on reque
     1 Off
```

– When the 1st menu level is displayed: Press ⊙

> All current parameters settings are printed

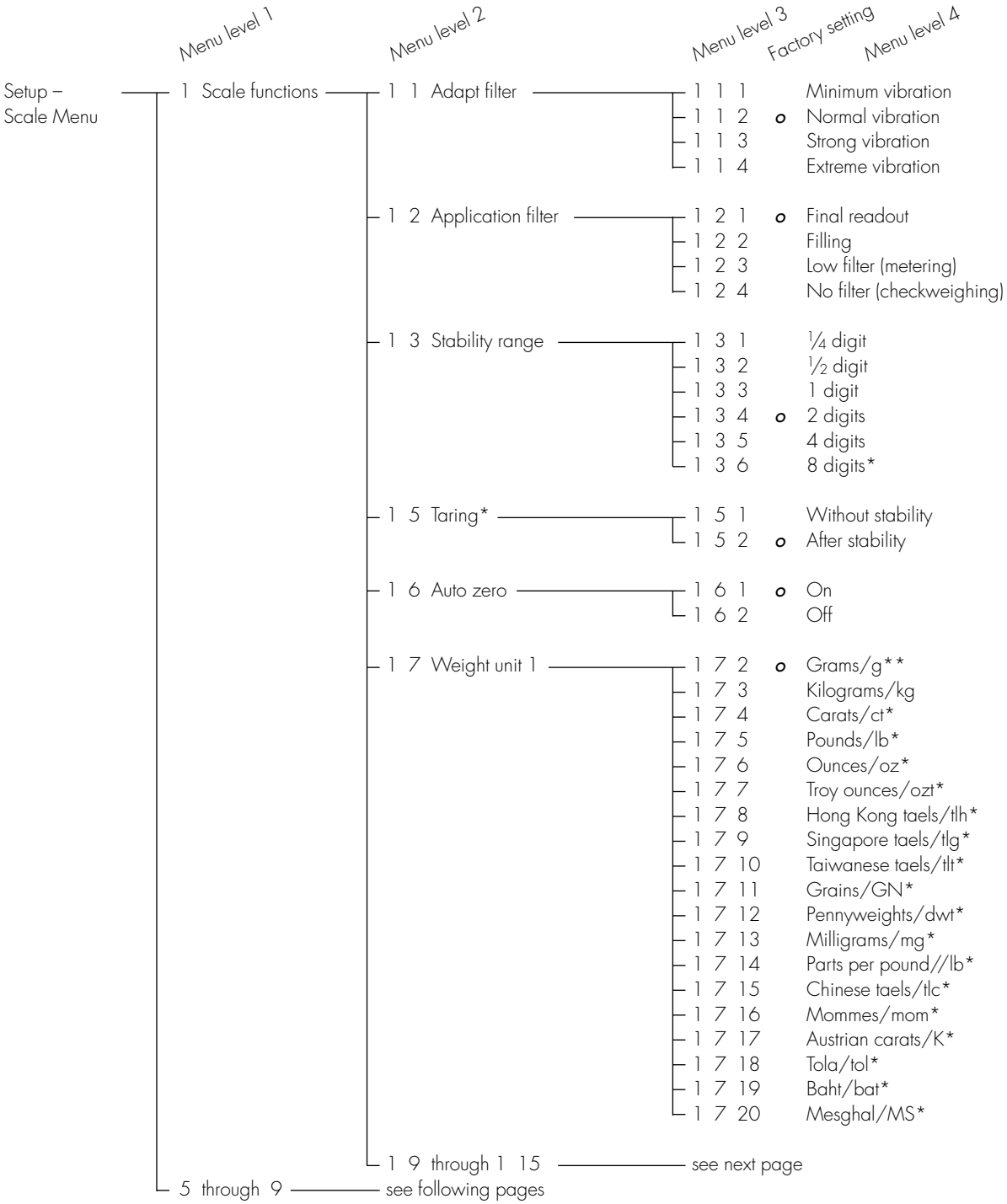
Practical Example

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

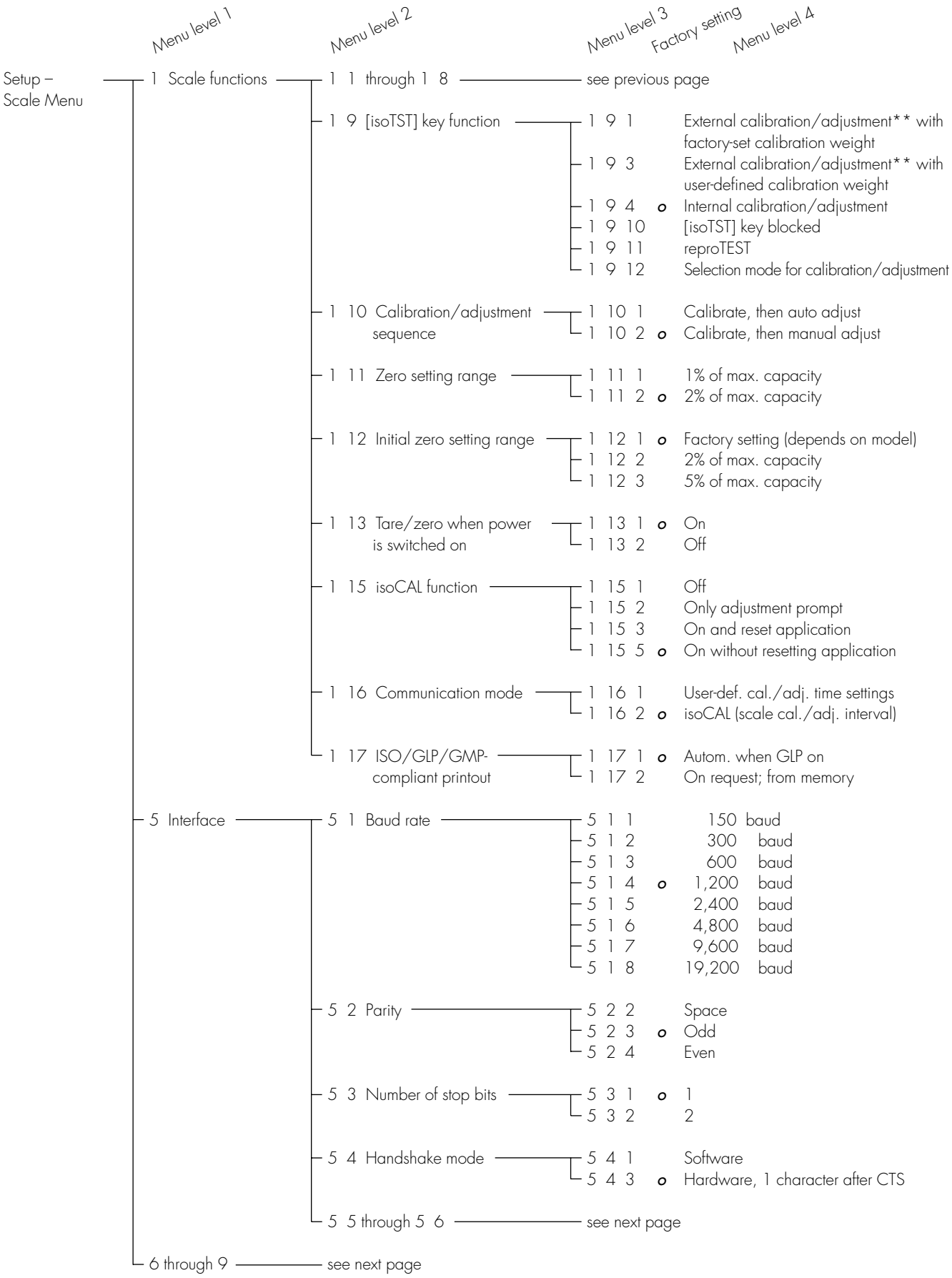
Step	Key (or instruction)	Display/Output
1. Select Setup	SETUP	
2. Select the scale menu	Press the **Menu** soft key	
3. Confirm selection of scale function menu	Press the > soft key	
4. Confirm selection of filter adaptation menu item	Press the > soft key	
5. Menu level 3: Select the desired item	Press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

Setup Parameters, "Scale Menu" (Overview)

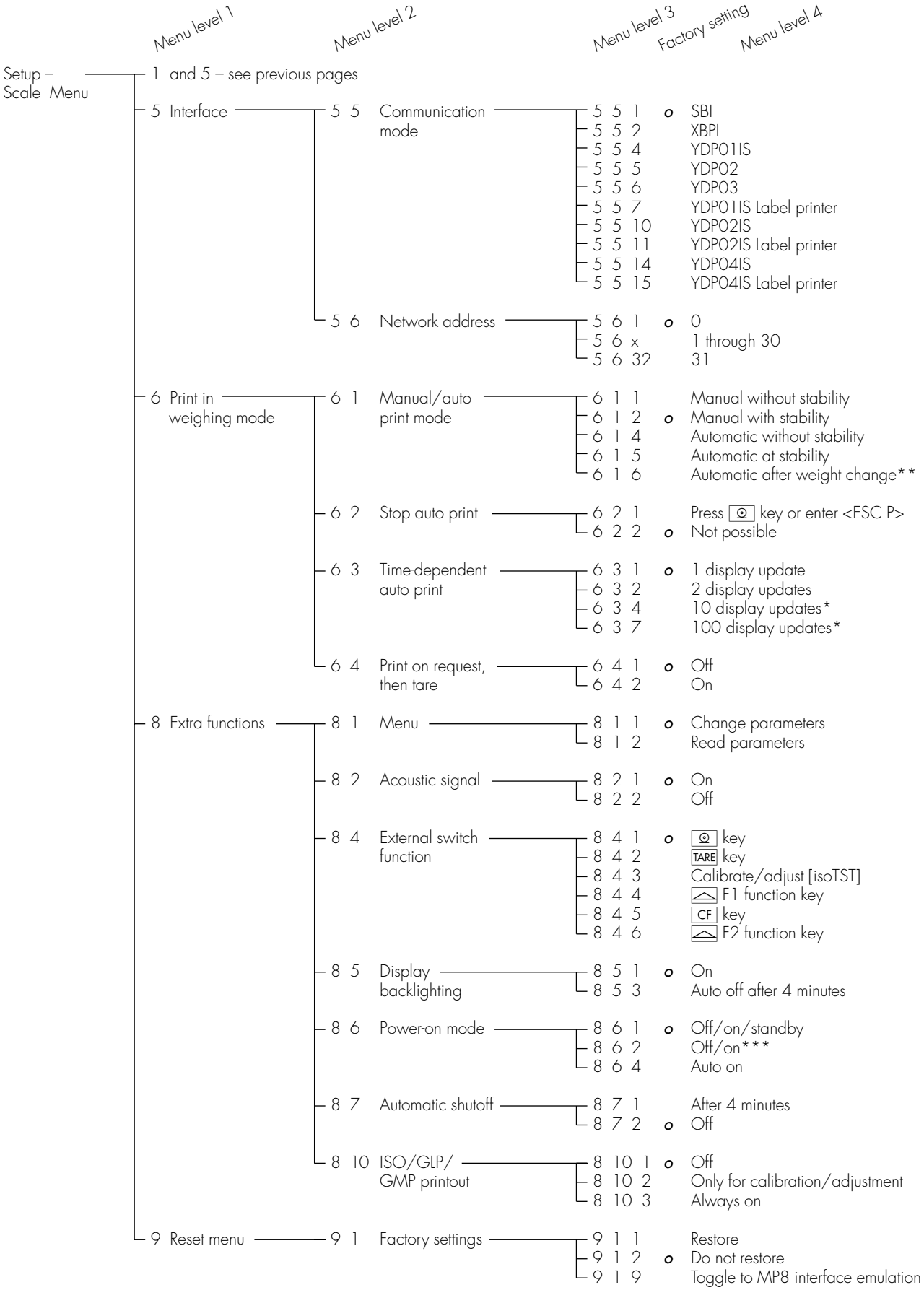
o Factory setting
√ User setting



* = not applicable to verified scales used in legal metrology in the European Economic Area
** = not on model FCG64EDE-S0CE



* = not applicable to verified scales used in legal metrology in the European Economic Area
** = verified scales can only be calibrated, not adjusted



* = not applicable to verified scales
** = auto print when load change is >10 d; no printout until residual difference in load value is < 5 d
*** = not on FC … EDE models

Configuring the Printout (Config)

Purpose

You can configure individual printout formats for each application. With the formulation, totalizing and statistics application, you can also define the values to be printed on the total printout when the **MR** key is pressed.

In the Setup menu you can configure individual, component or total data records that contain the items available for printouts in each application. Configure these records after you have configured the applications, because some entries in the data record are application-dependent.

Features

– Maximum items in a data record: 60

– Individual, component and total records can be configured separately

– Output individual record:

  Press [⊙]

  Automatic printout of application data:
  Results from animal weighing or density application (Setup: Application 1: Density: Printout: All data)
  OK values from checkweighing application, time-controlled printouts, 2nd tare memory data

– Output component printout: Totalizing, formulation or statistics by pressing **M+** or **M–**(Setup: Application 3: ..., Printout components: On)

– Output total record: For totalizing, formulation or statistics by pressing **MR**

– Data records are deleted after an application or an extra function is activated or ended in the application menu

– A new pick list is created based on the currently active application programs and extra functions

– Printout items can be deleted individually

– No printout is generated when the following settings are configured:

  Menu: Print in weighing mode: automatic
  (6 – 1 – 4, 6 – 1 – 5, 6 – 1 – 6)

  Application: Printout configuration: Line format: For raw data (16 characters)

– Form feed:

  Select the "YDP02 IS- label" print mode (menu code 5 – 5 – 11) to configure automatic form feed to the beginning of the next label

Additional Functions

● Save settings and exit printout configuration: Press soft key **<<**

> Start application

● Print parameter settings:

– When the select bar is on **List** or **Select**: Press [⊙]

> Printout (example)

```
--------
Date/time
S ID
Ref. weight
Piece count
Minimum
Nom.no.weighs
```

etc.

Data Items for the Printout:

Parameter	Display text	Indiv.	Comp.	Total
Blank line**	Blank line	x	x	x
Dotted line**	--------	x	x	x
Form feed*	Form feed	x	x	x
Date/time*	Date/time	x	x	x
Time with seconds*	Time	x	x	x
GLP/GMP-header*	GLP header	x	x	x
GLP/GMP-footer*	GLP footer	x	x	x
Sample ID*	S ID	x	x	x
Identifier 1*	ID1	x	x	x
Identifier 2*	ID2	x	x	x
Identifier 3*	ID3	x	x	x
Identifier 4*	ID4	x	x	x
Net weight*	Net (N)	x		
Gross weight*	Gross (G#)	x	x	x
Tare weight*	Tare	x		
Preset tare/ Tare 1 weight*	Tare1 (T1/PT1)	x	x	x
With the "Counting" application:				
Reference weight	Ref. weight	x	x	x
Reference quantity	Ref.quantity	x	x	x
Piece count	Piece count	x		
With the "Weighing In Percent" application:				
Reference weight	Ref. weight	x	x	x
Reference percentage	Ref.percent	x	x	x
Percentage	Percent	x		
With the "Animal Weighing" application:				
Number of weighing operations	No.of weighs	x	x	x
Calculation factor	Factor	x	x	x
Average animal weight	Mean value	x		
Calculated average	Mean factor	x		
With the "Calculation" application:				
Equation	Equation	x	x	x
Calculated result	Calc. result	x		
With the "Density" application:				
Temperature	Temperature	x	x	x
Imm. liquid	Liquid	x	x	x
Weight in air	Wt. in air	x		
Weight in liquid	Wt. in liquid	x		
Weight of sample and liquid	Total wt.	x		
Calculated density	Calc. density	x		
Calculated volume	Calc. volume	x		
Buoyancy-correction	Buoyancy corr.	x		
Air buoyancy-correction	Air buoy. corr.	x		
Expansion coefficient	Exp. coeff.	x		
Volume of the plummet	Plummet vol.	x		

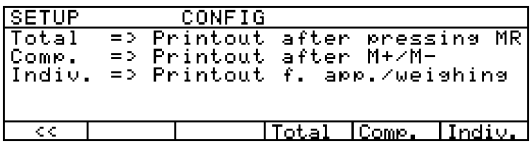
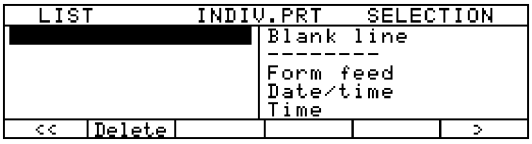
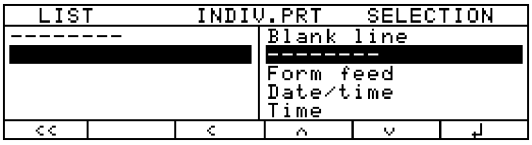
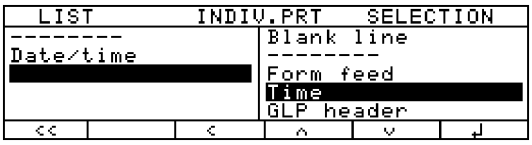
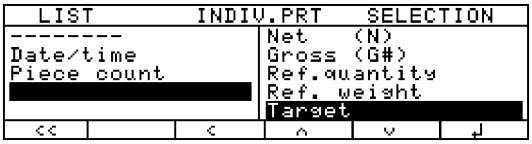
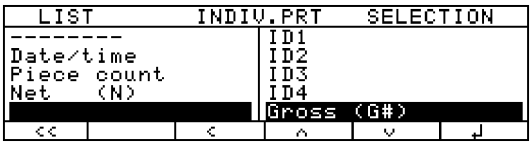
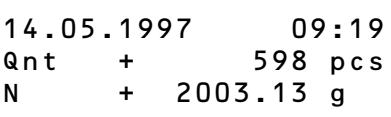
Parameter	Display text	Indiv.	Comp.	Total
With the "Checkweighing" application:				
Target value	Target	x	x	x
Minimum value	Minimum	x	x	x
Maximum	Maximum	x	x	x
With the "Time-Controlled Functions" application:				
Time/interval	Time interval	x		
With the "Totalizing/Statistics" application:				
No. of weights	No. of wts.		x	x
Weight of trans.	Trans.wt.		x	
Average weight	Average wt.			x
Standard deviation – weight	Std.dev.wt.			x
Variation coefficient – weight	Var.coeff.wt.			x
Weight total	Wt. total			x
Minimum weight	Min. wt.			x
Maximum weight	Max. wt.			x
Difference weight	Diff. wt.			x
No. of calc. values	No.of calc.val.		x	x
Calc. value – transactions	Calc.val.trans.		x	
Mean calc. value	Mean calc.val			x
Standard deviation – calculated values	Std.dev.calc.			x
Variation coefficient – calc. values	Var.coeff.calc.			x
Total – calc. values	Total calc.			x
Minimum – calc. values	Min. calc.			x
Maximum – calc. values	Max. calc.			x
Difference – calc. values	Diff. calc.			x
Target no. of weighing operations	Nom.no.wghs		x	
With the "Formulation" application:				
Number of components	Number		x	
Net components	Net component		x	
Components – calculated	Net transact.		x	
Total net components	Net/comp.calc.			x
Total calc. components	Tot.comp.calc.			x
Preset tare/ Tare 2 weight	Tare2	x	x	x
Target no. of weighing operations	Nom.no.wghs		x	

*= Items are available independent of the applications selected

**= Items are available independent of the applications selected and can be selected more than once (60 items per data record max.)

Example:

Configure an Individual Printout for the Counting Application to include Dotted Line, Date/Time, Piece Count and Net Weight

Step	Key (or instruction)	Display/Output
1. Access the Setup menu and select "Configuration"	SETUP, then the **Config** soft key	
2. Select "Individual printout"	**Indiv.** soft key	
3. Select "Blank line"	>, v, ↵ soft key	
4. Select "Date/time"	v soft key twice, then ↵ soft key	
5. Select "Piece count"	v soft key repeatedly, then ↵ soft key	
6. Select "Net weight"	^ soft key repeatedly, then ↵ soft key	
7. Exit Setup "Configuration"	<< soft key	
8. Perform weighing operations, then press	⊙	

"Info" Display (Info)

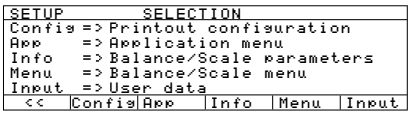
Purpose

To have information about the specific scale ("device") and "FlexPrint" displayed

Display Specific Information about the Scale

● Select the Setup program:
Press SETUP

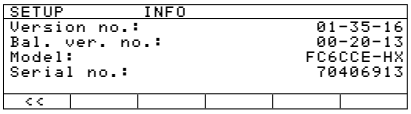
> "SETUP SELECTION" is displayed.



● Select information:
Press the Info soft key

● Press > soft key to confirm "Device information"

> Specific information about the scale is displayed (see also the "Data Output Functions" section in the chapter entitled "Operating the Scale"):



○ Print information:
Press ⦿

> Example of a printout
Mod. FC6CCE-HX
Ser. no. 70406913
Ver. no. 01-35-16
(Software version, display and control unit)
Ver. no. 00-20-13
(Software version, weighing platform)

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

Date of Manufacture:

The month and year of manufacture are encoded in the serial number as follows:

Y M M x x x x x

Y	Year
1	2000–2006
2	2007–2013
3	2014–2020
4	2021–2027
5	2028–2034
6	2035–2041
7	2042–2048
8	2049–2055
9	2056–2062

The first digit represents a 7-year period as indicated in the table above. The next 2 digits represent the month. The months are numbered consecutively, starting with 13, over the entire 7-year period. Thus the number representing the month also indicates the specific year of manufacture.

2000 13–24
2001 25–36
… etc.

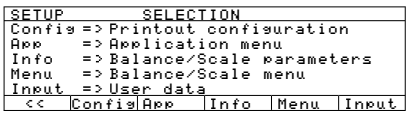
Example:
113xxxxx → Januar 2000

The individual devices are numbered consecutively in the last 5 digits, starting from 00000 again at the beginning of each month.

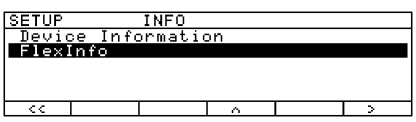
Displaying "FlexPrint" Information

● Select the Setup menu:
press the SETUP key

> "SETUP" is displayed:

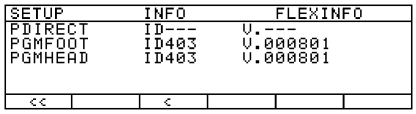


● To select information:
press "Info" soft key



● Select "FlexInfo" :
press v soft key and > soft key

> FlexPrint information is displayed: with print instruction file name, software ID and version number:



○ To select and view a particular print file name with software ID (for example, ID403), if desired: press key v or ^ as required

> If the display shows ID--- : The weight block for legal metrology is not printed by this print file.

> Display of version number:
V.xx.xx.xx
created by Sartorius:
V.S.xx.xx.xx

● Return to SETUP overview:
press the < soft key

● Exit Setup menu:
press the << soft key

> The device returns to the previous mode.

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.

> Scale returns to previous status

MP8 Interface Emulation

Purpose

With the MP8 interface emulation function you can connect peripheral devices of the MP8 generation that have separate AC power supplies (such as the 73822... Data Control terminal, a YFC... Flow Rate Controller, a YDI 50 Z Data Input dedicated keyboard, etc.) to your Factory scale.

Available Features

– The scale can only be used to determine weights

– The interface communicates exclusively in the MP8 binary protocol.

– Select application programs for use with the MP8 under item 3 in the scale operating menu.

– The Index 2 program for MP8 can be selected under item 4 of the scale operating menu

– In the application menu, you can only define parameters for keypad and display.

– The following parameters remain accessible as before:
  – Weighing parameters `[1-x-x]`
  – Extra functions `[8-x-x]`
  – Reset function `[9-x-x]`

  (see "Setup Parameters (Overview")" in the chapter entitled "Configuring the Scale" in the Installation and Operating Instructions)

Factory Settings

(for MP8 functions)

MP8 application: `MP8: 3-1-1`

Program index 2: `1 Ind. 2.1`

Preparation

- Turn on the scale: Press I/⏻
- > The Sartorius logo is displayed

Switch to the MP8 interface:

- Press SETUP
- Select balance/scale operating menu: `Menu` soft key
- Select and confirm the `menu reset function`: `v` soft key 6 times, then `>` soft key
- Confirm `factory settings`: `>` soft key
- Select and confirm `Set to MP8 [9-1-9]` `v` or `^` soft key, repeatedly if necessary; then ↵ soft key
- Press the `<<` soft key

Parameter Settings for the MP8 Interface

- Press SETUP
- Select the scale operating menu: `Menu` soft key
- Select and confirm:

– `3 Application`: `1 Program selection`:
  `1 MP8: 3-1-1` or
  `...`
  `9 MP8: 3-1-9` or
  `10 MP8: 3-2-1` or
  `...`
  `18 MP8: 3-2-9` or
  `19 MP8: 3-3-1` or
  `...`
  `27 MP8: 3-3-9`

– `4 Program index`; `2 Ind. 2`:
  `1 Ind. 2.1` or
  `2 Ind. 2.2` or
  `3 Ind. 2.3` or
  `4 Ind. 2.4`

– `5 Interface`:
  `1 Baud rate`
  `1 150 baud` or
  `2 300 baud` or
  `3 600 baud` or
  `4 1,200 baud` or
  `5 2,400 baud` or
  `6 4,800 baud` or
  `7 9,600 baud` or
  `2 Parity`
  `2 Space` or
  `3 Odd` or
  `4 Even`

– `6 Print in weighing mode`:
  `1 Manual/auto print mode`
  `1 Manual without stability` or
  `2 Manual with stability` or
  `4 Automatic without stability` or
  `5 Automatic at stability`

- Store settings and exit the Setup menu: Press the `<<` soft key

Configuring the Scale: FCA Models

Purpose

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

The Setup menu contains the following submenus:

- Balance/scale functions
- Device parameters
- Application parameters
- Printout
- Device information
- Language
- Factory settings

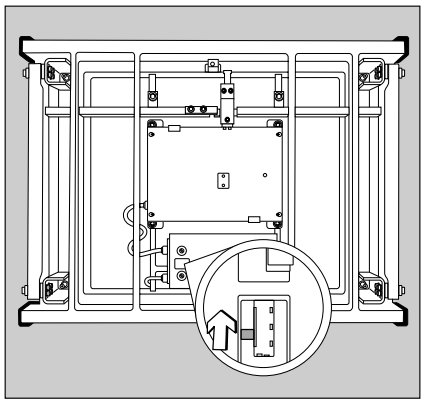
Configuring the Scale for Use in Legal Metrology

Set the menu access switch as described below to configure the following functions for use of the scale in legal metrology:

- Display: Verification scale interval **e**; lower limit of the weighing capacity **Min**
- External calibration blocked

Preparation: FCA...IGG:

- Remove the load plate from the weighing platform
- Remove the cap from the back of the scale housing
- Move the switch upwards



> When the switch is in the upper position, the Setup menu is locked and the scale can be used in legal metrology

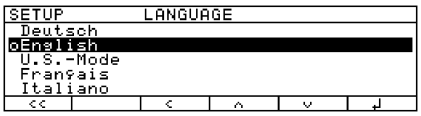
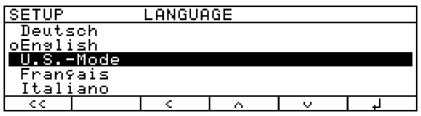
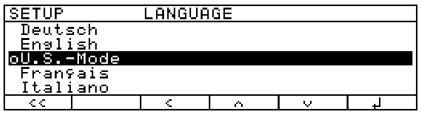
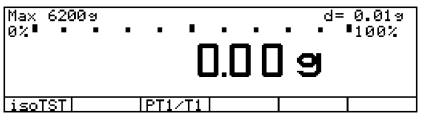
> When the switch is in the lower position, the menu is accessible

Setting the Language

You can choose from 5 languages for the information display:

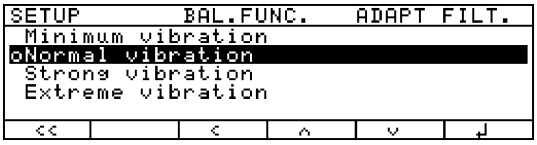
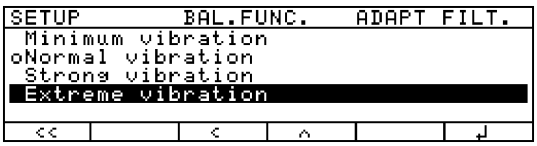
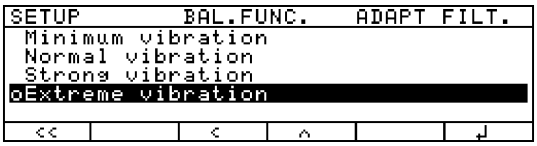
- German
- English (factory setting)
- English with U.S. date/time format
- French
- Italian
- Spanish

Example: Settting the Language to "U.S. Mode"

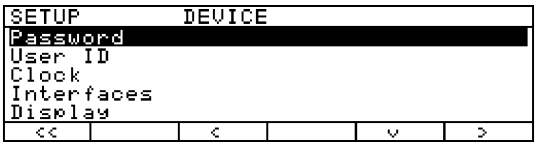
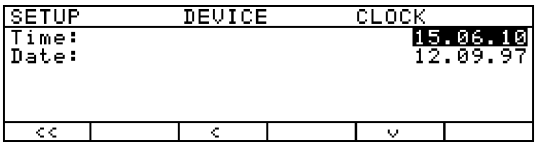
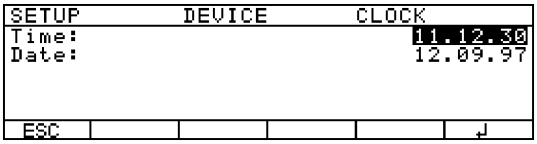
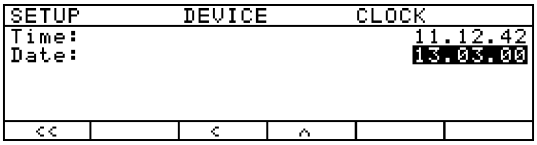
Step	Press key (or follow instructions)	Display/Output
1. Select "Setup" menu	SETUP	
2. Select "Language" and confirm	repeatedly press ˅ soft key, then > soft key	
3. Select "U.S. mode"	^ soft key	
4. Save language	↵ soft key	
5. Exit the Setup menu	<< soft key	

Navigating in the Setup Menu (Examples):

Example: Adapting the scale to "Extreme vibration"

Step	Press key(s) (or follow instructions)	Display/Output
1. Select Setup menu	SETUP	
2. Confirm "Scale functions"	> soft key	
3. Select menu item "Adapt filter" and confirm	v, then > soft key	
4. Select menu item "Extreme vibration"	v soft key	
5. Confirm menu item "Extreme vibration"	↵ soft key	
6. If required, select further menu items	< v ^ > soft keys	
7. Save setting and exit Setup Menu	<< soft key	

Example: Entering the time and date

Step	Press key(s) (or follow instructions)	Display/Output
1. Select Setup menu; select "Device parameters"	SETUP , then ˅ soft key and ˃ soft key	
2. Set clock	press ˅ repeatedly, then press ˃	
3. Enter the time	1 1 · 1 2 · 3 0	
4. Set the time according to your local clock	↲ soft key	
5. Enter the date	1 3 · 0 3 · 0 0	
6. Store the date	↲ soft key	
7. Enter other data, if desired	˂ ˅ ˄ ˃ soft keys	
8. Exit Setup menu	˂˂ soft key	

Setting the Scale Functions (BAL.FUNC.)

Purpose

This menu item enables you to configure the scale functions, i.e., to meet individual requirements by selecting predefined parameters in the Setup menu. You can block access to the menu by assigning a password.

Features

The scale functions are combined in the following groups (1st menu level):

– Calibration/adjustment
– Adapt filter
– Application filter
– Stability range
– Taring
– Auto zero
– Weight unit 1
– Zero range
– Zero range at power on
– Tare/zero at power on
– Factory settings: only wgh. param. (only the scale functions)

Factory Settings

Parameters: The factory settings are identified by the symbol "o" in the list starting on the next page.

Preparation

Show available balance/scale functions:

● Select Setup menu: press the SETUP key

> SETUP is displayed

● Select "Scale functions": press the > soft key

If you already assigned a password:

> The password prompt is displayed

○ If access is blocked by a password: enter the password using the numeric/alphabetic keys.

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

● Confirm your password and have the scale functions displayed: Press the ↵ soft key.

> Scale functions are displayed:

○ To select the next group: press the v soft key (down arrow)

○ To select the previous item of a group: press the ^ soft key (up arrow)

○ To select the next sub-item within a group: press the > soft key (right arrow)

○ To select the previous group: press the < soft key (left arrow)

○ To confirm: press the ↵ soft key

Extra Functions

● Exit the Setup menu: press the << soft key

> Restart your application

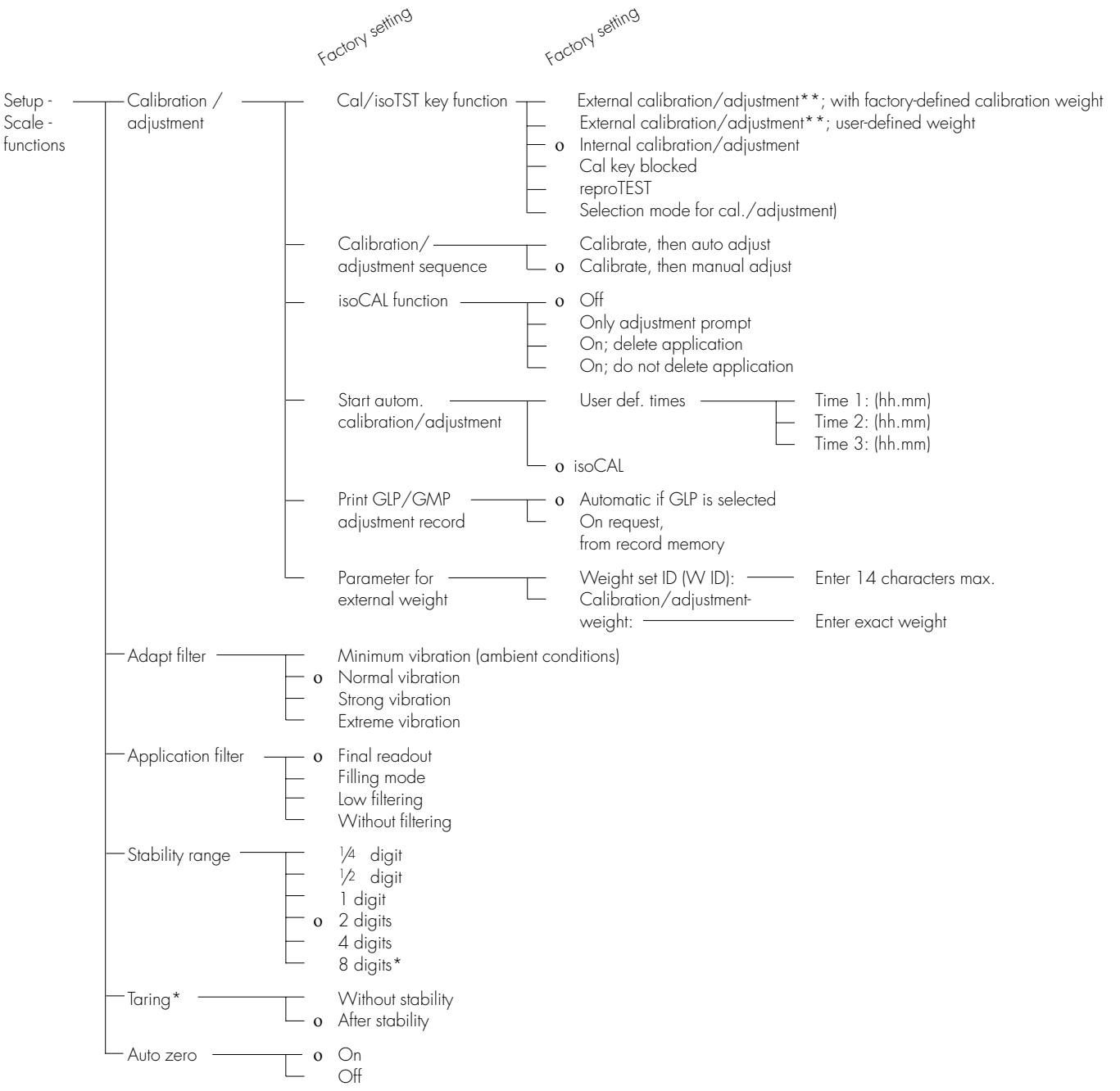
● Print parameter settings:

– When the balance/scale functions are displayed, press ⊙

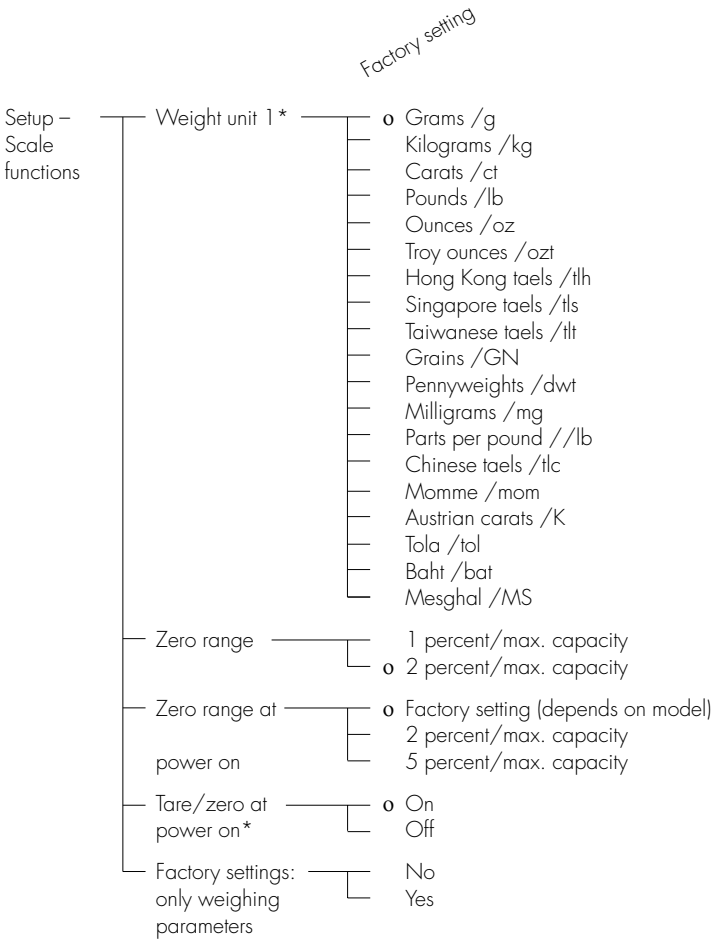
> Printout (example)
Texts with more than 20 characters are cut off

```
SETUP
     BAL.FUNC.
--------------------
Calibration/adjustm
   CAL/iso TST key fun
   Internal cal./adju
   Cal/adjustm seq
Cal. with adjustm au
.
   isoCAL-function
                   Off
   Start autom. adjus
                isoCAL
   Print GLP/GMP adju
Automatic if GLP is
selected
   Parameter for exte
    Wt. ID (W ID):

    Cal./adjust.-wt:
          5000.00 g
 Adapt filter
      Normal vibration
 Application filter
          Filling mode
 Stability range
   2 digits
 Taring
      After stability
Auto zero
                   Off
 Weight unit 1
             Grams /g
```

etc.



* = not applicable to verified scales used in legal metrology in the European Economic Area
** = verified scales can only be calibrated, not adjusted



* = not applicable to verified scales used in legal metrology in the European Economic Area

Setting the Device Parameters (DEVICE)

Purpose

This menu item enables you to configure the scale to meet individual requirements by selecting predefined menu parameters in the Setup menu. You can block access to the menu by assigning a password.

Features

The device parameters are combined in the following groups (1st menu level):

– Password
– User ID
– Clock
– Interfaces
– Display
– Keys
– Extra functions
– Factory settings: only device parameters

Factory Settings

Parameters: The factory settings are identified by the symbol "o" in the list starting on the page after next.

Preparation

Display available device parameters

● Select the Setup menu: press SETUP

> SETUP is displayed:

● Select "Device parameters": use the v and > soft keys

If no password has been assigned, anyone can access the Setup menu device parameters

If a password has already been assigned:

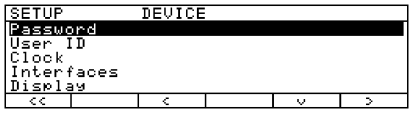
> The password prompt is displayed

○ If access is blocked by a password: enter the password using the numeric and/or alphabetic keys

○ If the last character of the password is a letter: conclude input by pressing the ABC key

● Press ↵ to confirm the password

> Device parameters are now displayed:



○ To select the next group: press the v soft key (down arrow)

○ To select the previous menu item of a group: press ^ soft key (up arrow)

○ To select the next sub-item within a group: press the > soft key (right arrow)

○ To select the previous group: press the < soft key (left arrow)

○ Press ↵ soft key to confirm the selected menu item

Entering or Changing a Password

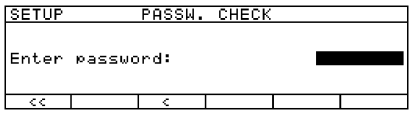
– Let's assume that a password with 8 characters max. has already been assigned to access the Setup device parameters

● Select the Setup menu: press SETUP

> SETUP is displayed

● Select parameters: Use the v and > soft keys

> The password prompt is displayed:



○ Enter the password

○ Press the ↵ soft key to confirm your password and view the device parameters

● Write down your password here for easy reference:

Password = ...

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

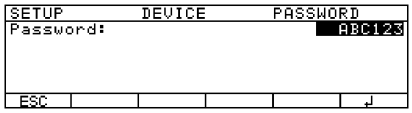
○ Enter the General Password (see Appendix)

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

> The parameters are displayed

● Select the device parameter "Password": If necessary, repeatedly press v or ^ , until you see

> Password: and any existing password



- New password: Enter the numbers and/or letters for the new password (8 characters max.) If "none" is displayed, this means no password has been assigned to delete the user password: Press [·] and confirm
- To confirm: press the ↵ soft key
- Exit the Setup menu: press the << soft key

> Restart the application

Extra Functions

- Exit the Setup menu: press the << soft key

> Restart the application

- Print the parameter settings:

– If the device parameters are displayed: press [⊙]

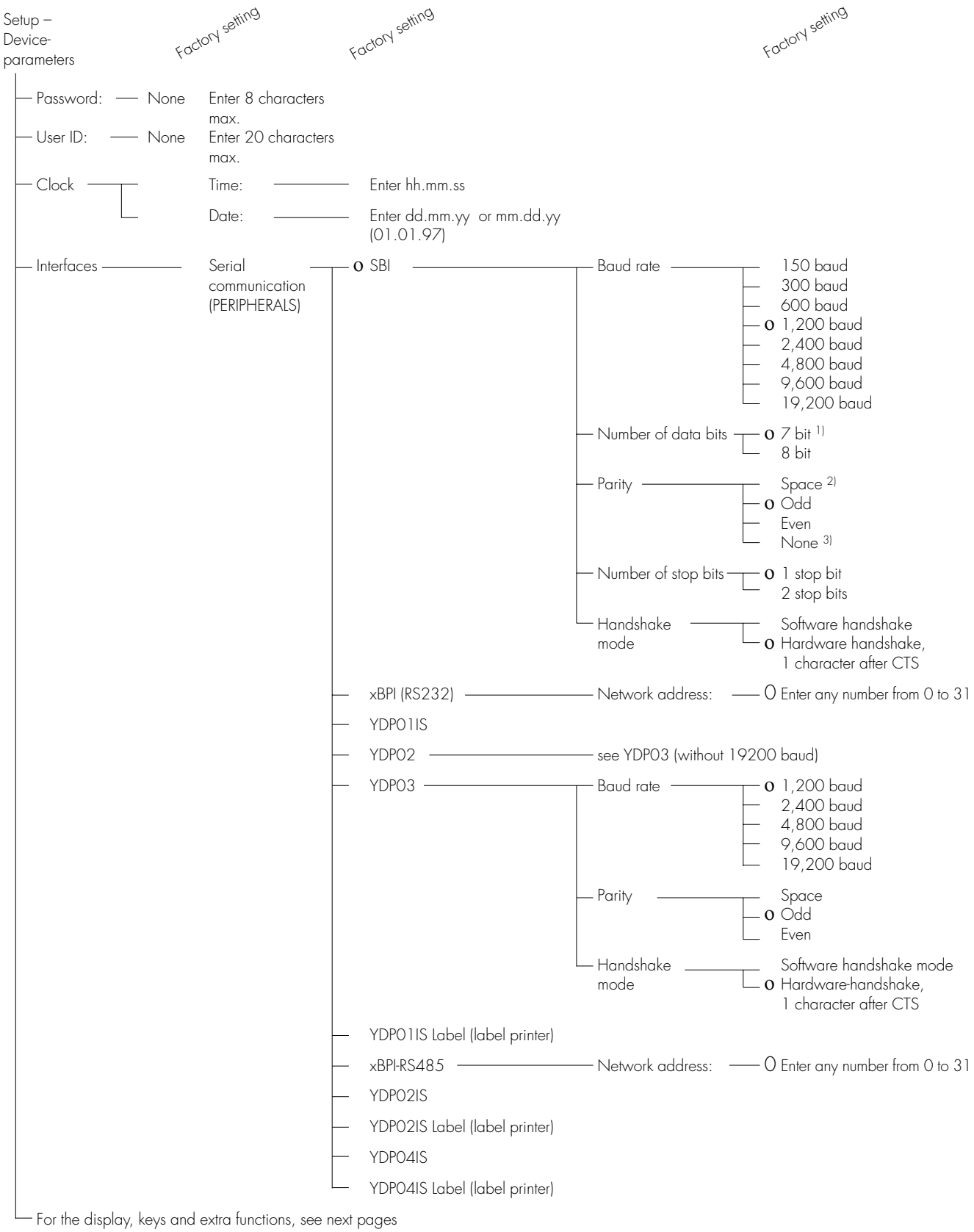
> Printout (example)

```
SETUP
      DEVICE
--------------------
 User ID
  User ID:

 Interfaces
  Serial communicati
   SBI
    Baud rate
           1200 baud
    Number of data b
          7 data bits
    Parity
                 Odd
    Number of stop b
           1 stop bit
    Handshake-mode
  Hardware handshake
  after 1 char
   Function external
         Print key
  Function control
             Output
 Display
  Contrast
                   2
  Background
                White
  Digit size
10mm + bar graph
+text display
  Application symbo
                 On
 Keys
  CF function in ap
Clear all applicati
  CF function for i
Delete last charact
  Block key functio
  All keys unblocke
```

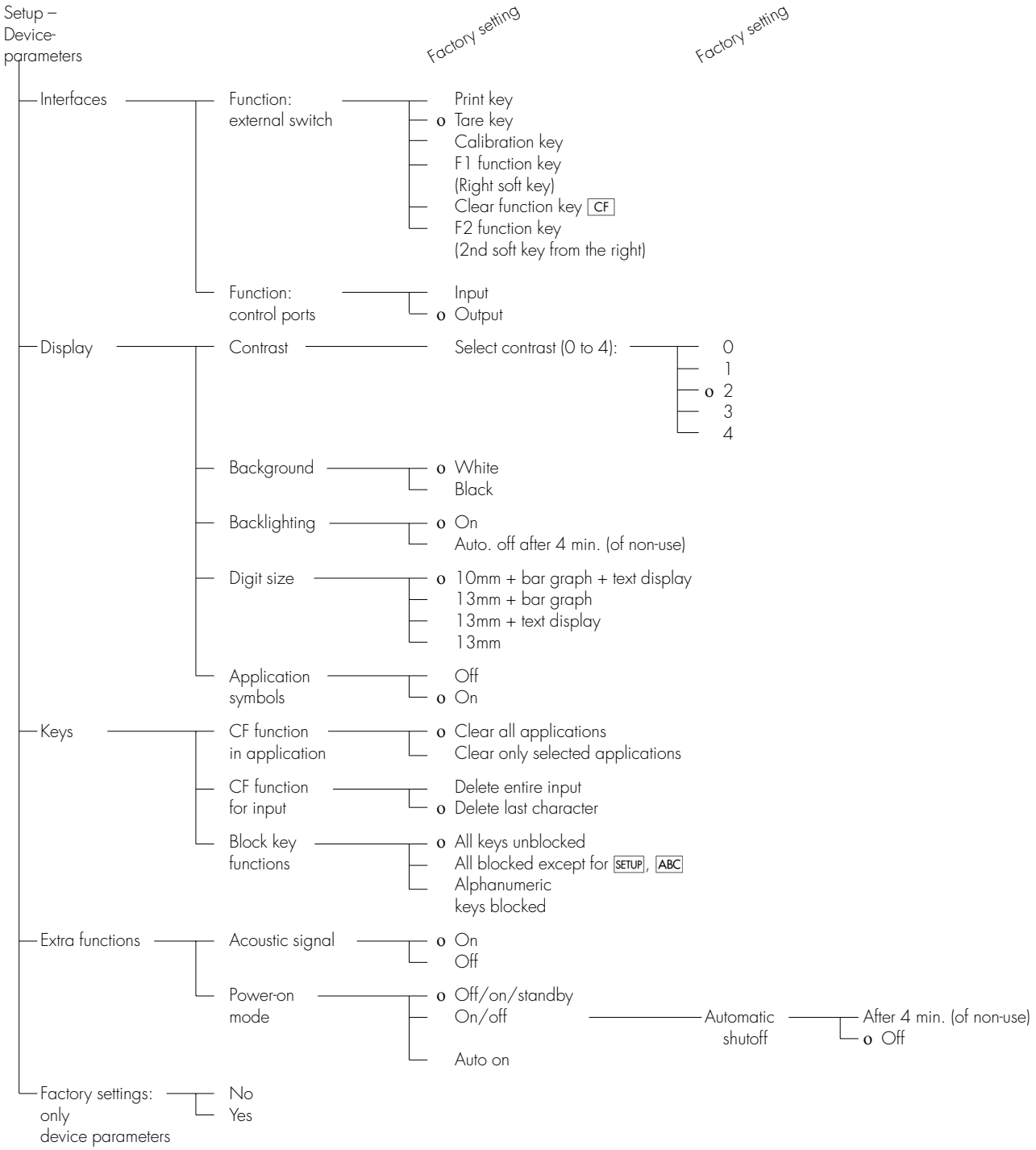
etc.

Device Parameters (Overview)

o factory setting
√ user-defined setting



1) not if "None" parity is selected
2) only if 7 data bits selected
3) only if 8 data bits selected


Setup –
Device-
parameters
Factory setting
Factory setting
Interfaces
Function:
external switch
Print key
o Tare key
Calibration key
F1 function key
(Right soft key)
Clear function key CF
F2 function key
(2nd soft key from the right)
Function:
control ports
Input
o Output
Display
Contrast
Select contrast (0 to 4):
0
1
o 2
3
4
Background
o White
Black
Backlighting
o On
Auto. off after 4 min. (of non-use)
Digit size
o 10mm + bar graph + text display
13mm + bar graph
13mm + text display
13mm
Application
symbols
Off
o On
Keys
CF function
in application
o Clear all applications
Clear only selected applications
CF function
for input
Delete entire input
o Delete last character
Block key
functions
o All keys unblocked
All blocked except for SETUP, ABC
Alphanumeric
keys blocked
Extra functions
Acoustic signal
o On
Off
Power-on
mode
o Off/on/standby
On/off
Automatic
shutoff
After 4 min. (of non-use)
o Off
Auto on
Factory settings:
only
device parameters
No
Yes

Setting the Application Parameters (Application)

Purpose

This menu item enables you to configure the scale, i.e., adapt the scale to your individual requirements by selecting from a list of parameter options in a menu. You can block access to this menu by assigning a password.

Features

The simple weighing function is available at all times. You can select one from each of the following application groups. This means a number of combinations are possible.

Application 1 (basic settings)

- Toggle weight units
- Counting
- Weighing in percent
- Animal weighing (averaging)
- Recalculation
- Calculation
- Density determination
- Differential weighing

Application 2 (control functions)

- Checkweighing
- Time-controlled functions

Application 3 (data records)

- Totalizing
- Formulation
- Statistics

In addition, you can assign 2 extra functions to each of the soft keys, in some cases (depending on the Setup configuration):

- Second tare memory
- Identification codes
- Manual storage M+ key
- Product data memory

Auto-start application the scale is switched on

Factory settings:
only application parameters

Factory Settings

The factory settings are identified by the symbol "o" in the list starting on the next page.

Preparation

Display available application parameters:

● Select the Setup menu: press the SETUP key

> SETUP is displayed

● Select parameters: repeatedly press the v and > soft keys

If you have already assigned a password:

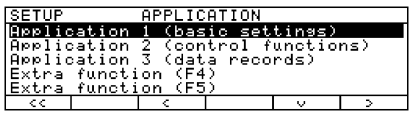
> The password prompt is displayed:

○ If access is blocked by a password: enter the password using the numeric/alphabetic keys

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

● Confirm your password and have the application parameters displayed: press the ↵ soft key

> The application menu is displayed:



○ To select the next group: press the v soft key (down arrow)

○ To select the previous item of a group: press the ^ soft key (up arrow)

○ To select the next sub-item within a group: press the > soft key (right arrow)

○ To select the previous group: press the < soft key (left arrow)

○ To confirm: press the ↵ soft key

Extra Functions

● Exit the Setup menu: press the << soft key

> Restart your application

● Print parameter settings:

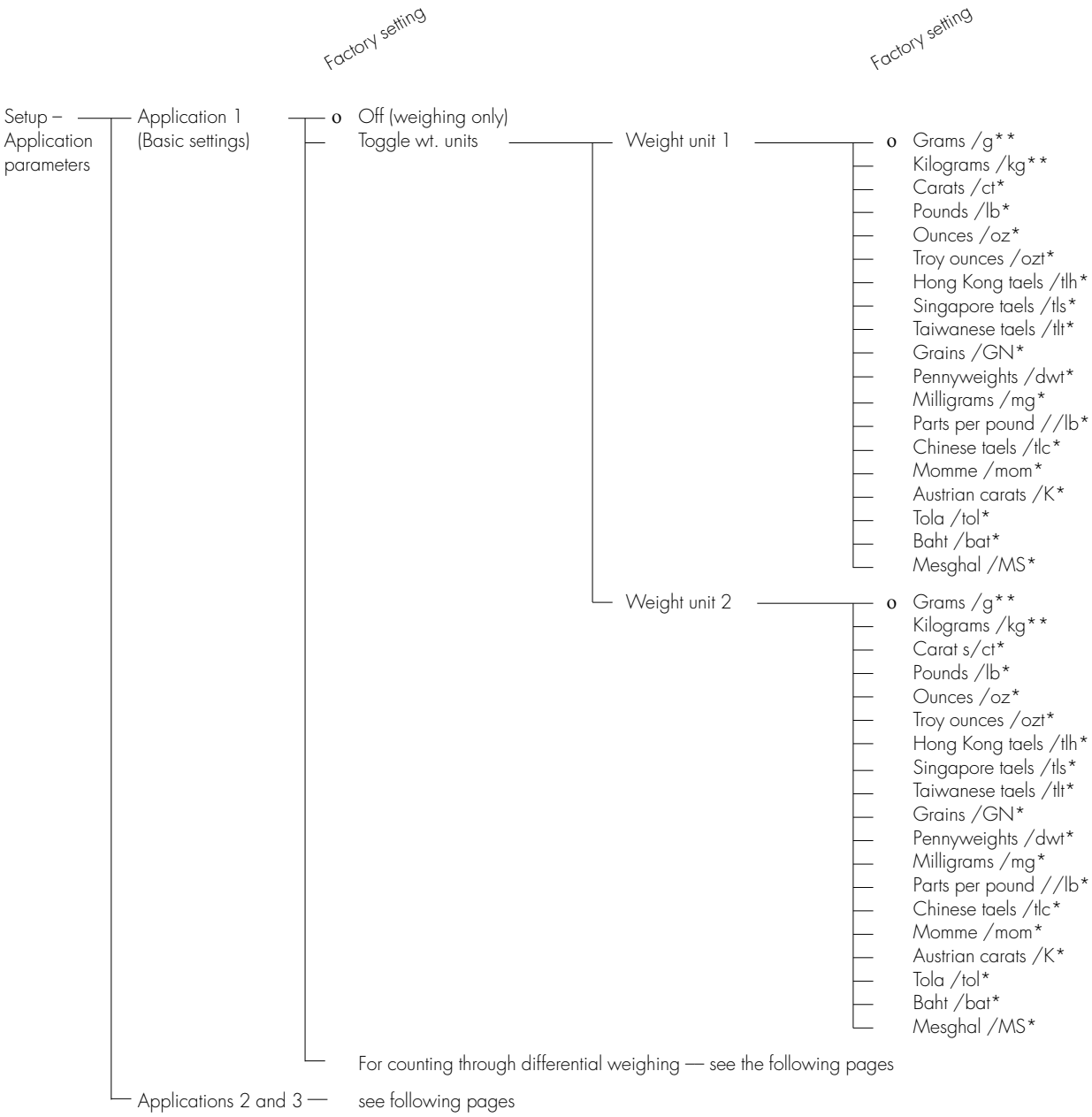
– When the scale functions are displayed, press ⊙

> Printout (example)
Texts with more than 20 characters are truncated

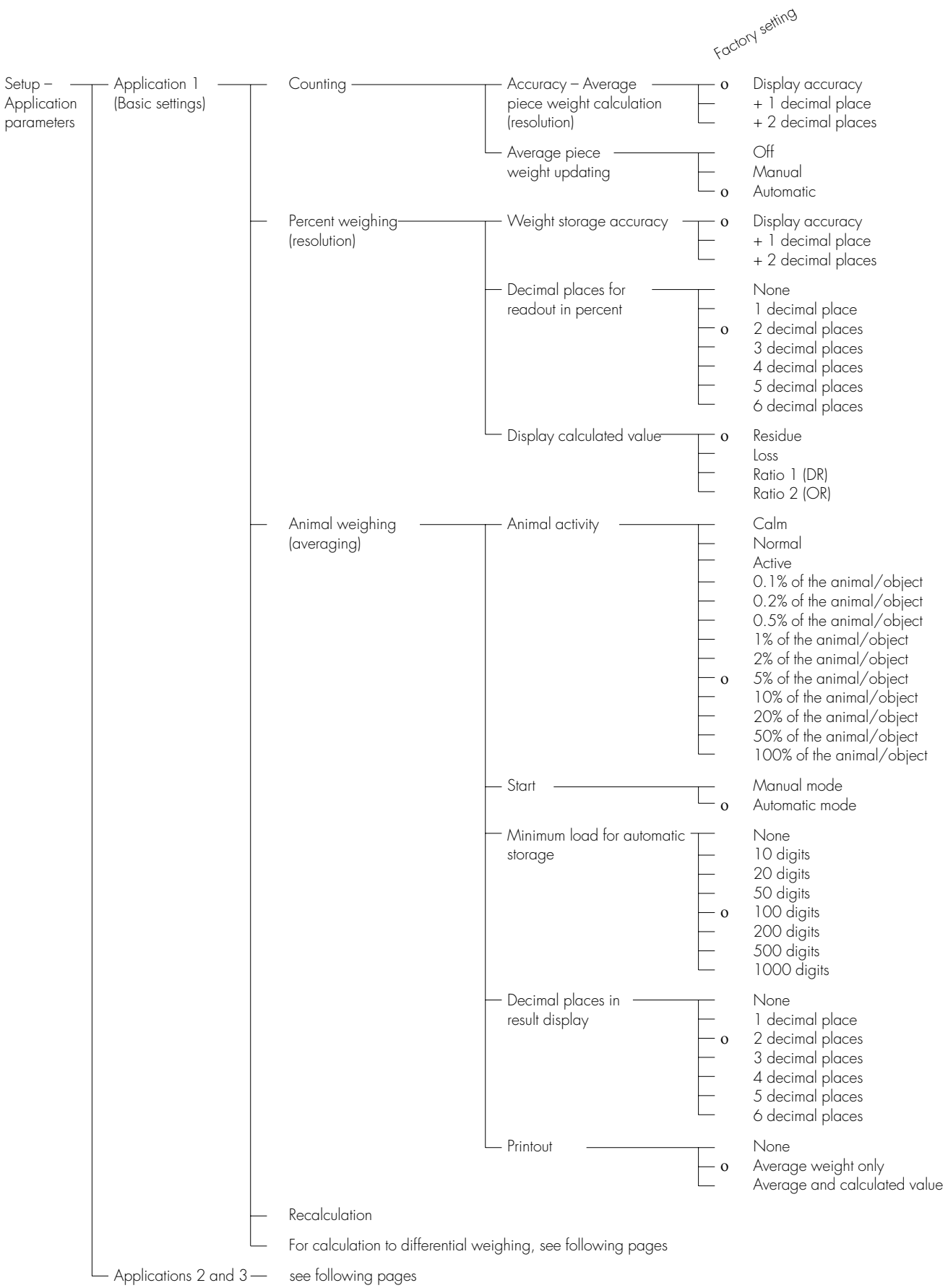
```
SETUP
    APPLICATION
--------------------
 Application 1 (basi
                  Off
 Application 2 (cont
                  Off
 Application 3 (data
                  Off
 Extra function (F4)
  2nd tare memory
   Container tare we
                   No
   Automatic printou
                  Off
 Extra function (F5)
                  Off
 Auto-start app. whe
                  Off
--------------------
```

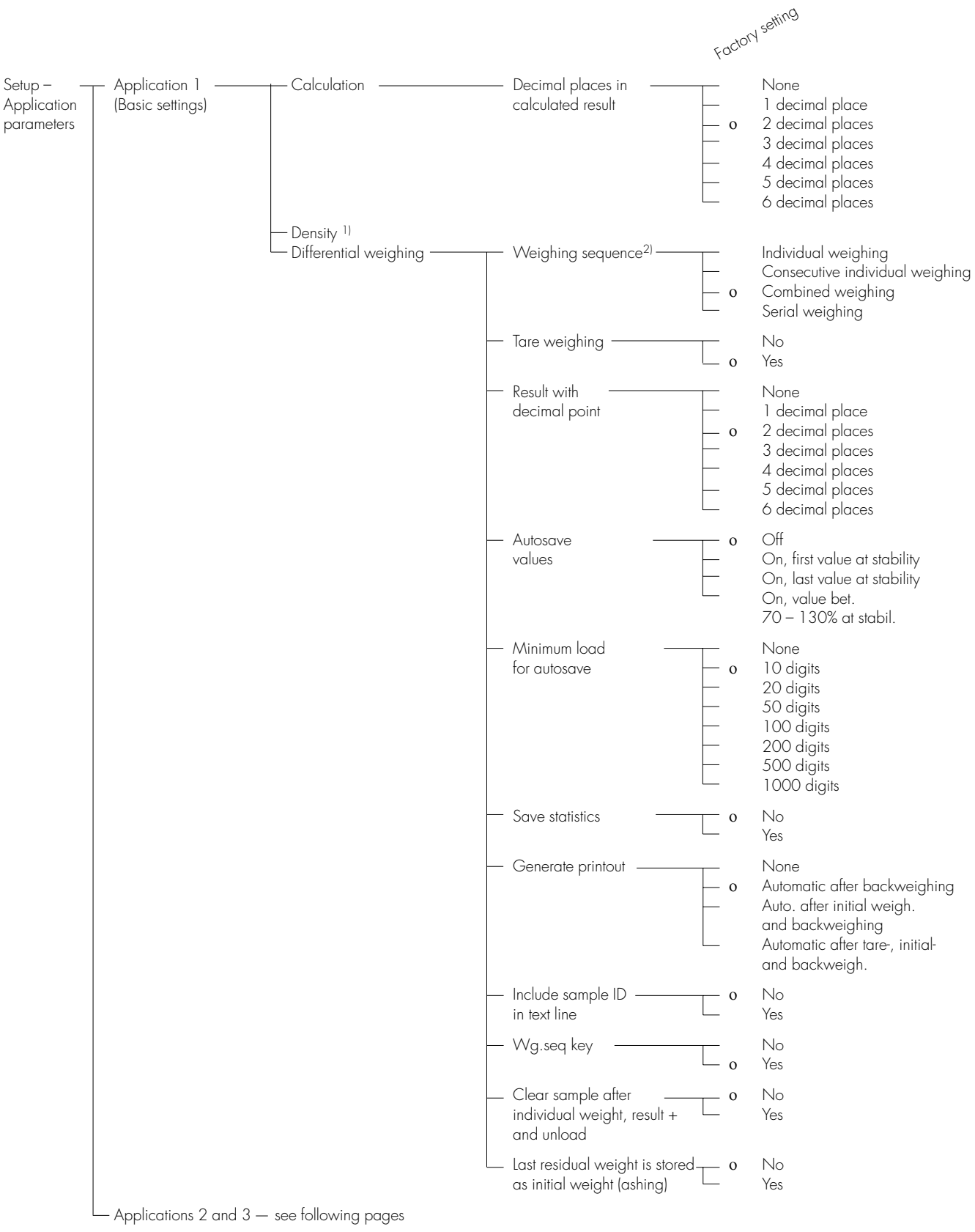
Application Parameters (Overview)

o factory settings
√ user-defined setting



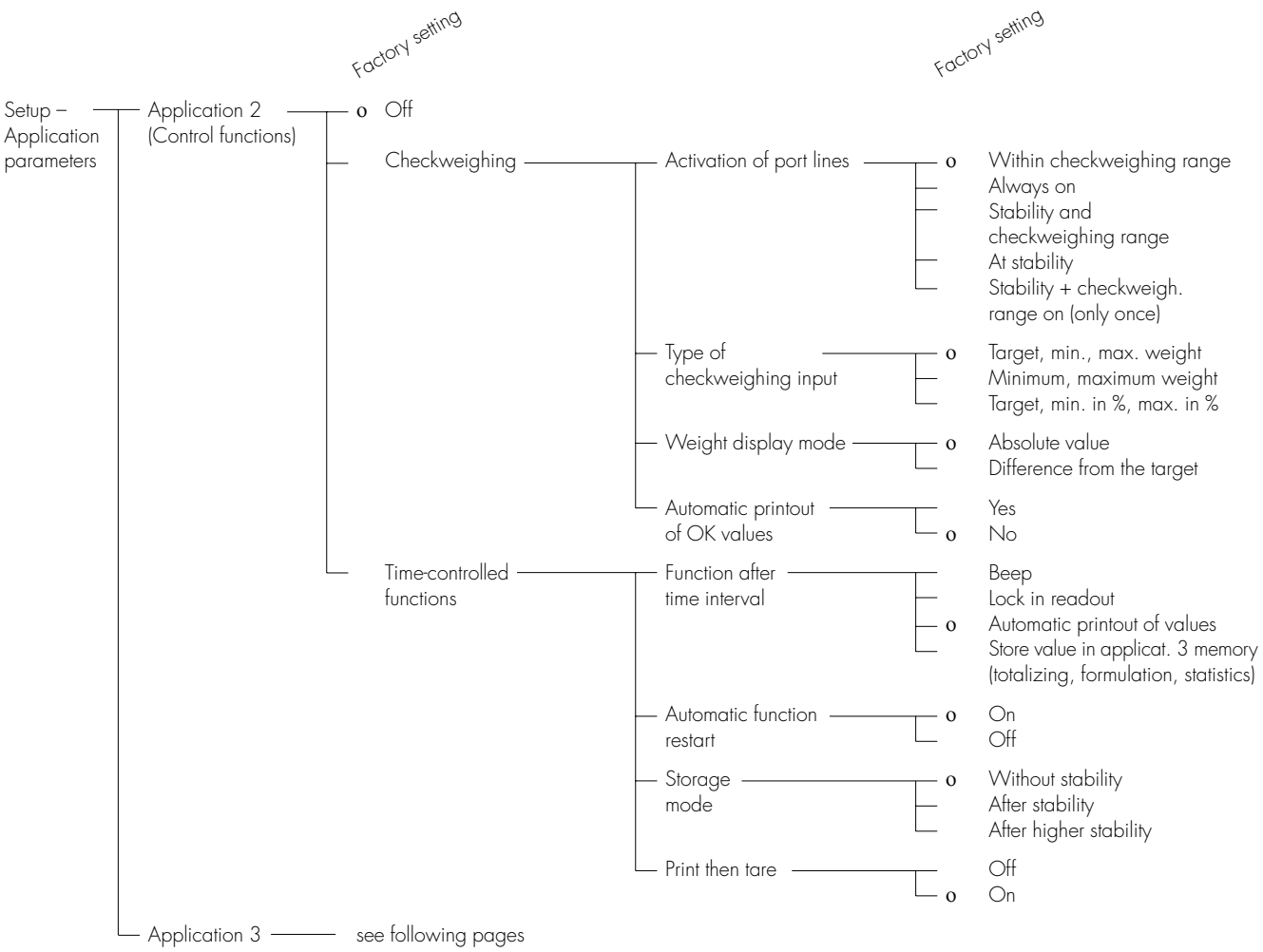
* = not applicable to verified scales used in the European Economic Area
** = factory setting depends on weighing range: – ≤ 33 kg: grams
– ≥ 34 kg: kilograms

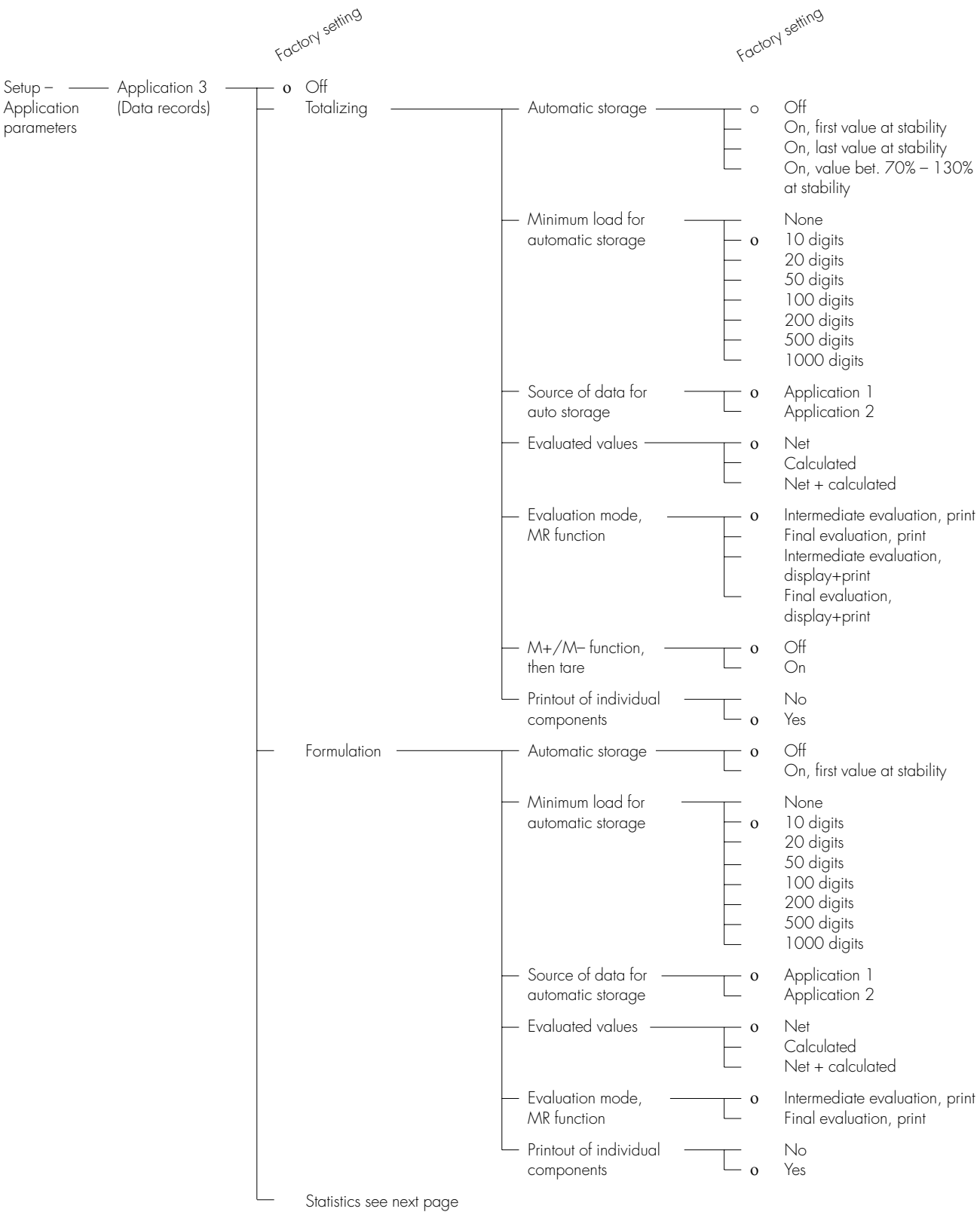

Factory setting
Setup – Application parameters
Application 1 (Basic settings)
Counting
Accuracy – Average piece weight calculation (resolution)
o Display accuracy
+ 1 decimal place
+ 2 decimal places
Average piece weight updating
Off
Manual
o Automatic
Percent weighing (resolution)
Weight storage accuracy
o Display accuracy
+ 1 decimal place
+ 2 decimal places
Decimal places for readout in percent
None
1 decimal place
o 2 decimal places
3 decimal places
4 decimal places
5 decimal places
6 decimal places
Display calculated value
o Residue
Loss
Ratio 1 (DR)
Ratio 2 (OR)
Animal weighing (averaging)
Animal activity
Calm
Normal
Active
0.1% of the animal/object
0.2% of the animal/object
0.5% of the animal/object
1% of the animal/object
2% of the animal/object
o 5% of the animal/object
10% of the animal/object
20% of the animal/object
50% of the animal/object
100% of the animal/object
Start
Manual mode
o Automatic mode
Minimum load for automatic storage
None
10 digits
20 digits
50 digits
o 100 digits
200 digits
500 digits
1000 digits
Decimal places in result display
None
1 decimal place
o 2 decimal places
3 decimal places
4 decimal places
5 decimal places
6 decimal places
Printout
None
o Average weight only
Average and calculated value
Recalculation
For calculation to differential weighing, see following pages
Applications 2 and 3
see following pages

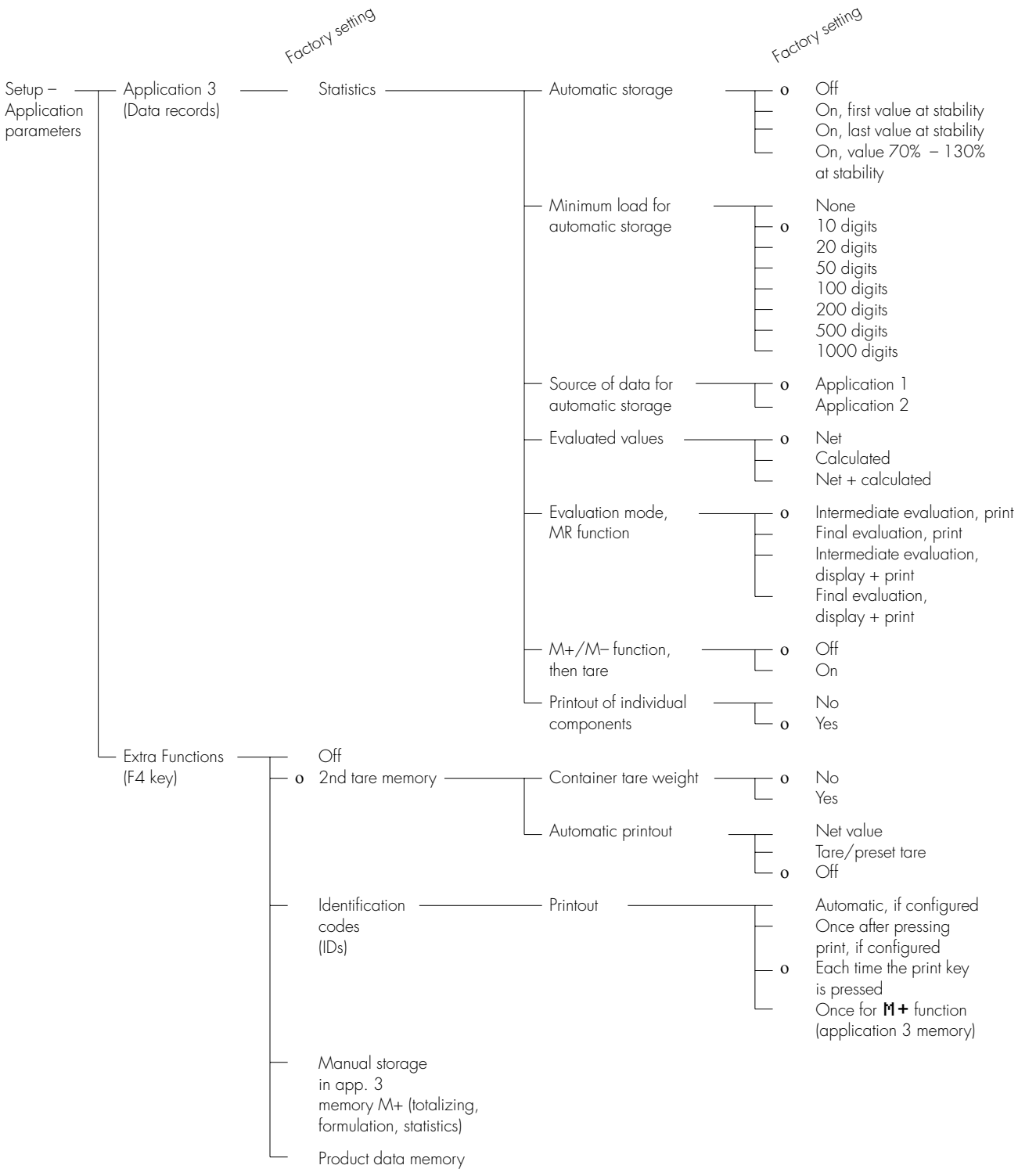


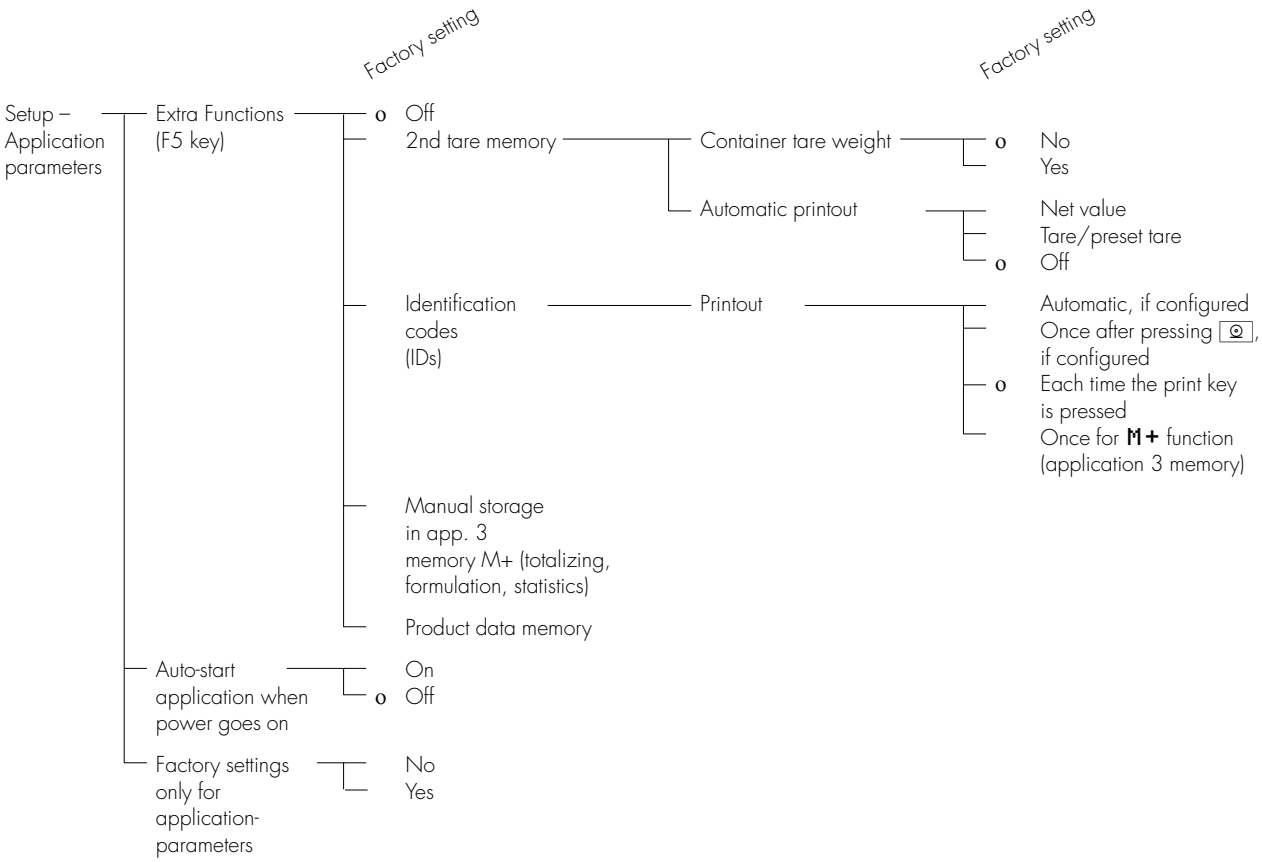
1) = Instructions on density determination are available on the Internet, under http://www.sartorius.com/cgi-bin/wt/pdfdown.pl?todo=Gruppenauswahl&art=&menu=en&sprache =english in the PDF file "Master^{pro} LA", or contact Satorius.

2) = Setting can only be changed when the program is initially run and when the **Wg.seq.** key option is set to "No"


Factory setting
Factory setting
Setup – Application parameters
Application 2 (Control functions)
o Off
Checkweighing
Activation of port lines
o Within checkweighing range
Always on
Stability and checkweighing range
At stability
Stability + checkweigh. range on (only once)
Type of checkweighing input
o Target, min., max. weight
Minimum, maximum weight
Target, min. in %, max. in %
Weight display mode
o Absolute value
Difference from the target
Automatic printout of OK values
Yes
o No
Time-controlled functions
Function after time interval
Beep
Lock in readout
o Automatic printout of values
Store value in applicat. 3 memory (totalizing, formulation, statistics)
Automatic function restart
o On
Off
Storage mode
o Without stability
After stability
After higher stability
Print then tare
Off
o On
Application 3
see following pages


Factory setting
Factory setting
Setup – Application parameters
Application 3 (Data records)
o Off
Totalizing
Automatic storage
o Off
On, first value at stability
On, last value at stability
On, value bet. 70% – 130% at stability
Minimum load for automatic storage
None
o 10 digits
20 digits
50 digits
100 digits
200 digits
500 digits
1000 digits
Source of data for auto storage
o Application 1
Application 2
Evaluated values
o Net
Calculated
Net + calculated
Evaluation mode, MR function
o Intermediate evaluation, print
Final evaluation, print
Intermediate evaluation, display+print
Final evaluation, display+print
M+/M– function, then tare
o Off
On
Printout of individual components
No
o Yes
Formulation
Automatic storage
o Off
On, first value at stability
Minimum load for automatic storage
None
o 10 digits
20 digits
50 digits
100 digits
200 digits
500 digits
1000 digits
Source of data for automatic storage
o Application 1
Application 2
Evaluated values
o Net
Calculated
Net + calculated
Evaluation mode, MR function
o Intermediate evaluation, print
Final evaluation, print
Printout of individual components
No
o Yes
Statistics see next page


Factory setting
Factory setting
Setup – Application parameters
Application 3 (Data records)
Statistics
Automatic storage
o Off
On, first value at stability
On, last value at stability
On, value 70% – 130% at stability
Minimum load for automatic storage
None
o 10 digits
20 digits
50 digits
100 digits
200 digits
500 digits
1000 digits
Source of data for automatic storage
o Application 1
Application 2
Evaluated values
o Net
Calculated
Net + calculated
Evaluation mode, MR function
o Intermediate evaluation, print
Final evaluation, print
Intermediate evaluation, display + print
Final evaluation, display + print
M+/M– function, then tare
o Off
On
Printout of individual components
No
o Yes
Extra Functions (F4 key)
Off
o 2nd tare memory
Container tare weight
o No
Yes
Automatic printout
Net value
Tare/preset tare
o Off
Identification codes (IDs)
Printout
Automatic, if configured
Once after pressing print, if configured
o Each time the print key is pressed
Once for M+ function (application 3 memory)
Manual storage in app. 3 memory M+ (totalizing, formulation, statistics)
Product data memory


Factory setting
Factory setting
Setup – Application parameters
Extra Functions (F5 key)
o Off
2nd tare memory
Container tare weight
o No
Yes
Automatic printout
Net value
Tare/preset tare
o Off
Identification codes (IDs)
Printout
Automatic, if configured
Once after pressing ⊙, if configured
o Each time the print key is pressed
Once for M+ function (application 3 memory)
Manual storage in app. 3 memory M+ (totalizing, formulation, statistics)
Product data memory
Auto-start application when power goes on
On
o Off
Factory settings only for application-parameters
No
Yes

Selecting the Printout Function (PRINTOUT)

Purpose

This menu item enables you to configure the printout to meet your individual requirements by selecting predefined menu parameters in the Setup menu. Printouts of weights and other measured or calculated values and IDs enable you to document your data. You can select the particular data you wish to print. To prevent changes to your settings, you can block access to the menu by assigning a password.

Features

The device parameters are combined in the following groups (1st menu level):

- Application-defined output
  - Configured Printout
  - FlexPrint
- Automatic output of displayed values
- Output to interface port
- Line format
- ISO/GLP/GMP printout
- Identification (identifier)
- Factory settings – printout only

Factory Settings

Parameters: The factory settings are identified by the symbol "o" in the list on the next page.

Preparation

Display available printout parameters

● Select the Setup menu: press SETUP

> SETUP is displayed:

● Select "Printout": use the v and > soft keys

If no password has been assigned, anyone can access the printout parameters in the Setup menu

If a password has already been assigned:

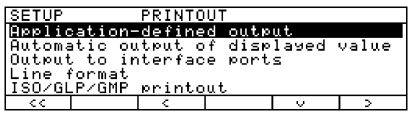
> The password prompt is displayed

○ If access is blocked by a password: enter the password using the numeric and/or alphabetic keys

○ If the last character of the password is a letter: conclude input by pressing the ABC key

● Press ↵ to confirm the password

> Printout parameters are now displayed:



○ To select the next group: press the v soft key (down arrow)

○ To select the previous item of a group: press the ^ soft key (up arrow)

○ To select the next sub-item within a group: press the > soft key (right arrow)

○ To select the previous group: press the < soft key (left arrow)

○ To confirm: press the ↵ soft key

Extra Functions

● Exit the Setup menu: press the << soft key

> Restart your application

● Print parameter settings:

– When the printout parameters are displayed, press ⊙

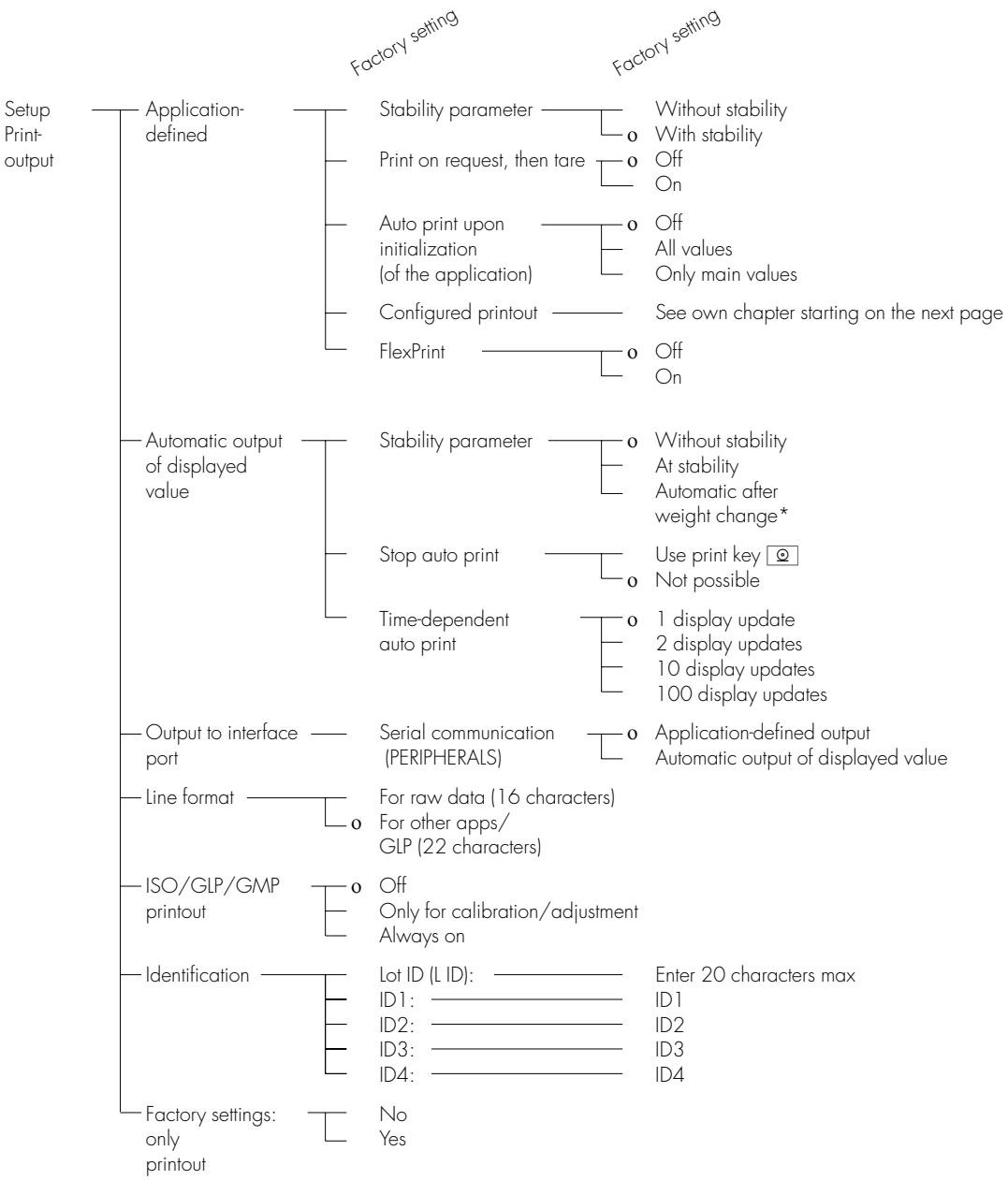
> Printout (Example)

```
SETUP
      PRINTOUT
--------------------
 Application defined
  Stability paramete
     With Stability
  Print on request t
              Off
  Auto print upon in
          All values
  Configured printou
   Indiv.: Printout
   Comp.: Printout
   Total: Printout
  FlexPrint
                  Off
 Automatic Output of
  Stability paramet
     Without stabili
  Stop auto print
      Not possible
  Time-dependent aut
    1 display update
 Output to interface
  Serial communicat:
Application-defined
output
 Line format
For other apps/GLP
 (22 characters)
 ISO/GLP/GMP printou
                  Off
 Identification
  Lot (L ID):

  ID1:
                  ID1
```

etc.

Printout Parameters (Overview)

o factory setting
√ user-defined setting



* = auto print when load change is >10 d and stability is reached: no printout until residual difference in load value is < 5 d

Configured Printout

Purpose

This menu item enables you to configure individual printout formats. With the formulation, totalizing and statistics applications, you can also define the values to be included on the total printout when the MR key is pressed.

Under "Setup: Printout: Application-defined output: Configured printout", you can configure individual, component or total data records that contain the items available for printouts in each application. Configure these printouts after you have configured the applications, because some entries in the data record depend on the particular application.

Features

– Maximum items in a data record: 60

– Separate configuration of printout formats for individual weights, components, total, backweighing and statistics

– Individual printout generation: press the [⊙] key

Automatic printout of application data: results from animal weighing or density application (Setup menu: Application 1: Density: Printout: All data) OK values from checkweighing application, time-controlled printouts, 2nd tare memory

– Component printout: For results from totalizing, formulation or statistics applications, press **M+** or **M−** (Setup: Application 3: ..., Printout of individual components: On)

– Total printout: For totalizing, formulation or statistics applications, press **MR**

– Backweighing printouts or records: automatically generated after backweighing or manually by pressing the [⊙] key when the result is displayed at the end of backweighing

– Statistics printout or output:To generate, press the [⊙] key when the statistics are displayed

Printouts for Differential Weighing:

These printouts can be generated as standard or configured (user-defined) reports.

You can configure the following printouts:

– Individual printout

– Backweighing printout

– Statistics printouts

Printouts are generated in one of two ways:

– at the request of the user by pressing the [⊙] key (print on request)

– automatically, if configured in the Setup menu [Application parameters: Application 1: Differential weighing: Generate printout: Auto]

You can turn off automatic printout generation in the Setup menu [Application parameters: Application 1: Differential weighing: Generate printout: None]

Data records are deleted after you have switched to a different application or activated or deactivated an extra function in the application parameters of the Setup menu

– A new pick list for a data record is created based on the currently active application programs and extra functions

– Printout items can be deleted individually

– No printout is generated when the following setting is configured:

  Setup: Printout: Line format: For raw data (16 characters)

– Print item "Form feed" for footer: Advance to beginning of next label in the "YDP01IS-Label" and "YDP02IS-Label" interface mode

Extra Functions

● Exit printout configuration: press **<<** soft key

> Restart application

Printing "Select" and "List" Settings

– **LIST**: print the currently selected list **Select**: printout items that can still be selected

● When the select bar is on **LIST** or **Select**: press the [⊙] key

> Printout (Example)

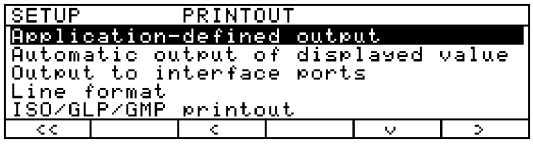
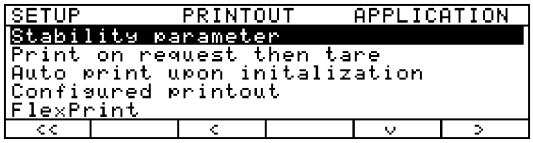
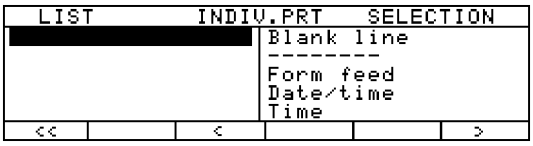
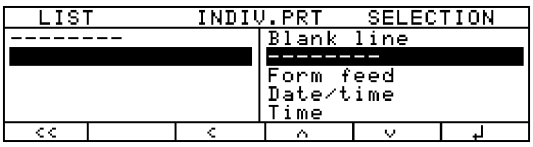
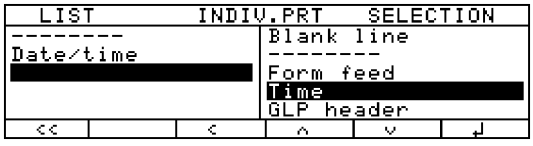
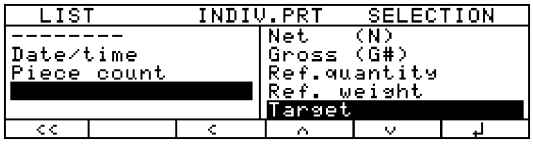
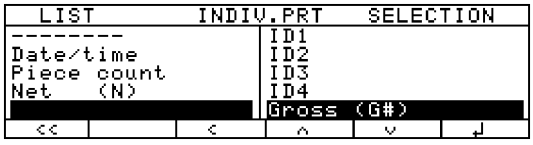
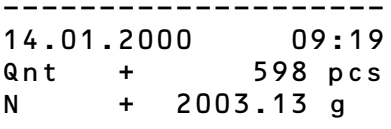
```
BACKW. PRINT.LIST
====================
Sample date
Net initial wt.
Backweighed res
Loss in %
====================
```

etc.

Practical Example:

Configure an Individual Printout for Counting Application to Include Dotted Line, Date/Time, Piece Count and Net Weight

Settings (changes in the factory settings required for this example):
Setup: Application parameters: Application 1: Counting
Exit the Setup menu: press the << soft key
Then call Setup again and select: Printout: Application-defined output: Configured printout

Step	Press key(s) (or follow instructions)	Display/Output
1. Select Setup menu, "Printout"	SETUP, then ∨ repeatedly and > soft key	
2. Confirm "Application-defined output"	> soft key	
3. Select and confirm "Configured printout"	∨ soft key 3 x > soft key	
4. Confirm "Indiv. printout"	> soft key	
5. Select "Dotted line"	>, ∨, ↵ soft keys	
6. Select "Date/time"	∨ soft key twice, then ↵ soft key	
7. Select "Piece count"	∨ repeatedly, then ↵ soft key	
8. Select "Net weight"	∧ soft key repeatedly, then ↵ soft key	
9. Exit "Printout configuration"	<< soft kex	
10. Perform weighing operations, then print	⊙	

Data Items for the Printout:

Parameter	Display text	Indiv.	Comp.	Total
Blank line**	Blank line	x	x	x
Dotted line**	--------	x	x	x
Form feed*	Form feed	x	x	x
Date/Time*	Date/Time	x	x	x
Time with seconds*	Time	x	x	x
GLP header*	GLP header	x	x	x
GLP footer*	GLP footer	x	x	x
Sample ID*	S ID	x	x	x
ID 1*	ID1	x	x	x
ID 2*	ID2	x	x	x
ID 3*	ID3	x	x	x
ID 4*	ID4	x	x	x
Net weight*	Net (N)	x		
Gross weight*	Gross (G#)	x	x	x
Preset tare/ Tare 1 weight*	Tare1 (T1/PT1)	x	x	x
With "Counting" application:				
Reference quantity	Ref. quantity	x	x	x
Reference weight	Ref. weight	x	x	x
Piece count	Piece Count	x		
With "Weighing in percent" application:				
Reference percentage	Ref. percent	x	x	x
Reference weight	Ref. weight	x	x	x
Percentage	Percent	x		
With "Animal Weighing" application:				
Number of weighing operations	No. of weights	x	x	x
Calculation factor	Factor	x	x	x
Average animal weight	Mean value	x		
Average Animal weight calculated	Mean factor	x		
With "Calculation" application:				
Equation	Equation	x	x	x
Calculated result	Calc. result	x		

* = Items are available independently of the applications selected

** = Items are available independently of the applications selected and can be selected more than once

Data Items for the Printout:

Parameter	Display text	Indiv.	Comp.	Total
With the "Check-weighing" application:				
Target value	Target	x	x	x
Minimum value	Minimum	x	x	x
Maximum value	Maximum	x	x	x
With "Time-controlled Functions" application:				
Time/interval	Time/interval	x		
With the "Totalizing" application:				
No. of weights	No. of wts.		x	x
Weight of transaction	Trans. wt.		x	
Weight total	Wt. total			x
Number of calculated values	No.of calc.val.		x	x
Calculated value transactions	Calc.val.trans.		x	
Total of calculated values	Total calc.			x
Nominal no. of weighing operations	Nom.no.wghs.		x	x
With "Formulation" application:				
Number of components	Number		x	x
Net component	Net component		x	
Components calculated	Net transact.		x	
Total net components	Net/comp.calc.			x
Total calc. components	Tot.comp.calc.			x
Preset tare/ Tare 2 weight	Tare2	x	x	x
Nominal no. of weighing operations	Nom.no.wghs.		x	x
With the "Statistics" application:				
No. of weights	No. of wts.		x	x
Weigth of trans.	Trans. wt.		x	
Mean weight	Average wt.			x
Standard deviation – weight	Std.dev.wt.			x
Variation coefficient –weight	Var.coeff.wt.			x
Weight total	Wt.total			x
Minimum weight	Min. wt.			x
Maximum weight	Max. wt.			x
Difference – weight	Diff. wt.			x
No. of calc. values	No. of calc. val.		x	x
Calc. value – transactions	Calc.val.trans.		x	
Mean calc. value	Mean calc. val			x
Standard derivation calculated values	Std.dev.calc.			x
Variation coefficient – calc. values	Var.coeff.calc.			x
Total – calc. values	Total calc.			x
Minimum – calc. values	Min. calc.			x
Maximum – calc. values	Max. calc.			x
Difference – calc. values	Diff. calc.			x
Nominal no. of weighing operations	Nom.no.wghs		x	x

Parameter	Display text	Indiv.	(Backw.	Statist.)
With the "Differential weighing" application:				
Lot name	Lot name		x	x
Sample number	Sample no.		x	
Date/time of sampling	Sample date		x	
Sample identification	Sample ID		x	
Tare weight or input	Tara (T/PT)		x	
Initial weight or input	Net initial wt.		x	
Backweight or input; residue as weight	Backweighed res.		x	
Residual weight in percent	Residue in %		x	
Weight loss	Weight loss		x	
Loss in percent	Loss in %		x	
Factor used in calculation	Factor		x	

Parameter	Display text	Indiv.	(Backw.	Statist.)
Loss calculated as a weight	D.res.		x	
Ratio1 % (DR)	Ratio1		x	
Ratio2 % (OR)	Ratio2		x	
Date/time of statistics	Date of statis.			x
Statistics identification	Statistics ID			x
Number of samples	No. of samples			x
Mean value	Mean value			x
Standard deviation	Standard dev.			x
Variation coefficient	Variat. coeff.			x
Sum	Sum			x
Minimum	Minimum			x
Maximum	Maximum			x
Difference between minimum & maximum	Difference			x

Displaying Info

Purpose

This menu item enables you to have information displayed about the specific scale ("device"), as well as "FlexPrint" information.

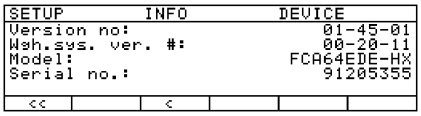
Displaying Device Information

● Select the Setup menu:
press the SETUP key

> "SETUP" is displayed:

● Select "Device information":
Repeatedly press the v soft key, then press the > soft key

> Device information is displayed:



● Print device information:
Press the ⊙ key

> Printout (Example)

```
--------------------
23.02.2000      13:02
Model      FCA64EDE-HX
Ser. no.     91205355
Vers. no.    01-45-01
(Version of the operating program)
ID           BECKER123
(User-ID)
--------------------
SETUP
        INFO
                DEVICE
--------------------
 Version-no.:
             01-45-01
 (Version of the operating program)
 Wgh. sys. vers:
             00-20-11
 (Version no. of the weighing cell)
 Model:
          FCA64EDE-HX
 Serial no.:
             91205355
--------------------
```

● Return to SETUP overview:
press the < soft key

● Exit Setup menu:
press the << soft key

> Original settings are restored

Display Flexprint Information

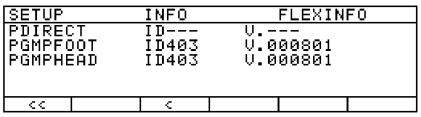
● Select the Setup menu:
press the SETUP key

> "SETUP" is displayed:

● Select "Info":
press the v soft key repeatedly and then the > soft key

● Select "FlexInfo":
press the v soft key and then the > soft key

> The FlexPrint information is displayed, with print instruction file name, software ID and version number:



○ To select a particular print file name with software ID (for example, ID403), if desired:
press key v or ^ as required

> If the display shows `ID---` :
The weight block for legal metrology is not printed by this print file.

> Display of version number:
`V.xx.xx.xx`
Created by Sartorius:
`V.S.xx.xx.xx`

● Return to SETUP overview:
press the < soft key

● Exit Setup menu:
press the << soft key

> The device returns to the previous mode

Date of Manufacture:

The month and year of manufacture are encoded in the serial number as follows:

Y M M x x x x x

Y	Year
1	2000–2006
2	2007–2013
3	2014–2020
4	2021–2027
5	2028–2034
6	2035–2041
7	2042–2048
8	2049–2055
9	2056–2062

The first digit represents a 7-year period as indicated in the table above. The next 2 digits represent the month. The months are numbered consecutively, starting with 13, over the entire 7-year period. Thus the number representing the month also indicates the specific year of manufacture.

2000 13–24
2001 25–36
… etc.

Example:
113xxxxx → January 2000

The individual devices are numbered consecutively in the last 5 digits, starting from 00000 again at the beginning of each month.

MP8 Interface Emulation

Purpose

With the MP8 interface emulation function, you can connect peripheral devices of the MP8 generation that have separate AC power supplies (such as the 73822… Data Control terminal, a YFC…, or a YDI 50 Z Data Input dedicated keyboard, for example) to your FCT terminal.

Features

– The scale can be used only to determine weights.
– The interface communicates exclusively in the MP8 binary protocol.
– Select the application program and the program index for MP8, as well as individual application parameters, in the Setup menu.
– See next page for menu setting options

Preparation

– Activate the MP8 emulation mode*:

● Press SETUP
● Select the `factory settings` and confirm: press the `v` soft key repeatedly and then the `>` soft key
● Select `Reset to MP8`: press `v` soft key and `>` soft key
● Select `Yes` and press ↵ to confirm

> The terminal is restarted

* follow the same procedure to return from MP8 emulation back to factory setting

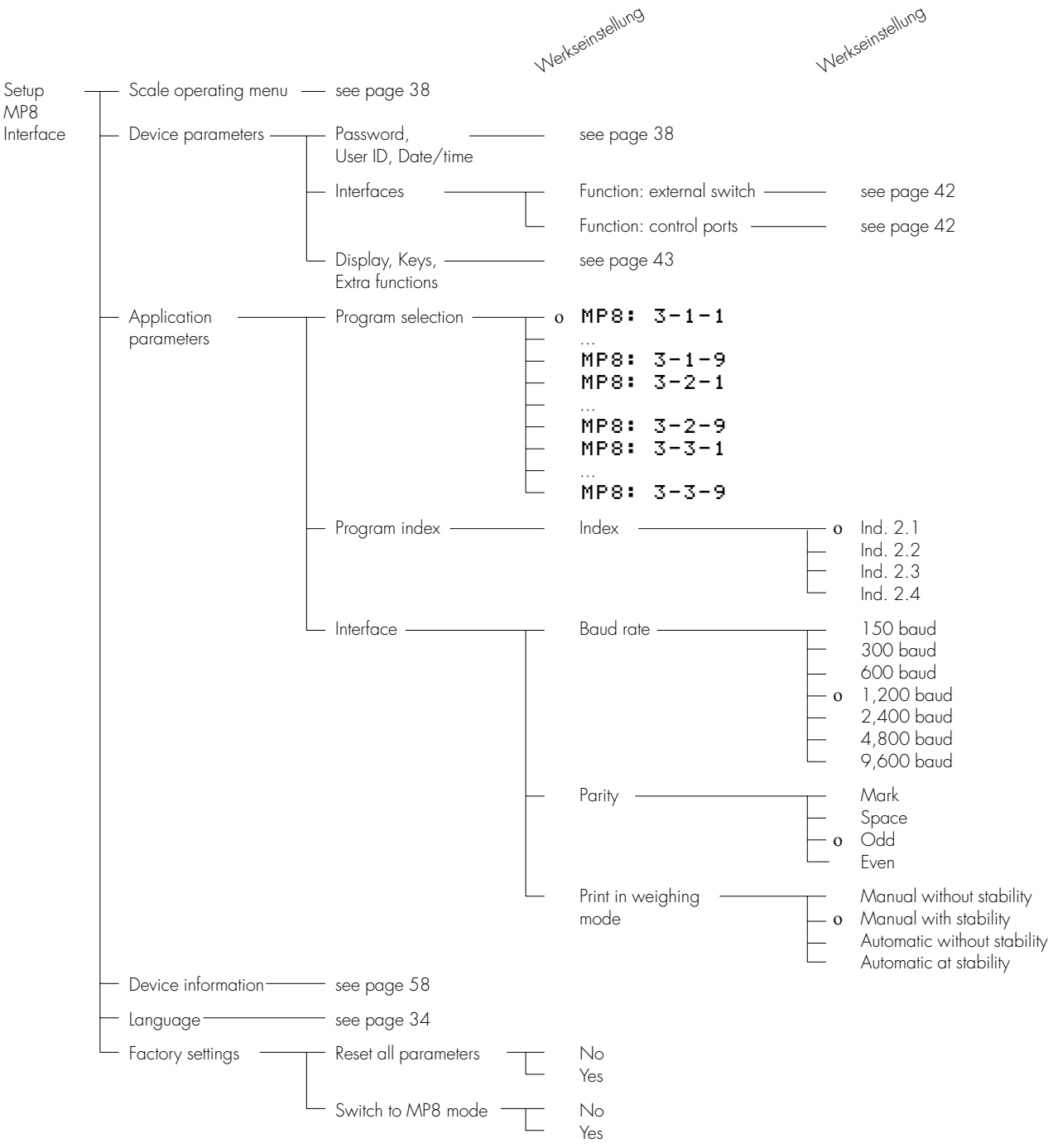
Factory Settings

Each parameter category has a factory setting. To restore the factory settings, select this item in the Setup menu and select `YES` to confirm.

The following parameters are not restored to factory settings when you activate this function:
– Language
– Password
– Display contrast
– Time (clock)

MP8 Interface Emulation Parameters (Overview)

o Factory setting
√ User-defined setting



Operating the Scale

Basic Weighing Function

Purpose

The basic weighing function is always accessible and can be used alone or in combination with an application program (Toggle etween Weight Units, Counting, Weighing in Percent, etc.).

Features

– Taring the scale
– Assigning IDs to weights
– Printing weights
– Printing ID codes for weights

Factory Settings

Tare: `After stability`

Manual/auto print mode:
`Manual with stability`

Line format:
`For other apps/GLP (22 characters)`

Soft Key Functions

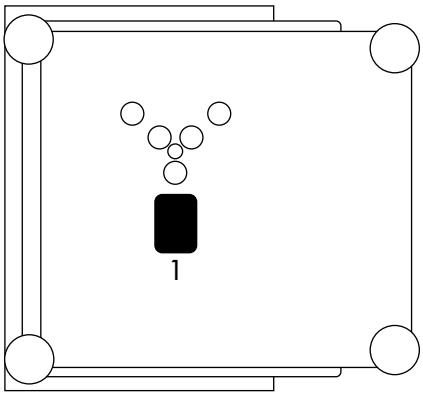
`isoTST`	Initiate calibration/adjustment routine
`isoCAL`	Press to start isoCAL routine
`S ID`	Store ID entered

Under-Scale Weighing

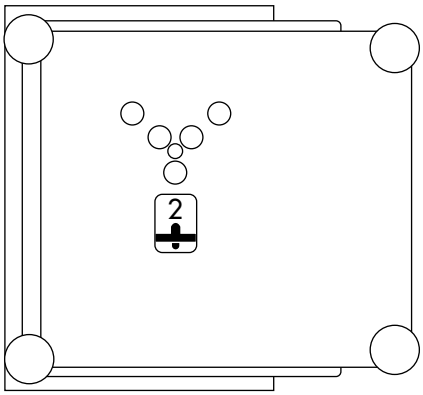
A port for an under-scale weighing hanger is located on the bottom of the scale.

FC... BBE, FC...CCE:

● Open cover plate **(1)** on the bottom of the scale

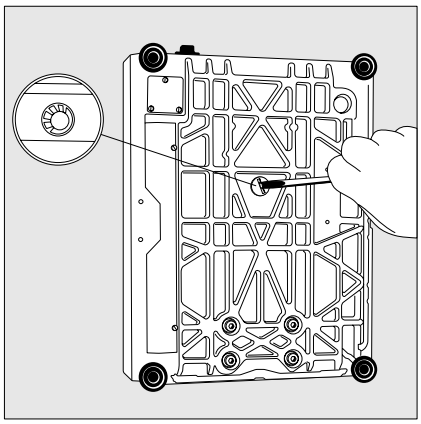


● Attach the sample (e.g., using a suspension wire) to the hook **(2)**.



FC... EDE:

● Use a suitable screwdriver to remove the cover plate from the bottom of the scale.



● Fasten the hook to the cross-bar (see "Accessories").

○ If necessary, install a shield for protection against drafts

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

The under-scale weighing port may not be opened or used when an approved scaleis being operated as a legal measuring instrument.

Preparation

● Turn on the scale: Press I/⏻

> The Sartorius logo is displayed

○ To tare the scale, if desired: Press TARE

> The **o** symbol is displayed when a verified scale is tared or zeroed (± 0.25 digits).

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

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

● You must calibrate the scale at the place of installation before using it as a legal measuring instrument (see the section entitled "Calibration and Adjustment" in this chapter)

○ The temperature range indicated on the verification ID label must not be exceeded during operation

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

Additional Functions

In addition to the functions:

– alphanumeric input
– taring (not during alphanumeric input)
– printing

you can also access the following functions from the weighing application:

Calibration

● Press **isoTST**

> See the section on "Calibration/Adjustment" for further instructions.

Setup

● Press SETUP

> See the chapter entitled "Configuring the Scale" for further instructions.

Turning Off the Scale

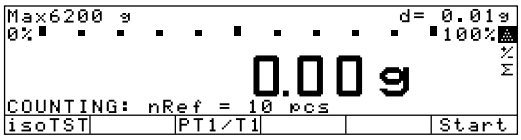
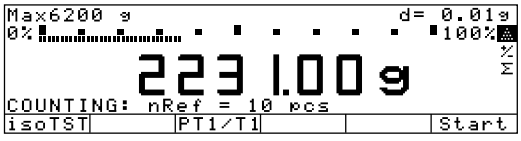
● Press I/⏻

> The scale shuts off

> The display goes blank

Practical Examples

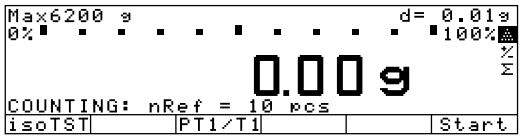
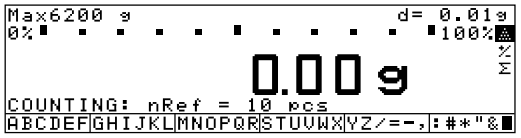
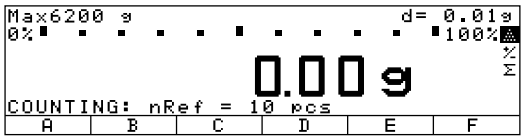
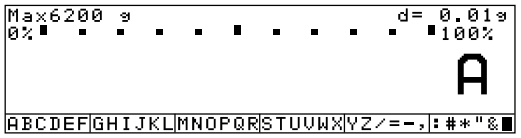
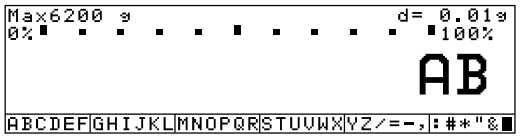
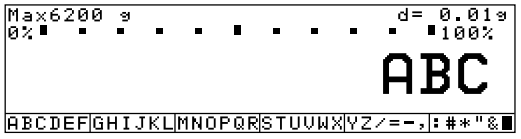
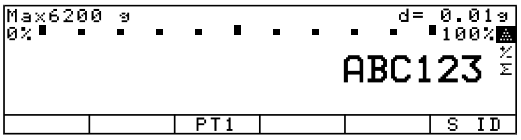
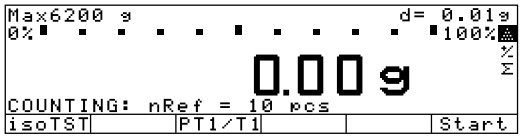
Example W1: Simple weighing

Step	Key (or instruction)	Display/Output
1. If necessary, tare the scale	TARE	
2. Enter sample ID	see Example W2	
3. Determine sample weight (Example)	Place load on scale	
4. Print weight value	⊙	S-ID ABC123 N + 2231.56 g

Example W2

Enter "ABC123" as sample ID

Note:
– The sample ID generally applies to one weighing operation only
– The ID is deleted after data output

Step	Key (or instruction)	Display/Output
Initial status (scale unloaded) (ID can also be entered while scale is loaded)		
1. Select alphabetic input	ABC	
2. Select the required letter group	**ABCDEF** soft key	
3. Enter the letter "A" (To delete a letter:	**A** soft key CF)	
4. Select the letter group and enter "B"	**ABCDEF** soft key **B** soft key	
5. Select the letter group and enter "C" (If only letters are entered, conclude input:	**ABCDEF** soft key **C** soft key ABC)	
6. Enter the numbers 1, 2 and 3	1 2 3	
7. Store the ID (max. 20 characters) – The next printout will include the sample ID	**S ID** soft key	

Basic Settings: FC Models

Keypad

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

When you delete applications, you can delete either all data stored for that application or just selected data.
CF function in application

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

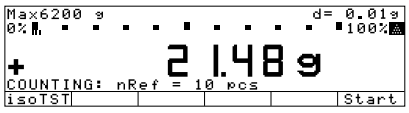
You can block key functions; you can choose whether to block all keys (except I/⏻ and SETUP) or just the alphanumeric keys.
Block key functions

Display

You can configure the display for your individual needs.

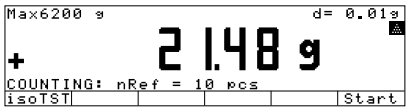
Characters can be displayed in black on white or vice versa.
Background

You can blank out either the bar graph or the text line or both
Digit size

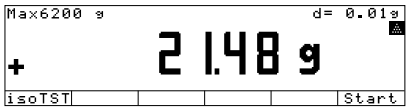


10mm + bar graph + text display

13mm + bar graph



13mm + text display



13mm

You can blank out the display of application symbols
Application symbols

Printout Configuration

Many of the application programs require values to be input for initialization. You can configure the scale to print all initialization values, or only the main values, automatically as soon as they are set. **Auto print upon initialization**

You can have weighed and calculated values printed without an ID code (16 characters) or with an ID code designation (22 characters) **Line format**. See also "Data Output Functions."

You can have the ISO/GLP/GMP-compliant printout generated each time, only after calibration/adjustment or never. See also "Data Output Functions."
ISO/GLP/GMP printout

Auto-Start Application when the Scale is Switched On

You can configure the scale so that, when you turn on the scale, the application that was running before the scale was turned off is started automatically.
Auto-Start app. when power goes on

Additional Functions (in the Scale Menu): FC Models

Password

You can block access to parameter settings in the Setup menu and to the ID code input function, as well as to the exact calibration weight, by assigning a password.

Enter the password under Setup: Input. See "Configuring the Scale" for a detailed description.

Protecting Menu Parameters

In the Setup menu, you can define whether menu parameters are

- accessible for changes (**Change parameters, [8-1-1]**)
- can be read only (**Read parameters, [8-1-2]**)

Acoustic Signal

An acoustic signal is emitted when you press a key. When the key pressed is allowed, the signal is a single beep-tone; when it is not allowed, this is signaled by a double-beep (key does not initiate a function). In the Setup menu, you can configure whether

- the acoustic signal should sound (**On**, **[8-2-1]**)
- the acoustic signal should not sound (**Off**, **[8-2-2]**)

Universal Switch for Remote Control

You can connect an external universal switch to the interface port of your scale (e.g., a foot switch) for remote control of the functions listed below. In the Setup menu, you can configure which function is to be controlled via remote switch:

- 1 (**Print key**, **[8-4-1]**)
- 2 (**Tare key**, **[8-4-2]**)
- 3 (**Cal key**, **[8-4-3]**)
- 4 (**F1 function key**, **[8-4-4]**)
- 5 (**CF key**, **[8-4-5]**)
- 6 (**F2 function key**, **[8-4-6]**)

"PC Keyboard" Functions

The alphanumeric key codes implemented are for a German keyboard layout only ("Z" in the first row instead of "Y", for example). Some of alphanumeric keys are used with the [Shift] key:
a–z, A–Z, 0–9, space
„,.\+#<>!"$@%&/()=:_?*"

Function keys:

PC keyboard	Scale
F1	TARE key
F2	SETUP key
F3	Soft key 6
F4	Soft key 5
F5	Soft key 4
F6	Soft key 3
F7	Soft key 2
F8	Soft key 1
F9	Display
F10	Escape
F11	⎙/[PRINT] key
F12	TARE key
Return	Soft key 1
Backspace	Escape
Up cursor	Soft key 3
Left cursor	Soft key 4
Down cursor	Soft key 2
Right cursor	Soft key 1
POS1 (HOME)	Soft key 6
ESC	Escape
PRINT	⎙/[PRINT] key

The "Num Lock" and "Caps Lock" keys are not supported. There is no country-specific option for switching these keys to a different function.

Display Backlighting

You can have the display backlighted for improved readability of displayed values. In the Setup menu, you can configure whether the

- display backlighting is on (**On**, **[8-5-1]**)
- display backlighting shuts off automatically after 4 minutes without activity (**Auto off after 4 minutes**, **[8-5-3]**)

Power-On Mode

You can configure the scale so that when a power supply is connected,

- the scale is off (**Off/on/standby [8-6-1]** or **Off/on [8-6-2]**)
- the scale switches on automatically (**Auto on**, **[8-6-4]**)

You can also set the configurations so that when the scale is turned off after use, it is

- off (**Off/on**, **[8-6-2]**) (not possible with scales that have a weighing capacity ≥16 kg)
- in the standby mode (**Off/on/standby**, **[8-6-1]**)

After you turn on the scale, a self-test of the functions is run (**TEST** is displayed in the text line; the bar graph is shown)

After the self-test has been completed, the weighing range of the scale is displayed (line for metrological data shows different increments)

Automatic Shutoff

When parameter **[8-6-2]** is selected in the Setup menu, you can configure whether

- the scale shuts off automatically after 4 minutes without use (**After 4 minutes**, **[8-7-1]**)
- automatic shutoff is deactivated (**Off**, **[8-7-2]**

Printing an ISO/GLP/GMP-compliant Record

In the Setup menu, you can configure whether

- no ISO/GLP/GMP-compliant record is printed (**Off**, **[8-10-1]**)
- an ISO/GLP/GMP-compliant record is printed only after calibration/adjustment (**Only for calibration/ adjustment**, **[8-10-2]**)
- every printout is an ISO/GLP/GMP-compliant record (**Always on**, **[8-10-3]**)

Undoing All Parameter Changes – Reset Function

There is a factory setting for each parameter. In the Setup menu, you can configure whether

- factory settings are restored after exiting Setup (**Factory settings**, **[9-1-1]**)

Device Parameters: FCA Models

Password

You can enter a password to block access to the operating menu and to the functions for ID code input and exact calibration weight input.

For details, see "Setting the Device Parameters" in the chapter entitled "Configuring the Scale".

User ID

You can enter your own personal password (20 characters max.)

Clock

ISO/GLP/GMP printouts in particular must be generated with the date and time stamp of the specific measurement. This date and time stamp is optional on other printouts.

For details, see "Setting the Device Parameters" in the chapter entitled "Configuring the Scale".

Interface

Purpose

This item enables you to set the parameters for the following interfaces:

- Serial interface port
- External switch function

Serial communications port

You can set the serial communications port to use for the following modes:

- SBI
- XBPI
- VDP01IS
- VDP02
- VDP03
- VDP01IS-Label
- XBPI RS-485
- VDP02IS
- VDP02IS-Label
- VDP04IS
- VDP04IS-Label

Universal Remote Switch

You can connect an external universal remote switch (foot switch) to one of the two serial ports. Then you can assign one of the following functions to be performed when the switch is activated:

- Print key
- Tare key
- Cal key
- F1 function key
- CF key
- F2 function key

For further information on the pin assignment chart, see "Pin Assignment Charts" in the chapter entitled "Data Output Functions".

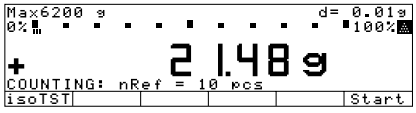
Display

You can configure the display for your individual needs.

The contrast can be adjusted in 5 levels: `Contrast`

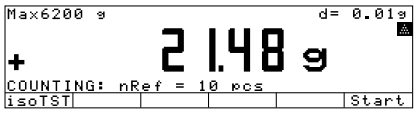
Characters can be displayed in black on white or vice versa:
`Background`

You can blank out either the bar graph or the text line or both
`Digit size`

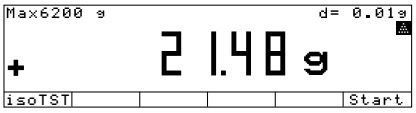


`10mm + bar graph + text display`

`13mm + bar graph`



`13mm + text display`



`13mm`

You can blank out the display of application symbols
`Application symbols`

Keys

You can assign different functions to the [CF] key for deleting input and applications.

When you delete applications, you can delete either the data stored for all applications or just selected data. **CF function in application**

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 just the alphanumeric keys. **Block key functions**

Extra Functions

Acoustic Signal

An acoustic signal is emitted when you press a key. When the key pressed is allowed, the signal is a single beep-tone; when it is not allowed, this is signaled by a double-beep (key does not initiate a function). In the Setup menu, you can configure whether

- the acoustic signal should sound (**On**)
- the acoustic signal should not sound (**Off**)

Power-On Mode

You can configure the scale so that when a power supply is connected,

- the scale is off (**Off/on/standby**), or
- the scale switches on automatically (**Auto on**)

You can also configure the scale to go into the standby mode (**Off/on/standby**) when it is turned off.

After you turn on the scale, a self-test of the functions is run (**TEST** is displayed in the text line and the bar graph is shown)

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 scale.

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

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

Before using your scale as a legal measuring instrument, you must perform "internal calibration" at the place of installation after the warmup period.

* isoTEST = TEST in the U.S. and Canada

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

Available Features

You can start the isoTEST function at the press of a key to check a scale used as measuring, inspection and test equipment at any time. The scale is calibrated and any deviation is displayed. Press the **Start** soft key to start adjustment. If you do not wish to have the scale adjusted, press the **End** soft key to cancel the isoTEST.

Your scale can be calibrated externally (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**). External calibration can be performed

- using a pre-set weight value **Ext. cal./adj.: factory-def. wt.**, or
- with a user-defined weight **Ext. cal./adj.: user-defined wt.**

The 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

- will be 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 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 configure the scale to perform calibration and adjustment automatically (isoCAL) when the pre-set time(s) and/or temperature limit is reached: **On and reset application** and **On without resetting application**.

You can have the calibration/adjustment results documented on an ISO/GMP-compliant printout or on a block printout with up to 50 adjustment sequences; see pages 158 and 162.

Factory Settings

Calibration/adjustment mode: **Selection mode**

Calibration/adjustment sequence: **Calibrate, then auto adjust**

Automatic calibration/adjustment function: **On without resetting app.**

Start automatic adjustment: **isoCAL**

Generate GLP/GMP-compliant record: **Automatic if GLP is selected**

External Calibration in Verified Scales of Accuracy Class (II)

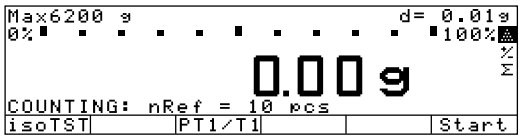
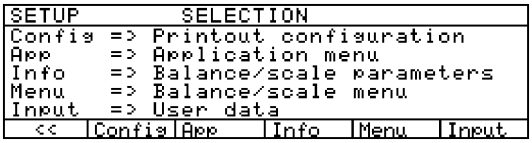
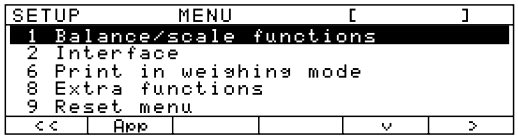
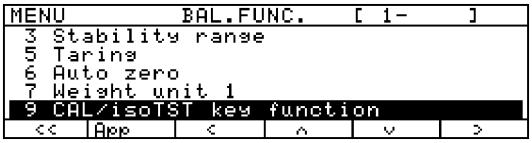
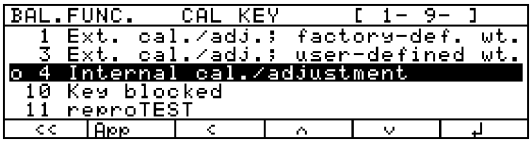
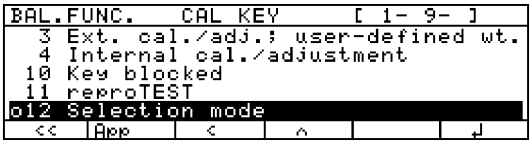
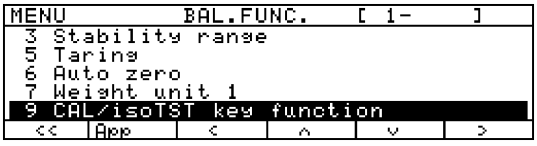
– External calibration is blocked when the scale is used in legal metrology

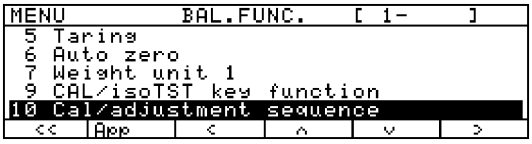
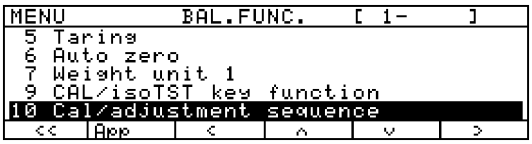
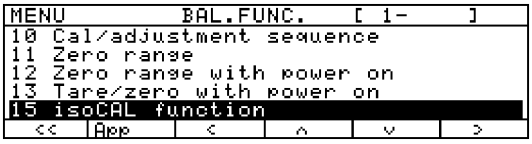
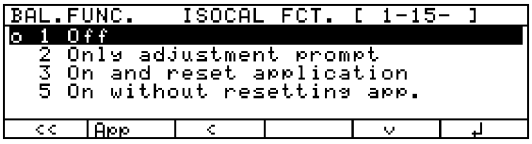
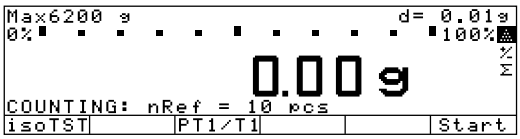
> External calibration can only be released after removing the verification control seal, in which case the validity of the verification becomes void and the scale must be re-verified

– External calibration can now be performed

Preparation: FC Models

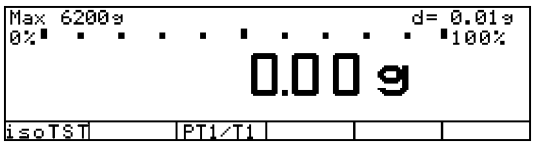
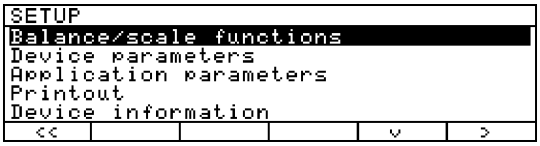
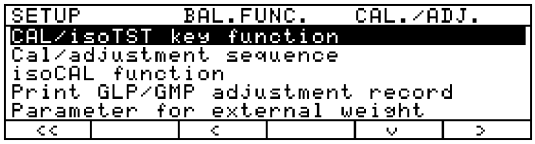
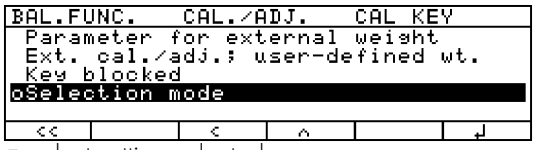
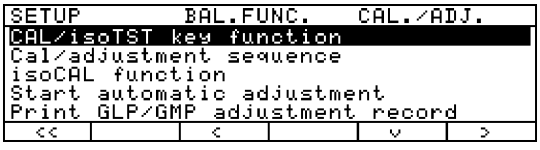
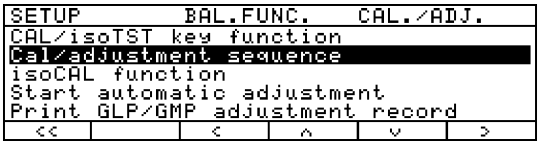
Set the parameters for calibration and adjustment; e.g., with automatic calibration/adjustment, isoCAL on

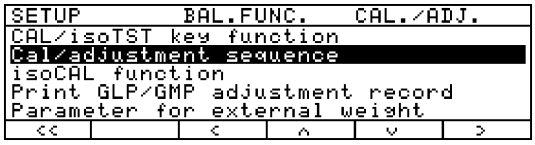
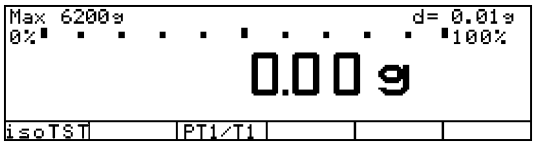
Step	Key (or instruction)	Display/Output
1. Switch on the scale	I/⏻	Sartorius logo Self test
		
2. Select the Setup menu	SETUP	
3. Select the Scale menu	**Menu** soft key	
4. Confirm selection of Scale functions	> soft key	
5. Select CAL/isoTST key function	v soft key repeatedly	
and confirm	> soft key	
		o = last setting selected
6. Select desired function and confirm (e.g., item 12)	v soft key, repeatedly, if necessary ↵ soft key	
7. Exit CAL/isoTST key function	< soft key	

Step	Key (or instruction)	Display/Output
8. Select Cal./adjustment sequence	˅ soft key	
and confirm	> soft key	 o = last selected setting
9. Select other settings, if desired and confirm (e.g., Calibration with automatic adjustment)	^ and ↵ soft keys	
10. Exit Cal./adjustment sequence	< soft key	
11. Select isoCAL function	˅ soft key repeatedly	
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	

Preparation: FCA Models

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

Step	Press key(s) (or follow instructions)	Display/Output
1. Switch on the scale, if not already on	I/⏻	Sartorius logo and self-test 
2. Select the Setup menu	SETUP	
3. Select "Balance/scale functions"	> soft key	
4. Select "Calibration/adjustment"	> soft key	
5. Select CAL/isoTST key function	> soft key	 o = last setting selected
6. Select desired function and confirm (e.g., "Ext. cal./adj.; factory-def. wt.")	^ soft key, repeatedly, if necessary ↵ soft key	
7. Exit CAL/isoTST key function	< soft key	
8. Select "Cal./adjustment sequence"	v soft key	

Step	Press key(s) (or follow instructions)	Display/Output
9. Confirm calibration and adjustment sequence	> soft key	 o = last setting selected
10. Select other settings, if desired and confirm (e.g., Calibration with manual adjustment)	v and ↵ soft keys	
11. Exit Cal./adjustment sequence	< soft key	
12. Save settings and exit the Setup menu	<< soft key	

Internal Calibration/Adjustment

First set either **Internal cal./ adjustment** or **Selection mode** (factory setting) in the Setup: 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

> The internal calibration weight is applied automatically

> The scale is calibrated

> If the setting **Calibrate, then auto adjust** is selected in the Scale menu, the scale is now automatically adjusted

> If the setting **Calibrate, then manual adjust** 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

> (ISO/GMP printout: see page 161)

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) or

– you have the choice of ending the sequence or starting adjustment after calibration **Calibrate, then manual adjust**

If no deviation is determined in calibration, or the deviation 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

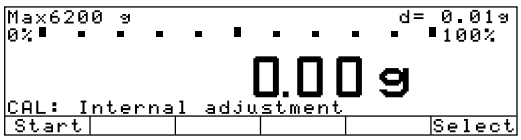
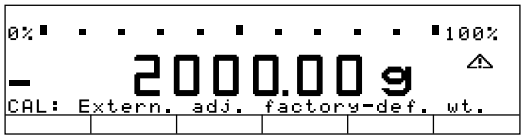
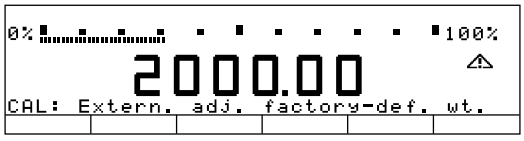
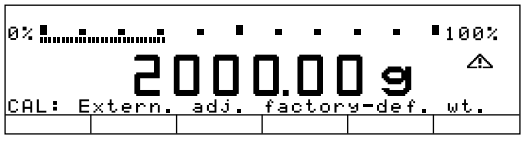
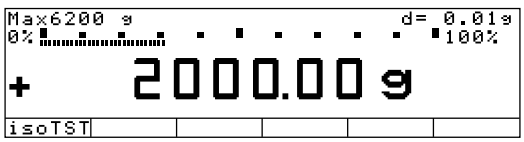
The setting **Selection mode** must be selected in the Setup menu (factory setting).
After pressing the **isoTST** soft key, you can choose from among the following settings by pressing the **Select** soft key:

- External calibration/adjustment with the preset calibration weight: **Ext. cal./adj.: factory-def. wt.**
- External calibration/adjustment with a calibration weight determined 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

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** soft key	
2. Select external calibration/adjustment with factory-defined weight (for scales of accuracy class II, only "external adjustment" is possible)	**Select** soft key repeatedly	
3. Start external calibration/ adjustment	**Start** soft key	
4. Place the weight on the scale (e.g., 2,000.00 g) Minus sign –: Weight too low Plus sign + Weight too high no plus/minus sign: Weight o.k.	Place weight on scale	
This is displayed after calibration, for approx.10 seconds: (on verified scales, the difference between the displayed weight and the true weight (mass) is displayed)		
5. Unload the scale (ISO/GMP printout: see page 161)		

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 Setup: 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 scale capacity.

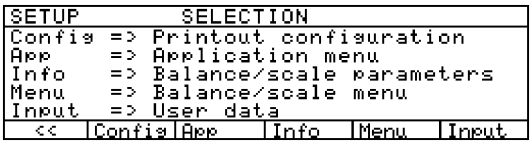
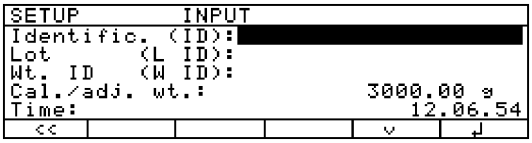
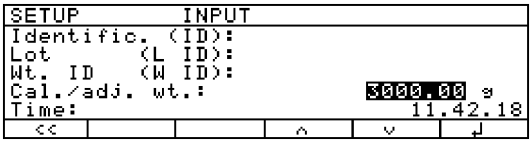
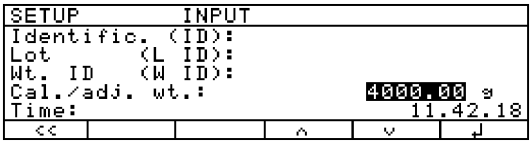
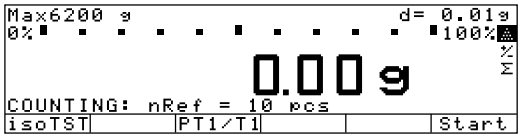
See page 75 for the external calibration/adjustment sequence. For this example, select external calibration/adjustment with a user-defined weight.

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

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

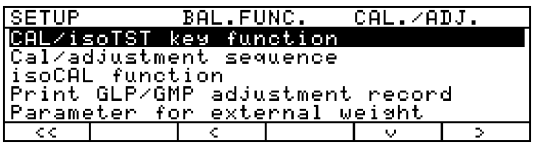
○ Enter the factory-defined value manually (see "Specifications")

Define the Calibration Weight: **FC Models**

Step	Key(s) (or instruction)	Display/Output
1. Select Setup	SETUP	
2. Select Input	**Input** soft key	
3. Select calibration/adjustment weight	v soft key 3 times	 3000.00 = last setting selected
4. Enter calibration weight (e.g., 4000.00 g) and store	4 0 0 0 · 0 0 ↵ soft key	
6. Exit the Setup menu	<< soft key	

* for verified scales, only "external adjustment" is possible

Define the Calibration Weight: **FCA Models**

Step	Press key(s) (or follow instructions)	Display/Output
1. Select Setup menu	SETUP	
2. Select "Balance/scale functions"	> soft key	
3. Select "Calibration/adjustment"	> soft key	
4. Select parameter for external weight	v soft key 5 x > soft key	
5. Select "Cal./adj. wt."	v soft key	 3000 = last setting selected
6. Enter calibration weight (e.g., 5000 g) and save	5 0 0 0	
7. Save the calibration weight	↵ soft key	
8. Exit the Setup menu	<< soft key	

isoCAL: Automatic Calibration and Adjustment after a Change in Temperature

First set either **On and reset the application** or **On without resetting the app.** (factory setting) in the Setup: 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 scale is telling you that it wants to adjust itself.

This automatic calibration prompt is triggered when:

- The change in temperature is greater than 10 Kelvin
- The scale status does not correspond to Setup configurations
- No number or letter input is active
- The load has not been changed within the last 2 minutes
- The scale has not been operated within the last 2 minutes
- The load on the scale does not exceed 2% of the maximum capacity

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

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

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

Automatic Calibration and Adjustment at Specific Time Settings

Select either **On and reset application** or **On without resetting app.** (factory setting) in the Setup menu.

In the Setup: Input menu, you can now enter up to three different times of day for automatic calibration/adjustment. The scale will display the flashing calibration prompt ("isoCAL"). Calibration/adjustment is not performed if the scale is off or in the Setup mode at the time set for calibration.

If the scale is being operated at the time set for automatic calibration/adjustment, the calibration/adjustment sequence is prompted afterward.

If time settings are selected for automatic calibration/adjustment, the time and temperature criteria for the isoCAL function are switched off.
Automatic calibration/adjustment is prompted at fixed times when:

- The user-defined time is reached
- The scale status does not correspond to Setup configurations
- No alphanumeric input is active (e.g., equation for calculation)
- The load has not been changed within the last 2 minutes
- The scale has not been operated within the last 2 minutes
- The load on the scale does not exceed 2% of the maximum capacity

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

If the 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 scale so that after calibration and adjustment

- the application program is restarted
  On and reset the application
- the application program remains at its previous status
  On without resetting the app.

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

Determination of the Repeatability (reproTEST)

Definition

Repeatability is the ability of the scale to display identical readouts when it is loaded several times with the same weight under constant ambient conditions (also called "reproducibility").
The standard deviation for a given number of measurements is used to quantify the repeatability.

Purpose

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

Preparation

- Turn on the scale: Press I/⏻
- > The Sartorius logo is displayed
- > The scale performs a self-test
- Select reproTEST in the Setup menu: Press SETUP

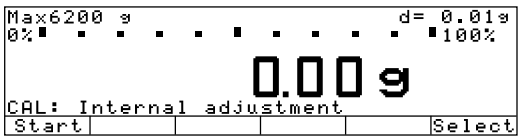
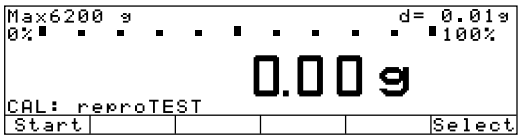
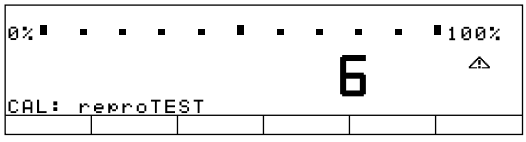
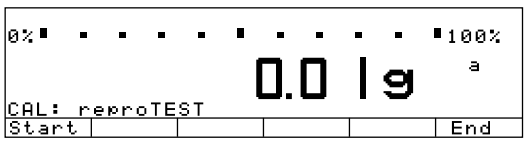
FC Models:

- Select the Scale menu: **Menu** soft key

FCA Models:

- Select Calibration/adjustment: CAL-key function: Press the **>** **v** keys
- Select either **reproTEST** or **Selection mode** (factory setting): see "Configuring the Scale"
- Exit the Setup menu: Press the **<<** soft key

Check the Reproducibility of the Scale

Step	Key(s) (or instruction)	Display/Output
1. If **reproTEST** is set: and proceed with step 4.	**isoTST** soft key	
If **Selection mode** is set:	**isoTST** 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	

Application Programs

Soft Key Functions

Start Start application program

Weigh. Toggle to basic weighing functions

Auto-Start Application When the Power Goes On

In the Setup menu, you can select whether the application that is active before you turn off the power will automatically start when the power is turned on again (Setup: Application parameters: Auto-start app. when power goes on: On).

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

All application programs can be selected on scales verified for use in legal metrology.
Non-metric values can be indicated as follows:

– Percent = %
– Piece counting (Counting) = pcs
– Computed value = o, ⚠

Toggle between Two Weight Units

Purpose

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

You can use this application program in combination with a program chosen from Application 2 (check-weighing, time-controlled functions) and one from Application 3 (totalizing, formulation, statistics).

Available Features

– Toggling the displayed weight
– Other features as for the basic weighing function

Factory Settings

Weight unit 1: **Grams /g**
Weight unit 2: **Kilograms /Kg**

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

Preparation

Scales used as legal measuring instruments: grams and kilograms are the only weight units available

Standard scales: The following weight units are available in both ranges:

Unit	Conversion factor	Display/ Printout	Line for metrological data
Grams	1.00000000000	g	g
Kilograms	0.00100000000	kg	kg
Carats	5.00000000000	ct	ct
Pounds	0.00220462260	lb	lb
Ounces	0.03527396200	oz	oz
Troy ounces	0.03215074700	ozt	ozt
Hong Kong taels	0.02671725000	tlh	tlh
Singapore taels	0.02645544638	tls	tls
Taiwanese taels	0.02666666000	tlt	tlt
Grains	15.43235835000	GN	GN
Pennyweights	0.64301493100	dwt	dwt
Milligrams	1000.00000000000	mg	mg
Parts per pound	1.12876677120	/lb	lb
Chinese taels	0.02645547175	tlc	tlc
Mommes	0.26670000000	mom	M
Austrian carats	5.00000000000	K	K
Tola	0.08573333810	tol	tol
Baht	0.06578947437	bat	bat
Mesghal	0.21700000000	MS	MS

- Turn on the scale: Press I/⏻
> Sartorius logo is displayed
- Select the "Toggle weight units" program in the Setup menu: Press SETUP

FC Models:

- Select the Application menu: **App** soft key
- Select **Application 1**: **>** soft key

FCA Models:

- Select **Application parameters**: press the **v** soft key 2 x, then the **>** soft key once
- **Application 1 (basic settings)**: press the **>** soft key
- Select **Toggle wt. units**: **^** or **v** soft key (repeatedly)
- Confirm **Toggle wt. units**: **>** soft key
- Select and confirm:
– **Weight unit 1**: see above
– **Weight unit 2**: see above

see also the "Application Menu (Overview)" in the chapter entitled "Configuring the Scale"

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

Additional Functions

In addition to the functions for:

– alphanumeric input,

– taring (not during alphanumeric input),

– printing (NUM print; S ID),

you can also access the following functions from this application:

Calibration/Adjustment

● Press the **isoTST** soft key

> See "Calibration/Adjustment" for further instructions

Toggling to the Next Application

● Press [⟲]

> See the section on the corresponding application program for further instructions

Setup (setting parameters)

● Press [SETUP]

> See "Configuring the Scale" for further instructions

Turning Off the Scale

● Press [I/⏻]

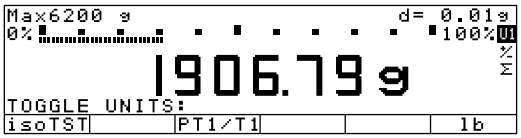
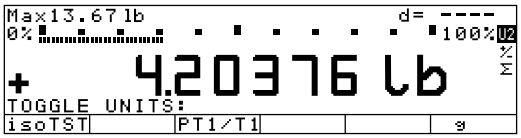
> The scale shuts off

> The display goes blank

Practical Example

Toggle the Display From Grams [g] (1st Unit) to Pounds [lb] (2nd Unit)

Settings (changes in the factory settings required for this example):
Setup: App: Application 1: Toggle wt. units: Weight unit 2: Pounds/lb

Step	Key (or instruction)	Display/Output
1. Delete previous setting if necessary (**U1**: Weight unit 1)	[CF]	
2. Change weight unit to Pounds [lb] (**U2**: Weight unit 2)	**lb** soft key	
3. Change weight unit to Grams [g]	**g** soft key	

Counting

Purpose

With the Counting application, you can determine the number of pieces of approximately equal weight.

You can use this application program in combination with a program chosen from Application 2 (checkweighing, time-controlled functions) and one from Application 3 (totalizing, formulation, statistics).

Features

- Optional scale configuration in Setup for automatically initializing this application and loading the most recent reference sample quantity "nRef" and average piece weight "wRef" when you switch on the scale (this is the automatic setting when the scale is initialized; Setup menu: Application parameters: Auto-start app. when power goes on: On).
- Reference sample quantity "nRef" entered manually
- Average piece weight "wRef" entered manually
- Storage of the current weight value for the preset reference sample quantity "nRef", to be loaded when the Counting program is initialized
- Setting the accuracy when the reference sample weight "wRef" is stored for calculating a piece count
- Automatic output of the quantity and sample weight via the data interface port after initialization or reference sample updating while running the Counting program (Printout: Application-defined printout: Auto print upon initialization: All values)
- Toggling between piece count and weight value by pressing the **Count.** or **Weigh.** soft key
- Toggling between counting and other applications using the key (for example, checkweighing)

Factory Settings

Accuracy when calculating piece weight: **Display accuracy**

Reference sample updating: **Automatic**

Soft Key Functions

nRef	Store value input as reference sample quantity
wRef	Store input value as reference sample weight
Update	Reference updating criteria met; reference updating can be performed to optimize the accuracy
Count.	Toggle to the Counting application
Weigh.	Toggle to the Weighing mode
Start	Storage of the current weight value for the preset reference sample quantity

Preparation

To calculate a piece count, the average weight of one piece must be known. This average piece weight can be entered into the Counting program in one of three ways:

– Enter the average piece weight using the numeric keys and store it;
– The last reference sample quantity entered is loaded and displayed when you turn on the scale. Place the same number of parts on the scale and initialize the Counting program;
– When the automatic initialization parameter (see previous page) is on (Setup: Printout: Application-defined output: Auto print upon initialization: All values), the scale goes into the "Counting" mode when you turn it on and loads the last average piece weight and corresponding reference sample quantity that were entered or calculated.

Reference Sample Updating

You can have the average piece weight updated during counting (with the piece count displayed) if "AWP update" is set to "manual" or "automatic" in the Setup menu. Manual updating can only be performed when the **Update** soft key is displayed. Reference sample updating must be completed before using an application program from Application 3.

The **Update** soft key is displayed when:

– the scale has reached stability (stability symbol displayed)
– the current piece count is less than double the original piece count
– the current piece count is less than 100
– the internally calculated piece count (e.g., 17.24) differs from the nearest whole number (here: 17) by less than 0.3

Reference updating can be repeated several times with an approximately doubled piece count.

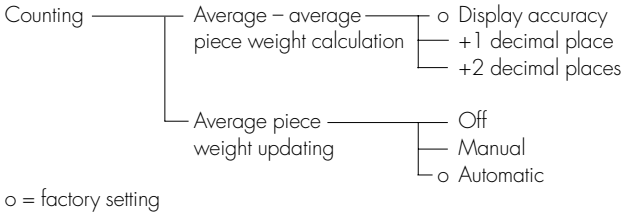
● To perform reference updating: Press the **Update** soft key
● Turn on the scale: Press I/⏻
> Sartorius logo is displayed, self-test is performed
● Select the "Counting" program in the Setup menu: Press SETUP

FC Models:

● Select the Application menu: Press the **App** soft key
● Select **Application 1**: **>** soft key

FCA Models:

● Select **Application parameters**: press the **v** soft key 2 x, then the **>** soft key once
● Select **Application 1 (basic settings)**: press the **>** soft key
● Select **Counting**: **^** or **v** soft key, repeatedly
● Confirm **Counting**: **>** soft key



o = factory setting
see also the "Application Menu (Overview)" in the chapter entitled "Configuring the Scale"

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

Additional Functions

In addition to the functions for:

– alphanumeric input,
– taring (not during alphanumeric input),
– printing,

you can also access the following functions from this application:

Calibration/Adjustment

● Press the **isoTST** soft key
> See "Calibration/Adjustment" for further instructions

Toggling to the Next Application

● Press D
> See the section on the corresponding application program for further instructions

Setup (setting parameters)

● Press SETUP
> See "Configuring the Scale" for further instructions

Turning Off the Scale

● Press I/⏻
> The scale shuts off
> The display goes blank

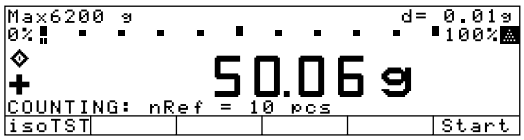
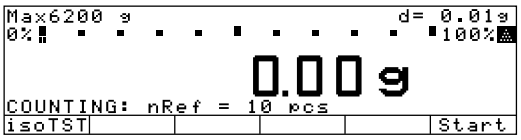
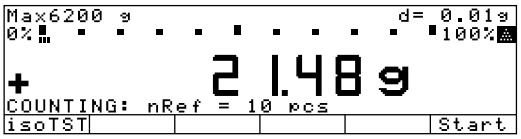
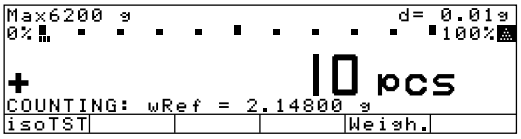
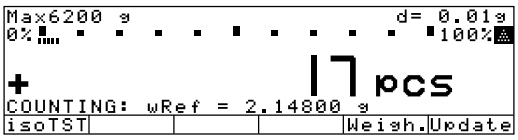
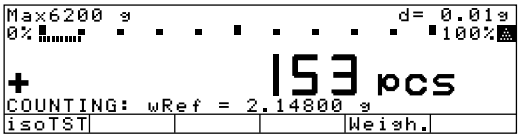
Practical Example

Determining an Unknown Piece Count; Weighing in the Preset Reference Sample Quantity

Settings (changes in the factory settings required for this example):

Setup: App(lication parameters): Application 1: Counting: Average piece weight updating: Manual

FCA Models: Setup: Printout: Application-defined output: Autoprint upon initialization: All values

Step	Key (or instruction)	Display/Output
1. Delete previous setting if necessary	CF	
2. Prepare a container for the parts to be counted	Place the empty container on the scale	
3. Tare the scale	TARE	
4. Place the reference sample quantity on the scale (example: 10 pcs)	Place the displayed number of parts in the container	
5. Determine the average piece weight (number of decimal places displayed depends on the scale model)	**Start** soft key	 nRef + 10 pcs wRef + 2.14800 g
6. If necessary, increase the number of parts and perform reference sample updating (example: 7 additional pieces)	Place additional parts in the container **Update** soft key	 nRef + 17 pcs wRef + 2.14800 g
7. Weigh uncounted parts	Place parts to be counted in the container	
8. If desired, print total piece count (here: 153 pcs)	⊙	Qnt + 153 pcs

Weighing in Percent %

Purpose

This application program allows you to obtain weight readouts in percent which are in proportion to a reference weight. Alternatively, you can have the value displayed as a difference in percent between the weight on the scale and the reference weight, or as a special ratio 1 or ratio 2.

You can use this application program in combination with a program chosen from Application 2 (checkweighing, time-controlled functions) and one from Application 3 (totalizing, formulation, statistics).

Available Features

- Reference percentage "pRef" loaded from long-term memory when you turn on the scale
- Optional scale configuration in Setup for automatically initializing this application and loading the most recent reference percentage "pRef" entered with reference weight "Wxx%" when you turn on the scale
- Value displayed as:
  – Residual quantity (portion)
  – Difference (deviation)
  – Ratio1
  – Ratio2
  depending on the Setup menu code selected.
- Reference percentage "nRef" entered manually
- Store the current weight as the reference percentage weight "Wxx%" for initializing the weighing-in-percent application program
- Reference weight "Wxx%" entered manually
- Storage parameter (rounding-off factor) for storing the reference weight "W100%" in percentage calculation can be configured
- Configuration of decimal places displayed with a percentage
- Optional configuration for having the reference weight "Wxx%" and reference percentage automatically output via the data interface port after initialization of the weighing-in-percent program (print application parameters)
- Toggle the display between percentage and weight readout by pressing the **Weigh.** soft key
- Toggle between the weighing-in-percent program and other applications (e.g., checkweighing) by pressing [↻]

Factory Settings

Storage parameter:
Display accuracy

Digits displayed with percentage:
2 digits

Display calculated value:
Residue

Soft Key Functions

pRef	Store value input as reference percentage
Wxx%	Store input value as reference sample weight
Perc.	Toggle to the Weighing-in-percent application
New	Store next value
Weigh.	Toggle to the Weighing mode
Start	Store the current weight value for the preset reference sample quantity

Preparation

To calculate a value in percent, the reference percentage must be known. This value can be entered into the weighing-in-percent program in one of three ways:

– The last reference percentage entered is loaded and displayed when you turn on the scale. Place the corresponding weight on the scale and initialize the weighing-in-percent program;
– With automatic initialization switched on (see previous page), the scale goes into the "weighing in percent" mode when you turn on the power and loads the last reference percentage entered as well as the corresponding reference weight (Setup: Printout: Application-defined output: Auto print upon initialization: All values);
– Enter the reference weight using the numeric keys and store it (**Wxx%** soft key).

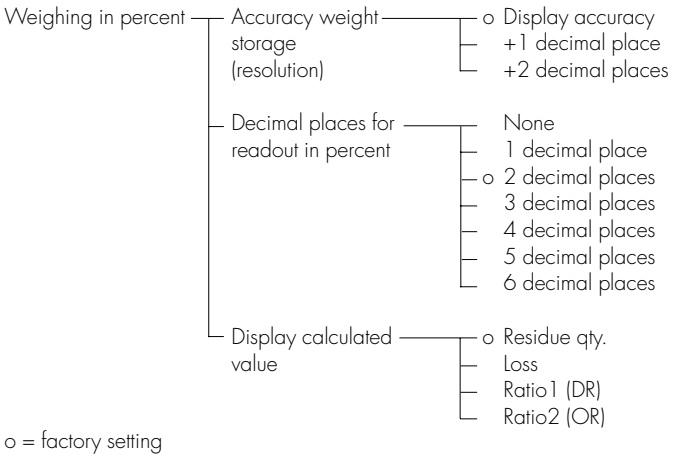
● Turn on the scale: Press I/⏻
> Sartorius logo is displayed, self-test is performed
● Select the "Weighing in percent" application in the Setup menu: Press SETUP

FC Models:

● Select the Application menu: Press the **App** soft key
● Select **Application 1**: **>** soft key

FCA Models:

● Select **Application parameters**: press the **v** soft key 2 x, then the **>** soft key once
● Select **Application 1 (basic settings)**: press the **>** soft key
● Select **Percent weigh.**: **^** or **v** soft key repeatedly
● Confirm **Percent weigh.**: **>** soft key
● Select and confirm:



o = factory setting

see also the "Application Menu (Overview)" in the chapter entitled "Configuring the Scale"

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

Equations

The following equations are used for the corresponding calculations:

Residue = Current weight ÷ 100% weight x 100%
Loss = (Current weight – 100% weight) ÷ 100% weight x 100%
Ratio1 = (100% weight – current weight) ÷ current weight x 100%
Ratio2 = 100% weight ÷ current weight x 100%

Additional Functions

In addition to the functions for:

– alphanumeric input,
– taring (not during alphanumeric input),
– printing,

you can also access the following functions from this application:

Calibration/Adjustment

● Press the **isoTST** soft key
> See "Calibration/Adjustment" for further instructions

Toggling to the Next Application

● Press ⏻
> See the section on the corresponding application program for further instructions

Setup (setting parameters)

● Press SETUP
> See "Configuring the Scale" for further instructions

Turning Off the Scale

● Press I/⏻
> The scale shuts off
> The display goes blank

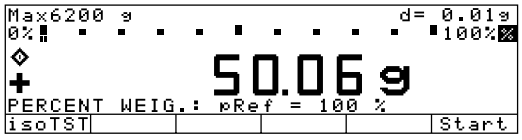
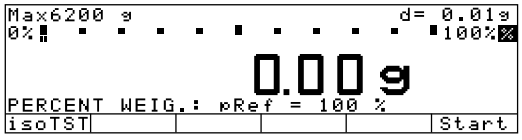
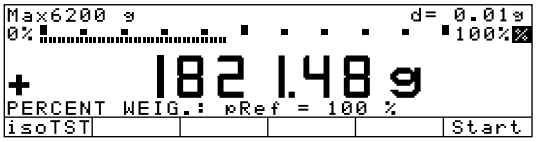
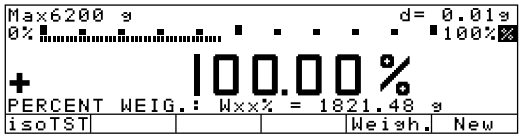
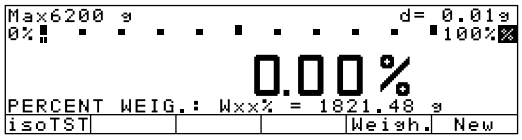
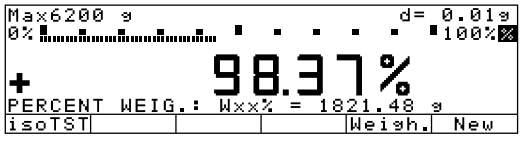
Examples

Practical Example P1: Weighing in Percent with Reference Weight Taken From Weight on Scale

Settings (changes in the factory settings required for this example):

Setup: App(lication parameters): Application 1: Weighing in percent

FCA Models: Setup: Printout: Application-defined output: Autoprint upon initialization: All values

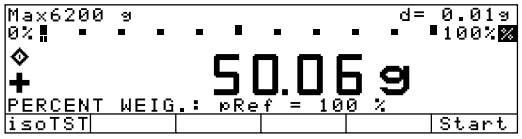
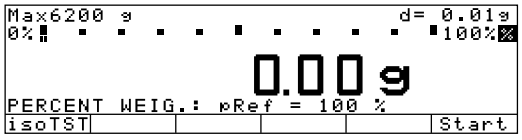
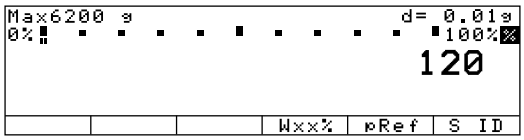
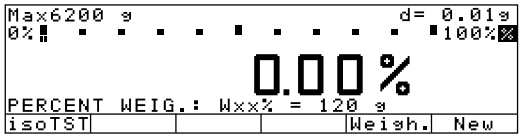
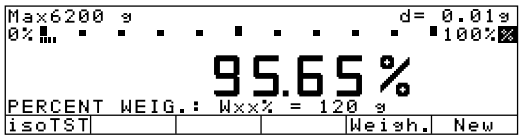
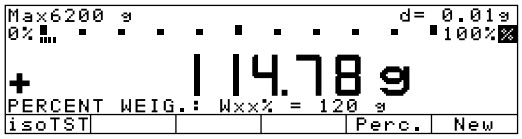
Step	Key (or instruction)	Display/Output
1. Delete previous setting if necessary	CF	
2. Prepare a container for the parts	Place the empty container on the scale	
3. Tare the scale	TARE	
4. Place the reference weight on the scale (here: 1821.48 g = 100%)	Place weight equal to reference weight in the container	
5. Initialize the scale	**Start** soft key	 pRef + 100 % Wxx% + 1821.48 g
6. Unload the scale	Remove reference sample from the container	
7. Determine the percentage of an unknown weight	Place sample to be measured in the container	
8. If desired, print percentage (here: 98.37%)	⊙	Prc + 98.37 %

Practical Example P2: Weighing in Percent with Reference Weight Entered Using the Numeric Keys

Settings (changes in the factory settings required for this example):

Setup: App(lication parameters): Application 1: Weighing in percent

FCA Models: Setup: Printout: Application-defined output: Autoprint upon initialization: All values

Step	Key (or instruction)	Display/Output
1. Delete previous setting if necessary	CF	
2. Prepare a container for the parts	Place the empty container on the scale	
3. Tare the scale	TARE	
4. Enter the reference weight using the numeric keys (here: 120 g)	1 2 0	
5. Store the reference weight	**Wxx%** soft key	 pRef + 100 % Wxx% + 120.00 g
6. Determine the percentage of an unknown weight	Place sample to be measured in the container (in the case: 114.78 g)	
7. Toggle to weight display	**Weigh.** soft key	

Animal Weighing

Purpose

Use this program to determine the weights of unstable samples (e.g., live animals) or to determine weights under unstable ambient conditions. In this program, the scale calculates the weight as the average of a defined number of individual weighing operations. These weighing operations are also known as "subweighing operations."

You can use this application program in combination with a program chosen from Application 2 (checkweighing, time-controlled functions) and one from Application 3 (totalizing, formulation, statistics).

Available Features

- Animal weighing started manually or automatically
- Automatic start:
  - when a defined threshold has been exceeded (Minimum load threshold: None; 10; 20; ...; 500; 1,000 display increments)
  - when three successive subweights lie within a user-defined tolerance range (calm; normal; active; 0.1%; 0.2%; ...; 50%; 100% of the animal/object)
- Manual start:
  - also possible when the load is under the minimum load threshold
  - when three successive subweights lie within a user-defined tolerance range (calm; normal; active; 0.1.%; 0.2%; ...; 50%; 100% of the animal/object)
- Optional scale configuration in the Setup menu for automatically initializing this application when you turn on the scale (Setup: Printout: Auto-start application when power goes on: On)
- Number of weighing operations for calculation of an average (**mDef**) can be set before the beginning of each animal weighing operation
- The factor for calculation of the result can be set before the beginning of each animal weighing operation
- The number of subweighs remaining to be performed is indicated in the text display during weighing
- Arithmetic average displayed as a result in the pre-set weight unit (identified by the ⚠ symbol).
- Optional multiplication of the arithmetic average by a user-defined factor **Mul**. A circle "**o**" is displayed as weight unit and **Mul = xxx** is shown in the text line
- Toggling between the weight and the calculated value by pressing the **xNet** soft key and the **xRes** soft key
- Automatic output of results via the interface port:
  - Number of weighing operations **mDef**
  - Multiplication factor **Mul**
- Automatic output of results (printout) via the interface port:
  - Weighing result **xNet**
  - Calculated result **xRes**

  The following options have to be set: Printout: Application-defined output: Auto print upon initialization: All values
- The unload threshold is equal to one-half the minimum scale capacity
- Return to weighing mode by unloading the scale; i.e., when the load is below the unload threshold

Factory Settings

Animal activity: **5% of the animal/object**

Start: **Automatic**

Minimum load for automatic storage: **100 display increments**

Decimal places in result display: **2 decimal places**

Printout: **Average weight only**

Soft Key Functions

New	Automatic start: – Unload scale and weigh next animal, if desired – Press key to start next subweigh Manual start: Start next subweigh
mDef	Store user-defined number of subweighs for averaging
Mul	Store user-defined factor as multiplication factor for calculated the arithmetic mean
xNet	Toggle to the animal weighing application
xRes	Toggle to the calculated animal weighing result
Start	Activate Animal weighing

Printout for Animal Weighing

Upon completion of the averaging process, you can have the results printed out automatically. You can also have both the weight and the calculated result printed.

```
mDef          10
Mul      0.00347
xNet  +   153.00 g
xRes  +     5.30 o
```

mDef: Number of subweighing operations for averaging

Mul: Multiplication factor

xNet: Result of averaging

xRes: Calculated result

Preparation

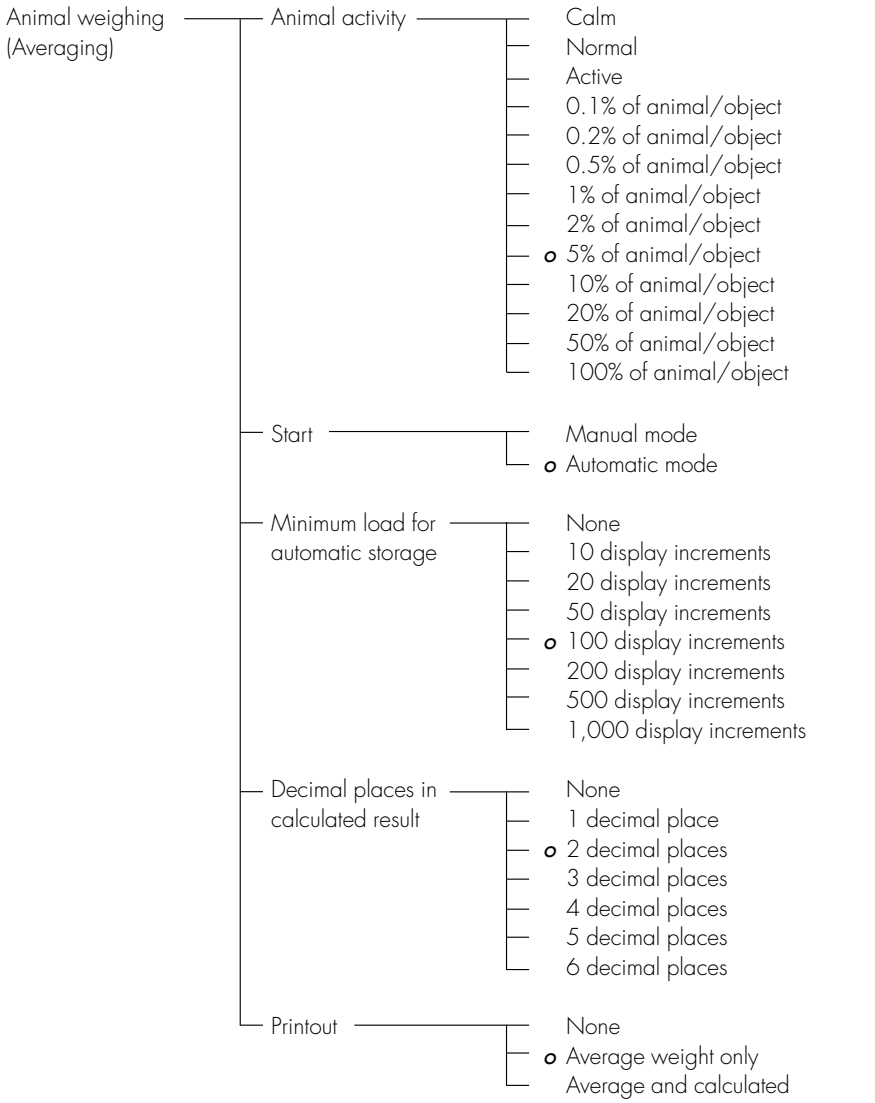
- Turn on the scale: Press I/⏻
- > Sartorius logo is displayed
- Select the "Animal weighing" application in the Setup menu: Press SETUP

FC Models:

- Select the Application menu: Press the **App** soft key
- Select **Application 1**: **>** soft key

FCA Models:

- Select **Application parameters**: press the **v** soft key 2 x, then the **>** soft key once
- Select **Application 1 (basic settings)**: press the **>** soft key
- Select **Animal weigh.**: **^** or **v** soft key repeatedly
- Confirm **Animal weigh.**: **>** soft key



o = factory setting

see also the "Application Menu (Overview)" in the chapter entitled "Configuring the Scale"

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

Additional Functions

In addition to the functions for:

– alphanumeric input,

– taring (not during alphanumeric input),

– printing,

you can also access the following functions from this application:

Calibration/Adjustment

- Press the **isoTST** soft key
- > See "Calibration/Adjustment" for further instructions

Toggling to the Next Application

- Press ⏻
- > See the section on the corresponding application program for further instructions

Setup (setting parameters)

- Press SETUP
- > See "Configuring the Scale" for further instructions

Turning Off the Scale

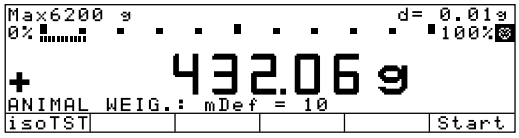
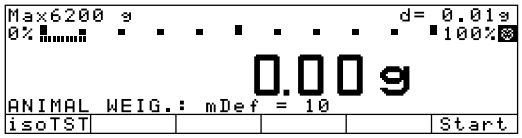
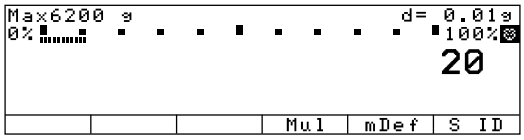
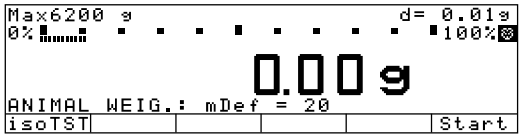
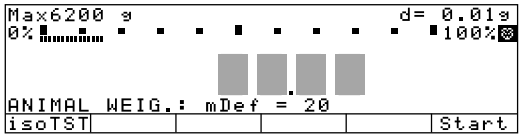
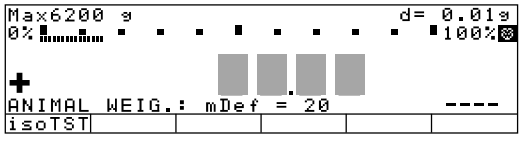
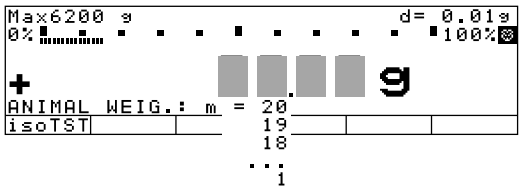
- Press I/⏻
- > The scale shuts off
- > The display goes blank

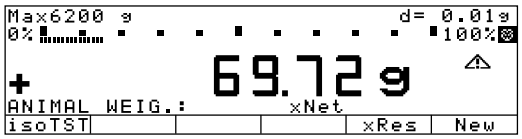
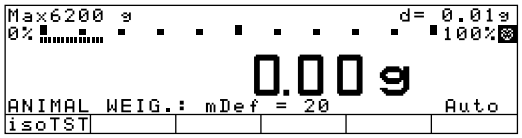
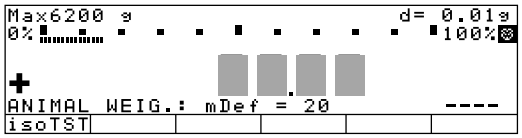
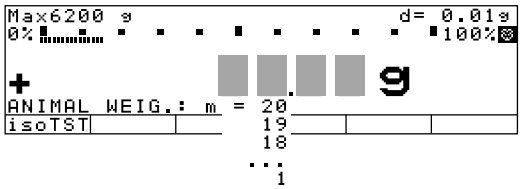
Practical Example

Determining Animal Weight With Automatic Start of 20 Subweighing Operations for Averaging; Automatic Printout of the Number of Subweighing Operations and of the Animal Weight

Settings (changes in the factory settings required for this example):

Setup: App(lication parameters): Application 1: Animal weighing: Animal activity: Active
Setup: App(lication parameters): Application 1: Animal weighing: Decimal places in calculated result display: 2 decimal places
Setup: App(lication parameters): Application 1: Animal weighing: Printout: Average and calculated values
Setup: Printout: Application-defined output: Auto print upon initialization: All values

Step	Key (or instruction)	Display/Output
1. Delete previous setting if necessary	CF	
2. Prepare a container (cage)	Place empty cage on the scale	
3. Tare the scale	TARE	
4. Enter number of subweighing operations for averaging	2 0	
5. Save number	**mDef** soft key	
6. Weigh the first animal	Place 1st animal in cage	weight value fluctuates due to animal activity 
7. Start automatic animal weighing	**Start** soft key	
The scale delays starting the subweighing operation until three successive subweights lie within the range defined for an "active" animal	When this criterion is met, the subweighing series begins	

Step	Key (or instruction)	Display/Output
After 20 subweighing operations the arithmetic average (xNet) is displayed (**mDef**: no. of subweighs **Mul**: calculation factor **xNet**: arithm. average, net value)		 mDef 20 Mul 1 xNet + 69.72 g xRes + 69.72 o
8. Unload the scale	Remove animal from cage	
9. If desired, weigh next animal	Place animal in cage	
Next weighing series begins automatically		

Recalculation

Purpose

With this application program you can compensate for over-poured components in formulation

If a component is over-poured when weighing in the individual formulation components, the mixture already poured cannot be used in its current composition. To avoid having to discard the materials weighed, you can adjust the proportions of the formulation to compensate for the over-pour.

When you use this application, the recalculation procedure is mainly performed by the scale.

You can use this application program in combination with a program chosen from Application 2 (checkweighing, time-controlled functions) and one from Application 3 (totalizing, formulation, statistics).

Available Features

- Individual components (up to 99) weighed in with a readout showing from "0" to the desired component weight
- Transaction counter shows the next component expected
- Weighed components are stored, followed by automatic printout and taring
- Additive weighing of components with printout
- Toggle the display between component weight and total formulation weight (additive mode) after first component is stored
- Stored component weight displayed as true net weight for 2 seconds
- Enter a divisor before or during component weighing. For example, if the formulation has a total weight of 100 g, enter the divisor 10 to weigh in a total formulation of 1,000 g
- If a component is over-poured, you can use the recalculation function to change the amount of this component indicated in the formulation by using plus or minus keys or numeric input. A factor is then calculated by which all components amounts will then adjusted
- Recalculation factor displayed in the text line, with a warning symbol if the factor is not equal to 1
- All components displayed with number and the amount (by weight) to be added in follow-on filling. Components displayed in sequence by the scale
- Display of actual net weight during follow-on filling
- After the amounts of the components already weighed have been corrected, weighing continues according to the adjusted formulation amount. The readout is recalculated (updated) according to the divisor
- You can repeat the over-pour correction procedure as often as necessary, in case other components are over-poured
- After follow-on (corrective) filling, the total amount differs from that given for the formulation, but the proportion of components in relation to each other is the same
- You can have the weight printed after each measurement
- Choose whether the current component weight or tare value is printed after each measurement
- Individual component weights are printed as "Compxx."
- Press CF to exit the application program. The component memory is cleared and the sum of components printed as "S-Comp."
- Toggle between the recalculation program and other applications (e.g., checkweighing) by pressing .

Factory Settings of the Parameters

Print application parameters (automatic output of application parameters): `All values`

Line format:
`for other apps/GLP`
(22 characters)

Soft Key Functions

`Comp.xx`	Store component
`Add.xx`	Store component in additive weighing mode
`Div.`	Store divisor before or during component weighing
`Recalc`	Start correction procedure for recalculation
`→Add./ →Comp`	Toggle display between component weight and total weight (additive mode)
`Comp.`	Store numeric input for recalculation
`Minus`	Set value given for the formulation
`Plus`	Set value given for the formulation

Preparation

- Turn on the scale: press I/⏻
- > The Sartorius logo is displayed
- Select the "Recalculation" application in the Setup menu: Press SETUP

FC Models:
- Select the Application menu: Press `App` soft key
- Select `Application 1`: `>` soft key

FCA Models:
- Select `Application parameters`: press the `v` soft key 2 x, then the `>` soft key once
- Select `Application 1 (basic settings)`: press the `>` soft key

- Select `Recalculation`: `^` or `v` soft key repeatedly
- Confirm `Recalculation`: `<` soft key
- Save settings and exit the Setup menu: press the `<<` soft key

Additional Functions

In addition to the functions for:

– alphanumeric input,

– taring (not during alphanumeric input), and

– printing,

you can also access the following functions from this application:

Calibration/Adjustment
- Press the `isoTST` soft key
- > See "Calibration/Adjustment" for further instructions

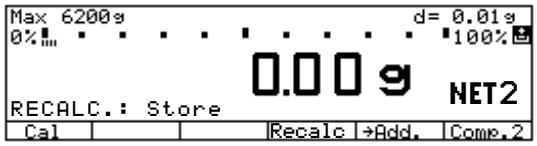
Taggling to the Next Application
- Press ⏱
- > See the section on the corresponding apllication program for further instructions

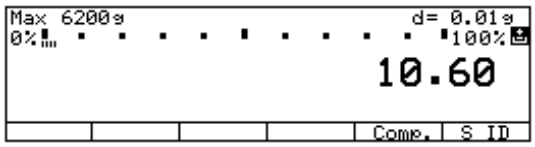
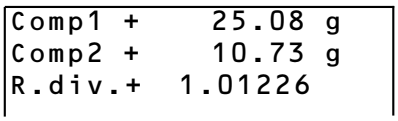
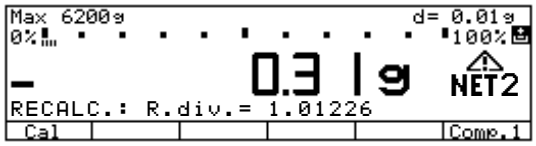
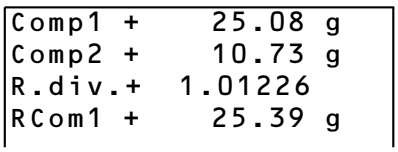
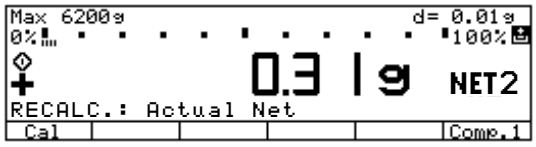
Setup (setting parameters)
- Press SETUP
- > See "Configuring the Scale" for further instructions

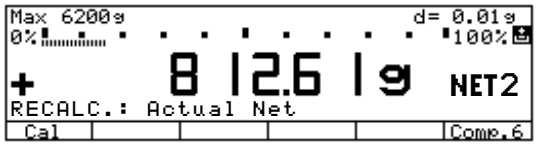
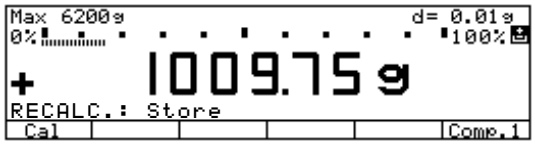
Turning Off the Scale
- Press I/⏻
- > The scale shuts off
- > The display goes blank

Practical Example

When weighing in formulation components, the second component is over-poured.
Settings (changes in the factory settings required for this example):
Setup: App(lication parameters): Application 1: Recalculation

Step	Key (or instruction)	Display/Output
1. Delete previously stored values, if necessary	CF	
2. Place container for filling components on the scale	Place empty container on the scale	
3. Tare	TARE	
4. Add the first component	Weigh the first component into the container	
5. Store component	Press the **Comp.1**	Comp1 + 25.08 g 
6. Add the second component	Weigh the second component into the container	
7. Start recalculation, because 10.73 g were poured rather than 10.60 g	**Recalc** soft key	
8. Either press the minus key to correct the value …	**Minus** soft key repeatedly	

Step	Key (or instruction)	Display/Output
… or enter the desired value	1 0 · 6 0	
9. Confirm the new value	**Comp.** soft key	
Follow-on filling amount for first component is displayed		
10. Follow-on filling of 1st component	Weigh the first component up to 0	
and store	**Comp.1** soft key	
The true net value is displayed for 2 seconds		
11. Weigh in further components, if called for in the formulation	Repeat steps 4 and 5 as needed	
12. Toggle to the additive mode, if required	**→Add.** soft key	
13. Add further components, as required … (here, e.g., up to the total weight of the formulation: 1,000 g)	Add components to container	

Step	Key (or instruction)	Display/Output
14. ... and store (here, e.g., the 6th component)	**Add.6** soft key	Comp1 + 25.08 g Comp2 + 10.73 g R.div.+ 1.01226 RCom1 + 25.39 g Comp3 + 22.03 g Comp4 + 31.49 g Comp5 + 107.50 g Comp6 + 812.61 g
The true net value (of the 6th component) is displayed for 2 seconds		
Then the total weight is displayed		
15. End the weighing procedure Total weight is printed	CF	Comp1 + 25.08 g Comp2 + 10.73 g R.div.+ 1.01226 RCom1 + 25.39 g Comp3 + 22.03 g Comp4 + 31.49 g Comp5 + 107.50 g Comp6 + 812.61 g Tot.cp+ 1009.75 g
Total weight is displayed Component memory is cleared		

Calculation

Purpose

With this application program you can calculate a weight value using an algebraic equation. This can be used, for example, to determine the gsm weight (grams per square meter) of paper.

You can use this application program in combination with a program chosen from Application 2 (checkweighing, time-controlled functions) and one from Application 3 (totalizing, formulation, statistics).

Available Features

- You can store an equation and configure the Setup menu to initialize this program automatically with the stored equation (Setup: … Auto-start application when power goes on: On)
- The **o** symbol is displayed to indicate a calculated value. The equation used is displayed in the text line
- If no equation was entered, the weight value is displayed
- Toggle between the weight readout, equation input and display of the calculated result by pressing the **Start** or **Weigh** soft key (or press CF to toggle between weight and calculated value)
- The are four operators (+, –, *, /) and one factor (weight value) available when you enter an equation
- Max. equation length: 28 characters
- Pressing CF will delete either the equation or the last character entered, depending on the configuration in the Setup menu (Setup: … Keyboard: CF function for input: Delete last character; see also "Configuring the Scale")
- The calculated result is displayed with the number of decimal places configured in the Setup menu. Not all decimal places are displayed if the result is longer than the display allows. If there are more digits before the decimal point than the display can show, an error message is displayed.
- The equation is stored in non-volatile memory

Factory Settings

Decimal places in calculated result:
2 decimal places

Soft Key Functions

Equat.	Toggle to equation
+	Enter an addition operator in the equation
–	Enter a subtraction operator in the equation
*****	Enter a multiplication operator in the equation
/	Enter a division operator in the equation
Start	Start calculation
Weigh.	Toggle to the weighing mode
Weight	Enter a weight operand in the equation

Printout for Calculation

The calculation result is printed.

```
Res   +   693.88 o
```

Res: Result of calculation with equation

Preparation

- Turn on the scale: Press I/⏻
> Sartorius logo is displayed
- Select the "Calculation" application program in the Setup menu: Press SETUP

FC Models:
- Select the Application menu: App soft key
- Select Application 1: > soft key

FCA Models:
- Select Application parameters: press the v soft key 2 x, then the > soft key once
- Select Application 1 (basic settings): press the > soft key

- Select Calculation: ^ or v soft key repeatedly
- Confirm Calculation: > soft key
- Select and confirm:

– Decimal places in calculated result:
  None or
  1 decimal place or
  2 decimal places or
  3 decimal places or
  4 decimal places or
  5 decimal places or
  6 decimal places

  see also the "Application Menu (Overview)" in the chapter entitled "Configuring the Scale"

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

Additional Functions

In addition to the functions for:

– alphanumeric input,

– taring (not during alphanumeric input),

– printing,

you can also access the following functions from this application:

Calibration/Adjustment

- Press the isoTST soft key

> See "Calibration/Adjustment" for further instructions

Toggling to the Next Application

- Press ⏻

> See the section on the corresponding application program for further instructions

Setup (setting parameters)

- Press SETUP

> See "Configuring the Scale" for further instructions

Turning Off the Scale

- Press I/⏻

> The scale shuts off

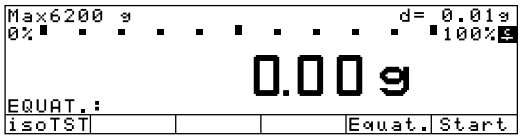
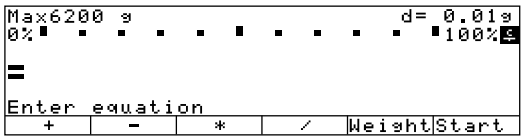
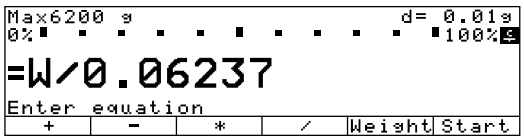
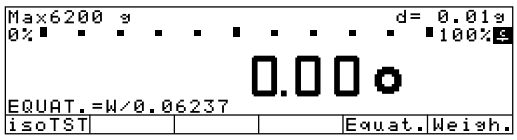
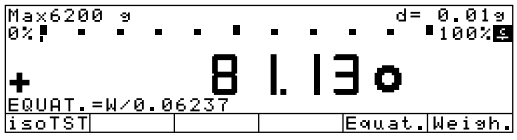
> The display goes blank

Practical Example

Calculate the gsm weight of paper: determine the gsm of a sheet of A4 paper with the dimensions 0.210 m x 0.297 m = 0.06237 m^2. The gsm weight is a product of the division of the weight by the surface area.

Settings (changes in the factory settings required for this example):

Setup: App: Application 1: Calculation

Step	Key (or instruction)	Display/Output
1. Turn on the scale and configure the settings as indicated above	I/⏻	
2. Delete previous setting if necessary	CF	
3. Tare the scale	TARE	
4. Select equation input	**Equat.** soft key	
5. Enter weight value Enter division sign Enter the surface area of a sheet of A4 paper	**Weight** soft key / soft key · 0 6 2 3 7	
6. Turn on the calculated result display	**Start** soft key	
7. Determine the gsm weight	Place A4 sheet on the scale	

Differential Weighing ⏎

Purpose

This application program enables you to compare samples before and after a given treatment (such as drying or ashing) and determine the difference in weight.

There are different procedures available for this application:

- Collect all data (tare, initial weight, and backweighing result) for each sample individually (menu setting "Weighing sequence: Individual weighing")
- Save the tare weights and initial weights for all samples first, then perform backweighing (menu setting "Combined weighing")
- Save the tare weights for all samples first, then determine the initial weight of each sample and, finally, perform backweighing (serial weighing)

Features

- 4 different sequences for measuring the tare weights, initial sample weights and the backweights (backweighing result):
  - Individual weighing
  - Consecutive individual weighing
  - Combined weighing
  - Serial weighing
- Choice of weighing sequence by selecting this parameter in the Setup menu or by pressing the **Wg.seq** soft key (if the "Weighing sequence key" option is set)
- Perform up to 99 backweighing routines on a single sample
- Differential weighing with or without tare weighing (not necessary for measuring coatings or lamination layers)
- Define the number of decimal places displayed for calculated results
- Define whether autosaving weight values is dependent on the stability parameter
- Define whether the minimum load for autosave is dependent on the display
- List function, with

  Display page for lots:
  Lists all lots (up to 100 max.) with the number of samples in each lot and the processing status (tare weight, initial weight, backweighed residue ("backweight")
  View, create, rename or delete lots generated
  Enter or change a factor for calculation of results

  Display page for samples:
  Lists all samples (up to 999 max.) with processing status
  View, delete, omit, or include samples

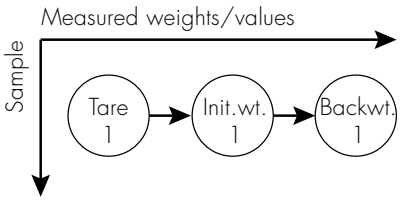
  Display page for measured values:
  Shows date, time, ID and values measured

  Display page for results:
  Values calculated for a sample (backweight, loss, ratio1, ratio2)
- Special display page for statistics lets you define whether lot statistics are dependent on backweight, loss, or ratio values
- Press a soft key to view the desired display page (lots, samples, values or results)
- To view lot, sample or measured value data, enter the ID and then press the corresponding soft key (**Lot/Sample/Values**)
- Define whether printer output is dependent on the processing status of the sample
- Printout can contain individual values, backweighed values and statistics
- User-definable printout format
- The configurations for the weighing sequence and results are saved separately for each lot

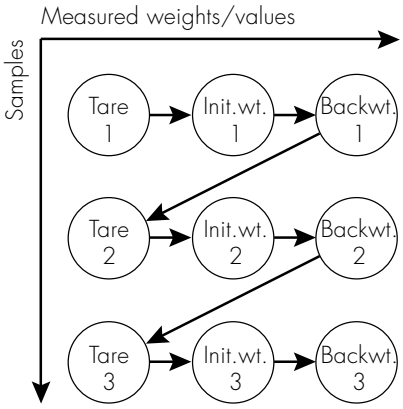
Differential Weighing: Defining the Weighing Sequence

You can choose from among four sequences for measuring tare weights, initial sample weights and back-weighed residue ("backweight") during differential weighing:

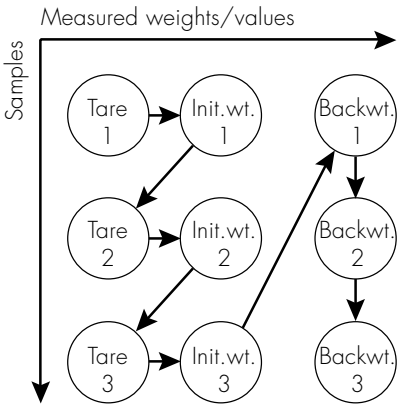
1. Individual Weighing
   Tare weight, initial weight and backweight are measured in that order.



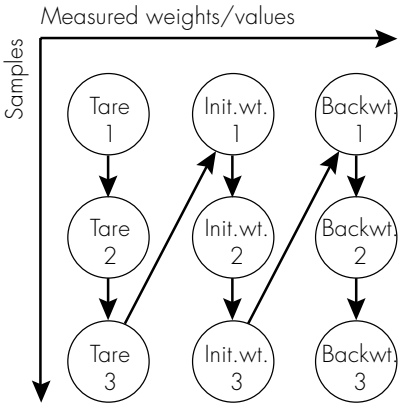
2. Consecutive Individual Weighing
   Several individual weighing routines (see above) are performed in series.



3. Combined Weighing
   The tare and initial weight, in that order, of each sample is measured first, then the backweight of each sample is measured.



4. Serial Weighing
   First the tare weight for each sample is measured, then the initial weight of each sample is measured in the same order that their tare weights were measured, and then all backweights are measured.



You can define the weighing sequence in the Setup menu or by pressing the **Wg.seq** (if the "Weighing sequence key" option is activated).

Factory Settings

Weighing sequence:
Group weighing

Tare weighing: **Yes**

Result with decimal point:
2 decimal places

Autosave values: **No**

Minimum load for autosave:
10 digits

Save statistics: **No**

Generate printout:
Automatic after backweighing

Include sample ID in the text line:
No

Wg. seq. key:
Yes

Clear sample after individual weight, result + unload:
No

Last residual weight saved as the initial weight: **No**

Printout for Differential Weighing

Generating Configured Printouts Automatically

The configured backweighing printout is generated automatically after backweighing, if one of the following settings is selected under Setup: Application 1: Differential weighing: Generate printout:

```
Automatic after
backweighing
Auto after init.weigh +
backweigh
Auto after tare, init.
+backweigh.
```

Generating Configured Printouts Manually

The configured individual printout is generated when the ⊙ key is pressed while there is a tare, initial or backweight on the scale or when ⟲ is pressed to toggle applications.

You can generate the configured printout manually after backweighing if you press the ⊙ key while the display page for the results is shown.

To generate the configured statistics printout, press the ⊙ key

- when the display page for statistics is shown,
- when the samples with a desired number of backweighing operations is selected (for example, statistics on all samples with 2 backweighing operations)

The following printout is generated:

Configured Backweighing Printout (Example)

`----------`	Dotted line
`16.11.1999  14:55:12`	Date/Time
`Lot  CH12345`	Lot ID
`Sample  14`	Sample number
`ID  CX88`	Sample ID
`T1  +  23.45 g`	Tare weighing (with PT1 selected)
`N1  +  125.57 g`	Initial weight
`R  (3)+  103.68 g`	Backweight (residue as weight)
`R  +  82.57 %`	Residue in percent
`D  -  21.88 g`	Loss as a weight
`D  -  17.43 %`	Loss in percent
`Fact  +1.10345`	Calculation factor
`D-Res  -  24.15 o`	Calculated loss
`Ratio1  +  21.11 %`	Ratio 1
`Ratio2  +  121.11 %`	Ratio 2
`----------`	Dotted line

Preparation

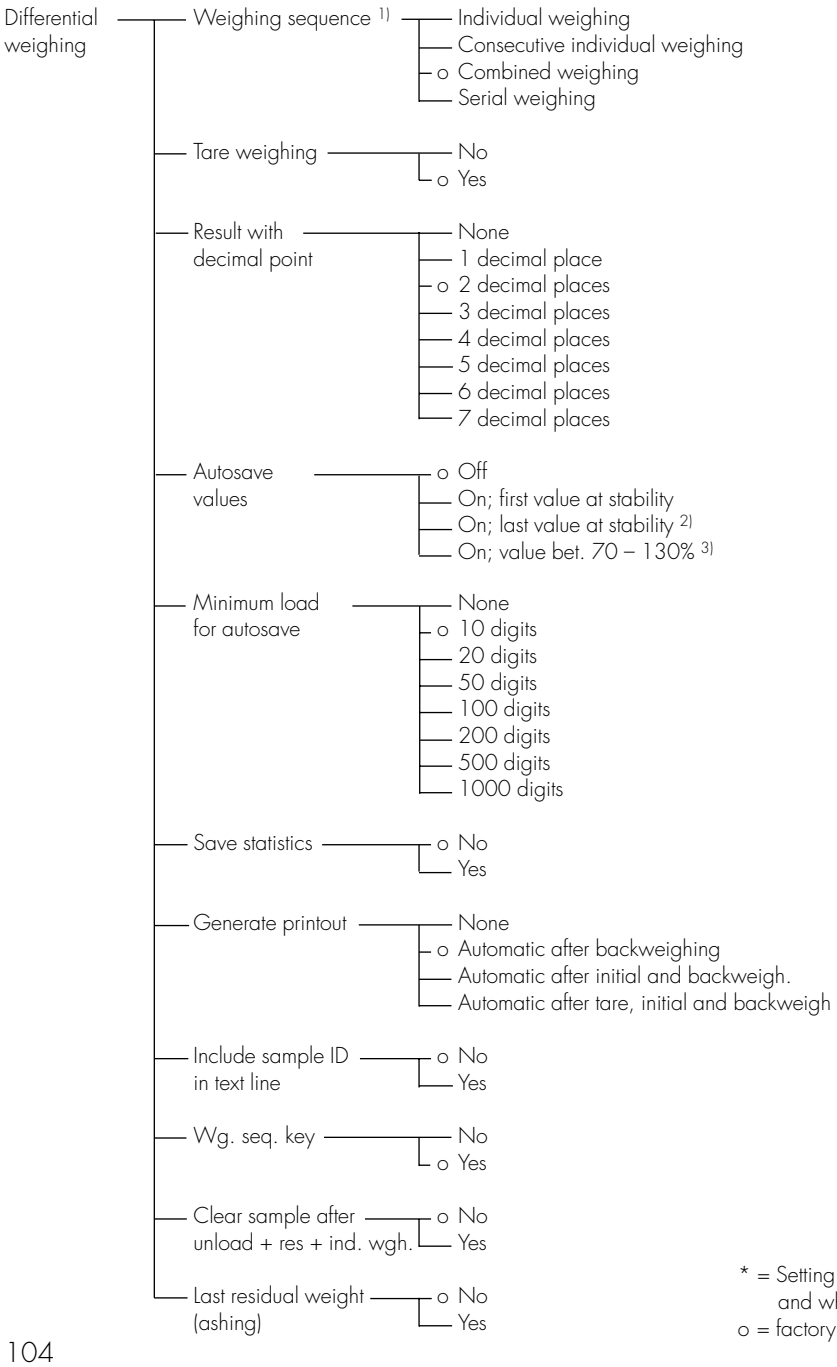
- Turn on the scale: press I/⏻
- > The Sartorius logo is displayed; a self-test is performed
- Select the "Differential weighing" application in the Setup menu: press SETUP

FC Models:

- Select the Application menu: **App** soft key
- Select **Application 2**: Press the **v** soft key and then the **>** soft key

FCA Models:

- Select the **Application parameters**: press the **v** soft key 2 x, then the **>** soft key once
- Select **Application 1 (basic settings)**: press the **>** soft key
- Select **Differential weighing**: press the **^** or **v** soft key, repeatedly, if necessary
- Confirm **Differential weighing**: press the **>** soft key



1) Setting can only be changed when the application is first run and when the **Wg. seq** key option is set to "No"

2) The last value with the stability symbol is saved only during initial sample weighing. Tare and backweights are saved as the "first value at stability". This menu option enables you to perform filling functions during initial weighing.

3) To autosave a value between 70 and 130% of the initialization value, the scale must be unloaded to below 30% or loaded to above 170% of this initialization value.

* = Setting can only be changed when the programm is initially run and when the **Wg. seq.** key option is set to "No"

o = factory setting

Equations

Backweight in %: backweight / initial weight* 100%
Loss in weight: backweight – initial weight
Loss in %: (backweight – initial weight) / initial weight * 100%
Calculated loss: (backweight – initial weight) * factor
Ratio 1 in %: (initial weight – backweight) / backweight * 100%
Ratio 2 in %: initial weight / backweight * 100%

Function of the CF Key

Weighing sequence	Status	Press CF	Value deleted status	Subsequent
Individual weighing	Tare weighing	–	–	–
	Initial weighing	1 x	Tare	Tare weighing
	Backweighing	1 x	Initial weight	Initial weighing
		2 x	Tare	Tare weighing
	Results displayed	1 x	Backweight	Backweighing
Consecutive individual weighing	As for individual weighing			
Combined weighing	Tare weighing	1 x	Previous init. weigt	Initial weighing
		2 x	Previous tare value	Tare weighing
	Initial weighing	1 x	Tare	Tare weighing
	Backweighing	1 x	Previous backweight	Previous backweighing
	Results displayed	1 x	Last backweight	Backweighing
Serial weighing	Tare weighing	1 x	Previous tare value	Previous tare weighing
	Initial weighing	1 x	Previous init. weight	Previous initial weighing
	Backweighing	1 x	Previous backweight	Previous backweighing
	Results displayed	1 x	Last backweight	Backweighing

Soft Key Functions

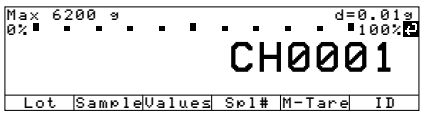
Create Create a new lot
Lot Select/view the display page for lots
Ini.wt. Save initial weight
>Ini.w Go to initial weighing function
Result View display page for results
>Resul Go to display page for results
M-ini Input initial weight value
M-back Input Backweighed residue
M-tare Input tare value
Delete Delete lot/sample
Values Select/view the display page
Sample View the display page for samples
Spl# Select/create sample data record
Backw. Save backweight value
>Backw Go to backweighing function
Omit Omit sample
Stat. View display page for statistics
Tare Save tare value
>Tare Go to tare weighing function
Wg.seq Select weighing sequence

Direct Selection of Lot/Sample/Value

When the measured values are displayed, you can enter numbers and letters to:

– change the lot and sample directly (displayed in the text line)
– directly access the display pages for samples and values

● Enter lot/sample/value ID



(in this example, »CH0001«, designates a certain lot)

● Press the corresponding soft key

> **Lot** soft key:
The lot corresponding to the ID entered is displayed (if the lot is not found, the display page for lots is shown)

> **Sample** soft key:
The display page is shown for samples in the active lot that contains the sample number entered

> **Values** soft key:
The values for the sample entered are shown

> **Spl#** soft key:
Change samples without the list function

Toggle between Differential weighing/weighing: D1 soft key

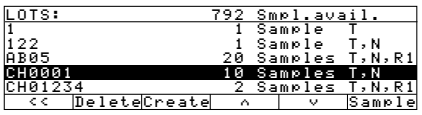
Direct Selection of the Weighing Sequence

You can change the weighing sequence (individual weighing, combined weighing, etc.) directly during measurement by pressing the **Wt.seq** key, if this function has been activated in the Setup menu [Application parameters: Application 1: Differential weighing: Weighing sequence key: Yes]

List Function for Differential Weighing

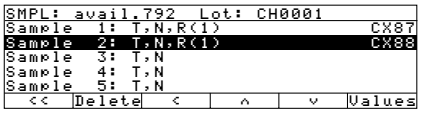
The list function has 4 display pages: one each for lots, samples, values and results.

Display Page for Lots



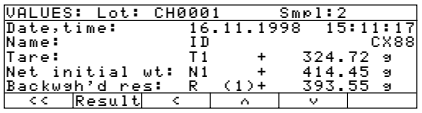
The display page for lots shows all of the lots that have already been created, as well as the number of samples in each lot and the processing status of the selected sample (tare, initial and backweighing). On this display page you can create, rename, delete and print lots. You can also define a factor for calculation of loss; for instance, to have weight per unit area calculated (such as grams per square meter). You can also enter a lot ID alphanumerically to access a lot directly.

Display Page for Samples



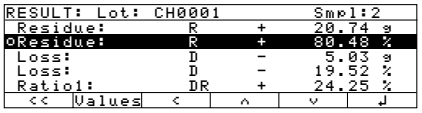
This display page shows the samples contained in a selected lot, as well as the processing status of the samples (tare, initial and backweighing) and the sample IDs. You can also enter a sample ID alphanumerically to access a sample directly.

Display Page for Values



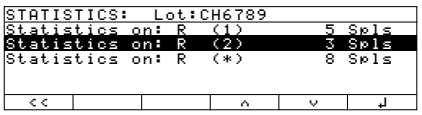
This display page shows the date and time of sampling, as well as the sample ID and the values measured, for a selected sample.

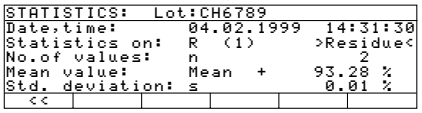
Display Page for Results



This display page shows the calculated values for a selected sample. These include backweighed residue, loss, loss calculated using a factor, and the ratio values. The o symbol indicates the value that is selected for display immediately following a backweighing procedure. To change this setting, use the v and ^ soft keys to move the highlight bar to the desired value, and press ↵ to confirm.

Display Page for Statistics



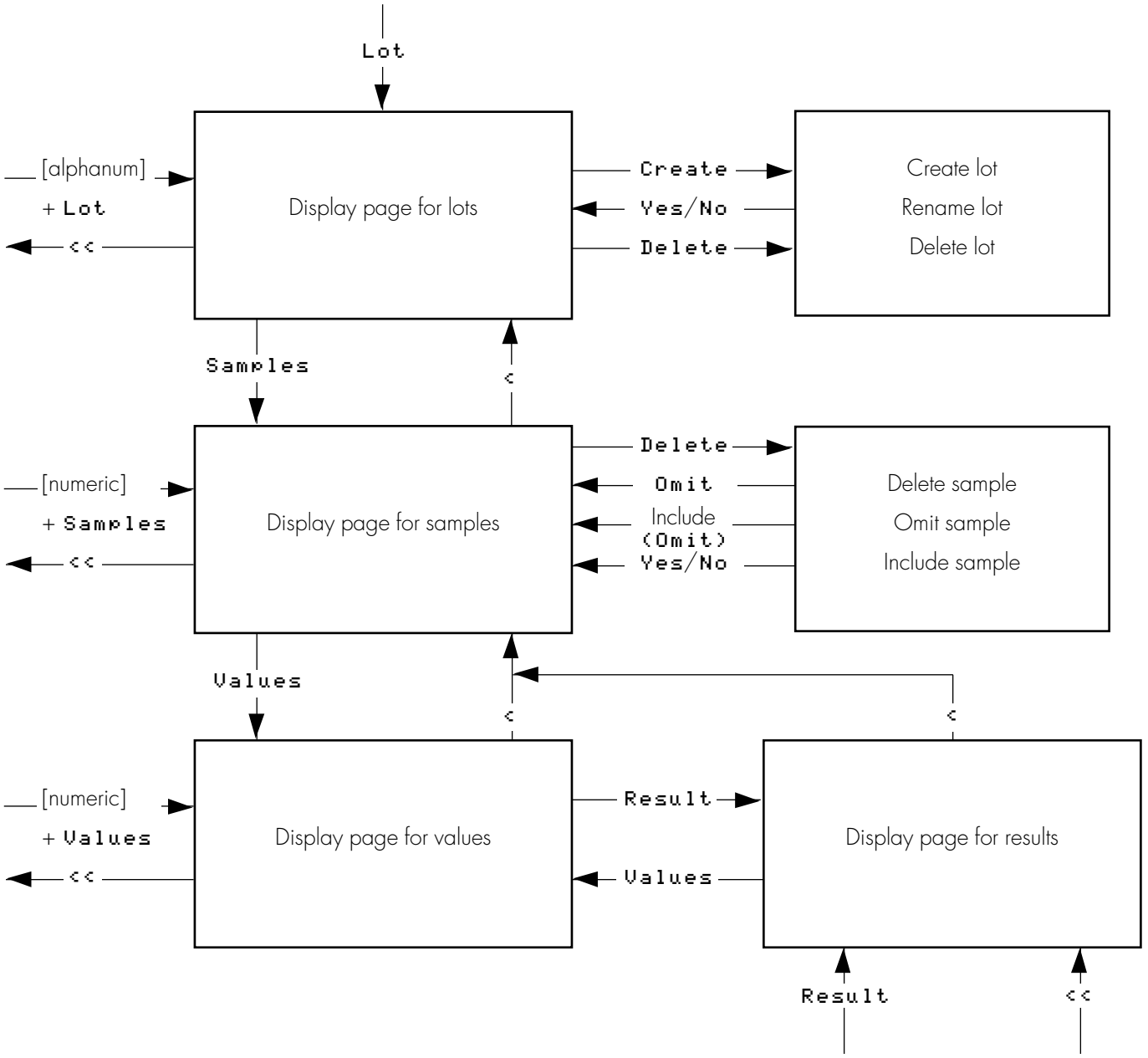


This page shows the characteristic data for a lot (date; time; statistics on, for example, the backweighed residue; number of samples) as well as the calculated values (mean value, standard deviation).

To select a set of statistics from a lot with different numbers of backweighing procedures:

Press the ↵ soft key to display the selected set of statistics:

Selecting Display Pages in the List Function for Differential Weighing

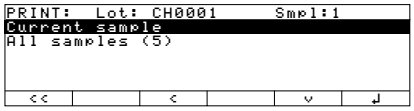


View and Print Display Pages

You can use the manual mode to print display pages (for lots, samples, values and results).

To view and print a display page for values:

- Show the display page for lots: press the **Lot** soft key
- Show the display page for samples: press the **Sample** soft key
- Show the display page for values: press the **Values** soft key
- Print the display page for values: press [⊙]



○ Select amount of data to be included on the printout: press the v or ^ soft key

- Confirm print command: press the ↵ soft key

The display pages for lots and samples can be printed when they are shown on the scale display.

View the Display Page for Results:

- Show the display page for lots: press the **Lot** soft key
- Show the display page for samples: press the **Sample** soft key
- Show the display page for values: press the **Values** soft key
- Show the display page for results: press the **Result** soft key
- Print the display page for results: see instructions for printing the display page for values

You can manually print the display page for statistics when it is shown on the scale

To view the display page for statistics:

- Select statistics: press the **Stat.** soft key

○ For samples each with a different number of backweights: Select the kind of statistics: press the v or ^ soft key

○ Confirm selection: press the ↵ soft key

Deleting or Omitting a Lot or Sample

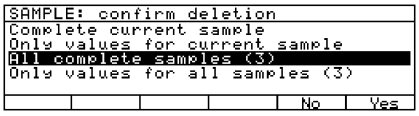
Lots can be deleted; samples can be deleted or omitted.

You can choose between
– deleting the current lot and
– deleting all lots.

You can choose whether
– the active sample is deleted entirely, or
– only the values from the active sample are deleted, or
– all samples are deleted completely, or
– only the values from all samples are deleted, or
– a sample is omitted.

Deleting a Lot/Sample

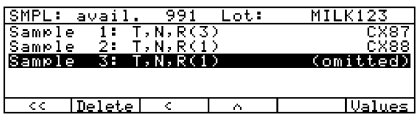
- Activate the display page for lots/samples
- Select the desired lot/sample
- Select the "Delete" function: Press the **Delete** key
- Define the lot(s)/sample(s) to be deleted and confirm
- Select "Yes" to complete the delete function or "No" to cancel it



Example: Deleting all samples completely (in this case, 3 samples)

Omit or Include Sample

- Activate the display page for samples
- Select the desired (or omitted) sample
- Delete: Press the **Delete** key
- Omit: Press the **Omit** key



Example: Sample 3 has been omitted

Additional Functions

In addition to the functions for:

– alphanumeric input,

– taring (not during alphanumeric input), and

– printing,

you can also access the following functions from this application:

Calibration/Adjustment

- Press the **isoTST** soft key

> See the section entitled "Calibration/Adjustment" for further instructions

Setup (Parameter Settings)

- Press the [SETUP] key

> See the chapter entitled "Configuring the Scale" for further instructions

Turning Off the Scale

- Press the [I/⏻] key

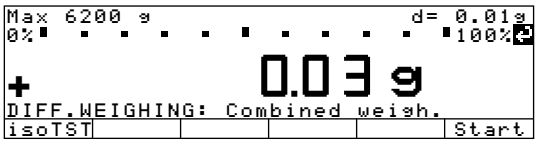
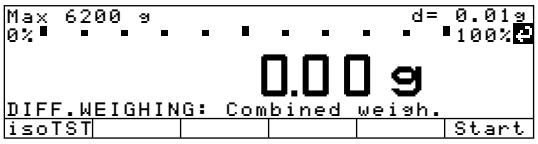
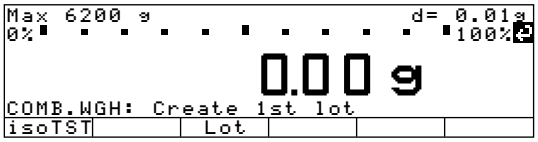
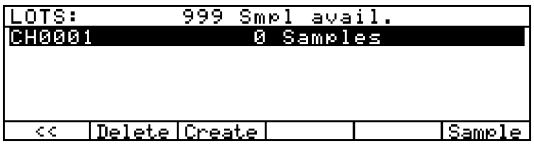
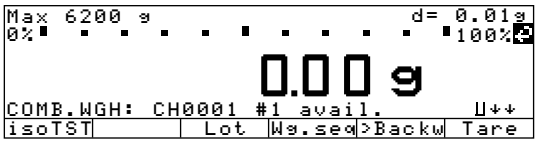
> The scale shuts off

> The display goes blank, then OFF or Standby is displayed with backlighting

Practical Example

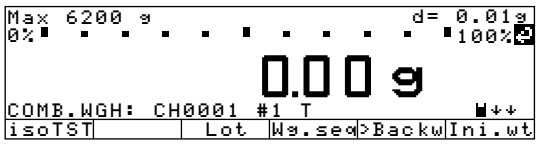
Differential weighing: Combined weighing; create lot, determine the difference in weight between initial weights and backweights of three samples (with autoprint of the formatted backweighing record)

Settings (changes in the factory settings required for this example):
Setup: App(lication parameters): Application 1: Differential weighing: Combined weighing

Step	Press key(s) (or follow instructions)	Display/Output
1. Turn the scale on, if necessary	I/⏻	
2. Tare the scale, if necessary	TARE	
3. Start combined weighing	**Start** soft key	
4. Select lot ID input	**Lot** soft key	
5. Enter lot ID	ABC 1 … 9 0 ·	
6. Confirm input	↵ soft key	
7. Activate weight readout (or toggle to combined weighing)	<< soft key **Wt.Seq** soft key	
8. Measure 1st tare weight	Place 1st empty container on scale	

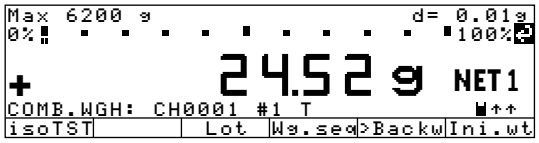
9. Save tare value

Tare soft key
Remove the empty container



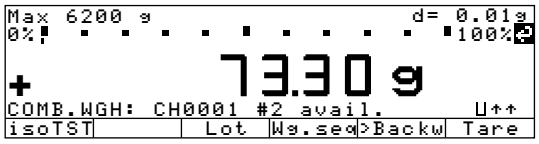
10. Measure the initial weight (in this case: 24.52 g)

Fill the 1st container
Place filled container on scale



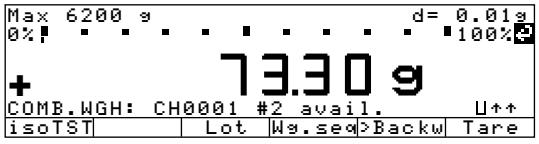
11. Save initial weight value

Softkey **Ini.wt**
Remove the filled container



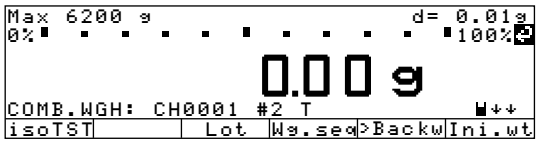
12. Measure the 2nd tare weight

Place 2nd empty container on scale



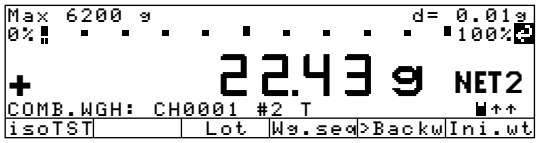
13. Save tare value

Tare soft key
Remove the empty container



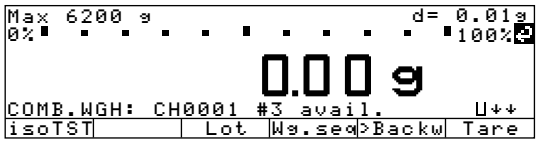
14. Measure the initial weight (in this case: 22.43 g)

Fill the second container
Place filled container on scale



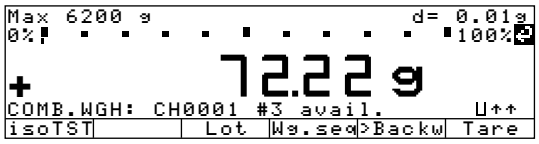
15. Save initial weight value

Ini.wt soft key
Remove the filled container



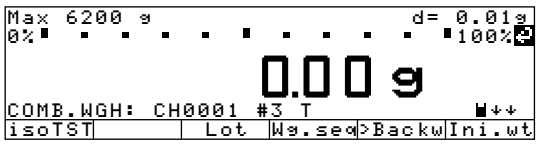
16. Measure the third tare weight

Place the 3rd empty container on scale



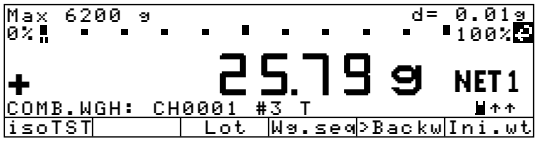
17. Save tare value

Tare soft key
Remove the empty container



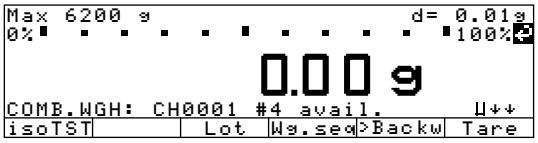
18. Measure the initial weight (in this case: 25.79 g)

Fill the container
Place filled container on scale



19. Save initial weight value

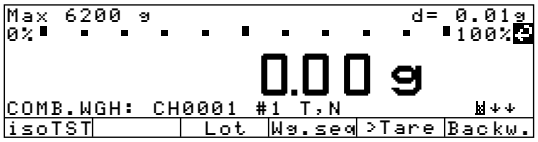
Ini.wt soft key
Removed the filled container



20. Treat the sample

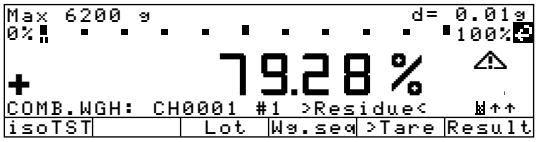
21. Go to backweighing function

>Backw soft key



22. Save the 1st backweight (the value to be displayed is defined on the display page for results; in this case: backweighed residue in %)

Place 1st container on scale
Backw. soft key

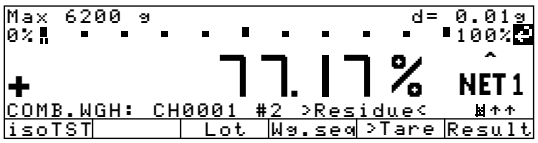


Configured backweighing printout is generated

```
--------------------
17.11.1998      12:49
Lot             CH0001
Sample               1
T1     +     72.07 g
N1     +     24.52 g
R   (1)+     19.44 g
R      +     79.28 %
D      -      5.08 g
D      -     20.72 %
Ratio1+      26.13 %
Ratio2+     126.13 %
--------------------
```

23. Save the 2nd backweight

Remove 1st container
Place 2nd container on scale
Backw. soft key

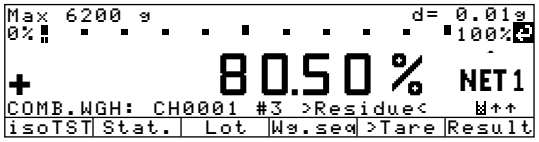


Configured backweighing printout is generated

```
--------------------
17.11.1998      12:52
Lot             CH0001
Sample               2
T1     +     73.30 g
N1     +     22.43 g
R   (1)+     17.31 g
R      +     77.17 %
D      -      5.12 g
D      -     22.83 %
Ratio1+      29.58 %
Ratio2+     129.58 %
--------------------
```

24. Save the 3rd backweight

Remove the 2nd container
Place the 3rd container on scale, **Backw.** soft key



Configured backweighing printout is generated

```
--------------------
17.11.1998      12:53
Lot             CH0001
Sample                3
T1     +    72.22 g
N1     +    25.79 g
R   (1)+    20.76 g
R      +    80.50 %
D      -     5.03 g
D      -    19.50 %
Ratio1+    24.23 %
Ratio2+   124.23 %
--------------------
```

25. Unload the scale

Remove the 3rd container

Checkweighing %

Purpose

This program is used to check whether a sample corresponds to a pre-set target value or is within a specific tolerance range. In addition to the display in the measured value line, the results are shown on the bar graph and can be routed through the interface port via control lines for further electronic processing.

You can use this application in combination with any program chosen from Application 1 (such as counting, weighing in percent) and one from Application 3 (totalizing, formulation, statistics).

Available Features

- Optional configuration in the Setup menu for long-term storage of target value and tolerance limits
- Optional scale configuration in the Setup menu for automatically initializing this application and loading the values stored in long-term memory for the target value and the upper and lower tolerance limits when you turn on the scale
- You can perform checkweighing
  - without entering a target value, but only upper and lower tolerance limits;
  - as differential checkweighing;
  - with symmetric or asymmetric limits which can be entered as percentages
- Enter the target value and limits by placing a load on the scale or using the numeric keys
- Control parameter in entering target and tolerance values, so that the upper limit ≥ the target ≥ the lower limit ≥1 display increment
- Accuracy of a weight readout or keyboard input as target/tolerance values corresponds to the display accuracy
- Optional scale configuration in the Setup menu for automatic output to the interface port (print application parameters) of the target value and tolerance limits when initialization is completed (... Auto print upon initialization: All values).
- Control range for the scale's data output port lines is 30% to 170% of the target value
- Optional configuration in the Setup menu for activation of control lines dependent on weight value (weight value within checkweighing range, stability reached)
- Toggling the display between weight readout and checkweighing display by pressing the corresponding soft key. If the weight value exceeds tolerances, the line for measured values shows the weight while the checkweighing display shows »LL« for »too low« or »HH« for »too high.«
- Press the **Show** soft key to display target value and tolerance limits in the text line after initializing the application.
- Weight value in bar graph displayed in relation to upper and lower limits and target value
- »OK« transaction counter displayed in the text line (e.g., **n = 4**), if selected (Checkweighing: Automatic printout of OK values: Yes). This counter shows the number of measured values that lie within the tolerance range.
- Optional automatic printout of the weight value when it is within the control range at stability

  After an automatic printout, the printing of OK values is blocked. Before you can generate the next printout, you must unblock the scale by unloading it (weight must be under 30% of the target) or by placing a load on the scale (bringing the weight up to at least 170% of the target).
- Initialization parameters are overwritten after the **Param.** soft key has been pressed
- Press CF to delete the initialization parameters and end the Checkweighing program

Factory Settings

Activation of port lines: **Within checkweighing range**

Type of checkweighing input: **Target, minimum, maximum weight**

Weight display mode: **Absolute value**

Automatic printout of OK values: **No**

Soft Key Functions

Param.	Begin input of target and tolerance values
Show	Display target and tolerance values in succession during checkweighing
LLHH	Toggle to checkweighing display (»LL« for too light and »HH« for too heavy)
Diff.	Display difference between current value and target
Net	Display net weight
Start	Start checkweighing

Auto Print Checkweighing

With the over/under checkweighing application, you can have the result printed automatically as soon as the weight lies within a defined range.

```
N      + 153.00 g
Setp   + 180.03 g
Min    + 160.05 g
Max    + 200.06 g
N      + 165.14 g
```

N: Net weight
Setp: Target weight
Min: Lower limit
Max: Upper limit
N: Printout of "OK" values

Preparation

The checkweighing program often requires a target value for comparison with the current value. This target has a tolerance range, which is defined by absolute weight values. The tolerance range is defined as either an absolute value or a percentage with upper and lower limits. The values defining the limits can be symmetric or asymmetric to the target value. These values can be entered either by storing weights on the scale or by key input.

There are four control lines, called data output port lines, which are activated as follows: (see also the diagram at the right):

– lighter
– equal
– heavier
– set

The control range spans 30% to 170% of the target value. You can configure this parameter in the Setup menu (... Application 2: Checkweighing: Activation of port lines:) to select whether the control lines are:

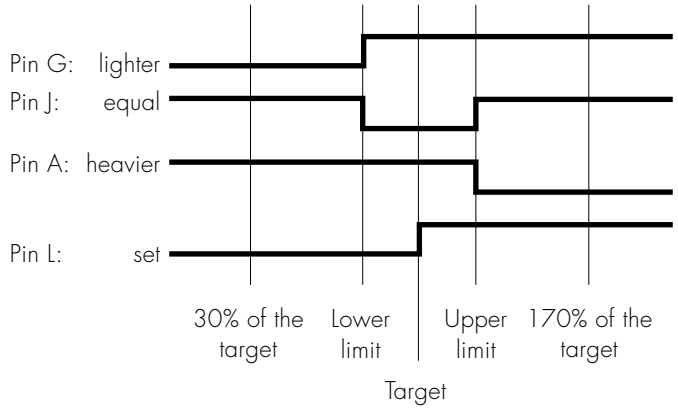
– activated within the checkweighing range
– always on
– activated at stability within the checkweighing range
– activated at stability
– activated at stability within the checkweighing range
  –> once

This makes it possible, for example, to connect a simple indicator for the weighing results (e.g., three different colors, one each for the weighing results: too light, O.K., too heavy).

Response of Control Lines During Checkweighing

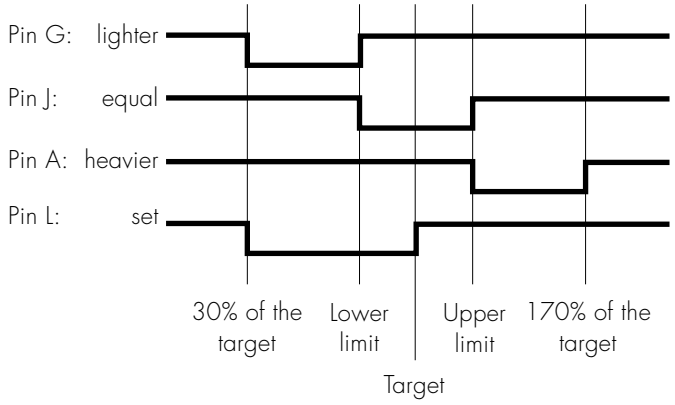
Configurations:
– always on
– activated at stability

12-pin via Zener barrier



Configurations:
– activated within checkweighing range
– activated at stability within checkweighing range
– activated at stability within checkweighing range

12-pin via Zener barrier



For further information about the pin assignment, see chapter on "Pin Assignment Charts."

Output port specifications
– When not in use, the voltage level is high: >2.4 V/+2mA.
– When activated, the voltage level is low: <0.4 V/-2mA.

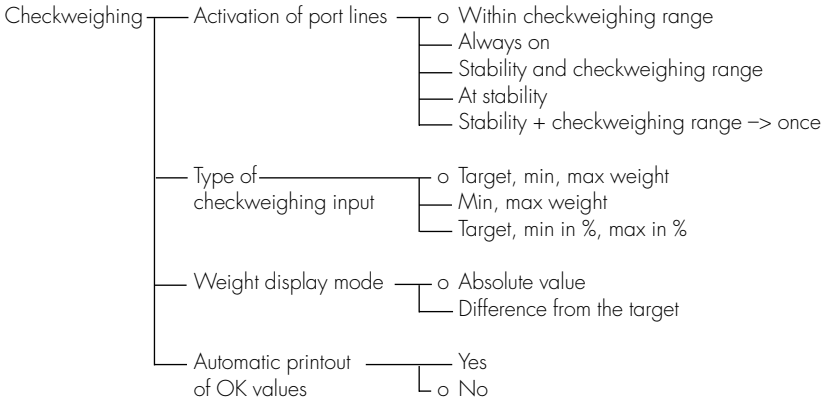
⚠ The output ports are not protected against short circuits!

Preparation

- Turn on the scale: Press I/⏻
> The Sartorius logo is displayed; a self-test is performed
- Select the "Checkweighing" application in the Setup menu: press SETUP

FC Models:
- Select the Application menu: **App** soft key
- Select **Application 2**: Press the **v** soft key and then the **>** soft key

FCA Models:
- Select the **Application parameters**: press the **v** soft key 2 x, then the **>** soft key
- Select **Application 2 (control functions)**: Press the **v** soft key, then the **>** soft key
- Select **Checkweighing**: press the **^** or **v** soft key, repeatedly, if necessary
- Confirm **Checkweighing**: press the **>** soft key



o = factory setting

see also the "Application Parameters (Overview)" in the chapter entitled "Configuring the Scale"

- Save settings and exit the Setup menu: press the **<<** soft key

Additional Functions

In addition to the functions for:

– alphanumeric input, (not during initialization),

– taring (not during alphanumeric input)

– printing,

you can also access the following functions from this application:

Calibration/Adjustment

- Press the **isoTST** soft key
> See "Calibration/Adjustment" for further instructions

Toggling to Another Application

- Press D
> See the section on the corresponding application program for further instructions

Setup (Setting Parameters)

- Press SETUP
> See "Configuring the Scale" for further instructions

Turning Off the Scale

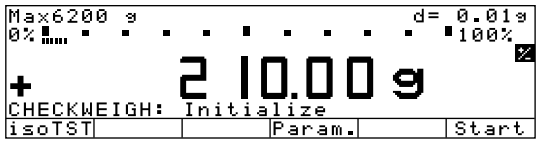
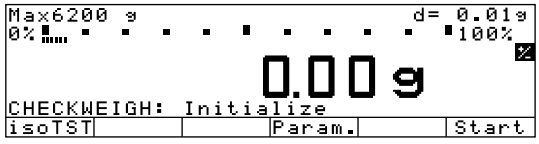
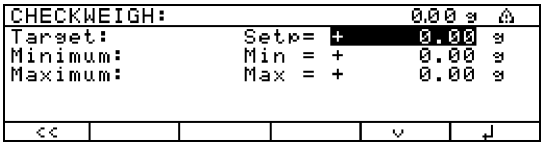
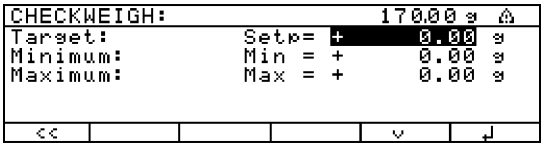
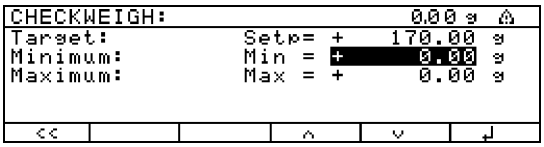
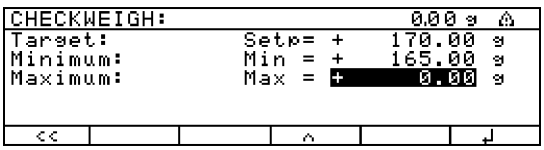
- Press I/⏻
> The scale shuts off
> The display goes blank, then OFF or Standby is displayed with backlighting

Practical Example

Checkweighing samples of 170 g, with an allowable tolerance of –5 g and +10 g. Printout of upper and lower tolerance limits. Weighed values are printed out automatically when stability is reached and the weight value is within the checkweighing range.

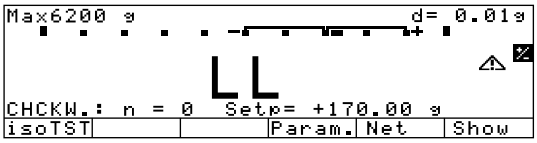
Settings (changes in the factory settings required for this example):

Setup: App(lication parameters): Application 2: Checkweighing: Automatic printout of OK values: On

Step	Press key(s) (or follow instructions)	Display/Output
1. Turn on the scale and configure the settings as indicated above	I/⏻	
2. Delete previous values, if necessary	CF	
3. Prepare a container for the samples	Place empty container on the scale	
4. Tare the scale	TARE	
5. Enter initialization values	**Param.** soft key	
6. Accept target value (in this example: 170 g)	Place ideal sample in container	
7. Save target and unload the scale	↵ soft key Remove ideal sample from the scale	
8. Enter value for lower limit (170 g – 5 g) and save	1 6 5 ↵ soft key	

9. Enter value for upper limit (170 g + 10 g) and save

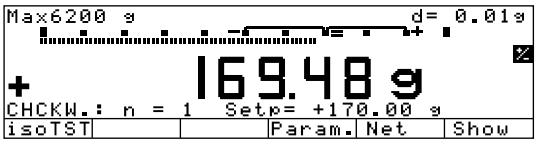
1 8 0
↵ soft key



Setp	+	170.00 g
Min	+	165.00 g
Max	+	180.00 g

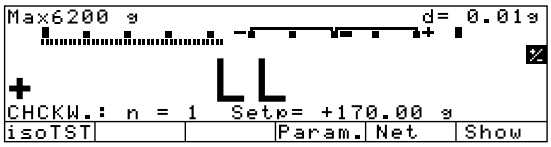
10. Weigh sample (in this case: 169.48 g)

Place sample in container



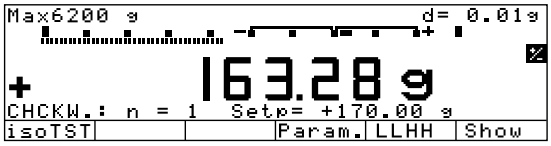
N	+	169.48 g

If the weight value is too low:



11. In this case, switch to net value (for ex., a weight of 163.28 g)

Net soft key



12. Weigh next sample (if any)

Place sample in container

Time-Controlled Functions

Purpose

With this application program, you can configure the scale to perform certain functions (such as automatic printout of values, store value in totalization memory) at a given time or after a set interval.

You can use this application in combination with any program chosen from Application 1 (such as counting, weighing in percent) and one from Application 3 (such as totalizing, formulation).

Features

- Time-controlled activation of scale functions:
  - one time only, at a given time

    (`Setting=` is displayed in the text line)
  - repeatedly, at given intervals (`Interval=` is displayed in the text line before the function is started, and `Repeat =` is displayed after the function has been started)
- Functions that can be time-controlled include:
  - Acoustic signal (beep)
  - Lock in readout
  - Automatic printout of values
  - Store values for totalizing, formulation or statistics
- Print time in addition to weight value
- Store value depending on the stability parameter
- Tare the scale after printout of weight values
- Press the corresponding soft key to cancel time-controlled functions

Factory Settings

Function after time interval:
`Automatic printout of values`

Automatic function restart: `On`

Storage mode:
`Without stability`

Print then tare: `On`

Soft Key Functions

`Stop`	Stop the application
`Quit`	Confirm performed function (e.g., »Lock in readout« or »Beep«)
`Interv`	Store input interval for time-controlled functions
`Set.`	Store input time for one-time performance of function
`Start`	Start timer function

Printout for Time-Controlled Functions

If the "Automatic printout of values" parameter is set, the time and weight (or other value) are printed out.

```
Time:          10:15:00
N      +    150.00 g
```

Time: Time that the values were stored
N: Net weight

Preparation

● Turn on the scale: press I/⏻

> The Sartorius logo is displayed

● Select the "Time-controlled functions" application in the Setup menu: press SETUP

FC Models:

● Select the Application menu: Press the **App** soft key

● Select **Application 2**: Press the **v** soft key and then the **>** soft key

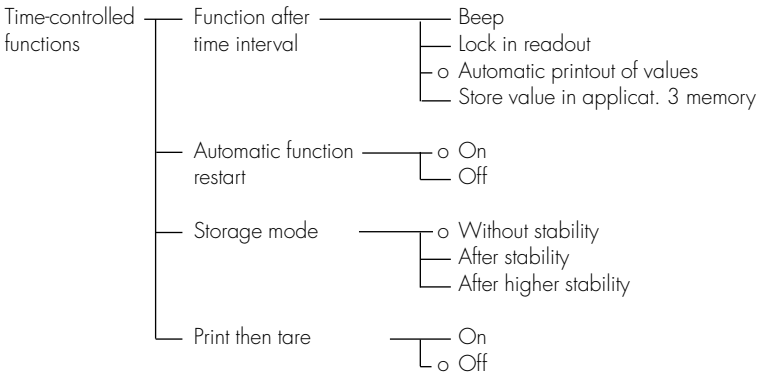
FCA Models:

● Select the **Application parameters**: press the **v** key 2 x, then the **>** soft key

● Select **Application 2 (control functions)**: press the **v** soft key, then the **>** soft key

● Select **Time-controlled functions**: press the **^** or **v** soft key

● Confirm **Time-controlled functions**: press the **>** soft key



o = factory setting

see also the "Application Parameters (Overview)" in the chapter entitled "Configuring the Scale"

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

Print Net Values without Printout of Time

Select the Setup menu:

FC Models:
Setup: App: Basic settings: Printout configuration: Auto print upon initialization: Off

FCA Models:
Setup: Printout: Application-defined output: Auto print upon initialization: Off

Additional Functions

In addition to the functions for:

– alphanumeric input,

– taring (not during alphanumeric input),

– printing,

you can also access the following functions from this application:

Calibration/Adjustment

● Press the **isoTST** soft key

> See "Calibration/Adjustment" for further instructions

Toggling to Another Application

● Press ↺D

> See the section on the corresponding application program for further instructions

Setup (Setting Parameters)

● Press SETUP

> See "Configuring the Scale" for further instructions

Turning Off the Scale

● Press I/⏻

> The scale shuts off

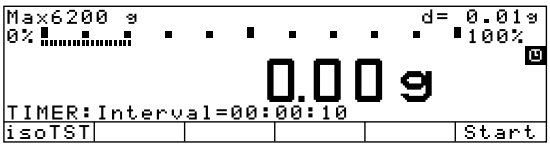
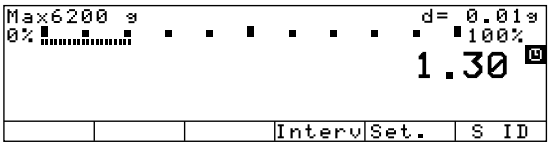
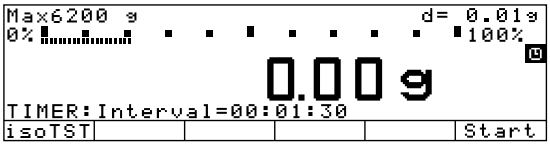
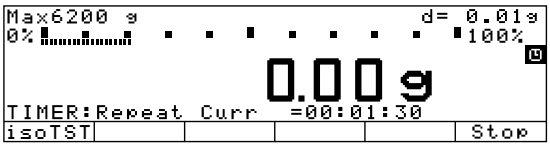
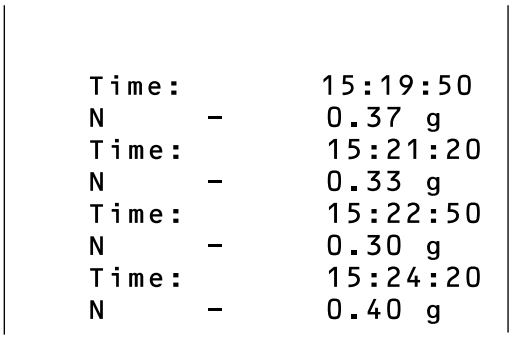
> The display goes blank, then OFF or Standby is displayed with backlighting

Practical Example

Document the evaporated amount of a sample with defined surface, temperature and air pressure at preset intervals of 1 minute, 30 seconds.

Settings (changes in the factory settings required for this example):

Setup: App(lication parameters): Application 2: Time-controlled functions
Setup: Balance/scale functions: Taring: Without stability
Setup: Printout: Application-defined output: Stability parameter: Without stability

Step	Press key(s) (or follow instructions)	Display/Output
1. Turn on the scale and configure the settings as indicated above	I/⏻	
2. Delete stored values, if necessary	CF	
3. Place container with sample on the scale and tare	TARE	
4. Enter time interval: 1 minute, 30 seconds	1 · 3 0	
5. Store time interval	**Interv** soft key	
6. Begin documentation (Time remaining until the next printout is displayed in the text line)	**Start** soft key	
Printout of evaporated amount every 1½ minutes		
7. Stop the documentation procedure	**Stop** soft key	

Totalizing Σ

Purpose

This application program runs as a cumulative memory function.

You can use this application in combination with any program chosen from Application 1 (such as counting, weighing in percent) and one from Application 2 (checkweighing, time-controlled functions).

Features

- Totalization of weight values and calculated values
- Optional configuration in the Setup menu for simultaneous storage of net and calculated values
- Optional configuration in the Setup menu for loading weight values and calculated values either from Application 1 (e.g., counting, weighing in percent) or from Application 2 (checkweighing, time-controlled functions)
- Totalization memory for up to 65,535 values
- Simultaneous display in the text line of transaction counter and, e.g., the current total
- Optional configuration in the Setup menu for having the scale tare automatically after a value is stored in the totalization memory, if no preset tare has been entered
- Manual input of the number of individual weighing operations and confirmation using the **nDef** soft key (target no. of operation nDef). Result printed and memory cleared after printout of nDef.
- Optional configuration in the Setup menu to add the current weight, with display accuracy, to the current total by pressing the **M+** soft key and generate a printout of the result
- Optional configuration in the Setup menu for stability-dependent storage of the measured value: **Balance/ scale functions, Stability range**
- Optional automatic storage of measured values

  Storage of measured value is indicated by →←; ↓↓ indicates that you can place a load on the scale.
- Minimum load threshold for automatic storage
- Press the **M–** soft key to delete the last value added to the totalizing memory. The transaction counter value is reduced by one and a printout is generated.
- Press the **MR** soft key for information about number of transactions and the current total. In the Setup menu, you can define whether the information is displayed and printed, or only printed, and whether the information comprises an intermediate or final evaluation
- In the Info window you can choose which value is displayed in the text line during weighing
- Printout of the end result independent of which program is configured for Application 1 or Application 2. Configure the Setup menu to define which values are included on the printout (printout of individual components)
- Press the key identified by **MR** (soft key label) for a printout of an intermediate evaluation after each addition or a final evaluation
- If you end the totalization process by pressing CF without having first pressed the **MR** soft key for a printout, a final evaluation is printed when you press CF
- Optional configuration in the Setup menu to clear the totalizing memory and reset the transaction counter by pressing CF or after an evaluation is printed out
- Totalization data and transaction counter data are stored in non-volatile memory
- Continue totalization after turning the scale off and back on

Factory Settings of Parameters

Automatic storage: **Off**

Minimum load for automatic storage: **10 digits**

Source of data for auto storage: **Application 1**

Evaluated values: **Net**

Evaluation mode, MR key function: **Intermediate evaluation, print**

M+/M– function, then tare: **Off**

Printout of individual components: **Yes**

Stability range: **2 digits**

Application-defined output:
Print then tare: **Off**

Soft Key Functions

M+	Add weight values or application values to the total in the totalization memory. The component or transaction counter value increases by one each time you press this key.
M–	Delete the last value added to memory. The transaction counter value decreases by 1. You cannot delete previous values by repeatedly pressing this key.
MR	Print or display an intermediate or final evaluation
nDef	Store the input number of components

Printout for Totalizing

The transaction or component counter is printed in front of each measured value (weight). When an intermediate or final evaluation is printed out, all results up to this point are included.

```
n              5
Total   +151.67 g
```

Preparation

● Turn on the scale: press I/⏻

> TheSartorius logo is displayed; a self-test is performed

● Select the "Totalizing" application program in the Setup menu: press SETUP

FC Models:

● Select the Application menu: App soft key

● Select Application 3: Press the v soft key and then the > soft key

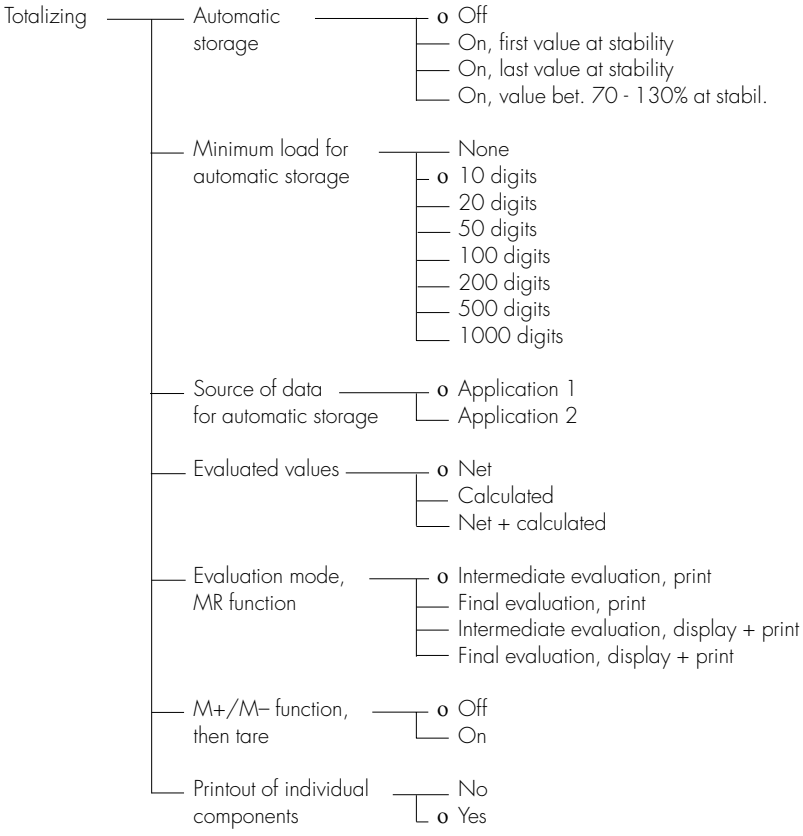
FCA Models:

● Select the Application parameters: press the v soft key 2 x, then the > soft key

● Select Application 3 (data records): press the v soft key 2 x, then the > soft key once

● Select Totalizing: press the ^ or v soft key

● Confirm Totalizing: press the > soft key



o = factory setting

see also the "Application Parameters (Overview)" in the chapter entitled "Configuring the Scale"

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

Additional Functions

In addition to the functions for:

– alphanumeric input,

– taring (not during alphanumeric input),

– printing,

you can also access the following functions from this application:

Calibration/Adjustment

● Press the isoTST soft key

> See "Calibration/Adjustment" for further instructions

Toggling to Another Application

● Press ⟲

> See the section on the corresponding application program for further instructions

Setup (Setting Parameters)

● Press SETUP

> See "Configuring the Scale" for further instructions

Turning Off the Scale

● Press I/⏻

> The scale shuts off

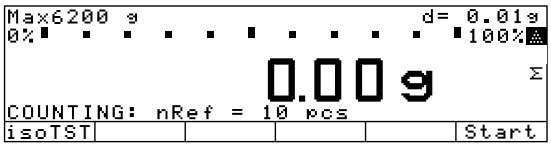
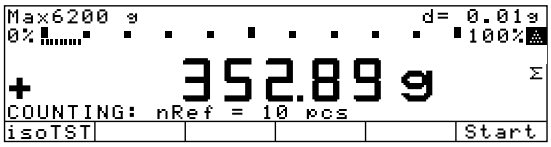
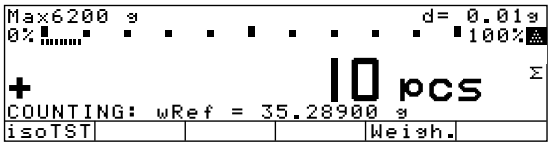
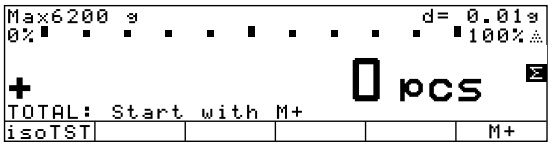
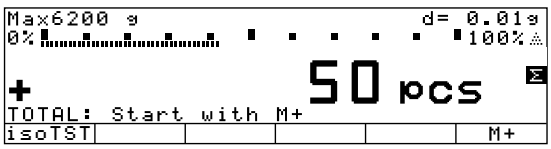
> The display goes blank, then OFF or Standby is displayed with backlighting

Practical Example

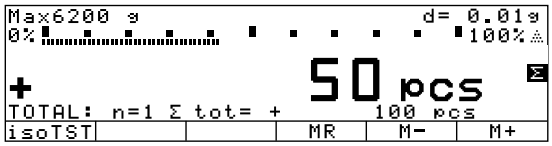
Totalize counted pieces

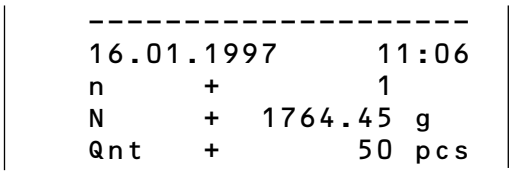
Settings (changes in the factory settings required for this example):

Setup: App(lication parameters): Application 1: Counting
Setup: App(lication parameters): Application 2: Off
Setup: App(lication parameters): Application 3: Totalizing: Evaluated values: Net + calculated
Setup: App(lication parameters): Application 3: Totalizing: Evaluation mode, MR function: Final evaluation, display + print

Step	Press key(s) (or follow instructions)	Display/Output
1. Turn on the scale and configure the settings as indicated above	I/⏻	
2. Delete old totalization data, if necessary	CF	
3. Tare the scale	TARE	
4. Toggle to Application 1: Counting	⟲	
5. Place the displayed number of parts on the scale (here: 10 pcs)	Place parts to be counted on the scale	
6. Initialize the Counting application	**Start** soft key	 nRef 10 pcs wRef 35.28900 g
7. Remove the reference sample quantity and toggle to Totalizing	Unload the scale ⟲	
8. Place a number of parts on the scale (here: 50 pcs)	Place parts on the scale	

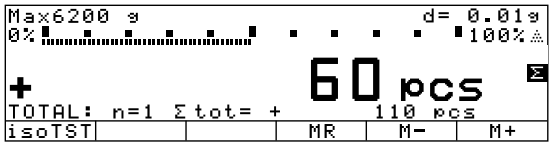
9. Store piece count — **M+** soft key



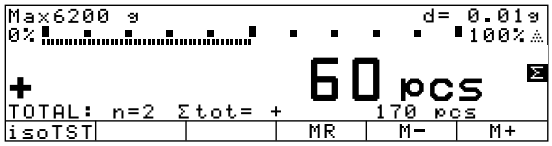


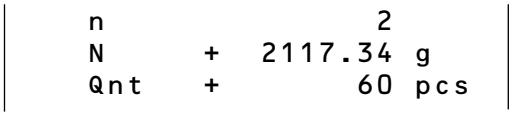
10. Unload the scale — Remove parts from the scale

11. Place another load of parts on the scale (e.g., 60 pcs) — Place parts on the scale



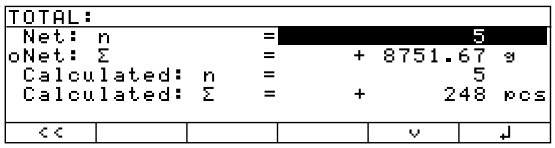
12. Add piece count to stored total — **M+** soft key



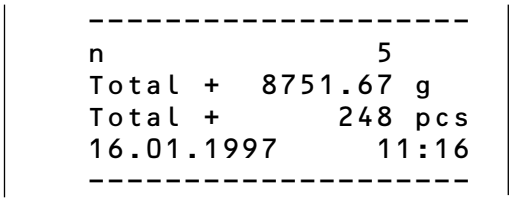


13. Repeat steps 10 and 11 as required

14. Display final evaluation ("Info" window) (here: 5 weighing operations; total weight: 8751.67 g; total quantity: 248) The **O** indicates which value is displayed in the text line; you can change this selection — **MR** soft key



15. Print final evaluation — ⊙



Formulation

Purpose

With this application program you can add weight values and calculated values as components of a formula to a totalizing memory.

You can use this application in combination with any program chosen from Application 1* (such as counting, weighing in percent) and one from Application 2 (check-weighing, time-controlled functions) as well as with the extra functions.

* = not with recalculation or 2nd tare memory; cannot be activated during formulation

Available Features

- Totalization of weight values and calculated values
- Weigh in different components toward zero to a total amount defined by pressing the **Nom** soft key and entering the value through the numeric keys
- Simultaneous storage of net and calculated values, if available
- Optional configuration in the Setup menu for loading weight values and calculated values either from Application 1 (e.g., counting, weighing in percent) or from Application 2 (checkweighing, time-controlled functions)
- Totalizing memory for up to 65,535 values
- Transaction counter and current total displayed in the text line
- Scale tared after a value has been stored
- Manual input of the number of individual weighing operations and confirmation using the **nDef** soft key (target no. of operations nDef). Result printed and memory cleared after printout of nDef.
- Optional configuration in the Setup menu to add the current weight, with display accuracy, to the current total by pressing the **M+** soft key and generating a printout of the result
- Optional configuration in the Setup menu for stability-dependent storage of the measured value: Balance/scale functions, Stability range
- Optional automatic storage of measured values

  Storage of measured value is indicated by →←; ↓↓ indicates that you can place a load on the scale.
- Minimum load threshold for automatic storage
- Press the **M–** soft key to delete the last value added to the totalizing memory. The transaction counter value is reduced by one and a printout is generated.
- Printout of an evaluation of results, depending on the Application 1 or Application 2 parameters. Configure the Setup menu to define the information included on this printout.
- Press the key identified by **MR** (soft key) for a printout of an intermediate evaluation after each addition or a final evaluation
- A final evaluation is printed when the formulation routine is ended by pressing CF, if no final evaluation was generated by pressing **MR**
- Optional configuration in the Setup menu to clear the totalizing memory and reset the transaction counter by pressing CF or after an evaluation is printed out
- Totalization data and transaction counter data are stored in the non-volatile memory
- Continue formulation after turning the scale off and back on

Factory Settings of the Paramters

Automatic storage: **Off**

Minimum load for automatic storage: **10 digits**

Source of data for auto storage: **Application 1**

Evaluated values: **Net**

Evaluation mode, **MR** key function: **Intermediate evaluation, print**

Printout of individual components: **Yes**

Stability range: **2 digits**
Printout: Application-defined output:
Print on request then tare: **Off**

Soft Key Functions

M+	Add weight values or application values to the total in the totalizing memory. The component or transaction counter value increases by one each time you press this key.
M–	Delete the last value added to memory. The transaction counter value decreases by 1. You cannot delete previous values by repeatedly pressing this key.
MR	Print or display an intermediate or final evaluation
nDef	Store the input number of components
Nom	Press to enter target component weight using the numeric keys

Printout of Formulation Report

When an intermediate or final evaluation is printed out, all results up to this point are included.

```
Comp2 + 42.38 g
Tot.cp+184.89 g
```

Comp2:	Weight of the 2nd component
Tot.cp:	Total of all components

Preparation

● Turn on the scale: press I/⏻

> The Sartorius logo is displayed; a self-test is performed

● Select the "Formulation" application in the Setup menu: press SETUP

FC Models:

● Select the Application menu: **App** soft key

● Select **Application 3**: Press the **v** soft key and then the **>** soft key

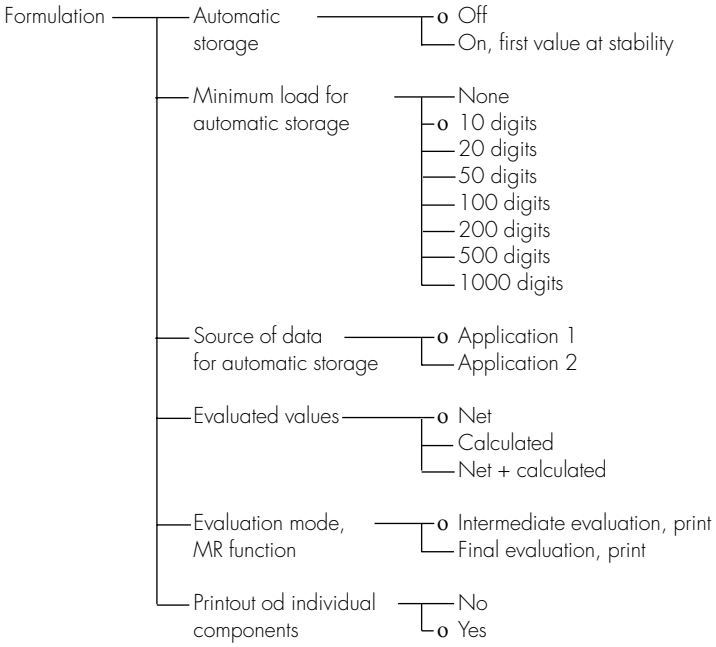
FCA Models:

● Select **Application parameters**: press the **v** soft key 2 x, then the **>** soft key once

● Select **Application 3 (data records)**: press the **v** soft key 2 x, then the **>** soft key once

● Select **Formulation**: press the **^** or **v** soft key

● Confirm **Formulation**: press the **>** soft key



o = factory setting

see also the "Application Parameters (Overview)" in the chapter entitled "Configuring the Scale"

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

Additional Functions

In addition to the functions for:

– alphanumeric input,

– taring (not during alphanumeric input),

– printing,

you can also access the following functions from this application:

Calibration/Adjustment

● Press the **isoTST** soft key

> See "Calibration/Adjustment" for further instructions

Toggling to Another Application

● Press ⏻

> See the section on the corresponding application program for further instructions

Setup (Setting Parameters)

● Press SETUP

> See "Configuring the Scale" for further instructions

Turning Off the Scale

● Press I/⏻

> The scale shuts off

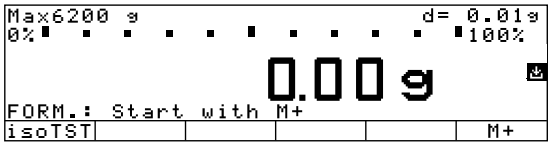
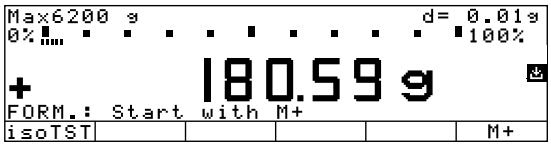
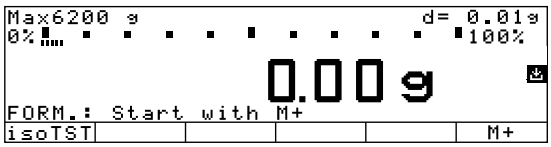
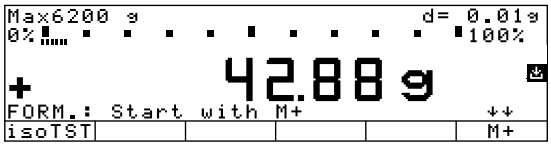
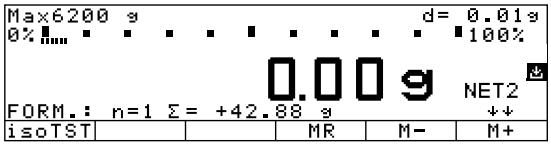
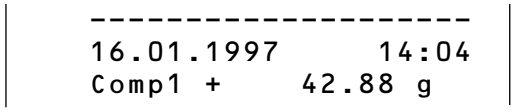
> The display goes blank, then OFF or Standby is displayed with backlighting

Practical Example

Weighing in Components

Settings (changes in the factory settings required for this example):

Setup: App(lication parameters): Application 3: Formulation: Automatic storage: On, first value at stability
Setup: App(lication parameters): Application 3: Formulation: Minimum load for automatic storage: 100 digits
Setup: App(lication parameters): Application 3: Formulation: Evaluation mode, MR function: Final evaluation, print

Step	Press key(s) (or follow instructions)	Display/Output
1. Turn on the scale and configure the settings as indicated above	I/⏻	
2. Delete old formulation data	CF	
3. Tare the scale	TARE	
4. Place the empty container on the scale (here: 180.59 g)	Place load on the scale	
5. Tare the scale	TARE	
6. Weigh in the first component (here: 42.88 g)	Place components in container	
7. Store components in the formulation memory Scale is tared automatically	**M+** soft key	
Component are printed out automatically		

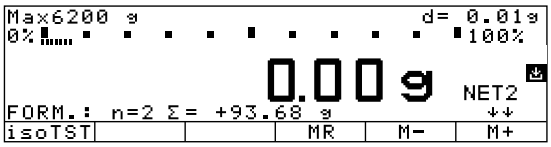
8. Weigh in next component (here: 50.80 g)

   Components are stored in the Totalization memory at stability and printed out

   Scale is tared automatically

Place components in container

```
Comp2 +     50.80 g
```



9. Repeat step 7 as required

10. Print final evaluation (here: with total weight of all components: 212.43 g)

MR soft key

```
--------------------
n                   2
Tot.cp+    212.43 g
16.01.1997      14:10
--------------------
```

11. Delete old formulation data, if necessary

CF

Statistics

Purpose

With this application program, you can have weight values and calculated values totalized and statistically evaluated.

The values determined for the evaluation are:

- average (mean value)
- standard deviation
- variation coefficient
- sum of all values
- lowest value (minimum)
- highest value (maximum)
- difference between the minimum and the maximum

You can use the statistics application in combination with any program chosen from Application 1 (such as counting, weighing in percent) and one from Application 2 (checkweighing, time-controlled functions) as well as with the extra functions.

Features

- Storage of weight values and calculated values
- Simultaneous storage of net and calculated values
- Optional configuration in the Setup menu for loading weight values and calculated values either from Application 1 (such as counting, weighing in percent) or from Application 2 (checkweighing, time-controlled functions)
- Totalizing memory for up to 65,535 values
- Simultaneous display in the text line of the transaction counter and, e.g., the current total
- Optional configuration in the Setup menu for having the scale tare automatically after a value has been stored in the totalizing memory
- Manual input of the number of individual weighing operations and confirmation using the **nDef** soft key (target no. of operations nDef). Result printed and memory cleared after printout of nDef.
- Optional configuration in the Setup menu to add the current weight, with display accuracy, to the current total by pressing the **M+** soft key and generate a printout of the result
- Optional configuration in the Setup menu for stability-dependent storage of the measured value: Balance/scale functions, Stability range
- Optional automatic storage of measured values

  Storage of measured value is indicated by →←;
  ↓↓ indicates that you can place a load on the scale.
- Minimum load threshold for automatic storage
- Press the **M–** soft key to delete the last value added to the totalizing memory. The transaction counter value is reduced by one and a printout is generated.
- Press the **MR**: soft key for information about number of transactions and the current total. By configuring the Setup menu, you can define whether the information is displayed and printed, or only printed, and whether the information comprises an intermediate or final evaluation
- In the Info window you can use the ˅, ↲ (o) soft keys to choose which value will be displayed in the text line during weighing
- Printout of the final result depending on the Application 1 or Application 2 parameters. Configure the Setup menu to define which values are included on the printout (printout of individual components)
- Press **MR** for a printout of an intermediate evaluation after each addition or a final evaluation
- A final evaluation is printed when the statistics routine is ended by pressing CF, if no final evaluation was generated by pressing **MR**
- Optional configuration in the Setup menu to clear the totalizing memory and reset the transaction counter by pressing CF or after an evaluation is printed out
- Totalization data and transaction counter data is stored in the non-volatile memory
- Continue totalization after turning the scale off and back on

Factory Settings

Automatic storage: **Off**

Minimum load for automatic storage: **10 digits**

Source of data for auto storage: **Application 1**

Evaluated values: **Net**

Evaluation mode, MR key function: **Intermediate evaluation, print**

M+/M– function, then tare: **Off**

Printout of individual components: **Yes**

Stability range: **2 digits**
Application-defined output: Print on request then tare: **Off**

Soft Key Functions

M+	Add weight values or application values to the total in the totalizing memory. The component or transaction counter value increases by one each time you press this key.
M–	Delete the last value added to memory. The transaction counter value decreases by 1. You cannot delete previous values by repeatedly pressing this key.
MR	Print or display an intermediate or final evaluation
nDef	Store the input number of components

Printout of Statistics

The transaction or component counter is printed in front of each measured value (weight). When an intermediate or final evaluation is printed out, all results up to this point are included.

```
n                5
Total   + 151.67 g
Avg.    +   33.0 pcs
s       +    3.2 pcs
srel    +   9.70 %
Total   +    165 pcs
Min     +     29 pcs
Max     +     37 pcs
Diff    +      8 pcs
```

n:	Transaction counter
Total:	Sum of all values
Mean:	Average
s:	Standard deviation
srel:	Variation coefficient
Total:	Sum of all values
Min:	Minimum
Max:	Maximum
Diff:	Difference between minimum and maximum

Preparation

● Turn on the scale: press I/⏻

> The Sartorius logo is displayed

● Select the "Statistics" application in the Setup menu: press SETUP

FC Models:

● Select the Application menu: **App** soft key

● Select **Application 3**: Press the **v** soft key and then the **>** soft key

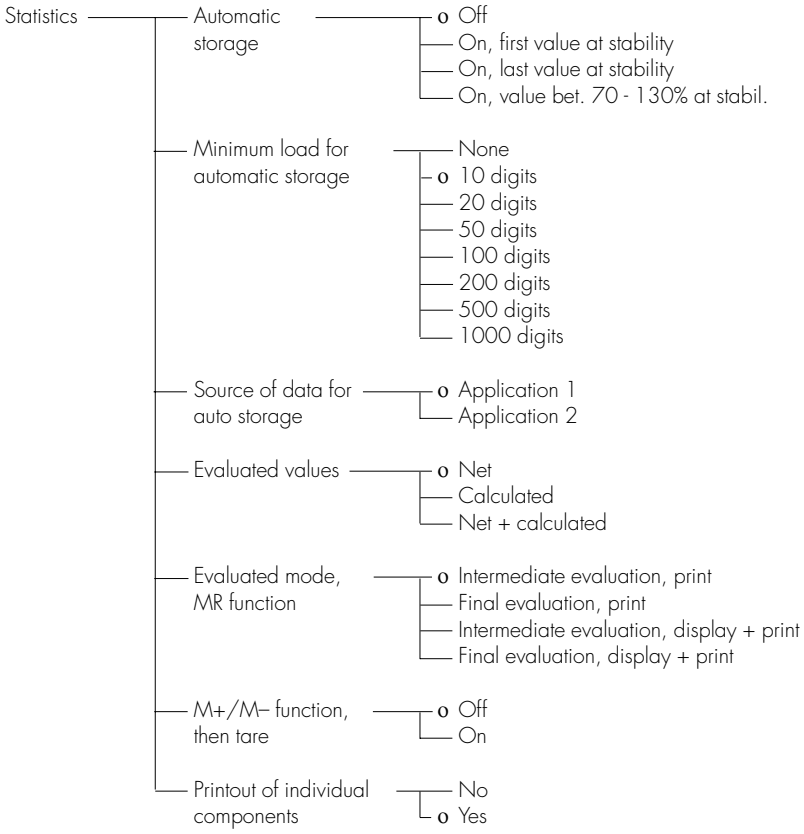
FCA Models:

● Select **Application parameters**: press the **v** soft key 2 x, then the **>** soft key once

● Select **Application 3 (data records)**: press the **v** soft key 2 x, then the **>** soft key once

● Select **Statistics**: press the **^** or the **v** soft key

● Select **Statistics**: press the **>** soft key



o = factory setting

see also the "Application Parameters (Overview)" in the chapter entitled "Configuring the Scale"

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

Additinal Functions

In addition to the functions for:

– alphanumeric input,

– taring (not during alphanumeric input),

– printing,

you can also access the following functions from this application:

Calibration/Adjustment

● Press the **isoTST** soft key

> See "Calibration/Adjustment" for further instructions

Toggling to Another Application

● Press ⏻D

> See the section on the corresponding application program for further instructions

Setup (Setting Parameters)

● Press SETUP

> See "Configuring the Scale" for further instructions

Turning Off the Scale

● Press I/⏻

> The scale shuts off

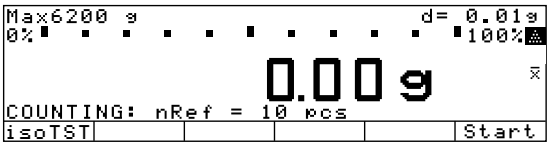
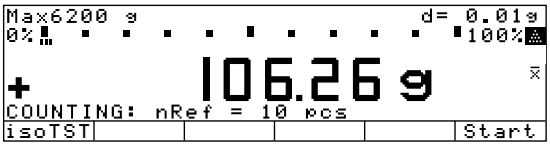
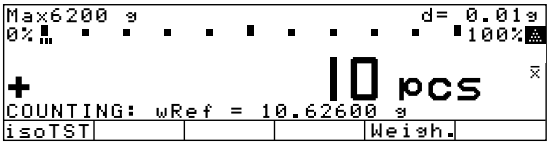
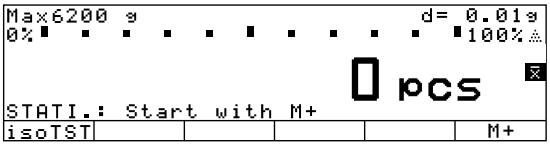
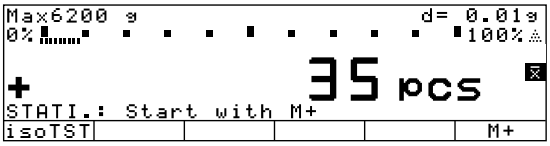
> The display goes blank, then OFF or Standby is displayed with backlighting

Practical Example

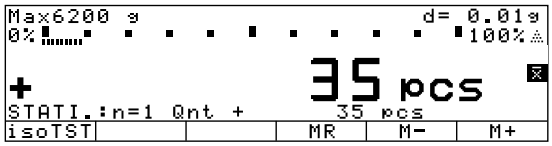
Totalize counted pieces and print out statistics

Settings (changes in the factory settings required for this example):

Setup: App(lication parameters): Application 1: Counting: Average piece weight updating: Manual
Setup: App(lication parameters): Application 3: Statistics: Evaluated values:Calculated
Setup: App(lication parameters): Application 3: Statistics: Evaluation mode, MR function: Final evaluation, display + print

Step	Press key(s) (or follow instructions)	Display/Output
1. Turn on the scale and configure the settings as indicated above	I/⏻	
2. Delete old statistics data, if necessary	CF	
3. Tare the scale	TARE	
4. Toggle to Application 1: Counting	⟲	
5. Place the displayed number of parts on the scale (here: 10 pcs)	Place parts to be counted on the scale	
6. Initialize the Counting application	**Start** soft key	 nRef 10 pcs wRef 10.62600 g
7. Remove the reference sample quantity and toggle to Statistics	Unload the scale ⟲	
8. Place a number of parts on the scale (here: 35 pcs)	Place parts on the scale	

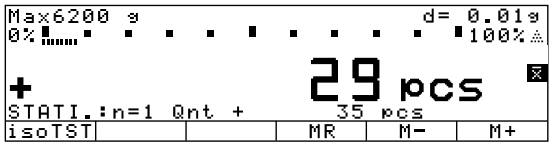
9. Store piece count — **M+** soft key



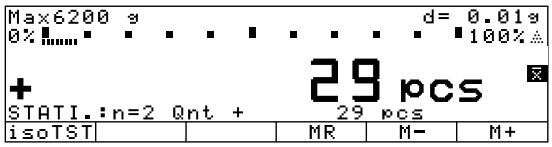

```
--------------------
16.01.1997      11:06
n       +           1
Qnt     +       35 pcs
```

10. Unload the scale — Remove parts from the scale

11. Place another load of parts on the scale (e.g., 29 pcs) — Place parts on the scale



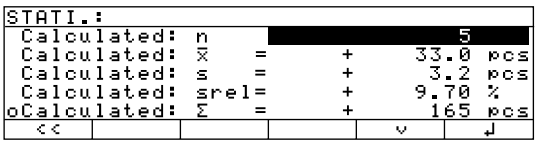
12. Add piece count to stored total — **M+** soft key




```
n       +           2
Qnt     +       29 pcs
```

13. Repeat steps 11 and 12 as required

14. Display final evaluation (»Info« window) (here: 5 weighing operations; total quantity: 165) The ◘ indicates which value is displayed in the text line; you can change this selection — **MR** soft key



15. Print final evaluation — ⊙

```
--------------------
n                   5
Avg.    +       33.0 pcs
s       +        3.2 pcs
srel    +       9.70 %
Total   +        165 pcs
Min     +         29 pcs
Max     +         37 pcs
Diff    +          8 pcs
16.01.1997       11:16
--------------------
```

Extra Functions (in the Application Menu)

Second Tare Memory (Preset Tare)

Purpose

With this function, you can store the weight currently on the scale as a tare weight, or use the numeric keys to enter a number for a preset tare weight.

You can use this function in combination with a program from Application 1 (such as counting, weighing in percent), one from Application 2 (checkweighing, time-controlled functions) and one from Application 3 (totalizing, formulation, statistics) as well as with the extra functions.

Features

- Store a weight on the scale in the second tare memory (without numeric input)
- Store a numeric value in the second tare memory (input using the numeric keys)
- Identify a net value as **NET** when there is a value stored in the second tare memory
- You can assign this function to the fourth or fifth soft key (from the right); i.e., F4 or F5.
  The soft key designation for this function is: `PT1/T1`
- Optional configuration in the Setup menu for storing the current weight readout as the container tare weight. Any load subsequently placed on the scale that is more than 70% of the tare weight is automatically recognized as a container and the scale is tared automatically.
- Automatic printout when a value is stored or input (see "Configuring the Scale")
- Press [CF] to delete the (preset) tare value

Factory Settings

Container tare weight: `No`

Automatic printout: `Off`

Soft Key Functions

`PT1/T1`	Store weight as tare value
`PT1`	Store input value

Printout of the Data in the 2nd Tare Memory

The printout shows either
- Net value `N1`,
- Tare weight `T1`, or
- Manually entered tare value `PT1`

```
N1      63.48 g
T1     138.73 g
PT1    150.00 g
```

N1: Net weight (value) when a weight is stored in the tare memory
T1: Tare weight
PT1: Preset tare value entered using the numeric keys

Preparation

● Turn on the scale: press [I/⏻]

> The Sartorius logo is displayed; a self-test is performed

● Select Extra function (F4) or Extra function (F5) in the Setup menu: press [SETUP]

FC Models:

● Select the Application menu: `App` soft key

● Select `Extra func. (F4)` or `Extra func. (F5)`

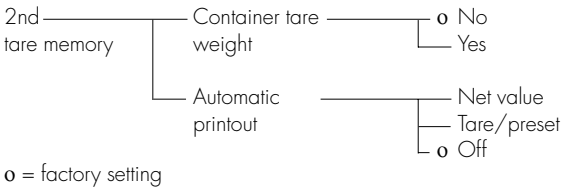
FCA Models:

● Select `Application parameters`: press the `v` soft key 2 x, then the `>` soft key once

● Select `Extra function (F4)` or `Extra function (F5)`: press the `v` soft key 3 x (or 4 x), then press the `>` soft key once

● Select `2nd tare memory`

● Confirm `2nd tare memory`



o = factory setting

see also the "Application Parameters (Overview)" in the chapter entitled "Configuring the Scale"

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

Second Tare Memory in Legal Metrology

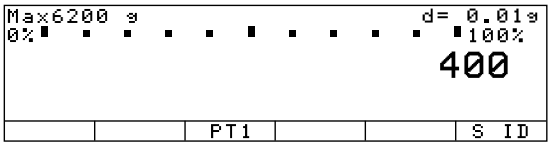
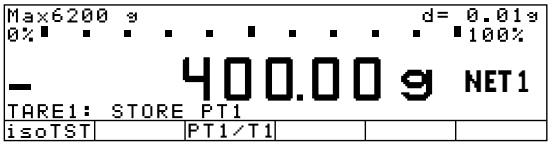
- Press the `(i)PT1` soft key to enter information about the tare value using the number keys.
- The PT1 tare value is printed out with the net value.

Practical Example

Determine the Contents of Bottles: Bottle weight = 400 g.

Settings (changes in the factory settings required for this example):

Setup: App(lication parameters): Extra function (F4): 2nd tare memory: Automatic printout: Tare/preset tare

Step	Press key(s) (or follow instructions)	Display/Output
1. If necessary: turn on the scale and enter the settings given above	I/⏻	
2. Enter bottle weight (example 400 g)	4 0 0	
3. Store tare value	**PT1** soft key	 PT1 + 400.00 g
4. Determine net weight of bottles (in this case: net contents = 650 g)	Place filled bottles on the scale	

Individual Identification Codes (ID)

Purpose

With this function, you can assign IDs to values for documentation and printouts.

You can use this function in combination with any program from Application 1 (such as counting, weighing in percent), one from Application 2 (checkweighing, time-controlled functions) and one from Application 3 (totalizing, formulation, statistics) as well as with the other extra functions.

Features

- Store up to 4 IDs; these can be stored, changed or deleted individually.
- Each ID consists of a name and a value; both can be defined by the user.
- ID designations are configured as follows: Setup: Printout: Identification codes
- Each ID code can have up to 20 characters; when you enter the value later, however, no more than 15 characters of this ID are displayed.
- The ID values are entered while the application program is active; press the **ID** soft key to toggle to the ID input mode.
- Each ID value can have up to 20 characters.
- Access 1 of the 4 IDs directly using the numeric keys. The other three can only be accessed by pressing the **ID** soft key to toggle to the ID input mode.
- You can assign this function to the fourth or fifth soft key (from the right); i.e., F4 or F5.
- You can configure when the ID will be included on the printout (see "Preparation" on the next page).
- You can configure the position of IDs on the individual or total printout.
- The ID code is printed flush left; the value flush right. If the name and value together are too long for one line, the data is printed on two lines.
- Optional configuration in the Setup menu to delete a single character when entering an identification code by pressing CF. Setup: Device parameters: Keys: CF function for input: Delete last character
- Press the **Delete** soft key to delete an ID

Factory Settings of the ID Names

ID1: **ID1**
ID2: **ID2**
ID3: **ID3**
ID4: **ID4**

Factory Settings for ID Codes

No values set

Factory Settings

Printout:
Each time the print key is pressed

Soft Key Functions

ID	Toggle to "Identification codes" menu
Delete	Delete input of selected ID

Printout of ID Codes

Up to 4 (stored) identification codes are printed out.

```
ID1      Lot no. 1234
ID2 Daimler/Chrysler
ID3       Screws M4x6
ID4         Jack Smith
```

ID1: Identification 1 (ID 1)
ID2: Identification 2 (ID 2)
ID3: Identification 3 (ID 3)
ID4: Identification 4 (ID 4)

Preparation

- Turn on the scale: press I/⏻
- > The Sartorius logo is displayed
- Select Extra function (F4) or Extra function (F5) in the Setup menu: press SETUP

FC Models:
- Select the Application menu: **App** soft key
- Select **Extra func. (F4)** or **Extra func. (F5)**

FCA Models:
- Select **Application parameters**: press the **v** soft key 2 x, then the **>** soft key once
- Select **Extra function(F4)** or **Extra function(F5)**: ress the **v** soft key 3 x (or 4 x), then the **>** soft key once

- Select **Identification codes**
- Confirm **Identification codes**

Identification — Printout
- Automatic, if configured
- Once after pressing print, if configured
- o Each time the print key is pressed
- Once for M+ function (app. 3 memory)

o = factory setting

see also the "Application Parameters (Overview)" in the chapter entitled "Configuring the Scale"

- Save settings for the printout: press the **<** soft key 4 x
- Enter ID name: Select "Printout": press the **v** soft key, then the **>** soft key
- Select "Identification #": press the **v** soft key 5 x, then the **>** soft key once
- Select **ID1**
- Enter name for **ID1** and confirm: use the numeric keys for numbers and/or the soft keys to enter letters
- ○ Enter names for **ID2**, **ID3** and **ID4**, if desired
- Save settings and exit the Setup menu: press the **<<** soft key

Example

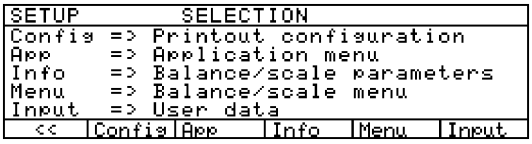
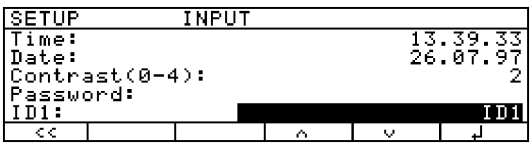
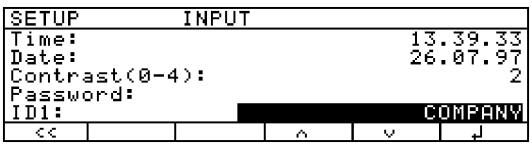
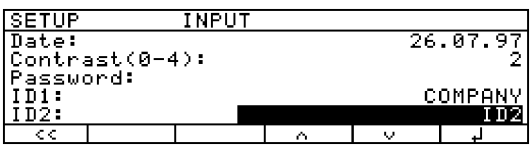
See next page

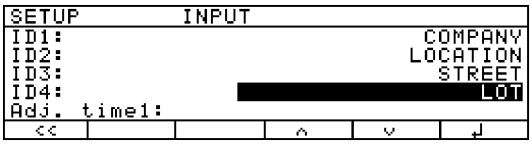
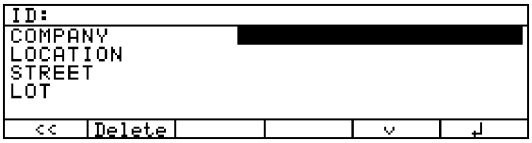
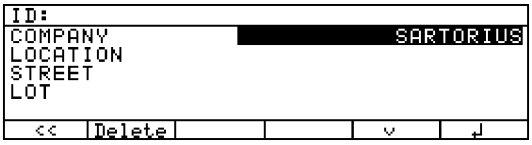
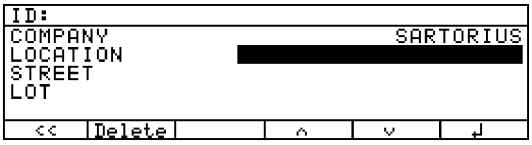
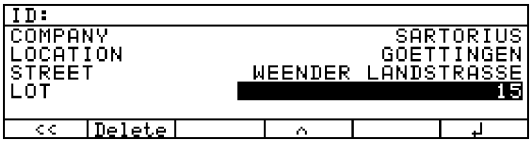
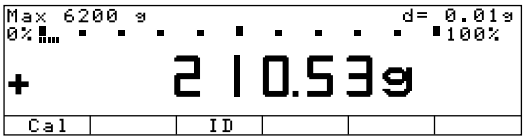
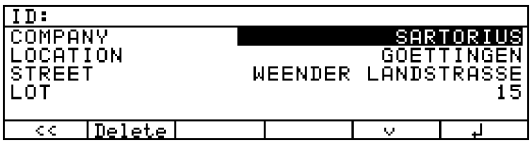
Practical Example: FC Models

Include Company Address and Sample Lot Number on the Printout. Each Identifier Line begins with the Name. Include This ID on Every Printout of the Net Value.

Settings (changes in the factory settings required for this example):

Setup: App(lication parameters): Extra function (F4): Identification codes
Setup: Input: ID1: Company
Setup: Input: ID2: Location
Setup: Input: ID3: Street
Setup: Input: ID4: Lot

Step	Key (or instruction)	Display/Output
1. If necessary: turn on the scale	I/⏻	
2. Select "Extra Function (F4)" in the Setup menu	SETUP App soft key v soft key twice > soft key	
3. Select "Identifier"	v or ^ soft key; repeatedly, if necessary	
4. Confirm	> soft key	
5. Store choice of identifier and access the main menu	< soft key << soft key	
6. Select "ID1"	Input soft key v soft key 8 times	
7. Enter name for ID1 (here: COMPANY)	ABC … see also page 63 ABC	
8. Confirm	↵ soft key	

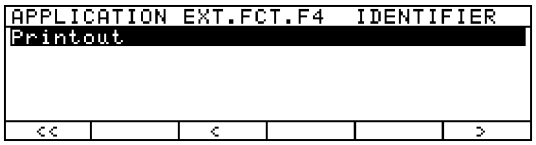
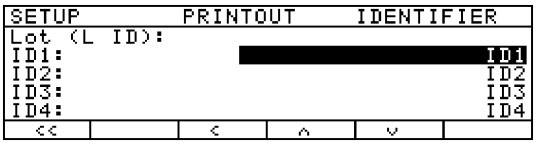
Step	Key (or instruction)	Display/Output
9. Repeat steps 7 and 8 for: ID2: LOCATION ID3: STREET ID4: LOT		
10. Save settings, exit the Setup menu and select input mode for identifier values	**<<** soft key **ID** soft key	
11. Enter name of company (here: Sartorius)	ABC …	
12. Confirm	↵ soft key	
13. Repeat steps 11 and 12 for LOCATION: GOETTINGEN STREET: WEENDER LANDSTRASSE LOT: 15		
14. Place the first sample on the balance/scale (here: 210.53 g)	Place load on scale	
15. Print weight value (if desired, perform further weighing operations and print results)	⊙	
16. When weighing is completed, delete each identifier individually	**ID** soft key **Delete** soft key 4 times	

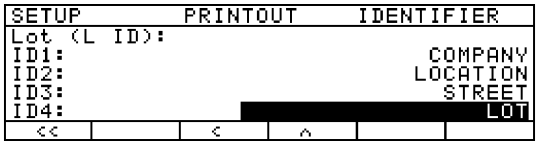
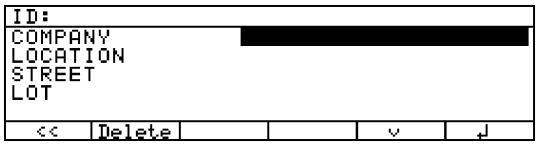
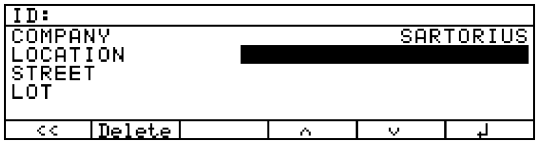
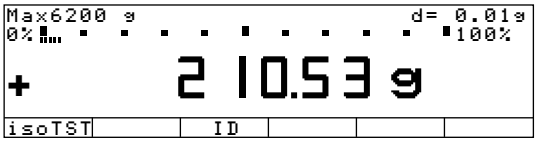
Practical Example: FC Models

Include company address and sample lot number on the printout. Each ID line begins with the name. Print this ID for each net value.

Settings (changes in the factory settings required for this example):

Setup: Application parameters: Extra function (F4): Identification codes
Setup: Input: ID1: Company
Setup: Input: ID2: Location
Setup: Input: ID3: Street
Setup: Input: ID4: Lot

Step	Press key(s) (or follow instructions)	Display/Output
1. If necessary, turn on the scale	I/⏻	
2. Select "Extra Function (F4)" in the Setup menu	SETUP ˅ soft key2 x, then ˃ soft key once ˅ soft key 3 x, then ˃ soft key once	
3. Select "Identification codes"	˅ or ˄ soft key; repeatedly, if necessary	
4. Confirm "Identification codes" and exit this menu item	˃ soft key; then ˂ soft key 3 times	
5. Select ID1 (Printout: Identifier)	˅ or ˃ soft key ˅ soft key 5 x, then ˃ soft key, then ˅ soft key	
6. Enter name for ID 1 (in this case: COMPANY) and confirm	ABC … see also page 63 ABC, ↵ soft key	

Step	Press key(s) (or follow instructions)	Display/Output
7. Repeat steps 6 and 7 for: ID2: LOCATION ID3: STREET ID4: LOT		
8. Save settings, exit the Setup menu and select input mode for IDs	**<<** soft key **ID** soft key	
9. Enter name of company (such as Sartorius)	ABC … see also page 63	
10. Confirm input	↵ soft key	
11. Repeat steps 10 and 11 for LOCATION: GOETTINGEN STREET: WEENDER LANDSTRASSE LOT: 15		
12. Place the first sample on the scale (ex.: weight of 110.53214 g)	Place load on scale	
13. Print weight (if desired, perform further weighing operations and print results)	⊙	
14. When the weighing is completed delete each ID individually	**ID** soft key **Delete** soft key 4 times	

Manual Storage (M+)

Purpose

With this function you can load weight values and calculation results directly from Application 1 (e.g., counting, weighing in percent) or Application 2 (checkweighing, time-controlled functions) into Application 3 (totalizing, formulation, statistics).

Available Features

– You can assign this function to the fourth or fifth soft key (from the right), i.e. F4 or F5.
The soft key designation for this function is: **M+**

– An Application 3 program (totalizing, formulation or statistics) must be running so you can display and print the result

Factory Settings

There are no optional parameters

Preparation

- Turn on the scale: Press I/⏻
> Sartorius logo is displayed
- Select Extra function (F4) or Extra function (F5) in the Setup menu: Press SETUP

FC Models:
- Select the Application menu: **App** soft key
- Select **Extra func. (F4)** or **Extra func. (F5)**

FCA Models:
- Select **Application parameters**: press the **v** soft key 2 x, then the **>** soft key
- Select **Extra func. (F4)** or **Extra func. (F5)**: press the **v** soft key 3 x (or 4 x), then the **>** soft key once
- Select **Man. store in app.3 memory (M+)**
- Confirm **Man. store in app.3 memory (M+)**

  see also the "Application Menu (Overview)" in the chapter entitled "Configuring the Scale"
- Save settings and exit the Setup menu: Press the **<<** soft key

Product Data Memory

Purpose

With this function you can enter, store and load data records for initialization of applications, including user-defined data.

You can use this function in combination with a program from Application 1 (e.g., counting, weighing in percent), one from Application 2 (checkweighing, time-controlled functions) and extra functions F4 and F5 (identifiers, second tare memory).

Available Features

- Store up to 300 data records.
- Data records can be created, stored or deleted individually.
- Press the **ProDat** soft key to display data records.
- Define a name for each data record of up to 15 alphanumeric characters; the desired location is displayed in the product data memory.
- Optional configuration in the Setup menu to delete a single character when entering a data record name by pressing CF. Setup: ... Keypad: CF function for input: Delete last character.
- Data records are displayed in alphabetical order.
- Initialization data set for an application (e.g., wRef, nRef) is saved when you select the Store option. This data is loaded from the product data memory when you access this memory from the corresponding application.
- Use alphanumeric input to search for and display individual data records.
- You can assign this function to the fourth or fifth soft key (from the right), i.e. F4 or F5.
- Error messages are displayed in the text line in plain English.
- Press the **Delete** soft key to delete a data record.

Loading Stored Data:

Data for the block printout is stored in battery-backed memory. The first time you put the scale into operation, it must remain connected to power for a full day. This data remains in memory for approx. 3 months after the equipment is disconnected from AC power.

Factory Settings

No user-definable parameters.

Soft Key Functions

ProDat	Toggle to data record display
Delete	Delete selected data record
Load	Overwrite the initialization data with the selected data record
Change	Change the data in the stored data record
New	Create a new data record (after entering a data record name).
Store	Store the current application data under the selected data record name. If data already exist for this data record, a prompt asks whether this data should be overwritten.
No	Answer no to cancel a "delete" or "overwrite" operation
Yes	Answer yes to perform the "delete" or "overwrite" operation

Preparation

- Turn on the scale: Press I/⏻
> Sartorius logo is displayed
- Select Extra function (F4) or Extra function (F5) in the Setup menu: Press SETUP

FC Models:

- Select the Application menu: **App** soft key
- Select **Extra function(F4)** or **Extra function(F5)**

FCA Models:

- Select **Application parameters**: press the **v** soft key 2 x, then the **>** soft key once
- Select **Extra function (F4)** or **Extra function (F5)**: press the **v** soft key 3 x (or 4 x), then the **>** soft key once
- Select **Product data memory**
- Confirm **Product data memory**

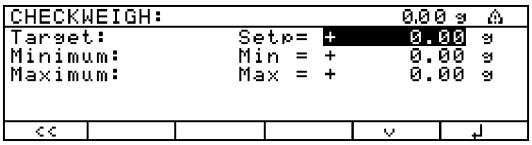
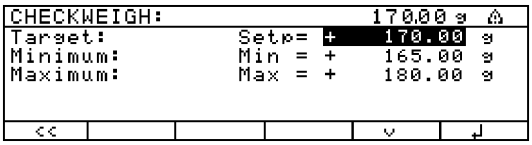
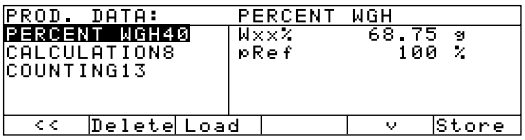
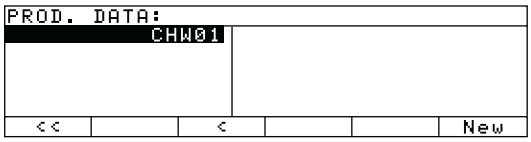
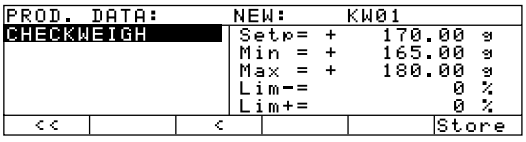
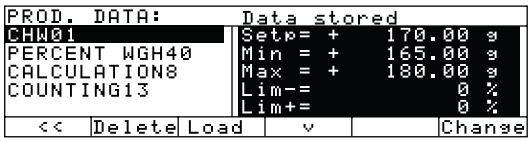
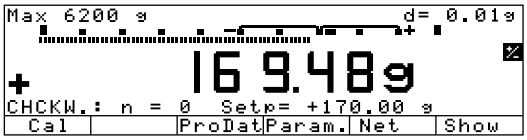
  see also the "Application Menu (Overview)" in the chapter entitled "Configuring the Scale"
- Save settings and exit the Setup menu: Press the **<<** soft key

Practical Example

Create a New Data Record for Initializing the Checkweighing Program, Including: Target Value, Minimum, Maximum

Settings (changes in the factory settings required for this example):

Setup: App(lication parameters): Extra function (F4): Product data memory
Setup: App(lication parameters): Application 2: Checkweighing

Step	Key (or instruction)	Display/Output
1. If necessary: turn on the scale and enter the settings given above	I/⏻	
2. In the Checkweighing application, toggle to the input mode for target, minimum and maximum values	**Param.** soft key	
3. Enter target: 170 g; minimum: 165 g; maximum: 180 g	see the Practical Example for Checkweighing, steps 5 through 9	
4. Toggle to display of product data (existing data records are displayed; in this example, 3 data records have been stored)	**ProDat** soft key	
5. Enter a name for the new data record (here: CHW01)	ABC **ABCDEF** soft key, **C** soft key **GHIJKL** soft key, **H** soft key **STUVWX** soft key, **W** soft key 0 1	
6. Store current Checkweighing parameters as a data record	**New** soft key	
7. Confirm	**Store** soft key	
8. Exit data record display	**<<** soft key	

"FlexPrint" Printout Function

Purpose

The YAD02IS "Nice Label Express" software from Sartorius lets you load user-defined label printing formats and the corresponding print instruction files in your scale. This software lets you connect any of a number of printers, equipped with a variety of printer fonts, to the RS-232 interface on your scale.

Features

With the "FlexPrint" option activated:

– Print command generates configured printout (if print instruction file exists; see table, next page). Print command generates default printout (if print instruction file does not exist).

– The function that generates an automatic printout upon initialization of an application cannot be used. Initialization data can be output only to a print instruction file.

The following items are output only as standard printouts:

– Calibration/adjustment

– SETUP printouts

– [⊙] key in "Identifier:" display page

– [⊙] key on "Product data memory:" display page

– [⊙] on "Parameter" display page for "Checkweighing" application: print function carried out

– MR function carried out when [⊙] is pressed during evaluation (info window) in Totalizing and Statistics applications.

– To recall the file names, software ID and version numbers, for FlexPrint, see the section on "Basic Settings," Info Display."

– Printout for legal metrology: Weight blocks (special weight value formats that are acceptable in legal metrology) are designated by the following line, which is printed in both header and footer and cannot be edited:

"------ CE [M] ------"

Examples of Weight Block Printouts

Without tare:

```
------ CE [M] -------
N   +       348.65 kg
------ CE [M] -------
```

With tare:

```
------ CE [M] -------
G   +       459.70 kg
N   +       348.65 kg
T1  +       111.05 kg
------ CE [M] -------
```

Scale tare (2nd tare memory):

```
------ CE [M] ------
G   +       124.45 kg
N   +       100.00 kg
T1  +        24.00 kg
T2  +         0.45 kg
------ CE [M] ------
```

Preparation

● Turn on the scale: press the [I/⏻] key

● Configure FlexPrint in Setup: press the [SETUP] key

FC Models:

● Select application menu: **App**

● Select **Basic settings**: press **v** soft key repeatedly and then **>** soft key

● Select **Printout**: press **v** soft key twice and then **>** soft key

● Select **FlexPrint**: press **v** soft key 3 times and then **>** soft key

● Select **On**: press **v** soft key and then **>** soft key

FCA Models:

● Select **Printout**: press **v** soft key 3 times, and then **>** soft key

● Confirm **Application-defined output**: press **>** soft key

● Select **FlexPrint**: press **v** soft key 3 times and then **>** soft key

● Select **On**: press **v** soft key and then **>** soft key

o = factory setting

● Save settings and exit Setup: press **<<** soft key

Printouts generated using the "Nice Label Express" software are divided into two groups:

Print events with all applications except differential weighing:

	Event	Explanation	File name for event group:
1.	[⊙] key with individual values	Print key	PPRINT
2.	[⊙] key with text input	Input and [⊙] key	PDIRECT
3.	GLP /GMP header	GLP header	PGMPHEAD
4.	GLP /GMP footer	GLP footer	PGMPFOOT
5.	Results, Application 1	Animal weighing, MR-CF	PA1RES
6.	Results, Application 2	OK values, time-controlled print	PA2RES
7.	Results, Application 3	MR, MR-CF	PA3RES
8.	Components, Application 1	M+ printout	PA1COMP
9.	Components, Application 3	M+/M– printout	PA3COMP

Print events with differential weighing:

	Event	Explanation	File name for event group:
1.	[⊙] key with individual values	Print key	PPRINT
2.	[⊙] key with text input	Input and [⊙] key	PDIRECT
3.	GLP /GMP header	GLP header	PGMPHEAD
4.	GLP /GMP footer	GLP footer	PGMPFOOT
5.	Automatic printout after tare/initial weighing	Tare soft key, initial weight	PDCOMP
6.	Differential weighing, results	Automatic after backweighing Print key while results displayed	PDRES
7.	Catalog printout sample	Print key on value/result page	PDSAMP
8.	[⊙] key with statistics app.	Print key on statistics page	PDSTAT

Combining Applications

The following table summarizes the possibilities for combination of the application programs described here. Each line stands for one combination. The weighing function is generally available, and does not have to be combined with a calculating function.

Application 1 (basic function)	Application 2 (control function)	Application 3 (documenting function)
Counting	–	Totalizing
Counting	–	Formulation
Counting	–	Statistics
Weighing in percent	–	Totalizing
Weighing in percent	–	Formulation
Weighing in percent	–	Statistics
Animal weighing	–	Totalizing
Animal weighing	–	Statistics
Recalculation	–	Totalizing
Recalculation	–	Statistics
Calculating	–	Totalizing
Calculating	–	Formulation
Calculating	–	Statistics
Density determination	–	Statistics
Density determination	Time-controlled functions	Statistics
–	Checkweighing	Totalizing
–	Checkweighing	Formulation
–	Checkweighing	Statistics
Counting	Checkweighing	Totalizing
Counting	Checkweighing	Formulation
Counting	Checkweighing	Statistics
Weighing in percent	Checkweighing	Totalizing
Weighing in percent	Checkweighing	Formulation
Weighing in percent	Checkweighing	Statistics
Recalculation	Checkweighing	Totalizing
Recalculation	Checkweighing	Statistics
Calculating	Checkweighing	Totalizing
Calculating	Checkweighing	Formulation
Calculating	Checkweighing	Statistics
–	Time-controlled functions	Totalizing
–	Time-controlled functions	Formulation
–	Time-controlled functions	Statistics
Counting	Time-controlled functions	Totalizing
Counting	Time-controlled functions	Formulation
Counting	Time-controlled functions	Statistics
Weighing in percent	Time-controlled functions	Totalizing
Weighing in percent	Time-controlled functions	Formulation
Weighing in percent	Time-controlled functions	Statistics
Animal weighing	Time-controlled functions	Totalizing
Animal weighing	Time-controlled functions	Statistics
Recalculation	Checkweighing	Totalizing
Recalculation	Checkweighing	Statistics
Calculating	Time-controlled functions	Totalizing
Calculating	Time-controlled functions	Formulation
Calculating	Time-controlled functions	Statistics

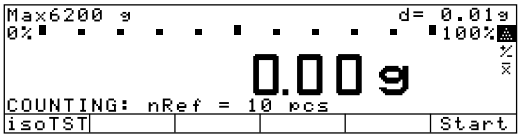
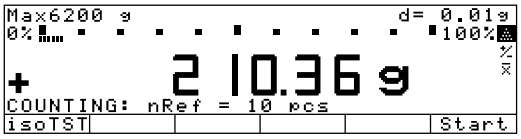
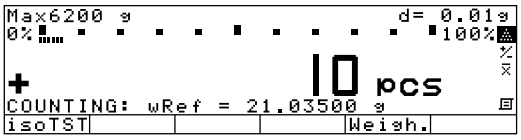
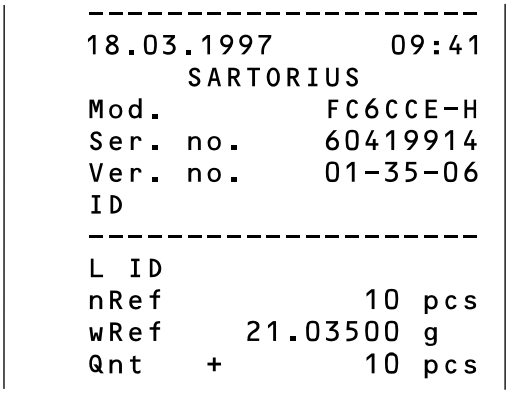
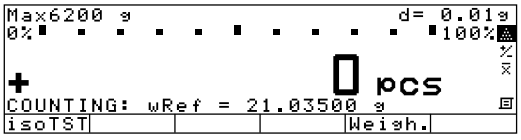
Examples of Application Combinations

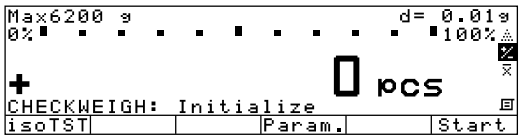
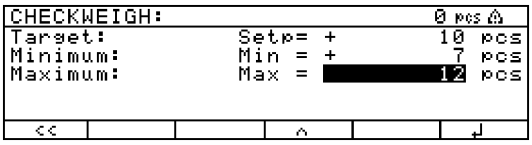
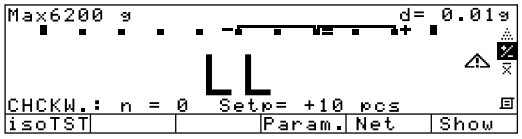
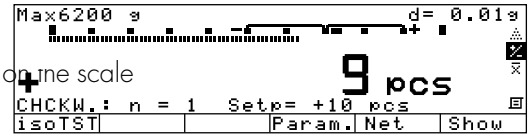
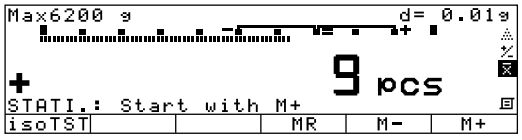
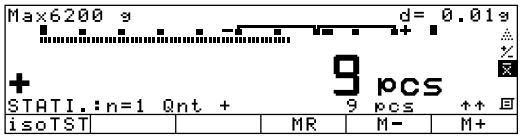
Example 1: Counting and checkweighing with statistical evaluation

You want to check a piece count, and have the results that lie within the tolerance range statistically evaluated and printed as a ISO/GMP-compliant record.

Settings (changes in the factory settings required for this example):

Setup: App(lication parameters): Application 3: Statistics: Automatic storage: On, first value at stability
Setup: App(lication parameters): Application 3: Statistics: Source of data for auto storage: Application 2
Setup: App(lication parameters): Application 3: Statistics: Evaluated value: Calculated
Setup: App(lication parameters): Application 3: Statistics: Evaluation mode, MR function: Intermediate evaluation, display+print
Setup: App(lication parameters): Basic application: Printout configuration: ISO/GLP/GMP printout: Always

Step	Key (or instruction)	Display/Output
1. If necessary: turn on the scale and enter the settings given above	I/⏻	
2. Place reference sample quantity on the scale	Place parts on the scale	
3. Initialize the scale	**Start** soft key	
		
4. Remove reference sample quantity	Unload the scale	

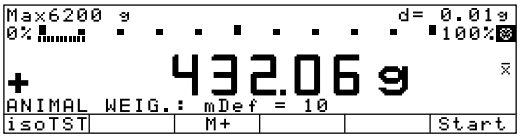
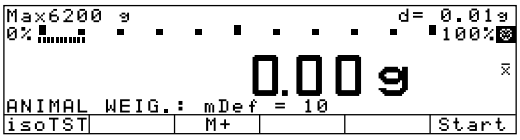
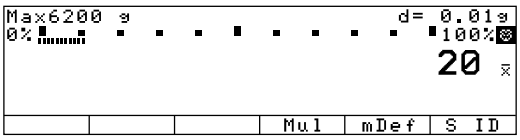
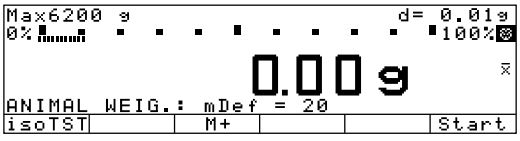
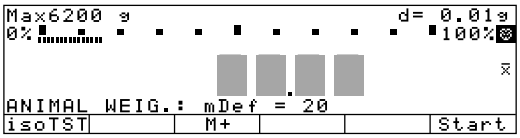
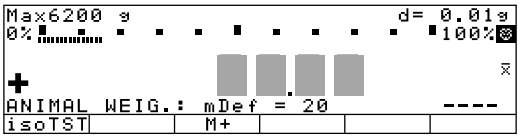
Step	Key (or instruction)	Display/Output
5. Initialize Checkweighing Toggle to Checkweighing	[⟲]	
6. Enter target, minimum and maximum values (here: target: 10 pcs; minimum: 7 pcs; maximum: 12 pcs)	**Param.** soft key [1] [0], ↵ soft key [7], ↵ soft key [1] [2]	
7. Store input	↵ soft key	 Setp + 10 pcs Min + 7 pcs Max + 12 pcs
8. Determine first unknown quantity	Place uncounted parts on the scale	
9. Toggle to Statistics	[⟲]	
10. Initialize automatic storage	**M+** soft key	 n 1 Qnt + 9 pcs
11. Determine further unknown quantities Printout is generated automatically	Place parts to be counted on the scale	... n 4 Qnt + 9 pcs --- n 4 Avg. + 10.0 pcs s + 0.8 pcs srel + 8.00 % Total 40 pcs Min + 9 pcs Max + 11 pcs Diff + 2 pcs --- 18.03.1997 10:26 Name: ---
12. End weighing series Statistics are evaluated Final GMP printout is generated	[CF]	
13. Delete initialization of the last application	[CF]	

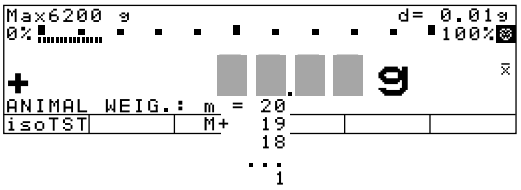
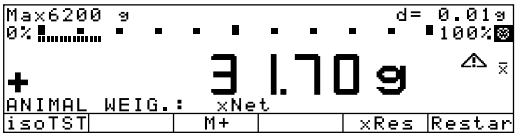
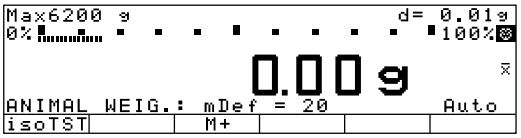
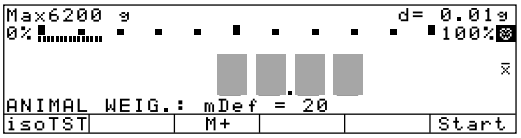
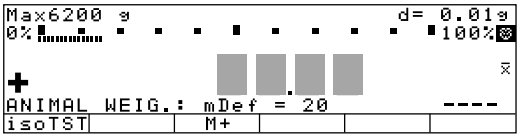
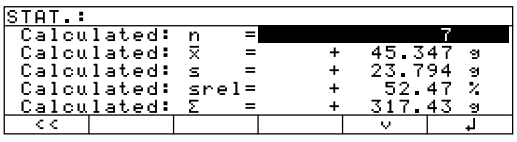
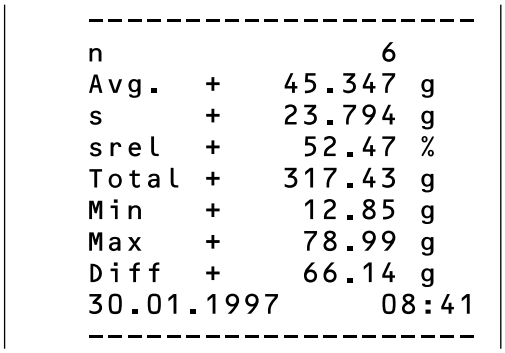
Practical Example 2: Animal weighing with statistics

Determine the weights of 7 mice; generate and print a statistical evaluation.

Settings (changes in the factory settings required for this example):

Setup: App(lication parameters): Application 1: Animal weighing: Printout: Off
Setup: App(lication parameters): Application 2: Off
Setup: App(lication parameters): Application 3: Statistics: Automatic storage: On, first value at stability
Setup: App(lication parameters): Application 3: Statistics: Minimum load for automatic storage: 100 digits
Setup: App(lication parameters): Application 3: Statistics: Evaluated value: Calculated
Setup: App(lication parameters): Application 3: Statistics: Evaluation mode, MR function: Intermediate evaluation, display+print
Setup: App(lication parameters): Extra function(F4): Man. store in app. 3 memory (M+)

Step	Key (or instruction)	Display/Output
1. Prepare a container (cage)	Place empty cage on the scale	
2. Tare the scale	TARE	
3. Enter number of subweighing operations for averaging	2 0	
4. Save number	**mDef** soft key	
5. Weigh the first animal	Place 1st animal in cage	weight value fluctuates due to animal activity 
6. Start automatic animal weighing	**Start** soft key	

Step	Key (or instruction)	Display/Output
The scale delays starting the subweighing operation until three successive subweights lie within the range defined for a "calm" animal	When this criterion is met, the subweighing series begins	
After 20 subweighing operations (**n**: number of current subweigh **x-Net**: arithm. average, net value)		
7. Store result and activate autom. storage by pressing the M+ soft key (automatic storage is not active here*)	**M+** soft key	
8. Unload the scale	Remove animal from cage	
9. Weigh all 7 animals	Place one animal after another in the cage	
The next weighing operation starts automatically; the result is stored automatically in the Statistics program		
10. View display, then print	 **MR** soft key 	
		

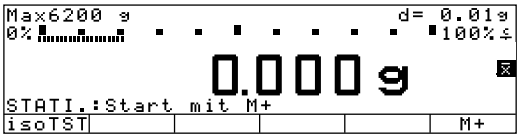
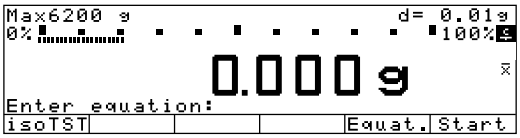
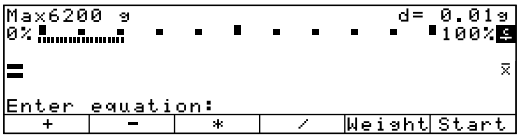
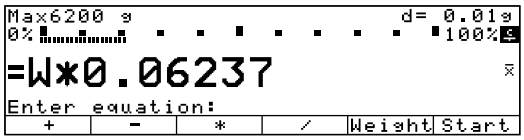
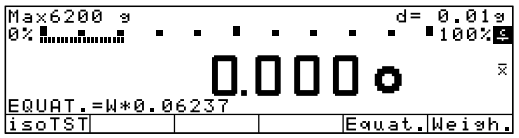
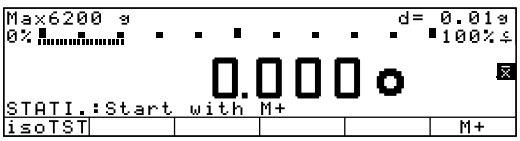
* The first time you store a value after the Statistics memory has been cleared, storage must be initiated manually, by pressing the **M+** soft key. The subsequent values in the statistics series will be stored automatically.

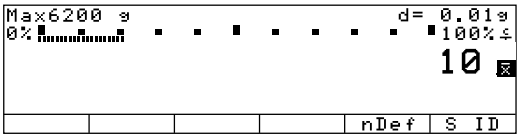
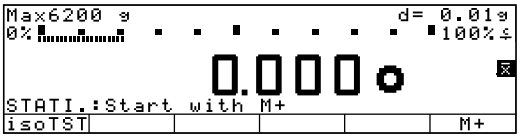
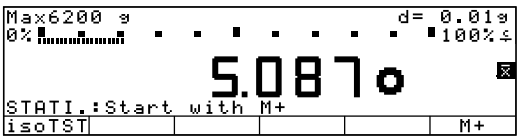
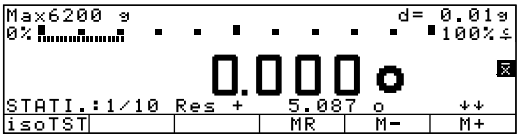
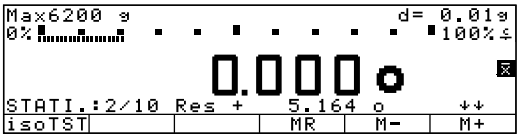
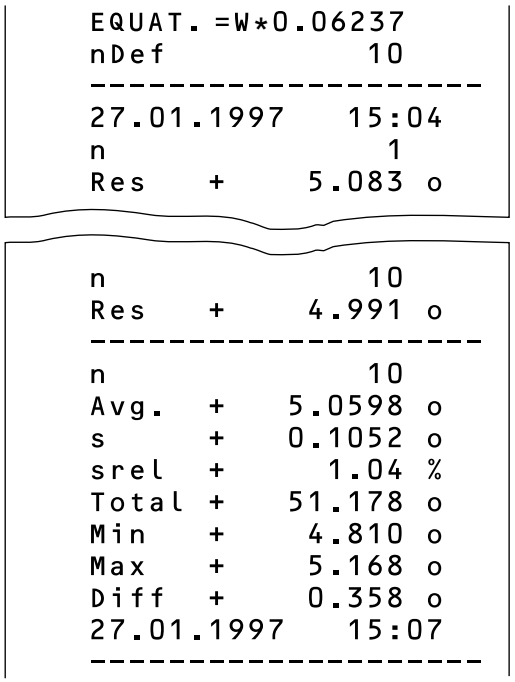
Practical Example 3: Calculation with statistics

Statistically determine the average gsm weight of A4 paper and document the result with a printout of the results on 10 samples. The gsm weight is a product of the division of the weight by the surface area. One A4 sheet has a surface area of 0.210 m x 0.297 m = 0.06237 m^2.

Settings (changes in the factory settings required for this example):

Setup: App(lication parameters): Application 1: Calculation: Decimal places in calculated result: 3 decimal places
Setup: App(lication parameters): Application 2: Off
Setup: App(lication parameters): Application 3: Statistics: Automatic storage: On, first value at stability
Setup: App(lication parameters): Application 3: Statistics: Evaluated value: Calculated
Setup: App(lication parameters): Application 3: Statistics: M+/M– function, then tare: On

Step	Key (or instruction)	Display/Output
1. If necessary: turn on the scale and enter the settings given above	I/⏻	
2. Clear Statistics memory and equation memory, if necessary	CF	
3. Place a container for the paper on the scale and tare	TARE	
4. Toggle to Calculation	⟲D	
5. Select equation input	**Equat.** soft key	
6. Enter equation (here: EQUAT.=W*0.06237)	**Weight** soft key / soft key 0 · 0 6 2 3 7	
7. Exit the equation input mode	**Start** soft key	
8. Toggle to Application 3: Statistics	⟲D	

Step	Key (or instruction)	Display/Output
9. Enter no. of samples for Statistics (here: 10 samples)	1 0	
10. Store number of samples	**nDef** soft key	
11. Place one sheet of A 4 paper in the container	Place load on scale	
12. Store measured value	**M+** soft key	
13. Place the next sheet of paper in the container (value is stored automatically)	Place load on scale	
14. Repeat step 13 eight times The statistical evaluation is printed automatically		

Data Output Functions

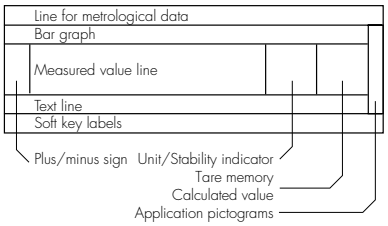
There are 3 options for data output:

– Output to the display and control unit

– Output to a printer (generate a printout)

– Output to a peripheral device (e.g., computer) via the interface port

Output to the Display and Control Unit



The display is divided into 9 sections. Information about the scale, the application being used and the sample weighed is output in the following sections:

– Line for metrological data

– Bar graph

– Plus/minus sign

– Measured value line

– Weight unit display, stability symbol display

– Data in tare memory; calculated value

– Application symbol display

– Text line

– Soft key labels

Line for Metrological Data (on scales verified for legal metrology)

This line shows:

Max6200 g – Maximum scale capacity (e.g., 6,200 g)

Min 0.5 g – Minimum scale capacity; the weight must not go below this limit when the scale is used in legal metrology

e= 0.1 g – Verification interval of the scale; irrelevant if the scale is not used in legal metrology (e.g., 0.1 g)

d= 0.01 g – Readability: Indicates the actual scale interval (display increment of the scale) (e.g., 0.01 g)

Bar Graph (overview display)

In the bar graph, weighing results are displayed either

0% 100% – as a percentage of the maximum scale capacity, or

0% 100% – in relation to a target value, with tolerance limits indicated.

You can turn off (blank) the bar graph display (Setup: App: Basic settings: Display: Digit size)

Plus/Minus Sign

This section shows:

– "Busy" symbol

+ – – Plus or minus sign

– Zero symbol (indicating the scale has been zeroed)

Measured Value Line

This line shows:

125.03 – The current weight value (bordered values are invalid in legal metrology)

35 – Calculated values (e.g., piece count)

=W* 18.3*0.9 – User input (e.g., lot number, equation)

Weight Unit Display, Stability Symbol

This section shows:

kg – The current weight unit (e.g., kg)

pcs – Designation of other values (e.g., "pcs")

Tare Memory, Calculated Value

This section shows:

⚠ – Indication that value is calculated (not valid in legal metrology)

NET1 NET2 – Indication that the tare memory contains application data

Application Symbols

This column shows:

– Symbol for Application 1 (toggling between weight units, counting, weighing in percent, animal weighing, calculation)

– Symbol for Application 2 (checkweighing, time-controlled functions)

– Symbol for Application 3 (totalizing, formulation, statistics)

– Symbol for current print job

– Symbol for ISO/GMP printout

Text Line

This line contains:

COUNTING: nRef = 10 pcs – Explanatory text about the application program (e.g., about "Counting")

Ref.wt. too light – Explanation of error codes

Soft Key Labels

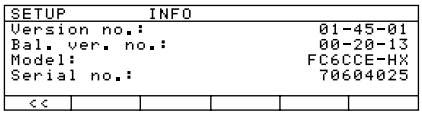
This line shows

Cal PT1/T1 S ID M+ – Texts (abbreviations) to indicate the function assigned to each key

<< < ^ v > ↵ – Symbol for selecting and confirming parameter settings (see also "Operating Design")

Scale Information

In the Setup menu, you can select **Setup:** ... **Info** for a display of scale information. The display includes:



- Software version number
- Scale version number
- Scale model
- Scale serial number

Printing a Data Record

Purpose

You can generate a printout of weights, other measured values, identification codes and calibration/ adjustment data for documentation purposes. You can format the printout to meet individual requirements.

Available Features

Print manually/automatically:
To print the information contained in the measured value line (weight readout, calculated value, numeric input, alphabetic input)

Line format: You can configure a data ID code of up to 6 characters for each of the values printed; this data ID code is printed at the beginning of the line

Sample ID: You can configure an extra line for identification of each weighed or calculated value

Print application parameters:
You can generate a printout of the values configured for initialization of an application before printing the measured results

ISO/GMP-compliant printout:
To print out parameters relating to weighing conditions

Auto print: To have a printout generated automatically when certain conditions are met, e.g., time elapsed, stability reached, etc.

Print animal weights: For an automatic printout of animal weight, or of animal weight plus calculated weight after averaging

Auto print checkweighing results: for automatic printout of a weight when it lies within preset limits at stability

Auto print with time-controlled functions: for automatic printout of weights after a preset time period has elapsed or at a defined time

Printout of intermediate or final evaluation for totalizing, formulation and statistics by pressing the **MR** soft key

Setting a Printout Acceptable for Legal Metrology

You can configure the scale menu to generate data records on a Sartorius printer that are acceptable for legal metrology (last digit specially identified):

- YDP01IS: **[5-5-4]**
- YDP02: **[5-5-5]**
- YDP03 **[5-5-6]**
- YDP01IS-Label **[5-5-7]**
- YDP02IS **[5-5-10]**
- YDP02IS-Label **[5-5-11]**
- YDP04IS **[5-5-14]**
- YDP04IS-Label **[5-5-15]**

Factory Settings

Manual/auto print mode:
Individual printout on request, or automatic printing dependent on stability:
Manual with stability **[6-1-2]**

Print basic application settings:
Printout of one or more initialization values for the current application: Off

Line format:
ID code for weighed or calculated value; up to 6 characters:
For other apps/GLP/GMP (22 characters)

isoCAL function: On without resetting app

GLP/GMP printout: Automatic when GLP is selected

ISO/GLP/GMP printout: Off

Auto print:
Automatic printout of weighed values:
No setting; see: Manual/ auto print mode **[6-1-2]**
Stop auto print: not possible **[6-2-2]**
Time-dependent auto print:
1 display update **[6-3-1]**

Print animal weights:
Automatic printout of average or average and calculated values:
Average weight only

Auto print checkweighing:
Automatic printout of weight values within the checkweighing range at stability: Off

Auto print time-controlled functions:
Function after time interval: acoustic signal (not: Automatic printout)

Evaluation of totalizing, formulation and statistics data:
Evaluation mode, **MR** function:
Intermediate evaluation, print

- See "Configuring the Scale" for details on how to set parameters

Print Manually/Automatically

The printout contains the current value in the measured value display (weight readout with weight unit; calculated value; numeric/alphabetic display)
Setting:
... Print in weighing mode: Manual/auto print mode

Line Format

The current value displayed can be printed with a data ID code of up to 6 characters at the beginning of the line. You can use this data ID code, e.g., to designate a weight readout as a net weight (N) or a calculated value as a piece count (QNT)
Setting:
... Printout configuration: Line format: For other apps./GLP (22 characters)

Sample ID

You can have each weighed or calculated value that you print preceded by a line of text containing numbers and/or letters. You can either print this ID immediately as alphanumeric input (press ⊙) or store it as the sample ID (**S ID** soft key) to be included on the next printout, if the "For other apps./ GLP (22 characters)" setting is configured.

Print Application Parameters

You can generate a printout of one or more of the values configured for initialization of an application as soon as you initialize the scale. This can include such values as nRef, wRef, pRef, etc.
Setting:
... Printout configuration: Autoprint upon initialization

Examples

`+ 1530.000 g`	Weight in grams
`+ 58.5620 ozt`	Weight in Troy ounces
`+ 253 pcs`	Piece count
`+ 88.23 %`	Percentage
`+ 105.78 o`	Calculated value

`ID ABC123DEF456GH`	Identification number*
`L ID ABC123DEF456GH`	Lot number (weighing series)*
`W ID ABC123DEF456GH`	Weight set number*
`N + 1530.000 g`	Net value
`Qnt + 253 pcs`	Quantity
`Prc + 88.23 %`	Percentage
`Nom. + 2000.00 g`	Exact calibration weight

* = only for ISO/GMP-compliant records

`S ID ABC123DEF456GH`	Sample ID (with less than 14 characters)
`ABC123DEF456GHI789JK`	Sample ID (with more than 14 characters)
`NUM 12345678`	Numeric key output when ⊙ pressed

`nRef 10 pcs`	Counting: Reference sample quantity
`wRef 1.23456 g`	Counting: Average piece weight
`pRef 80 %`	Weighing in percent: Reference percentage
`Wxx% 1200.00 g`	Weighing in percent: Reference weight
`mDef 10`	Animal weighing: Number of subweighs for averaging
`Mul 0.00347`	Animal weighing: Multiplication factor
`EQUAT.=W*18.3*0.9`	Calculation: Equation for calculation
`Setp + 1000.035 g`	Checkweighing: Target weight
`Min + 981.054 g`	Checkweighing: Lower limit
`Max + 1020.063 g`	Checkweighing: Upper limit

Auto Print

You can have the weight readout printed automatically[1]. This printout can be generated after a certain number of display updates[2]; you can also configure whether or not the auto-print function is dependent on the stability parameter[3]. The display update frequency depends on both the model of the scale and the current operating status.
Setting:
[1]Setup: Menu: Print in weighing mode: Manual/auto print mode
[2]Setup: Menu: Print in weighing mode: Time-dependent autoprint
[3]Setup: Menu: Scale functions: Stability range

```
N      +  1530.00 g     Net weight
S ID   12345678901234   Sample ID
Stat                    Display blank
Stat         L          Display underload
Stat         H          Display overload
```

Print Animal Weights

When using the animal weighing application, you can have the results printed automatically upon completion of the averaging process. You can also have both the weight and the calculated result printed.

```
mDef          10        Number of subweighs for averaging
Mul        0.00347      Multiplication factor
xNet   +  1530.00 g     Result of averaging
xRes   +     5.30 o     Calculated result
```

Print: Calculation

The calculation result is printed.

```
Res    +   693.88 o     Result of calculation with equation
```

Auto Print Checkweighing

With the over/under checkweighing application, you can have the result printed automatically as soon as the weight lies within a defined range.

```
N      + 1530.000 g     Net weight
Setp   + 1000.035 g     Target weight
Min    +  981.054 g     Lower limit
Max    + 1020.063 g     Upper limit
N      + 1010.147 g     "OK" values-printout
```

Print: Time-Controlled Functions

If the "Automatic printout of values" parameter is set, the time and weight are printed.

```
Time:        10:15:00    Time that values were stored
N      +  3150.00 g      Net weight
```

Print: Totalizing, Formulation, Statistics

The transaction or component counter is printed before the measured value. When an intermediate or final evaluation is printed, all results to that point are included.

```
n                5       Totalizing, statistics:
                         Transaction counter
Comp2  +    42.38 g      Formulation:
                         Weight, 2nd component
Total  +  8751.67 g      Totalizing, statistics: Sum of all values
Tot.cp+   324.89 g       Formulation: Total no. of components
n                5       Statistics: Total no. of transactions
Avg.   +     33.0 pcs    Statistics: Average
s      +      3.2 pcs    Statistics: Standard deviation
srel   +     9.70 %      Statistics: Variation coefficient
Total  +      165 pcs    Statistics: Sum of all values
Min    +       29 pcs    Statistics: Minimum
Max    +       37 pcs    Statistics: Maximum
Diff   +        8 pcs    Statistics: Difference between maxi-
                         mum and minimum
```

2nd Tare Memory/Identifier

Printout shows either
– Net value **N1**,
– Tare weight **T1**, or
– Manually entered tare value **PT1**

Up to 4 identifier lines can be included on the printout

N1 63.48 g	Net val. with data in 2nd tare memory
T1 138.73 g	Tare weight
PT1 150.00 g	Manually entered tare weight
ID1 Batch no. 1234	Identifier 1
ID2 Eisenmeier GmbH	Identifier 2
ID3 Screws: M4x6	Identifier 3
ID4 Mr. Smith	Identifier 4

ISO/GMP-compliant Printout/Record

You can have the parameters pertaining to weighing conditions printed before (GMP header) and after (GMP footer) the values from the weighing series. These parameters include:

– Date
– Time at the beginning of a weighing series
– Scale manufacturer
– Scale model
– Model serial number
– Software version
– Lot number (weighing series no.)
– Time at the conclusion of the weighing series
– Field for operator signature

----------	Dotted line
17.01.1997 16:12	Date/time
SARTORIUS	Scale manufacturer
Mod. FC6CCE-HX	Scale model
Ser. no. 70419914	Scale serial number
Ver. no. 01-35-16	Software vers. (display and control unit)
ID 12345678901234	Scale ID no.
----------	Dotted line
L ID 12345678901234	Weighing series no.
nRef 10 pcs	Application initialization value
wRef 1.35274 g	Application initialization value
Qnt + 235 pcs	Counting result
Qnt + 4721 pcs	Counting result
S ID 12345678901234	ID for counting result
Qnt + 567 pcs	Counting result
----------	Dotted line
17.01.1997 16:13	Date/time
Name:	Field for operator signature
	Blank line
----------	Dotted line

Operating the Scale with an ISO/GMP-capable Documentation Device (Printer)

ISO/GMP-compliant documentation requires a computer with special software. Contact Sartorius for a detailed description for creating this software.

Setting:
Setup... Printout configuration: ISO/GLP/ GMP printout: Always
The record is output to a Sartorius printer or a computer.

End GMP printout:
● Press CF

End GMP printout while application is active:
This requires the following settings:
Setup: ... Keypad: CF function in application: Clear only selected applications

● Press CF
> Text line: CF selected: clear application
● Press the **GLP** soft key

Record of Internal Calibration/Adjustment:

----------	Dotted line
17.01.1997 16:24	Date/time
SARTORIUS	Scale manufacturer
Mod. FC6CCE-HX	Scale model
Ser. no. 70419914	Scale serial number
Ver. no. 01-35-16	Software vers. (display and control unit)
ID	Scale ID no.
----------	Dotted line
L ID	Weighing series no.
Internal calibration	Calibration/adjustment mode
Start: manual	Beginning mode for calibration/adjustment
Diff. + 0.006 g	Difference after calibration/adjustment
Internal calibration completed	Confirmation of completed calibration/adjustment routine
Diff. + 0.000 g	Difference between current and target values after calibration
----------	Dotted line
17.01.1997 16:25	Date/time
Name:	Field for operator signature
	Blank line
----------	Dotted line

Block Printout

You can have the results of a calibration/adjustment procedure printed out. You can configure whether the printout is generated as soon as the procedure is completed, or whether a number of calibration/adjustment procedures (up to 50) are collected for a block printout.

Loading Stored Data:
Data for the block printout are stored in battery-backed memory. The first time you put the scale into operation, it must remain connected to power for a full day. These data remain in memory for approx.3 months after the equipment is disconnected from AC power. Make sure to generate a printout before disconnecting the equipment for a long period of time.

Block Printout of Calibration/ Adjustment Data

With the following Setup menu configuration, you can store the data from up to 50 calibration/adjustment procedures and have them printed on request:

FC Models:
– GLP/GMP calibration/adjustment printout [1-17-]
  `2 On request, from record memory`

FCA Models:
– Print GLP/GMP calibration/ adjustment record
  `On request, from data memory`

When the memory contains 50 data records:
– additional records are output automatically

If at least one block printout data record has been configured, the following soft keys are available after you press the **isoTST** soft key:

Info	The number of records is displayed in the text line
PrtPro	Print accumulated records
DelPro	Delete accumulated records; records can only be deleted after a printout has been generated. If a password has been assigned in the Setup: Input menu, you must enter either the configured password or the General Password before you can delete the records.

For internal calibration/adjustment, the initialization mode of the procedure is displayed in the **Start** line.

```
--------------------
13.05.1997     09:17
       SARTORIUS
Mod.         FC6CCE-HX
Ser. no.      70419914
Ver. no.      01-35-06
ID
--------------------

24.04.1997     12:03
Start:          manual
Diff. +     0.001 g
External calibration
       completed

25.04.1997     12:10
Start:    isoCAL/temp
Diff. +     0.001 g
Internal adjustment
       completed
Diff. +     0.000 g

25.04.1997     18:30
Start:      Adj.time
Diff. +     0.001 g
Internal adjustment
       completed
Diff. +     0.000 g

26.04.1997      9:37
Start:          manual
Diff. +     0.001 g
Internal adjustment
       completed
Diff. +     0.000 g

27.04.1997     11:53
Start:       Ext.cal.
W ID
Nom.   +  500.000 g
Diff. +     0.001 g
External calibration
       completed
Diff. +     0.000 g

--------------------
13.05.1997     09:17
Name:

--------------------
```

GLP header

List of Calibration/ Adjustment Procedures:

Example 1:
Internal calibration

Example 2:
isoCAL triggered by difference in temperature

Example 3:
isoCAL at defined time

Example 4:
Internal calibration/adjustment triggered manually

Example 5:
External calibration/adjustment

GLP footer

Interface Description

Purpose

Your Factory scale comes equipped with an interface port for connection to a computer or other peripheral device.

You can use an on-line computer to change, start and/or monitor the functions of the scale and the application programs. The interface port also has four data output port lines for the over/under check-weighing program.

⚠ Warning When Using Prewired RS-232 Connecting Cables!

RS-232 cables purchased from other manufacturers often have incorrect pin assignments for use with Sartorius scales. Be sure to check the pin assignment against the chart on page 168 before connecting the cable, and disconnect any lines marked "Internally Connected". Failure to do so may damage or even completely ruin your scale and/or peripheral device.

Available Features

Type of interface:	Serial interface
Operating mode:	Full duplex
Standard:	RS-232
Transmission rates:	150; 300; 600; 1,200; 2,400; 4,800; 9,600; 19,200 baud
Parity:	Space, odd, even
Character format:	1 start bit, 7-bit ASCII, parity, 1 or 2 stop bits
Handshake:	2-wire interface: via software (XON/XOFF); 4-wire interface: via hardware handshake lines (CTS/DTR)
Operating mode:	SBI, xBPI*
Network address*:	0, 1, 2, ..., 30, 31
Data output format of the scale:	16 or 22 characters

* xBPI operating mode: 9,600 baud, 8 bits, odd parity, 1 stop bit
Network address is only valid in the XBPI mode

Factory Settings:

Transmission rate:	1,200 baud	[5-1-4]
Parity:	Odd	[5-2-3]
Stop bits:	1 stop bit	[5-3-1]
Handshake:	Hardware 1 character after CTS	[5-4-3]
Operating mode:	SBI	[5-5-1]
Network address:	0	[5-6-1]
Print manually/automatically:	Manual after stability	[6-1-2]
Stop automatic printing:	Not possible	[6-2-2]
Automatic printout, time-dependent:	After 1 display update	[6-3-1]
Tare after ind. printout:	Off	[6-4-1]
Application initialization values:	Off	
Line format:	For other applications/GLP (22 characters)	

Preparation

- See page 168 for the pin assignment chart

Line Format (Data Output Format)

You can output the values displayed in the measured value line and the weight unit with or without a data ID code

Example: Without data ID code

```
+       253 pcs
```

Example: With data ID code

```
Qnt     +       253 pcs
```

Configure this parameter in the Setup menu (Setup: Basic settings: Printout configuration: Line format).

The output with data ID code has 16 characters; without data ID code, 22 characters.

Output Format With 16 Characters

Display segments that are not activated are output as spaces. Characters without a decimal point are output without a decimal point.

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

Normal Operation

Position	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	+	*	D	D	D	D	D	D	D	D	*	U	U	U	CR	LF
or	–		.	.	.	.	.	.	.	.		*	*	*		
or	*		*	*	*	*	*	*	*	*						

*: Space
D: Digit or letter
U: Unit symbol
CR: Carriage return
LF: Line feed

Special Codes

Position	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	*	*	*	*	*	*	–	–	*	*	*	*	*	*	CR	LF
or							H	H								
or							L	L								
or							C									

*: Space
– –: Weight
H: Overload
H H: Overload in checkweighing
L: Underload
L L: Underload in checkweighing
C: Calibration/adjustment

Error Codes

Position	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	*	*	*	E	r	r	*	*/#	#	#	*	*	*	*	CR	LF

*: Space
#: Error code number

Data output example: + 1255.7 g

Position	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	+	*	*	*	1	2	5	5	.	7	*	g	*	*	CR	LF

Position 1: Plus or minus sign or space
Position 2: Space
Position 3–10: Weight with a decimal point; leading zeros = space
Position 11: Space
Position 12–14: Unit symbol or space
Position 15: Carriage return
Position 16: Line feed

Data Output With ID Code

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

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
I	I	I	I	I	I	+	*	D	D	D	D	D	D	D	D	*	U	U	U	CR	LF
	*	*	*	*	*	–		.	.	.	.	.	.	.	.		*	*	*		
						*		*	*	*	*	*	*	*	*						

I: ID code character[1)]
*: Space
D: Digit or letter
U: Unit symbol[1)] see "Toggle between Weight Units"
CR: Carriage return
LF: Line feed

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

Special Codes

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
S	t	a	t	*	*	*	*	*	*	*	*	–	–	*	*	*	*	*	*	CR	LF
												H	H								
												L	L								
												C									

*: Space
– –: Weight
H: Overload
H H: Overload in checkweighing
L: Underload
L L: Underload in checkweighing
C: Calibration/adjustment

Error Codes

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
S	t	a	t	*	*	*	*	*	E	r	r	*	#	#	#	*	*	*	*	CR	LF

*: Space
#: Error code number

ID code characters I [1)]

Stat	Status
ID	Identifier
L ID	Weighing series no.
W ID	Weight set number
Nom.	Exact calibration weight
S ID	Sample ID
NUM	Numeric input
T1	Application tare memory 1
N	Net weight (T1 = 0)
N1	Net weight (T1# 0)
Qnt	Quantity
Prc	Percentage
nRef	Reference sample quantity
pRef	Reference percentage
wRef	Average piece weight
Wxx%	Reference percentage weight
mDef	Target value for animal weighing
Mul	Multiplication factor for animal weighing
x–Net	Result in animal weighing
x–Res	Calculated result in animal weighing
Res	Result using equation (Calculation)
Setp	Target value for checkweighing
Min	Lower limit for checkweighing
Max	Upper limit for checkweighing
Time	Time that a value was stored
Compxx	No. of components in formulation
Tot.cp	Total weight in formulation
n	Transaction counter
Total	Sum of all values
Avg	Average in statistics
s	Standard deviation
srel	Variation coefficient
Diff	Difference between maximum and minimum

Data Input Format

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

The commands sent are control commands and may have different formats; e.g., control commands can have up to 26 characters. Each character must be transmitted according to the settings configured in the Setup menu for data transmission.

Format for Control Commands

Format 1:	Esc	!	CR	LF					
Format 2:	Esc	!	#	_	CR	LF			
Format 3:	Esc	!	#	&	(max. 20 &)	&	_	CR	LF
Format 4:	Esc	!	#	&	(max. 8 &)	&	_	CR	LF

Esc:	Escape	_:	Underline (ASCII: 95)
!:	Command character	CR:	Carriage RETURN (optional)
#:	Number	LF:	Line FEED (optional)
&:	Number or letter	max:	depends on command character: i.e. parameter: once the max. length is reached, input received is cut off, rather than discarded as with keyboard input

Format 1

!	Meaning
I	Weighing mode 1
L	Weighing mode 2
M	Weighing mode 3
N	Weighing mode 4
O	Block keys
P	Print
R	Unblock keys
S	Restart
T	Tare and zero
Z	Internal calibration/adjustment
Q	Acoustic signal

Format 2

!#	Meaning
f3	Zero
f4	Tare (without zeroing)
kF1 … kF6	Soft key 1* … Soft key 6* Function depends on setting in application program
kF7	Function key SETUP
kF8	Function key
s3	Function key CF
x0	Perform internal calibration**
x1	Print scale model
x2	Print weighing platform serial number
x3	Print weighing platform software version
x4	Print display and control unit software version
x5	Print (GMP) scale ID number
x6	Print weight set ("inventory") number
x7	Print weighing series number

Format 3 (not allowed in the Setup menu)

!#	Meaning
z5	Input (GMP) scale ID number
z6	Input weight set ("inventory") number
z7	Input weighing series number

Format 4

!	Meaning
t	Text input in display

* numbered from right to left
** built-in calibration weight required

Synchronization

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

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

If you do not plug a peripheral device into the scale interface port, no error message will be generated.

Handshake

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

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

Hardware Handshake

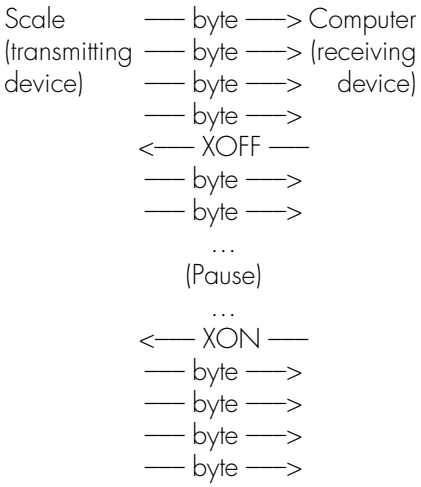
With a 4-wire interface, 1 more character can be transmitted after CTS (Clear to Send).

Software Handshake

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

When the software handshake is configured in the Setup menu, the hardware handshake becomes active after the software handshake.

The data transmission sequence is as follows:



Transmitting Device:

Once XOFF has been received, it prevents further transmission of characters. When XON is received, it re-enables the transmitting device to send data.

Receiving Device:

To prevent too many control commands from being received at one time, XON is not transmitted until the buffer is almost empty.

Activating Data Output

You can define the data output parameter so that output is activated either when a print command is received or automatically and synchronous with the scale display or at defined intervals (see application program descriptions and auto-print setting).

Data Output by Print Command

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

Automatic Data Output

In the "auto print" operating mode, data are output to the interface port without a print command. You can choose to have data output automatically at defined print intervals with or without the stability parameter. Whichever parameter you select, the data will be output as the readouts appear on the scale display. The display update frequency depends on both the model of the scale and the current operating status.

If you select the auto print setting, data will be transmitted immediately the moment you turn on the scale. In the Setup menu you can configure whether this automatic output can be stopped and started by pressing ⊙.

Pin Assignment Chart

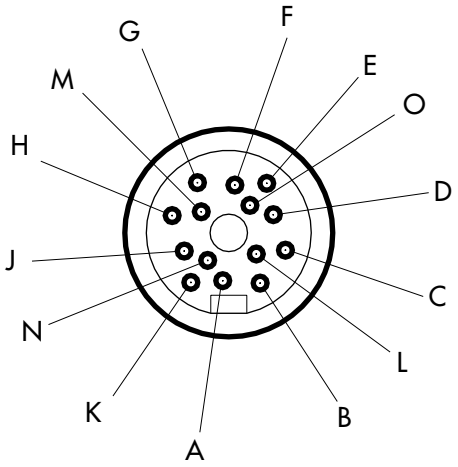
Female Interface Connector:

14-contact round connector, with screw-lock hardware for cable gland

Pin Assignment Chart

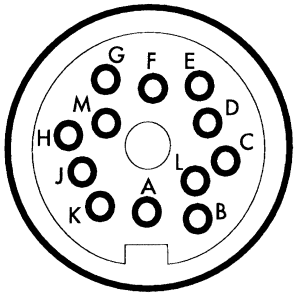
14-contact:

Scale/YAC01FC-X display and control unit



12-contact:

Zener Barrier
IDI01-Z, YDI02-Z, YDI03-Z



14-contact Round connector	12-contact Round connector	RS-232 signal (SBI and xBPI)	RS-485 signal[1]) (xBPI)
G	A[3])	Control output "heavier"	Control output "heavier"
K	B	Data output (TxD)	RxD – TxD – N
J	C	Data input (RxD)	RxD – TxD – P
N	D	Data Terminal Ready (DTR)	—
M	E	Signal GND	Signal GND
F	G[3])	Control output "lighter"	Control output "lighter"
A	H	Clear to Send (CTS)	—
E	J[3])	Control output "equal"	Control output "equal"
O	–	Universal switch[2])	Universal switch[2])
D	L[3])	Control output "set"	Control output "set"

Connect low-ohmic shield to the connector case

[1]) RS-485 interface available on request

[2]) See "Universal Switch for Remote Control" in the section "Additional Functions" for more information on the switch functions

[3]) Control output available only for YDI03-Z

Important Note:

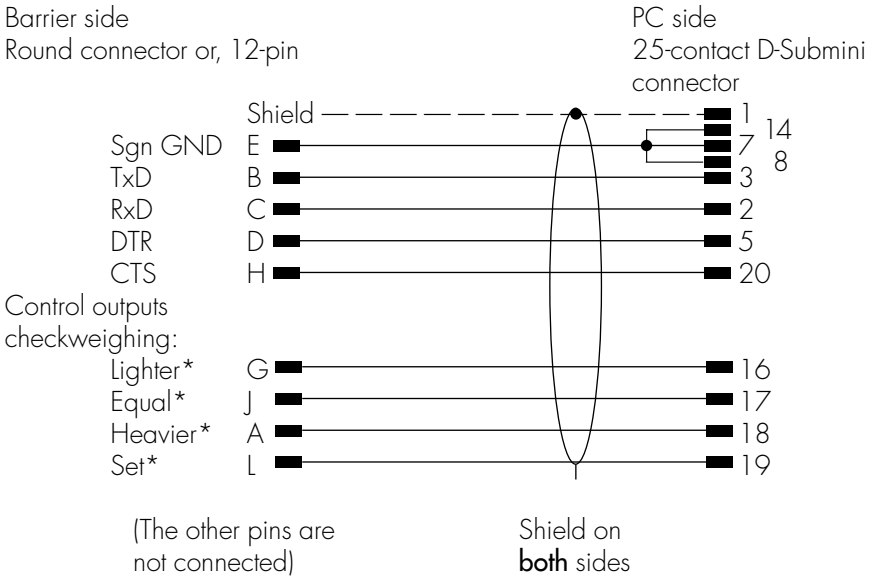
⚠ Only electrical equipment with a maximum voltage rating V_m of 250 V is permitted to be connected to the Zener barrier. The voltage rating V_Z of this Zener barrier is 12 V.

Cabling Diagram (Adapter Cable for PC)

(Adapter cable YCC01-03ISM5 – round – DB25-PC)

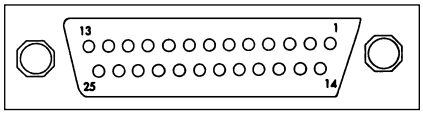
– Diagram for interfacing a computer via a Zener barrier to the scale using the RS-232C/V24 standard and cables up to 15 m (50 ft) long

Cabling diagram:
Connection assignments for the cable from the Zener barrier to an RS-232 PC interface



*only with YDI03-Z Zener barrier

Female interface connector:
25-contact, D-Submini DB25S with screw lock hardware
Pin labeling of the 25-contact D-SUB connector:



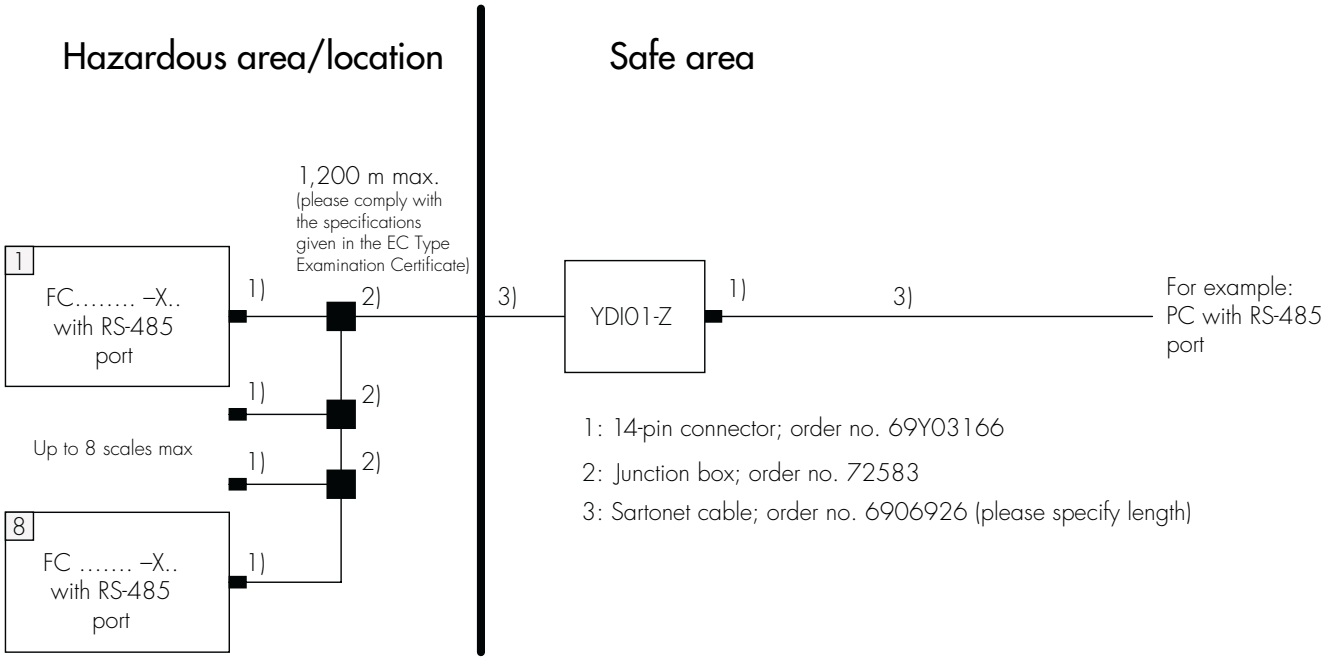
Connector – front view

Male connector used:
(please use connectors with the same specifications):
25-pin D-Submini DB25S, with integrated shielded cable clamp assembly (Amp type 826 985-1C) and fastening screws (Amp type 164 868-1)

⚠ 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 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 scale and/or peripheral device.

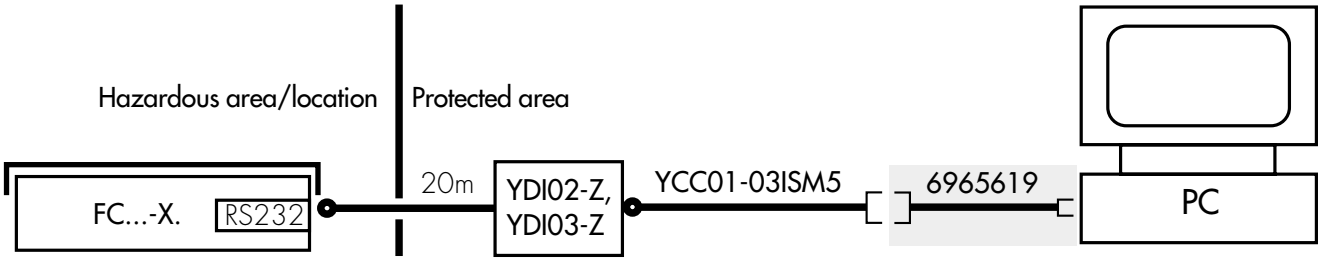
Cabling Diagram: RS-485

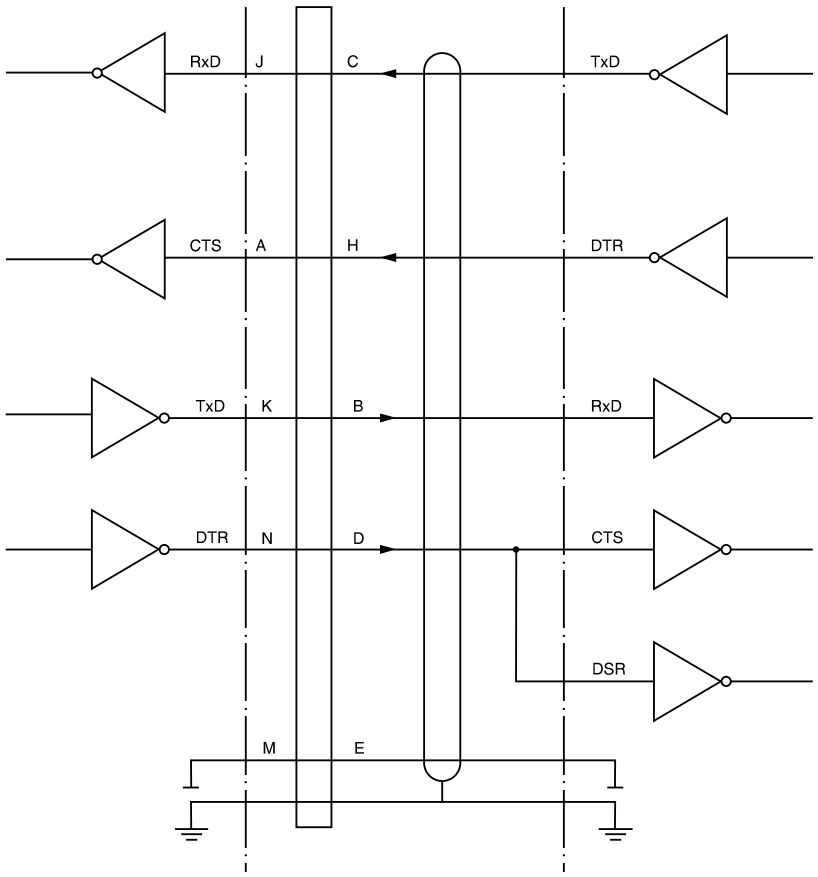


1: 14-pin connector; order no. 69Y03166

2: Junction box; order no. 72583

3: Sartonet cable; order no. 6906926 (please specify length)



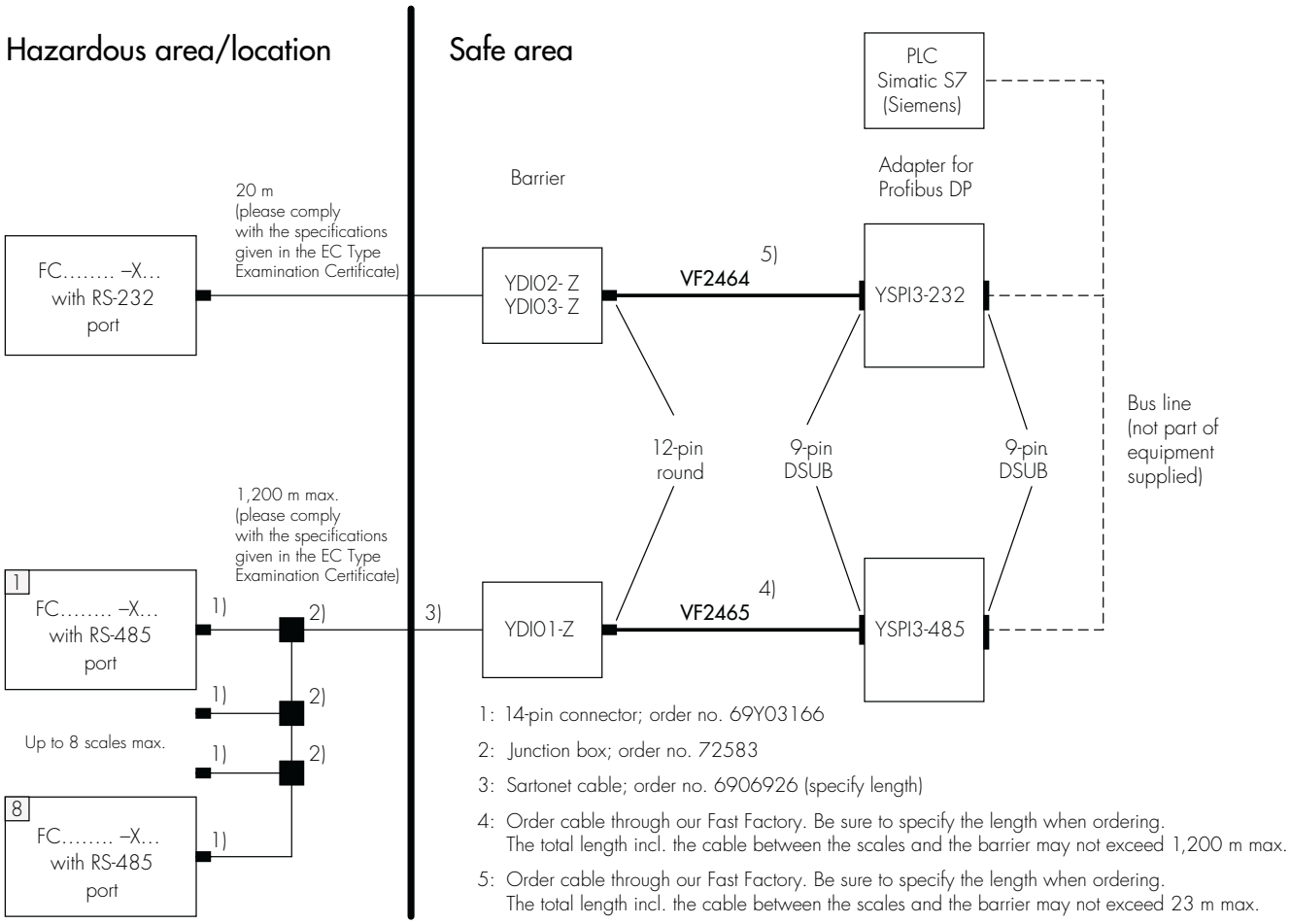


PC	
25-pin	9-pin
2	3
20	4
3	2
5	8
6	6
7	5

Important Note:

⚠ Only electrical equipment with a maximum voltage rating V_m of 250 V is permitted to be connected to the Zener barrier. The voltage rating V_Z of this Zener barrier is 12 V.

Cabling Diagram: Profibus



1: 14-pin connector; order no. 69Y03166

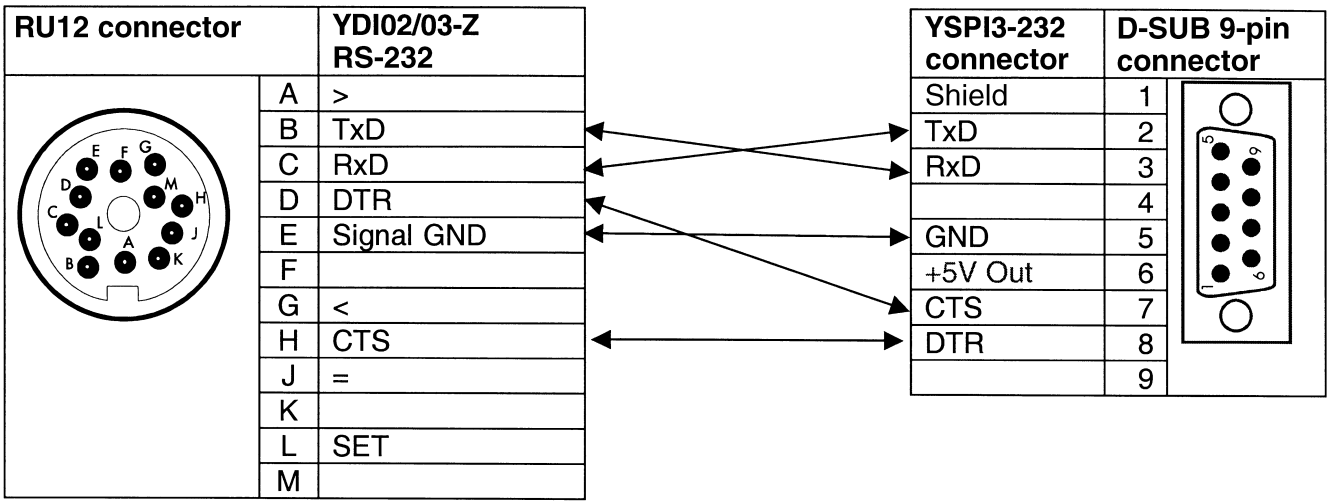
2: Junction box; order no. 72583

3: Sartonet cable; order no. 6906926 (specify length)

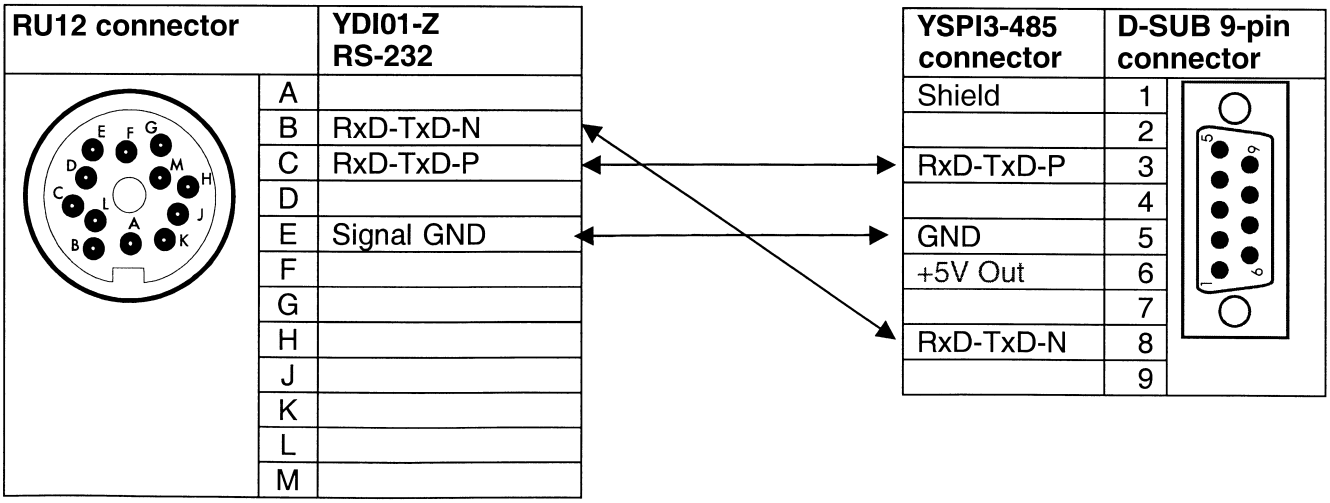
4: Order cable through our Fast Factory. Be sure to specify the length when ordering.
The total length incl. the cable between the scales and the barrier may not exceed 1,200 m max.

5: Order cable through our Fast Factory. Be sure to specify the length when ordering.
The total length incl. the cable between the scales and the barrier may not exceed 23 m max.

Connecting Cable (between YDI02/03-Z and YSP13-232): **VF2464**



Connecting Cable (between YDI01-Z and YSP13-485): **VF2465**



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 871)	Press I/⏻ to switch on the scale or select code 872 in Setup ("no automatic shutoff")
H	The load exceeds the scale capacity	Unload the scale
L or Err 54	The weighing pan is not in place	Place the weighing pan on the scale/may have to be turned off and on again if "L" is displayed
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., – The scale was not tared – The scale is loaded	Calibrate only when zero is displayed Press TARE to tare Unload the scale
Err 03 Cal./adj. interrupt	Calibration/adjustment could not be completed within a certain time	Allow the 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 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 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 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
Err 30 Print fct. blocked	Interface port for printer output is blocked	Contact your local Sartorius Service Center

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

Display/Problem	Cause	Solution
Err 31 **Print fct. blocked**	Interface handshake interrupted (XOFF, CTS)	Transmit XON, then CTS
Ref.wt. too light	Error in storing reference weight (with the counting or weighing-in-percent application)	Weight too light or there is no sample on the scale
Cannot update	Reference updating not possible (with the counting application)	See "Counting" in "Operating the Scale" for reference updating criteria
Not a number xxxxx **Too low** xxxxx **Too high**	Input wrong (for any application program), e.g., alphabetic input not allowed	Follow the instructions for the application programs
Too many char.	Input text too long	Allowable text lengths, incl. decimal point: – S ID, NUM, L ID, ID: max. 20 characters – W ID: max. 14 characters
Equation too long	Equation exceeds 28 characters	Limit equation to 28 characters
Limits different than unit	The unit for the tolerance limits entered during checkweighing is different than that required for the current application	Change the tolerance limits to fit the application
Err 10x x = **1** : x = **2** : x = **3** : x = **4** : "Checkerboard" pattern displayed continuously	Key is stuck Key pressed when switching on the scale: ⏥ (F1, F2, F5, F6), [CF] [⏻], ⏥ (F3), [0], [3], [4], [9] [2], [5], [6], [·], [⊙], [TARE]-right [1], [7], [8], ⏥ (F4), [ABC], [TARE]-left [SETUP] key was pressed when turning on the 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
No WP	Weighing platform is defective	Contact your local Sartorius Service Center
blocked	Function blocked	none
The special code ◈ remains displayed	None of the keys has been pressed since the scale was turned on	Press a key
The weight readout changes constantly	Unstable ambient conditions Too much vibration, or the scale is exposed to a draft A foreign object is caught between the pan and the scale housing	Set up the scale in another area Change Setup configurations to adapt the scale to the ambient conditions Remove the foreign object
The weight readout is obviously wrong	The scale has not been calibrated/adjusted The scale was not tared before weighing The scale is not level The dust cover is caught under the weighing pan	Calibrate/adjust the scale Tare before weighing Level the scale See "Replacing the Dust Cover" in the chapter "Care and Maintenance"

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

Recycling

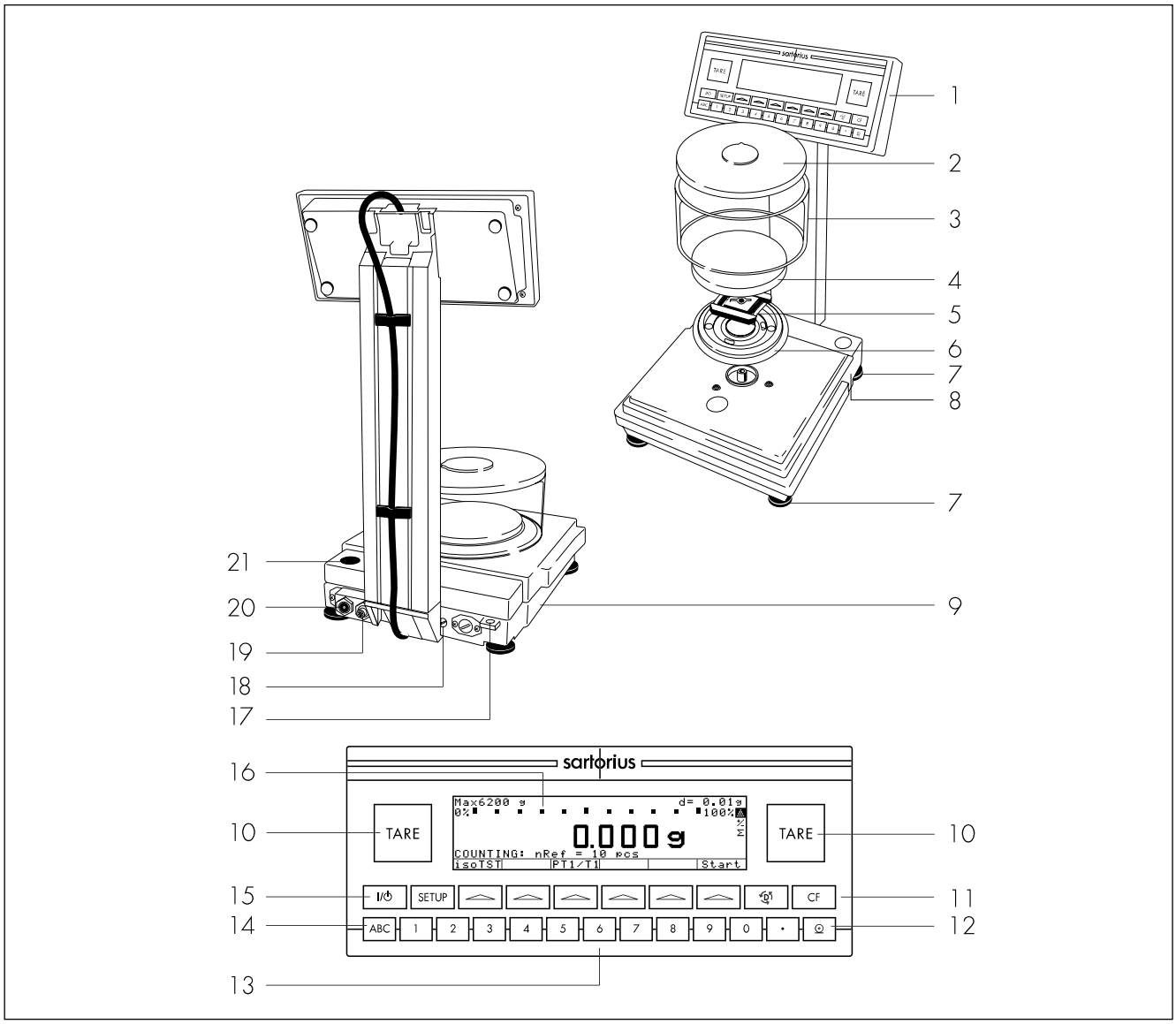
To ensure adequate protection for safe shipment, Sartorius products are packaged to the extent necessary using environmentally friendly materials. After successful installation of the equipment, you should return this packaging for recycling because it is a valuable source of secondary raw material.

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-SX(CE)



Pos.	Designation	Spare Part Order No.
1	Display and control unit	
2	Draft shield cover	69 LP0002
3	Glass cylinder	69 14290
4	Weighing pan	69 LP0004
5	Pan support	69 LP0005
6	Shield disk	69 LP0003
7	Leveling foot	69 B20005
8	Menu access switch	
9	Metrological ID label (only on scales verified for legal metrology in the EU)	
10	Tare key	
11	Function keys	
12	Print key	

Pos.	Designation	Spare Part Order No.
13	Numeric keys	
14	Shift key for entering letters	
15	On/off key	
16	Display	
17	Lug for attaching an anti-theft locking device	
18	Main grounding terminal	
19	AC power socket	
20	Data interface port	
21	Level indicator	

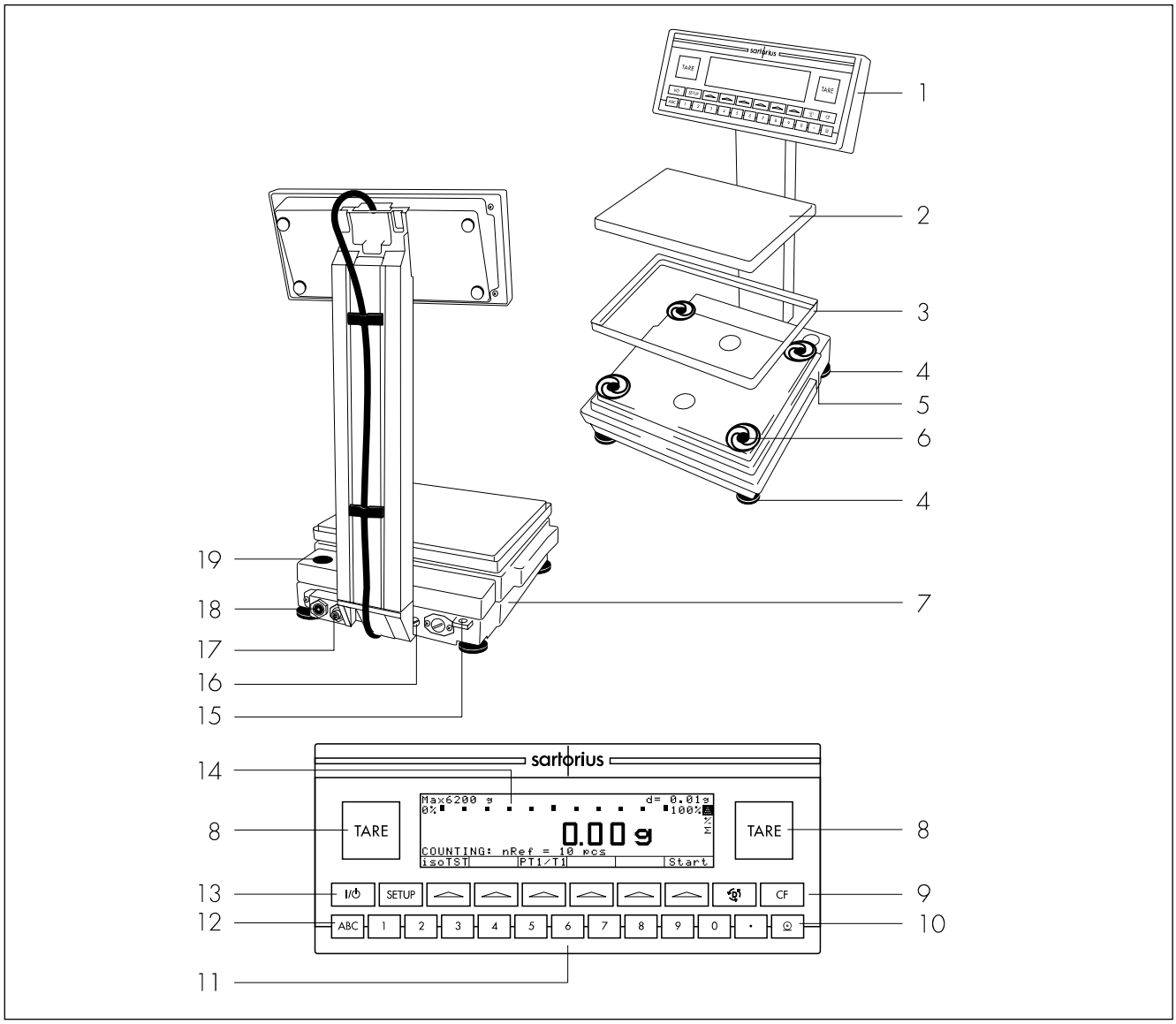
Not shown:

Dust cover for weighing platform	69 60FB01
Dust cover for display&control unit	69 60LP03
Caps and plugs for covering ports (set)	69 B20009

Overview of the Scales

FC6CCE-HX(CE), FC2CCE-SX(CE), FC12CCE-SX(CE), FC12CCE-IXCE, FC6CCE-SX(CE)

"-CE" identifies the scale as verified for legal metrology in the EU*



Pos.	Designation	Spare Part Order No.
1	Display and control unit	
2	Weighing pan/load plate	69 LP0007
3	Pan shield (depends on type of model)	69 LP0008
4	Leveling foot	69 B20005
5	Menu access switch	
6	Shock absorber	69 LP0010
7	Metrological ID label (only on scales verified for legal metrology in the EU)	
8	Tare key	
9	Function keys	
10	Print key	
11	Numeric keys	

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

Pos.	Designation	Spare Part Order No.
12	Shift key for entering letters	
13	On/off key	
14	Display	
15	Lug for attaching an antitheft locking device	
16	Main grounding conductor	
17	AC power socket	
18	Data interface port	
19	Level indicator	

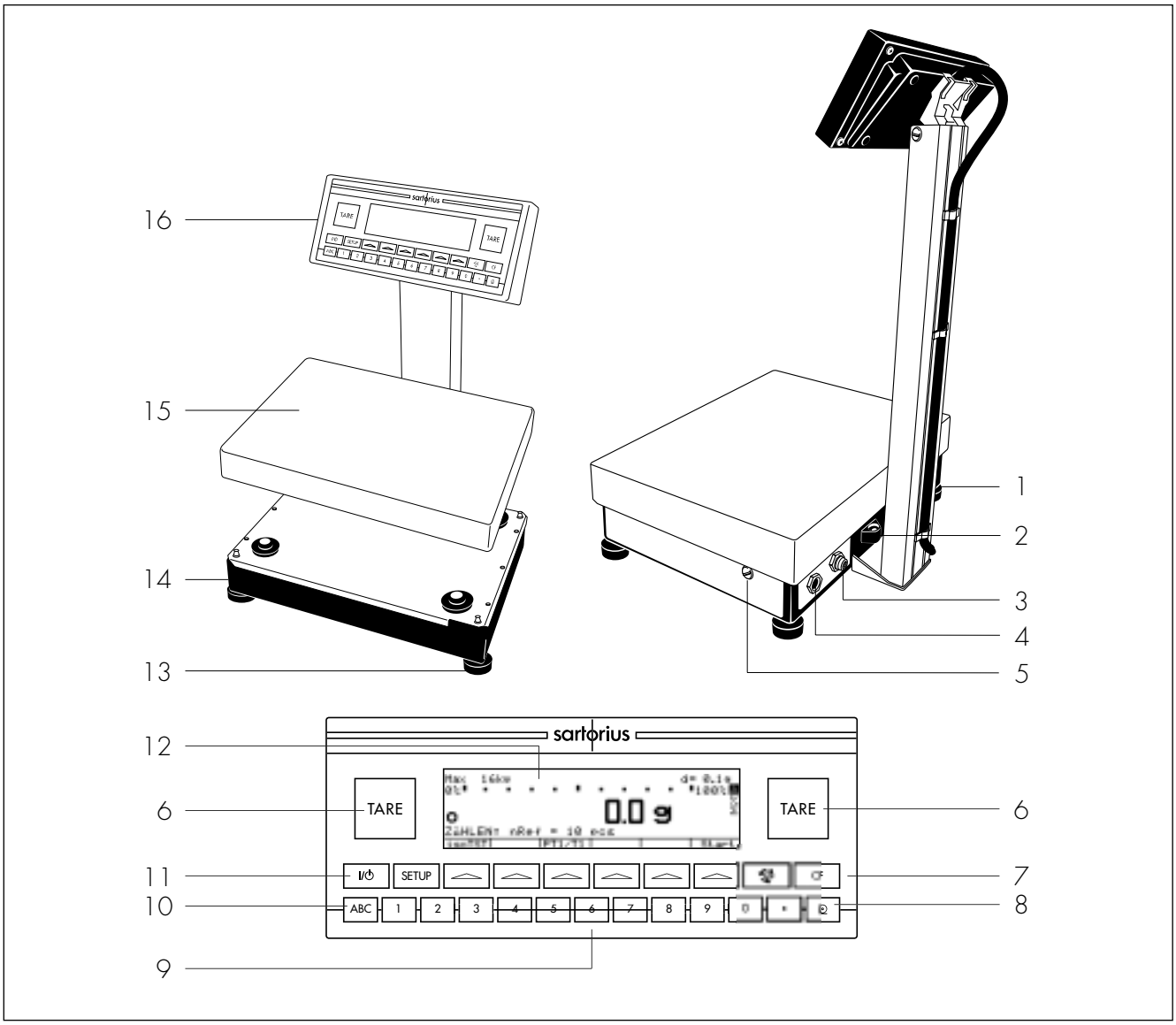
Not shown:

Dust cover for weighing platform	69 60FB02
Dust cover for display&control unit	69 60LP03
Caps and plugs for covering ports (set)	69 B20009

Overview of the Scales

FC34EDE-HX(CE), FC34EDE-PX(CE), FC16EDE-HX(CE), FC12EDE-PX(CE), FC64EDE-SX(CE), FC64EDE-HX

"·CE" identifies the scale as verified for legal metrology in the EU*



Pos.	Designation	Spare Part Order No.
1	Main grounding treminal	
2	Level indicator	
3	AC power socket	69 14290
4	Data interface port	69 LP0004
5	Manu access switch	
6	Tare key	
7	Function keys	
8	Print key	
9	Numeric keys	
10	Shift key	

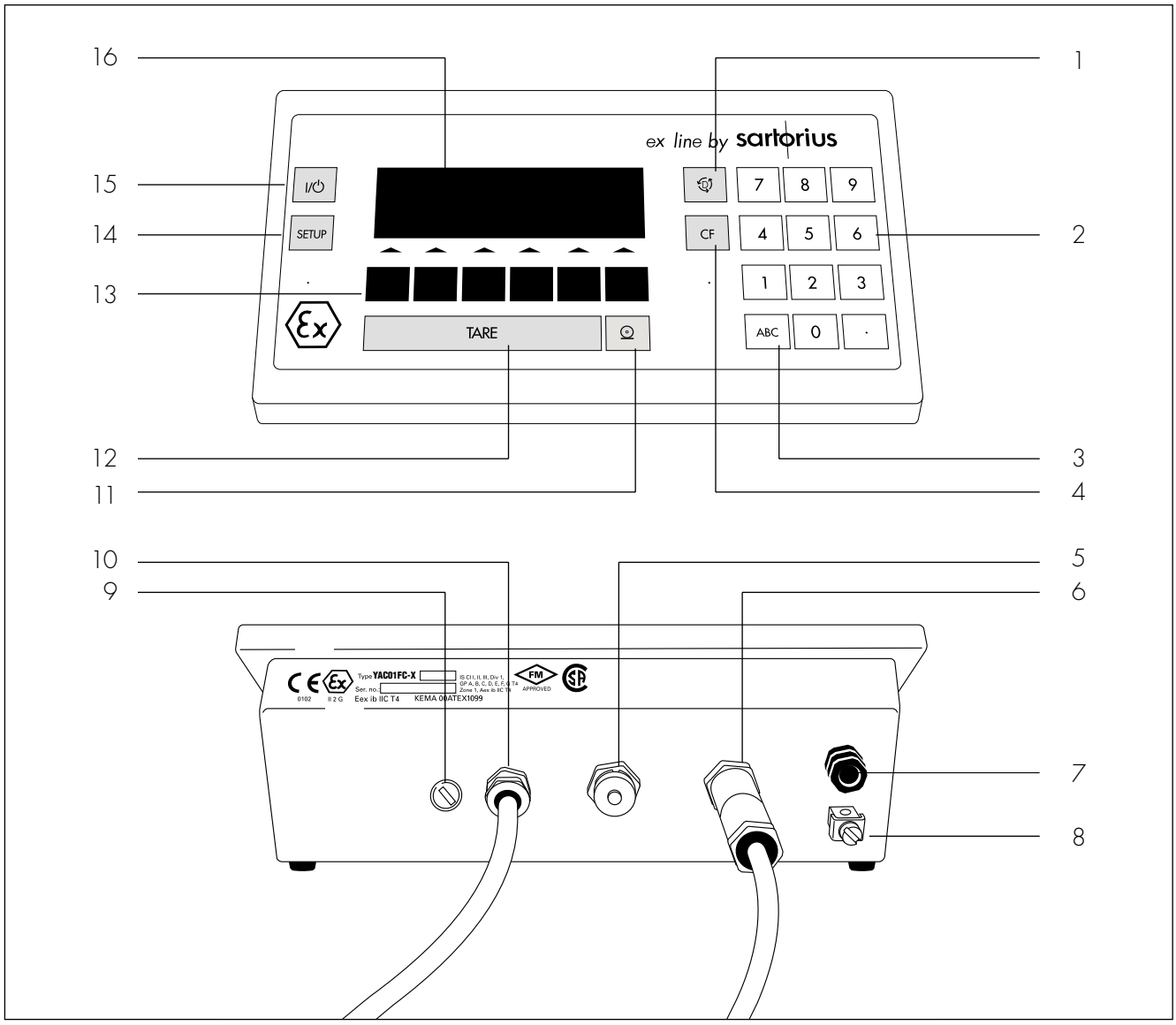
Pos.	Designation	Spare Part Order No.
11	On / off key	
12	Display	
13	Leveling foot	69 LC0093
14	metrological ID label (only on scales verified for legal metrology in the EU)	
15	Load plate	
16	Display and control unit	

Not shown:
Dust cover for display&control unit 69 60LP03

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

General View of the Terminal

FCA Models (this example: YAC01FC-X terminal)



Pos.	Designation
1	Toggle key for changing application programs
2	Numeric keys
3	Shift key for entering letters
4	CF key (clear function)
5	Serial communications port (14-pin)
6	Power jack
7	Vent valve
8	Terminal for an equipotential bonding conductor
9	Plug covering access switch

Pos.	Designation
10	Cable gland for connecting a weighing platform
11	Print key
12	Tare key
13	Function keys
14	Setup key
15	On/standby key
16	Display

Specifications

Standard Models

General Specifications:

AC power source/power requirements	AC adapter, 90 V AC (min.) to 264 V AC (max.)
Frequency	48 – 60 Hz
Allowable ambient operating temperature	0 … +40 °C (273 … 313 K, 32 °F … 104 °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	25 VA
Hours of operation with fully charged YRB 06 Z external battery pack, approx.	14 h
Selectable weight units	Grams, kilograms, carats, pounds, ounces, Troy ounces, Hong Kong taels, Singapore taels, Taiwanese taels, grains, pennyweights, milligrams, parts per pound, Chinese taels, mommes, Austrian carats, Tola, Baht and Mesghal
Selectable application programs	Mass unit conversion, counting, weighing in percent, animal weighing, calculation, density determination, over/under checkweighing, time-controlled functions, totalizing, statistics, 2nd tare memory, identifiers, product data memories
Built-in interface	RS-232C
Format: Parity: Transmission rates: Handshake:	7-bit ASCII, 1 start bit, 1 or 2 stop bits odd, even or space 150 to 19,200 baud Software or hardware

Specifications of the Individual Models:

Model		FC06BBE-SX	FC6CCE-HX	FC2CCE-SX	FC12CCE-SX	FC6CCE-SX
Readability	g	0.001	0.01	0.01	0.1	0.1
Weighing capacity	g	620	6,200	2,200	12,000	6,200
Max. capacity	kg	3	25	10	50	50
Tare range (subtractive)	g	– 620	– 6,200	– 2,200	– 12,000	– 6,200
Electronically compensated preload (without restricting weighing range)	g	93	–	110	1,200	1,240
Max. preload when starting calibration/adjustment (scale must be zeroed)	g	110	5,200	1,300	10,000	6,400
Repeatability (standard deviation)	≤±g	0.001	0.01	0.01	0.05	0.05
Linearity	≤±g	0.002	0.02	0.02	0.2	0.1
Sensitivity drift within +10 … +30 °C	≤±/K	$2 \cdot 10^{-6}$	$2 \cdot 10^{-6}$	$2 \cdot 10^{-6}$	$4 \cdot 10^{-6}$	$4 \cdot 10^{-6}$
Response time (average)	s	1.5	1.5	1.5	1	1
External calibration weight (of at least accuracy class…)	g	500 (E2)	5,000 (E2)	2,000 (F1)	5,000 (F1)	5,000 (F2)
Load plate	mm	Ø 130	218 x 200	218 x 200	218 x 200	218 x 200
Dimensions (W x D x H)	mm	240x294x86	240x294x86	240x294x86	240x294x86	240x294x86
Net weight, approx.	kg	7	8.4	7.3	7.3	7.3
Dust and water protection rating according to EN 60529		IP54				

Model		FC64EDE-H, FCA64EDE-HX	FC34EDE-H, FCA34EDE-HX	FC16EDE-H, FCA16EDE-HX
Readability	g	0.1	0.1	0.1
Weighing capacity	kg	64	34	16
Max. overload capacity	kg	130	130	130
Tare range (subtractive)	kg	– 64	– 34	– 16
Electronically compensated preload (without restricting weighing range)	kg	13	4	4
Max. preload when starting calibration/adjustment (scale display does not have to be zeroed)	kg	ca. 45	ca. 21	ca. 19
Repeatability	≤±g	0.1	0.1	0.05
Linearity	≤±g	0.5	0.2	0.2
Sensitivity drift within +10 … +30 °C	≤±/K	$3 \cdot 10^{-6}$	$2 \cdot 10^{-6}$	$2 \cdot 10^{-6}$
Response time (average)	s	1.5	1.5	1.5
External standard calibration weight (of at least accuracy class…)	kg	10 (F1)	10 (F1)	10 (F1)
Platform dimensions	mm	300 x 400		
Net weight, approx.	kg	16.0		
Dust and water protection rating according to EN 60529		IP44	IP65	IP65

Model		FC34EDE-PX, FCA34EDE-PX	FC12EDE-PX, FCA12EDE-HX	FC64EDE-SX, FCA64EDE-SX
Readability	g	0.1/0.2/0.5	0.1/0.2	1
Weighing capacity	kg	8/16/34	6/12	64
Max. overload capacity	kg	130	130	130
Tare range (subtractive)	kg	– 34	– 12	– 64
Electronically compensated preload (without restricting weighing range)	kg	4	4	13
Max. preload when starting calibration/adjustment (scale display does not have to be zeroed)	kg	ca. 21	ca. 10	ca. 45
Repeatability	≤±g	0.05/0.05/0.1	0.05/0.05	0.3
Linearity	≤±g	0.2	0.2	1
Sensitivity drift within +10 … +30 °C	≤±/K	$2 \cdot 10^{-6}$	$2 \cdot 10^{-6}$	$3 \cdot 10^{-6}$
Response time (average)	s	1.5	1.5	1.5
External standard calibration weight (of at least accuracy class…)	kg	10 (F2)	10 (F1)	10 (F2)
Platform dimensions	mm	300 x 400		
Net weight, approx.	kg	16.0		
Dust and water protection rating according to EN 60529		IP65		

Model		FCA150IGG-HX	FCA300IGG-HX
Readability	g	1	2
Weighing capacity	kg	150	300
Max. overload capacity	kg	600	600
Tare range (subtractive)	kg	150	300
Electronically compensated preload (without restricting weighing range)	kg	30	60
Max. preload when starting calibration/adjustment (scale display does not have to be zeroed)	kg	approx. 120	approx. 300
Repeatability	≤±g	1	2
Linearity	≤±g	4	8
Sensitivity drift within +10 … +30 °C	≤±/K	$2.5 \cdot 10^{-6}$	$2.5 \cdot 10^{-6}$
Response time (average)	s	1.5	1.5
External standard calibration weight (of at least accuracy class…)	kg	50 (F2)	50 (F1)
Platform dimensions	mm	800 x 600	
Net weight, approx.	kg	70	
Dust and water protection rating according to EN 60529		IP67	

Models Verified by the Manufacturer, with EC Type Approval

General Specifications

AC power source/power requirements	AC adapter, 90 V AC (min.) to 264 V AC (max.)
Frequency	48 – 60 Hz

Allowable ambient temperature range	0…+40°C (273…313 K, 32°F…104°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	25 VA
Selectable weight units	Grams, kilograms
Selectable application programs	Mass unit conversion, counting, weighing in percent, animal weighing, calculation, density determination, over/under checkweighing, time-controlled functions, totalizing, statistics, 2nd tare memory, identifiers
Built-in interface	RS-232C
Format: Parity: Transmission rates: Handshake:	7-bit ASCII, 1 start bit, 1 or 2 stop bits Space, odd, even 150 to 19,200 baud Software or hardware

Specifications of the Individual Models:

Model		FC06BBE-SXCE	FC6CCE-HXCE	FC2CCE-S0CE
Type		isoTEST 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 scale 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
Pan/load plate 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		IP 54 (protected against harmful dust deposits and splashes of water)		

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

Model-Specific Specifications:

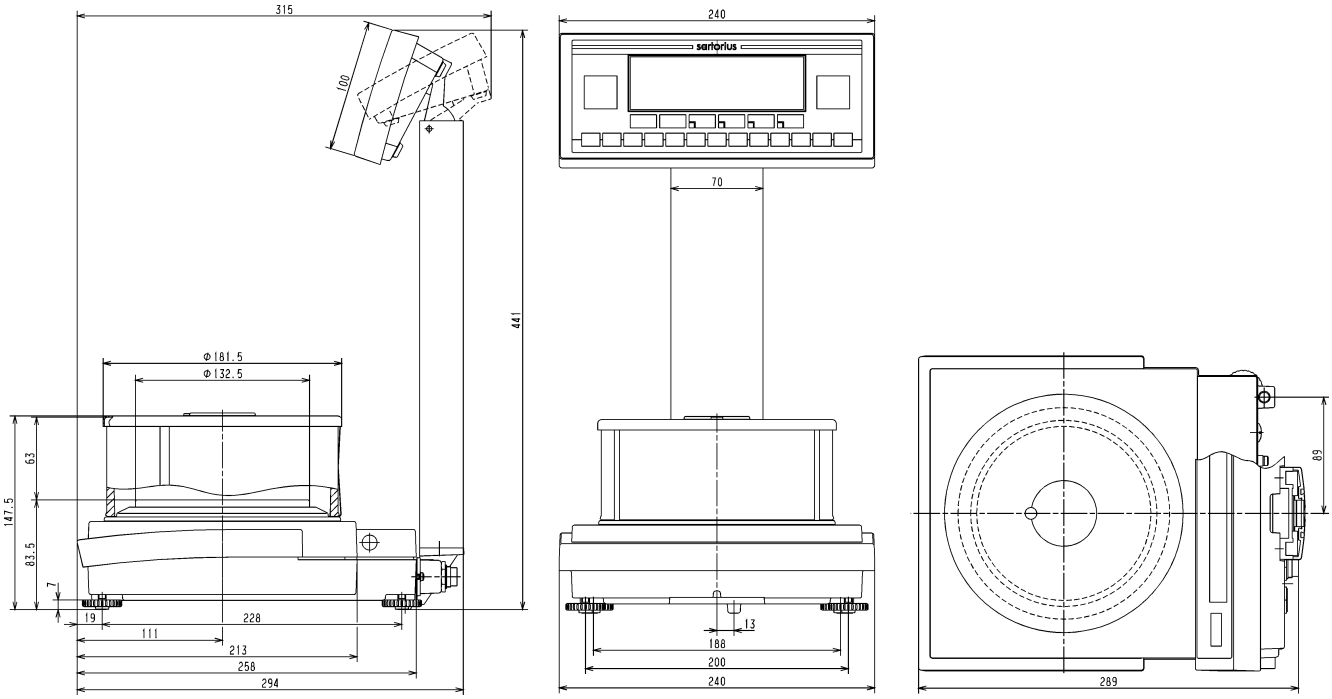
Model		FC12CCE-SXCE	FC6CCE-SXCE	FC12CCE-IXCE
Type		isoTEST in conjunction with BD BF		
Accuracy class *		(II)	(II)	(II)
Scale interval d*	g	0.1	0.1	0.5
Max. weighing capacity*	g	12,000	12,000	6,200
Verification scale interval e*	g	1	1	0.5
Min. capacity*	g	5	5	25
Max. capacity	kg	50	50	50
Tare range (subtractive)		≤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
Pan size	mm	218 x 200	218 x 200	218 x 200
Net weight, approx.	kg	7.3	7.3	7.3
Dust and water protection rating according to EN 60529		IP54		

Model		FC34EDE-HXCE, FCA34EDE-HXCE	FC16EDE-HXCE, FCA16EDE-HXCE	FC34EDE-PXCE, FCA34EDE-PXCE	FC12EDE-PXCE, FCA12EDE-PXCE	FC64EDE-SXCE, FCA64EDE-SXCE
Type		isoTEST in conjunction with BF BF				
Accuracy class *		(II)	(II)	(II)	(II)	(II)
Scale interval d*	g	0.1	0.1	0.1/0.2/0.5	0.1/0.2	1
Max. weighing capacity*	kg	34	16	8/16/34	6/12	64
Verification scale interval e*	g	1	1	1	1	10
Min. capacity*	g	5	5	5	5	50
Tare range (subtractive)		≤100% of the max. weighing capacity				
Max. capacity	kg	130				
Electronically compensated preload (without restricting weighing range)	kg	4	4	4	4	13
Max. preload when starting calibration/adjustment (scale does not have to be zeroed)	kg	ca. 21	ca. 19	ca. 21	ca. 10	ca. 45
Application range according to CD*	g	5 – 34,000	5 – 16,000	5 – 34,000	5 – 12,000	50 – 64,000
Response time (average)	s	1.5				
Selectable weight units		Grams and kilograms	Grams and kilograms	Grams and kilograms	Grams and kilograms	Kilograms
Pan size	mm	300 x 400				
Net weight, approx.	kg	16.0				
Dust and water protection rating according to EN 60529		IP65				

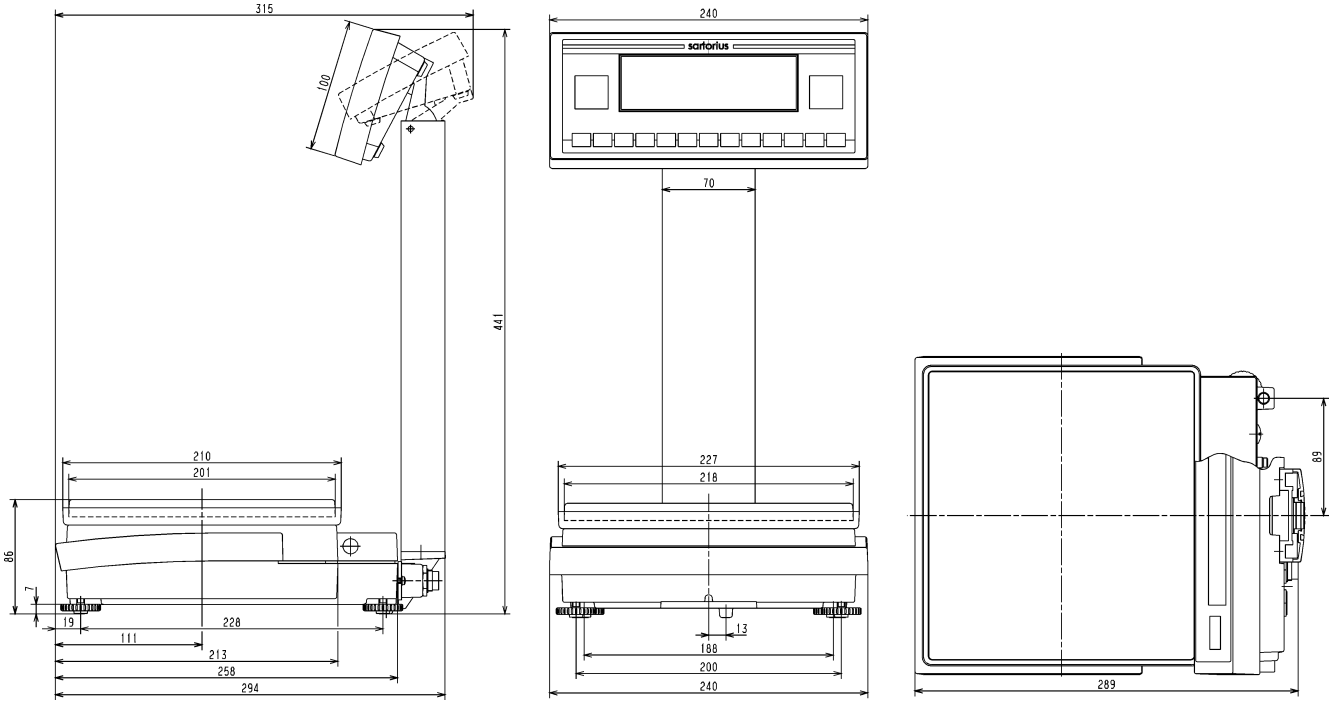
* CD = Council Directive 90/384/EEC for non-automatic weighing instruments used within the European Economic Area

Dimensions (Scale Drawings)

FC06BBE-SX (CE)

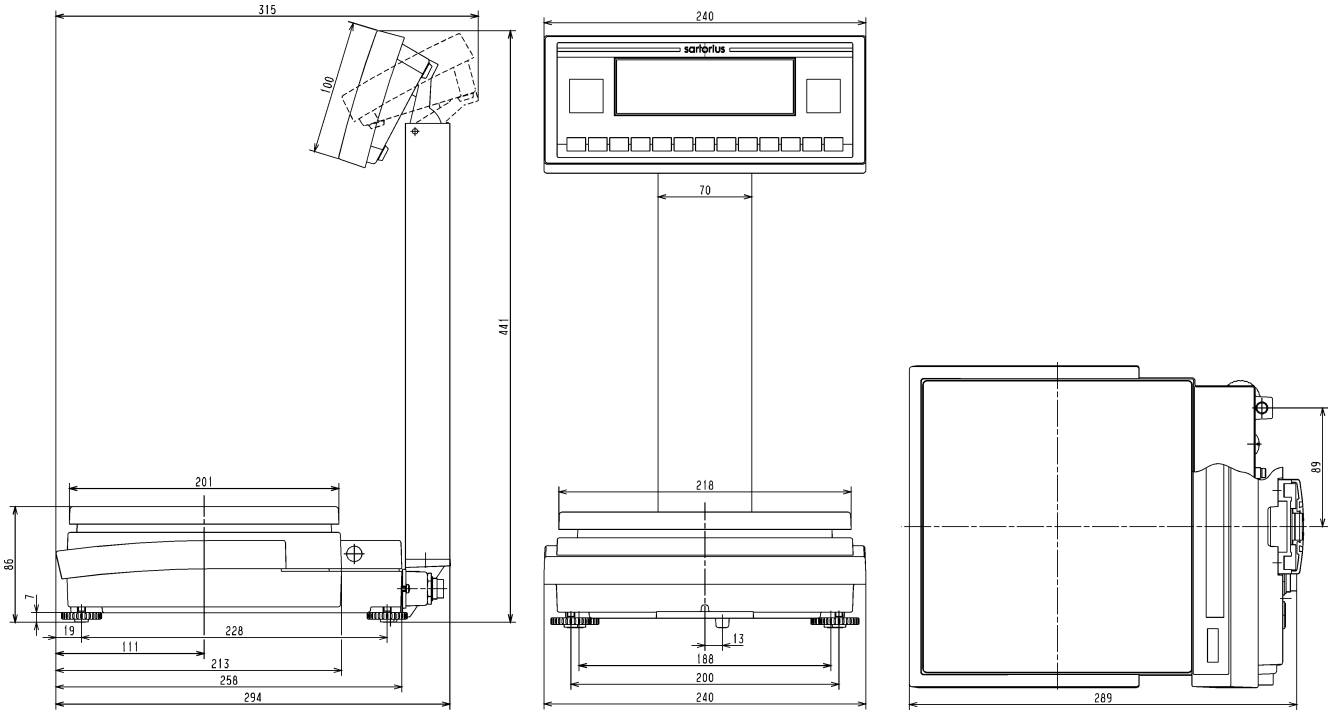


FC6CCE-HX (CE), FC2CCE-SX (CE)

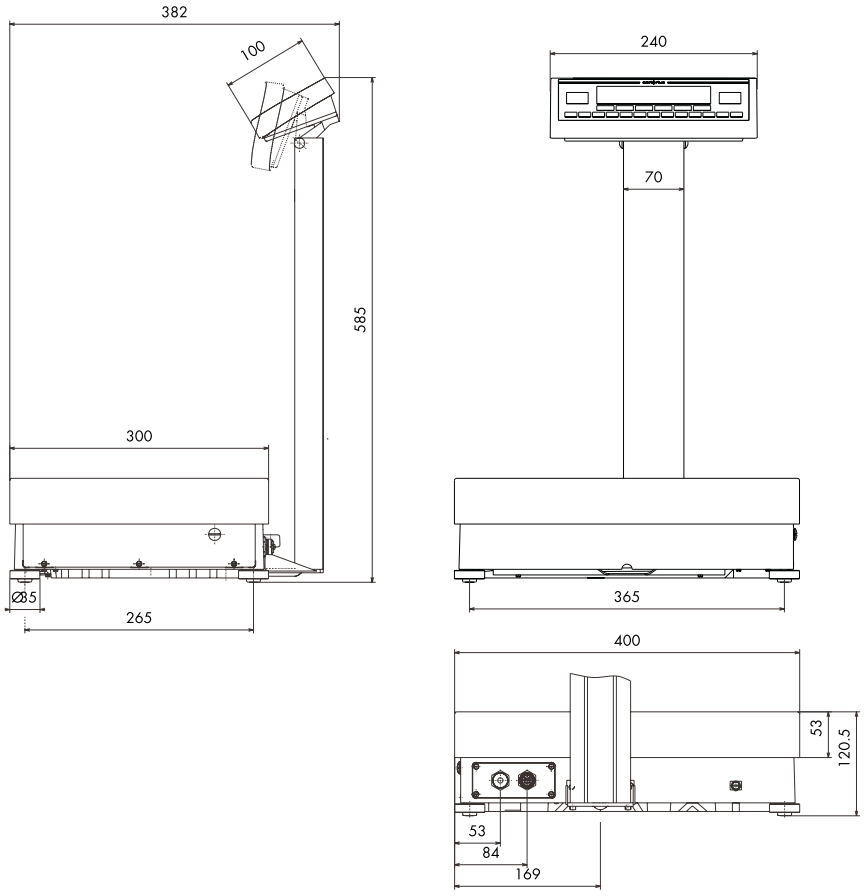


All dimensions are given in millimeters

FC12CCE-SX (CE), FC12CCE-IXCE, FC6CCE-SX (CE)

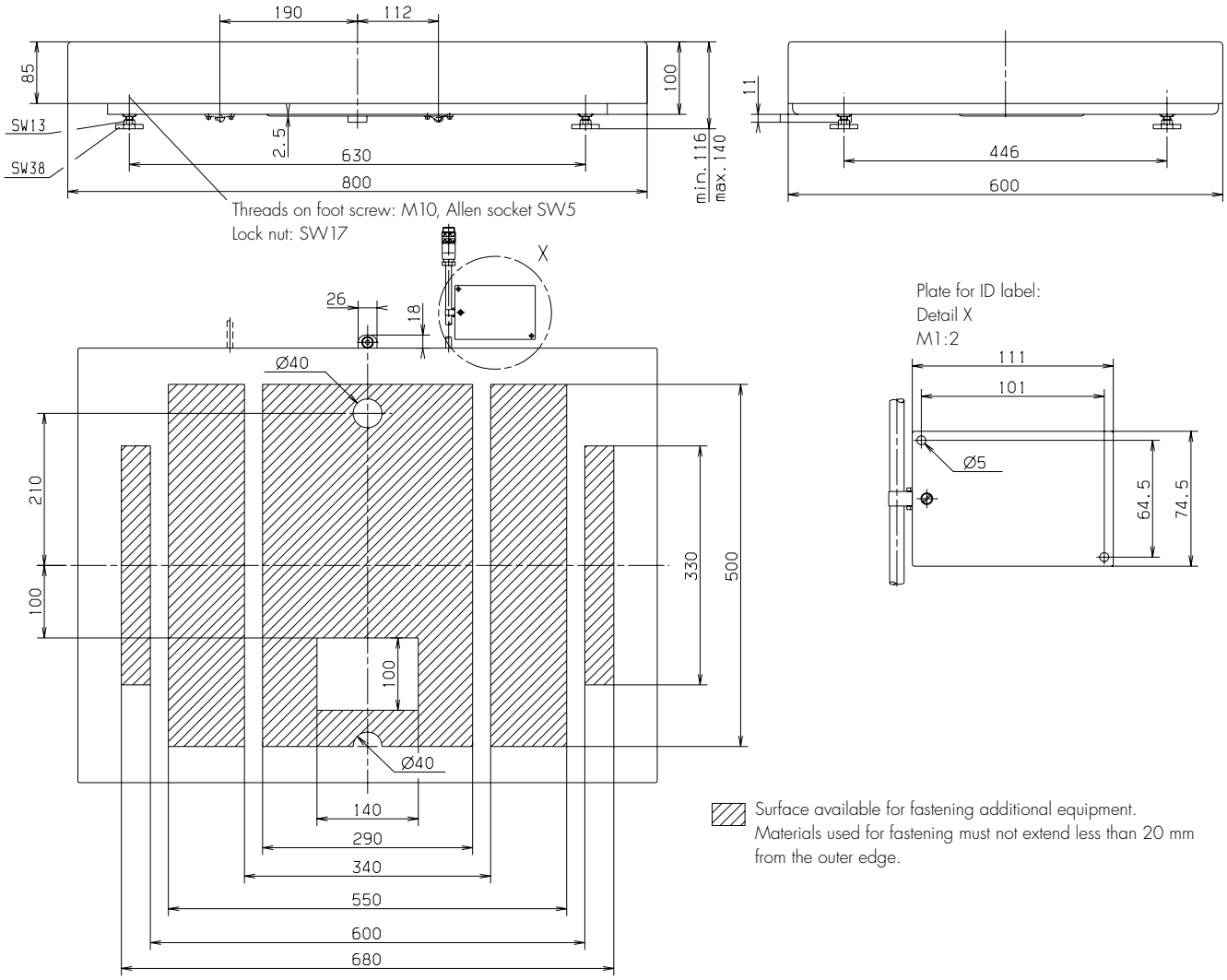


FC64EDE-HX(CE), FC34EDE-HX(CE), FC16EDE-HX(CE), FC34EDE-PX(CE), FC12EDE-PX(CE),FC64EDE-SX(CE)

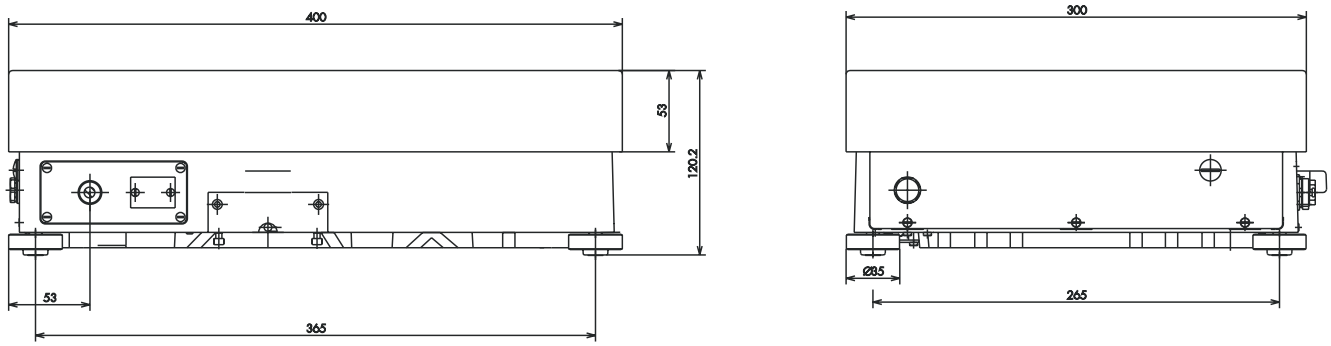


All dimensions are given in millimeters

Platform on FCA…IGG Models

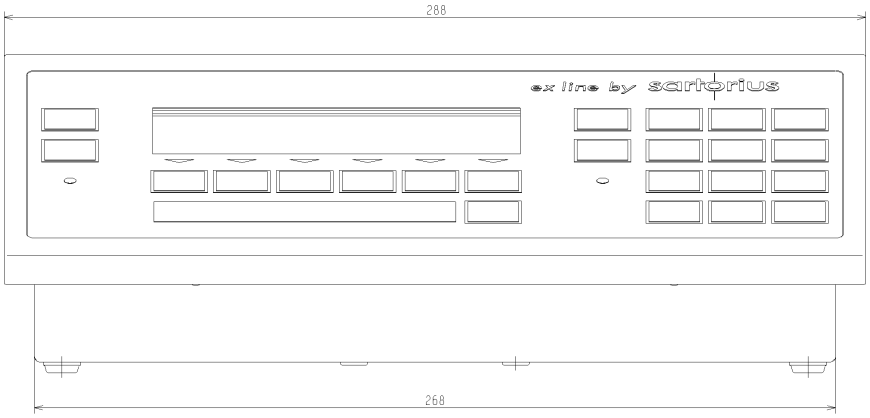


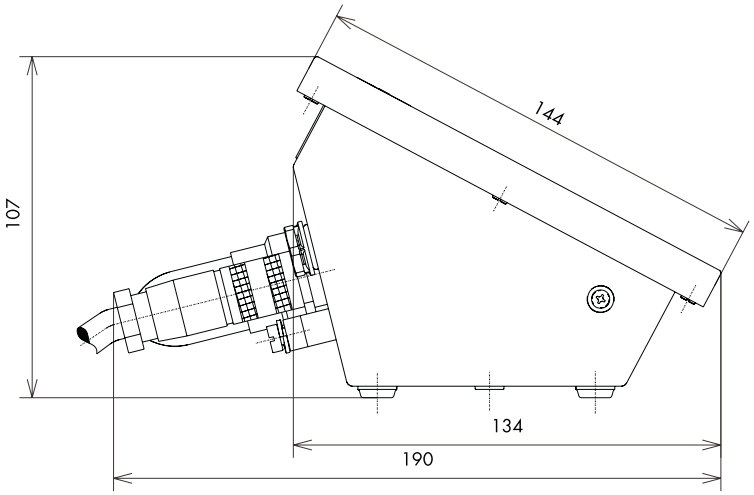
Platform on FCA…EDE Models



All dimensions are given in millimeters

FCA Display and Control Unit

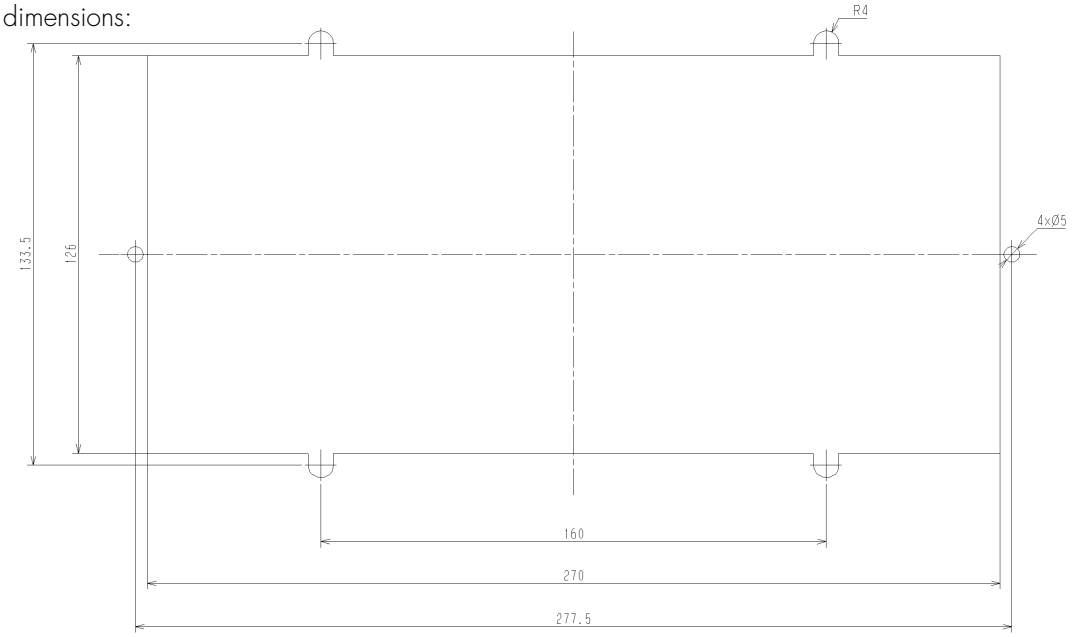




Control Box Installation:

Make sure you use screws of the required length. Install additional panels or other materials as necessary to ensure that the housing is impenetrable in accordance with the IP protection rating.

Installation dimensions:



All dimensions are given in millimeters

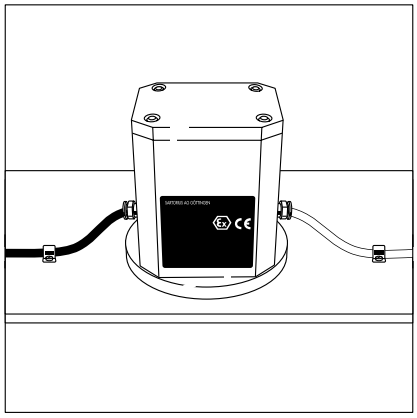
Accessories (Options)

Product	Order No.

Power supply (AC adapter) for use outside a hazardous area/location

European version:	YPS02-ZDR
GB version:	YPS02-ZGR

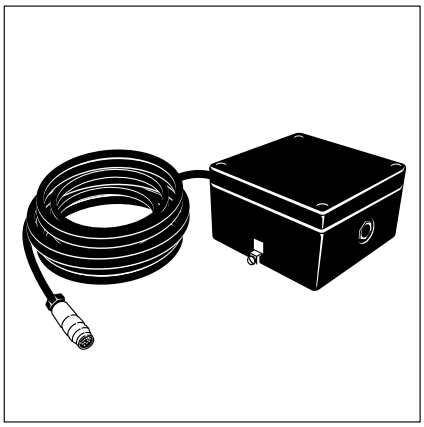
⚠ Install the cable so that it is protected from damage. Connect the terminal of the housing to a terminal for equipotential bonding (PE = protective earthing or grounding conductor)



Power supply (AC adapter) for use within a hazardous area/location

European version:	YPS02-XDR
GB version:	YPS02-ZGR

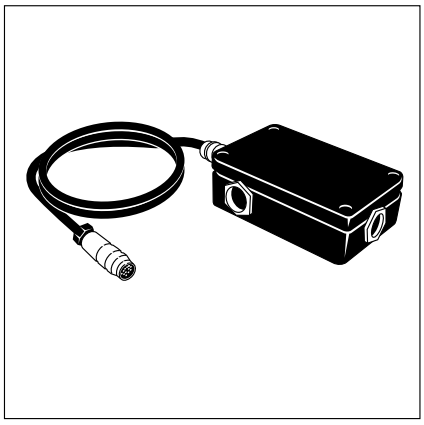
⚠ Install the cable so that it is protected from damage. Connect the terminal of the housing to a terminal for equipotential bonding (PE = protective earthing or grounding conductor)



Zener barrier for use outside a hazardous area/location

– 4 data lines	YDI02-Z
– 4 data lines and 4 control lines	YDI03-Z
– Connection in a bus system over RS485 (data cable not supplied)	YDI01-Z

⚠ Install the cable so that it is protected from damage. Connect the terminal of the housing to a suitable ground electrode (PE = protective earthing or grounding conductor).



T-connector for hazardous areas/locations YTE02-X

⚠ Install the cable so that it is protected from damage.

	Product	Order No.
	**Foot switch for hazardous areas/locations** (Choice of functions to emulate keys on the display and control unit: ⊙, TARE, ⟲, [isoTEST], CF	YPE05-X
	**Data printer (not for use in hazardous areas/locations)** for hard copies with the date, time, statistical evaluation, transaction counter; with an LCD (can be connected using: adapter cable YCC01-0016M3 or directly, without the printer cable included, using the interface cable YCC01-0019M3) Can be used in legal metrology. Please note: For verfied scales with e ≠ d, the last digit on the printout must be specially identified as shown on the scale display. Please set this parameter in the printer menu (see instructions manual for the printer)	YDP03-0CE
	**Data printer (not for use in hazardous areas/locations)** Strip and label printer with thermal head; 108 mm paper width (≈ 4.3 in.), connecting cable and external power supply Can be used in legal metrology.	YDP02IS-0CE
	**Data printer (not for use in hazardous areas/locations)** Strip and label printer with thermal print head, paper width: max. 60 mm, includes connecting cable Can be used in legal metrology.	YDP04IS-0CE

RS-485 data interface (must be installed at the Sartorius Fast Factory or by a Sartorius service technician)	
for FC…BBE/CCE models: TTY/10 mA	YDO01F-X
for FC…BBE/CCE models: RS-485	YDO02F-X
for FC…EDE models RS-485	YDO03FC-X
for FC…EDE models TTY/10 mA	YDO04FC-X
for FCA models: TTY/10 mA	YDO01FT-X
for FCA models: RS-485	YDO02FT-X
Cable for connecting weighing platform to separate display and control unit (length: 2.70 m ≈ 9 ft.)	Ask for information
for FC…EDE models	
for models with a weighing capacity ≤12 kg	YCC01-19M3
Front-mounted tiltable display and control unit	YDH01F
Wrap-around load plate	YLP01
for models FC6CCE-SX, FC12CCE-SX, FC12CCE-I X	
Hook for under-scale weighing for FC-EDE models	69EA0040
Calibration weights	Ask for information
for all FB scales, extensive assortment, optionally available with officially recognized DKD certificate	
Extension cable	YCC01-01ISM6
12-pin round male connector/ 12-pin round female connector (6 m; ≈ 20 ft.)	
Interface cable	YCC01-03ISM5
for connecting a PC to the YDI03-Z, YDI01-Z Zener barrier	
Interface cable	YCC01-0019M3
for directly interfacing the scale to the YDP03-0CE data printer (via Zener barrier)	
Adapter cable	YCC01-0016M3
From round male connector to RS232-D-Submini female interface connector; for directly connecting Sartorius accessories to the scale (via Zener barrier)	
Adapter cable, from 25-pin D-Submini	6965619
male connector to 9-contact D-Submini female connector; length 0.25 m (≈ .8 ft.)	
Tiltable display and control unit retainer for wall mounting (stainless steel) for FCA display and control units	YDH01F
Adapter plate for fastening the FCA display and control unit to the floor stand	YAS01FT-X
Floor stand (stainless steel), height: 1.1 m (approx. 3.5 ft)	YDH03IS
for FCA display and control units (adapter plate YAS01FT-X required)	
SartoConnect data transfer software for connecting your Sartorius scale to a PC running the Windows 95, 98 or NT operating system.	YSC01I
For loading measurement data from the scale into any PC for further processing (e.g., with Excel or Access) Includes 9/12-pin cable for connecting the scale to the PC.	
Sartorius Win Scale	YSW03
Scale driver software for use under Windows 95/98/2000/NT. Display scale readout on the PC monitor and provides secure memory for storing data that is subject to legal control.	
Configuration software (PC, DOS)	YAD01IS
For storing and loading scale settings	
Sartorius "NICE Label Express"	YAD02IS
For creating customer-specific printouts	
Profibus serial interface (must be connected outside hazardous area/location using Zener barrier)	
– for RS-232 interface	YSPI3-232
– for RS-485 interface	YSPI3-485

CE Marking

The CE Mark on Sartorius Weighing 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:
In accordance with product standard EN 61326-1 Class B (residential area)

Defined immunity to interference:
In accordance with product standard EN 61326-1 (industrial area)

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).

94/9/EEC "Equipment or protective system intended for use in potentially exposive atmospheres"

Applicable European Standards for "electrical equipment designed for use in potentially explosive atmospheres":

EN 50014	General requirements
EN 50018	Flameproof enclosure "d"
EN 50020	Intrinsic safety "i"

(See attached EC Type-Examination Certificates starting on page 195)

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 operating instructions for the weighing platform you use, or the "Guide to Verification of Weighing Instruments."

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.

"EC Verification" – A Service Offered by Sartorius

Our service technicians authorized to perform the verification of your weighing instruments that are acceptable for legal metrological verification 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.

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	BD 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
FC.....-.XCE	iso-TEST	(II)	D97-09-018	BF BF	D09-96.30
FB/FC.....-.XCE	iso-TEST	(II)	D97-09-018	BD BF	D09-96.30
FCA/FCB.....-.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):

CE 01 0111 M

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, 10.12.2001

Dr. G. Maaz
(Head of Technical Operations)

i.V. J. Rehwald
J. Rehwald
(Head of Quality Management & Services)

OAW–113-2/02.96
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KEMA

(1) **EC-TYPE EXAMINATION CERTIFICATE**

(2) Equipment or protective system intended for use in potentially explosive atmospheres – Directive 94/9/EC

(3) EC-Type Examination Certificate Number: **KEMA 01ATEX1099 X**

(4) Equipment or protective system:

Weighing Module series, Type IS.....-.X.... and
Weighing System series, Type FC.....-.X.... and
Weighing System series, Type FCA.....-.X.... and
Weighing System series, Type FCB.....-.X....

(5) Manufacturer: **Sartorius A.G.**

(6) Address: **Weender Landstraße 94-108, 37075 Göttingen, Germany**

(7) This equipment or protective system and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

(8) KEMA Quality B.V., notified body number 0344 in accordance with Article 9 of the Council Directive 94/9/EC of 23 March 1994, certifies that this equipment or protective system has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in confidential report no. 2010745.

(9) Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN 50014 : 1997 EN 50020 : 1994

(10) If the sign "X" is placed after the certificate number, it indicates that the equipment or protective system is subject to special conditions for safe use specified in the schedule to this certificate.

(11) This EC-Type Examination Certificate relates only to the design, examination and tests of the specified equipment or protective system in accordance with the Directive 94/9/EC. Further requirements of the Directive apply to the manufacturing process and supply of this equipment or protective system. These are not covered by this certificate.

(12) The marking of the equipment or protective system shall include the following:

Ex II 2 G EEx ib IIC T4

Arnhem, 18 October 2001
KEMA Quality B.V.

T. Pijpker
Certification Manager

KEMA Quality B.V.
Utrechtseweg 310, 6812 AR Arnhem, The Netherlands
P.O. Box 5185, 6802 ED Arnhem, The Netherlands
Telephone +31 26 3 56 20 05, Telefax +31 26 3 52 58 00

ACCREDITED BY THE DUTCH COUNCIL FOR ACCREDITATION

KEMA

(13) # SCHEDULE

(14) **to EC-Type Examination Certificate KEMA 01ATEX1099 X**

(15) **Description**

The Weighing Modules series, Type IS....BBE-.X...., IS....CCE-.X...., IS....EDE-.X.... and IS....IGG-.X.... serve to measure weights and have connections for supply and a remote terminal for data handling.
Depending of the type the connections to the remote terminal and supply are via plugs or an integral cable, in the latter case e.g. via a junction box Type YAS06IS-X.
The Weighing Modules differ in size and construction, depending of the weight they can measure.

The Weighing Systems series, Type FC.....-.X...., FCA.....-.X.... and FCB.....-.X.... serve to measure weights, handle the data and provide communication with other units (e.g. a PC). The Weighing Systems consist of a Weighing Module of one of the above mentioned types and a terminal with a display and a keyboard.
Type FC.....-.X.... has an integral terminal, for Type FCA.....-.X.... and FCB.....-.X.... the terminal is remote mounted.

All types are supplied by four independent intrinsically safe supplies.
All types have the same supply and data communication circuits.
All types have external connections for passive equipment (e.g. a foot switch).
Type FCB.....-.X.... has additional I/O circuits for connection of the outputs to associated circuits via barriers and input circuits to passive circuits (e.g. switches).

Ambient temperature range -20 °C ... +40 °C.

Electrical data

<u>All types</u>

Unless otherwise specified, the connection-identifications are shown below per type.

Supply circuits ..... in type of explosion protection intrinsic safety EEx ib IIC, only for connection to a certified intrinsically safe circuit, with following maximum values (for each circuit):

Circuit	U_i	I_i	P_i	C_i	L_i
V-1	12,6 V	133 mA	1,68 W	0 nF	0 mH
V-2	12,6 V	133 mA	1,68 W	0 nF	0 mH
V-3	8,6 V	187 mA	1,61 W	300 nF	0 mH
V-4	12,6 V	150 mA	1,89 W	100 nF	0 mH

Data communication circuit ..... in type of explosion protection intrinsic safety EEx ib IIC, with the following maximum values (per circuit unless otherwise specified):

U_o = 8,6 V
I_o = 23 mA
P_o = 50 mW

The maximum allowed external capacitance C_o = 6 µF, the maximum allowed external inductance L_o = 60 mH.

KEMA

(13) **SCHEDULE**

(14) **to EC-Type Examination Certificate KEMA 01ATEX1099 X**

Electrical data (continued)

Circuits only for connection to a certified intrinsically safe circuit, with following maximum values (for each circuit per applicable connection combination):

Circuit	U_i [V]	I_i [mA]	P_i [mW]	C_i [nF]	L_i [mH]	Connections	Note
RS232	12,6	85	270	3	0	A/J/K/N/M (BU9) or 9/10/11/12/8 (BU6)	1)
RS232	12,6	10	30	4	0	C/D/E/F/G/M (BU9) or 2/3/4/5/6/8 (BU6)	1)
RS485	12,6	85	270	110	0	J/K/L/M (BU9) or 3/4 (BU30) + 9/10 (BU6)	1)
RS485	12,6	10	30	4	0	C/D/E/F/G/M (BU9) or 6/11/8 (BU6)	1)
TTY	14,7	50	265	0	0	G/K/D/F/J (BU9) or 3/7/2/4/6 (BU30)	1)
TTY	14,7	130	100	0	0	C/E/D/F/J (BU9) or 1/5/2/4/6 (BU30)	1) 2)
I/O-out	30	120	900	0	0	1/2, 3/4, 5/6, 7/8 (ST20)	1) 3)

Notes:
1) The current I_i must be resistively limited
2) May alternatively be connected to converter Type 725324, certified per Certificate of Conformity PTB No. Ex-85.B.2089.
   For this combination the following data applies:
   Maximum allowed external capacitance C_o = 620 nF and maximum allowed external inductance L_o = 2 mH.
3) For Type FCB.....-.X..... only.

Maximum values of the output data (for each circuit per applicable connection combination):

Circuit	U_o [V]	I_o [mA]	P_o [mW]	C_o [µF]	L_o [mH]	Connections	Note
RS232	12,6	28	88	1,15	50	B/O/M (BU9) or 1/7/8 (BU6)	1)
RS485	12,6	28	85	1,15	50	B/O/M (BU9) or 7/8 (BU6)	1)
TTY	12,6	28	85	1,15	50	7/8 (BU6) or 7/8 (BU6)	1) 2)
I/O-in	12,6	30	95	1,15	50	9/10, 9/11, 9/12 (ST20)	3)

Notes:
1) Only for use in combination with passive intrinsically safe circuits
2) Same connector used with or without junction box.
3) For Type FCB.....-.X..... only.

KEMA

(13) **SCHEDULE**

(14) **to EC-Type Examination Certificate KEMA 01ATEX1099 X**

Electrical data (continued)

Connections per type

Weighing Modules series,
Type IS....BBE-.X...., IS..CCE-.X...., IS..EDE-.X.... and IS..IGG-.X....

Connections:
- Supply circuits: ST8 pins 6/1 (V-1), 4/2 (V-2), 5/3 (V-3), 7/8 (V-4), in combination with termination box: BU2 pins 6/1 (V-1), 4/2 (V-2), 5/3 (V-3), 7/8 (V-4)
- Data communication circuits: BU9 (pins as specified above), in combination with termination box: BU6 + BU30 (pins as specified above)
- When termination box used: Maximum cable length between Weighing Module and termination box Type YAS06IS-X is 15 m.

Weighing System series Type FC.....-.X....

Connections:
- Supply circuits: BU2 pins 6/1 (V-1), 4/2 (V-2), 5/3 (V-3), 7/8 (V-4)
- Data communication circuits: BU9 (pins as specified above)

Weighing System series Type FCA.....-.X....

Connections:
- Supply circuits: ST8 pins 6/1 (V-1), 4/2 (V-2), 5/3 (V-3), 7/8 (V-4)
- Data and communication circuits: BU9 (pins as specified above)
- Maximum cable length between Weighing Module and Terminal is 15 m

Weighing System series Type FCB.....-.X....

Connections:
- Supply circuits: ST8 6/1 (V-1), 4/2 (V-2), 5/3 (V-3), 7/8 (V-4)
- Data and communication circuits: BU9
- Maximum cable length between Weighing Module and Terminal is 15 m

(16) **Report**

KEMA No. 2010745

(17) **Special conditions for safe use**

1. The output circuits of the I/O of Type FCB.....-.X.... may only be connected to shunt diode zener barriers with one side grounded. This ground and the external ground connection of the enclosure of the terminal of Type FCB.....-.X.... must be connected to the potential equalising system within the hazardous area.

2. For ambient temperature range and electrical data, see (15).

KEMA

(13) # SCHEDULE

(14) **to EC-Type Examination Certificate KEMA 01ATEX1099 X**

(18) **Essential Health and Safety Requirements**

Essential Health and Safety Requirements not covered by the standards listed at (9)	
Clause	Subject
1.0.5	Marking
1.0.6 b) and d)	Instructions

These Essential Health and Safety Requirements are examined and positively judged.
The results are laid down in the report listed at (16)

(19) **Test documentation**

1. EC-Type Examination Certificate KEMA 98ATEX0612 X
   EC-Type Examination Certificate KEMA 00ATEX1012 X

		dated
2.	Description (34 pages)	02.02.2001
3.	Drawing No. 35520-000-60-A4 (3 sheets)	20.02.2001
4.	Samples	

KEMA
REGISTERED QUALITY

(1) EC-TYPE EXAMINATION CERTIFICATE

(2) Equipment or protective system intended for use in potentially explosive atmospheres - Directive 94/9/EC

(3) EC-Type Examination Certificate Number: **KEMA 98ATEX0892 X**

(4) Equipment or protective system: **Power Supply Type YPS02-X..**

(5) Manufacturer: **Sartorius AG**

(6) Address: **Weender Landstraße 94-108, 37075 Göttingen, Germany**

(7) This equipment or protective system and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

(8) KEMA, notified body number 0344 in accordance with Article 9 of the Council Directive 94/9/EC of 23 March 1994, certifies that this equipment or protective system has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in confidential report no. 80892.

(9) Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN 50014 : 1992 + prA1 EN 50018 : 1994 EN 50020 : 1994

(10) If the sign "X" is placed after the certificate number, it indicates that the equipment or protective system is subject to special conditions for safe use specified in the schedule to this certificate.

(11) This EC-Type Examination Certificate relates only to the design and construction of the specified equipment or protective system. If applicable, further requirements of this Directive apply to the manufacture and supply of this equipment or protective system.

(12) The marking of the equipment or protective system shall include the following:

Ex II 2 (2) G EEx d [ib] IIC T4

Arnhem, 15 June 1998
by order of the Board of Directors of N.V. KEMA

C.M. Boschloo
Certification Manager

N.V. KEMA
Utrechtseweg 310, 6812 AR Arnhem
P.O. Box 9035, 6800 ET Arnhem, The Netherlands
Telephone +31 26 3 56 27 46, Telefax +31 26 3 51 01 78

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FOR ACCREDITATION

KEMA

(13) **SCHEDULE**

(14) **to EC-Type Examination Certificate KEMA 98ATEX0892 X**

(15) **Description**

The Power Supply Type YPS02-X.. provides four independent intrinsically safe output channels for intrinsic safe scales. The power supply is mounted in an enclosure in type of protection flameproof enclosure "d". The maximum length of the interconnection cable type LiYC-Y-CY 4x0.5 between the Power Supply and the scales is 50 m.

Ambient temperature range 0 °C ... +40 °C.

Electrical data

Main supply ..... non intrinsically safe circuit, suitable for connection to electrical equipment with working voltages up to 264 V.

Supply and input circuit ..... terminal (V_1, white) in type of explosion protection intrinsic safety EEx ib IIC with following maximum values:

U_o = 12,6 V
I_o = 133 mA
P_o = 1,68 W

Maximum allowed external capacitance C_o = 1 μF
Maximum allowed external inductance L_o = 300 μH

Supply and input circuit ..... terminal (V_2, brown) in type of explosion protection intrinsic safety EEx ib IIC with following maximum values:

U_o = 12,6 V
I_o = 133 mA
P_o = 1,68 W

Maximum allowed external capacitance C_o = 1 μF
Maximum allowed external inductance L_o = 300 μH

Supply and input circuit ..... terminal (V_3, green) in type of explosion protection intrinsic safety EEx ib IIC with following maximum values:

U_o = 8,6 V
I_o = 187 mA
P_o = 1,61 W

Maximum allowed external capacitance C_o = 4 μF
Maximum allowed external inductance L_o = 300 μH

Supply and input circuit ..... terminal (V_4, yellow) in type of explosion protection intrinsic safety EEx ib IIC with following maximum values:

U_o = 12,6 V
I_o = 150 mA
P_o = 1,89 W

Maximum allowed external capacitance C_o = 1 μF
Maximum allowed external inductance L_o = 300 μH

KEMA

(13) **SCHEDULE**

(14) **to EC-Type Examination Certificate KEMA 98ATEX0892 X**

(15) **Electrical data** (continued)

Cable type LiYC-Y-CY 4x0.5 ..... Maximum cable capacitance C_{cable} = 28,2 nF
Maximum cable inductance L_{cable} = 8,4 μH
Maximum allowed cable length = 50 m

The intrinsically safe circuits are infallible galvanically isolated from the non-intrinsically safe circuits up to a sum of peak voltages of 375 V.

Installation instruction

The Power Supply provided with certified cables entries Type ADE can only be used for fixed installation. Certified cable entries Type AGRO can be used for flexible- and for fixed installation.

Routine tests

The transformer shall, before mounting into the apparatus, withstand per Clause 8.1.5 of EN 50 020 - 1994 without breakdown the application of 2500 V between the primary and secondary winding.

Routine tests according to Clause 16 of EN 50018 are not required since the type test has been made at a static pressure of four times the reference pressure.

(16) **Report**

KEMA No. 80892

(17) **Special conditions for safe use**

None

(18) **Essential Health and Safety Requirements**

Essential Health and Safety Requirements not covered by standards listed at (9)	
Clause	Subject
1.0.6	Instructions

These Essential Health and Safety Requirements are examined and positively judged. The results are laid down in the report listed at (16).

KEMA

(13) **SCHEDULE**

(14) **to EC-Type Examination Certificate KEMA 98ATEX0892 X**

(19) **Test documentation**

1. EC-Type Examination Certificate PTB 98ATEX1023 U
   KEMA 98ATEX0611 X
   Certificate of Conformity ISSeP 92.C.103.997
   LCIE 92.C6125 X

		signed
2. Description 65473-000-06-A4, Rev. 00 (11 pages)		05.05.1998
3. Drawing No. 65473-700-06-A4	)	
65473-000-33-A3	)	05.05.1998
65473-700-05-A3	)	
65473-000-05-A2		02.02.1998
65473-120-90-A3	)	
65473-120-95-A3	)	09.01.1998
65473-120-01	)	

4. Samples

KEMA
REGISTERED QUALITY

(1) EC-TYPE EXAMINATION CERTIFICATE

(2) Equipment or protective system intended for use in potentially explosive atmospheres - Directive 94/9/EC

(3) EC-Type Examination Certificate Number: **KEMA 98ATEX0611 X**

(4) Equipment or protective system: **Power Supply Type YPS02-Z..**

(5) Manufacturer: **Sartorius AG**

(6) Address: **Weender Landstraße 94-108, 37075 Göttingen, Germany**

(7) This equipment or protective system and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

(8) KEMA, notified body number 0344 in accordance with Article 9 of the Council Directive 94/9/EC of 23 March 1994, certifies that this equipment or protective system has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in confidential report no. 80611.

(9) Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN 50014 : 1992 + prA1 **EN 50020 : 1994**

(10) If the sign "X" is placed after the certificate number, it indicates that the equipment or protective system is subject to special conditions for safe use specified in the schedule to this certificate.

(11) This EC-Type Examination Certificate relates only to the design and construction of the specified equipment or protective system. If applicable, further requirements of this Directive apply to the manufacture and supply of this equipment or protective system.

(12) The marking of the equipment or protective system shall include the following:

Ex **II (2) G** **[EEx ib] IIC**

Arnhem, 18 May 1998
by order of the Board of Directors of N.V. KEMA

C.M. Boschloo
Certification Manager

N.V. KEMA
Utrechtseweg 310, 6812 AR Arnhem
P.O. Box 9035, 6800 ET Arnhem, The Netherlands
Telephone +31 26 3 56 27 46, Telefax +31 26 3 51 01 78

ACCREDITED BY
THE DUTCH COUNCIL
FOR ACCREDITATION

KEMA

(13) **SCHEDULE**

(14) **to EC-Type Examination Certificate KEMA 98ATEX0611 X**

(15) **Description**

The Power Supply Type YPS02-Z.. provides four independent intrinsically safe output channels for intrinsically safe scales. The Power Supply Type YPS02-Z.. is mounted in an enclosure providing a degree of ingress protection of IP 54. The maximum length of the interconnection cable
type LiYC-Y-CY 4 * 0.5 between the Power Supply and the scales is 50 m.

Ambient temperature range 0 °C ... +40 °C.

Electrical data

Main supply ..... non intrinsically safe circuit, suitable for connection to electrical equipment with working voltages up to 264 V.

Supply and input circuit ..... terminal (V_1, white)
in type of explosion protection intrinsic safety EEx ib IIC with following maximum values:

U_o = 12,6 V
I_o = 133 mA
P_o = 1,68 W

Maximum allowed external capacitance C_o = 1 μF
Maximum allowed external inductance L_o = 300 μH

Supply and input circuit ..... terminal (V_2, brown)
in type of explosion protection intrinsic safety EEx ib IIC with following maximum values:

U_o = 12,6 V
I_o = 133 mA
P_o = 1,68 W

Maximum allowed external capacitance C_o = 1 μF
Maximum allowed external inductance L_o = 300 μH

Supply and input circuit ..... terminal (V_3, green)
in type of explosion protection intrinsic safety EEx ib IIC with following maximum values:

U_o = 8,6 V
I_o = 187 mA
P_o = 1,61 W

Maximum allowed external capacitance C_o = 4 μF
Maximum allowed external inductance L_o = 300 μH

Supply and input circuit ..... terminal (V_4, yellow)
in type of explosion protection intrinsic safety EEx ib IIC with following maximum values:

U_o = 12,6 V
I_o = 150 mA
P_o = 1,89 W

Maximum allowed external capacitance C_o = 1 μF
Maximum allowed external inductance L_o = 300 μH

KEMA

(13) **SCHEDULE**

(14) **to EC-Type Examination Certificate KEMA 98ATEX0611 X**

(15) **Electrical data** (continued)

cable type LiYC-Y-CY 4 * 0.5 ..... Maximum cable capacitance C_{cable} = 28,2 nF
Maximum cable inductance L_{cable} = 8,4 μH
Maximum allowed cable length = 50 m

The intrinsically safe circuits are infallible galvanically isolated from the non-intrinsically safe circuits up to a sum of peak voltages of 375 V.

Installation instructions

The Power Supply Type YPS02-Z.. must be installed outside the hazardous area.

After installation of the Power Supply, all applicable separations shall meet the requirements per Clause 6.4 of EN 50 020 - 1994.

Inside the hazardous area, the power supply must be mounted in an enclosure which is suitable for this purpose. This combination shall be seperately investigated and certified.

Routine test

The transformer shall, before mounting into the apparatus, withstand per Clause 8.1.5 of EN 50 020 - 1994 without breakdown the application of 2500 V between the primary and secondary winding.

(16) **Report**

KEMA No. 80611

(17) **Special conditions for safe use**

None

(18) **Essential Health and Safety Requirements**

Essential Health and Safety Requirements not covered by standards listed at (9)	
Clause	Subject
1.0.6 b	Instructions

These Essential Health and Safety Requirements are examined and positively judged. The results are laid down in the report listed at (16).

KEMA

(13) **SCHEDULE**

(14) **to EC-Type Examination Certificate KEMA 98ATEX0611 X**

(19) **Test documentation**

1. Certificate of Conformity KEMA No. Ex-97.D.1279 X

	signed
2. Product Compliance Report ANNEX II, 65463-700-70-A4, Rev. 00	24.03.1998
3. Drawing No. 65463-000-34-A3	03.03.1998
4. Samples	

Physikalisch-Technische Bundesanstalt

Braunschweig und Berlin

(1) Production Quality Assessment Notification

(Translation)

(2) Equipment or protective systems or components intended for use in potentially explosive atmospheres - **Directive 94/9/EC**

(3) Notification Number: **PTB 97 ATEX Q021-1**

(4) Product group(s): Balances, load cells and power supply units in the determining types of protection "Intrinsic Safety" and "Flameproof Enclosure"

A list of the EC-Type Examination Certificates covered by this notification is held by the notified body.

(5) Applicant: Sartorius AG
Weender Landstraße 94-108, D-37075 Göttingen

(6) Actual manufacturer: Sartorius AG
Weender Landstraße 94-108, D-37075 Göttingen

(7) The Physikalisch-Technische Bundesanstalt (PTB), notified body No. 0102 for Annex IV in accordance with Article 9 of the Council Directive 94/9/EC of 23 March 1994 notifies to the applicant that the acutal manufacturer has a production quality system which complies to the Annex IV of the Directive.

(8) This notification is based on the confidential audit report No. 01QS003, issued the 2001-01-29. This notification is valid until 2003-12-18 and can be withdrawn if the actual manufacturer no longer satisfies to the requirements of Annex IV.

Results of periodical reassessment of the quality system are a part of this notification.

(9) According to Article 10 (1) of the Directive 94/9/EC the CE-Marking shall be followed by the identification number 0102 of PTB as the notified body which is involved in the production control stage.

Zertifizierungsstelle Explosionsschutz
By order

Braunschweig, January 29, 2001

Dr.-Ing. U. Johannsmeyer
Regierungsdirektor

Sheet 1/1

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

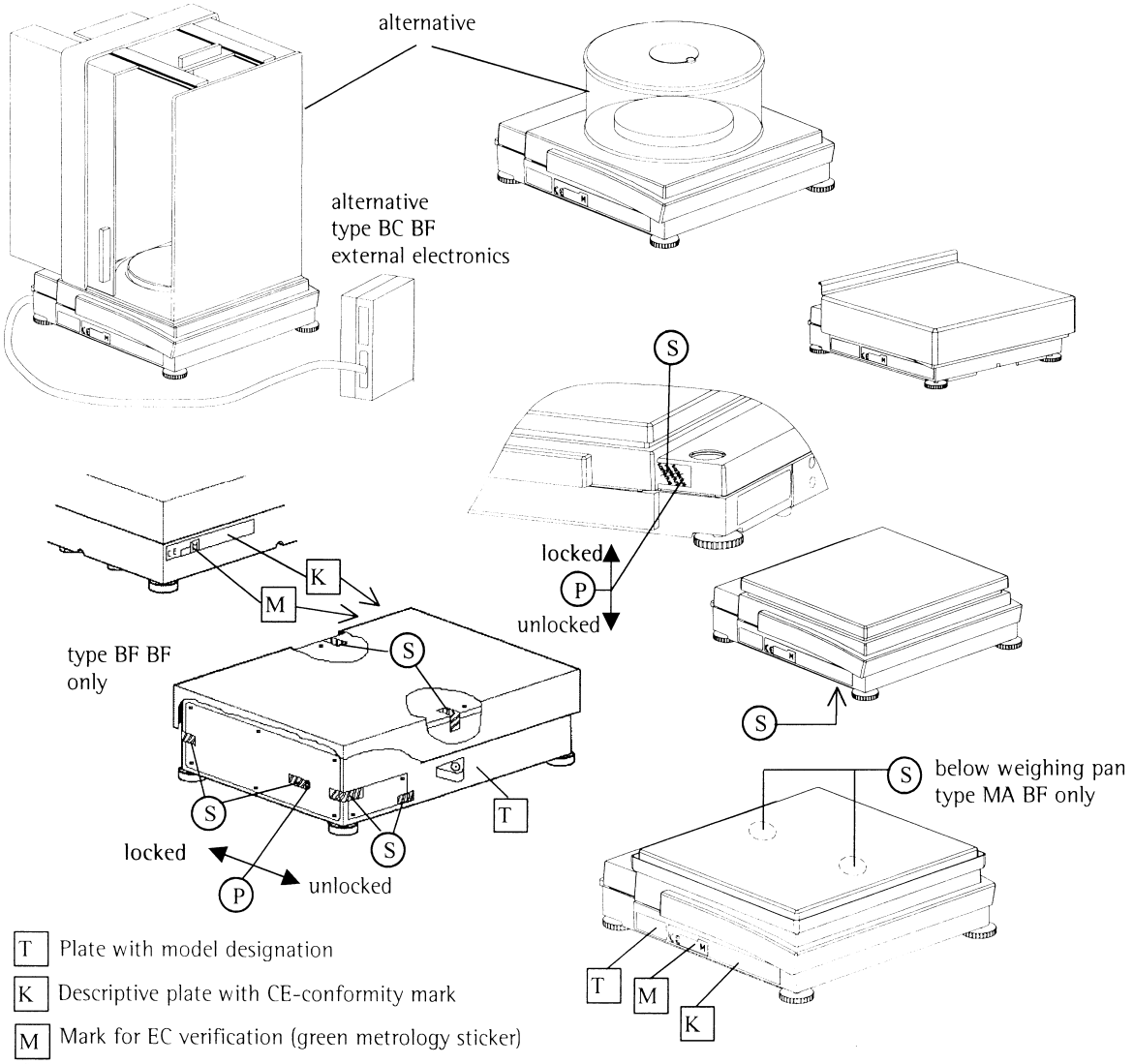
Braunschweig, 2001-10-09

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.

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 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

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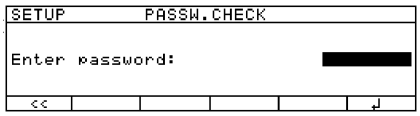
Entering the General Password

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 **v** 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 the **<<** soft key
- > Restart your application

Detach the General Password card at the perforations and store it in a secure location

General Password: 40414243

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