Operating Instruction

Sartorius Signum 1 | Signum 2 | Signum 3

Models SIWR | SIWA | SIWS
Complete Scales
Signum 1, 2 and 3 are precise and rugged complete scales that give you reliable weighing results.

The Signum Series of compact scales includes models with strain-gauge weighing systems as well as versions equipped with monolithic technology, using the principle of electromagnetic force compensation.

These compact industrial scales offer the following special features:

- Rugged and durable Sartorius quality
- Flexible options for display unit installation
- Wide range of configuration options for customized operation
- Variety of optional data interfaces
- Optional IP65 protection from dust and jets of water
- Optional versions for use in zone 2 and 22 hazardous areas
- High quality workmanship and materials
- Choice of application levels
- Available in weighing capacities between 3 kg and 60 kg; choice of resolutions available for each capacity
- Verifiable models in accuracy classes (SIWS) and (SIWR)
- Preload values can be defined (for equipment installed on the scale)

Additional features include:

- Large keys with positive click action
- Numeric and alphabetic input
- Large backlit 14-segment display
- Connectivity for two weighing platforms (digital platform or, using an optional A/D converter, analog platform)

Advantages in routine weighing tasks:

- Fast response times
- Independence from location of platform installation
- Designation of weight values with up to 4 lines of alphanumeric text
- Flexibility afforded by diversity of interfaces
- Security through password protection

Range of Models

Three different types of weighing technology are used in the Signum Series, offering different performance levels:

**Signum Regular (SIWR Models)**
- Standard weighing system (all SIWR models)
- Resolutions up to 35,000d
- Models verified at the factory for use in legal metrology, Class $\scriptstyle{\text{l}}$, with:
  - $2\times3000/3500e$ (dual range);
  - $1\times6000/7500e$ and $1\times3000e$ (single range)
- The single-range scales with variable scale intervals are available with your choice of fixed or adjustable fine range

**Signum Advanced (SIWA Models)**
- Mechatronic weighing system (all SIWA models)
- Resolutions up to 65,000d

**Signum Supreme (models SIWS)**
- Monolithic weighing system (all models SIWS)
- Resolutions up to 350,000d
- Models verified at the factory for use in legal metrology, Class $\scriptstyle{\text{K}}$, with:
  - $1\times30,000e$ (e=d); $1\times6000e$; $35,000e$ (single and dual range);
  - $16,000e$ (single and dual range, each with internal motorized calibration weight)
- The single-range scales with variable scale intervals are available with your choice of fixed or adjustable fine range

Signum Regular, Advanced and Supreme models are all available with applications levels 1, 2 and 3.

Symbols

The following symbols are used in these instructions:

- ▶ denotes general operating instructions
- ○ indicates instructions for exceptional cases
- ➤ describes the outcome of an operating step
- △ indicates a hazard

**For technical advice on applications, call the hotline at:**
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Appendix
General Password
**Warnings and Safety Precautions**

Sartorius Signum scales comply with the European Council Directives as well as international regulations and standards for electrical equipment, electromagnetic compatibility, and the stipulated safety requirements.

- **To prevent damage to the equipment,** read these installation instructions carefully before using your Sartorius Signum scale.

- **Do not use this equipment in hazardous areas.** If you use electrical equipment in installations and under ambient conditions subject to stricter safety standards than those described in the manual, you must comply with the provisions as specified in the applicable regulations for installation in your country.

- **The display and control unit may be opened only by authorized service technicians who have been trained by Sartorius and who follow Sartorius' standard operating procedures for maintenance and repair work.**

- **Make absolutely sure to unplug the display and control unit from power before you connect or disconnect any electronic peripheral devices to or from the interface port.**

- **On request, Sartorius will provide information on the minimum operating specifications (in accordance with the standards for defined immunity to interference).**

- **If the equipment is exposed to excessive electromagnetic interference, it can affect the value displayed. Once the disturbance has ceased, the instrument can be used again in accordance with its intended purpose.**

- **Connect only Sartorius accessories and options, as these are optimally designed for use with your Signum scale.**

- **Warning when using pre-wired RS-232 connecting cables:** RS-232 cables purchased from other manufacturers often have pin assignments that are incompatible with Sartorius products. Be sure to check the pin assignments against the chart in this manual before connecting the cable, and disconnect any lines identified differently from those specified by Sartorius.

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

- **Use only extension cords that meet the applicable standards and have a protective grounding conductor.**

- **Disconnecting the ground conductor is prohibited.**

- **Note on installation:** The operator shall be responsible for any modifications to Sartorius equipment and for connections of cables not supplied by Sartorius and must check and, if necessary, correct these modifications.

If Option L8 (24-volt module) for connection to low-voltage sources is used, be sure to comply with the requirements for safety extra low voltage (SELV) and protective extra low voltage (PELV).

**NOTE:**

- This equipment has been tested and found to comply with the limits pursuant to part 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with these instructions, may cause harmful interference to radio communications. For information on the specific limits and class of this equipment, please refer to the Declaration of Conformity. Depending on the particular class, you are either required or requested to correct the interference. If you have a Class A digital device, you need to comply with the FCC statement as follows:

  “Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.” If you have a Class B digital device, please read and follow the FCC information given below:

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

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

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

- **Do not expose the equipment to aggressive chemical vapors or to extreme temperatures, moisture, shocks, or vibration.**

- **Clean your Signum scale only in accordance with the cleaning instructions (see “Care and Maintenance”).**

- **If you have any problems with your Signum scale; contact your local Sartorius office, dealer or service center.**

**IP Rating**

**Industrial protection ratings for the housing:**

- **All models are rated to IP43 (if Option L8 was ordered; the equipment is rated to IP65).**

- **The IP43 (or optional IP65) protection rating for the display and control unit is ensured only if the rubber gasket is installed and all connections are fastened securely (including the caps on unused sockets). Weighing platforms and equipment must be installed and tested by a certified technician.**

- **If you install an interface port or battery connector after setting up your Signum, keep the protective cap(s) in a safe place to be used for protecting the interface port or battery connector when not in use, or prior to shipment.**

**Using the Equipment in Legal Metrology**

- **If the scale is to be verified, make sure to observe the applicable regulations regarding verification.**

- **If any of the verification seals are damaged, make sure to observe the national regulations and standards applicable in your country in such cases. In some countries, the equipment must be re-verified.**
Unpacking the Scale

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

Equipment Supplied
- Complete scale
- Operating instructions (this manual)
- Special accessories as listed on the bill of delivery, if ordered

Installation
Choose a location that is not subject to the following negative influences:
- Heat (heater or direct sunlight)
- Drafts from open windows and doors
- Extreme vibrations during weighing
- Excessive moisture

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

Equipment not in Use
Switch off the equipment when not in use.

Checking the Geographical Data Entered for Use in Legal Metrology (SIWR Models Only)

Preparation
(See also the “Device Information” menu items listed under “Operating Menu Overview” in the chapter entitled “Configuration.”)

- Press the [9] key to turn on the scale
- While all segments are lit, press the [1] key
  > APPL is displayed
- To select “Device-specific information,” press [Fn] repeatedly; press [T] to confirm
- To switch the display between information on weighing platform 1 and weighing platform 2, press [Fn] repeatedly; press [T] to confirm
  > View geographical data (configured prior to verification); for example:
  - Latitude (in degrees): 51.4
  - Altitude (in meters): 513
  - Gravitational acceleration (in m/s²):
    - 9.810

  The scale can be used in legal metrology anywhere in Germany if the geographical data is as follows:
  - Latitude: 51.00 degrees
  - Altitude: 513 m
  - Gravitational acceleration: 9.810 m/s²

  These values are calculated for Germany based on a mean value for the Earth’s acceleration. The greater the precision of the geographical data entered, the greater the precision achieved with the weighing instrument; the tolerance range, however, is restricted accordingly (see above).

  The tolerances ranges, for example for a scale with 3000e, are as follows:
  - ± 100 for the latitude, and
  - ± 200 for the elevation above sea level.

  If used outside the specified zone, the scale must be re-verified for use in legal metrology. Please contact an authorized service technician.
Getting Started

Installing the Display and Control Unit
The following options are available for installing the display and control unit:
– Attached to the front of the weighing platform
– On a column; part number YDH01P (optional)

Fastening the display and control unit to the weighing platform:
– Guide the display and control unit onto the retainer bracket.
– Level the weighing platform (see page 7).

Operating the display and control unit separately:
– Turn the weighing platform over and place it on a soft surface to avoid damaging the weighing system.
– Remove the display and control unit retainer bracket.
– Take the cable out of the cable channel.
– Turn the weighing platform right side up and place it so that it rests on its feet.
– Level the weighing platform (see page 8).

Installing the display and control unit on the YDH01P column:
– Turn the weighing platform over and place it on a soft surface to avoid damaging the weighing system.
– Remove the display and control unit retainer bracket.
– Take the cable out of the cable channel.

– Use the four hexagonal screws provided (M4×8) to attach the column to weighing platform (back panel facing downward).
– Turn the weighing platform right side up and place it so that it rests on its feet.
Loosen the two locking bolts at the top of the column to facilitate installation of the display and control unit.

Use the 6 hexagonal screws to attach the display and control unit to the top of the column.

Adjust the display and control unit to the desired angle and tighten the locking bolts at the top of the column.

A recessed space is provided in the scale base, accessed from the bottom of the scale, for any excess length of cable.

Guide the connecting cable along the channel on the bottom of the weighing platform.

Use the cable clamps provided to affix the cable that connects the display and control unit to the weighing platform to the bottom of the column.

Turn the weighing platform right side up and place it so that it rests on its feet.

Attach the cable retainer to affix the cable connecting the display and control unit to weighing platform to the back of the column.
Connecting the Scale to AC Power

- Check the voltage rating and the plug design.

The equipment is powered through the installed power cord. The power supply is built into display and control unit, which can be operated with a supply voltage of 100 V to 240 V. Make sure that the voltage rating printed on the manufacturer’s ID label is identical to that of your local line voltage. If the voltage specified on the label or the plug design of the AC adapter do not match the rating or standard you use, please contact your Sartorius office or dealer. The power connection must be made in accordance with the regulations applicable in your country.

To power a device of protection class 1, plug the power cord into an electrical outlet (mains supply) that is properly installed with a protective grounding conductor (protective earth = PE). The power plug or a different, suitable disconnecting device for the power must be easily accessible.

Safety Precautions

If you use an electrical outlet that does not have a protective grounding conductor, make sure to have an equivalent protective conductor installed by a certified electrician as specified in the applicable regulations for installation in your country. Make sure the protective grounding effect is not neutralized by use of an extension cord that lacks a protective grounding conductor.

Warmup Time

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

Using Equipment Verified as Legal Measuring Instruments in the EU*: Make sure to allow the equipment to warm up for at least 24 hours after initial connection to AC power or after a relatively long power outage.

Connecting a Bar Code Scanner (Accessory; Order No. YBR02FC)

- Disconnect the display and control unit from AC power (unplug the AC adapter)

- Installation: please see “Pin Assignment Charts” in this manual (implemented via the YCC02-BR02 connecting cable or as Option M8)

Leveling the Weighing Platform

Purpose:
- To compensate for uneven areas at the place of installation
- To ensure that the equipment is placed in a perfectly horizontal position for consistently reproducible weighing results

Always level the weighing platform again any time after it has been moved to a different location.

- Level the weighing platform using the four leveling feet. Turn the feet until the air bubble is centered in the level indicator.
- Check to ensure that all leveling feet rest securely on the work surface.
  > Each of the leveling feet must support an equal load.
  > Adjusting the leveling feet:
    To raise the weighing platform, extend the leveling feet (turn counterclockwise).
    To lower the weighing platform, retract the leveling feet (turn clockwise).
General View of the Equipment

Display and Keypad

1. Display (for details, see the chapter entitled “Operating Design”)
2. On/off key
3. Toggle key (toggle display between weighing platforms)
4. Zero key
5. Tare key
6. Function key (toggle between gross and net values)
7. Start calibration or adjustment
8. Print key (data output)
9. Toggle unit between normal and 10-fold higher resolution
10. View gross value (net value plus tare)
11. Save data
12. ID key (for entering operator ID)
13. Alphanumeric keypad
14. Toggle between application program and application-specific information
15. Info key (shows ID codes and tare values)
16. Toggle key (function depends on application)
17. OK key (function depends on application)
18. Reference value key (function depends on application)
19. Clear function key (function depends on active application)

Back Panel

20. RS-232C interface (COM1) (standard equipment)
21. Power cord connection
Keys
Operation of the Signum 1, Signum 2 or Signum 3 scale involves just a few keys. These keys have one function during measurement and another during configuration. Some of the keys have one function when pressed briefly, and another activated by pressing and holding the key for longer than 2 seconds.

If a key is inactive, this is indicated as follows when it is pressed:
- The error code “———” is displayed for 2 seconds. The display then returns to the previous screen content.

You can use Signum 2 or 3 to collect weight values from two weighing platforms, calculate and display weight values using application programs, and assign IDs to the samples weighed.

Configure the display and control unit first, using the operating menu to prepare the desired application program (printer settings, etc.). Then you can begin weighing.

Operating Design

Input

Keypad Input
Labeled Keys
Some keys have a second function, activated by pressing and holding the key for over two seconds. Whether a function is available depends on the operating state and operating menu settings.

On/off
(in standby mode, OFF is displayed).

Signum 2 and 3 only:
If a second weighing platform is connected, this key toggles the display between the two readouts.

- Zero the scale
- Cancel calibration/adjustment

Tare the scale

Toggle between 1st and 2nd weight unit, or gross and net values, or normal and 10-fold higher resolution, depending on operating menu settings (depends on model)

Start calibration or adjustment

- To print: press briefly.
- To print GMP footer: Press and hold (> 2 seconds)

Signum 3 only:
To toggle the scale to Info mode

Signum 3 only:
ID key (for entering operator ID)

Signum 2 and 3 only:
Toggle unit between normal and 10-fold higher resolution

Signum 2 and 3 only:
Net-gross value key

Signum 2 and 3 only:
Toggle between display modes within an application program

Signum 2 and 3 only:
Lets you modify reference values

Signum 2 and 3 only:
Saves a value or starts an application program

Signum 3 only:
Saves a value in product data memory

Signum 3 only:
Toggle applications
Signum 2 and 3 only:
Press to view either application data or manual tare values, depending on the key pressed subsequently (e.g., `CTRL`)

Signum 2 and 3 only:
- Quit an application or delete an input character

Signum 3 only:
0, 1, 2 ... 9
Enter numbers, letters and other characters

Numeric Input via the Keypad (Signum 3 Only)
- To enter numbers (one digit at a time): Press 0, 1, 2 ... 9
- To save input: Press the required key (e.g., `CTRL`) to save manual tare input
- To delete a digit: Press `CF`

Loading a Tare Value from the Weighing Platform
To save the weight on the weighing platform as a tare weight: Press the `CTRL` key

Input Through the Digital Control Port
You can connect a remote hand switch or foot switch to the input control line, for use with all application programs. Assign one of the following functions to this switch in the Setup menu, under Device parameters - Control input (CTRL IO):

CTRL IO
CTRL INP
8
8.4 Universal IN
...
CTRL OUT

For a detailed list of menu items, please see the chapter entitled "Configuration."

Input over the ASCII Port
See page 86, “Data Input Format.”

Input using a Bar Code Scanner or External Keyboard
Input over a bar code scanner or keyboard is handled by the Signum in the same manner as keypad input:
- Weight values for tare memory
- Reference weight values for the Counting, Neutral Measurement and Weighing in Percent applications
- Numeric values
- Product identifiers

Signum 2 and 3 only:
Bar code scanner input can trigger a function or load information for display on the display and control unit. You can configure this option in the operating menu under BARCODE.

1) Value stored directly:
   - REF
   - TARE
   - ID1

2) INPUT:
   Scan bar code and then press the corresponding key

3) HEADER:
   Allocation of the first value is encoded in the bar code:
   - REF
   - TARE
   - ID1-4
   Coding available on request.
Display Modes

There are two display modes:
- Normal operation (weighing mode)
- Operating menu (for configuration).

Weighing Mode: Display of Measured and Calculated Values

Application, printing and battery symbols:
The application symbol indicates the selected program; for example:
- Counting application.
- Printing mode active
- GMP printing mode active

The battery symbol indicates the charge level of the external rechargeable battery.

Bar graph:
The bar graph shows the percentage of the weighing platform’s capacity that is “used up” by the load on the scale (gross value).

Measured value/result line:
This field shows weight values, calculated values and input characters.

Unit and stability:
When the weighing system reaches stability, the weight unit or the unit for a calculated value is displayed here.

Tare in memory, calculated values:
The following symbols may be displayed here:
- Calculated value (not valid in legal-for-trade applications)
- Net value (gross value minus tare)
- Gross value (net value plus tare)

The following symbols indicate tolerance levels for Checkweighing:
- Bar graph with 10% markings
- Minimum
- Target
- Maximum

Plus/minus sign:
- for weight value or calculated value,
- zero-setting symbol: when the weighing platform is zeroed or tared, indicates that the deviation from zero is no more than 0.25e (verified models only).

Data in tare memory, calculated values, designation of the active weighing platform:
- Identification of manual tare input (using a bar code scanner) when viewing tare information
- Display of the active weighing platform when 2 platforms are connected.
- Symbol flashes to prompt adjustment of the weighing platform, if the isoCAL function is active

Application symbols:
For input and display of detailed information; e.g., for the selected application.
- Counting
- Weighing in Percent
- Averaging (Animal Weighing)
- Checkweighing
- Classification
- Checkweighing toward Zero
- Totalizing
- Net-total Formulation
Display in Weighing Mode
The illustration above depicts all of the main display elements and symbols that can be shown during weighing.

1. Bar graph
   - Shows the percentage of the weighing platform’s capacity that is “used up” by the load on the scale (gross value), or
   - Shows the measured value in relation to a target value (with the Checkweighing or Classification application)

2. Printing in progress

3. Display of the range on multiple-range instruments

4. Indicates active weighing platform; flashes to prompt calibration/adjustment

5. Selected weighing platform (1 or 2)

6. Indicates whether the value on the main display is net or gross (with tare in memory or preset tare)

7. Identifies the value on the main display as calculated (value not valid in legal metrology)

8. Battery symbol showing status of rechargeable battery (empty outline indicates battery is drained)

9. GMP-compliant printing in progress (Signum 2 and 3 only)

10. Weight unit of the value displayed

Signum 2 and 3 only:
11. Numeric display; e.g., showing reference value

Signum 2 and 3 only:
12. Symbol indicating data transfer:
   - Interface initialized
   - Flashes during data transfer

13. Symbol for product data memory

14. In legal metrology, on equipment with \( e > d \), the digit shown with a border is \( d < e \).

15. Auto or opt (Signum 2 and 3 only):
   - Auto: Depending on the weight value, a reaction is triggered in the application
   - Opt: Reference sample value is being updated (optimized) automatically (Counting application)

16. Weight value or calculated value (main display)

17. Application symbols for applications in Signum 2 and 3:

   Application 1:
   - \( \Delta \) Counting
   - \( \% \) Weighing in Percent
   - \( \odot \) Averaging (Animal Weighing)

   Application 2:
   - \( \checkmark \) Checkweighing
   - \( \triangleright \) Classification

   Application 3:
   - \( \Sigma \) Totalizing
   - \( \bowtie \) Net-total Formulation

   Verified models only:
18. The zero-setting symbol is displayed after the active scale or weighing platform has been zeroed (indicates that the deviation from zero is equal or less than 0.25 \( e \))

19. Plus or minus sign for the value displayed

20. Busy symbol; indicates that an internal process is in progress

Saving Data in Weighing Mode
All of the application parameters saved (e.g., reference values) remain in memory and are still available after:
- the Signum has been switched off
- you return to the originally selected application from a second one (e.g., when you switch from Averaging back to Counting, all parameters saved for Counting are available)
**Configuration (Operating Menu)**

The keys below the readout let you navigate the menu and define parameters for configuration.

**Opening the Menu**
Press the e key to switch the Signum off and then on again; while all segments are displayed, press the key briefly.

**Navigating the Menu**
- Press briefly:
  - Close the active submenu and return to the next higher menu level ("back")
  - Press briefly: Select and save a menu item
  - Press and hold (> 2 seconds): Exit the menu
- Press briefly:
  - Show the next item on the same menu level (the display scrolls through all items in series)
- Press briefly:
  - Print the menu settings starting from the current position, or print Info data
- Press briefly:
  - Confirm currently active character and move 1 position to the right (after the last character: save input)
  - Press and hold (> 2 seconds): Exit the input mode without saving changes
- Press briefly:
  - Activate character to the left of the currently active character (when first character is active: exit the input mode without saving changes)
- Press briefly:
  - Change the displayed character; scroll forward (sequence: 0 through 9, decimal point, minus sign, A through Z, space)
- Press briefly:
  - Change the displayed character; scroll backwards (sequence: Space, Z through A, minus sign, decimal point, 9 through 0)

**Alphanumeric Input in the Menu**
- Cursor in first position, no characters entered yet: Delete entire string and enter 0
- Change the displayed character; scroll forward (sequence: 0 through 9, decimal point, minus sign, A through Z, space)

**Numeric Input in Signum 3 operating menu:**
Enter values (date and time, etc.) using the 10-key numeric keypad.

**Saving Menu Settings**
The parameters selected in the operating menu remain saved after you switch off the Signum. You can prevent unauthorized changes in operating menu settings by requiring password input for menu access.
Errors

- If a key is inactive, “—-” or “No function” is displayed briefly (2 seconds) and an acoustic signal (double-beep) is emitted.

- Temporary errors are displayed for 2 seconds in the measured value/result line (e.g., INF 09); fatal errors (e.g., ERR 101) can be cleared by switching the scale off and then on again.

Error codes are described in detail under “Error Codes” on page 91.

Data Output

Printer
You can connect two strip or label printers to Signum 1, 2 or 3, and have printouts generated at the press of a key or automatically. Printout formats are user-definable. You can also configure separate summarized printouts, and print a list of the active menu settings. See “Configuring Printouts” on page 82 for details.

Digital Input/Output Interface + Optional I/O

The digital I/O interface is supported by the Checkweighing and Classification applications.

Checkweighing
The output device has a number of control functions. Four data outputs transfer signals for “less than,” “equal to,” “greater” and “set.” You can define whether the outputs are always active or are activated only at stability, only within the checkweighing range, only within the checkweighing range at stability, or switched off.

Classification
Four data outputs transfer information on the class of the load (Class 1, 2, 3, 4 or 5) and indicate when the minimum load is exceeded (Set). You can define whether the outputs are always active, activated only at stability, or off. For details, see “Classification” on page 66.

COM Port

You can define a number of parameters for this SBI and SMA interface (print command, time-dependent autoprint, ID codes). See “Interface Port” on page 80 for details.

Backup

Application parameters (such as reference values) are saved when you change application programs or switch off the Signum. You can assign a password to prevent unauthorized users from changing settings in the “Device parameters” menu under:

```
[SETUP]
[--- PASSWORD]
```

See also page 18.
You can configure the Signum by selecting parameters in the operating menu. The parameters are combined in the following groups (this is the first menu level):

- Application parameters
- Fn key function
- Device parameters
- Device-specific information ("INFO")
- Language

When used in legal metrology, not all parameters can be accessed.

Factory-set parameters are identified by an "*" in the list starting on page 19.

You can choose from five languages for the display of information:
- German
- English (factory setting)
- English with U.S. date/time format
- French
- Italian
- Spanish

**Printing parameter settings:**

- Open the operating menu and press the \( P \) key

Scope of printout:

- Depends on the active menu level

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### Setting the Language

**Example:** Selecting “U.S. Mode” for the language

1. **Switch on the scale**
2. **While all segments are lit, press the \( \text{–} \text{–} \) key**
3. **The first item in the main menu is shown:** APPL
4. **Switch to the LANG. menu item (press \( \text{fn} \) repeatedly until LANG. is shown)**
5. **Select LANG. to open the submenu for setting the language**
6. **The currently active language setting is shown**
7. **Press \( \text{fn} \) repeatedly until **U.S. MODE** is displayed**
8. **Confirm this menu item**
9. **Exit this menu level and configure other settings as desired, or**
10. **Exit the operating menu**
Configuring a Password

Example:
Assign a password (in this example, AB2) to protect the application program settings APPL and the device parameters SETUP from unauthorized changes

1. Switch on the Signum

2. While all segments are lit, press \( \text{[up]} \)
   
   The first item in the main menu is shown: APPL

3. Select the SETUP menu item (press \( \text{[fn]} \) repeatedly until SETUP is displayed)

4. Open the SETUP menu

5. Select the PASSWORD menu item (press \( \text{[fn]} \) repeatedly until PASSWORD is displayed)

6. Open the PASSWORD menu

7. Enter the first character using the \( \text{[up]} \) and \( \text{[fn]} \) keys (in this example: A symbol is shown on the readout)

8. Save the character

9. Enter the second character using the \( \text{[up]} \) and \( \text{[fn]} \) keys (in this example: B)

10. Save the character

11. Enter the third character using the \( \text{[up]} \) and \( \text{[fn]} \) keys (in this example: 2)

12. Save the password

13. Exit this menu level to configure other menu settings, or

14. Exit the operating menu (press and hold the \( \text{[up]} \) key)

To delete a password:
Overwrite the old password with the new password, or enter a space as the password and press \( \text{[up]} \) to confirm
## Configuration

### Operating Menu Overview

You can configure the Signum to meet individual requirements by entering user data and setting selected parameters in the operating menu.

Menu levels are identified by texts, and numeric codes identify the individual settings.

- **= Setting/function available in Signum 1 only**
- **= Setting/function available in Signum 2 and 3 only**

<table>
<thead>
<tr>
<th>1st level</th>
<th>2nd level</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>APPL</strong></td>
<td></td>
<td>Select and configure application programs</td>
</tr>
<tr>
<td><strong>WEIG.</strong></td>
<td></td>
<td>Basic weighing function</td>
</tr>
<tr>
<td><strong>COUNT.</strong></td>
<td></td>
<td>Counting</td>
</tr>
<tr>
<td><strong>NEUTR.M</strong></td>
<td></td>
<td>Neutral measurement</td>
</tr>
<tr>
<td><strong>ANIM.WG</strong></td>
<td></td>
<td>Averaging (animal weighing)</td>
</tr>
<tr>
<td><strong>CHECK.WG</strong></td>
<td></td>
<td>Checkweighing</td>
</tr>
<tr>
<td><strong>CLSS.</strong></td>
<td></td>
<td>Classification</td>
</tr>
<tr>
<td><strong>PERC.WG</strong></td>
<td></td>
<td>Weighing in percent</td>
</tr>
<tr>
<td><strong>NET TOT</strong></td>
<td></td>
<td>Net-total formulation</td>
</tr>
<tr>
<td><strong>TOTALIZ</strong></td>
<td></td>
<td>Totalizing</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>FN-KEY</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>OFF</strong></td>
</tr>
<tr>
<td><strong>GR/NET</strong></td>
</tr>
<tr>
<td><strong>2UNIT</strong></td>
</tr>
<tr>
<td><strong>RES MIN</strong></td>
</tr>
<tr>
<td><strong>SQMIN</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SETUP</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>WP1</strong></td>
</tr>
<tr>
<td><strong>COM1</strong></td>
</tr>
<tr>
<td><strong>UNICOM</strong></td>
</tr>
<tr>
<td><strong>COMSPEC</strong></td>
</tr>
<tr>
<td><strong>CTRL 10</strong></td>
</tr>
<tr>
<td><strong>BARCODE</strong></td>
</tr>
<tr>
<td><strong>PRINT</strong></td>
</tr>
<tr>
<td><strong>UTILN</strong></td>
</tr>
<tr>
<td><strong>TIME</strong></td>
</tr>
<tr>
<td><strong>DATE</strong></td>
</tr>
<tr>
<td><strong>PASSWORD</strong></td>
</tr>
</tbody>
</table>
| **SQMIN** | User options:  
- Display minimum permissible sample quantity  
- Include SQmin in GLP printout |

<table>
<thead>
<tr>
<th>INFO</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>LANG</strong></td>
</tr>
<tr>
<td><strong>DEUTSCH</strong></td>
</tr>
<tr>
<td><strong>ENGLISH</strong></td>
</tr>
<tr>
<td><strong>U.S. MODE</strong></td>
</tr>
<tr>
<td><strong>ITALIAN</strong></td>
</tr>
<tr>
<td><strong>SPANISH</strong></td>
</tr>
<tr>
<td><strong>ESPANOL</strong></td>
</tr>
<tr>
<td><strong>ITALIAN</strong></td>
</tr>
<tr>
<td><strong>SPANISH</strong></td>
</tr>
</tbody>
</table>
Operating Menu

= Setting/function available in Signum 1 only
= Setting/function available in Signum 2 and Signum 3 only

* Factory setting

Menu

** Menu level used in Signum 3 only

Application programs

Basic Weighing Function

Minimum load for automatic taring and automatic printing
1 digit
2 digits
5 digits
10 digits
20 digits
50 digits
100 digits
200 digits
500 digits
1000 digits

Automatic taring: first weight tared
Off
On

Factory settings for all application programs
Yes
No

Counting

Minimum load for initialization
1 digit
2 digits
5 digits
10 digits
20 digits
50 digits
100 digits
200 digits
500 digits
1000 digits

Resolution for calculation of reference value
Display resolution
Display resolution + 1 decimal place
Display resolution + 2 decimal places
Internal resolution

Parameter for saving weight ("storage parameter")
At stability
At increased stability

Reference sample updating ("APW update")
Off
Automatic

Reference weighing instrument
No reference instrument selected
Weighing platform WP 1
Weighing platform WP 2
### Neutral Measurement

- **Minimum load for initialization**
  - Numeric menu as for Counting

#### Resolution for calculation of reference value

- **Display resolution**
- **Display resolution + 1 decimal place**
- **Display resolution + 2 decimal places**
- **Internal resolution**

#### Decimal places in displayed result

- **None**
- **1 decimal place**
- **2 decimal places**
- **3 decimal places**

#### Parameter for saving weight

- **At stability**
- **At increased stability**

#### Reference weighing instrument

- **Off**
- **To weighing platform WP1**
- **To weighing platform WP2**

### Averaging (Animal Weighing)

- **Minimum load for automatic start**
  - Numeric menu as for Counting

#### Start of averaging routine

- **Manual**
- **Automatic**

#### Averaging

- **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**
- **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**

#### Automatic printout of results

- **Off**
- **On**

#### Static display of result after load removed

- **Display is static until unload threshold reached**
- **Display is static until [CF] is pressed**

---

* Factory setting
** Menu level used in Signum 3 only
### Weighing in Percent

- **3.6.** Minimum load for saving initialization
  - Numeric menu as for Counting

- **3.9.** Resolution for calculation of reference value
  - **3.9.1** Display resolution
  - **3.9.2** Display resolution + 1 decimal place
  - **3.9.3** Display resolution + 2 decimal places
  - **3.9.4** Internal resolution

- **3.10.** Decimal places in displayed result
  - **3.10.1** None
  - **3.10.2** 1 decimal place
  - **3.10.3** 2 decimal places
  - **3.10.4** 3 decimal places

- **3.11.** Parameter for saving weight
  - **3.11.1** At stability
  - **3.11.2** At increased stability

- **3.13.** Reference weighing instrument
  - **3.13.1** Off
  - **3.13.2** To weighing platform WP1
  - **3.13.3** To weighing platform WP2

- **3.15.** Display of calculated value
  - **3.15.1** Residue
  - **3.15.2** Loss

### Checkweighing

- **4.2.** Checkweighing range
  - **4.2.1** 30 to 170%
  - **4.2.2** 10% to infinity

- **4.3.** Activate control line for “Set” as:
  - **4.3.1** “Set” output
  - **4.3.2** Ready to operate (for process control systems)

- **4.4.** Activation of outputs
  - **4.4.1** Off
  - **4.4.2** Always active
  - **4.4.3** Active at stability
  - **4.4.4** Active within checkweighing range
  - **4.4.5** Active at stability within the checkweighing range

- **4.5.** Parameter input
  - **4.5.1** Min, max, target
  - **4.5.2** Only target with percent limits

- **4.6.** Automatic printing
  - **4.6.1** Off
  - **4.6.2** On

- **4.7.** Checkweighing toward zero
  - **4.7.1** Off
  - **4.7.2** On

---

* Factory setting
** Menu level used in Signum 3 only
Classification

Minimum load for initialization and defining the class 1 lower limit
- 1 digit
- 2 digits
- 5 digits
- 10 digits
- 20 digits
- 50 digits
- 100 digits
- 200 digits
- 500 digits
- 1000 digits

Activate control line for "Set" as:
- "Set" output
- Ready to operate (for process control systems)

Activation of outputs
- Off
- Always active
- Active at stability

Number of classes
- 3 classes
- 5 classes

Parameter input
- Weight values
- Percentage

Automatic printing
- Off
- On

Net-total Formulation (Second Tare Memory)

Minimum load for automatically saving/transferring values

Printout when value is saved in totalizing memory
- Automatic printout of results off
- Generate printout with complete standard configuration each time OK is pressed
- Generate printout with complete standard configuration only once when OK is pressed

Totalizing

Minimum load for automatically saving/transferring values

Values saved automatically
- Off
- On

Printout when value is saved in totalizing memory
- Automatic printout of results off
- Individual of transaction by pressing OK
- Print components of transaction by pressing OK

Source of data for values saved automatically
- Application 1
- Application 2

Value(s) to be saved
- Net
- Calculated
- Net and calculated

* Factory setting
** Menu level used in Signum 3 only
3.7. Autom. taring: first weight tared
   - 3.7.1* Off
   - 3.7.2 On

3.7.1* Off
3.7.2 On

3.5. Minimum load for automatic taring and automatic printing
   - 3.5.1 * 1 digit
   - 3.5.2 2 digits
   - 3.5.3 5 digits
   - 3.5.4 10 digits
   - 3.5.5 20 digits
   - 3.5.6 50 digits
   - 3.5.7 100 digits
   - 3.5.8 200 digits
   - 3.5.9 500 digits
   - 3.5.10 1000 digits

3.8. Start application with most recent application data when Signum is switched on
   - 3.8.1 Automatic (on)
   - 3.8.2* Manual (off)

3.24. Selective deleting with the \textit{cf} key
   - 3.24.1* Clear all application data
   - 3.24.2 Clear only selected applications

3.25. Tare function
   - 3.25.1 Add input value (weight value) for taring
   - 3.25.2 Tare value can be overwritten

9.1. Factory settings for all application programs
   - 9.1.1 Yes
   - 9.1.2* No

\begin{itemize}
  \item \textbf{Fn} Key Assignment
  - No \textit{Fn} key function
  - Signum 1 only: Gross/net toggling
  - Show 2nd Weight unit
  - Signum 1 only: 10-fold increased resolution Display: max. 10 seconds
  - Show the minimum permissible sample quantity
\end{itemize}

* Factory setting
Configuration

Device Parameters
Password prompt displayed if a password is configured

Weighing platform 1
(Display designation of this menu level: WP-1)

Adapt weighing instrument to ambient conditions (adapt filter)
Very stable conditions
Stable conditions
Unstable conditions
Very unstable conditions

Application filter
Final readout
Filling mode
Low filtering
Without filtering

Stability range
\( \frac{1}{4} \) digit
\( \frac{1}{2} \) digit
1 digit\(^1\)
2 digits\(^1\)
4 digits\(^1\)
8 digits\(^1\)

Stability symbol delay
No delay
Short delay
Average delay
Long delay

Taring\(^1\)
Without stability
After stability

Auto zero
On
Off

Weight Unit 1\(^2\)
Grams / o
Grams / g
Kilograms / kg
Carats / ct\(^1\)
Pounds / lb\(^1\)
Ounces / oz\(^1\)
Troy ounces / ozt\(^1\)
Hong Kong taels / tlh\(^1\)
Singapore taels / tls\(^1\)
Taiwanese taels / tlt\(^1\)
Grains / GN\(^1\)
Pennyweights / dwt\(^1\)
Parts per pound / lb\(^1\)
Chinese taels / tlc\(^1\)
Mommes / mom\(^1\)
Austrian carats / k\(^1\)
Tola / tol\(^1\)
Baht / bat\(^1\)
Mesghal / MS\(^1\)
Tons / t
Pounds:ounces (lb:oz)

Display accuracy 1
All digits
Reduced by 1 decimal place for load change
10-fold increased resolution
Resolution increased by 2 scale intervals (e.g., 5 g to 1 g)
Resolution increased by 1 scale interval (e.g., from 2 g to 1 g or from 10 g to 5 g)

---

\(^1\) Not available on instruments verified for use in legal metrology
\(^2\) Depends on weighing platform model
* Factory setting
Calibration and adjustment
External calibration/adjustment; default weight
External calibration/adjustment; weight can be selected under menu item 1.18.1
Internal calibration/adjustment (models with built-in motorized calibration weight only)
Set preload
Clear preload
No function when you press the key

Calibration/adjustment sequence
Calibration with automatic adjustment
Calibration with adjustment triggered manually

Zero-setting range
1 percent/max. cap.
2 percent/max. cap.
5 percent/max.cap. (setting depends on model)

Tare/zero at power on
On
Off, load previous tare value
Only zero at power on

Calibration prompt
Off
Calibration prompt (W) flashes on the display

External calibration/adjustment
Accessible
Blocked

Calibration weight unit
Grams
Kilograms
Pounds

Enter calibration weight
External user-defined weight (enter value; e.g.: 10,000 kg)

Weight unit
Grams / o
Grams / g
Kilograms / kg
Carats /ct
Pounds /lb
Ounces /oz
Troy ounces / ozt
Hong Kong taels / tlt
Singapore taels / tls
Taiwanese taels / tl
Grains / GN
Pennyweights / dwt
Parts per pound / lb
Chinese taels / tlc
Mommes / mom
Austrian carats /k
Tola / tol
Baht / bat
Mesghal / MS
Tons / t
Pounds:ounces (lb:oz)

Display accuracy
All digits
Reduced by 1 decimal place for load change
10-fold increased resolution
Resolution increased by 2 scale intervals (e.g., 5 g to 1 g)
Resolution increased by 1 scale interval (e.g., from 2 g to 1 g or from 10 g to 5 g)

Weight unit (settings as for 3.1, "Weight unit 2")

Display accuracy (settings as for 3.2, "Display accuracy 2")

Restore factory settings in WP1 numeric menu
Yes
No

1) = Not available on instruments verified for use in legal metrology
2) = Factory setting on instrument verified for use in legal metrology
3) = Menu depends on weighing platform model
* = Factory setting
### Configuration

#### Setup

<table>
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<tr>
<th>Interface port 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Display designation of this menu level: 2)</td>
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<tr>
<td>Off</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Weighing platform 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>RS-232</td>
</tr>
<tr>
<td>SBI standard version</td>
</tr>
<tr>
<td>SBI trade version (for legal metrology)</td>
</tr>
<tr>
<td>XBPI-232</td>
</tr>
</tbody>
</table>

#### Calibration and adjustment

- External calibration/adjustment; default weight
- External calibration/adjustment; weight can be selected under menu item 1.18.1
- Internal calibration/adjustment
- No function when you press and hold [J] > 2 sec

#### Data protocol

- **SBI: standard version**

<table>
<thead>
<tr>
<th>Baud rate</th>
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</thead>
<tbody>
<tr>
<td>150 baud</td>
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<tr>
<td>300 baud</td>
</tr>
<tr>
<td>600 baud</td>
</tr>
<tr>
<td>1200 baud</td>
</tr>
<tr>
<td>2400 baud</td>
</tr>
<tr>
<td>4800 baud</td>
</tr>
<tr>
<td>9600 baud</td>
</tr>
<tr>
<td>19,200 baud</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Parity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Space</td>
</tr>
<tr>
<td>Odd</td>
</tr>
<tr>
<td>Even</td>
</tr>
<tr>
<td>None</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Number of stop bits</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 stop bit</td>
</tr>
<tr>
<td>2 stop bits</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Handshake mode</th>
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</thead>
<tbody>
<tr>
<td>Software handshake</td>
</tr>
<tr>
<td>Hardware handshake, 1 character after CTS</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Number of data bits</th>
</tr>
</thead>
<tbody>
<tr>
<td>7 data bits</td>
</tr>
<tr>
<td>8 data bits</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Data output: manual/automatic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manual without stability</td>
</tr>
<tr>
<td>Manual after stability</td>
</tr>
<tr>
<td>Automatic without stability</td>
</tr>
<tr>
<td>Automatic with stability</td>
</tr>
<tr>
<td>Protocol for computer (PC)</td>
</tr>
</tbody>
</table>

---

1) Menu depends on weighing platform model
2) not with setting 5.6.1 (7 bits)
3) not with setting 5.6.2 (8 bits)

* Factory setting
**Time-dependent automatic data output**
1 display update
2 display updates
10 display updates
100 display updates

**Data output: line format for printout**
For raw data: 16 characters
For other applications: 22 characters

**Restore factory settings in numeric menu COM1: SBI**
Yes
No

**XBPI-232**
SMA interface function

**Baud rate**
- 150 baud
- 300 baud
- 600 baud
- 1200 baud
- 2400 baud
- 4800 baud
- 9600 baud
- 19,200 baud

**Printer configuration**

**YDPO11S**
- Strip printer
- Label printer
- Label printer with manual feed

**YDPO2 variants**

**Baud rate**
- 1200 baud
- 2400 baud
- 4800 baud
- 9600 baud

**Parity**
- Space
- Odd
- Even

**Number of stop bits**
- 1 stop bit
- 2 stop bits

**Handshake mode**
- Software handshake
- Hardware handshake, 1 character after CTS

**YDPO3-0CE**

**Baud rate**
- 1200 baud
- 2400 baud
- 4800 baud
- 9600 baud
- 19,200 baud

**YDPO2IS**
- Strip printer
- Label printer

* Factory setting
**Universal interface**

**Baud rate**
- 150 baud
- 300 baud
- 600 baud
- 1200 baud
- 2400 baud
- 4800 baud
- 9600 baud
- 19,200 baud

**Parity**
- Space\(^1\)
- Odd
- Even
- None\(^2\)

**Number of stop bits**
- 1 stop bit
- 2 stop bits

**Handshake mode**
- Software handshake
- Hardware handshake, 1 character after CTS

**Number of data bits**
- 7 data bits
- 8 data bits

**YDP04IS**
- Strip printer
- Label printer
- Label printer with manual feed

**YAM01IS**
- as electronic memory for print data

**Memory**
- **YAM01IS**
- **OFF**

---

1) not with setting 5.6.2 (8 bit)
2) not with setting 5.6.1 (7 bits)
* Factory setting
Configuration

Interface port 2 (Optional)
(Display designation of this menu level: 3)

Off

Weighing platform 2
RS-232
SBI standard version
SBI trade version (for legal metrology)
XBPI-232\(^1\)

Calibration and Adjustment
External calibration/adjustment; default weight
External calibration/adjustment;
weight can be selected under menu item 1.18.1
Internal calibration/adjustment
No function when you press \(\text{J}\)

Connection of Sartorius IS weighing platform\(^1\)

RS-485

Calibration and adjustment
External calibration/adjustment; default weight
External calibration/adjustment;
weight can be selected under menu item 1.18.1
Internal calibration/adjustment
No function when you press \(\text{J}\)

* Factory setting
Interface port 2 (Optional)

(Display designation of this menu level: ③)

Off

Data protocol

SBI: standard version

XBPI-232

XBPI-485

Network address: From 0 to 31 inclusive

SMA interface function

XBPI-485

Address: From 0 to 126 inclusive

Ethernet

Source IP: 192.168.0.1*

Source name (16 characters maximum)

Listen on port: 49155*

Subnet mask: 255.255.255.0*

Gateway IP: 0.0.0.0*

Destination IP: 0.0.0.0*

Destination port: 49155*

Manual output/automatic

Manual without stability

Manual after stability

Automatic without stability

Automatic with stability

Data record for computer printout

Data output: line format for printout

For raw data: 16 characters

For other apps.: 22 characters

Manual output/automatic

Manual without stability

Manual after stability

Automatic without stability

Automatic with stability

Data record for computer printout

Time-dependent automatic data output

1 display update

2 display updates

10 display updates

100 display updates

Data output: line format for printout

For raw data: 16 characters

For other apps.: 22 characters

* Factory setting
Configuration

UNICOM 1

Unspec

Printer configuration

YDP01IS

Strip printer
Label printer
Label printer with manual feed

YDP02 Variants

YDP03

Strip printer
Label printer

Universal interface

YDP04

Strip printer
Label printer
Label printer with manual feed

YAM01IS as electronic memory for print data

Analog data output port for PLC operation

Analog output: value
Net value
Gross value

Analog output: error indicator
High level (20 mA)
Low level (0/4 mA). When menu is open or during calibration:
0/4 mA on this interface.

Analog output: mode
Zero to maximum capacity
Minimum/maximum values

Analog output: min./max.
Min. (0/4 mA) input in kg
Max. (20 mA) input in kg

Verifiable data memory

YAM01S external data memory

Optional:
Reference weigher connection (Option A15)
OFF
A/D configuration (see operating instructions supplied with Option A15 for details)

1) When setting 8.14.1 is active, analog data output only works for XBPI weighing instruments
2) not with setting 8.14.1
3) Factory setting
Control input/output ports
(Display designation of this menu level: 4)

Input ports

Function of control input ports (TTL)

8.4.1* Trigger p key function
8.4.2 Trigger p (> 2 sec) function
8.4.3 Trigger ok key function
8.4.4 Trigger up key function
8.4.5 Trigger fo key function
8.4.6 Trigger oe key function Signum 2 and 3 only
8.4.7 Trigger ok key function Signum 2 and 3 only
8.4.8 Combined zero/tare function
8.4.9 Trigger up key function
8.4.10 Trigger do key function Signum 2 and 3 only
8.4.11 Trigger no key function Signum 2 and 3 only
8.4.12 Trigger oj key function Signum 3 only
8.4.13

For YDO015W-DIO, Option A5:

External input 1

8.17.1 Trigger p key function <as under 8.4>
8.17.13 Trigger oj key function Signum 3 only

External input 2

8.18.1 Trigger p key function <as under 8.4>
8.18.13 Trigger oj key function Signum 3 only

External input 3

8.19.1 Trigger p key function <as under 8.4>
8.19.13 Trigger oj key function Signum 3 only

External input 4

8.20.1 Trigger p key function <as under 8.4>
8.20.13 Trigger oj key function Signum 3 only

External input 5

8.21.1 Trigger p key function <as under 8.4>
8.21.13 Trigger oj key function Signum 3 only

External output ports

For YDO015W-DIO, Option A5:

External output 1

8.24.1* Weighing instrument ready to operate
8.24.2 Weighing instrument stable
8.24.3 Weighing instrument overflow ("H")
8.24.4 Weighing instrument underflow ("L")
8.24.5 Value in tare memory
8.24.6 Below SQmin load Signum 2 and 3 only
8.24.7 Above SQmin load Signum 2 and 3 only
8.24.8 Lighter Signum 2 and 3 only
8.24.9 Equal Signum 2 and 3 only
8.24.10 Heavier Signum 2 and 3 only
8.24.11 Set Signum 2 and 3 only

External output 2

8.25.1 Weighing instrument ready to operate <as under 8.24>
8.25.11

External output 3

8.26.1 Weighing instrument ready to operate <as under 8.24>
8.26.11 Set

External output 4

8.27.1 Weighing instrument ready to operate <as under 8.24>
8.27.11 Set

External output 5

8.28.1 Weighing instrument ready to operate <as under 8.24>
8.28.11 Set

* Factory setting
**Setup**

[Bar code](#)

- **Bar code**
  - (Display designation of this menu level: 5)
  - Store value as reference
  - Store value as tare
  - Store value as ID code 1
  - Enter value on display (triggered when a key is pressed)
  - Store value as tare or ID code, depending on bar code header
  - External computer keypad

**Printouts**

[Printouts](#)

- **Printouts**
  - (Display designation of this menu level: 6)

**Header and ID header input**

- Header line 1 [max. 20 characters]; example: “MEYER’S”
- Header line 2 [max. 20 characters]; example: “STEEL”
- ID code name for ID 1 [max. 20 characters]**
- ID code name for ID 2 [max. 20 characters]**
- ID code name for ID 3 [max. 20 characters]**
- ID code name for ID 4 [max. 20 characters]**

**Quantity, interface 1**

- 1 printout
- 2 printouts

**Configuration list, individual, interface 1**

- **Configuration list, individual, interface 1**
  - BLANK
  - FORM-FE
  - DAT/TIM
  - TIME
  - GLPFHED
  - GLPFOTO
  - TRANS.NO
  - ID 1
  - ID 2
  - ID 3
  - ID 4
  - NET
  - GROSS
  - TARE
  - TARE 2
  - HEAD.R 1
  - HEAD.R 2
  - SN SCAL

**Configuration list, components, interface 1**

- **Configuration list, components, interface 1**
  - BLANK
  - SN SCAL

**Configuration list, total, interface 1**

- **Configuration list, total, interface 1**
  - BLANK
  - FORM-FE
  - DAT/TIM
  - TIME
  - GLPFHED
  - GLPFOTO
  - TRANS.NO
  - ID 1
  - ID 2
  - ID 3
  - ID 4
  - HEAD.R 1
  - HEAD.R 2
  - SN SCAL

**Quantity, interface 2**

- **Quantity, interface 2**
  - 1 printout
  - 2 printouts

---

**Signum 3 only**

* Factory setting
7.10. Configuration list, individual, interface 2

<table>
<thead>
<tr>
<th>BLANK</th>
<th>FORM-FC</th>
<th>DAT/TIM</th>
<th>TIME</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>GLPHEAD</td>
<td>GLPFoot</td>
<td>TRANs No</td>
</tr>
<tr>
<td></td>
<td>I0</td>
<td>I1</td>
<td>I2</td>
</tr>
<tr>
<td></td>
<td>I3</td>
<td>I4</td>
<td>NET</td>
</tr>
<tr>
<td></td>
<td>GROSS</td>
<td>TARE</td>
<td>TARE2</td>
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<td></td>
<td>HEADR. 1</td>
<td>HEADR. 2</td>
<td>S@SCAL</td>
</tr>
</tbody>
</table>

7.11. Config. list, component, interface 2

| BLANK     | S@SCAL |

7.12. Configuration list, total, interface 2

<table>
<thead>
<tr>
<th>BLANK</th>
<th>FORM-FC</th>
<th>DAT/TIM</th>
<th>TIME</th>
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<td></td>
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<tr>
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<td>I1</td>
<td>I2</td>
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<tr>
<td></td>
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<td>GROSS</td>
<td>TARE</td>
<td>TARE2</td>
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<tr>
<td></td>
<td>HEADR. 1</td>
<td>HEADR. 2</td>
<td>S@SCAL</td>
</tr>
</tbody>
</table>

7.13. GMP record (optional on Signum 1)

| 7.13.1*  | 7.13.3  |

7.14. Date with/without time


7.15. Automatic print after stability

| 7.15.1*  | 7.15.2  |

7.16. Flex Print

| 7.16.1*  | 7.16.2  |

7.17. Decimal separator

| 7.17.1*  | 7.17.2  |

9.1. Restore factory settings in numeric menu for printout data protocol

| 9.1.1    | 9.1.2*   |

* Factory setting
### Setup

#### Utilit 7

<table>
<thead>
<tr>
<th>8.3.</th>
<th></th>
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<tr>
<td>8.3.1</td>
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</tr>
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<table>
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</tr>
</thead>
<tbody>
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<td>8.12.1</td>
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</tr>
<tr>
<td>8.12.2</td>
<td></td>
</tr>
</tbody>
</table>

<table>
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<tbody>
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<td></td>
</tr>
<tr>
<td>9.1.2</td>
<td></td>
</tr>
</tbody>
</table>

---

### Operation

[Display designation of this menu level: 7]

#### Keys

- All available
- All blocked
- Numeric keypad: Signum 3 only
- Toggle weighing platform: Signum 2 and 3 only
- Zero
- Tare
- FN
- isoTEST
- Print
- x10: Signum 2 and 3 only
- Toggle gross/net: Signum 2 and 3 only
- CF: Signum 3 and 3 only
- Ref: Signum 3 and 3 only
- OK: Signum 3 and 3 only
- Toggle: Signum 2 and 3 only
- Info: Signum 2 and 3 only
- D: Signum 3 only
- ID: Signum 3 only
- Mem: Signum 3 only

#### Automatic shutdown of display and control unit

Automatic shutdown acc. to menu item 8.9.
No automatic shutdown

#### Display lighting

- On
- Off

Automatic shutdown acc. to menu item 8.9.

#### Timer mode

- After 1 + 1 minute not in use
  (after 1 min.: warning displayed for 1 minute)
- After 2 + 2 minutes not in use
  (after 2 min.: warning displayed for 2 minutes)
- After 5 + 5 minutes not in use
  (after 5 min.: warning displayed for 5 minutes)

#### Main scale: first platform displayed on start-up

- Weighing platform WP1
- Weighing platform WP2

#### Show geographical data before calibration

- No
- Yes

#### Restore factory settings in numeric operating menu

- Yes
- No

---

1 More than one can be selected
2 Warning: the symbol and weighing platform numbers 1 and 2 flash simultaneously
3 Factory setting
**Setup**

### Time (Option on Signum 1)
Format for setting the time: 10:07:41 (hours.minutes.seconds)

### Date (Option on Signum 1)
Format for setting the date: 31.05.06 (day.month.year); U.S. mode: 05.31.06 (month.day.year)

### Code
Password
Set, change and delete password here.
Max. 8 characters; example: 12345678

### SQmin
(SQmin-S for service personnel only: Enter the minimum sample quantity)

### Display
Off
On

### Print in GLP header
Off
On

---

**Device information**

### Service information
Service date

### Display and control unit ("terminal")

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>SIWRCAP2</td>
</tr>
<tr>
<td>Serial number</td>
<td>10405355</td>
</tr>
<tr>
<td>Software version</td>
<td>01.24.01</td>
</tr>
<tr>
<td>Application version</td>
<td>00.37.01</td>
</tr>
<tr>
<td>Software version: weighing platform</td>
<td>01.20.07</td>
</tr>
<tr>
<td>Geographical latitude (in degrees)</td>
<td>50°</td>
</tr>
<tr>
<td>Geographical altitude (in meters)</td>
<td>891</td>
</tr>
<tr>
<td>Acceleration of gravity m/s²</td>
<td>9.81</td>
</tr>
</tbody>
</table>

### Optional second weighing platform (e.g., IS weighing platform)
Model: second weighing platform
Software version: second weighing platform
Serial number
Geographical latitude (in degrees)¹
Geographical altitude (in meters)¹
Acceleration of gravity m/s²¹

### Flex Print
File name²
ID²
Version²

### Language for calibration/adjustment and GMP printouts
- **German**
- **English**
- **U.S. Mode**
- **Français**
- **Italian**
- **Español**

---

¹ Output: either latitude and altitude or acceleration of gravity (depends on the input before verification)
² These three parameters are shown for each file loaded
* Factory setting
Basic Weighing Function

Weighing $W$

The basic weighing function is always accessible and can be used alone or in combination with application programs, such as Counting, Checkweighing, Weighing in Percent, etc.

Features
- Zero the scale $\Rightarrow$
- Store the weight on the platform as tare by pressing $\Rightarrow$ to save
- Use the numeric keys to enter a tare weight (press $\Rightarrow$ to save)
  - Signum 2 and 3 only:
    - Use a bar code scanner to enter tare weight
    - Tare container weight automatically
    - Delete tare values by entering 0 (press $\Rightarrow$ to save)
  - Signum 1 only:
    - Press $k$ to toggle the display between:
      - Gross and net values, or
      - 10-fold increased resolution (displayed for 5 seconds max.)
  - Signum 2 and 3 only:
    - Press $\Rightarrow$ to toggle the display between:
      - Gross and net values, or
      - Normal and 10-fold increased resolution (displayed for 5 seconds max.)

Define the $\Rightarrow$ key function in the Setup menu, under: $\Rightarrow$-KEY
- Weigh with two weighing platforms
  - Signum 3 only:
    - Individual ID codes for weight values
    - Print weight values:
      - Manually, by pressing $F$Port
      - Automatically (see “Interface Port”)
    - With GMP-compliant format (see “Interface Port”)
  - Restore factory settings by selecting the menu setting:
    $APPL$ : (application)
    $WEIGHT$: (basic weighing)
    $9$. i. (factory settings)

Automatic Taring

The first weight on the scale that exceeds the preset minimum load is stored in the tare memory at stability. The values for subsequent loads are stored as weight values. The scale returns to the initial state when the load is less than 50% of the minimum load. Operating menu setting:
$APPL$: (application)
$WEIGHT$: (basic weighing)
$3$. i. (autotare first weight)

Minimum Load

To tare container weights automatically, you need to set a minimum load in the Setup menu, under:
$APPL$: (application)
$WEIGHT$: (basic weighing)
$3$. (Min. load for autotaring)

You can choose from the following 10 levels, defined in scale intervals (digits):
- 1 digit (no minimum load)
- 2 digits
- 5 digits
- 10 digits
- 20 digits
- 50 digits
- 100 digits
- 200 digits
- 500 digits
- 1000 digits

If the scale interval (d) is 1000 g, for example, and the minimum load is set to 1000 digits (=1000 scale intervals), a load of at least 1000 g is required for autotaring.

Automatic Printing

The first weight value that exceeds the minimum load is printed. Operating menu setting:
$APPL$: (application)
$PRINT$: (printout)
$7$. i. (autoprint at stability)

Signum 2 and 3 only:

Weighing with Two Weighing Platforms

Press the $\Rightarrow$ key to toggle the display between weighing platforms. Specify one of the two platforms as the main scale under:
$APPL$: (application)
$PRINT$: (printout)
$9$. i. (main scale)

The display shows the readout from the main scale when you switch on the Signum. Press $\Rightarrow$ to toggle the readout between platforms.

Signum 2 and 3 only:

Entering Tare Weight using a Bar Code Scanner

You can enter the tare value of a container using a bar code scanner. To do this, the “Store value as tare” (TARE) menu item must be selected under “Setup > Barcode” in the operating menu. In this case, the value is stored as the tare automatically, without pressing the $\Rightarrow$ key. To view the contents of the tare memory, press the $\Rightarrow$ key.

Device Parameters

Keys

The keypad can be blocked. Operating menu setting:
$SETUP$: (Setup)
$UTILIT$: (additional functions)
$8$. (keypad: blocking keys)

You can choose from the following options:
- $8$. i. All keys accessible
- $8$. ii. All keys blocked except $M$ and $SETUP$
- $8$. iii. All alphanumeric keys blocked
- $8$. iv. - $8$. iii. One specified key blocked (see the menu under “Configuration” for options)

Display

You can have the display backlighting shut off automatically when not in use. Operating menu setting:
$SETUP$: (Setup)
$UTILIT$: (additional functions)
$8$. (Display lighting)

Automatic Shutoff

Operating menu setting:
$SETUP$: (Setup)
$UTILIT$: (additional functions)
$9$. (Automatic shut off of display and control unit)

Timer Mode

There are three timer settings for this function: two, four and ten minutes. Operating menu setting:
$SETUP$: (Setup)
$UTILIT$: (additional functions)
$9$. (Timer mode)
Example with Signum 1:
Switch on the Signum, zero the scale, tare the container weight, place sample in container,
toggle display to gross weight or to second weight unit, print results.

1 Switch on the scale
All display segments are shown for about 1 second (self-test)

2 Zero the scale
Display with no load on scale

3 Place container on weighing instrument
Container weight is displayed

4 Tare the scale
Display (\(\text{NET}\)) when tared with container

5 Fill the container
(in this example, 120.2 g)

Display with tared scale and filled container

6 Toggle display; depending configuration, display shows
   gross weight (in this example, 50 g for container + 120.2 g substrate) or
   display in 2nd weight unit (in this example, kg) or
   display with 10-fold increased resolution

7 Return to previous display
(if 10-fold resolution is shown, display returns automatically after 5 seconds)

8 Print results

ACE HARDWARE
GOETTINGEN
24.02.2002 15:10
-------------------
G# + 170.2 g
T + 50.0 g
N + 120.2 g
-------------------
**Operation**

**Example with Signum 1:**

Tare the scale by placing a container on the weighing platform

1. Switch on the scale. The automatic self-test runs. When the weight readout is shown, the scale is ready to operate and automatically set to zero. Press \( \text{\textbf{0}} \) to reset the un-loaded weighing platform to zero at any time.

2. Place empty container on the platform.

3. Tare the scale. Note: If the automatic tare function is active, you do not need to press \( \text{\textbf{0}} \) to tare the scale; the tare weight is saved automatically when you place the container on the platform.

4. Place sample on the platform.

Wait until a zero value is displayed together with the \( \text{\textbf{N}} \text{ET} \) symbol.

**Example with Signum 3:**

Weigh with numerical input of the tare weight, Print the result

1. Switch on the scale. The automatic self-test runs. When the weight readout is shown, the scale is ready to operate and automatically set to zero. Press \( \text{\textbf{0}} \) to reset the un-loaded weighing platform to zero at any time.

2. Enter the known tare weight via the keypad (in this example, 250 g).

3. Save the tare weight.

4. Place the sample (in this example, 2 kg) in its container on the scale.

Read the result

5. Toggle the display from net to gross weight values. The display shows the gross weight (in this example, 250 g for the container plus 2000 g for the sample).

6. Return to the previous display.

7. Print the results.

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>G#</td>
<td>+ 2.250 kg</td>
</tr>
<tr>
<td>T</td>
<td>+ 0.000 kg</td>
</tr>
<tr>
<td>PT2</td>
<td>+ 0.250 kg</td>
</tr>
<tr>
<td>N</td>
<td>+ 2.000 kg</td>
</tr>
</tbody>
</table>
Example with Signum 3:
Weigh with variable tare values, print the results and delete the tare values

1 Switch on the scale.
The automatic self-test runs.
When the weight readout is shown, the scale is ready to operate and automatically set to zero. Press \(\text{on}\) to reset the unloaded weighing platform to zero at any time.

2 Place empty container on the platform

3 Tare the scale
Note: If the automatic tare function is active, you do not need to press \(\text{on}\) to tare the scale; the tare weight is saved automatically when you place the container on the platform.

Wait until a zero value is displayed together with the \(\text{NET}\) symbol.

4 Place the sample in its packaging (second tare value) in the container.

5 Enter the known weight of the packaging, in the active weight unit, via the keypad (in this example, 250 g).

6 Save the package weight you entered (the two tare values are added together).

Read the net weight

7 Print the results.

G\# + 6.433 kg
T + 4.183 kg
PT2 + 0.250 kg
N + 2.000 kg
-----------------
0

8 Clear the tare memory:
Use the keypad to enter a zero ("0").

9 Save the value (0) entered (tare values are cleared; the display shows the gross value).

10 Print the result.

G\# + 6.433 kg
T + 0.000 kg
N + 6.433 kg
------------------

Example with Signum 3:
Weigh with variable tare values, print the results and delete the tare values
Calibration and Adjustment

Purpose

Perform calibration to determine the difference between the value displayed and the actual weight on the platform. Calibration does not entail making any changes within the weighing instrument.

Perform adjustment to eliminate any difference determined, or to reduce it to a level that is within the applicable tolerance limits.

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

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

Position:

- Switch on the right: For use in legal metrology
- Switch on the left: External calibration/adjustment accessible

Features

- Block the key to prevent use of the two functions described above (1.9.10):
  - Block: (calibration and adjustment)
- Calibrate first; then adjust automatically or manually (not on verified weighing instruments):
  - Calibrate: (calibration/adjustment sequence)
- Flashing symbol as adjustment prompt. If more than one weighing platform is connected, the platform number is also displayed:
  - Flash: (calibration prompt)
- Block or release external calibration/adjustment (not available on scales verified for use in legal metrology):
  - Block: (external calibration)

SIWR|SIWA Models: Configuration for Use in Legal Metrology

To configure the scale for use in legal metrology, adjust the switch on the back of the display and control unit. The switch is covered by a protective cap.

Position:

- Switch on the right: For use in legal metrology
- Switch on the left: External calibration/adjustment accessible

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

Before using your balance as a legal measuring instrument, you must adjust it at the place of installation using the built-in motorized calibration weight. For details, see “Internal Calibration” in this chapter.

The temperature range (°C) indicated on the verification label may not be exceeded during operation.

For service technicians only:

- External calibration for verified scales of accuracy class C or D
  - The external calibration function is blocked on scales used in legal metrology (legal-for-trade applications).
  - This seal must be removed before external calibration/adjustment can be performed.

In this case, verification will become null and void and the scale will have to be re-verified.

Features

Which of the following features are available for configuration in the Setup menu depends on the connected scale:

- External calibration/adjustment blocked in verified weighing instruments
- External calibration/adjustment with the default weight value or standard weight (not available on verified instruments). Configure under:
  - Default weight value: (calibration and adjustment)
- Specify the weight for external calibration/adjustment:
  - Specify: (enter calibration weight)
- Internal adjustment for IS weighing platforms (configure under:
  - Configure: or UNICON:)

SIWR|SIWA Models: Geographical Data

- Altitude and latitude or gravitational acceleration displayed after CAL is shown when the Signum is switched on, if these values have been entered.
  - Altitude: (show geographical data before calibration)
  - Latitude: or Gravity: (show geographical data before calibration)

For each of these parameters, the term is displayed first (Altitude, Latitude or Gravity) for 1 second, after which the corresponding value is displayed continuously until you press .

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

SIWS models: Verified scale or scale equipped with Option E7

In the operating menu under setup: \( \text{wp-1: 1.9.} \), the “Internal calibration” option (Menu Code 1.9.4) must be set.

<table>
<thead>
<tr>
<th>SETUP</th>
<th>wp-1</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. 9.</td>
<td>Calibration adjustment</td>
</tr>
<tr>
<td>1. 9. 1</td>
<td>External cal/ adjustment; default weight</td>
</tr>
<tr>
<td>1. 9. 3</td>
<td>External cal/ adjustment; weight can be selected under menu item 1.18.1</td>
</tr>
<tr>
<td>1. 9. 4</td>
<td>Internal calibration/adjustment (only on models with a built-in motorized calibration weight)</td>
</tr>
<tr>
<td>1. 9. 8</td>
<td>Clear preload</td>
</tr>
<tr>
<td>1. 9. 9</td>
<td>Set preload</td>
</tr>
<tr>
<td>1. 9. 10</td>
<td>( \text{J} ) key blocked</td>
</tr>
<tr>
<td>1. 10.</td>
<td>Calibration/adjustment sequence</td>
</tr>
<tr>
<td>1. 10. 1</td>
<td>Calibration with automatic adjustment</td>
</tr>
<tr>
<td>1. 10. 2</td>
<td>Calibration with automatic adjustment triggered manually</td>
</tr>
</tbody>
</table>

* = Factory settings

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

The adjustment procedure is as follows:

- Select calibration/adjustment:
  - Press the \( \text{J} \) key
  - The built-in weight is applied automatically
  - The scale is adjusted
  - If menu code 1.10.1 is selected under SETUP: wp-1: 1.10., the scale is adjusted automatically
  - If menu code 1.10.2 is selected under SETUP: wp-1: 1.10., the internal calibration routine can be stopped at this point, before adjustment is carried out
  - The built-in calibration weight is unloaded from the weighing system
  - ISO/GMP-compliant printout: see page 81

Setting the Preload

Notes on Settings

- The preload can be set only when the menu access switch is open.
- The “set preload” function must be assigned to the \( \text{J} \) key (menu item 1.9.8).
- After setting the preload, close the menu access switch and reset the \( \text{J} \) key to its previous function (e.g., external calibration/adjustment with user-defined weights) under menu item 1.9.

Clearing the Preload

Notes on Settings

- The preload can be cleared only when the menu access switch is open.
- The “clear preload” function must be assigned to the \( \text{J} \) key (menu item 1.9.9).
- After clearing the preload, close the menu access switch and reset the \( \text{J} \) key to its previous function (e.g., external calibration/adjustment with user-defined weights) under menu item 1.9.
**Operation**

**Preparation**

- Switch on the scale: Press \( \text{MODE} \) key
- While all segments are lit, press the \( \text{SEL} \) key
- Select the Setup menu: Press \( \text{fn} \) repeatedly until \( \text{SETUP} \) is displayed
- Open the Setup menu: Press the \( \text{SEL} \) key

- Select weighing platform 1, \( "WP_1" \): Press the \( \text{SEL} \) key, or
- Select interface 1, \( "COM_1" \) or interface 2, \( "COM_2" \) (depending on the interface used): Press the \( \text{fn} \) key
- Select weighing platform 2, \( "WP" \): Press the \( \text{SEL} \) key

### Calibration and Adjustment

- 1.9. Calibration and Adjustment
  - 1.9.1* Ext. calibration/adjustment; default weight
  - 1.9.3 Ext. calibration/adjustment; weight can be selected under menu item 1.18.1
  - 1.9.4 Internal calibration/adjustment (models with built-in motorized calibration weight only)
  - 1.9.8 Set preload
  - 1.9.9 Clear preload
  - 1.9.10 No function when you press \( \text{SEL} \)

- 1.10. Calibration/Adjustment Sequence
  - 1.10.1 Calibration with automatic adjustment
  - 1.10.2* Calibration with adjustment triggered manually

- 1.11. Zero-setting Range
  - 1.11.1 1 percent/max. cap.
  - 1.11.2* 2 percent/max. cap.

- 1.12. Initial Zero-setting Range
  - 1.12.1* Factory setting (depends on model)
  - 1.12.2 2 percent/max. cap.
  - 1.12.3 5 percent/max. cap. (setting depends on model)

- 1.13. Tare/zero at Power On
  - 1.13.1* On
  - 1.13.2 Off, load previous tare value
  - 1.13.3 Only zero at power on

- 1.15. Calibration Prompt
  - 1.15.1* Off
  - 1.15.2 Calibration prompt \( (\text{W}) \) flashes on the display

- 1.16. External Calibration
  - 1.16.1* Accessible
  - 1.16.2* Blocked

- 1.17. Calibration weight unit
  - 1.17.1 Grams
  - 1.17.2* Kilograms
  - 1.17.4 Pounds

- 1.18. Enter Calibration Weight
  - 1.18.1 External user-defined weight (enter value; e.g.: 10,000 g)

- Save settings and exit operating menu:
  \( \text{MODE} \) key (repeatedly)

---

1) = Setting cannot be changed on verified models
2) = Factory setting on verified models
* = Factory setting
Example:
External calibration and manual adjustment with default weights (with factory settings for weighing parameters)

1. Zero the scale

2. Start calibration (e.g., after calibration prompt: flashing WP symbol).

   C.EXT.DEF is shown for two seconds.

   The prompt for the calibration weight is shown (in this example, 10 kg).

3. Place calibration weight on the weighing platform.

   The difference between measured value and the true mass is shown, plus or minus sign.

   Ext. calibration
   Nom. + 10000 g
   Diff. + 1 g

4. Start adjustment (or cancel calibration/adjustment by pressing J).

   After adjustment, the calibration weight value is displayed.

   Ext. adjustment
   Diff. + 0.0 g

   A GMP-compliant printout is generated

   24.10.2006 10:15
   Name:
**SQmin Function**

**Purpose**
To display the allowable minimum sample quantity “SQmin” in accordance with the United States Pharmacopoeia (USP). According to USP guidelines, the uncertainty of measurement may not exceed 0.1 % of the sample quantity when substances are weighed with the highest degree of accuracy for volume determination. This additional function ensures that weighing results lie within defined tolerance limits corresponding to the requirements of your quality assurance system.

**Features**
- The service technician will determine the required minimum sample quantity based on your quality assurance requirements at the location where the scale is set up, and save this value in the scale. This setting cannot be changed by the user. Once this programming is concluded, the service technician will prepare a “Test in Accordance with the USP” certificate that documents the measurements and the minimum sample quantity for the scale. When you use the SQmin function, you can be sure that the weight results will correspond to the specifications on the certificate and, therefore, USP guidelines.

- Displaying the minimum sample quantity:
  The value is shown in the text line for 4 seconds after the \( \text{fn} \) key is pressed.

- If the minimum sample quantity has not been reached, the \( \Delta \) symbol is shown on the readout during weighing, and the weight values are marked with an exclamation point (“!”) on the printout.

- GMP header: The minimum sample quantity entered for SQmin can be included on the printout.

**Factory settings:**
Display: SQmin Off
Print in GMP header: Off

* = factory settings

See also “Operating Menu Overview” in the chapter entitled “Configuration.”

- Press \( \text{trig} \) to save your settings and \( \text{trig} \) (repeatedly) to exit the operating menu.
### Example
Determining sample weights while monitoring the minimum sample quantity (in this example, SQmin = 100 g)

Settings (changes in the factory settings required for this example):
**Setup:** SQmin: Display

<table>
<thead>
<tr>
<th>Step</th>
<th>Key (or action)</th>
<th>Display/printout</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Switch on the scale and configure settings as indicated above</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Place the container for the sample on the scale and tare</td>
<td><img src="image1" alt="Display" /></td>
</tr>
<tr>
<td>3</td>
<td>Measure the weight of a sample (in this example: minimum sample quantity not reached)</td>
<td>Place sample on scale</td>
</tr>
<tr>
<td>4</td>
<td>Print weight</td>
<td><img src="image3" alt="Display" /></td>
</tr>
<tr>
<td>5</td>
<td>Measure the weight of another sample (in this example: minimum sample quantity exceeded)</td>
<td>Place sample on scale</td>
</tr>
<tr>
<td>6</td>
<td>Print weight</td>
<td><img src="image5" alt="Display" /></td>
</tr>
<tr>
<td>7</td>
<td>Show value of minimum sample quantity for 4 seconds</td>
<td><img src="image6" alt="Display" /></td>
</tr>
<tr>
<td>8</td>
<td>Weigh other samples as desired</td>
<td></td>
</tr>
</tbody>
</table>
**Data ID Codes**

**Signum 3 only**  
You can assign codes [such as product name, batch number, etc.] for identification of measured values on printouts.

**Features**

- Assign up to four ID codes.
- Assign both a name and a value for each ID code.
- The name is left-justified and the value is right-justified on the printout. If the entire code is too long for one line, additional lines are printed.
- Enter ID code names in the operating menu, under:
  
  **SETUP**  
  **prtprot**: 7.4.  
  Enter up to 20 characters for the ID code name. No more than 11 characters are displayed during input; all 20 characters are printed.
- Enter up to 40 characters for the value of the ID code. Press the ID key to activate the input mode.
- You can delete characters from the ID code by pressing the [CF] key.
- If both the name and value fields are empty, no ID code is printed.
- In the Setup program, you can configure when and whether ID codes are printed (see “Configuring Printouts” on page for operating menu settings).

**Factory settings for the ID code names:**

ID1: ID1  
ID2: ID2  
ID3: ID3  
ID4: ID4

**Factory settings for the ID code values:**  
No default values set.
Example with Signum 3:
Enter ID code names.
Enter “Batch no.” and “Cust.” as names for ID codes 1 and 2.

1. Switch on the scale

2. While all segments are lit, press the key.

   The first item in the main menu is shown: APPL

3. Select the Setup menu to access scale configuration functions (press \(\text{Fn}\) repeatedly until Setup is displayed)

4. Open the Setup menu

5. Select the PRTPROT menu item to access ID code settings (press \(\text{Fn}\) repeatedly until PRTPROT is displayed)

6. Select the menu item for header and ID code settings

7. Press \(\text{Fn}\) repeatedly until \(7.141\) is displayed.

8. Press \(\text{T}\) key to activate alphanumeric input

9. Used the \(\text{E}\), \(\text{E}\), \(\text{E}\) keys to enter code (in this example: the first character is “C”)

10. Save the character

11. Proceed as described above to enter subsequent characters.

After entering the last character, press \(\text{Fn}\) to save the code.

12. Exit the active submenu and configure other settings, or

13. Press and hold \(\text{T}\) to exit the operating menu

---

Example with Signum 3:
Enter ID code values.
Enter “123” as the value for ID code 1.

1. Activate ID input.

2. Enter value for ID code 1 (in this example: 123).

3. Press \(\text{OK}\) to conclude input.
Application Programs

Applications 1 through 3: Overview

<table>
<thead>
<tr>
<th>Keypad</th>
<th>Signum 1</th>
<th>Signum 2</th>
<th>Signum 3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>6 keys</td>
<td>14 keys</td>
<td>17 keys plus numeric keypad</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Display</th>
<th>Signum 1</th>
<th>Signum 2</th>
<th>Signum 3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>14-segment plus application symbols</td>
<td>14-segment plus application symbols</td>
<td></td>
</tr>
</tbody>
</table>

Application

| Basic weighing | X | X | X |
| Averaging (animal weighing) | X | X |
| Send print job/data record to peripheral device | X | X | X |
| Print labels | X | X |
| Connectivity for 2nd weighing instrument | X | X |
| Counting | X | X |
| Totalizing | X | X |
| Checkweighing | X | X |
| Batching/Counting to target value | X | X |
| Product data memory | X |

Function

| Zero-setting | X | X | X |
| Taring | X | X | X |
| Date and time | X | X |
| Internal battery (rechargeable) | optional | optional | optional |
| ID codes (4 codes, 40 characters each) | X |
| Bar code | optional | optional |

Combining Application Programs – for Signum 3 Only:

The following table shows how the application programs can be combined. Each row represents one combination. The basic weighing function is available at all times; it does not need to be combined with a computational function. Select Application 1, then Application 2, then Application 3. Press the ( 功能 ) key to scroll through the available programs.

<table>
<thead>
<tr>
<th>Application 1 (Basic Function)</th>
<th>Application 2 (Monitoring Function)</th>
<th>Application 3 (Cumulative-value Function)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Counting</td>
<td>–</td>
<td>Totalizing</td>
</tr>
<tr>
<td>Counting</td>
<td>Checkweighing</td>
<td>Totalizing</td>
</tr>
<tr>
<td>Counting</td>
<td>Checkweighing</td>
<td>–</td>
</tr>
<tr>
<td>Counting</td>
<td>Classification</td>
<td>–</td>
</tr>
<tr>
<td>Neutral measurement</td>
<td>–</td>
<td>Totalizing</td>
</tr>
<tr>
<td>Neutral measurement</td>
<td>Checkweighing</td>
<td>Totalizing</td>
</tr>
<tr>
<td>Neutral measurement</td>
<td>Checkweighing</td>
<td>–</td>
</tr>
<tr>
<td>Neutral measurement</td>
<td>Classification</td>
<td>–</td>
</tr>
<tr>
<td>Animal weighing</td>
<td>–</td>
<td>Totalizing</td>
</tr>
<tr>
<td>Animal weighing</td>
<td>Checkweighing</td>
<td>Totalizing</td>
</tr>
<tr>
<td>Animal weighing</td>
<td>Checkweighing</td>
<td>–</td>
</tr>
<tr>
<td>Animal weighing</td>
<td>Classification</td>
<td>–</td>
</tr>
<tr>
<td>Weighing in percent</td>
<td>–</td>
<td>Totalizing</td>
</tr>
<tr>
<td>Weighing in percent</td>
<td>Checkweighing</td>
<td>Totalizing</td>
</tr>
<tr>
<td>Weighing in percent</td>
<td>Checkweighing</td>
<td>–</td>
</tr>
<tr>
<td>Weighing in percent</td>
<td>Classification</td>
<td>–</td>
</tr>
<tr>
<td>–</td>
<td>–</td>
<td>Net-total formulation</td>
</tr>
<tr>
<td>–</td>
<td>Checkweighing</td>
<td>Totalizing</td>
</tr>
<tr>
<td>–</td>
<td>Classification</td>
<td>Totalizing</td>
</tr>
</tbody>
</table>
With the Counting program you can determine the number of parts that each have approximately equal weight.

**Features**

**Signum 3 only:**
- Enter the reference sample weight \( w_{\text{Ref}} \) via the keypad
- Save the reference weight \( w_{\text{Ref}} \) from the weighing platform

**Signum 3 only:**
- Enter the reference sample quantity \( n_{\text{Ref}} \) via the keypad
- Enter reference sample weight using a bar code scanner
- Automatic reference sample updating
- Counting with two weighing platforms
- Activate info-mode by pressing \( \text{I} \)
- Toggle the display between quantity and weight by pressing \( \text{W} \)
- Define the resolution (level of accuracy) applied when a calculated reference sample weight is stored
- Automatic taring of container weight. Configure these options in the operating menu, under:
  - \( \text{APPL}: \text{A.TARE}: 3.7 \)
  (autotare first weight)
- Automatic initialization when the Signum is switched on. The display and control unit is initialized with the most recently used values for reference sample quantity \( w_{\text{Ref}} \) and reference sample weight \( w_{\text{Ref}} \).
  - Operating menu setting:
    \( \text{APPL}: \text{COUNT}: 3.8 \)
    (start \text{APP.} with last values)
- Closing application program; deleting parameters:
  - The value for reference sample weight remains active in the reference memory until you delete it by pressing the \( \text{CF} \) key, overwrite it or until you select a different application. It also remains saved after the scale has been switched off.

**Signum 3 only:**
- You can select the function of the \( \text{CF} \) key for clearing application data.
  - When an application is active, this key can either delete the values saved for all applications, or delete selected values saved for the active application.
  - Operating menu setting:
    \( \text{APPL}: \text{Sel.CF}: 3.24 \)
    (select \( \text{CF} \) key \( \text{CF} \) function in applications)
- **Tare function:**
  1) If you store a tare (weight value) by pressing the \( \text{CF} \) key, you can later enter a tare value manually. The tare value you enter is added to the stored tare value.
    Setting: menu code 3.25.1 (factory default)
  2) A tare value entered manually overwrites a stored tare value (weight value). If you enter a tare value manually, a tare value (weight value) stored later overwrites the manually entered value.
    Setting: menu code 3.25.2
  - Operating menu setting:
    \( \text{Signum 2} \)
    \( \text{APPL} : \text{TARE.F}: 3.25 \)
    \( \text{Signum 3} \)
    \( \text{APPL} : \text{TARE.F}: 3.25 \)
  - Restore factory default settings. Operating menu setting:
    \( \text{Signum 2} \)
    \( \text{APPL} : \text{DEF.APP}: 9.1 \)
    \( \text{Signum 3} \)
    \( \text{APPL} : \text{DEF.APP}: 9.1 \)

Before the quantity on the platform can be calculated, the reference sample weight (average weight of one piece) must be entered in the application. There are three ways to enter this value in the program:

- **Calculation:**
  - Place the number of parts defined as the reference sample quantity on the weighing platform and press \( \text{OK} \) to calculate the reference sample weight
  - Alternatively you can place any number of parts on the weighing platform, enter the number of parts using the keypad, and then press the \( \text{OK} \) key to calculate the average piece weight

How the reference weight is calculated depends on the application setting for resolution. The value is either rounded off in accordance with the display resolution, or saved with 10-fold or 100-fold increased resolution, or with the maximum internal resolution of the weighing platform.

**Signum 3 only:**
- Keypad input: Enter a reference sample weight (i.e., the weight of one piece) using the keypad and press \( \text{OK} \) to save it.
- Bar code input: Enter the reference sample weight using a bar code scanner

After initialization, you can use the connected weighing platform to count parts. The initial application values are valid until deleted by pressing the \( \text{CF} \) key, or until overwritten by new values. They also remain saved after you switch off the scale.
Preparation

- Switch on the scale: Press \( \text{[on]} \)
- While all segments are lit, press the \( \text{[on]} \) key repeatedly until \( \text{APPL} \) is displayed
- Open the Application menu: Press the \( \text{[Fn]} \) key
- Select the Counting application: Press the \( \text{[Fn]} \) key repeatedly until the desired menu item is displayed and press \( \text{[on]} \) to open the submenu

Application Parameters: Counting

<table>
<thead>
<tr>
<th>3.6. Minimum Load for Initialization</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.6.1* 1 digit</td>
</tr>
<tr>
<td>3.6.2 2 digits</td>
</tr>
<tr>
<td>3.6.3 5 digits</td>
</tr>
<tr>
<td>3.6.4 10 digits</td>
</tr>
<tr>
<td>3.6.5 20 digits</td>
</tr>
<tr>
<td>3.6.6 50 digits</td>
</tr>
<tr>
<td>3.6.7 100 digits</td>
</tr>
<tr>
<td>3.6.8 200 digits</td>
</tr>
<tr>
<td>3.6.9 500 digits</td>
</tr>
<tr>
<td>3.6.10 1000 digits</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>3.9. Resolution for Calculation of Reference Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.9.1* Display resolution</td>
</tr>
<tr>
<td>3.9.2 Display resolution + 1 decimal place</td>
</tr>
<tr>
<td>3.9.3 Display resolution + 2 decimal places</td>
</tr>
<tr>
<td>3.9.4 Internal resolution</td>
</tr>
</tbody>
</table>

3.11 Storage Parameter

- 3.11.1* At stability
- 3.11.2 At increased stability

3.12 Reference sample updating

- 3.12.1 Off
- 3.12.3* Automatic

3.13 Reference Weighing Instrument

- 3.13.1* No reference instrument selected
- 3.13.2 WP1
- 3.13.3 WP2

* = Factory setting

Press \( \text{[on]} \) to save your settings and \( \text{[on]} \) (repeatedly) to exit the operating menu.

Storage Parameter

The weight on the platform is saved as a reference when the scale has stabilized. “Stability” is defined as the point at which the fluctuation of a measured value lies within a defined tolerance range. The narrower the tolerance range, the more stable the platform is at stability.

In the operating menu, under: \( \text{APPL: COUNT: 3.11.} \) you can define whether the value is saved when “standard stability” is reached, or only at “increased stability” (narrower tolerance range). If you select “At increased stability,” the reference sample weight stored will be more accurate and the results more reproducible, but the response time of the weighing instrument might be longer.

Accuracy Level for Calculating Reference Weight

The resolution applied for calculating the reference weight is defined in the operating menu under: \( \text{APPL: COUNT: 3.9.} \)

The resolution for calculating the reference sample weight is increased if “+1 decimal place”, “+2 decimal places” or “With internal resolution” is selected. With the “+1 decimal place” setting, the net value is determined to one additional decimal place (i.e., display accuracy \( \times 10 \)); the “+2 decimal places” increases display accuracy \( \times 100 \), and so on up to the maximum resolution available.

Minimum Load

The minimum load required for initialization of the weighing platform is configured in the operating menu under: \( \text{APPL: COUNT: 3.6.} \)

Once the limit is exceeded by the load, initialization can begin. If the load is too light, the following will occur when you try to save a value:

- The error code \( \text{Inf 29} \) is displayed
- The weighing platform is not initialized
- The preset reference sample quantity is saved

The minimum load required for automatic taring of the container weight on the platform (“autotare first weight”) is configured in the operating menu under: \( \text{APPL: M.WEIGH: 3.5.} \)

You can choose from the following 10 levels for this setting:

1 digit
2 digits
5 digits
10 digits
20 digits
50 digits
100 digits
200 digits
500 digits
1000 digits

The “digits” here refer to the scale intervals in the connected weighing platform. If the interval of the connected weighing platform is 1 g, for example, and 1000 digits are required, you must place at least 1000 g (=1000 intervals =1000 digits) on the weighing platform for initialization.
Reference Sample Updating
In the operating menu, under:

*APPL 1: COUNT: 3.12.*
you can define whether or not the reference sample weight is automatically
updated during weighing. Reference sample updating is performed automa-
tically only when the following 6 criteria are met:

1. The APW Update item in the operating
   menu is set to 3.12.3 (“Automatic”).
2. The current piece count exceeds the
   original piece count by at least two
3. The current piece count is less than
twice the original piece count (does
not apply for the first updating opera-
tion if the piece count is entered using
the keypad or a bar code scanner)
4. The new piece count is less than 1000

\[
\frac{n + 2}{2} \leq n
\]

5. The internally calculated piece count
   (e.g., 17.24 pcs) differs by less than
   ± 0.3 pcs from the nearest whole
   number (in this example: 17).
6. The scale is stable in accordance with
   the defined stability parameter.

If automatic reference sample updating
is selected in the operating menu
and the piece count (pcs) is displayed, the AUTO symbol is displayed below
the bar graph. If the reference sample
weight has been updated since you
began weighing, the text line shows
the “optimized” code: (OPT.). During
an updating operation, OPT and the
updated piece count are displayed
briefly in the measured value line.

The new reference sample weight and
reference sample quantity are saved.

Counting with Two Weighing
Platforms
You can use two weighing instruments
simultaneously with the Counting
application. When using two platforms,
you can choose from the following
operating modes:

- Counting with two equivalent weighing
  platforms
- Counting with one reference weighing
  instrument and one counting platform

Counting with two equivalent
weighing platforms:
Use this mode when samples of widely
varying weight are counted at one
workstation. For example, count the lighter-weight pieces on one platform
and the heavier pieces on another.
You can define which of the two
platforms is active when the Signum
is switched on. This is configured
in the operating menu, under:

*SETUP:*

*UTILIT:*

- **1.1:** (main scale)
The main scale is the first platform
active when you switch on the
Signum, regardless of the setting
for automatic initialization of
the Counting application.

Counting with one reference weighing
instrument and one counting platform:
In this mode, a high-resolution weigh-
ing instrument with a relatively low
maximum capacity is used as a refer-
ence weighing instrument. The count-
ing platform has a high capacity,
but a relatively low resolution.
This allows you to both determine
the reference sample weight with high
resolution; i.e., very precisely, and to
count large amounts of parts, without
requiring an expensive high-resolution,
high-capacity weighing platform.
The system can be configured to switch
automatically to the reference instru-
ment for initialization (the measured
value line shows REF). Following
initialization, you can switch to the
counting platform.
The definition of one weighing
instrument as the reference instrument
is configured in the operating menu,
under:

*APPL 1: COUNT: 3.13.*

If automatic reference sample updating
is enabled, the update is performed
on the active platform; in other words,
the system does not automatically
switch to the reference instrument.
Example:
Determining the number of uncounted parts.
Settings (changes in the factory settings required for this example):
Application parameters: Application: Counting
Setup: Printout: PRTPRT: 7.6.; then select menu line item of your choice
(see "Configuration" for options)

1. Place empty container on the platform

2. Tare the scale
Note: If the automatic tare function is enabled, you do not need to press the [T] key to tare the scale; the tare weight is saved automatically when you place the container on the platform.

3. Place a number of parts in the container for the reference quantity (in this example, 20 pcs)

4. Enter the number of parts using the keypad

5. Activate calculation of reference sample weight
If the weight is too light, INF 29 is shown in the main display.
Reduce the minimum load setting or increase the reference sample quantity and the number of parts in the container.

6. Add more parts to the container
Read the result

OPT is displayed if automatic reference sample updating is enabled

7. Print the results
Configured printout: see page 81

| nRef  | 38 pcs |
| wRef  | 0.003280 kg |
| G#    | 0.373 kg |
| T     | 0.248 kg |
| N     | 0.125 kg |
| Qnt   | 38 pcs |
With this application you can use your weighing platform to measure the length, surface and volume of parts that have roughly the same specific weight. The ◦ symbol is displayed as the weight unit.

**Features**

Signum 3 only:
- Enter the reference weight “wRef” via the keypad
- Save the reference weight “wRef” from the weighing platform

Signum 3 only:
- Enter the factor for calculation “nRef” via the keypad
- Enter reference sample weight using a bar code scanner
- Measure with two weighing platforms
- Activate info-mode by pressing [info]
- Toggle the display between measurement and weight by pressing [CS]
- Define the level of accuracy (display resolution) applied when a calculated reference value is saved

Automatic taring of container weight.
- Place the reference quantity of the sample on your weighing platform.

Automatic initialization when the Signum is switched on. The display and control unit is initialized with the most recently used calculation factor “nRef” and reference weight “wRef”. Operating menu setting: 
**APPL: A.TARE: 3.1.**
(select tare first weight)

Closely tied to the container weight.
- Automatic initialization when the Signum is switched on. The display and control unit is initialized with the most recently used calculation factor “nRef” and reference weight “wRef”.

Closing application program; deleting parameters:
The value for reference sample weight remains active in the reference memory until you delete it by pressing the [CF] key, overwrite it or until you select a different application. It also remains saved after the scale has been switched off.

Signum 3 only:
You can select the function of the [CF] key for clearing application data.

When an application is active, this key can either delete the values saved for all applications, or delete selected values saved for the active application.

Operating menu setting: 
**APPL: SEL.CF: 3.24.**
(select CF key function in applications)

- **Tare function:**
  1) If you store a tare (weight value) by pressing the [TARE] key, you can later enter a tare value manually. The tare value you enter is added to the stored tare value.
  Setting: menu code 3.25.1 (factory default)
  2) A tare value entered manually overwrites a stored tare value (weight value). If you enter a tare value manually, a tare value (weight value) stored later overwrites the manually entered value.
  Setting: menu code 3.25.2
  Operating menu setting:
  **Signum 2**
  
  **APPL: TARE, F: 3.25.**

  **Signum 3**
  
  **APPL: TARE, F: 3.25.**

- **Restore factory default settings. Operating menu setting:**
  **Signum 2**
  
  **APPL: SEL.APL: 9.1.**

- **Signum 3**
  
  **APPL: SEL.APL: 9.1.**

  In order to calculate the length, surface or volume of a given sample, the average weight of a reference quantity of the sample must be known (in the example below, the reference is 1 meter of electrical cable). There are three ways to enter the reference weight in the program:

- **Calculation:**
  - Place the reference quantity (defined by the calculation factor) on the connected weighing platform and calculate the reference sample weight by pressing the [OK] key.
  - Place any amount of the sample material on the connected weighing platform, enter the calculation factor through the keypad, and press the [OK] key to calculate the reference sample weight.

How the reference weight is calculated depends on the application setting for resolution. The value is either rounded off in accordance with the display resolution, or saved with 10-fold or 100-fold increased resolution, or with the maximum internal resolution of the weighing platform.

- **Keypad input:**
  Enter the reference weight (i.e., the weight of one meter of electrical cable) using the keypad and press [OK] to save it.

- **Bar code:**
  If the value is available in bar code, you can use a bar code scanner to enter the reference weight

The initial application values are valid until deleted by pressing the [CF] key, or until overwritten by new values. They also remain saved after you switch off the scale.

**Preparation**

- **Switch on the scale:** Press [O].
- **While all segments are lit,** press the [TARE] key.
- **Select the Application menu:** Press [Fn] repeatedly until [APPL] is displayed
- **Open the Application menu:** Press the [TARE] key
- **Select the Neutral Measurement application:**
  Press the [TARE] key repeatedly until the desired menu item is displayed and press [OK] to open the submenu

**Application Parameters:**
Neutral Measurement

<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>3.13.1* Off</td>
<td>3.6.1* 1 digit</td>
</tr>
<tr>
<td>3.13.2 WP1</td>
<td>3.6.2 2 digits</td>
</tr>
<tr>
<td>3.13.3 WP2</td>
<td>3.6.3 5 digits</td>
</tr>
<tr>
<td>3.13.4** At stability</td>
<td>3.6.4 10 digits</td>
</tr>
<tr>
<td>3.13.5 At increased stability</td>
<td>3.6.5 20 digits</td>
</tr>
<tr>
<td>3.13.6** Off</td>
<td>3.6.6 50 digits</td>
</tr>
<tr>
<td>3.13.7 Internal resolution</td>
<td>3.6.7 100 digits</td>
</tr>
<tr>
<td>3.13.8 200 digits</td>
<td>3.6.8 500 digits</td>
</tr>
<tr>
<td>3.13.9 900 digits</td>
<td>3.6.9 1000 digits</td>
</tr>
<tr>
<td>3.13.10 10000 digits</td>
<td>3.6.10 None</td>
</tr>
</tbody>
</table>

* = Factory setting

- **Press and hold [TARE] to save your settings.** Press [O] (repeatedly) to exit the operating menu.

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Storage Parameter

The reference weight is saved when the scale has stabilized. "Stability" is defined as the point at which fluctuation of a measured value lies within a defined tolerance range. The narrower the tolerance range, the more stable the platform is at stability.

In the operating menu, under:
\text{APPL 1: NEUTR.M: 3 11.}

you can define whether the value is saved when "standard stability" is reached, or only at "increased stability" (narrower tolerance range). If you select "At increased stability," the reference weight saved will be more accurate and the results more reproducible, but the response time of the weighing instrument might be longer.

Accuracy Level for Calculation of Reference Value

The resolution applied for calculating the reference weight is defined in the operating menu under:
\text{APPL 1: NEUTR.M: 3 9.}

The resolution for calculating the reference sample weight is increased if "+1 decimal place", "+2 decimal places" or "With internal resolution" is selected. With the "+1 decimal place" setting, the net value is determined to one additional decimal place (i.e., display accuracy x10); "+2 decimal places" increases display accuracy x100, and so on up to the maximum resolution available.

Decimal Places for Display of Results

In neutral measurement, not only whole numbers but also decimal numbers (for example, 1.25 o electrical cabling) can be displayed. The number of decimal places displayed in neutral measurement is configured in the operating menu under:
\text{APPL 1: NEUTR.M: 3 10.}

Minimum Load

The minimum load required for initialization of the weighing platform is configured in the operating menu, under:
\text{APPL 1: NEUTR.M: 3 6.}

Once the limit is exceeded by the load, initialization can begin. If the load is too light, the following will occur when you try to save a value:

- The error code Inf 29 is displayed
- The scale is not initialized
- The preset calculation factor is saved

The minimum load required for automatic taring of the container weight on the platform ("autotare first weight") is configured in the operating menu:
\text{APPL 1: WEEGH: 3 5.}

You can choose from the following 10 levels for this setting:

- 1 digit
- 2 digits
- 5 digits
- 10 digits
- 20 digits
- 50 digits
- 100 digits
- 200 digits
- 500 digits
- 1000 digits

The "digits" here refer to the scale intervals in the connected weighing platform. If the interval of the connected weighing platform is 1 g, for example, and 1000 digits are required, you must place at least 1000 g (=1000 intervals =1000 digits) on the weighing platform for initialization.

Neutral Measurement with Two Weighing Platforms

You can use two weighing platforms simultaneously with the Neutral Measurement application. When using two platforms, you can choose from the following operating modes:

- Neutral measurement with two equivalent weighing platforms
- Neutral measurement with one reference weighing instrument and one measurement platform

Neutral Measurement with two equivalent weighing platforms:

Use this mode when samples of widely varying weight are measured at one workstation. For example, measure the lighter-weight samples on one platform and the heavier samples on another. You can define which of the two platforms is active when the Signum is switched on. This is configured in the operating menu, under:
\text{SETUP: UTILIT: \text{8 11.}: (main scale)}

The main scale is the first platform active when you switch on the Signum, regardless of the setting for automatic initialization of the Neutral Measurement application.

Neutral measurement with one reference weighing instrument and one measurement platform:

In this mode, a high-resolution weighing instrument with a relatively low maximum capacity is used as a reference weighing instrument. The measuring platform has a high capacity, but a relatively low resolution. This allows you to both determine the reference value with high resolution; i.e., very precisely, and to measure large samples, without requiring an expensive high-resolution, high-capacity weighing platform.

The system can be configured to switch automatically to the reference instrument for initialization. Following initialization, the platform for larger amounts is automatically activated. The definition of one weighing instrument as a reference instrument is configured in the operating menu, under:
\text{APPL 1: NEUTR.M: 3 13.}
Example:
Measuring 25 m electrical cable.
Settings (changes in the factory settings required for this example):
Application parameters: Application: Neutral Measurement
Setup: Printout: PR1PR0T: 1.6.; then select menu line item of your choice
(see “Configuration” for options)

1. Place empty container on the platform

2. Tare the scale
   Note: If the automatic tare function is enabled, you do not need to press the key to tare the scale; the tare weight is saved automatically when you place the container on the platform

3. Signum 3 only:
   Enter the weight of 1 meter of cable using the keypad (in this example, 248 g)

4. Save value entered as reference weight.

5. Place the desired amount of cable in the container

6. Print the result
   Configured printout: see page 81
   \[\text{nRef} + 1.0, \text{wRef} + 0.248 \text{ kg}, \text{G} + 6.794 \text{ kg}, \text{T} + 0.541 \text{ kg}, \text{N} + 6.253 \text{ kg}, \text{Qnt} 25 \text{ o}\]
With the Averaging application, you can use your scale for calculating weights as the average of a number of individual weighing operations. This function is used to determine weights under unstable ambient conditions or for weighing unstable samples (such as live animals).

**Features**

- **Averaging starts manually or automatically.** Configure in the operating menu, under:
  \[
  \text{APPL : ANIM.WG : 3.18 .}
  \]
  With manual start selected, the averaging routine begins when you press a key (provided the start conditions are met). With automatic start selected, averaging begins when you place the first load on the platform (provided the start conditions are met).

  - **Signum 3 only:**
  - Enter the number of subweighing operations using the keypad
  - Press the \(\text{R} \) key to select the desired number of subweighing operations.
  - **Info mode**
    - Toggle the display between last result and current weight by pressing \( \text{5} \)
  - **Automatic printout of results.** Configure in the operating menu, under:
    \[
    \text{APPL : ANIM.WG : 3.20 .}
    \]
  - **Automatic taring of container weight.** Operating menu setting:
    \[
    \text{APPL : ANIM.WG : 3.7 .}
    \]
  - **Automatic start of averaging when the Signum is turned on and a sample placed on the platform (provided start conditions are met).** Configure in Setup under:
    \[
    \text{APPL : START : 3.B .}
    \]

- **Closing application program; deleting parameters:** The number of measurements remains active in the reference memory until you delete it by pressing the \( \text{CF} \) key, overwrite it or until you select a different application. It also remains saved after the scale has been switched off.

  - **Signum 3 only:**
    - You can select the function of the \( \text{CF} \) key for clearing application data. When an application is active, this key can either delete the values saved for all applications, or delete selected values saved for the active application.
    - Operating menu setting:
      \[
      \text{APPL : SEL.CF : 3.24 ,}
      \]
      (select CF key function in applications)
  - **Tare function:**
    1) If you store a tare (weight value) by pressing the \( \text{CF} \) key, you can later enter a tare value manually. The tare value you enter is added to the stored tare value.
    - Setting: menu code 3.25.1 (factory default)
    2) A tare value entered manually overwrites a stored tare value (weight value). If you enter a tare value manually, a tare value (weight value) stored later overwrites the manually entered value.
    - Setting: menu code 3.25.2
      - Operating menu setting:
        \[
        \text{Signum 2 : APPL : OK : 3.25 ,}
        \]
        \[
        \text{Signum 3 : APPL : TARE.F : 3.25 ,}
        \]
  - **Restore factory default settings.** Operating menu setting:
    \[
    \text{Signum 2 : APPL : DEF.APP : 9.1 ,}
    \]
    \[
    \text{Signum 3 : APPL : DEF.APP : 9.1 .}
    \]

A number of subweighing operations are required to form the basis for calculation of an average weight. You can enter the desired number of subweighing operations using the keypad.

The number you enter is saved until it is overwritten by another number. It also remains in memory when you switch to a different application program, or switch off the scale.

There are three ways to start the averaging routine:

- **Manual start with preset number of subweighing operations:**
  - Place the sample on the platform and press the \( \text{OK} \) key
- **Manual start with user-defined number of measurements:**
  - Place the sample on the platform and enter the number of weighing operations using the keypad.
  - Press the \( \text{REF} \) key to save the number entered and begin weighing
- **Automatic start with preset number of subweighing operations:**
  - Measurement begins when you place the first sample on the platform, provided the start conditions are met.
Preparation

- Switch on the scale: Press (on).
- While all segments are lit, press the (on) key.
- Select the Application menu: Press (on) repeatedly until APPL is displayed.
- Open the Application menu: Press the (on) key.
- Select the Animal Weighing application: Press the (on) key repeatedly until the desired menu item is displayed and press (on) to open the submenu.

Application Parameters:
Averaging (Animal Weighing)

- 3.6. Minimum Load
  - 3.6.1* 1 digit
  - 3.6.2 2 digits
  - 3.6.3 5 digits
  - 3.6.4 10 digits
  - 3.6.5 20 digits
  - 3.6.6 50 digits
  - 3.6.7 100 digits
  - 3.6.8 200 digits
  - 3.6.9 500 digits
  - 3.6.10 1000 digits

- 3.18. Start of Averaging Routine
  - 3.18.1* Manual
  - 3.18.2 Automatic

- 3.19. Averaging
  - 3.19.1 0.1% of the animal/object
  - 3.19.2* 0.2% of the animal/object
  - 3.19.3 0.5% of the animal/object
  - 3.19.4 1% of the animal/object
  - 3.19.5 2% of the animal/object
  - 3.19.6 5% of the animal/object
  - 3.19.7 10% of the animal/object
  - 3.19.8 20% of the animal/object
  - 3.19.9 50% of the animal/object
  - 3.19.10 100% of the animal/object

- 3.20. Automatic Printout of Results
  - 3.20.1* Off
  - 3.20.2 On

- 3.21. Static Display After Load Removed
  - 3.21.1* Display is static until unload threshold reached
  - 3.21.2 Display is static until (on) is pressed

* = Factory setting

Minimum Load
The minimum load required for initialization of the averaging routine is configured in the operating menu, under:
APPL 1: ANIM.WG 3.6.
Setting a minimum load for averaging can be especially useful if you configure automatic start of measurement.

The minimum load required for automatic taring of the container weight on the platform ("autotare first weight"), or for automatic printout of results, is configured in the operating menu, under:
APPL 1: ANIM.WG 3.5.

You can choose from the following 10 levels for this setting:

- 1 digit
- 2 digits
- 5 digits
- 10 digits
- 20 digits
- 50 digits
- 100 digits
- 200 digits
- 500 digits
- 1000 digits

The "digits" here refer to the scale intervals in the connected weighing platform. If the interval of the connected platform is 1 g, for example, and 1000 digits are required, you must place at least 1000 g (= 1000 intervals = 1000 digits) on the weighing platform to start the averaging routine.

Starting the Measurements
The averaging routine does not begin until the fluctuation in weight value remains below a defined threshold over three consecutive measurements. The tolerance limit is defined as a percentage of the animal or object weight (for example, 0.1%; 0.2%; ...; 50%; 100%), configured in the operating menu, under:
APPL 1: ANIM.WG 3.19.
If the "Animal activity" parameter is set to 2%, for example, and the animal or object weighs 10 kg, measurement does not begin until the fluctuation in weight value remains below 200 g during three consecutive measurements.

Display
A calculated average value is shown continuously on the main display. The (on) symbol (indicating a calculated value) is also displayed.

You can toggle between this display and a readout of the current weight on the scale by pressing the (on) key.

In the operating menu, under:
APPL 1: ANIM.WG 3.21.
you can select "Display is static until unload threshold reached" to have the display switch automatically to the weight readout when you unload the weighing platform (i.e., when the load is less than half the minimum load). The result of the most recent averaging operation is not saved.
If you select "Display is static until (on) is pressed," the calculated average remains displayed even after the weighing platform is unloaded, until you press the (on) key or begin a new measurement.
Application: Averaging (Animal Weighing)

Example:
Measuring the weight of one mouse.
Settings (changes in the factory settings required for this example):
Application parameters: Application: Animal weighing
Setup: Printout: PRT PROT: 7.6.; then select menu line item of your choice
(see "Configuration" for options)

Place empty container on the platform

1. Tare the scale.
   Note: If the automatic tare function is enabled, you do not need to press the [T] key to tare the scale; the tare weight is saved automatically when you place the container on the platform.

2. Place 1st animal in container

   Signum 3 only:

3. Enter the number of subweighing operations using the keypad (in this example, 20 measurements)

4. Save the value entered and begin averaging

The averaging routine does not begin until the fluctuation in weight value remains below a defined threshold over three consecutive measurements. The number of subweighing operations remaining is shown in the numeric display.

Read off the result of averaging.

5. Print the results.
   Note: If automatic printout of results is enabled, you do not need to press the [REF] key; the results are printed automatically.

   Configured printout:
   see page 81

When you unload the weighing platform, the display switches to the weight readout automatically, unless configured otherwise in Setup. The weighing instrument is ready for the next measurement.
With the Weighing in Percent application, you can have the value of the weight on the platform displayed as a percentage calculated in relation to a defined reference weight. The % symbol is displayed in place of the weight unit.

**Features**

**Signum 3 only:**
- Enter the reference weight “Wxx%” for 100% via the keypad
- Save the current weight value as reference percentage (“pRef”)
- Enter the reference percentage “pRef” via the keypad
- Enter reference sample weight using a bar code scanner
- Display result as loss (difference) or residue
- Display up to 3 decimal places.
- Configure in the operating menu, under: 
- Weigh in percent with two weighing platforms
- Activate info-mode by pressing Info
- Toggle the display between percentage and weight by pressing the % key.
- Automatic taring of container weight. Operating menu setting: 
  - APPL.: R.TARE: 3.7.
- Automatic initialization when the Signum is switched on. The application is initialized with the most recently saved data. Operating menu setting: 
  - APPL.: RS.TAR: 3.6.
- Closing application program; deleting parameters: 
  - The value for reference sample weight remains active in the reference memory until you delete it by pressing the CF key, overwrite it or until you select a different application. It also remains saved after the scale has been switched off.
- Select the Application menu: Press DEF.App
  - While all segments are lit, press the APPL. key
  - Press the Appl. key repeatedly until APPL. is displayed
  - Open the Application menu: Press the APPL. key
  - Press the Appl. key repeatedly until the desired menu item is displayed and press the CF key to open the submenu

**Application Parameters:**

*Weighting in Percent*

<table>
<thead>
<tr>
<th>3.6. Minimum Load for Initialization</th>
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</thead>
<tbody>
<tr>
<td>3.6.1* 1 digit</td>
</tr>
<tr>
<td>3.6.2 2 digits</td>
</tr>
<tr>
<td>3.6.3 5 digits</td>
</tr>
<tr>
<td>3.6.4 10 digits</td>
</tr>
<tr>
<td>3.6.5 20 digits</td>
</tr>
<tr>
<td>3.6.6 50 digits</td>
</tr>
<tr>
<td>3.6.7 100 digits</td>
</tr>
<tr>
<td>3.6.8 200 digits</td>
</tr>
<tr>
<td>3.6.9 500 digits</td>
</tr>
<tr>
<td>3.6.10 1000 digits</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>3.9. Resolution for Calculation of Reference Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.9.1* Display resolution</td>
</tr>
<tr>
<td>3.9.2 Display resolution + 1 decimal place</td>
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<tr>
<td>3.9.3 Display resolution + 2 decimal places</td>
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<tr>
<td>3.9.4 Internal resolution</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>3.10. Decimal Places in Displayed Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.10.1* None</td>
</tr>
<tr>
<td>3.10.2 1 decimal place</td>
</tr>
<tr>
<td>3.10.3 2 decimal places</td>
</tr>
<tr>
<td>3.10.4 3 decimal places</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>3.11 Storage Parameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.11.1* At stability</td>
</tr>
<tr>
<td>3.11.2 At increased stability</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>3.13. Reference Weighing Instrument</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.13.1* No reference instrument selected</td>
</tr>
<tr>
<td>3.13.2 WP1</td>
</tr>
<tr>
<td>3.13.3 WP2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>3.15. Display of Calculated Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.15.1* Residue</td>
</tr>
<tr>
<td>3.15.2 Loss</td>
</tr>
</tbody>
</table>

* = Factory setting

**Preparation**

- Switch on the scale: Press [DEF].
- While all segments are lit, press the APPL. key
- Select the Application menu: Press the APPL. key

**Application:**

1. If you store a tare (weight value) by pressing the \[\text{APPL.}\] key, you can later enter a tare value manually. The tare value you enter is added to the stored tare value.

   Setting: menu code 3.25.1 (factory default)

2. A tare value entered manually overwrites a stored tare value (weight value). If you enter a tare value manually, a tare value (weight value) stored later overwrites the manually entered value.

   Setting: menu code 3.25.2

   Operating menu setting:
   - Signum 2
     - APPL.: %: 3.25.
   - Signum 3
     - APPL.: TARE. F.: 3.25.

- Restore factory default settings. Operating menu setting:
  - Signum 2
    - APPL.: %: 9.1.
  - Signum 3

To determine the weight of a sample relative to a reference weight, you need to define the reference weight value. There are three ways to enter this value in the application program:

- **Calculation:**
  - Place the reference quantity (defined by the reference percentage on the connected weighing platform and press [OK].
  - Place any amount of the sample material on the connected weighing platform, enter the reference percentage through the keypad, and press the REF. key to initialize the application.

How the reference weight is calculated depends on the application setting that defines "Accuracy for saving weights."

The value is either rounded off in accordance with the display resolution, or saved with 10-fold or 100-fold increased resolution, or with the maximum internal resolution of the weighing platform.

- Enter the reference weight for 100% via the keypad and press the [OK] key to initialize the application.
- Bar code: If the value is available in bar code, you can use a bar code scanner to enter the reference weight

The initial application values are valid until deleted by pressing the [CF] key or until overwritten by new values. They also remain saved after you switch off the Signum.
Parameter for saving weight
The reference weight is saved when the platform has stabilized. “Stability” is defined as the point at which fluctuation of a measured value lies within a defined tolerance range. The narrower the tolerance range, the more stable the platform is at stability.

In the operating menu, under:
APPL 1:
Perc.wg: 3.11.
you can define whether the value is saved when “standard stability” is reached, or only at “increased stability” (narrower tolerance range). If you select “At increased stability,” the reference weight saved will be more accurate and the results more reproducible, but the response time of the weighing instrument might be longer.

Accuracy Level for Calculating Reference Weight
The resolution applied for calculating the reference weight is defined in the operating menu under:
APPL 1:
Perc.wg: 3.9.
The resolution for calculating the average piece weight is increased if “+1 decimal place”, “+2 decimal places” or “With internal resolution” is selected. With the “+1 decimal place” setting, the net value is determined to one additional decimal place (i.e., display accuracy x10); “+2 decimal places” increases display accuracy x100, and so on up to the maximum resolution available.

Display of Results
With the Weighing in Percent application, the result can be displayed as a remainder or loss.

Operating menu setting:
APPL 1:
Perc.wg: 3.15.

Equations:
Residue = (current weight - 100% weight) / * 100
Loss = (current weight - 100% weight) / 100% weight * 100

Minimum Load
The minimum load required for initialization of the weighing platform is configured in the operating menu, under:
APPL 1:
Perc.wg: 3.6.

Once the limit is exceeded by the load, initialization can begin. If the load is too light, the following will occur when you try to save a value:

- The error code Inf 29 is displayed
- The weighing platform is not initialized
- The preset reference percentage is saved

The minimum load required for automatic taring of the container weight on the platform (“autotare first weight”) is configured in the operating menu under:
APPL 1:
M.WEIGH: 3.5.

You can choose from the following 10 levels for this setting:
1 digit
2 digits
5 digits
10 digits
20 digits
50 digits
100 digits
200 digits
500 digits
1000 digits

The “digits” here refer to the scale intervals in the connected weighing platform. If the interval of the connected weighing platform is 1 g, for example, and 1000 digits are required, you must place at least 1000 g (=1000 intervals =1000 digits) on the weighing platform for initialization.

Weighing in Percent with Two Weighing Platforms
You can use two weighing platforms simultaneously with the Weighing in Percent application. When using two platforms, you can choose from the following operating modes:

- Weighing in Percent with two equivalent weighing platforms
- Weighing in Percent with one reference weighing instrument and one weighing platform

Weighing in Percent with two equivalent weighing platforms:
Use this mode when samples of widely varying weight are measured at one workstation. For example, measure the lighter-weight samples on one platform and the heavier samples on another. You can define which of the two platforms is active when the Signum is switched on. This is configured in the operating menu, under:
SETUP: UTILIT 8.11.
(main scale)
The main scale is the first platform active when you switch on the Signum, regardless of the setting for automatic initialization of the Weighing in Percent application.

Weighing in Percent with one reference weighing instrument and one measuring platform:
In this mode, a high-resolution weighing instrument with a relatively low maximum capacity is used as a reference weighing instrument. The measuring platform has a high capacity, but a relatively low resolution. This allows you to both determine the reference weight with high resolution; i.e., very precisely, and to measure large samples, without requiring an expensive high-resolution, high-capacity weighing platform.
The system can be configured to switch automatically to the reference instrument for initialization (the measured value line shows Ref). Following initialization, the platform for larger amounts is automatically activated. The definition of one weighing instrument as a reference instrument is configured in Setup, under:
APPL 1:
Perc.wg: 3.13.
Example:
Weighing in 100% of a sample material.
Settings (changes in the factory settings required for this example):
Application parameters: Application: Weighing in percent
Setup: Printout: PrtProt: 1.6.; then select menu line item of your choice
(see "Configuration" for options)

1 Place empty container on the platform

2 Tare the scale
Note: If the automatic tare function is enabled, you do not need to press the + key to tare the scale; the tare weight is saved automatically when you place the container on the platform

3 Add reference material in accordance with reference percentage (in this example, 85 g)

4 Activate calculation of the reference weight. The calculation is based on the active net weight value and the reference percentage entered.

5 Continuing filling the container until the target amount is reached (in this example, 100%)

6 Print the result

-configured printout:

- PrRef + 20 %
- wRef + 0.085 kg
- g# + 1.080 kg
- t + 0.675 kg
- n + 0.423 kg
- PrRef + 100 %

Reduce the minimum load setting.


Application: Checkweighing

With the Checkweighing application, you can check whether the sample on the weighing platform matches a target value, or lies within a given tolerance range. Checkweighing also makes it easy to fill sample materials to specified target weight.

Features

Signum 3 only:
- Enter the nominal or target weight (setpoint) and the tolerance range delimiters either using the keypad or by saving the weight value from a load on the platform.

Signum 3 only:
- Enter the tolerance limits as absolute values (Min and Max) or as percentages of the target. Configure in the operating menu under:
  \[ \text{APPL} \text{ 2: CHECK.WG: 4.5.} \]
- The target value can be taken over as a weighed value from a weighing platform, and the upper and lower tolerance limits are defined as a percentage deviation from the target value. The following percentages can be selected as the deviation: 0.1%, 0.2%, 0.5%, 1%, 1.5%, 2%, 3%, 5% or 10%.

- The target value, lower tolerance limit (minimum) and upper tolerance limit (maximum) can be taken over as weighed values from the weighing platform.

- Target and tolerance limits checked during input; values must conform to: Upper limit ≥ Target ≥ Lower limit ≥ 1 digit.

- Checkweighing range: either 30% to 170% of the target, or from 10% to infinity.

- Results are shown on the main display and the bar graph and sent to control output ports for further processing.

- Toggle the main display between weight and tolerances limits by pressing \[ \text{[CF]} \]. If the weight on the readout is outside the tolerance range, “LL” (too low) or “HH” (too high) is displayed.

- Activate info-mode by pressing \[ \text{[Info]} \]
- Automatic printout of results. Configure in the operating menu, under:
  \[ \text{APPL} \text{ 2: CHECK.WG: 4.6.} \]
- Automatic taring of container weight. Configure in the operating menu, under:
  \[ \text{APPL} \text{ 2: TARE: 3.7.} \]
- Automatic initialization when you switch on the Signum with most recently saved application data. Configure in the operating menu, under:
  \[ \text{APPL} \text{ 2: START: 3.8.} \]
- Closing application program; deleting parameters:
  You can select the function of the \[ \text{[CF]} \] key for clearing application data. When an application is active, this key can either delete the values saved for all applications, or delete selected values saved for the active application. Operating menu setting:
  \[ \text{APPL} \text{ 2: SEL.CF: 3.24.} \]
  (select CF key function in applications)

- Tare function:
  1) If you store a tare (weight value) by pressing the \[ \text{[Tare]} \] key, you can later enter a tare value manually. The tare value you enter is added to the stored tare value.
  Setting: menu code 3.25.1 (factory default)
  2) A tare value entered manually overwrites a stored tare value (weight value). If you enter a tare value manually, a tare value (weight value) stored later overwrites the manually entered value.
  Setting: menu code 3.25.2

- Restore factory default settings. Operating menu setting:
  \[ \text{Signum 2: APPL: 2: TARE: 3.25.} \]
  \[ \text{Signum 3: APPL: TARE.F: 3.25.} \]

- Enter absolute values using the keypad or placing the desired amount of weight on the platform and saving the value, or

- by entering each value as a percentage of the target weight

The initial application values are valid until deleted by pressing the \[ \text{[CF]} \] key or until overwritten by new values. They also remain saved after you switch off the scale.

Preparation

- Switch on the scale: Press \[ \text{[O]} \].
- While all segments are lit, press the \[ \text{[CF]} \] key repeatedly until \[ \text{APPL} \] is displayed
- Open the Application menu: Press the \[ \text{[O]} \] key
- Select the Checkweighing application: Press the \[ \text{[CF]} \] key repeatedly until the desired menu item is displayed and press \[ \text{[O]} \] to open the submenu

Application Parameters: Checkweighing

| 4.2. | Checkweighing range | 4.2.1* | 30% to 170% |
| 4.2.2 | 10% to infinity |

4.3. Activate Control Line for “Set” as:

4.3.1* “Set” output
4.3.2 Ready to operate

4.4. Activation of Outputs

4.4.1 Off
4.4.2 Always active
4.4.3 Active at stability
4.4.4* Active within check range
4.4.5 Active at stability within the check range

4.5. Parameter input

4.5.1* Min, max, target
4.5.2 Only target with percent limits

4.6. Automatic Printing

4.6.1* Off
4.6.2 On
4.6.3 Only values within tolerance
4.6.4 Only values outside tolerance

4.7. Checkweighing toward Zero

4.7.1* Off
4.7.2 On

* = Factory setting

Press \[ \text{[O]} \] to save your settings and press \[ \text{[CF]} \] (repeatedly) to exit the operating menu.
Minimum Load
The minimum load required for automatic taring of the container weight on the platform ("autotare first weight"), or for automatic printout of results, is configured in the operating menu, under:

APPL: M:WEIGH: 3.5.

You can choose from the following 10 levels for this setting:

1 digit (no minimum load)
2 digits
5 digits
10 digits
20 digits
50 digits
100 digits
200 digits
500 digits
1000 digits

The “digits” here refer to the scale intervals in the connected weighing platform. If the interval of the connected platform is 1 g, for example, and 1000 digits are required, you must place at least 1000 g (=1000 intervals =1000 digits) on the weighing platform to activate autotaring or autoprint.

Display
The result of a measurement is shown either as a weight value or in relation to the target.

- Weight display mode:
The measured value line always shows the weight value, even if it lies outside the tolerance range.

The bar graph is displayed with symbols indicating lower limit, target and upper limit. The bar shows a logarithmic display of the current load if the weight is anywhere from 0 to the minimum load, and a linear display for weights beyond that range.

- Result = Threshold status
As “Weight display mode” above, with the following exceptions:
- LL is shown on the main display if the weight value is lower than the target, and
- HH is shown on the main display if the weight value is higher than the target

Digital Input/Output Interface
The Checkweighing application supports the digital input/output interface. There are 4 control lines, or outputs, which are activated as follows (see also the diagram on the right):

- Lighter
- Equal
- Heavier
- Set

In the operating menu, under:

APPL 2:
CHECK: 4.4.

you can define whether these control ports are

- off,
- always on,
- activated at stability,
- on within the checking range, or
- active at stability within the checking range

The “SET” output normally changes its voltage level when the load is near the target weight. Alternatively, you can assign the “Operative” function (indicating “Ready-for-use”) to this port. Operating menu setting:

APPL 2:
CHECK: 4.3.

For example, you can use this function to show the weighed or measured result on a simple external indicator.

All data output ports have a high voltage level when:

- the application has not been initialized,
- the weighing instrument is not at stability and one of the “at stability...” parameters is selected
- the weight is not within the checkweighing range

Output Port Specifications
- When not in use, the voltage level is high: >3.7 V/+4 mA
- When activated, the voltage level is low: <0.4 V/-4 mA

⚠️ The data outputs are not protected from short circuits.
Example: 1
Checkweighing samples with a target weight of 1250 g and a tolerance range from –10 g to +30 g
Settings (changes in the factory settings required for this example):
Application parameters: Application: Checkweighing
Setup: Printout: PROT: 7.6; then select menu line item of your choice
(see "Configuration" for options)

1. Enter the initial target and tolerance limit values

2. Place a sample equal to the target weight (in this example, 1250 g) on the platform

3. Save target value

4. Enter value for lower limit (in this example, 1240 g)

5. Save value for the lower limit

6. Enter value for the upper limit (in this example, 1280 g)

7. Weigh samples

8. Print the results
   Note: If automatic printout of results is enabled, you do not need to press the key; the results are printed automatically.
   \[\begin{array}{l}
   \text{Setup} + 1.250 \text{ kg} \\
   \text{Min} + 1.240 \text{ kg} \\
   \text{Max} + 1.280 \text{ kg} \\
   \text{G} + 1.256 \text{ kg} \\
   \text{T} + 0.000 \text{ kg} \\
   \text{N} + 1.256 \text{ kg} \\
   \text{Lim} + 0.48 \% \\
   \text{W Diff} + 0.006 \text{ kg} \\
   \end{array}\]

   * Only in “Tolerance limits” display mode:
   If the weight is lighter than the target, the display shows: \text{LL}
   If the weight is heavier than the target, the display shows: \text{HH}
Example: 1
Checkweighing samples with a target weight of 1250 g and a tolerance range from –10 g to +30 g
Settings (changes in the factory settings required for this example):
Application: Checkweighing toward zero (menu item 4.7.2)
Setup: Printout: PRTPRT: 1.6; then select menu line item of your choice
(see “Configuration” for options)

1. Enter the initial target and tolerance limit values
2. Place a sample equal to the target weight (in this example, 1250 g) on the platform
3. Save target value
4. Enter value for lower limit (in this example, 1240 g)
5. Save value for the lower limit
6. Enter value for the upper limit (in this example, 1280 g)
7. Weigh samples
8. Print the results
   Note: If automatic printout of results is enabled, you do not need to press the (p) key; the results are printed automatically.

<table>
<thead>
<tr>
<th>Setting</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Target</td>
<td>1.250 kg</td>
</tr>
<tr>
<td>Minimum</td>
<td>1.240 kg</td>
</tr>
<tr>
<td>Maximum</td>
<td>1.280 kg</td>
</tr>
<tr>
<td>Gross weight</td>
<td>1.256 kg</td>
</tr>
<tr>
<td>Tare weight</td>
<td>0.000 kg</td>
</tr>
<tr>
<td>Net weight</td>
<td>1.256 kg</td>
</tr>
<tr>
<td>Percentage of deviation from target</td>
<td>0.48 %</td>
</tr>
<tr>
<td>Absolute deviation from target</td>
<td>0.006 kg</td>
</tr>
</tbody>
</table>

* Only in “Tolerance limits” display mode:
  If the weight is lighter than the target, the display shows: LL
  If the weight is heavier than the target, the display shows: HH
Application: Classification

With the Classification application, you can determine whether the weight of a given sample lies within the limits of a defined weight class.

Features

- Classification with 3 or 5 weight classes. Configure in the operating menu, under:
  APPL: 2
  CLASS: 4.8.

- Enter the upper class limits using the keypad or by saving weight values from a load on the platform

- Enter the upper limits of weight classes as absolute values or as a percentage of deviation from the upper limit of Class. Configure in the operating menu, under:
  APPL: 2
  CLASS: 4.9.

- Activate info-mode by pressing (Info) (> 2 sec)

- Toggle the main display between classes and weight values by pressing (Sel).

- Automatic printout of results. Configure in the operating menu, under:
  APPL: 2
  CLASS: 4.10.

- Automatic taring of container weight. Operating menu setting:
  APPL: ATARE: 3.7.

- Automatic initialization when you switch on the Signum with most recently saved application data. Operating menu setting:
  APPL: ASTART: 3.8.

- Closing application program; deleting parameters:
  You can select the function of the (CF) key for clearing application data. When an application is active, this key can either delete the values saved for all applications, or delete selected values saved for the active application. Operating menu setting:
  (select CF key function in applications)

- Tare function:
  1) If you store a tare (weight value) by pressing the (+T) key, you can later enter a tare value manually. The tare value you enter is added to the stored tare value.
  Setting: menu code 3.25.1 (factory default)
  2) A tare value entered manually overwrites a stored tare value (weight value). If you enter a tare value manually, a tare value (weight value) stored later overwrites the manually entered value.
  Setting: menu code 3.25.2
  Operating menu setting:
  Signum 2
  APPL: A: 3.25.
  Signum 3
  APPL: ATARE: F: 3.25.

- Restore factory default settings. Operating menu setting:
  Signum 2
  Signum 3:

To use the Classification application, you need to enter the delimiters that separate one class from another.

The lower limit of Class 1 is defined by the preset minimum load. The other classes are configured by defining their upper limits. There are two ways to enter the delimiters for classes 1 through 3 (or 5):

- By saving the weight value indicated:
  Each upper value, with the exception of the highest, is entered using the keypad or by saving the weight value of a load on the weighing platform.

- By entering a percentage:
  The upper value of Class 1 is entered using the keypad or by saving the value indicated. Upper limits for the other classes are defined by entering a percentage of deviation from the upper limit of Class 1, using the keypad. Example: Enter 100 g as the upper limit of Class 1. Then enter 15%.

When working with 3 classes, this yields the following weight classes:
Class 0: up to the minimum load
Class 1: > minimum load, up to 100 g
Class 2: >100 g to 115 g
Class 3: > 115 g to 130 g
Class 4: >130 g to 145 g
Class 5: > 145 g, up to maximum load

The initial application values are valid until deleted by pressing the (CF) key or until overwritten by new values. They also remain saved after you switch off the scale.

Preparation

- Switch on the scale: Press (On)
- While all segments are lit, press the (+T) key
- Select the Application menu: Press (Fn) repeatedly until APPL is displayed
- Open the Application menu: Press the (+T) key
- Select the Classification application: Press the (Fn) key repeatedly until the desired menu item is displayed and press (+T) to open the submenu

Application Parameters: Classification

| 3.6. Minimum Load for Initialization and Defining the Class 1 Lower Limit |
|-----------------------------|---------------------------------|----------------------------|
| 3.6.1* 1 digit             | 3.6.2 2 digits                  | 3.6.3 5 digits             |
| 3.6.4 10 digits            | 3.6.5 20 digits                 | 3.6.6 50 digits            |
| 3.6.7 100 digits           | 3.6.8 200 digits                | 3.6.9 500 digits           |
| 3.6.10 1000 digits         |                                  |                            |
| 4.3. Activate Control Line for “Set” as: |
| 4.3.1* “Set” output        | 4.3.2 Ready to operate (for process control systems) |
| 4.7. Activation of Outputs |
| 4.7.1 Off                  | 4.7.2 Always active             | 4.7.3* Active at stability |
| 4.8. Number of Classes     |
| 4.8.1* 3 classes           | 4.8.2 5 classes                 |                            |
| 4.9. Parameter Input       |
| 4.9.1* Weight values       | 4.9.2 Percentage                |
| 4.10. Automatic Printing   |
| 4.10.1* Off                | 4.10.2 On                       |

* = Factory setting

- Press (+T) to save your settings and press (+T) (repeatedly) to exit the operating menu.
Minimum Load
The minimum load for the first class is configured in the operating menu, under:

\textit{Appl 2: CLASS: 3.6.}

Once the limit is exceeded by the load, initialization can begin.
Once the application is initialized, a weight value below the minimum load is designated Class 0; no class is displayed.

The minimum load required for automatic taring of the container weight on the platform ("autotare first weight"), or for automatic printout of results, is configured in the operating menu, under:

\textit{Appl: M.weigh: 3.5.}

You can choose from the following 10 levels for this setting:

- 1 digit
- 2 digits
- 5 digits
- 10 digits
- 20 digits
- 50 digits
- 100 digits
- 200 digits
- 500 digits
- 1000 digits

The "digits" here refer to the scale intervals in the connected weighing platform. If the interval of the connected platform is 1 g, for example, and 1000 digits are required, you must place at least 1000 g (=1000 intervals =1000 digits) on the weighing platform for the first class to activate autotaring or autoprint.

Display
The result of a given measurement is shown as either a weight value or the class number.

- Weight display
  The current weight is shown in the measured value line and the current class in the text line.

- Display of classes
  The current class is shown in the measured value line, and the current weight in the text line.

Digital Input/Output Interface
The Classification application supports the digital input/output-interface. There are 4 control lines, or outputs, which are activated as follows (see also the diagram on the right):

- With 3 classes:
  - Class 1
  - Class 2
  - Class 3
  - Set

- With 5 classes:
  - Classes 1/2
  - Classes 2/3/4
  - Classes 4/5
  - Set

In the operating menu, under:

\textit{Appl 2: CLASS: 4.7.}
you can define whether these control ports are

- off,
- always on,
- activated at stability,

The "SET" output normally changes its voltage level when the current weight exceeds the minimum load. Alternatively, you can assign the "Operative" function (indicating "Ready-for-use") to this port.

Operating menu setting:

\textit{Appl 2: CLASS: SECTION 4.3.}

Digital Input/Output Interface
Control lines when working with 3 classes

Digital Input/Output Interface
Control lines when working with 5 classes
Example:
Defining three classes.
Settings (changes in the factory settings required for this example):
Applications: application 2: Classification
Setup: Printout: \textit{PRT\textsc{prot}}: \textit{7.6}.; then select the menu line item of your choice
(see "Configuration" for options)

1. Begin input of class delimiters

2. Enter the upper limit for
   Class 1 via the keypad
   (in this example, 0.110 g)

3. Save the upper limit for
   Class 1

4. Enter the upper limit for
   Class 2 via the keypad
   (in this example, 0.130 g)

5. Save the upper limit for
   Class 2

6. Place the sample on the
   weighing platform

7. Print the result
   Note: If automatic printout
   of results is enabled, you do
   not need to press the \( \text{F7} \) key;
   the results are printed auto-
   matically.

Configured printout:
see page 81

\begin{align*}
\text{Lim1} & + 0.110 \text{ kg} \\
\text{Lim2} & + 0.130 \text{ kg} \\
\text{G#} & + 0.118 \text{ kg} \\
\text{T} & + 0.000 \text{ kg} \\
\text{N} & + 0.118 \text{ g} \\
\text{class} & \text{ 2}
\end{align*}
With the Totalizing application, you can add weight values together in the totalizing memory. In addition to weight values, the quantity of individual values added to memory is also saved (transaction counter).

**Features**

- Totalize up to 999 individual weights
- Save values automatically:
  - Save both net values and calculated values (if available). Configure in the operating menu, under: **APPL 3**: **TOTALIZ**: 3.16.
  - Save weight values and calculated values from either Application 1 (for example, Counting, Weighing in Percent) or Application 2 (Check-weighing). Operating menu setting: **APPL 3**: **TOTALIZ**: 3.22.
- Current transaction number displayed in the text line (indicating the items already added)
- Weighing in up to a defined target, with the totalization memory content + current weight displayed in the text line.
- Save weight values manually or automatically
- Accurate calculation of total of weight values from two weighing platforms
- Activate info-mode by pressing **[INFO]**
- Automatic printout when value saved

With the Totalizing application, you can add weight values together in the totalizing memory. In addition to weight values, the quantity of individual values added to memory is also saved (transaction counter).

**Features**

- Closing application program; deleting parameters:
  - You can select the function of the **[CF]** key for clearing application data.
  - When an application is active, this key can either delete the values saved for all applications, or delete selected values saved for the active application. Operating menu setting: **APPL : SELECT**: 3.24. (select CF key function in applications)
- Tare function:
  1) If you store a tare (weight value) by pressing the **[TARE]** key, you can later enter a tare value manually. The tare value you enter is added to the stored tare value. Setting: menu code 3.25.1 (factory default)
  2) A tare value entered manually overwrites a stored tare value (weight value). If you enter a tare value manually, a tare value (weight value) stored later overwrites the manually entered value. Setting: menu code 3.25.2
- Restore factory default settings. Operating menu setting:
  - Signum 2: **APPL : DEF APP**: 3.1.
  - Signum 3: **APPL : DEF APP**: 3.1.

The Signum has a totalizing memory for adding individual net and gross values. You can save weight values in totalizing memory manually or automatically. Configure in Setup under: **APPL 3**: **TOTALIZ**: 3.16.

- Add a weight value manually by pressing **[OK]**
  - The net value from the active platform is added to the value already saved in totalization memory and the transaction counter value is increased by one. When a value is added manually, the program does not check whether the platform has been unloaded since the last time the **[OK]** key was pressed.
- Value saved automatically when the weighing platform is stable and the defined minimum load is exceeded.
  - If the defined minimum load is not exceeded, you can save the item manually by pressing the **[OK]** key.
  - Regardless of these settings, the current value cannot be saved automatically unless the platform had been unloaded before the current sample was placed on it. The weighing platform is considered to be unloaded when the load less than 50% of the minimum load.

The number of items added to memory is displayed in the text line.

Press the **[CF]** key to clear the totalizing memory. A printout is automatically generated.

With the weighing platforms connected, you can add values from both platforms to the totalizing memory. The displayed result is accurately calculated in the active weight unit.

Example: When you add 1243 g (determined on a weighing platform with three decimal places) to 1400 g (determined on a platform with 1 decimal place) the display shows 2.643 g.
## Preparation

- Switch on the scale: Press \[\text{[OK]}\]
- While all segments are lit, press the \[\text{[OK]}\] key
- Select the Application menu: Press \[\text{[fn]}\] repeatedly until \text{APPL} is displayed
- Open the Application menu: Press the \[\text{[OK]}\] key
- Select the Totalizing application: Press the \[\text{[OK]}\] key repeatedly until the desired menu item is displayed and press \[\text{[OK]}\] to open the submenu

### Application Parameters: Totalizing

- **3.6. Minimum Load for Automatic Storage/Transfer of Values**
  - 3.6.1* 1 digit
  - 3.6.2 2 digits
  - 3.6.3 5 digits
  - 3.6.4 10 digits
  - 3.6.5 20 digits
  - 3.6.6 50 digits
  - 3.6.7 100 digits
  - 3.6.8 200 digits
  - 3.6.9 500 digits
  - 3.6.10 1000 digits

- **3.16. Automatic Storage**
  - 3.16.1* Off
  - 3.16.2 On

- **3.17. Automatic Individual or Component Printout when Value Stored**
  - 3.17.1* Off
  - 3.17.2 Generate printout with complete standard configuration each time \[\text{[OK]}\] is pressed
  - 3.17.3 Generate printout with complete standard configuration only once when \[\text{[OK]}\] is pressed

- **3.22. Source of Data for Values Saved**
  - Automatically
    - 3.22.1 Application 1
    - 3.22.2 Application 2
  - Manually

- **3.23. Value(s) to be Saved**
  - 3.23.1 Net
  - 3.23.2 Calculated
  - 3.23.3 Net and calculated

* = Factory setting

- Press \[\text{[OK]}\] to save your settings and press \[\text{[OK]}\] (repeatedly) to exit the operating menu.

## Minimum Load

The minimum load required for automatic taring of the container weight on the platform ("autotare first weight") is configured in the operating menu, under: \text{APPL : MA: EIGH : 3.5}.

The minimum amount that a component must weigh before it can be saved in totalizing memory is configured in the operating menu, under: \text{APPL 3: TOTAL 12: 3.6}.

You can choose from the following 10 levels for this setting:

- 1 digit
- 2 digits
- 5 digits
- 10 digits
- 20 digits
- 50 digits
- 100 digits
- 200 digits
- 500 digits
- 1000 digits

The "digits" here refer to the scale intervals in the connected weighing platform. If the interval of the connected platform is 1 g, for example, and 1000 digits are required, you must place at least 1000 g (1000 intervals =1000 digits) on the weighing platform for autotaring (only with the "Autotare first weight" option selected).

## Data Record or Printout

In the operating menu, under: \text{APPL 3: TOTAL 12: 3.17}, you can configure whether a printout is generated manually, by pressing \[\text{[Print]}\], or automatically when a weight value is saved in the totalizing memory.

If you select 3.17.1 for this setting, printouts can be generated only manually, by pressing \[\text{[Print]}\] (individual printout). If you select 3.17.2 (printout of a component on request), the full printout is generated every time the "Print" key is pressed.

The total data record is printed when you clear the totalizing memory (by pressing the \[\text{[Clear]}\] key).
**Example:**
Totalizing weight values.

**Settings (changes in the factory settings required for this example):**
Application parameters: Application: Totalizing
Setup: “Print when value stored”; then select menu line items of your choice
(see the chapter entitled “Configuration,” under “Printouts,” page 34)
Setup: Printout: “Total printout: Print when CF pressed;”
then select the menu line items of your choice (see “Configuration” for options)

1. Place the first weight on the weighing platform
weight value is displayed

2. Save the first weight value in totalizing memory
6# + 0.250 kg
T + 0.000 kg
N + 0.250 kg
n + 1

3. Remove the first weight from the weighing platform
weight value is displayed

4. Place the second weight on the weighing platform
weight value is displayed

5. Save the second weight value in totalizing memory
6# + 1.346 kg
T + 0.346 kg
N + 1.000 kg
n + 2

6. Toggle the display between individual and total value

7. End totalizing

*G + 1.346 g
*N + 1.250 g
n + 2

The total data record is printed as configured.

---

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With the Net-total Formulation application, you can weigh in different components up to a defined total. Each component is saved in a net-total memory.

**Features**

- Weigh in up to 999 components in series
- Net-total formulation cannot be combined with a level 1 or level 2 application
- Current component number displayed in the text line (indicating the component to be added)
- Toggle the display between "component mode" and "additive mode" by pressing $w$.
  - Component mode: Display the weight of the component currently on the platform (for 1 second after it is saved; then the platform is tared)
  - Additive mode: Display the weight of all components on the platform (after it is saved, the net weight of the last component added is displayed briefly)
- Toggle to a second weighing instrument while weighing on the first
- Activate info-mode by pressing $\text{Info}$
- Automatic printout each of component as it is saved. Configure in the operating menu, under:
  
  $$\text{APPL: } 3; \text{NET TOT: } 3.17.$$  

  If menu item 3.17.2 is set, the entire component printout is generated every time a component is saved. If menu item 3.17.3 is set, the full printout is generated only once, for the first component: Blank line, date, time, ID1 through ID4, header lines 1 and 2. For subsequent components, each “component” item (“Comp xx”) is followed by a blank line.

- Automatic taring of container weight.  
  Operating menu setting:  
  $$\text{APPL: A.TARE: } 3.7.$$  

- Restore factory default settings.  
  Operating menu setting:  
  $$\text{Signum 2: } \text{APPL: } \text{DEF.APP: } 9.1.$$
Preparation

- Switch on the scale: Press \((\text{ON})\)
- While all segments are lit, press the \((\text{ON})\) key
- Select the Application menu: Press \((\text{Fn})\) repeatedly until \(\text{APPL}\) is displayed
- Open the Application menu: Press the \((\text{ON})\) key
- Select the Net-total Formulation application: Press the \((\text{ON})\) key repeatedly until the desired menu item is displayed and press \((\text{OK})\) to open the submenu

Application Parameters:
Net-Total Formulation

<table>
<thead>
<tr>
<th>3.6.</th>
<th>Minimum Load for Automatic Storage/Transfer of Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.6.1*</td>
<td>1 digit</td>
</tr>
<tr>
<td>3.6.2</td>
<td>2 digits</td>
</tr>
<tr>
<td>3.6.3</td>
<td>5 digits</td>
</tr>
<tr>
<td>3.6.4</td>
<td>10 digits</td>
</tr>
<tr>
<td>3.6.5</td>
<td>20 digits</td>
</tr>
<tr>
<td>3.6.6</td>
<td>50 digits</td>
</tr>
<tr>
<td>3.6.7</td>
<td>100 digits</td>
</tr>
<tr>
<td>3.6.8</td>
<td>200 digits</td>
</tr>
<tr>
<td>3.6.9</td>
<td>500 digits</td>
</tr>
<tr>
<td>3.6.10</td>
<td>1000 digits</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>3.17.</th>
<th>Automatic Individual or Component Printout when Value Stored</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.17.1</td>
<td>Off</td>
</tr>
<tr>
<td>3.17.2*</td>
<td>Generate printout with complete standard configuration each time (\text{OK}) is pressed</td>
</tr>
<tr>
<td>3.17.3</td>
<td>Generate printout with complete standard configuration only once when (\text{OK}) is pressed</td>
</tr>
</tbody>
</table>

* = Factory setting

- Press \(\text{OK}\) to save your settings
- and press \((\text{ON})\) (repeatedly) to exit the operating menu.

Minimum Load
The minimum amount that a component must weigh before it can be saved in net-total memory is configured in Setup under:

\(\text{APPL: NET TOT : 3.6.}\)

Once the limit is exceeded by the load, the value can be saved. If the load is too light, the following will occur when you try to save a value:

- The error code \(\text{INF 29}\) is displayed
- The weighing platform is not initialized

The minimum load required for automatic taring of the container weight on the platform ("autotare first weight") is configured in Setup under:

\(\text{APPL: M.WEIGH : 3.5.}\)

You can choose from the following 10 levels for this setting:

- 1 digit
- 2 digits
- 5 digits
- 10 digits
- 20 digits
- 50 digits
- 100 digits
- 200 digits
- 500 digits
- 1000 digits

The "digits" here refer to the scale intervals in the connected weighing platform. If the interval of the connected platform is 1 g, for example, and 1000 digits are required, you must place at least 1000 g (=1000 intervals =1000 digits) on the weighing platform for initialization.

Net-total Formulation with Two Weighing Platforms
This mode is used for weighing large and small components at the same time.

In this mode, you can toggle from the small-component instrument to the large-component instrument during measurement. Once you toggle to the large-component instrument, the \(\text{c}\) and \(\text{t}\) keys are available until a component is value is saved. For example, you can take a partially-filled container from the small-component instrument and tare it on the large component instrument.

The value in component memory on the small-component instrument is transferred to the large-component instrument and the weight unit is converted, if necessary. The Component and Additive display modes are both available on the large-component instrument.

The value read by the active instrument is saved in component memory. The displayed result is accurately calculated in the active weight unit.

When you press \(\text{CE}\) to stop a measurement series, the tare memories for both platforms are cleared, unless the large-component instrument is in SBI mode, in which case the instrument is only tared.
Example:
Weighing in 3 components of a formulation recipe.
Settings (changes in the factory settings required for this example):
Application parameters: Application: Net-total formulation
then select the menu line item of your choice (see “Configuration” for options)
Setup: Printout: PrtProt: 7.6.: “Total printout: Print when CF pressed;”
then select the menu line item of your choice

1. Place empty container on the platform

2. Tare the scale
   Note: If the automatic tare function is enabled, you do not need to press the [Tare] key to tare the scale; the tare weight is saved automatically when you place the container on the platform
   Prompt to fill and save the first component is shown

3. Add the first component to the container (in this example, 1100 g)
   The weight of the first component is displayed

4. Store the weight of the first component
   Cmp001+ 1.100 kg
   The component weight is printed automatically
The weighing platform is tared and the component counter value is increased by one. Prompt to fill and save the second component is shown.

5 Add the second component to the container (in this example, 525 g)

The weight of the second component is displayed

6 Store the weight of the third component

The component weight is printed automatically

The weighing platform is tared and the component counter value is increased by one. Prompt to fill and save the third component is shown.

7 Toggle to the “additive mode” to view the total weight of all components.

The value displayed equals the weight of all components added up to now plus the current weight.

8 Add the third component to the container, bringing the total up to the desired target (in this example, 2000 g).

The total weight is displayed

9 Store the weight of the third component

The component weight is printed automatically

The component counter value is increased by one. Prompt to fill and save a fourth component is shown

10 End weighing-in operation

Results are printed automatically (configured total printout)

<table>
<thead>
<tr>
<th>n</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tot.cp</td>
<td>2.000 kg</td>
</tr>
<tr>
<td>Cont.T</td>
<td>0.296 kg</td>
</tr>
</tbody>
</table>

Content of component memory

Contents of tare memory (container weight)
Example 1: “Breaking bulk” (Counting, Checkweighing and Totalizing)

Settings (changes in the factory settings required for this example):
Settings: Application 1: Counting (COUNT)
Settings: Application 2: Checkweighing (CHECK.WG)
Settings: Application 3: Totalizing: Value saved: Net + calculated (3.23.3)
Settings: Application 3: Totalizing: Autosave: On (3.16.2)
Settings: Application 3: Totalizing: Source of data: Application 2 (3.22.2)
Settings: Printout, PrtProt: 7B. “Configuration list, total”; then select the menu line items of your choice
"Total printout: Print when [Fn] pressed;” then select the menu line items of your choice (see “Configuration” for options)

1. Switch on the scale and configure as described above
2. Delete any data from previous operation
3. Place empty container on the platform
4. Tare the scale
   Note: If the automatic tare function is enabled, you do not need to press the [T] key to tare the scale; the tare weight is saved automatically when you place the container on the platform
5. Place a number of parts in the container for the reference quantity
   (in this example, 10 pcs)
6. Activate calculation of the reference sample weight
If the weight is too light, the error code 'Inf 29' is shown in the main display.

Reduce the minimum load setting or increase the reference sample quantity and the number of parts in the container.

7 Toggle to Checkweighing

8 Initialize Checkweighing

9 Enter target value, minimum and maximum (in this example, target 100 pieces, minimum 100 pieces, maximum 102 pieces)

11 Add desired number of pieces

The number of pieces is saved automatically

12 Unload the weighing instrument: remove the samples

13 Perform further counting operations as desired

14 Toggle display from individual value to total

15 End the “breaking bulk” operation and print the final evaluation

---

Configured printout

| nRef | + | 10 pcs |
| wRef | + | 0.001000 kg |
| Setp | + | 100 pcs |
| Min  | + | 100 pcs |
| Max  | + | 102 pcs |

| n | + | 6 |
| *N | + | 0.600 kg |
| Total | + | 600 pcs |

---
**Product Data Memory in Signum 3**

**Purpose**
The product data memory stores initialization data and user data (product and tare values).

**Features**
- The product data memory has 100 memory cells for product or tare values
  - For example, you can store 80 sets of application data and 20 tare values
- Each memory cell is unambiguously identified by a number of up to four digits
- The product data memory can be used with the following applications:
  Application level 1:
  - HEIGH
  - COUNT
  - NEUTR.M
  - ANHKG
  - PENC.HG
- Application level 2:
  - CHECK.HG
  - CLASS.

- Data records can be created, overwritten and individually deleted
- Data remains stored when scale is switched off

**Functions**

**Storing base data (in this example, in the Counting application):**
  - Initialize the application.
  - Enter a memory cell number and press and hold the (**Mem**) key.
  - Press the (+) key to scroll the display to the right.
  - Press the (+) key to activate the displayed value.
  - To toggle between wRef (average piece weight) and nRef (quantity), press (**cf**).

**To view information on all product and tare memory data:**
  - Press the (**Mem**) key; the lowest memory cell number is displayed.
  - Press the (+) key to scroll through cell numbers in lexical order (e.g., 1, 3, 333, 4, etc.).
  - Press the (**Mem**) key, to activate the selected memory cell.
  - Press the (**Info**) key to view the stored product values.
  - Press and hold (**cf**) to delete the data in the selected memory cell.
  - Press the (**Info**) key to exit the product memory mode.

**To clear a particular memory cell:**
  - Enter the memory cell number and press the (**cf**) key.

**Example:**

Using the Counting application with a stored average piece weight.
Settings (changes in the factory settings required for this example):
Application parameters: Application: COUNTING

**Storing the average piece weight:**
  - Initialize the application.
  - Determine the average piece weight using one of the methods described above.
  - Enter the memory cell number using the keypad and press and hold the (**Mem**) key.

**Loading the average piece weight or reference sample quantity:**
  - Enter memory cell number and press the (**Info**) key.
  - To toggle between wRef (average piece weight) and nRef (quantity), press (**cf**).
  - Press the (+) key (repeatedly, if desired) to scroll the display to the right.
  - Press the (+) key to activate the displayed value.
  - Press the (**Info**) key to exit the product memory mode.

**Overwriting data in a memory cell:**
  - To store a new average piece weight in a memory cell already in use, enter the desired memory cell number using the keypad and press and hold the (**Mem**) key. The previous average piece weight is overwritten.
  - To clear input without saving the new value, press the (**cf**) key.

**Deleting the average piece weight:**
  - Enter the number of the memory cell in which the average piece weight is stored and press (**Info**).
  - To delete the displayed value, press and hold (**cf**).
### Configuring Printouts

#### Purpose
You can specify which data items are included in printouts. When using the Totalizing or Net-total formulation application, you can also define which parameters are included in the “Total” data record when the (CF) key is pressed.

In the Setup menu under “Printout” you can configure an individual, component or total data record that contains all data items activated for the application program currently in use. The printout should be formatted only after the desired application has been configured, as some of the positions are application-dependent.

#### Features
- **Quantity and content of data record lists:**
  - 6 lists, each with a length of up to 30 data items
  - Individual printout, printer 1
  - Component printout, printer 1
  - Total printout, printer 1
  - Individual printout, printer 2
  - Component printout, printer 2
  - Total printout, printer 2

- You can configure individual, component and total printouts separately (depends on model)

- Generate an individual printout: Press (EF)
  - Automatic printout from application when active in operating menu:
    - Animal weighing/averaging
    - Checkweighing
    - Classification

- Signum 2 and 3 only:
  - Generate component printout:
    - Totalizing/Net-total formulation:
      - Press (OK) (Application parameters:
        - Application: Totalizing: Printing: Component printout)

- Signum 2 and 3 only:
  - Generate total printout:
    - For Totalizing or Net-total application; press the (CF) key

- When you change application programs in Setup, the application-specific data record lists are deleted. Other data record lists remain stored.

- You can delete individual items from the list: press and hold the (DEL) key

- “Form feed” item in the printout footer:
  - For advancing to the start of the next label in print mode "YDP01IS: Label" or "YDP04IS: Label: Manual form feed"

- ISO/GMP-compliant printout:
  - The Setup menu configuration under “ISO/GMP-compliant printout” is also active for configured printouts.

#### Preparation
- **Switch on the scale:** Press (P)

  - While all segments are lit, press the (CF) key

- **Select the Setup menu:** Press (Fn) repeatedly until Setup is displayed

- **Open the Setup menu:** Press the (CF) key

- **Press (Fn) repeatedly until PRTPROT is displayed**

- **Press the (CF) key**

  **PRTPROT (Printout)**

  - 7
    - 7.4 Header and ID header input
    - 7.5 Quantity, interface 1
    - 7.6 Standard, interface 1
    - 7.7 Component, interface 1
    - 7.8 Total, interface 1
    - 7.9 Quantity, interface 2
    - 7.10 Standard, interface 2
    - 7.11 Component, interface 2
    - 7.12 Total, interface 2
    - 7.13 ISO/GMP data record
    - 7.14 Date with/without time
    - 7.15 Automatic printout after stability
    - 7.16 Flex Print
    - 7.17 Decimal separator

- **Save settings and exit operating menu:** Press (OK) repeatedly

#### Additional Functions
- **Printing the “Selection” and “List” Settings**
  - LIST: Print the currently selected list
  - SELECT: Print the items available for selection

- **When the highlight bar is in the LIST or SELECTION column:** Press the (CF) key

> **Printout (example):**

```
Indiv. Prt
List
Net
Gross
Tare
Tare 2
Pieces
================================
```

etc.
Example:
Standard printout for data output from the Counting application

Settings (changes in the factory settings required for this example):
Application parameters: Application: Counting
Then set the printing option: Printout: Interface 1: Print when [P] key pressed

- Select the Setup menu: Press (Fn) repeatedly until SETUP is displayed
- Open the Setup menu: Press the (↓) key
- Press (Fn) repeatedly until PRTPRT is displayed
- Press the (↑) key

1 Press (↓) repeatedly until 7.4 is displayed
2 Press (Fn) repeatedly until 7.6 is displayed
3 Press the (→) key; the list of print items is displayed
4 Press the (↓) key again to open the list of available items
   The first item in the list is shown
5 Press the (↑) key to select the print item displayed and add it to the list of print items.
6 Press the (Fn) key to scroll through the list of available items.
   To view the list of all available items, see the menu printed on pages 34–35 of this manual.

7 Press (Fn) repeatedly until ------ is displayed
8 Press the (→) key to add the selected item
9 Press (Fn) repeatedly until REF.WT. is displayed
10 Press the (→) key to add the selected item
11 Follow the same procedure to add other print items as desired; to delete an individual print item, press and hold the (→) key.
12 To conclude selection of print items, press (→) repeatedly until APPPL. is displayed
13 Press and hold (→) (2 to 3 seconds) to return to weighing mode
14 Perform weighing operations as desired and then print the results
15 Press the (EXIT) key to print results.

Example of a printout
nRef 5 pcs
Qnt 8 pcs
wRef + 0.4000 g
## Interface Port

### For COM1 (25-pin D-Sub female connector)

<table>
<thead>
<tr>
<th>COM1</th>
<th>All Signum models</th>
<th>Signum 2 and 3 only</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard: RS-232</td>
<td>Computer with serial RS-232 input port</td>
<td>Red-green-red display</td>
</tr>
<tr>
<td>SBI/XBPI protocol</td>
<td></td>
<td>YRD14Z (uses digital control lines)</td>
</tr>
<tr>
<td>Printers:</td>
<td></td>
<td>Digital control lines</td>
</tr>
<tr>
<td>YDP04IS</td>
<td></td>
<td>(TTL/ 5V)</td>
</tr>
<tr>
<td>YDP02IS</td>
<td></td>
<td>&amp;&lt;set&gt;;</td>
</tr>
<tr>
<td>YDP12IS</td>
<td></td>
<td>to relay box YSB01</td>
</tr>
<tr>
<td>YDP03-0CE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>External Alibi memory: YAM01IS</td>
<td></td>
<td>Additional digital platform with</td>
</tr>
<tr>
<td>External Bluetooth adapter: YBT01</td>
<td></td>
<td>RS-232 interface</td>
</tr>
<tr>
<td>Second display: YRD02Z</td>
<td></td>
<td>Additional weighing instrument with</td>
</tr>
<tr>
<td>USB adapter cable for</td>
<td></td>
<td>SMA/XBPI protocol</td>
</tr>
<tr>
<td>connecting a computer over</td>
<td></td>
<td></td>
</tr>
<tr>
<td>USB: YCC01IS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Digital in (TTL/ 5V)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Option A31: “clock”

- RS-232 connector
  - As with the standard RS-232 interface, but includes date/time

Universal in: print/ tare

- Print/tare key function

### For UniCOM

Male connector:
- Ethernet: RJ45 socket
- Profibus: D-Sub 9 female connector

UniCOM (can be selected optionally)

- RS-232 Option A1, YDO01SW-232
  - Computer with serial RS-232 input port, SBI/XBPI protocol
  - External Alibi memory: YAM01IS
  - External Bluetooth adapter: YBT01
  - Second display: YRD02Z
  - USB adapter cable for connecting a computer over USB: YCC01-USBM2
  - Second weighing point: scale with RS-232 data output
  - Second weighing point: IS platform with optional RS-232 data output
  - Second weighing point for analog platform (e.g., Combics CAP.. platform) over YCO02IS-0CE transmitter

- RS-422 Option A25, YDO01SW-485/422
  - Point-to-point connection with SBI/XBPI or SMA protocol

- RS-485 Option A3, YDO01SW-485/422
  - Network, up to 32 weighing instruments over XBPI bus
  - Additional IS platform with standard RS-485 data output

- Analog output port option A9, YDO01SW-A0
  - Controllers with analog input

- Dig. 5 In/5 OUT: Option A5, YDO01SW-DIO
  - For connecting the Signum scale to controllers
  - Digital IN: Voltage: 0-30V DC; current: 1 to 2 mA
  - Digital OUT: Voltage: >30V DC; current: 100 mA
  - For specific signals, please refer to the detailed descriptions of the options

- Ethernet: Option B9, YDO01SW-ETH
  - Office or production area network

- Profibus: Option B1, YDO01SW-DP
  - Connect devices over Profibus DP field bus
Connecting a Second Weighing Platform

On Signum 2 and 3 models, you can connect a second weighing platform to either the COM1 or the UniCOM port.

COM1 operates in RS-232 mode.
A second weighing instrument on this port can use the following operating modes:
- SBI
- XBPI-232 (factory setting)
- ADC-232

UniCOM can operate in either the RS-232 mode or in RS-485 mode.
A second weighing instrument on this port can use the following operating modes:
- SBI (RS-232 mode)
- XBPI-232 (RS-232 mode)
- IS-485 (RS-485 mode, XBPI mode; factory setting)
- ADC-485 (RS-485 mode)
- Second A/D converter using additional interface (menu: comspec)

Pin Assignment Chart

Female connectors COM1 and UniCOM:

25-pin D-Submini female connector (DB25S) with screw lock hardware

Pin Assignments in COM1

<table>
<thead>
<tr>
<th>Pin</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Shield</td>
</tr>
<tr>
<td>2</td>
<td>Data output (TXD)</td>
</tr>
<tr>
<td>3</td>
<td>Data input (RXD)</td>
</tr>
<tr>
<td>4</td>
<td>Internal ground (GND)</td>
</tr>
<tr>
<td>5</td>
<td>Clear to send (CTS)</td>
</tr>
<tr>
<td>6</td>
<td>Not connected</td>
</tr>
<tr>
<td>7</td>
<td>Internal ground (GND)</td>
</tr>
<tr>
<td>8</td>
<td>Internal ground (GND)</td>
</tr>
<tr>
<td>9</td>
<td>Not connected</td>
</tr>
<tr>
<td>10</td>
<td>Not connected</td>
</tr>
<tr>
<td>11</td>
<td>+12V for printers</td>
</tr>
<tr>
<td>12</td>
<td>RES_OUTPUT</td>
</tr>
<tr>
<td>13</td>
<td>+5V (on/off for bar code scanner)</td>
</tr>
<tr>
<td>14</td>
<td>Internal ground (GND)</td>
</tr>
<tr>
<td>15</td>
<td>Universal remote switch</td>
</tr>
<tr>
<td>16</td>
<td>Control output &quot;lighter&quot;</td>
</tr>
<tr>
<td>17</td>
<td>Control output &quot;equal&quot;</td>
</tr>
<tr>
<td>18</td>
<td>Control output &quot;heavier&quot;</td>
</tr>
<tr>
<td>19</td>
<td>Control output &quot;set&quot;</td>
</tr>
<tr>
<td>20</td>
<td>Data terminal ready (DTR)</td>
</tr>
<tr>
<td>21</td>
<td>Power supply ground (GND)</td>
</tr>
<tr>
<td>22</td>
<td>Not connected</td>
</tr>
<tr>
<td>23</td>
<td>Not connected</td>
</tr>
<tr>
<td>24</td>
<td>Power supply +15 to 25 V (peripherals)</td>
</tr>
<tr>
<td>25</td>
<td>+5 V</td>
</tr>
</tbody>
</table>

Pin Assignments in UniCOM: RS-232

Connection of external rechargeable battery and bar code scanner (optional UniCOM interface not installed)

<table>
<thead>
<tr>
<th>Pin</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Shield</td>
</tr>
<tr>
<td>2</td>
<td>TXD / *</td>
</tr>
<tr>
<td>3</td>
<td>RXD / *</td>
</tr>
<tr>
<td>4</td>
<td>Internal ground (GND)</td>
</tr>
<tr>
<td>5</td>
<td>CTS / *</td>
</tr>
<tr>
<td>6</td>
<td>Not connected / *</td>
</tr>
<tr>
<td>7</td>
<td>GND / *</td>
</tr>
<tr>
<td>8</td>
<td>GND / *</td>
</tr>
<tr>
<td>9</td>
<td>Not connected / *</td>
</tr>
<tr>
<td>10</td>
<td>Not connected / *</td>
</tr>
<tr>
<td>11</td>
<td>+12V for printers</td>
</tr>
<tr>
<td>12</td>
<td>RES_OUTPUT</td>
</tr>
<tr>
<td>13</td>
<td>+5V switch</td>
</tr>
<tr>
<td>14</td>
<td>Internal ground (GND)</td>
</tr>
<tr>
<td>15</td>
<td>Universal remote switch</td>
</tr>
<tr>
<td>16</td>
<td>Control output &quot;lighter&quot;</td>
</tr>
<tr>
<td>17</td>
<td>Control output &quot;equal&quot;</td>
</tr>
<tr>
<td>18</td>
<td>Control output &quot;heavier&quot;</td>
</tr>
<tr>
<td>19</td>
<td>Control output &quot;set&quot;</td>
</tr>
<tr>
<td>20</td>
<td>Data terminal ready (DTR)</td>
</tr>
<tr>
<td>21</td>
<td>LINE_1_GND</td>
</tr>
<tr>
<td>22</td>
<td>LOW_BAT / *</td>
</tr>
<tr>
<td>23</td>
<td>BATT_ON_OFF / *</td>
</tr>
<tr>
<td>24</td>
<td>LINE_1_B</td>
</tr>
<tr>
<td>25</td>
<td>+5 V</td>
</tr>
</tbody>
</table>

* Pin assignments depend on the UniCOM used

1) Signum 2 and 3 only
2) Signal from battery pack: battery empty
3) Switch off battery pack when weighing instrument is switched off

Pin Assignment for PS2 Socket:

<table>
<thead>
<tr>
<th>Pin</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Keyboard data (data line)</td>
</tr>
<tr>
<td>2</td>
<td>Not connected</td>
</tr>
<tr>
<td>3</td>
<td>GND (ground)</td>
</tr>
<tr>
<td>4</td>
<td>+5 V (e.g., bar code scanner)</td>
</tr>
<tr>
<td>5</td>
<td>Keyboard clock</td>
</tr>
<tr>
<td>6</td>
<td>Not connected</td>
</tr>
</tbody>
</table>

[Diagram of pin assignments]
Interface Port

Cabling Diagram (Adapter Cable for PC)

Display and control unit

Computer

Balance/scale
25-pin male connector

<table>
<thead>
<tr>
<th>TxD 2</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>RxD 3</td>
<td>3</td>
</tr>
<tr>
<td>CTS 5</td>
<td>4</td>
</tr>
<tr>
<td>DTR 20</td>
<td>8</td>
</tr>
<tr>
<td>GND 4/7</td>
<td>6</td>
</tr>
<tr>
<td>GND 14</td>
<td>5</td>
</tr>
</tbody>
</table>

Balance/scale
25-pin male connector

<table>
<thead>
<tr>
<th>TxD 2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>RxD 3</td>
<td>2</td>
</tr>
<tr>
<td>CTS 5</td>
<td>20</td>
</tr>
<tr>
<td>DTR 20</td>
<td>5</td>
</tr>
<tr>
<td>GND 4/7</td>
<td>6</td>
</tr>
<tr>
<td>GND 14</td>
<td>7</td>
</tr>
</tbody>
</table>

Cable type: AWG 24 specification
Configuring the Data Interface as a COM Port ([datprot])

Configure the interface as a COM port in the operating menu under COM1 or UniCOM, under the “Data Protocol ([datprot])” menu item.

SBI Communication
This is a simple ASCII interface. Data output is configured under menu items 6.1 and 6.3:
- Manual output of displayed value with or without stability (menu items 6.1.1 and 6.1.2)
- Automatic output of displayed value with or without stability (menu items 6.1.4 and 6.1.5) at intervals defined by display updates. The number of display updates comprising an output interval is configured under menu item 6.3.
- Output of a configurable printout. Output is linked to the “Printouts” menu item ([prtprot]) (see page 91, “Configuring Printouts;” for details on operating menu settings, see pages 34–35.

If you do not activate and configure a user-definable data record, the printout simply contains the current value displayed on the display and control unit (weight with unit, calculated value, alphanumeric display).

SMA Communication
Standardized communications protocol of the Scale Manufacturers Association

MP8 Binary (as of mid-2007)

Purpose
With the MP8 interface you can connect MP8-generation peripheral devices with separate power supplies to the Signum display and control unit.

Features
- The weighing instrument is used only for determining weight values.
- The data interface transmits only in MP8 binary protocol
- The application program for MP8 can be selected under menu item 3
- The program index 2 for MP8 can be selected under menu item 4.
- “MP8 interface emulation” is not permitted in legal metrology.

Data Input Format (Commands)
You can connect a computer to your scale to send commands controlling weighing instrument functions and applications via the interface port.

All commands use the same data input format, starting with the ESC character (ASCII 27); and ending with a carriage return (CR; ASCII 13) and a line feed (LF; ASCII 10). The total length of a command can be anywhere from 4 characters (1 command character between the start and end described above) to 7 characters (4 command characters).

The table below shows the available command characters; each command must be flanked by the start and end characters described above. Example: The command character for output is “P” (“output to Port”). The string “ESC P CR LF” triggers this command.

<table>
<thead>
<tr>
<th>Command</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>K</td>
<td>Weighing mode 1</td>
</tr>
<tr>
<td>L</td>
<td>Weighing mode 2</td>
</tr>
<tr>
<td>M</td>
<td>Weighing mode 3</td>
</tr>
<tr>
<td>N</td>
<td>Weighing mode 4</td>
</tr>
<tr>
<td>O</td>
<td>Block all keys</td>
</tr>
<tr>
<td>P</td>
<td>Output readout to data interface</td>
</tr>
<tr>
<td>Q</td>
<td>Emit acoustic signal</td>
</tr>
<tr>
<td>R</td>
<td>Release (unblock) keys</td>
</tr>
<tr>
<td>T</td>
<td>Tare and zero (combination tare function)</td>
</tr>
<tr>
<td>f3_</td>
<td>Zero (see also the “kZE_” command)</td>
</tr>
<tr>
<td>f4_</td>
<td>Tare without zeroing (see also the “kF_” command)</td>
</tr>
<tr>
<td>kF1_</td>
<td>F1: Trigger [f1] key function</td>
</tr>
<tr>
<td>kF2_</td>
<td>F2: Trigger [f2] key function (Signum 2 and 3 only)</td>
</tr>
<tr>
<td>kF3_</td>
<td>F3: Trigger [f3] key function (Signum 2 and 3 only)</td>
</tr>
<tr>
<td>kF4_</td>
<td>F4: Trigger [f4] key function (Signum 2 and 3 only)</td>
</tr>
<tr>
<td>kF5_</td>
<td>F5: Trigger [f5] key function (Signum 2 and 3 only)</td>
</tr>
</tbody>
</table>

Output to printer port

kP_ Trigger [p] key function

Output model designation of active weighing instrument

kF7_ (ID) key (Signum 2 only)

kF8_ (Q) key (Signum 3 only)

kF9_ (Menu) key (Signum 3 only)

kCF_ CF: Trigger [cf] key function (Signum 2 and 3 only)

kP_ Trigger [p] key function

Output to printer port

kT_ Trigger [t] key function (tare)

kNW_ Trigger [nw] key function (zero the instrument)

kZE_ Trigger [ze] key function (zero the instrument)

x1_ Output model designation of active weighing instrument. Example: “LP6200S-0C ”

x2_ Output serial number of active weighing instrument. Example: “0012345678 ”

x3_ Output software version of active weighing instrument. Example: “00-37-11 ”

z1_ Activate input for printout header 1

z2_ Activate input for printout header 2

txx...x_: Input text Length acc. to input (Signum 3 only)

The ASCII code for the “underline” character is 95.

Format for entering printout header lines: ESC z x a ... a _ CR LF where x=(header line) 1 or 2; a ... a: = up to 20 characters of text, followed by the “underline” character, carriage return and line feed.

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Data Output Format

Each line in a print job can contain up to 22 characters (up to 20 printable characters plus two control characters). The first 6 characters, called the "data header", identify the subsequent value. You can suppress the header under menu item 7.2 in the "Printouts" menu; in this case, the print job has up to 16 characters (up to 14 printable characters plus two control characters).

Examples:
- Qnt + 235 pcs without header
- Qnt + 235 pcs With header

Display segments that are not activated are output as spaces. Values with no decimal point are output without a decimal point.

Data Output Format with 16 Characters (without Data Header)

Normal Operation:

```
+ 235 pcs
```
without header

```
Qnt + 235 pcs
```
With header

Error Codes:

```
+ * * * E r r * * # * * * * CR LF
```
or
```
+ * * * E r r * * # * * * * CR LF
```
*
Space
#
Error code number (2 or 3 digits)

Example (output of value: +1255.7 g):

```
+ * * * 1 2 5 5 . 7 * * * * CR LF
```

Data Output Format with 22 Characters (with Data Header)

Normal Operation:

```
+ * * * 1 2 5 5 . 7 * * * * CR LF
```

Error Codes:

```
+ * * * E r r * * # * * * * CR LF
```
or
```
+ * * * E r r * * # * * * * CR LF
```
*
Space
#
Error code number (2 or 3 digits)

Example (output of value: +1255.7 g):

```
+ * * * 1 2 5 5 . 7 * * * * CR LF
```

Special Codes:

```
+ * * * E r r * * # * * * * CR LF
```
or
```
+ * * * E r r * * # * * * * CR LF
```
*
Space
#
Error code number (2 or 3 digits)

Example (output of value: +1255.7 g):

```
+ * * * 1 2 5 5 . 7 * * * * CR LF
```

Data Output Format with 22 Characters (with Data Header)

Normal Operation:

```
+ * * * 1 2 5 5 . 7 * * * * CR LF
```

Error Codes:

```
+ * * * E r r * * # * * * * CR LF
```
or
```
+ * * * E r r * * # * * * * CR LF
```
*
Space
#
Error code number (2 or 3 digits)

Example (output of value: +1255.7 g):

```
+ * * * 1 2 5 5 . 7 * * * * CR LF
```

Special Codes:

```
K: ID code character, right-justified with spaces
```
or
```
K: ID code character, right-justified with spaces
```
*
Space
#
Error code number (2 or 3 digits)

Example (output of value: +1255.7 g):

```
+ * * * 1 2 5 5 . 7 * * * * CR LF
```

Data Output Format with 22 Characters (with Data Header)

Normal Operation:

```
+ * * * 1 2 5 5 . 7 * * * * CR LF
```

Error Codes:

```
+ * * * E r r * * # * * * * CR LF
```
or
```
+ * * * E r r * * # * * * * CR LF
```
*
Space
#
Error code number (2 or 3 digits)

Example (output of value: +1255.7 g):

```
+ * * * 1 2 5 5 . 7 * * * * CR LF
```

Special Codes:

```
S t a t * * * * * * * * * * * * * * * * * * * * CR LF
```
or
```
S t a t * * * * * * * * * * * * * * * * * * * * CR LF
```
*
Space
#
Error code number (2 or 3 digits)

Example (output of value: +1255.7 g):

```
+ * * * 1 2 5 5 . 7 * * * * CR LF
```

Interface Port
Error Codes:

<table>
<thead>
<tr>
<th>Pos.</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
<th>14</th>
<th>15</th>
<th>16</th>
<th>17</th>
<th>18</th>
<th>19</th>
<th>20</th>
<th>21</th>
<th>22</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stat</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>#</td>
<td>#</td>
<td>#</td>
<td>#</td>
<td>#</td>
<td>#</td>
<td>#</td>
<td>#</td>
<td>#</td>
<td>#</td>
<td>#</td>
<td>#</td>
<td>#</td>
</tr>
<tr>
<td>or</td>
<td>Stat</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>#</td>
<td>#</td>
<td>#</td>
<td>#</td>
<td>#</td>
<td>#</td>
<td>#</td>
<td>#</td>
<td>#</td>
<td>#</td>
<td>#</td>
<td>#</td>
<td>#</td>
</tr>
</tbody>
</table>

*: Space
#: Error code number (2 or 3 digits)

ID Code Characters

<table>
<thead>
<tr>
<th>ID character</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>G#</td>
<td>Gross value</td>
</tr>
<tr>
<td>N</td>
<td>Net value</td>
</tr>
<tr>
<td>T</td>
<td>Application tare memory 1</td>
</tr>
<tr>
<td>T</td>
<td>Application tare memory 2</td>
</tr>
<tr>
<td>Diff</td>
<td>Difference from calibration value</td>
</tr>
<tr>
<td>Targ.</td>
<td>Exact calibration weight using SBI output</td>
</tr>
<tr>
<td>Nom.</td>
<td>Reference sample weight using SBI output</td>
</tr>
<tr>
<td>nRef</td>
<td>Reference sample quantity</td>
</tr>
<tr>
<td>pRef</td>
<td>Reference percentage</td>
</tr>
<tr>
<td>wRef</td>
<td>Reference sample weight</td>
</tr>
<tr>
<td>Qnt</td>
<td>Result from Counting application</td>
</tr>
<tr>
<td></td>
<td>Result from Counting (piece count) and Neutral Measurement applications</td>
</tr>
<tr>
<td>mDef</td>
<td>Target value for Animal weighing</td>
</tr>
<tr>
<td>x-Net</td>
<td>Result from Animal Weighing</td>
</tr>
<tr>
<td>Setup</td>
<td>Target value for Checkweighing</td>
</tr>
<tr>
<td>W.Diff</td>
<td>Absolute difference (e.g., in kg) in Checkweighing</td>
</tr>
<tr>
<td>Lim</td>
<td>Deviation in % in Checkweighing</td>
</tr>
<tr>
<td>Max</td>
<td>Upper limit for Checkweighing</td>
</tr>
<tr>
<td>Min</td>
<td>Lower limit for Checkweighing</td>
</tr>
<tr>
<td>Stat</td>
<td>Status</td>
</tr>
<tr>
<td>Class x</td>
<td>Classification</td>
</tr>
<tr>
<td>Lim x</td>
<td>Class limit</td>
</tr>
<tr>
<td>D</td>
<td>Percentage (as loss)</td>
</tr>
<tr>
<td>Pr c</td>
<td>Percentage (as residue)</td>
</tr>
<tr>
<td>Wxx%</td>
<td>Reference percentage weight</td>
</tr>
<tr>
<td>Comp xxx</td>
<td>Component xxx</td>
</tr>
<tr>
<td>Cont. T</td>
<td>Contents of the tare memory in Net-total Formulation</td>
</tr>
<tr>
<td>Tot. cp</td>
<td>Total weight in Net-total Formulation</td>
</tr>
<tr>
<td>PT2</td>
<td>Preset tare</td>
</tr>
<tr>
<td>n</td>
<td>Transaction counter</td>
</tr>
<tr>
<td>*G</td>
<td>Sum of gross weights in Totalizing</td>
</tr>
<tr>
<td>*N</td>
<td>Sum of net weights in Totalizing</td>
</tr>
<tr>
<td>Ser. no</td>
<td>Serial number of the platform or display and control unit</td>
</tr>
</tbody>
</table>

Example (output of value: +1255.7 g):

<table>
<thead>
<tr>
<th>Pos.</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
<th>14</th>
<th>15</th>
<th>16</th>
<th>17</th>
<th>18</th>
<th>19</th>
<th>20</th>
<th>21</th>
<th>22</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stat</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>#</td>
<td>#</td>
<td>#</td>
<td>#</td>
<td>#</td>
<td>#</td>
<td>#</td>
<td>#</td>
<td>#</td>
<td>#</td>
<td>#</td>
<td>#</td>
<td>#</td>
</tr>
<tr>
<td>or</td>
<td>Stat</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>#</td>
<td>#</td>
<td>#</td>
<td>#</td>
<td>#</td>
<td>#</td>
<td>#</td>
<td>#</td>
<td>#</td>
<td>#</td>
<td>#</td>
<td>#</td>
<td>#</td>
</tr>
</tbody>
</table>

Position 1–6: ID code character, right-justified with spaces
Position 7: Plus or minus sign or space
Position 8: Space
Positions 9–16: Weight value with decimal point; leading zeros are output as spaces.
Position 17: Space
Positions 18–20: Unit symbol or space
Position 21: Carriage return
Position 22: Line feed

⚠️ If the weight value is output with 10-fold increased resolution, this value is not permitted to be printed or saved in a weighing instrument operated in legal metrology in the SBI mode. In this case, the unit symbol is not included with output.

Configuring the Data Interface as a Printer Port (PRINTER)

You can connect one or two strip printers or one or two label printers to the Signum. Configure the COM1 and UniCOM interfaces as printer ports under the “PRINT” menu item.

There are several actions that generate the command for outputting data to the printer port:
- Pressing the (Esc) key. If the operating menu is active, all menu settings under the active menu level are printed.
- On receipt of the SBI command “Esc k P _”. For details, see “Data Input Format” in this chapter.
- In some applications, pressing a given key (e.g., to save a value or start a routine) also generates a print command. In this case, a configurable printout is generated with application-specific data.

The Ø and ™ symbols are displayed when data is being output to the printer port.
Automatic Data Output (SBI)

You can have results of measurement printed automatically¹. You can configure the autoprint function to print at certain intervals (measured in display updates²) and define whether printing is dependent on stability of the scale³. How often the display is updated depends on the operating status and model of the equipment.

Examples:

| N | + | 153.00 g | Net weight |
| Stat | Display blank |
| Stat | L | Display underload |
| Stat | H | Display overload |

Setting:

1) “Automatic output without stability”
   or
   “Automatic output with stability”
   Factory setting: Manual after stability;
   i.e., automatic data output function off.
2) Time-dependent automatic data output;
   Intervals: 1, 2, 10 or 100 display updates
   Factory setting: 1 display update

Signum 2 and 3 only

External Keyboard Functions (Computer Keyboard)

Configuration

SETUP: BARCODE: EXT.KEY B

The alphanumeric key codes refer to exclusively to the German keyboard layout. The alphanumeric keys are as follows (note: “Shift” key required for some of these characters):

a – z, A – Z, 0 – 9, <space>, Ñ,.,<+><-><@><%><();=:_?*

Application function keys:

<table>
<thead>
<tr>
<th>Computer keyboard</th>
<th>Signum 2 and 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>F1</td>
<td>+1+ key</td>
</tr>
<tr>
<td>F2</td>
<td>←+ key</td>
</tr>
<tr>
<td>F3</td>
<td>← key</td>
</tr>
<tr>
<td>F9</td>
<td>←? key</td>
</tr>
<tr>
<td>F11</td>
<td>SETUP key</td>
</tr>
<tr>
<td>F12</td>
<td>Fn key</td>
</tr>
<tr>
<td>Print</td>
<td>Print key</td>
</tr>
<tr>
<td>Home</td>
<td>CF key</td>
</tr>
<tr>
<td>Backspace key</td>
<td>CF key</td>
</tr>
<tr>
<td>ESC</td>
<td>C key</td>
</tr>
</tbody>
</table>
**GMP-compliant Printout (optional in Signum 1)**

When the corresponding menu item is active, the printout is bracketed by a GMP header and a GMP footer (GMP: “Good Manufacturing Practice”). The GMP header precedes the first measured result. The GMP footer is printed after the last result in a series of measurements (“ISO/GMP/GLP: For several application results,” menu item 7.11.3). To end a series of measured results, press and hold the \( \mathcal{P} \) key (> 2 seconds). In this case, the \( \mathcal{P} \) symbol is displayed after the GMP header is printed and remains in the display until the GMP footer is printed.

If you toggle to a different platform (Signum 2 and 3 only) while a GMP printout of several measured results is being generated (menu item 7.11.3), the GMP footer for the platform used up to that point is generated when you press \( \mathcal{P} \). The GMP header for the other platform is included on the next printout generated.

A GMP-compliant printout is generated automatically at the conclusion of calibration/adjustment, linearization, and when you set or clear a preload.

Three examples of GMP headers and one example of a footer are shown in the following. On Signum 1 models, the “date and time” line is not included.

**Weighing platform WP1:**

---

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>14.01.2007</td>
<td>09:43</td>
</tr>
</tbody>
</table>

Typ: SIWR
Ser.no. 12345678
Vers. 1.1007.12.1
BVers. 01-25-01

---

**GMP footer:**

---

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>14.01.2007</td>
<td>09:45</td>
</tr>
</tbody>
</table>

Name:

---

1) Not applicable for Signum 1 display and control units
2) Signum 2 and 3 only
Error Codes

Error codes are shown on the main display. “Err” codes are shown continuously; “Inf” messages are displayed for 2 seconds, after which the program returns automatically to the weighing mode.

<table>
<thead>
<tr>
<th>Error code</th>
<th>Cause</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>ERR 101</td>
<td>A key is stuck</td>
<td>Release the key, or contact your local Sartorius Service Center</td>
</tr>
<tr>
<td>ERR 320</td>
<td>Operating program memory defective</td>
<td>Contact your local Sartorius Service Center</td>
</tr>
<tr>
<td>ERR 335</td>
<td>Verified platform not compatible with display and control unit</td>
<td>Connect a compatible weighing platform</td>
</tr>
<tr>
<td>ERR 340</td>
<td>Operating parameter (EEPROM) error</td>
<td>Turn the scale off and then on again. If the error code remains displayed, please contact your local Sartorius Service Center</td>
</tr>
<tr>
<td>ERR 343</td>
<td>Data lost from the memory area for transaction numbers in Alibi memory</td>
<td>Contact your local Sartorius Service Center</td>
</tr>
<tr>
<td>INF 01</td>
<td>Data output not compatible with output format</td>
<td>Adjust the settings in the operating menu</td>
</tr>
<tr>
<td>INF 02</td>
<td>Calibration/adjustment condition not met; e.g., scale was not tared, or there is a load on load plate</td>
<td>Calibrate only when zero is displayed Unload the scale Tare the scale by pressing $+$</td>
</tr>
<tr>
<td>INF 03</td>
<td>Calibration/adjustment could not be completed within a certain time.</td>
<td>Allow scale to warm up and then repeat the calibration/adjustment process</td>
</tr>
<tr>
<td>INF 05</td>
<td>Built-in calibration weight defective*</td>
<td>Contact your local Sartorius Service Center</td>
</tr>
<tr>
<td>INF 07</td>
<td>Function not allowed in scales verified for use in legal metrology</td>
<td>Contact your local Sartorius Service Center for information on having the settings changed</td>
</tr>
<tr>
<td>INF 08</td>
<td>The load on the scale is too heavy to zero the readout</td>
<td>Check whether the “Tare zero with power-on” condition (menu item 1.12) has been met.</td>
</tr>
<tr>
<td>INF 09</td>
<td>Taring is not possible when the gross weight is below zero</td>
<td>Zero the scale</td>
</tr>
<tr>
<td>INF 10</td>
<td>Tare key is blocked when there is data in the tare memory</td>
<td>The data stored for the application program must be deleted (clear the memory) before taring.</td>
</tr>
<tr>
<td>INF 22</td>
<td>Error in storing reference value, load is too light</td>
<td>Put a heavier sample on the scale</td>
</tr>
<tr>
<td>INF 23</td>
<td>Error in initializing an application</td>
<td>Contact your local Sartorius Service Center</td>
</tr>
<tr>
<td>INF 29</td>
<td>Minimum load not reached</td>
<td>Define a lower value for the minimum load (in the Application settings, menu item 3.6)</td>
</tr>
<tr>
<td>INF 71</td>
<td>Cannot store the current weight value or input (e.g., control limit too low or too high)</td>
<td>None</td>
</tr>
<tr>
<td>INF 72</td>
<td>Cannot store the current weight value (e.g., the transaction counter has reached its limit)</td>
<td>None</td>
</tr>
<tr>
<td>INF 73</td>
<td>Data not found or unreadable Memory cell number not found or incorrectly allocated</td>
<td>Contact your local Sartorius Service Center Use a memory cell in the appropriate application</td>
</tr>
<tr>
<td>INF 74</td>
<td>Function is blocked (e.g., menu is locked)</td>
<td>None</td>
</tr>
<tr>
<td>INF 98</td>
<td>No weighing platform connected</td>
<td>Contact your local Sartorius Service Center</td>
</tr>
<tr>
<td>INF 99</td>
<td>No weighing platform connected</td>
<td>Contact your local Sartorius Service Center</td>
</tr>
<tr>
<td>NO WP</td>
<td>No weighing platform connected</td>
<td>Contact your local Sartorius Service Center</td>
</tr>
</tbody>
</table>

* only for SIWS models
Care and Maintenance

Cleaning

Unplug the AC adapter from the wall outlet (mains supply). If you have a cable connected to the interface port, unplug it.

Clean the scale using a piece of cloth which has been wet with a mild detergent (soap).

After cleaning, wipe down the scale with a soft, dry cloth.

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

Cleaning Stainless Steel Surfaces

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

Solvents are permitted only for cleaning stainless steel parts.

Corrosive Environment

- Remove all traces of corrosive substances on a regular basis.

Replacing the Dust Cover

- Replace damaged dust covers.

- Place the new dust cover on the display and control unit and press down on the front and back along the edges until the cover is firmly seated.

Safety Inspection

Safe operation of the scale is no longer ensured when:
- there is visible damage to the device or power cord.
- the built-in power supply no longer functions properly.
- the equipment has been stored for a relatively long period under unfavorable conditions (e.g., extreme moisture).
- the equipment has been subjected to rough handling during shipment.

If there is any indication that safe operation of the equipment is no longer warranted:

- Disconnect from power (unplug the equipment from the wall outlet (mains supply))
- Lock the equipment in a secure place to ensure that it cannot be used for the time being.
- Notify your nearest Sartorius Service Center or the International Technical Support Unit based in Goettingen, Germany.

Maintenance and repair work may be performed only by authorized Sartorius service technicians who:
- have access to the required service and maintenance manuals, and
- have attended the relevant service training courses.

The seals affixed to this equipment indicate that only authorized service technicians are allowed to open the equipment and perform maintenance work so that safe and trouble-free operation of the equipment is ensured and the warranty remains in effect. If the verification seals are damaged, the equipment must be re-verified.

Replacing the Dust Cover

- Replace damaged dust covers.
- Place the new dust cover on the display and control unit and press down on the front and back along the edges until the cover is firmly seated.

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Recycling

If you no longer need the packaging after successful installation of the equipment, you should return it for recycling. The packaging is made of environmentally friendly materials and is a valuable source of secondary raw material.

The equipment, including accessories and batteries, does not belong in your regular household waste. European legislation requires that electrical and electronic equipment be collected and disposed of separately from other communal waste with the aim of recycling it.

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

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

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

In countries that are not members of the European Economic Area (EEA) or where no Sartorius affiliates, subsidiaries, dealers or distributors are located, please contact your local authorities or a commercial disposal operator. Prior to disposal and/or scrapping of the equipment, any batteries should be removed and disposed of in local collection boxes. Sartorius AG, its affiliates, subsidiaries, dealers and distributors will not take back equipment contaminated with hazardous materials (ABC contamination) – either for repair or disposal. Please refer to the accompanying leaflet/manual or visit our Internet website (www.sartorius.com) for comprehensive information that includes our service addresses to contact if you plan to send your equipment in for repairs or proper disposal.

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### Specifications

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Digital protective interface</td>
<td>in accordance with EN45501</td>
</tr>
<tr>
<td>Data interface</td>
<td>Bidirectional RS-232 with control outputs (standard equipment)</td>
</tr>
<tr>
<td>Additional data interface</td>
<td>optional</td>
</tr>
<tr>
<td>Display</td>
<td>14-segments, backlit</td>
</tr>
<tr>
<td>Housing Material</td>
<td>Die-cast aluminum</td>
</tr>
<tr>
<td>Operating temperature range</td>
<td>-10°C to 40°C (+14°F to 104°F)</td>
</tr>
<tr>
<td>Humidity</td>
<td>Maximum relative humidity 80% for temperature up to 31°C (~88°F);</td>
</tr>
<tr>
<td></td>
<td>linear decrease down to 50% relative humidity at 40°C (+104°F)</td>
</tr>
<tr>
<td>Protection class of the housing</td>
<td>IP 65</td>
</tr>
<tr>
<td>in accordance with EN 60529:</td>
<td></td>
</tr>
<tr>
<td>Pollution degree</td>
<td>2</td>
</tr>
<tr>
<td>Normal only nonconductive pollution occurs. Temporary conductivity caused by condensation is to be expected.</td>
<td></td>
</tr>
<tr>
<td>Ratings:</td>
<td></td>
</tr>
<tr>
<td>Power supply</td>
<td>100-240 VAC (−15%/+10%), 50-60 Hz, 17 W/23 VA max.</td>
</tr>
<tr>
<td>Transient overvoltage</td>
<td>Overvoltage category II acc. to IEC 60364-4-443</td>
</tr>
<tr>
<td>Operation using protective extra low voltage</td>
<td>See instruction manual for Option L8 (24-volt module)</td>
</tr>
<tr>
<td>DC supply</td>
<td>22.8 ... 26.7 V (optional: 21.6 ... 26.7 V); 12 VA max.</td>
</tr>
<tr>
<td>AC supply</td>
<td>22.8 ... 26.7 V, 50-60 Hz, 12 VA max.</td>
</tr>
<tr>
<td>Operation with rechargeable battery</td>
<td>See Sartorius Installation Instructions for Option L9</td>
</tr>
<tr>
<td></td>
<td>Operation via built-in or external rechargeable battery (only available as an option that must be ordered with the scale)</td>
</tr>
<tr>
<td>Emissions</td>
<td>Acc. to EN613-1 (IEC 61326-1)</td>
</tr>
<tr>
<td></td>
<td>Group 1, Class B, suitable for use in domestic establishments and establishments directly connected to a low-voltage power-supply network that supplies buildings used for domestic purposes</td>
</tr>
<tr>
<td>Immunity to interference:</td>
<td>Acc. to EN61326-1 (IEC61326-1):</td>
</tr>
<tr>
<td></td>
<td>Immunity test requirements for equipment intended for use in industrial locations (Table 2)</td>
</tr>
<tr>
<td>Electrical safety</td>
<td>Acc. to EN 61010-1 (IEC 61010-1)</td>
</tr>
</tbody>
</table>
## Signum Model Designator

<table>
<thead>
<tr>
<th>Model</th>
<th>Sensor technology</th>
<th>Platform dimensions (mm)</th>
<th>Material/ version</th>
<th>Application level</th>
<th>Weighing capacity (kg)</th>
<th>Display resolution</th>
<th>Verifiable/ verified versions</th>
</tr>
</thead>
<tbody>
<tr>
<td>SIW</td>
<td>R(^1)</td>
<td>DC</td>
<td>P(^4)</td>
<td>1</td>
<td>3</td>
<td>L</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2</td>
<td>6</td>
<td>1</td>
<td>N</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3</td>
<td>15</td>
<td>N</td>
<td>NCE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>35</td>
<td>M</td>
<td>BCE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>60</td>
<td>R</td>
<td>BCE</td>
</tr>
</tbody>
</table>

Example, SIWR: SIWRDCP-1-6-L

<table>
<thead>
<tr>
<th>SIW</th>
<th>A(^2)</th>
<th>DC</th>
<th>P(^4)</th>
<th>1</th>
<th>16</th>
<th>S</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2</td>
<td>35</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3</td>
<td>65</td>
<td></td>
</tr>
</tbody>
</table>

Example, SIWA: SIWADCP-2-35-S

<table>
<thead>
<tr>
<th>SIW</th>
<th>S(^3)</th>
<th>DC</th>
<th>P(^4)</th>
<th>1</th>
<th>6</th>
<th>S</th>
<th>SCE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2</td>
<td>16</td>
<td>H</td>
<td>HCE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3</td>
<td>15</td>
<td>K</td>
<td>KCE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>35</td>
<td>T</td>
<td>TCE</td>
</tr>
<tr>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td>D</td>
<td>DCE</td>
</tr>
<tr>
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<td></td>
<td></td>
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<td>P</td>
<td>PCE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>I</td>
<td>ICE</td>
</tr>
</tbody>
</table>

Example, SIWS: SIWSDCP-3-16-H

---

1) SIWR = Regular: standard weighing system (strain-gauge system)
2) SIWA = Advanced: mechatronic weighing system (strain-gauge system)
3) SIWS = Supreme: monolithic weigh cell
4) painted
### Overview

#### Details on Available Resolutions

<table>
<thead>
<tr>
<th>Resolution</th>
<th>Verification Type</th>
<th>Cl. Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resolution &gt; 15,000d non-verifiable</td>
<td>-NCE</td>
<td>Verifiable, dual range (fixed fine range) Cl. 1*3000/3500e</td>
</tr>
<tr>
<td>Resolution &gt; 30,000d non-verifiable</td>
<td>-RCE</td>
<td>Verifiable, single range Cl. 1*6000/7500e</td>
</tr>
<tr>
<td>Resolution &gt; 6000d (fixed fine range) non-verifiable</td>
<td>BCE</td>
<td>Verifiable, single range Cl. 1*9000e</td>
</tr>
<tr>
<td>Resolution &gt; 6000d (adjustable fine range) non-verifiable</td>
<td>BCE</td>
<td>Verifiable, single range Cl. 1*9000e</td>
</tr>
<tr>
<td>Resolution &gt; 60,000d non-verifiable</td>
<td>SCE</td>
<td>Verified at the factory CE, single range Cl. e=10d</td>
</tr>
<tr>
<td>Resolution &gt; 100,000d non-verifiable</td>
<td>SCE</td>
<td>Verified at the factory CE, single range Cl. e=10d</td>
</tr>
<tr>
<td>Resolution ≤ 50,000d (fixed fine range) non-verifiable</td>
<td>KCE</td>
<td>Verified at the factory CE, dual range (fixed fine range) Cl. &lt;= 5000e</td>
</tr>
<tr>
<td>Resolution ≤ 50,000d (adjustable fine range) non-verifiable</td>
<td>TCE</td>
<td>Verified at the factory CE, dual range (adjustable fine range) Cl. &lt;= 5000e</td>
</tr>
<tr>
<td>Resolution &gt; 50,000d (fixed fine range) non-verifiable</td>
<td>DCE</td>
<td>Verified at the factory CE, dual range (fixed fine range) Cl. &gt; 5000e</td>
</tr>
<tr>
<td>Resolution &gt; 50,000d (adjustable fine range) non-verifiable</td>
<td>PCE</td>
<td>Verified at the factory CE, single range with variable scale intervals (adjustable fine range) Cl. &gt; 5000e</td>
</tr>
<tr>
<td>Resolution &gt; 30,000d non-verifiable</td>
<td>ICE</td>
<td>Verified at the factory CE, single range Cl. 30,000e (e=d)</td>
</tr>
</tbody>
</table>
Platform Specifications

Three different types of weighing technology are used in the Signum Series, offering different performance levels.

<table>
<thead>
<tr>
<th>Signum Regular:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Model code</strong></td>
<td>SIWRDCP-1,-2,-3</td>
</tr>
<tr>
<td><strong>Type, accuracy class</strong></td>
<td>DG SI 300, [1]</td>
</tr>
<tr>
<td><strong>Weighing capacity (kg)</strong></td>
<td>-3</td>
</tr>
<tr>
<td><strong>Resolution code</strong></td>
<td>-I</td>
</tr>
<tr>
<td><strong>Weighing capacity (kg)</strong></td>
<td>3</td>
</tr>
<tr>
<td><strong>Readability d</strong></td>
<td>0.1</td>
</tr>
<tr>
<td><strong>Verifiable/verified version</strong></td>
<td>-BCE</td>
</tr>
<tr>
<td><strong>Readability e (g)</strong></td>
<td>1</td>
</tr>
<tr>
<td><strong>Preload (kg)</strong></td>
<td>1</td>
</tr>
<tr>
<td><strong>Repeatability [s] (g)</strong></td>
<td>0.2</td>
</tr>
<tr>
<td><strong>Linearity (g)</strong></td>
<td>0.3</td>
</tr>
<tr>
<td><strong>Ambient temperature (only for use in legal metrology)</strong></td>
<td>-10°C to +40°C (14°F to 104°F)</td>
</tr>
<tr>
<td><strong>Calibration weight (g)</strong></td>
<td>2,000</td>
</tr>
<tr>
<td><strong>- Accuracy class</strong></td>
<td>M1</td>
</tr>
</tbody>
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<td>DG SI 300, [1]</td>
</tr>
<tr>
<td><strong>Weighing capacity (kg)</strong></td>
<td>-15</td>
</tr>
<tr>
<td><strong>Resolution code</strong></td>
<td>-N</td>
</tr>
<tr>
<td><strong>Weighing capacity (kg)</strong></td>
<td>6/15</td>
</tr>
<tr>
<td><strong>Readability d</strong></td>
<td>2/5</td>
</tr>
<tr>
<td><strong>Verifiable/verified version</strong></td>
<td>-NCE</td>
</tr>
<tr>
<td><strong>Readability e (g)</strong></td>
<td>2</td>
</tr>
<tr>
<td><strong>Preload (kg)</strong></td>
<td>3</td>
</tr>
<tr>
<td><strong>Repeatability [s] (g)</strong></td>
<td>0.2</td>
</tr>
<tr>
<td><strong>Linearity (g)</strong></td>
<td>0.8</td>
</tr>
<tr>
<td><strong>Ambient temperature (only for use in legal metrology)</strong></td>
<td>-10°C to +40°C (14°F to 104°F)</td>
</tr>
<tr>
<td><strong>Calibration weight (g)</strong></td>
<td>5,000</td>
</tr>
<tr>
<td><strong>- Accuracy class</strong></td>
<td>M1</td>
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</tbody>
</table>

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</tr>
<tr>
<td><strong>Type, accuracy class</strong></td>
<td>DG SI 300, [1]</td>
</tr>
<tr>
<td><strong>Weighing capacity (kg)</strong></td>
<td>-35</td>
</tr>
<tr>
<td><strong>Resolution code</strong></td>
<td>-N</td>
</tr>
<tr>
<td><strong>Weighing capacity (kg)</strong></td>
<td>15/35</td>
</tr>
<tr>
<td><strong>Readability d</strong></td>
<td>5/10</td>
</tr>
<tr>
<td><strong>Verifiable/verified version</strong></td>
<td>-NCE</td>
</tr>
<tr>
<td><strong>Readability e (g)</strong></td>
<td>5/10</td>
</tr>
<tr>
<td><strong>Preload (kg)</strong></td>
<td>6</td>
</tr>
<tr>
<td><strong>Repeatability [s] (g)</strong></td>
<td>1</td>
</tr>
<tr>
<td><strong>Linearity (g)</strong></td>
<td>1.5</td>
</tr>
<tr>
<td><strong>Ambient temperature (only for use in legal metrology)</strong></td>
<td>-10°C to +40°C (14°F to 104°F)</td>
</tr>
<tr>
<td><strong>Calibration weight (g)</strong></td>
<td>10,000</td>
</tr>
<tr>
<td><strong>- Accuracy class</strong></td>
<td>M1</td>
</tr>
</tbody>
</table>
### Signum Regular:

<table>
<thead>
<tr>
<th>Model code</th>
<th>SIWRDCP-1,-2,-3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type, accuracy class</td>
<td>DG SI 300,</td>
</tr>
<tr>
<td>Weighing capacity (kg)</td>
<td>-60</td>
</tr>
<tr>
<td>Resolution code</td>
<td>-N -R -L -I -M</td>
</tr>
<tr>
<td>Weighing capacity (kg)</td>
<td>30/60 60 60 60 30/60</td>
</tr>
<tr>
<td>Readability d</td>
<td>10/20 10 5 2 10/20</td>
</tr>
<tr>
<td>Verifiable/verified</td>
<td>-NCE -RCE -BCE</td>
</tr>
<tr>
<td>Readability e (g)</td>
<td>10/20 10 20</td>
</tr>
<tr>
<td>Preload (kg)</td>
<td>12</td>
</tr>
<tr>
<td>Repeatability [s] (g)</td>
<td>2</td>
</tr>
<tr>
<td>Linearity (g)</td>
<td>3</td>
</tr>
<tr>
<td>Ambient temperature</td>
<td>-10°C to +40°C (14°F to 104°F)</td>
</tr>
<tr>
<td>Calibration weight (g)</td>
<td>20,000</td>
</tr>
<tr>
<td>Accuracy class</td>
<td></td>
</tr>
</tbody>
</table>

### Signum Advanced:

<table>
<thead>
<tr>
<th>Model code</th>
<th>SIWADCP-1,-2,-3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weighing capacity (kg)</td>
<td>-7 -16 -35 -65</td>
</tr>
<tr>
<td>Resolution code</td>
<td>-S -S -S -S</td>
</tr>
<tr>
<td>Weighing capacity (kg)</td>
<td>7 16 35 65</td>
</tr>
<tr>
<td>Readability d</td>
<td>0.1 0.2 0.5 1</td>
</tr>
<tr>
<td>Preload (kg)</td>
<td>-</td>
</tr>
<tr>
<td>Repeatability [s] (g)</td>
<td>0.2 0.4 1 2</td>
</tr>
<tr>
<td>Linearity (g)</td>
<td>0.3 0.8 2 4</td>
</tr>
<tr>
<td>Ambient temperature</td>
<td>+10°C to +30°C (14°F to 86°F)</td>
</tr>
<tr>
<td>Calibration weight (g)</td>
<td>2,000 5,000 10,000 20,000</td>
</tr>
<tr>
<td>Accuracy class</td>
<td>F2 F2 F2 F2</td>
</tr>
</tbody>
</table>

### Signum Supreme:

<table>
<thead>
<tr>
<th>Model code</th>
<th>SIWSDCP-1,-2,-3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type, accuracy class</td>
<td>BG SI 200,</td>
</tr>
<tr>
<td>Weighing capacity (kg)</td>
<td>-6 -16 -16 -16 15 -35 -35 -35</td>
</tr>
<tr>
<td>Resolution code</td>
<td>-S -H -K -T -I -D -P -H</td>
</tr>
<tr>
<td>Weighing capacity (kg)</td>
<td>6 16 3.5/16 3.5/16 15 7/35 7/35 35</td>
</tr>
<tr>
<td>Readability d</td>
<td>0.1 0.1 0.1/1 0.1/1 0.5 0.1/1 0.1/1 0.1</td>
</tr>
<tr>
<td>Verifiable/verified version</td>
<td>-SCE -HCE -KCE -TCE -ICE -DCE -PCE -HCE</td>
</tr>
<tr>
<td>Readability e (g)</td>
<td>1 1 1 1 0.5 1 1 1</td>
</tr>
<tr>
<td>Preload (kg)</td>
<td>5</td>
</tr>
<tr>
<td>Repeatability [s] (g)</td>
<td>0.08 (verified models acc. to EN 45501)</td>
</tr>
<tr>
<td>Linearity (g)</td>
<td>0.2 (verified models acc. to EN 45501)</td>
</tr>
<tr>
<td>Ambient temperature</td>
<td>+10°C to +30°C (14°F to 104°F)</td>
</tr>
<tr>
<td>Calibration weight (g)</td>
<td>5,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000</td>
</tr>
<tr>
<td>Accuracy class</td>
<td>F2 F1 F1 F1 F1 F1 F1 F1</td>
</tr>
</tbody>
</table>
Dimensions (Scale Drawings)

All dimensions are given in millimeters
Overview

YDP03–0CE

Accessories/Options

Printer and printer accessories:

<table>
<thead>
<tr>
<th>Description</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Verifiable printer with functions for date, time and statistical evaluations</td>
<td>YDP03–0CE</td>
</tr>
<tr>
<td>Printer paper for data printer (5 rolls; length per roll: 50 m)</td>
<td>6906937</td>
</tr>
<tr>
<td>Replacement ink ribbon cartridge</td>
<td>6906918</td>
</tr>
</tbody>
</table>

YDP04IS–0CEUV

<table>
<thead>
<tr>
<th>Description</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Verifiable strip and label printer with thermal print head, up to 60 mm paper width, with external 100–240V power supply</td>
<td>YDP04IS–0CEUV</td>
</tr>
<tr>
<td>Connecting cable required</td>
<td>YCC01–01CISLM3</td>
</tr>
<tr>
<td>Verifiable strip and label printer with thermal print head, up to 108 mm paper width, with external 100–240V AC adapter and power cord (EU+US); for use only with flexible print formatting, connecting cable required.</td>
<td>YDP12IS–0CEUV</td>
</tr>
<tr>
<td>Labels for YDP04IS–0CEUV + YDP12IS–0CEUV</td>
<td>YCC01–01CISLM</td>
</tr>
<tr>
<td>Labels 58x30 mm (1000 pcs)</td>
<td>69Y03092</td>
</tr>
<tr>
<td>Labels 58x76 mm (500 pcs)</td>
<td>69Y03093</td>
</tr>
<tr>
<td>Labels 58x100 mm (380 pcs)</td>
<td>69Y03094</td>
</tr>
<tr>
<td>Labels for YDP12IS–0CEUV</td>
<td>69Y03195</td>
</tr>
<tr>
<td>Labels 101x127 mm (305 pcs)</td>
<td>69Y03196</td>
</tr>
<tr>
<td>Printer paper for YDP04IS–0CEUV + YDP12IS–0CEUV</td>
<td>69Y03090</td>
</tr>
<tr>
<td>3 paper rolls; 60 mm × 75 m, thermo paper</td>
<td>69Y03090</td>
</tr>
<tr>
<td>for YDP12IS–0CEUV</td>
<td>69Y03196</td>
</tr>
<tr>
<td>1 paper roll; 101 mm × 75 m, thermo paper</td>
<td>69Y03234</td>
</tr>
</tbody>
</table>

YDP12IS–0CEUVTH

<table>
<thead>
<tr>
<th>Description</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Verifiable strip and label printer with thermal print head, up to 108 mm paper width, with external 100–240V power supply: and power cord (EU+US), for use only with flexible print formatting, connecting cable required.</td>
<td>YDP12IS–0CEUVTH</td>
</tr>
<tr>
<td>3 color ink cartridges for YDP12IS–0CEUVTH</td>
<td>69Y03234</td>
</tr>
<tr>
<td>Product</td>
<td>Order No.</td>
</tr>
<tr>
<td>------------------------------------------------------------------------</td>
<td>--------------------</td>
</tr>
<tr>
<td><strong>Interfaces</strong></td>
<td></td>
</tr>
<tr>
<td>UniCOM: RS-232 interface module</td>
<td>YDO01SW-232</td>
</tr>
<tr>
<td>UniCOM: RS-485/422 interface module</td>
<td>YDO01SW-485/422</td>
</tr>
<tr>
<td>UniCOM: analog current output interface module</td>
<td>YDO01SW-AO</td>
</tr>
<tr>
<td>UniCOM: Ethernet interface module</td>
<td>YDO01SW-ETH</td>
</tr>
<tr>
<td>UniCOM: digital I/O interface module</td>
<td>YDO01SW-DIO</td>
</tr>
<tr>
<td>UniCOM: Profibus DP interface module</td>
<td>YDO01SW-DP</td>
</tr>
<tr>
<td>Cable for connecting RS-232 data interface to USB interface on the PC</td>
<td>YCC01-USBM2</td>
</tr>
<tr>
<td>External Bluetooth module (box, external)</td>
<td>YBT01</td>
</tr>
<tr>
<td>Adapter plate for retrofitting: UniCOM</td>
<td>YAS01SW-CON</td>
</tr>
<tr>
<td>Adapter plate for retrofitting: Ethernet</td>
<td>YAS01SW-ETH</td>
</tr>
<tr>
<td>Adapter plate for retrofitting: Profibus</td>
<td>YAS01SW-DP</td>
</tr>
<tr>
<td><strong>Electrical Accessories</strong></td>
<td></td>
</tr>
<tr>
<td>External red/green/red display</td>
<td>YRD14Z</td>
</tr>
<tr>
<td>Second (remote) display (not for use in legal metrology)</td>
<td>YRD02Z</td>
</tr>
<tr>
<td>Bar code scanner, 120 mm scanning width, with cable for Signum 2 and 3</td>
<td>YRB02-PS2</td>
</tr>
<tr>
<td>Foot switch, incl. D-Sub 25-pin T-connector</td>
<td>YFS01</td>
</tr>
<tr>
<td>Hand switch, incl. D-Sub 25-pin T-connector</td>
<td>YHS02</td>
</tr>
<tr>
<td>External Alibi memory for electronic storage of weighing data</td>
<td>YAM01IS</td>
</tr>
<tr>
<td>Scanner for loading weighing data in a PC from YAM13IS card</td>
<td>YAM02IS</td>
</tr>
<tr>
<td>Power supply for YAM01IS or YAM02IS</td>
<td>YAM11IS</td>
</tr>
<tr>
<td>Memory card for YAM01IS</td>
<td>YAM13IS</td>
</tr>
<tr>
<td>Cable for YD0015W-A0 current interface, with open cable ends; for example, 5x = 5m</td>
<td>6906926</td>
</tr>
<tr>
<td>Cable for connecting Signum display and control unit</td>
<td>YCC01-10CIM3</td>
</tr>
<tr>
<td>Cable (D-Sub 9-pin) for connecting YAM01IS Alibi memory to a computer.</td>
<td>69EM0012</td>
</tr>
<tr>
<td><strong>Software</strong></td>
<td></td>
</tr>
<tr>
<td>Flexible formatting options for printouts (e.g., bar code, variable sizes, sizes, inserting graphics, etc.)</td>
<td>YAD02IS</td>
</tr>
<tr>
<td>Sartorius WinScale driver software for Windows 95/98/2000/NT. Displays the scale readout on your computer monitor and provides secure memory for storing data that is subject to legal control. YCC01-09ISM5 RS-232 connecting cable required (RS-485 cable available on request)</td>
<td>YSW03</td>
</tr>
<tr>
<td>SartoConnect data transfer software (for loading weight values in a computer running Windows 95/98/NT and processing with an application program such as MS Excel, Access, etc.) incl. adapter cable (1.5 m) from weighing instrument to computer (12-pin to 9-pin)</td>
<td>YSC01L</td>
</tr>
<tr>
<td><strong>Mechanical Accessories</strong></td>
<td></td>
</tr>
<tr>
<td>Column (for mounting display and control unit)</td>
<td>YDH01P</td>
</tr>
<tr>
<td>Stainless steel wall-mounting bracket, tiltable</td>
<td>YDH01CIS</td>
</tr>
<tr>
<td>Stainless steel wall-mounting bracket</td>
<td>YDH02CIS</td>
</tr>
<tr>
<td>Dust covers (set of 2)</td>
<td>YDC01SW</td>
</tr>
</tbody>
</table>
Declarations of Conformity

In 1985, the Council of the European Community approved a resolution concerning a new approach to the technical harmonization and standardization of national regulations. Monitoring compliance with the directives and standards concerning the C 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 technology and provide many years of trouble-free service.

The CE marking is affixed only to weighing instruments and associated equipment that comply with the following Directives:

Applicable European Standards:

1. Electromagnetic compatibility:

1.1 Reference to 89/336/EEC:
Official Journal of the European Communities, No. 2001/C105/03
EN 61326-1 Electrical equipment for measurement, control and laboratory use EMC requirements
Part 1: General requirements
Defined immunity to interference:
Industrial areas, continuous un-monitored operation
Limitation of emissions: Residential areas, Class b

Note:
The operator shall be responsible for any modifications to Sartorius equipment (not permitted in legal metrology!) 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).

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.

This Directive regulates the determination of mass in legal metrology. The Declaration of Type Conformity for weighing instruments verified by Sartorius for use as legal measuring instruments that have an EC Type-Approval Certificate is included with the respective documentation as follows:
- Signum Scale: this manual
- Sartorius weighing module (e.g., IS…-CE) connected to Signum: weighing module manual
- Signum with Option A15 (A/D converter for connecting a reference scale):
  - Sartorius platform: platform manual
  - Platform from a different manufacturer: Option A15 manual or the enclosed "Guide to Verification" (on CD-ROM).
This Directive also regulates 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. The legal basis for EC verification is 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, and the accreditation of the Quality Management System of Sartorius AG by Lower Saxony’s Regional Administrative Department of Legal Metrology (Niedersächsische Landesverwaltungsamt – Eichwesen) from February 15, 1993. For additional information on the CE mark on Sartorius equipment, see Sartorius Publication No. W- -0052-c93081.

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. For more information on the verification of weighing instruments for use in legal metrology, contact the Sartorius Service Center.

The modular electronic precision weighing instrument of the series SIW.DC.-.-.-... meets the applicable requirements of the test standards listed below, in conjunction with auxiliary peripheral devices and installation equipment listed in Annex A2 (see Annex A1 for a technical description and a list of the individual versions).

1. Electromagnetic Compatibility
   1.1 DIN EN 61326-1 Electrical equipment for measurement, control and laboratory use - EMC requirements —
   Part 1: General requirements (IEC 61326-1:2005); German version EN 61326-1:2006
   1.2 Test report no.: SAG.07.EMC.001, SAG.07.EMC.004, SAG.07.EMC.005, 0343, 0352, 0353, 0354

2. Safety of Electrical Equipment
   2.1 DIN EN 61010-1 Safety requirements for electrical equipment for measurement, control and laboratory use —
   Part 1: General requirements (IEC 61010-1:2001); German version EN 61010-1:2001
   2.2 Test report no.: SAG.06.LVD.003

3. Equipment or protective systems or components intended for use in potentially explosive atmospheres and for use in presence of combustible dust
   3.1 DIN EN 60079-0 Electrical apparatus for explosive gas atmospheres —
   Part 0: General requirements (IEC 60079-0:2004); German version EN 60079-0:2004
   DIN EN 60079-15 Electrical apparatus for explosive gas atmospheres —
   Part 15: Construction, test and marking of type protection "n" electrical apparatus (IEC 60079-15:2005); German version EN 60079-15:2005
   3.2 DIN EN50014 Electrical apparatus for potentially explosive atmospheres —
   DIN EN 50281-1-1 Electrical apparatus for use in the presence of combustible dust —
   Part 1-1: Electrical apparatus protected by enclosures; construction and testing; German version EN 50281-1-1:1998 and amendment A1:2002
   3.3 Test report no.: SAG.05.ATEX.003

Sartorius AG
37070 Göttingen, Germany
2007

C. Olsendorf
Vice President, R&D, Technological Operations
B. Innovations and Authorized Officer
Mechtronics Division

Dr. D. Klausgreté
Head of International Certification Management
Mechtronics Division
Declaration of Type Conformity to Directive No. 90/384/EEC

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

<table>
<thead>
<tr>
<th>Model</th>
<th>Weighing instrument type</th>
<th>Accuracy class</th>
<th>EC type-approval certificate no.</th>
</tr>
</thead>
<tbody>
<tr>
<td>SIWS...-CE</td>
<td>BG SI 200</td>
<td>(C)</td>
<td>D07-09-010</td>
</tr>
<tr>
<td>SIWR...-CE</td>
<td>DG SI 300</td>
<td>(C)</td>
<td>D07-09-010</td>
</tr>
</tbody>
</table>

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 most recently amended 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 letter "M" stamped on it (the two-digit number in large print stands for the year in which the mark was affixed):

If these marks are not on the ID label, this Declaration of Type Conformity is not valid. Validity can be obtained, for example, by submitting the weighing instrument for final processing 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. This declaration applies only to the weighing instrument without peripheral devices.

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

Sartorius AG
37070 Goettingen, Germany
Signed in Goettingen on 06 June 2007

Dr. G. Maaz
President of the Mechatronics Division

J. Behr
Head of the Production Department
Mechatronics/Weighing Technology Division
Physikalisch-Technische Bundesanstalt
Braunschweig und Berlin

EG-Bauartzulassung
EC type-approval certificate

Zulassungsinhaber: Sartorius AG
Issued to: Weender Landstr. 94-108
37075 Göttingen

Rechtsbezug:
In accordance with:
§ 13 des Gesetzes über das Mess- und Eichwesen (verification act)
vom/dated 23. März 1992 (BGBl. I S. 711), zuletzt geändert am (last
amended on) 02.02.2007 (BGBl. I S. 55), in Verbindung mit Richtlinie (in
connection with council directive) 90/384/EWG, geändert durch (amended by)
93/68/EWG

Bauart:
In respect of:
Nichtselbsttätige elektromechanische Waage mit oder ohne Hebelwerk
Nonautomatic electromechanical weighing instrument with or without
lever system

Typ / Type:
BG SI 200, DG SI 300, DX SI 300
Max 0.1 kg … 300 t Option: Mehrbereichs- und Mehrteilungswaage
multi-interval and multiple range instrument

Zulassungsnummer:
Approval number:
D07-09-010

Gültig bis:
Valid until:
21.05.2017

Anzahl der Seiten:
Number of pages:
15

Geschäftszeichen:
Reference No.:
PTB-1.12-4029663

Benannte Stelle:
Notified Body:
0102

Im Auftrag
By order

Marcus Link

Braunschweig, 22.05.2007

Siegel
Seal

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.
Plates and Markings

Valid only for types BG SI 200 and DG SI 300 not in combination with type DX SI 300.

Mains supply unlocked locked Interfaces (optional)
Menu access switch

Housing model for indicating and operator device (display and control unit) with built-in rechargeable battery pack

K Descriptive plate (ID label) with CE mark
M Green metrology sticker
S Protective mark (self-adhesive label or seal)
S* Protective mark, for transferable labels only (detachable labels that remain intact after removal)
MD Metrological data: Max, Min, e and d
T Plate with model designation

Type of weighing instrument: BG SI 200, DG SI 300, DX SI 300
EC type-approval certificate D07-09-010
Valid for types BG SI 200 and DG SI 300 in combination with type DX SI 300

Housing model for indicating and operator device (display and control unit): type DX SI 300 with Option A15 (optional built-in ADC)

Locking plate over menu access switch: the plate and one screw on the circuit board must be secured

Load receptor connection

Valid only for type DX SI 300

Screw

Menu access switch unlocked locked

Alternative separable plug connection between indicator and load receptor for type DX SI 300

Load receptor Plug Indicator

Do not connect or disconnect while energized Connected to indicator no.: ...

Plate

If there is a junction box between the load receptor and the electronic evaluation unit, it must be secured against tampering (type DX SI 300 only).

Type of weighing instrument: BG SI 200, DG SI 300, DX SI 300
EC type-approval certificate D07-09-010
For type BG SI 200 or DG SI 300 without type DX SI 300

Example of descriptive plate on a weighing instrument that has been verified

```
SARTORIUS AG GERMANY
CE07 6111 M

D07-09-010
BG SI 200
+10 °C / -30 °C
II
11114444
```

Example of plate with model designation

```
SARTORIUS AG GERMANY
SIW516DCE-ICE
A1, L7 X1, M1, R1, S10
11114444
```

Example of label with metrological data

```
Max 15 kg  Min 25 g  d= 0,5 g
```

For type BG SI 200 or DG SI 300 in combination with type DX SI 300
(not for type DX SI 300 alone)

Example of descriptive plate on a weighing instrument that has been verified

```
SARTORIUS AG GERMANY
CE07 6111 M

D07-09-010
BG SI 200
+10 °C / -30 °C
II
11114444
```

Example of plate with model designation

```
SARTORIUS AG GERMANY
SIW516DCE-ICE
A1, L7 X1, M1, R1, S10, A15
11114444
```

Example of labels with metrological data

```
A 1  Max 15 kg  Min 25 g  d= 0,5 g
A 2  Max 30 kg  Min 200 g  d= 0,5 g
R 1  Max 10 g  Min 10 g
R 2  Max 60 kg  Min 400 g  d= 20 g
```

Example of plate with platform model designation for type DX SI 300

```
SARTORIUS AG GERMANY
CAP1S1-60FE-NCE
A1, L7 X1, M1, R1, S0
22225555
```

Type of weighing instrument: BG SI 200, DG SI 300, DX SI 300
EC type-approval certificate D07-09-010

PPS1190607e
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When you select the Setup menu item, the password prompt is displayed for 2 seconds, and then cursor flashes in the position of the first characters of the password.

Repeatedly: \( k \), Enter the password
Repeatedly: \( k \), Press \( k \) to enter letters
Repeatedly: \( k \), and \( k \) to save.
Repeatedly: \( k \), Press the \( k \) key (to scroll through numbers in ascending order: 0 to 9)
Repeatedly: \( k \), or the \( k \) key (to scroll through numbers in descending order: 9 to 1, and then 0) as often as needed to enter the desired characters.
Repeatedly: \( k \), If your password is longer than 7 characters, the display scrolls to the right to show the last character.
Repeatedly: \( k \), The password entered is now displayed.
Repeatedly: \( k \), Confirm the password as entered
Repeatedly: \( k \), Return to next higher menu level
Repeatedly: \( k \), Save setting and exit the operating menu

General Password:
40414243