Minebea intec
The true measure

Operating Instructions

IBC PR 5500/86

Translation of original operating instructions 9499 050 55300 Edition 1.3.0 09/01/2020

Release 1.11

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Foreword

Must be followed!

Any information in this document is subject to change without notice and does not represent a commitment on the part of Minebea Intec unless legally prescribed. This product should only be operated/installed by trained and qualified personnel. In correspondence concerning this product, the type, name, and release number/serial number as well as all license numbers relating to the product have to be cited.

Note

Table of contents

1 Introduction

1.1 Read the manual

- Please read this manual carefully and completely before using the product.
- This manual is part of the product. Keep it in a safe and easily accessible location.

1.2 This is what operating instructions look like

1. - n. are placed before steps that must be done in sequence.

▶ is placed before a step.

▷ describes the result of a step.

1.3 This is what lists look like

- indicates an item in a list.

1.4 This is what menu items and softkeys look like

[ ] frame menu items and softkeys.

Example:

[Start]- [Applications]- [Excel]

1.5 This is what the safety instructions look like

Signal words indicate the severity of the danger involved when measures for preventing hazards are not followed.

⚠ **DANGER**

Warning of personal injury

DANGER indicates death or severe, irreversible personal injury which will occur if the corresponding safety measures are not observed.

▶ Take the corresponding safety precautions.

⚠ **WARNING**

Warning of hazardous area and/or personal injury

WARNING indicates that death or severe, irreversible injury may occur if appropriate safety measures are not observed.

▶ Take the corresponding safety precautions.

⚠ **CAUTION**

Warning of personal injury.

CAUTION indicates that minor, reversible injury may occur if appropriate safety measures are not observed.

▶ Take the corresponding safety precautions.

NOTICE

Warning of damage to property and/or the environment.

NOTICE indicates that damage to property and/or the environment may occur if appropriate safety measures are not observed.

▶ Take the corresponding safety precautions.

Note:

User tips, useful information, and notes.

1.6 Hotline

Phone: +49.40.67960.444

Fax: +49.40.67960.474

eMail: help@minebea-intec.com

2 Overview

2.1 General information

These operating instructions describe the configuration and operation of the "IBC" application.

For installation, basic configuration, and calibration of the device, please refer to the PR 5500 installation manual and the operating instructions.

2.2 Equipment supplied

2.2.1 Components

The IBC product consists of the following components:

- Maxxis 4 basic unit with software "BIOS," "firmware" and application software "IBC", including license
- license for dosing E9 (PR 5500/93)
- Manuals in PDF format on CD-ROM

The "IBC" application requires installation of the following programs in the device:

- BIOS
- Firmware
- Application "IBC"

PR 1721/6x or PR 1721/7x fieldbus cards are supported, see Chapter 2.2.3.

The application supports Alibi memory, see Chapter 2.2.2.

2.2.2 Accessories (not included with the equipment supplied)

- Plug-in cards for Option-1/FB, Option-2, see Chapter 2.2.3
- Software (license):
  - PR 1792/13 OPC server communication
  - Alibi memory
- Scales:

  A maximum of one scale can be controlled and displayed.

Note:

The following weighing functions are **not** supported:

- Liquid counter
- User scale
- SBI scale

2.2.3 Plug-in cards

Product	Description	Position
PR 5500/04 2 x RS-485 serial interfaces	The interface can be configured by software. For further information, refer to the PR 5500 installation manual.	Option-1/FB and/or Option-2
PR 5500/07 1 analog input 1 analog output	Analog input: internal 14 bits binary = 20,000 counts, @ e.g. 0...20 mA/0...10 V Analog output: internal 16 bits = 65,536 counts, resolution of 20,000 @ 20 mA For further information, refer to the PR 5500 installation manual.	Option-1/FB and/or Option-2
PR 5500/10 (W1) Weighing electronics	Internal weighing electronics for connecting load cells or weighing platforms in non-Ex areas. For further information, refer to the PR 5500 installation manual.	WP A
PR 5500/12 4 digital inputs 4 digital outputs	4 passive opto-decoupled inputs 4 relay outputs with potential-free change-over contacts For further information, refer to the PR 5500 installation manual.	Option-1/FB and/or Option-2
PR 5500/13 4 digital inputs 4 digital outputs	4 active opto-decoupled inputs 4 relay outputs with potential-free change-over contacts For further information, refer to the PR 5500 installation manual.	Option-1/FB and/or Option-2
PR 5500/17 6 digital inputs 8 digital outputs	6 passive opto-decoupled inputs 8 passive opto-decoupled outputs For further information, refer to the PR 5500 installation manual.	Option-1/FB and/or Option-2
PR 5500/32 2 RS-232 serial interfaces	The interface can be configured by software. For further information, refer to the PR 5500 installation manual.	Option-1/FB and/or Option-2
PR 1721/61 ProfiBus-DP	ProfiBus DP V0 slave with 9.6 kbit/s...12 Mbit/s, baud rate auto-detection For further information, refer to the PR 5500 installation manual.	Option-1/FB (Connection card installed rotated)
PR 1721/64 DeviceNet	DeviceNet master-slave with 125, 250, and 500 kbit/s For further information, refer to the PR 5500 installation manual.	Option-1/FB (Connection card installed rotated)

Product	Description	Position
PR 1721/65 CC-Link	CC-Link master-slave with 10 Mbit/s For further information, refer to the PR 5500 installation manual.	Option-1/FB (Connection card installed rotated)
PR 1721/66 ProfiNet I/O	ProfiNet I/O with 10 Mbit/s and 100 Mbit/s, auto-detection (10/100, HalfDX/FullDX) For further information, refer to the PR 5500 installation manual.	Option-1/FB (Connection card installed rotated)
PR 1721/67 EtherNet IP	EtherNet IP with 10 Mbit/s and 100 Mbit/s, auto-detection (10/100, HalfDX/FullDX) For further information, refer to the PR 5500 installation manual.	Option-1/FB (Connection card installed rotated)
PR 1721/76 ProfiNet I/O 2-port	ProfiNet I/O with 10 Mbit/s and 100 Mbit/s, auto-detection (10/100, HalfDX/FullDX) For further information, refer to the PR 5500 installation manual.	Option-1/FB (Connection card installed rotated)
PR 1721/77 EtherNet IP 2-port	EtherNet IP with 10 Mbit/s and 100 Mbit/s, auto-detection (10/100, HalfDX/FullDX) For further information, refer to the PR 5500 installation manual.	Option-1/FB (Connection card installed rotated)

2.3 Function of application "IBC"

The IBC application is used for the batching of single components.

The application enables fast and reliable filling and emptying of IBCs, i.e. transportable intermediate containers of all kinds (Big-Bags, containers, etc.), with powder or granular media.

The standard software package is therefore tailored to these requirements.

Entries in the production parameters are required; filling and emptying parameters are application-dependent within their scope and are stored in a container database. The result is an operating concept that is characterized by simplicity and easy handling.

Display functions

- Display gross weight, net weight, and tare
- Set tare/reset tare
- Set gross weight to zero
- Print weight value
- Weight value display or remote display
- Functions via digital inputs/outputs
- Information exchange via serial interface, fieldbus and network

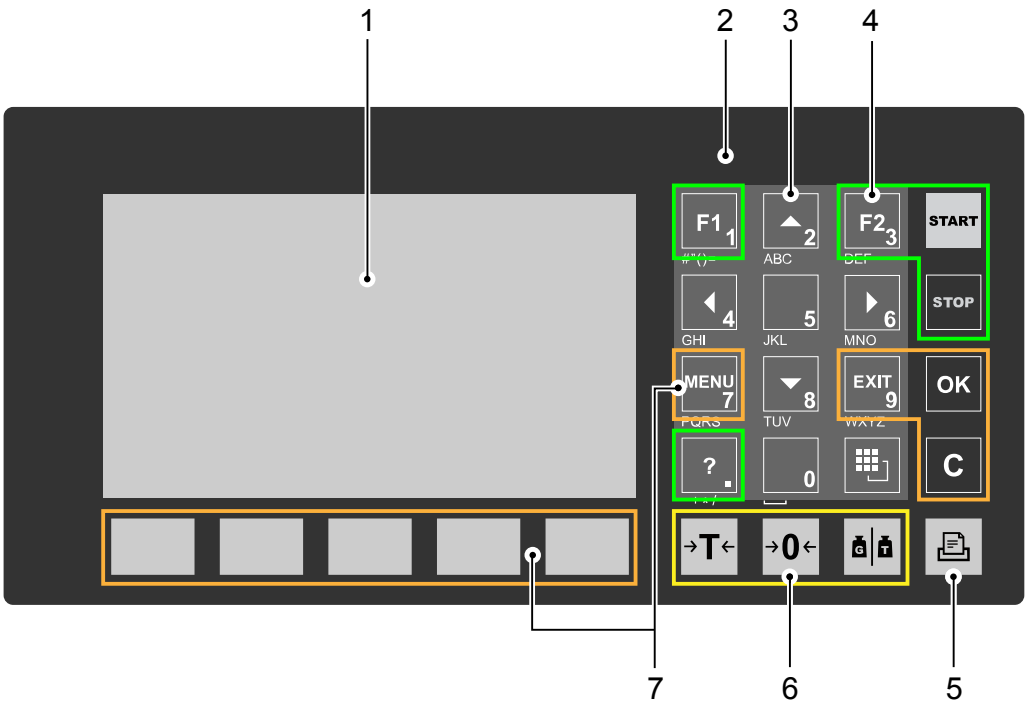
Batching function

- Net filling and emptying batching
- Gross filling and emptying batching
- Complete emptying
- Tolerance checking
- Automatic overshoot correction
- Material flow monitoring
- Create material consumption reports
- Create batching reports
- Create weight reports

3 Operating

3.1 Display and operating elements

3.1.1 Overview



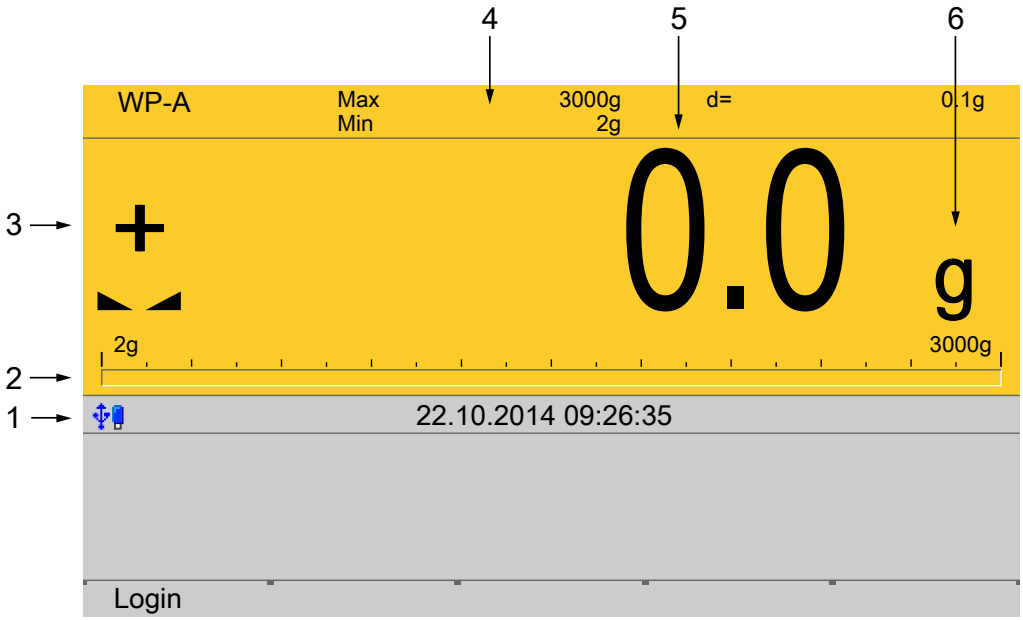
No.	Name
	Display elements
1	4.3" TFT color display, see Chapter 3.1.2
2	LED status display, see Chapter 3.1.3
	Operating elements, see Chapter 3.1.4.1
3	Alphanumeric keys Navigation keys (key 2, 4, 6, 8)
4	Function keys
5	Application key
6	Indicator keys
7	Menu keys, incl. soft keys

3.1.2 TFT user interface display

The TFT color graphics display can show weight values of up to 7 digits with decimal point and plus or minus sign. The available mass units are t, kg, g, mg, lb, or oz.

The lb and oz units are not permitted for use in legal metrology in the EU and EEC.

Below the weight display, the currently displayed weight is shown in a bar graph that indicates the percentage of the maximum capacity (Max). 0 is on the left, and 100% on the right.



No.	Description
1	Info line
2	Bar graph
3	Weight type/plus or minus sign/standstill
4	Status display
5	Weight value
6	Symbols/mass unit

Weight type/plus or minus sign	Description
B	Gross weight
G	Gross weight in NTEP or NSC mode
NET	Net weight (Net = gross - tare)
T	Tare weight
PT	Preset tare, not tared
No display	- Test value - Gross, not tared
User	Additional weight display, application-dependent
Setp	Additional weight display, application-dependent
Diff	Additional weight display, application-dependent
+	Positive value
–	Negative value

Standstill/zero/batching/monitoring	Description
	Weight value standstill
→0←	The gross weight value is within ±¼ d of zero
◇	Batching mode: flashes when batching is "stopped"; rapid flashing indicates "error status"
	Pendeo load cells: Plausibility monitoring; the average deviation of the individual load cells is calculated
	Pendeo load cells: Temperature monitoring; 1–n load cells above or below permissible temperature

Symbols/mass unit	Description
⚠	Value not permissible in legal metrology (e.g., 10x resolution, deactivated load cell)
R1	Range 1
R2	Range 2
R3	Range 3
WP A	Weighing point A
Max	Maximum capacity (weighing range)
Min	Minimum weight
t, kg, g, mg, lb, oz	These mass units are available.

Status icons in the info line

Icon	Description
	Remote control via VNC (Virtual Network Computing) is active.
	General warning
	- The clock battery is empty. - The standby battery is empty.
	The standby battery is too hot and is not charging. If this does not go away, the ambient temperature must be checked, see PR 5500 installation manual under [Technical data] - [Environmental influences] - [Ambient conditions] .
	- An unsupported USB device is connected. - The maximum current of i_{max} = 200 mA has been exceeded.
	Check newly connected devices.

Icon	Description
	USB stick was recognized and is operational.
	Stick is in use and may **not** be removed.
	Conflict in the network settings of the IP address.

3.1.3 LEDs

Operating status	Color	LED status	Description
Normal operation		Off	
System ready (standby)	Red	Continuous illumination	The display is switched off.
Power interruption <5 seconds	Red	Slow flashing	After 5 seconds, the device returns to normal operation.
Power interruption >5 seconds	Red	Fast flashing	The device is running a data backup. Once power is restored, the device returns to normal operation (LED off).
After the data backup, there is still a power interruption.		Off	The device switches off.
		Off	The device initiates a warm start, see PR 5500 operating instructions.

3.1.4 Operating elements

- Operation using the front-panel keys, see Chapter 3.1.4.1
- Operation using the soft keys, see Chapter 3.1.4.2
- Operation using the navigation keys, see Chapter 3.1.4.3
- Operation using the PC keys, see Chapter 3.1.4.4

3.1.4.1 Operation using the front-panel keys

The following table shows the basic meanings of the symbols on the front-panel keys. Depending on the applications, the keys may also have other meanings.

Indicator keys

Key	Description
→T←	**Set tare** The current gross weight is stored in the tare memory, provided that - the weight value is stable. - the device is not in error status. (Function is dependent on configuration)

Key	Description
→0←	Sets gross weight to zero, provided that - the weight value is stable. - weight is within zero setting range. (Function is dependent on configuration)
G|T	**Display gross/tare weight** Pressing the key switches to the next weight (only with tared scale). During calibration, pressing this key displays the weight for 5 seconds with 10x resolution.

Application keys

Key	Description
	Starts an application-specific printout. Configuration is performed in the operating menu [Configuration] - [Print-out] - [...].

Navigation keys

Key	Description
▲	Scroll up in the menu.
▼	Scroll down in the menu.
◀	- Cursor to the left - Selection - Exit menu window.
▶	- Cursor to the right - Selection - Confirm input/selection.

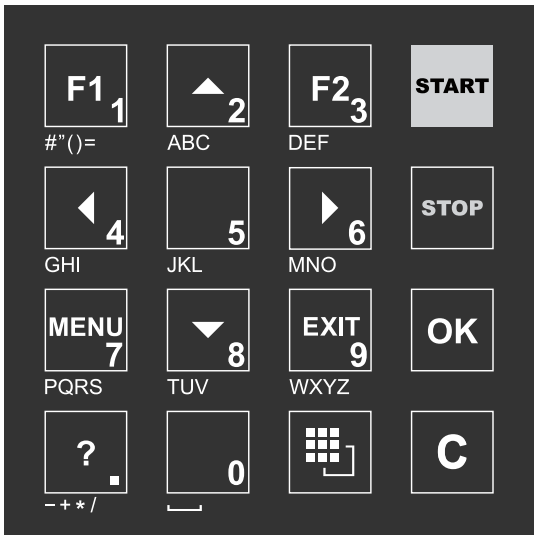
Menu keys

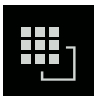
Key	Description
OK	Confirm input/selection.
EXIT	- Cancel entry/selection (after a confirmation prompt) without saving the change. - Exit parameters/menu window.
C	Pressing the delete key deletes individual characters (within an entry) or whole strings of characters.
Soft key 1 to 5	Select appropriate menu function, see also Chapter 3.1.4.2.
MENU	Switch to the operating menu.

Function keys

Key	Description
F1	Assigned to a defined function (see system menu [System setup] - [Operating parameters]).
F2	Assigned to a defined function (see system menu [System setup] - [Operating parameters]).
?	Displays the relevant help window.
START	Starts a process
STOP	Same functions as the indicator key **EXIT**.

Alphanumeric keypad





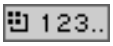
Toggle key

Pressing switches between the following functions:

- 
  Cursor
- 

  Uppercase letters
- 

  Lowercase letters
- 

  Pinyin
  When Chinese has been selected or set under [Operating parameters] - [Input method].
- Hepburn
  When Japanese has been selected or set under [Operating parameters] - [Input method].
- 

  Numbers
- 

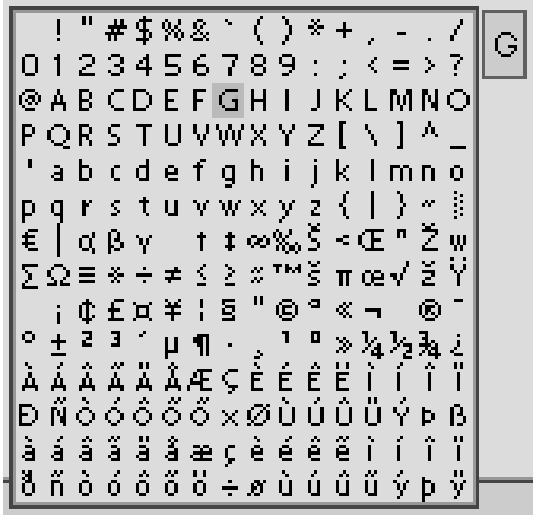
  Units
  Select the unit using the cursor keys ▲/▼ and confirm using the key **OK**.

Note:

It is also possible to select a unit by double-clicking on the shift key.

Input without the character table

Pressing once displays the corresponding first character, e.g., "A", at the cursor position. After pressing twice, "B" is displayed at the cursor position and after pressing three times, "C" is displayed.
If only numeric values are required for input, letters are not enabled.
Press the cursor key ◀ within an entry to return to the previous character.
Press the cursor key ▶ within an entry to select the next character.
Within an entry, pressing the delete key **C** deletes the character to the left of the cursor.
Outside of an input, pressing the delete key **C** deletes the whole string of characters.



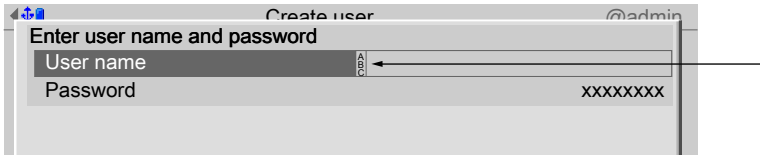
Input with the character table
Double-clicking on the key displays the character table.
Only characters authorized for this input are displayed.

Note:
Only possible when entering text, not when entering numbers or weights.
The switching function is turned off.

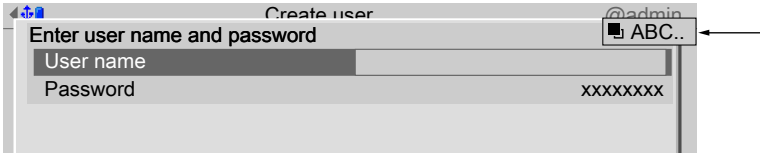
Procedure:
- Highlight the desired character with the cursor.
- The selected character is shown magnified in the field at the top right.
- Press the key **OK** to enter the character in the input field.
- Another double-click on the toggle key and other characters can be input as described previously.

Input field

In principle:
If alphanumeric characters are already present in the input field of the selected line, they will be completely overwritten after immediate entry.
If alphanumeric characters are already present in the input field of the selected line, you can press the cursor key ▶ to select the characters to be overwritten and overwrite them.



In front of the input field it is indicated whether numeric and/or alphabetic characters can be entered (see arrow).
Switch to the input field using the cursor key ▶.



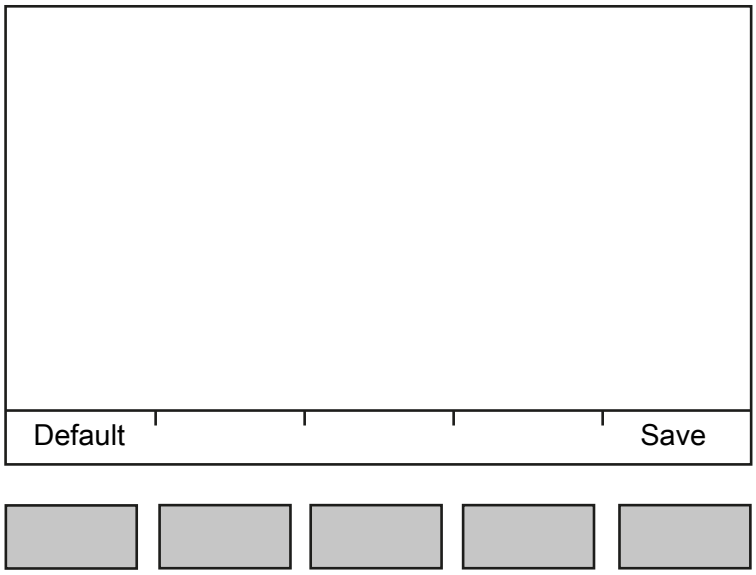
The respective options are displayed (see arrow).

Note:
The character table is turned off.

Keyboard shortcuts

STOP + EXIT	Trigger a cold start, see also PR 5500 operating manual.

3.1.4.2 Operation using softkeys



The functions of the five softkeys below the graphic display are indicated in the bottommost text line of the display. Softkey functions shown in gray cannot be selected at the active menu level or with the current access privileges.

In the descriptions of operating sequences which entail the use of softkeys, the softkey function to be selected is shown in square brackets; the softkey symbol is not displayed; example: [Save].

3.1.4.3 Navigation key operation

Menu

The cursor keys, the **OK** and **EXIT** keys are used to navigate through the menus.

Parameters

Use the ▼/▲ cursor keys to select the individual parameters.

Use the **OK** key to confirm the selection.

The required values | texts are entered via the alphanumeric keys.

The **OK** key is used to check the ☑ box.

If the list of parameters is long, a vertical bar graph on the left (black and gray) shows which part of the list is displayed.

An existing selection list is indicated by an arrow ▶ following it.

The parameter is selected using the **OK** key.

3.1.4.4 Operation via PC keys

The device can also be operated using a PC keyboard. The corresponding key assignment is shown in the table below:

PC keyboard	Front keypad
F1	**F1**
F2	**F2**
F3	**?**
F4	**MENU**
F5...F9	Softkey 1...5
F10	
F11	START
F12	STOP
Print	
ESC	**EXIT**
Cursor keys: ↑, ↓, ←, →	▲, ▼, ◀, ▶
Enter key: ↵	**OK**
Backspace key: ←	**C**

4 Application menu

4.1 Production

Production	
├ **Start production**	See Chapter 4.1.1.
├ **Start Refill**	See Chapter 4.1.2.
├ **Start Clean up**	See Chapter 4.1.3.

4.1.1 Start production

Production	
├ **Start production**	Produce selected order/process.

Start production	
├ **Order**	It is only possible to select an order if the "Use order" parameter has been enabled under [Configuration]- [Common parameters].
│ ├ **Start**	Start order.
│ ├ **Edit**	Only appears if orders are available in the order list. The individual parameters are enabled/ disabled under [Configuration]- [Common parameters]. See Chapter 4.2.3.
│ ├ **New**	Create a new order.
├ **Processes**	It is only possible to select a process if the "Use order" parameter has been disabled under [Configuration]- [Common parameters]. If no processes are available in the process list, then an error message appears.
│ ├ **Start**	Start process.
│ ├ **Edit**	The individual parameters are enabled/ disabled under [Configuration]- [Common parameters]. See Chapter 4.2.2.

4.1.2 Start refilling

Production	
├ **Start refilling**	This menu item is only displayed if the "Use refilling" parameter has been enabled under [Configuration] - [Common parameters] .

Start refilling	
├ **Process ID**	It is only possible to select a refilling process if the "Use order" parameter has been disabled under [Configuration] - [Common parameters] . If no processes are available in the process list, then an error message appears.
├ **Start**	Start refilling.

├ **Edit**	The individual parameters are enabled/ disabled under [Configuration] - [Common parameters] . See Chapter 4.2.2.

4.1.3 Start tidy up

Production

├ **Start tidy up**	This menu item is only displayed if the "Use tidy up" parameter has been enabled under [Configuration]- [Common parameters].

Start tidy up

├ **Process ID**	It is only possible to select a tidy up process if the "Use order" parameter has been disabled under [Configuration]- [Common parameters]. If no tidy up processes are available in the process list, then an error message appears.

4.2 Databases

Databases

├ **Components**	see Chapter 4.2.1
├ **Processes**	see Chapter 4.2.2
├ **Orders**	see Chapter 4.2.3
├ **Products**	see Chapter 4.2.4
├ **Container**	see Chapter 4.2.5

4.2.1 Components

Databases

├ **Components**

Components

├ **New**	Create component; parameters are dependent on the component type.
│ ├ **ID**	Component identification Input: max. 18 alphanumeric characters.
│ ├ **Name**	Component name Input: max. 18 alphanumeric characters.
│ ├ **Type**	Selection: No operation; Net filling; Net refilling; Net decrease; Gross filling; Gross decrease; Discharge; Register; Manual filling; Manual filling, no check; Timer; Stop; Wait for SPM; Set SPM; Reset SPM; Wait + reset SPM; Analog output; Analog input; dialog; Wait for analog input value
│ ├ **Weighing point**	Selection: WP-A
│ ├ **Dosing signals**	Selection: Coarse, Coarse/Fine, Coarse/Fine/ Middle
│ ├ **Signal mode**	Selection: digital, digital + analog
│ ├ **Coarse SPM %SPM**	Only if "Digital + analog" selected.

	Input: SPM address, see Chapter 10.
Coarse SPM name	Input: max. 18 alphanumeric characters.
Coarse value	Input: 0.01...<100> %
Middle preset	Switch off point before middle connection Input: Weight; Adopt unit from the calibration.
Middle SPM %SPM	Only if "Digital + analog" selected. Input: SPM address, see Chapter 10.
Middle SPM name	Input: max. 18 alphanumeric characters.
Middle value	Input: 0.01...<50>...100%
Fine preset	Switch off point before fine connection Input: Weight; Adopt unit from the calibration.
Fine SPM %SPM	Only if "Digital + analog" selected. Input: SPM address, see Chapter 10.
Fine SPM name	Input: max. 18 alphanumeric characters.
Fine value	Input: 0.01...<10>...100%
Overshoot	Switch-off point before reaching the set point Input: Weight; Adopt unit from the calibration.
Material flow	Material flow monitoring Input: Unit weighing point/min
Restart mode	Performance when tolerance exceeded, Post-batching, see Chapter 6.3.4.19 Selection: Mode 0...4
+Tolerance/-Tolerance	Tolerance above/below set point in %
Calming time	Waiting time before determining weight in s
Enabled by bit %MX	The enable bit starts a component. The phase waits until the bit is set.
Enable bit name	Input: max. 18 alphanumeric characters. Selection: Defined SPM addresses, see Chapter 4.5.5
Active bit %MX	The bit is set while the phase is running. It is a status bit and means: Component "XYZ" is currently working.
Active bit name	Input: max. 18 alphanumeric characters. Selection: Defined SPM addresses, see Chapter 4.5.5
Dialog data type	Selection: No dialog, Message only, Text, Integer number, Real number, Weight, Yes/No, New set point
Message	e.g. for the selection "Text": Input: max. 18 alphanumeric characters.
Default	Settings are reset to factory settings.
Save	The settings are saved.
Edit	Edit components, see [Components]- [New] .
Delete	Selected
Print	Selection: Print data of the selected component, Print list of all components, Print data of all components,

4.2.2 Processes

Databases
- **Processes** — Only possible if at least one component has been created previously.

Processes
- **New** — Create process; parameters are dependent on the process type.
  - **ID** — Process identification
Input: max. 18 alphanumeric characters.
  - **Name** — Process name
Input: max. 18 alphanumeric characters.
  - **Type** — Selection: Production, filling, tidy up process
  - **Line** — Successive process line no. in the process task
  - **Component ID** — Select component per process line.
  - **Set point** — Set point of the component
  - **+Tolerance/-Tolerance** — Tolerance above/below set point in %
  - **Add to total of process** — Check the ☑ box to add the relevant set points to the overall process total, see also page 101.
  - **Recalculate** — Check the ☑ box to enable the line set point recalculation, see also page 103.
  - **Insert** — Insert process line in order to insert the next component.
  - **Line-/Line+** — Change to the previous/next process line.
  - **Delete** — Delete process line.
  - **Save** — The input is saved. Afterwards the process can be edited further after pressing the [Edit] softkey.
- **Edit** — Edit process, see [Process]- [New] .
- **Delete** — Delete selected process.
- **Print** — Selection:
Print data of the selected process,
Print list of all processes,
Print data of all processes

4.2.3 Orders

Databases
- **Orders**

Orders
- **New**

Note:
Under [Configuration]- [Common parameters] , "Use product database" and "Use container database" are enabled:

It is only possible to create an order list if at least one process, one produce and one container have previously been created.

Order name	Input: max. 18 alphanumeric characters.
Process ID	Select process
Product ID	Select product.
Containers	Select container.
Set point	Batch set point Input: corresponding weight If a container has been selected, the batch set point may not exceed the capacity of the container.
Unlimited batches	Only appears if enabled under [Configuration]-[Common parameters] . Check the box ☑ in order to produce an unlimited quantity of batches for this order.
Batches	Only appears if "Unlimited batches" is not checked. Enter the number
Order total act.	Only appears if "Unlimited batches" is not checked. Display only.
Save	The input is saved. Afterwards the order can be edited further after pressing the [Edit] softkey.
Edit	Edit order, see [Order]- [New] .
Delete	Delete selected order.
Print	Selection: Print data of the selected order, Print list of all orders, Print data of all orders

4.2.4 Products

Databases
- **Products**

Products

ID	Product identification Input: max. 20 alphanumeric characters.
Name	Product name Input: max. 20 alphanumeric characters.
Default	Check the box ☑ in order to display this product as the preset value in the selection.
Default	Settings are reset to factory settings.
Save	The settings are saved.
Edit	Edit product, see [Product]- [New] .
Delete	Delete selected product.
Print	Selection: Print data of the selected product, Print list of all products, Print data of all products

4.2.5 Containers

Databases

Containers	Containers, which need to be filled.

Containers

ID	Container identification Input: max. 18 alphanumeric characters.
Name	Container name Input: max. 18 alphanumeric characters.
Default	Check the box ☑ in order to display this container as the preset value in the selection.
Default	Settings are reset to factory settings.
Save	The settings are saved.
Edit	Edit container, see [Container]- [New] .
Delete	Delete selected container.
Print	Selection: Print data of the selected container, Print list of all containers, Print data of all containers

4.3 Print tickets and reports

Print tickets and reports

Print last label ticket	Only if the print layout "Label ticket" has been selected under [Configuration] - [Printout] and the printer has been selected under [System setup] - [Connected devices] .
Print last batch report	Only if the print layout "...Batch report" has been selected under [Configuration] - [Printout] and the printer has been selected under [System setup] - [Connected devices] .
Print last order ticket	Only if the print layout "Order ticket" has been selected under [Configuration] - [Printout] and the printer has been selected under [System setup] - [Connected devices] .

4.4 Application maintenance

Application maintenance

Production report	The amounts produced for a process are added together and displayed.
Process	Select process.
Production	Amount displayed only.
Empty	The amount produced for the selected process is deleted.
Empty all	The amount produced for all processes is deleted.
Printing	The amount produced for all processes is printed one below the other in a report.
Consumption report	The consumed components are added together and displayed.
Component	Select component.
Consumption	Amount displayed only.
Empty	The displayed amount is deleted.
Empty all	The consumed amount of all components is deleted.

├─ **Printing**	The consumed amounts for all components is printed one below the other in a report.
├─ **Delete database reports? (10)**	Requirement: Check the ☑ box in order to activate "Log to database" under [Configuration] - [Joint parameters]. The number of datasets is given in parentheses. Data is deleted once the security prompt is accepted.
├─ **Clear printer buffer? (20)**	The number of datasets is given in parentheses. Data is deleted once the security prompt is accepted.

4.5 Configuration

Configuration

├─ **inputs**	See Chapter 4.5.1.
├─ **Outputs**	See Chapter 4.5.2.
├─ **ModBus-TCP master**	See Chapter 4.5.3.
├─ **Joint parameters**	See Chapter 4.5.4
├─ **SPM definition**	See Chapter 4.5.5
├─ **SPM function**	See Chapter 4.5.6
├─ **Limit values**	See Chapter 4.5.7.
├─ **Parallel process flows**	See Chapter 4.5.8
├─ **Printout**	See Chapter 4.5.9
├─ **Alibi memory**	See Chapter 4.5.10
├─ **Visualization**	See Chapter 4.5.11
├─ **Simulation***	see Chapter 4.5.12
├─ **Printing**	See Chapter 4.5.13.

* Only possible if the dosing license has been activated and the "Settings locked" parameter has not been enabled.

4.5.1 Inputs

Configuration
├─ **Inputs**

Inputs

├─ **Option**	Option-1, Option-2, Internal
├─ **Type**	Display only
├─ **Input**	1...4
├─ **SPM address %MX**	See SPM table in Chapter 10.
├─ **SPM name**	Selection only possible if a name has been entered under "SPM Definitions".
├─ **Default**	Settings are reset to factory settings.
├─ **Input-**	Switch to the previous input.
├─ **Input+**	Switch to the next input.
├─ **Save**	The settings are saved.

4.5.2 Outputs

Configuration
├─ **Outputs**

Outputs

Option	Option-1, Option-2, Internal
Type	Display only
Output	1...4
SPM address %MX	See SPM table in Chapter 10.
SPM name	Selection only possible if a name has been entered under "SPM Definitions".
Default	Settings are reset to factory settings.
Output-	Switch to the previous output.
Output+	Switch to the next output.
Save	The settings are saved.

4.5.3 ModBus-TCP master

Configuration

ModBus-TCP master

ModBus-TCP master

Communication error	Selection: Ignore message, Show message
ModBus-TCP module	Selection: Phoenix 1...8
Activate module	Check the ☑ box to activate the module. The menu expands.
IP address	Enter the IP address of the module.
I/O type	Selection: Digital input, Digital output
Input	1...16
SPM address %MX	See SPM table in Chapter 10.
SPM name	Selection only possible if a name has been entered under "SPM Definitions".
Default	Settings are reset to factory settings.
Input -	Switch to previous Input.
Output +	Switch to next Input.
Save	The settings are saved.

4.5.4 Common Parameters

Configuration

Common parameters

Common parameters

Scale identifier	Input: max. 20 alphanumeric characters
Use refilling	Check the ☑ box to activate this process type.
Use tidy up	Check the ☑ box to activate this process type.
Use order	Check the ☑ box to work on orders. If not activated, the process is started directly without any order information.
Use batches	Check ☑ the box to activate the input for the number of batches.
Next batch dialog	Check the ☑ box to activate this function. If the number of batches within an order has been defined, the dialog opens before the next batch is started.

├─ **Use container database**	Check the ☑ box to activate this function.
├─ **Use product database**	Check the ☑ box to activate this function.
├─ **Use setpoint**	Check the ☑ box to amend the process set point.
├─ **Check process**	Check the ☑ box to carry out the checking process of each process line within a simulation. The maximum weight of the dosing container (FSD) must not be exceeded, nor should the weight fall below zero.
├─ **Show production result**	Check the ☑ box to activate this function.
├─ **Log result in database**	Check the ☑ box to activate this function. The batching result is written in the database.
├─ **Input mode**	Preset the entry using keypad.
│ ├─ **Text**	ABC..; max. 20 characters
│ ├─ **Numeric**	123..; max. 20 characters
├─ **Batch display**	
│ ├─ **From zero to setpoint**	This display shows the current scale weight.
│ ├─ **From setpoint to zero**	This display shows the current difference in weight, starting at the set point. The symbols "DIFF" and ⚠ are shown in the display.
├─ **Default**	Settings are reset to factory settings.
├─ **Save**	The settings are saved.

4.5.5 SPM definitions

Configuration

├─ **SPM definitions**	Create a list with SPM definitions.

SPM definitions

├─ **SPM type**	Select SPM type.
│ ├─ **Bit (%MX)**	See Chapter 10.8.
│ ├─ **Word (%MW)**	See Chapter 10.8.
│ ├─ **Dword (%MD)**	See Chapter 10.8.
├─ **SPM address**	Input: see SPM table in Chapter 10.8.
├─ **SPM name**	Input: max. 20 alphanumeric characters.
├─ **Default**	Settings are reset to factory settings.
├─ **Save**	The settings are saved.
├─ **New**	Add new SPM definition.
├─ **Edit**	Change marked SPM definition.
├─ **Delete**	Delete marked SPM definition.

4.5.6 SPM functions

Configuration

├─ **SPM functions**	See also Chapter 5.4.7.

SPM functions

├─ **New**	Add new SPM function.
│ ├─ **Name**	Input: max. 20 alphanumeric characters.
│ ├─ **Logical conjunction**	Selection: Input = Output, AND conjunction of 2...4 inputs,

	OR conjunction of 2...4 inputs,
Input 1...4: SPM address %MX	If a saved SPM definition is selected, then the address is entered automatically. If no SPM definition is selected, then an entry is made, see SPM table in Chapter 10.8.
Input 1...4: SPM name	Selection: saved SPM definitions or input: max. 20 alphanumeric characters.
Output: SPM address %MX	If a saved SPM definition is selected, then the address is entered automatically. If no SPM definition is selected, then an entry is made, see SPM table in Chapter 10.8.
Output: SPM name	Selection: saved SPM definitions or input: max. 20 alphanumeric characters.
Default	Settings are reset to factory settings.
Save	The settings are saved.

4.5.7 Limit values

Configuration
- **Limit values**

Limit values

Weighing point	Weighing point A
Limit value 1...3 On/off	Enter 0...Max (maximum capacity); Adopt unit from the calibration.
Default	Settings are reset to factory settings.
Save	The settings are saved.

4.5.8 Parallel process tasks

Configuration
- **Parallel process tasks**

Parallel process tasks

Parallel process task	Selection: Process task 1...3
Parallel process task	Selection: disabled, enabled The following menu items only appeal if "enabled" has been selected.
Start by	Selection: SPM address %MX, softkey
Softkey text	Only possible if the "Softkey" item has been selected under "Start by". A text must be entered in order to be able to start the process.
Start SPM address %MX	Only possible if the "SPM address %MX" item has been selected under "Start by". Input: see SPM table in Chapter 10.
Start SPM name	Only possible if the "SPM address %MX" item has been selected under "Start by". Selection: SPM definitions
Output SPM address %MX	Input: see SPM table in Chapter 10.
Output SPM name	Selection: SPM definitions
High pulse duration	See Chapter 5.4.9. Input: 0...1800 s

├ **Low pulse duration**	See Chapter 5.4.9. Input: 0...1800 s
├ **Default**	Settings are reset to factory settings.
├ **Save**	The settings are saved.

4.5.9 Printout

Configuration
├ **Printout**

Printout

├ **Print layout**	Selection: Label ticket, batch report header, batch report line, report trailer, short batch report, order ticket
├ **Ticket printer**	This printer type is used for order and label tickets. Only possible if "Label ticket" or "Order ticket" has been selected under "Print layout". Selection: No printer, Printer, Printer 1, Printer 2
├ **Report printer**	This printer is used for batching reports, database and configuration printouts. Only possible if "... batching report" has been selected under "Print layout". Selection: No printer, Printer, Printer 1, Printer 2
├ **Number of printouts**	Input: 0...99
├ **Use NLE**	Check the ☑ box to activate printing with NiceLabelExpress. See Chapter 12.3.3.
├ **Line 1...99**	blank line, Product ID, Product name, Order ID, Process ID, Process name, Process line number, Component ID, Component name, Set point, Value act., Tolerance, Batch status, Weighing point, user name of the order creator, user name of the producer, Start date+time, End date+time, actual date+time, actual consumption. dialog reply, ------, form feed, container ID
├ **Default**	Settings are reset to factory settings.
├ **Line +**	Insert lines. 99 lines are possible in total.
├ **Line-**	Delete the highlighted line.
├ **Save**	The settings are saved.

4.5.10 Alibi memory

Configuration
├ **Alibi memory**

Alibi memory

├ **Log lines in Alibi memory**	Check the ☑ box to activate this function.
├ **Delimiter**	Selection: „ , #, , , *, -, /, ^, _, ~, [Space], ;

├ **Line 1...99**	Selection: Process ID, process line no., component ID, set point, -tolerance, +tolerance, actual consumption
├ **Default**	Settings are reset to factory settings.
├ **Line+**	Insert lines. 99 lines are possible in total.
├ **Line-**	Delete the highlighted line.
├ **Save**	The settings are saved.

4.5.11 Visualization

Configuration
├ **Visualization**

Visualization

├ **Line 1**	Selection: WP status component ID, WP status component name
├ **Line 2...10**	Selection: Order name/process ID, Order total act./Order total, Batch, Process ID, Process name, Process status, Process line, Set point act. batch, Set point line, Actual process line, Difference, Set point line/Actual line, Set point line/Difference, Actual line/Difference, blank line, Process value act., Process difference
├ **Size -**	Reduce size of weight display.
├ **Size +**	Increase size of weight display.
├ **Line-**	Delete highlighted line.
├ **Line +**	Insert lines 1...10.

4.5.12 Simulation

Configuration
├ **Simulation***

Simulation*

├ **Weighing point A**	Check the ☑ box to weighing point for the simulation.
├ **Material flow**	Only possible if a weighing point has been selected. Applies the weight value from the scale (in this case, g). Enter value for coarse flow, e.g.: 100 g/sec
├ **Default**	Settings are reset to factory settings.
├ **Save**	The settings are saved.

4.5.13 Printing

Configuration

├ **Printing**	Print configuration.

5 Getting started

5.1 Safety instructions

⚠ WARNING

Warning of a hazard area.

▶ It is essential that the safety instructions in Chapter 2 of the PR 5500 Installation manual are read before installation and commissioning!

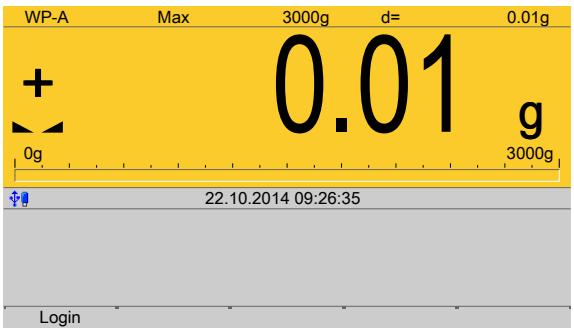
5.2 Switching on the device

The device can be set up as follows:

- Via keys on the front of the device
- Via an external PC keyboard
- Via a notebook/PC using the VNC software (included on the CD)

When the device is powered up, the following is shown on the display and/or notebook/PC:

Checking... **Booting...** **Restoring...**	The device is booting up.
PR 5500	- The instrument type is displayed, PR 5500 - BIOS version - Firmware version - Automatic display test - Weight display
No signal	Error message: no load cells are connected, see also PR 5500 operating instructions.
No values from scale	Error message: no communication with the xBPI scale, see also PR 5500 operating instructions. Error message: unable to read weight values from the ADC (analog-digital converter); see also PR 5500 operating instructions.
Scale not ready	Error message: no load cells or scale connected, see also PR 5500 operating instructions.



The weight display is shown.

Check the date and time after first turning on the device, see PR 5500 operating instructions.

5.3 User login

User management is **not** activated by default.

Activate user management with the menu item [System setup] - [User management] , see also PR 5500 operating instructions.

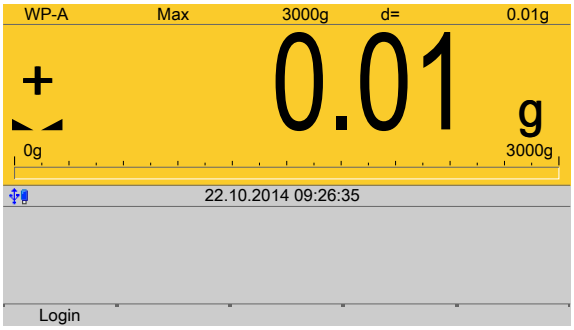
The application rights "Administrator", "Supervisor" and "Operator" are preset and cannot be changed.

The application rights are defined as follows:

Access privilege	Operator	Supervisor	Administrator
Production	✗	✗	✗
Create order	✗	✗	✗
Change order	✗	✗	✗
Delete order	✗	✗	✗
Create component		✗	✗
Edit component		✗	✗
Delete component		✗	✗
Create process		✗	✗
Edit process		✗	✗
Delete process		✗	✗
Change your own password			✗
Create user			✗
Edit user			✗
Delete user			✗
Delete report data			✗
Print processes		✗	✗
Print general	✗	✗	✗
Clear printer buffer			✗
Exit application			✗
System setup/Configuration			✗
Application maintenance		✗	✗

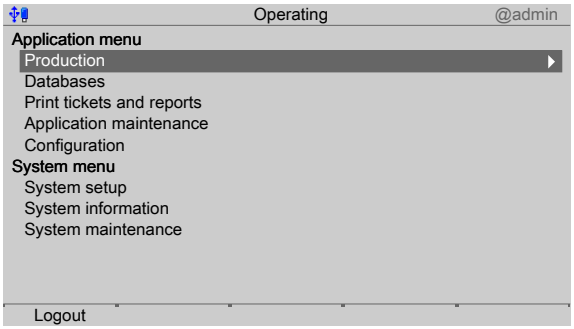
Note:

An authorized user must log in to start or configure the application.



1. Press the [Login] soft key.
2. Enter the password using the keyboard and confirm. If user management is not active, you only need to confirm.
   ▷ The operating menu is displayed.

   The application and system menus are selected here.



3. For example, select and confirm [Production].

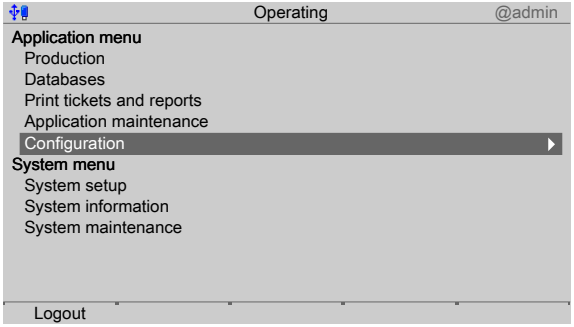
5.4 Configuration

5.4.1 General information

In this menu item, application is configured.

Note:

When user management is active, the configuration can only be performed if a user with application rights "Supervisor" or "Administrator" is logged in.



▶ In the operating menu, select [Configuration] and confirm.

5.4.2 Configuring inputs

This function is required to configure the analog and digital inputs.

- Analog input, see Chapter 5.4.2.1
- Digital inputs, see Chapter 5.4.2.2
- I/O cards test, see Chapter PR 5500 operating instructions.

When changing the I/O card type, the configuration data remains unchanged. Functions for a non-installed scale can be selected, however, they are without effect.

The free and assigned SPM addresses are documented in Chapter 10.

If several inputs are assigned to an SPM address, the input with the higher number prevails.

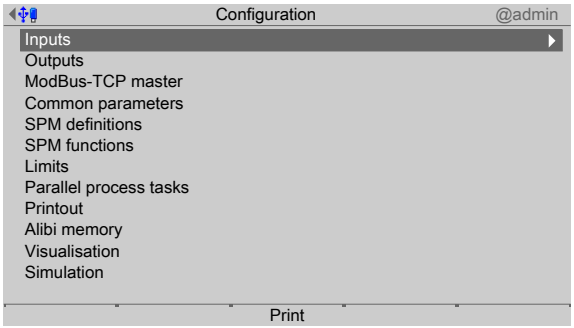
Option-1 = No. 1

Option-2 = No. 2

Built-in = No. 3

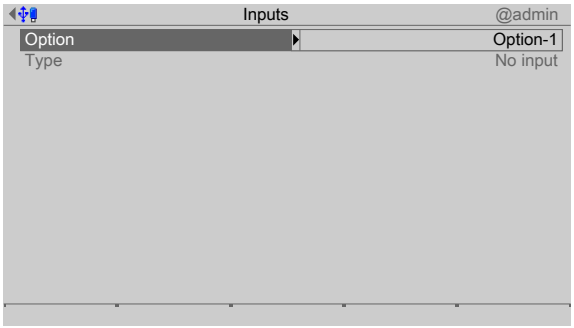
Unused inputs are ignored.

The card type and the available inputs and outputs are detected automatically.



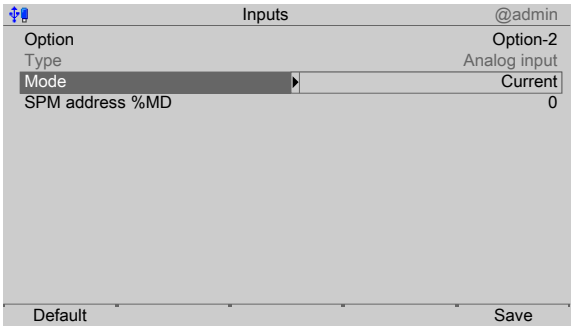
▶ In the operating menu, select and confirm [Configuration] - [Inputs].

5.4.2.1 Analog input



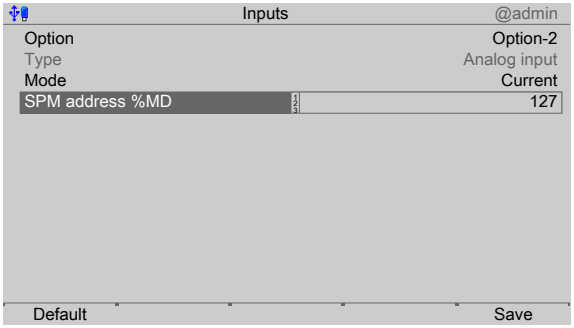
1. Select and confirm [Option] using the cursor.
   ▷ A selection window opens.

2. Select and confirm the corresponding interface using the cursor.



3. Select and confirm [Mode] using the cursor.
   ▷ A selection window opens.

4. Select and confirm the appropriate input type using the cursor (see also PR 5500 operating instructions).



5. Select [SPM address %MD] using the cursor.
6. Use the keyboard to enter and confirm a free address %MD (see Chapter 10).
7. Press the [Default] soft key to return to the factory settings, if required.
8. Press the [Save] soft key to save the settings.

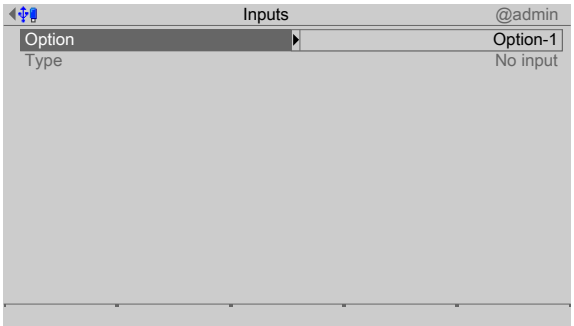
Note:

If the SPM address is equal to 0, the analog value is not written to the SPM.

General:

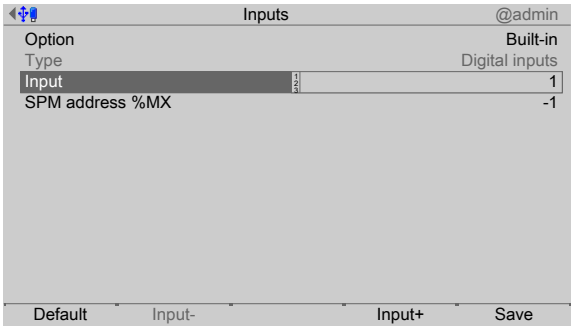
No reserved SPM addresses are overwritten by the analog inputs.

5.4.2.2 Digital inputs

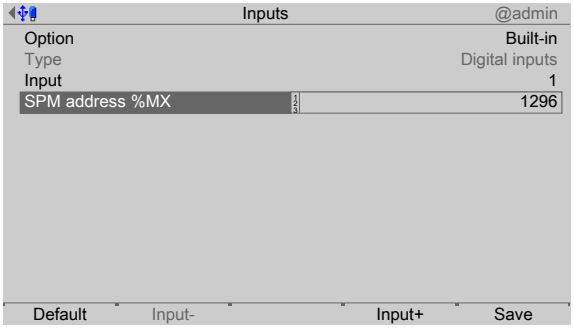


1. Select and confirm [Option] using the cursor.
   ▷ A selection window opens.

2. Select and confirm the corresponding interface using the cursor.



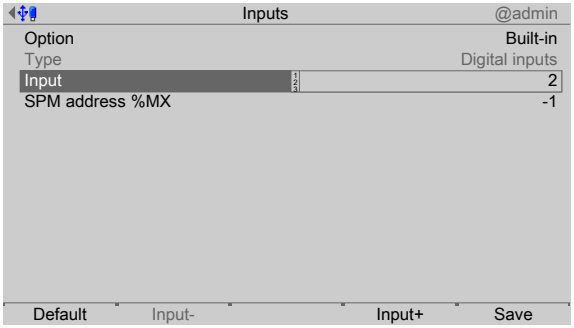
3. Select [Input] using the cursor.
4. Confirm input "1".



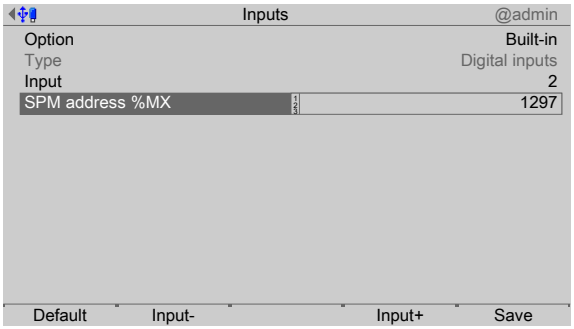
5. Select [SPM address %MX] using the cursor.
6. Use the keyboard to enter and confirm a free address %MX (see also PR 5500 operating instructions).

Note:

A negative address inverts the function.



7. Press the [Input+] soft key to configure the next input.



8. Select [SPM address %MX] using the cursor.
9. Use the keyboard to enter and confirm a free address %MX (see also PR 5500 operating instructions).
10. Configure inputs 3+4 in the same way.
11. Press the [Default] soft key to return to the factory settings, if required.
12. Finally, press the [Save] soft key to save the settings.

Note:

The value of the digital input is not written to the SPM if the address = 0 (inactive).

5.4.3 Configuring outputs

This function is required to configure the analog and digital outputs.

- Analog output, see Chapter 5.4.3.1.
- Adapting the analog output, see PR 5500 operating instructions.
- Digital inputs, see Chapter 5.4.3.3.
- I/O cards test, see PR 5500 operating instructions.

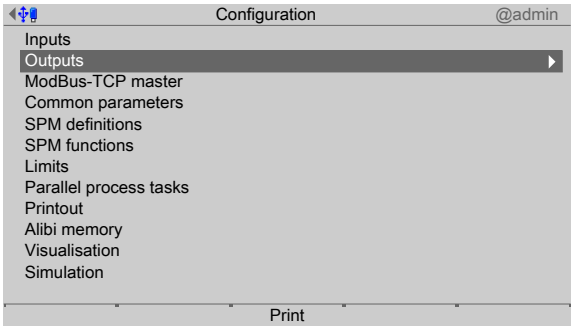
When changing the I/O card type, the configuration data remains unchanged. Functions for a non-installed scale can be selected, however, they are without effect.

The free and assigned SPM addresses are documented in Chapter 10.

The assignment of SPM addresses to a scale is only valid if the scale exists.

Non-allocated outputs are switched off.

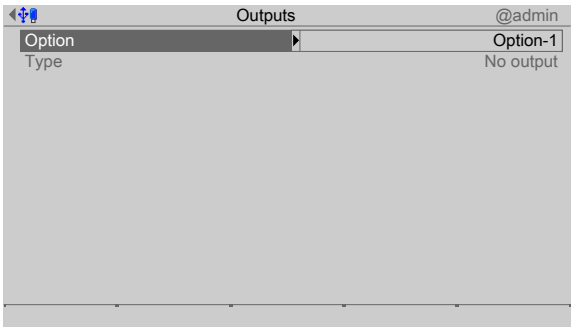
The card type and the available inputs and outputs are detected automatically.



▶ In the operating menu, select and confirm [Configuration] - [Outputs].

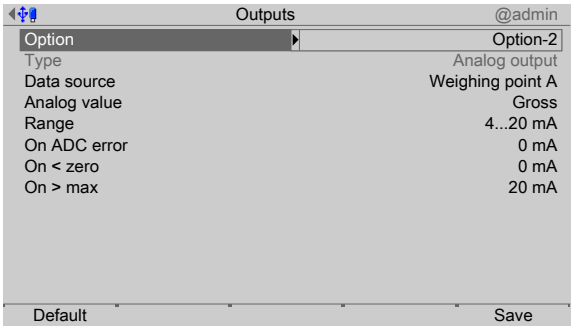
5.4.3.1 Analog output

The weight value of the selected weighing point is transmitted to the output.



1. Select and confirm [Option] using the cursor.
   ▷ A selection window opens.

2. Select and confirm the corresponding interface using the cursor.
   ▷ The factory settings are displayed.



3. Configure the analog output in accordance with the table below.
4. Press the [Default] soft key to return to the factory settings, if required.
5. Press the [Save] soft key to save the settings.

Analog output

Menu item	Selection	Description
[Data source]	Weighing point A	Output of maximum value of the scales. 0...Max are converted into 0/4 mA...20 mA.
[Analog value]	Gross Net/Gross Net/0 mA Net/4 mA Net/20 mA	Output of the gross value Output of the net value, if tared; otherwise gross Output of the net value, if tared; otherwise 0 mA Output of the net value, if tared; otherwise 4 mA Output of the net value, if tared; otherwise 20 mA
[Range]	0...20 mA 4...20 mA	Output of 0...Max as 0...20 mA Output of 0...Max as 4...20 mA
[On ADC error]	0 mA 4 mA 20 mA hold	Set output to 0 mA. Set output to 4 mA. Set output to 20 mA. The last output value is held.
[On < zero]	0 mA 4 mA 20 mA hold linear	Set output to 0 mA. Set output to 4 mA. Set output to 20 mA. The last output value is held. Only for [4...20 mA]: Output goes below 4 mA until the limit is reached.
[On > Max]	0 mA 4 mA 20 mA hold linear	Set output to 0 mA. Set output to 4 mA. Set output to 20 mA. The last output value is held. Output goes below 20 mA until the limit is reached.

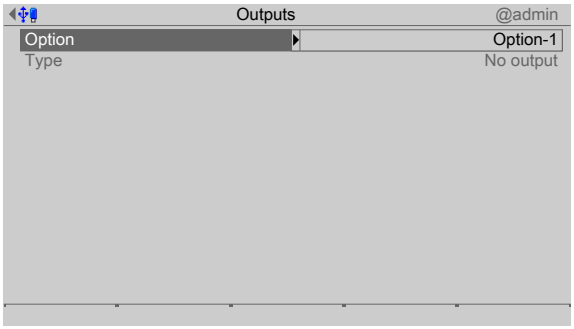
5.4.3.2 Adapting analog output

The analog output current on the receiving end (PLC) is generally fed through a resistor, measured as a voltage and then digitized. The output current can be adjusted in small ranges. This is required if small deviations from the nominal value occur in a connected PLC.

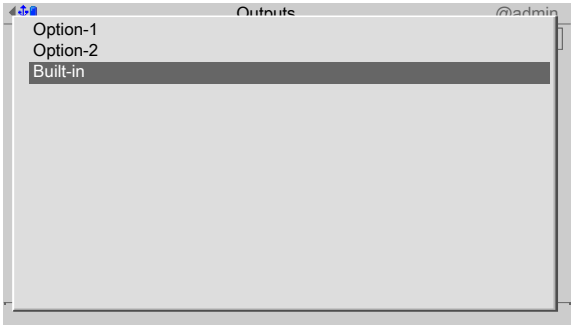
Note:

Adapting the analog output, see PR 5500 operating instructions.

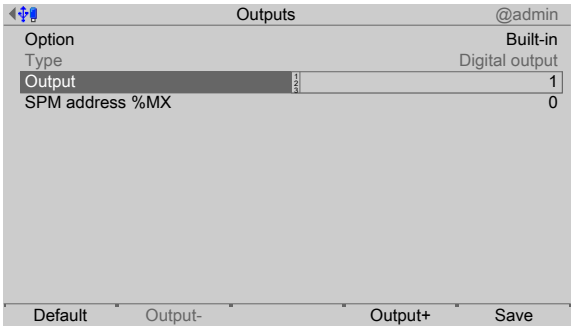
5.4.3.3 Digital outputs



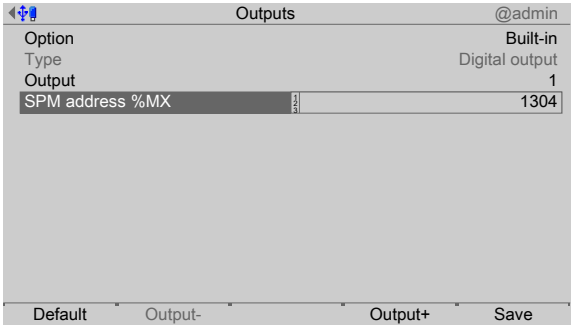
1. Select and confirm [Option] using the cursor.
   ▷ A selection window opens.



2. Select and confirm the corresponding interface using the cursor.



3. Select and confirm [Output] using the cursor.
4. Confirm output "1".

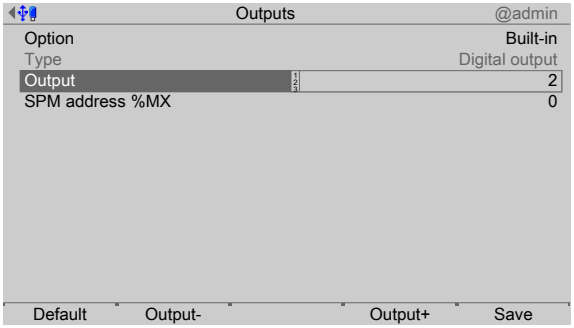


5. Select [SPM address %MX] using the cursor.
6. Using the keypad, enter and confirm a corresponding fixed or free address %MX (see also PR 5500 operating instructions) for the weighing point.

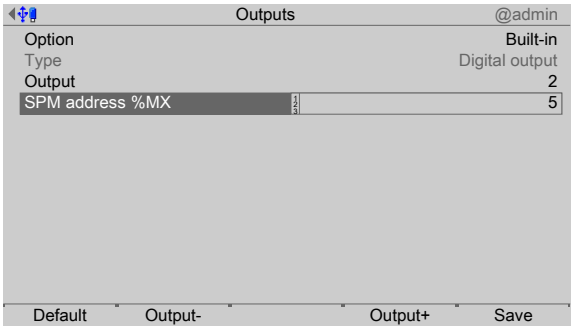
Note:

The SPM address %MX for an **unused** digital output = 0

A negative address inverts the function.



7. Press the [Output+] soft key to configure the next output.

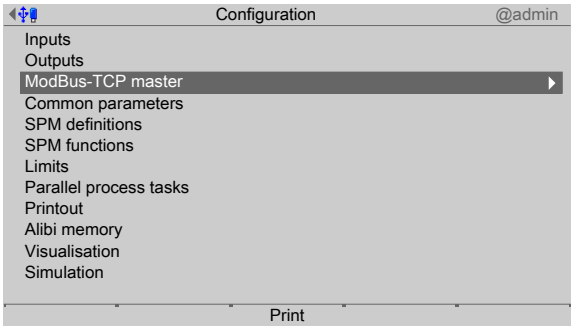


8. Select [SPM address %MX] using the cursor.
9. Using the keypad, enter and confirm a corresponding fixed or free address %MX (see also PR 5500 operating instructions) for the weighing point.
10. Configure outputs 3+4 in the same way.
11. Press the [Default] soft key to return to the factory settings, if required.
12. Finally, press the [Save] soft key to save the settings.

5.4.4 Configuring the ModBus TCP master

In this application, the ModBus master supports up to 8 predefined ModBus modules.

- For supported modules, see Chapter 5.4.4.1
- Configuration tool, see Chapter 5.4.4.2
- Device configuration, see Chapter 5.4.4.3



▶ In the operating menu, select [Configuration] - [ModBus-TCP master] and confirm.

5.4.4.1 Supported modules

Modules 1 - 4

Modules 1-4 relate in each case to the following module:

Phoenix Contact Inline Block IO (ILB ETH 24 DI16 DIO16-2TX)

They each offer 16 digital inputs and 16 digital outputs.

Modules 5 - 6

Modules 5-6 relate in each case to the following modules:

- Phoenix Contact Inline module (IL ETH BK DI8 DO4 2-TX-PAC)
- Phoenix Contact output module (IB IL 24 DO16-PAC)
- Phoenix Contact output module (IB IL 24 DO16-PAC)

They offer a total of 8 digital inputs and 36 digital outputs.

Modules 7 - 8

Modules 7-8 relate in each case to the following modules:

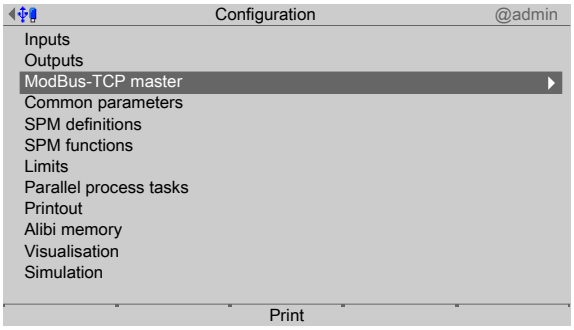
- Phoenix Contact Inline module (IL ETH BK DI8 DO4 2-TX-PAC)
- Phoenix Contact output module (IB IL 24 DO16-PAC)
- Phoenix Contact output module (IB IL 24 DO16-PAC)
- Phoenix Contact power supply (IB IL 24 PWR IN-PAC)
- Phoenix Contact output module (IB IL 24 DO16-PAC)

They offer a total of 8 digital inputs and a total of 52 digital outputs.

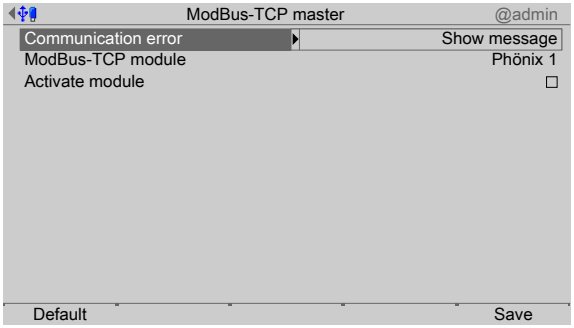
5.4.4.2 Configuration tool

The modules must be configured in terms of hardware according to the Phoenix instructions. In addition, an IP address must be assigned to each terminal. Phoenix provides the "IPAssign.exe" configuration tool for that purpose.

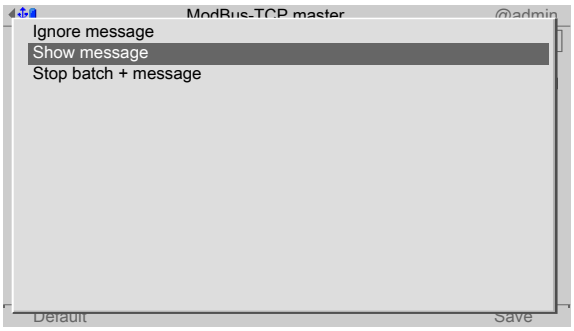
5.4.4.3 Configuration on the device



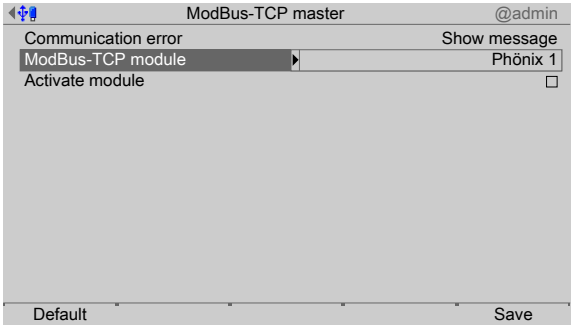
1. In the operating menu, select and confirm [Configuration] - [ModBus-TCP master].



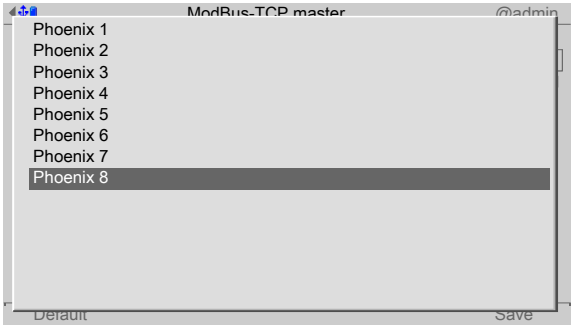
2. Select and confirm [Communication error].
   ▷ A selection window opens.



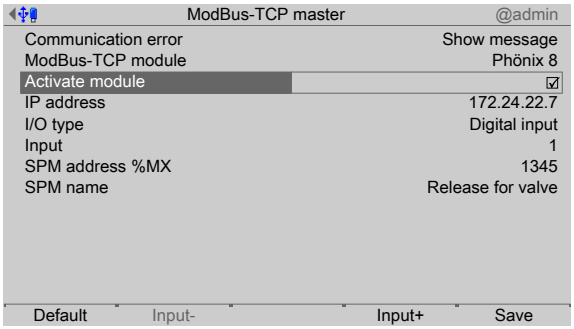
3. Select and confirm the corresponding function (here [Show message]).



4. Select and confirm [ModBus-TCP Module].
   ▷ A selection window opens.



5. Select and confirm the corresponding module (in this case, [Phoenix 8]).



6. Check the ☑ box to activate the module.
7. Select and confirm the individual settings.

   [IP address]

   Selection: speak with the responsible system administrator

   [I/O type]

   Selection: Digital input, Digital output

   [Input/Output]

   Selection: Input+/Output+ (higher), Input-/Output- (lower)

   [SPM address %MX]

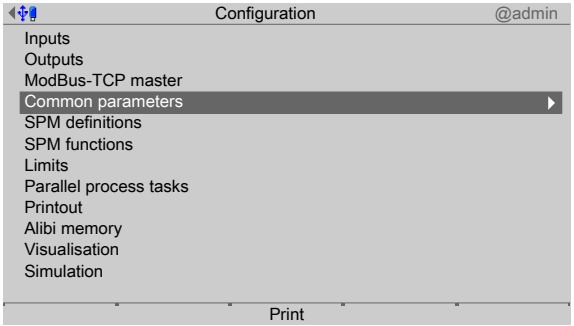
   Set: freely assigned SPM addresses, see Chapter 10 or selection via [SPM Name]

   [SPM name]

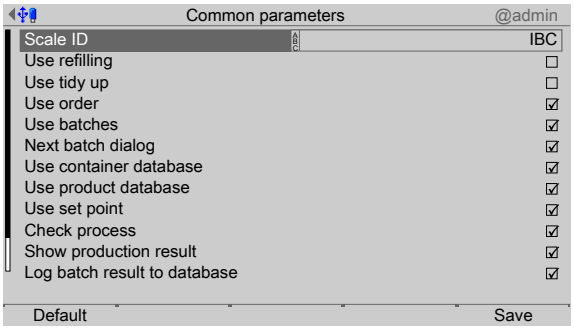
   Select: defined SPM addresses (in the operating menu under [Configuration] - [SPM Definitions], see Chapter 5.4.6)
8. Press the [Default] soft key to return to the factory settings, if required.
9. Finally, press the [Save] soft key to save the settings.

5.4.5 Common Parameters

These settings are valid for all batching.



1. In the operating menu, select [Configuration] - [Common parameters] and confirm.
   ▷ A selection window opens.



2. Select and confirm the individual settings.

   [Scale ID]

   The identification is shown on the tickets and database reports.

   Input: max. 18 alphanumeric characters

   [Use refilling]

   Check the box ☑ to start "refill" type processes. These processes deal with special processes, such as the refill to a final value or additional measures that are not part of the normal production process.

   [Use tidy up]

   Check the box ☑ to start "tidy up" type processes. These processes deal with exceptional situations such as the emptying and cleaning of cancelled production processes.

   [Use order]

   Check the box ☑ to start the batching via select order. Without being checked, the process can be started directly without order information.

   [Use batches]

   Check the box ☑ to set the number of batches within an order.

   [Next batch dialog]

   Check the box ☑ to display a dialog before the next batch. It is now possible to cancel the current process or start the next batch.

   [Use container database]

   Check the box ☑ to activate the database. The parameter is shown in the order.

[Use product database]

Check the box ☑ to activate the database. The parameter is shown in the order.

[Use set point]

Check the box ☑ to amend the set point.

[Check process]

Check the box ☑ to check under- or overloading during the process start by means of simulation.

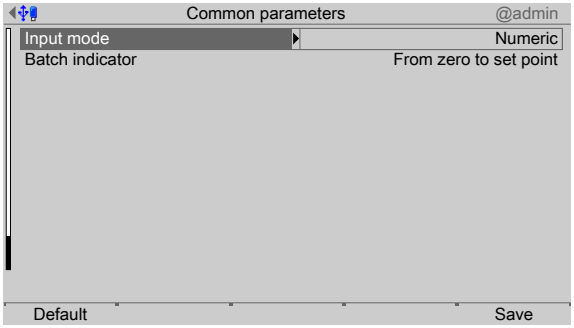
[Show production result]

Check the box ☑ to display the dosing result after all batches have been processed:

- Order data
- Product data
- Set point
- Number of batches

[Log batch result to database]

Check the box ☑ to log the results in the report database after batching.



[Input mode]

The keypad entry preset is selected:

Text = ABC.., Numeric = 123..

A maximum of 20 alphanumeric characters can be entered using the keypad.

[Batch indicator]

Selection: From zero to set point

This indicator shows the current scale weight.

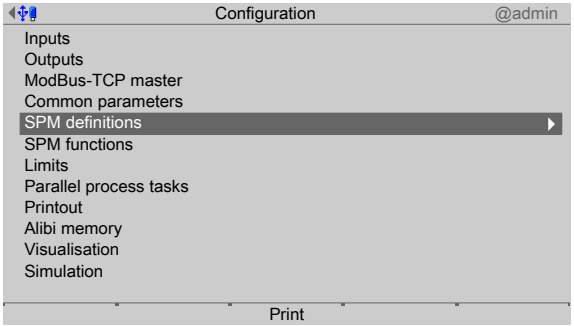
Selection: From set point to zero

This indicator shows the current difference in weight, starting at the set point. The symbols "DIFF" and ⚠ are shown in the display.

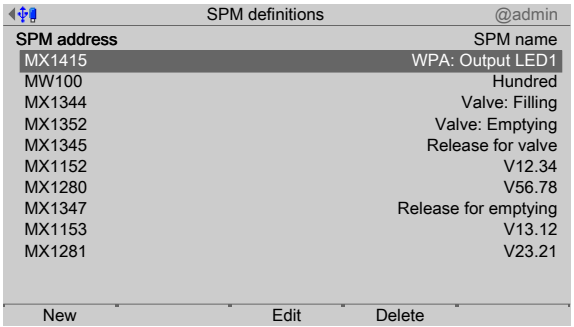
3. Press the [Default] softkey to return to the factory settings, if required.
4. Finally, press the [Save] softkey to save the settings.

5.4.6 SPM definitions

The SPM addresses can be defined in this menu item. SPM addresses can be given a name which is easier to identify during further configuration.



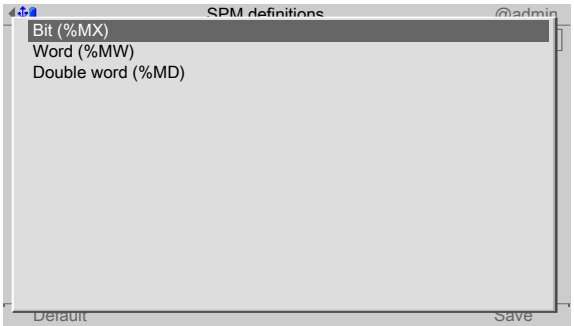
1. In the operating menu, select [Configuration]- [SPM definitions] and confirm.



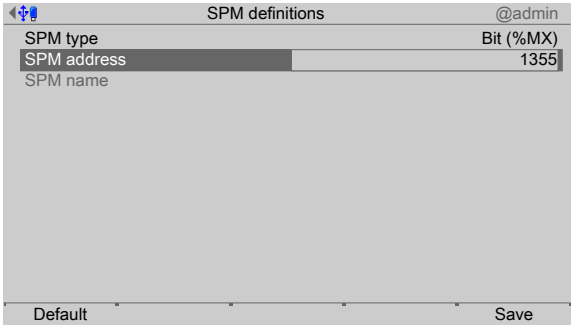
2. Press the [New] softkey to define a new SPM address.

3. Confirm [SPM type].

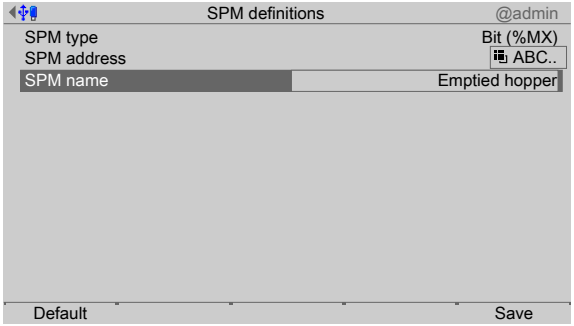
   ▷ A selection window opens.



4. Select the desired function (here [Bit (%MX)]) and confirm.



5. Select [SPM address].
6. Use the keypad to enter and confirm a free address %MXxxx (see Chapter 9.3)



7. Select [SPM name].
8. Use the keypad to enter and confirm a name.
9. Press the [Default] softkey to return to the factory settings, if required.
10. Finally, press the [Save] softkey to save the settings.

5.4.7 SPM functions

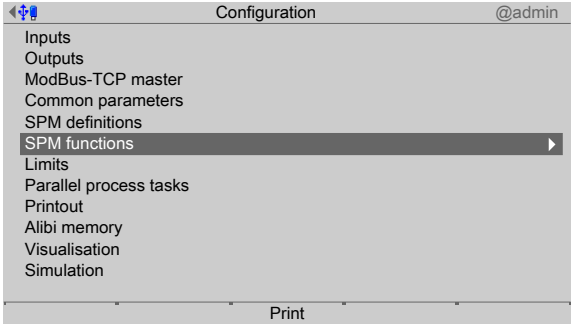
The SPM functions can be used for operations in bits such as AND (up to four inputs), OR (up to four inputs), EQUAL (input bit = output bit). The SPM addresses used can also be negated, see Chapter 5.4.2.2 and 5.4.3.3.

The addresses are entered directly or a defined address is selected.

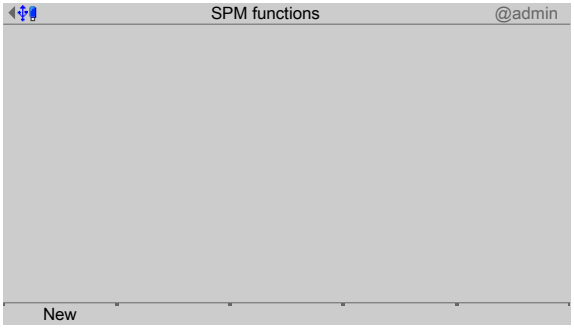
Example

In the case of a component, setting an Enabled by bit %MX prevents it becoming active immediately. Enabling is carried out using an AND condition with 3 inputs.

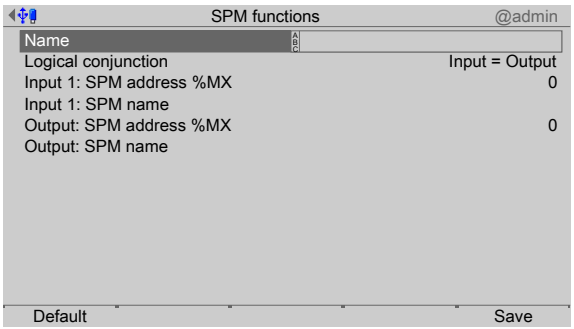
- Detection of the sack is positive.
- Bracket to the filling sack is closed.
- Scale is empty (limit < minimum).



1. In the operating menu, select [Configuration]- [SPM function] and confirm.



2. Press the [New] softkey to insert a new SPM function.
   ▷ A selection window opens.



3. Select the individual settings and confirm.

   [Name]

   Input: Max. 20 alphanumeric characters

   [Logical conjunction]

   Selection: Input = Output, AND conjunction of 2...4 inputs, OR conjunction of 2...4 inputs

---

Note:

The following parameters appear if "Input = Output" has been selected under [Logical conjunction].

[Input 1: SPM address %MX]

Input of an SPM address, see Chapter 10.

[Input 1: SPM name]

Input of an SPM name.

A selection window only appears if the SPM address has already been created under [SPM definitions].

[Output: SPM address %MX]

Input of an SPM address, see Chapter 10.

[Output: SPM name]

Input of an SPM name.

A selection window only appears if the SPM address has already been created under [SPM definitions].

4. Press the [Default] softkey to return to the factory settings, if required.
5. Finally, press the [Save] softkey to save the settings.

5.4.8 Limit values

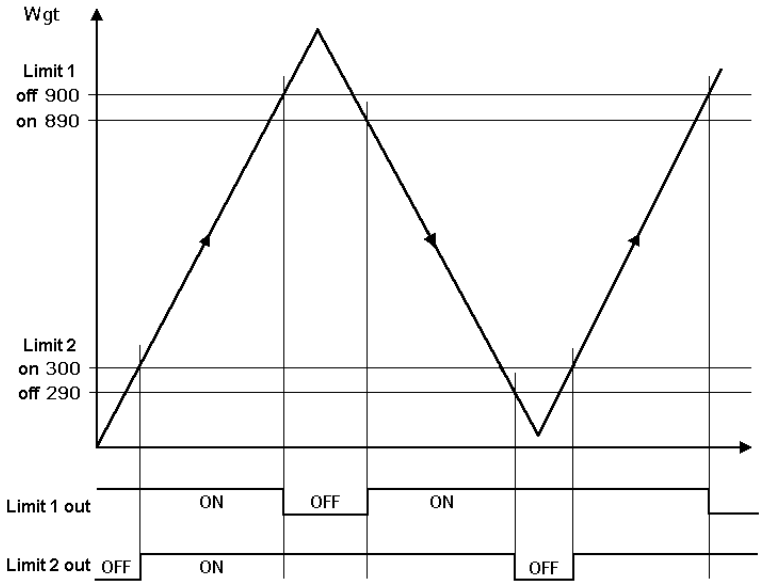
Each limit consists of a switch-on and a switch-off point for definition of a hysteresis.

The 4- values for each weighing point are entered according to the same pattern. The values may be within -0,01 x Max and 1,01 x Max for the related scale.

For the SPM addresses for the limits, see Chapter 10.

These do not have a function for batching.

Example 1:



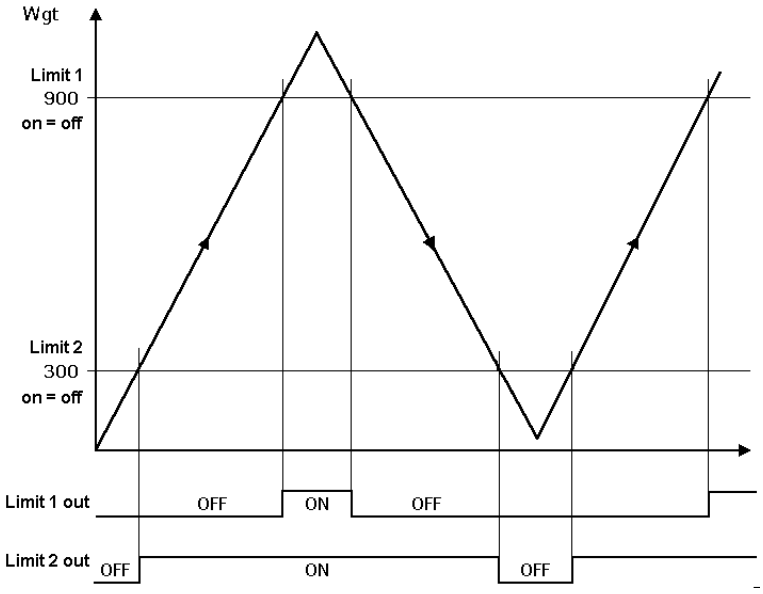
The output signal (Limit 1 out) of limit 1 switches OFF above a weight (Wgt) of 900 g.

The output signal (Limit 2 out) of Limit 2 switches OFF below 290 g.

The two limit values have a hysteresis of 10 g.

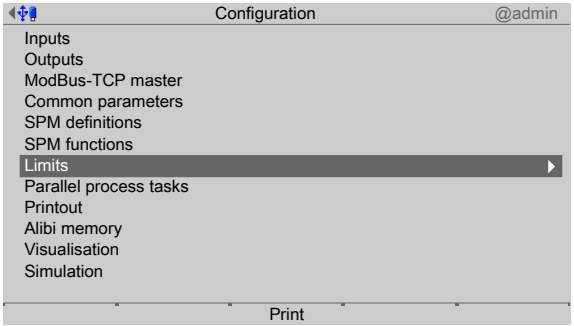
In the event of a power failure both outputs turn to "off" ("OFF"), thus indicating underfill and overfill simultaneously.

Example 2:



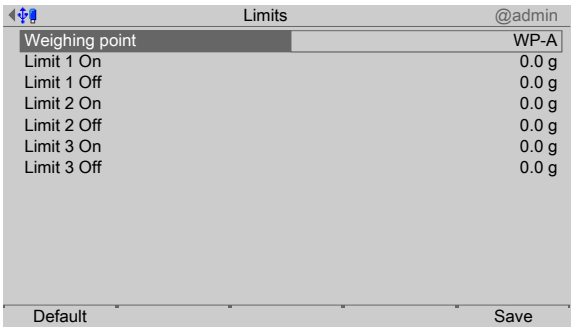
If the Limits 1 and 2 are the same for "On" and "Off" (on = off),

- switches output 1 (Limit 1 out) ON if the weight (Wgt) exceeds the value.
- switches output 2 (Limit 2 out) OFF if the weight falls below the value.



1. In the operating menu, select [Configuration] - [Limit values] and confirm.

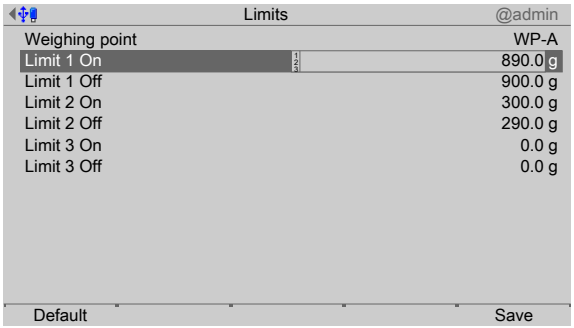
Select weighing point



2. Select and confirm [Weighing point].
   ▷ A selection window opens.

3. Confirm weighing point.

Set limit values according to example 1



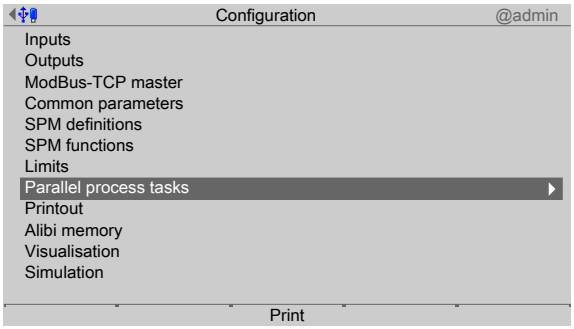
4. the appropriate lines.
5. Use the keyboard to enter and confirm the desired values (in this case: see example 1).
6. Press the [Default] soft key to return to the factory settings, if required.
7. Finally, press the [Save] soft key to save the settings.

5.4.9 Parallel process tasks

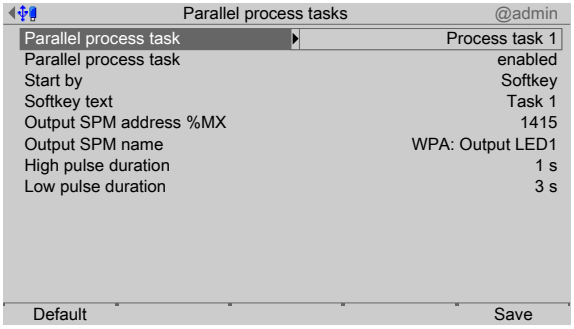
This function allows for up to three parallel processes (e.g. open valve for addition) during an ongoing order/process. The process is started via an SPM bit or a softkey.

In the event of starting via an SPM bit, the process runs as long as the start bit is active.

In the event of starting via a softkey, the process only runs once.



1. In the operating menu, select [Configuration]- [Parallel process tasks] and confirm.
   ▷ A selection window opens.



2. Select the individual settings and confirm.

   [Parallel process task]

   Selection: Process task 1...3

   [Parallel process task]

   Selection: disabled, enabled

   [Start by]

   Selection: SPM address %MX, softkey

   [Start SPM address %MX]

   Input of an SPM address, see Chapter 10.

   [Start SPM name]

   Input of an SPM name.

   A selection window only appears if the SPM address has already been created under [SPM definitions].

   [Softkey text]

   The softkey text appears in the production mode in the middle of the softkey line.

   Input: A maximum of 8 letters can be entered using the keypad.

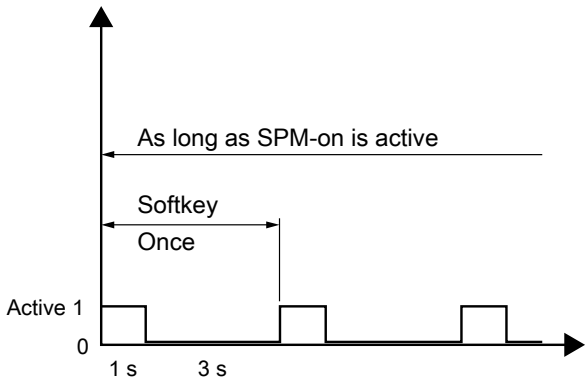
   [Output SPM address %MX]

   Input of an SPM address, see Chapter 10.

   [Output SPM name]

   Input of an SPM name.

   A selection window only appears if the SPM address has already been created under [SPM definitions].



[High pulse duration]

Input: 0...1800 s (here: 1 s)

[Low pulse duration]

Input: 0...1800 s (here: 3 s)

3. Press the [Default] softkey to return to the factory settings, if required.
4. Finally, press the [Save] softkey to save the settings.

5.4.10 Printout

The arrangement of the tickets and batch reports is defined in a separate configuration module. Printouts from databases, such as those for components or processes are fixed and cannot be changed.

There are different ranges:

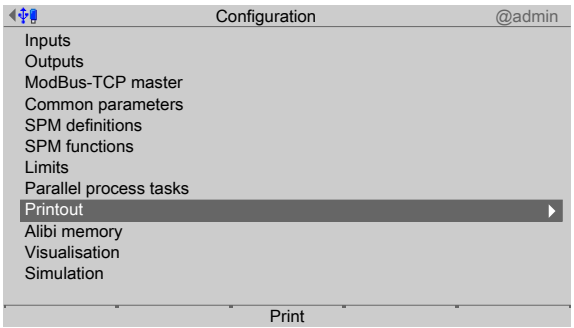
- Tickets that document a batching process are defined by lines. A line contains up to 39 characters. NLE (NiceLabelExpress) name: "TLine.lbl"
- Tickets that document an order/a process are defined by lines. A line contains up to 39 characters. NLE name: "TOrder.lbl"
- Header and trailer information for a batch report are defined by lines. A line contains up to 39 characters. NLE name: "RHeader.lbl" and "RTrailer.lbl"
- The lines of a batch report are defined by columns. The print width is determined by the total columns. The number of lines is determined by the process*. NLE name: "RLine.lbl"

* Materials with ID checking generate an additional line with the corresponding layout.
Materials with a preceding dialog also generate an additional line with the corresponding layout.

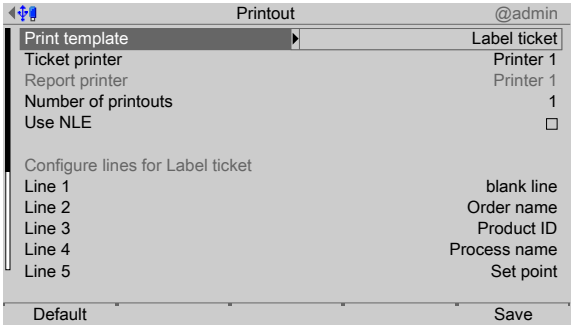
Only the permissible line contents for a range can be selected for it. For possible functions, see Chapters 12.3 and 12.4.

Note:

As soon as an NLE ticket is available for a range, the subsequent configuration is no longer significant. The printout is then completely determined by NLE.

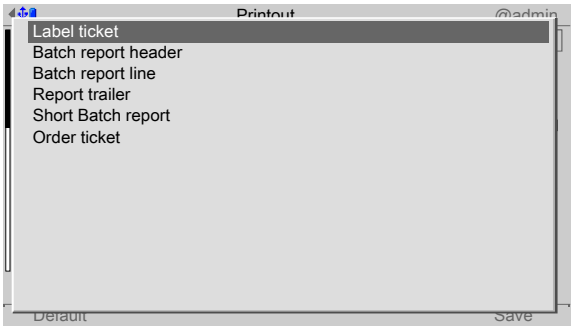


1. In the operating menu, select and confirm [Configuration] - [Printout].
   ▷ A selection window opens.



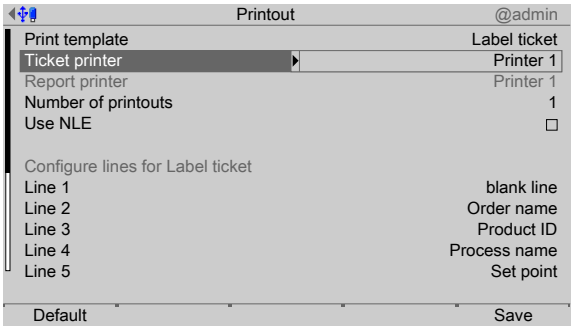
2. Select and confirm [Print template].

   ▷ A selection window opens.



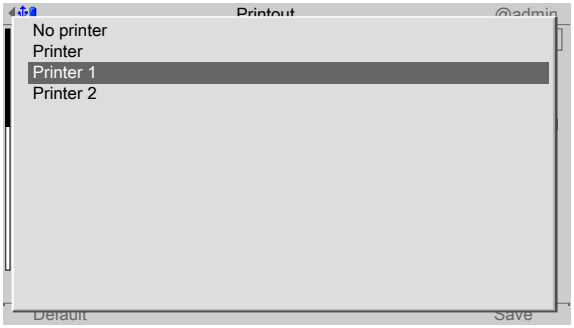
3. Select and confirm the desired print template.

   Selection: Label ticket (see Chapter 12.3.2), Batch report header (see Chapter 12.4), Batch report line (see Chapter 12.4), Report trailer (see Chapter 12.4), Short Batch report (see Chapter 12.4.2), Order ticket (see Chapter 12.3.3)



4. Select and confirm [Ticket printer]/[Report printer].

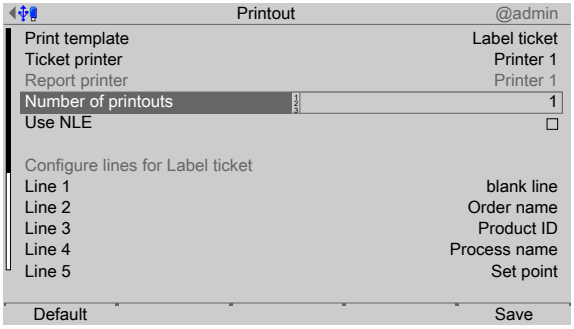
   ▷ A selection window opens.



5. Select and confirm the appropriate printer.

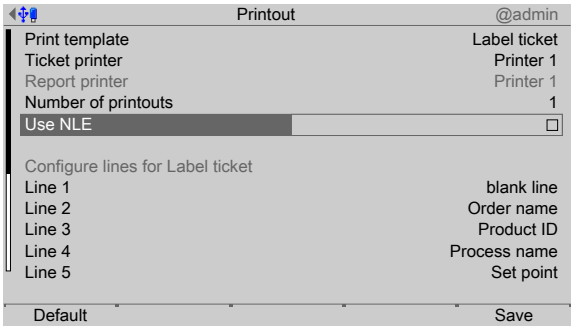
   Selection: no printer, Printer, Printer 1, Printer 2

This requires previous setup in the operating menu under [System setup] - [Connected devices] .

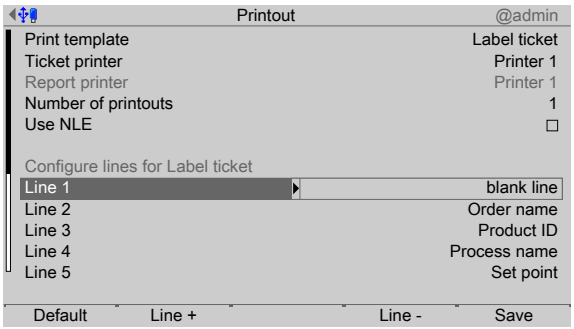


6. Select [Number of printouts].

   Input: 0...99 via keyboard



7. Select [Use NLE] and check the box ☑ to use NLE (NiceLabelExpress) for the design of the printouts, see also Chapter 12.5.



8. Select and confirm the other settings.

   [Line 1...40]

   Selection for label ticket: Blank line, Product ID, Product name, Order name, Process ID, Process name, Set point, Batch status, Scale ID, First user order, Last user production, Start date & time, End date & time, Current date and time, Sequence number, -------, Form feed, Container ID.

   See also the following table.

   [Line +] softkey

   Insert a new line above the highlighted line. Up to 40 lines can be defined.

   [Line -] softkey

   Delete highlighted line.

9. Press the [Default] softkey to return to the factory settings, if required.
10. Finally, press the [Save] softkey to save the settings.

The following table shows the items that can be shown on the printouts.

Item	Ticket		Batch report			
	Labels	Order	Headers	(Columns in a) line	Trailers	Short Batch report
[Blank line]	✗	✗	✗	...	✗	✗
[-------]	✗	✗	✗	...	✗	✗
[Form feed]	✗	✗	✗	...	✗	✗
[Order name]	✗	✗	✗	...	✗	...
[Product ID]	✗	✗	✗	...	✗	...
[Product name]	✗	✗	✗	...	✗	...
[Process ID]	✗	✗	✗	...	✗	...
[Process name]	✗	✗	✗	...	✗	...
[Process line number]	...	...	...	✗	...	...
[Component ID]	...	...	...	✗	...	...
[Component name]	...	...	...	✗	...	...
[Set point]	✗	✗	✗	✗	✗	...
[Batch status]	✗	✗	✗	✗	✗	...
[- Tolerance]	...	...	...	✗	...	...
[+ Tolerance]	...	...	...	✗	...	...
[Actual consumption]	...	...	...	✗	...	...
[Reply from dialog]	...	...	...	✗	...	...
[Scale ID]	✗	✗	✗	...	✗	...
[First user order]	✗	✗	✗	...	✗	...
[Last user production]	✗	✗	✗	...	✗	...
[Start date & time]	✗	✗	✗	...	✗	...
[End date & time]	✗	✗	✗	...	✗	...
[Current date & time]	✗	✗	✗	...	✗	...
[Container ID]	✗	✗	...	...	...	...
[Order total]	...	✗	✗	...	...	...
[Ord.to.act./ord.to.]	...	✗	✗	...	...	...
[Sequence number]	✗	✗	✗	...	✗	...

Item	Ticket		Batch report			
	Labels	Order	Headers	(Columns in a) line	Trailers	Short Batch report
[Batch]	...	✗	✗	...	...	...
[Container set point]	...	✗	...	...	...	...
[Container preset tare]	...	✗	...	...	...	...
[Short report line]	...	...	...	...	...	✗

5.4.11 Alibi memory

In this menu item, the Alibi memory is configured.

A license is required for this function; see instrument manual.

Note:

In verifiable operation, it must be considered that only the set point is saved in batching mode "D2".

In verifiable operation, values are only written into the Alibi memory during batching following a standstill.

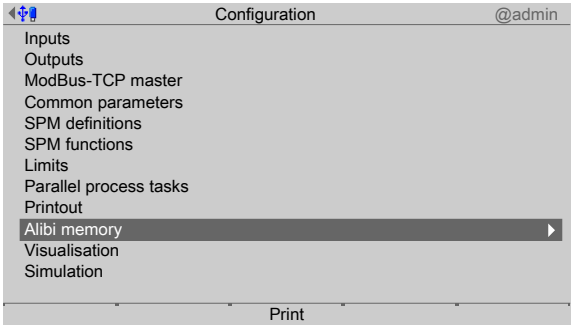
In the B-batching modes, the timeout for the standstill is 5 s. In the D-batching modes, the timeout for the standstill is 10 s.

The batching modes only go into the stop status if taring could not be carried out or if no standstill was achieved after the calming time.

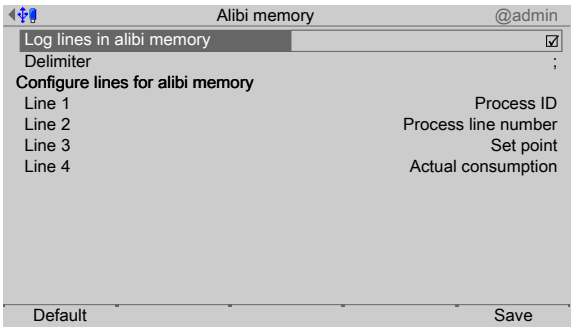
The following table lists which component type (see also Chapter 6.3.3) is written into the Alibi memory and which is not

Component type	Batching mode	Written into Alibi memory	Weight type	Comments
Net filling	B1	yes	Gross, net, tare, set point	
Net refilling	B2	yes	Gross, net, tare, set point, user	Weight of type "user" is the moved weight.
Net decrease	B4	yes	Gross, net, tare, set point	
Gross filling	B3	yes	Gross, set point User	Weight of type "user" is the moved weight.
Gross decrease	B6	yes	Gross, set point User	Weight of type "user" is the moved weight.
Discharge	B8	yes	Gross, user	Weight of type "user" is the moved weight.

Component type	Batching mode	Written into Alibi memory	Weight type	Comments
Manual filling	D1	yes	Gross, net, tare, set point	
Manual filling Without checking	D2	yes	Gross, net, tare, set point	Only the set point is printed in the report.
Timer	D3	no		
Stop	D4	no		
Wait for SPM	D5	no		
Set SPM	D6	no		
Reset SPM	D7	no		
Waiting + SPM reset	D8	no		
Analog output	A1	no		
Analog input	A2	no		
Dialog	Dialog	no		
Waiting for Analog input	A3	no		



1. In the operating menu, select [Configuration]- [Alibi memory] and confirm.
   ▷ A selection window opens.



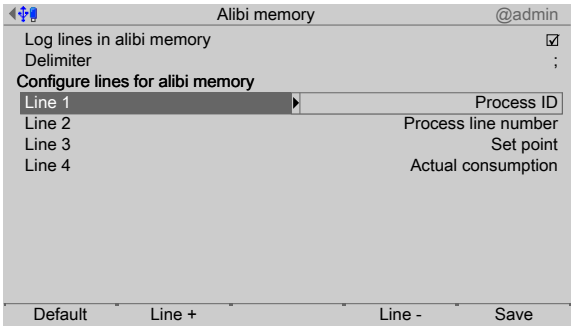
2. Select the individual settings and confirm.

   [Log lines in Alibi memory]

   Check the box ☑ to write the result into the Alibi memory after batching.

[Delimiter]

Selection: „ , #, [Comma] ,*, -, /, ^, _, ~, [Space], ;



[Line 1...40]

Selection: Process ID, process line no., component ID, set point, -tolerance, +tolerance, actual consumption.

Softkey **[Line+]**

Insert a new line above the marked line. Up to 40 lines can be defined.

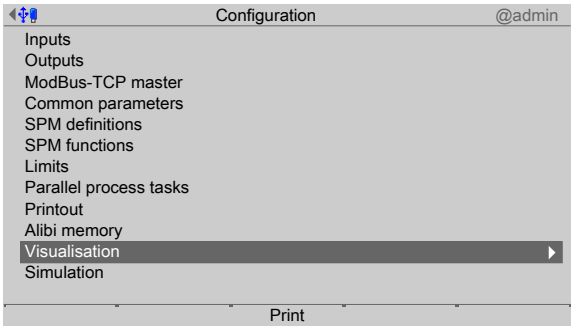
Softkey **[Line-]**

Delete highlighted line.

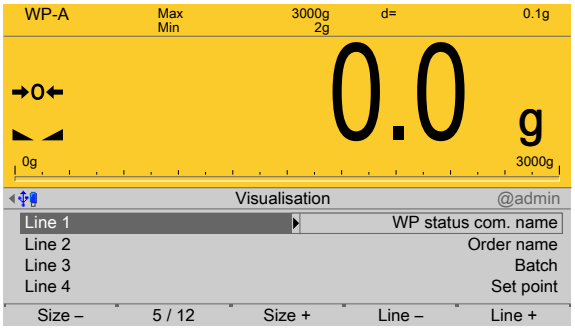
3. Press the [Default] softkey to return to the factory settings, if required.
4. Finally, press the [Save] softkey to save the settings.

5.4.12 Visualization

In this menu item, the visualization of a weighing point during a running process is performed.



1. In the operating menu, select and confirm [Configuration] - [Visualisation].
   ▷ A selection window opens.



2. Select and confirm the individual settings.

[Line 1]

The status (e.g. Coarse, Fine, Tolerance alarm) is displayed.

Selection: WP status com. ID, WP status com. name

[Line 2...10]

Selection: Order name, Order total act./Order total, Batch, Process ID, Process name, Process status, Process line, Set point act. batch, Set point, Proc. line act., Difference, Set point/act., Set point/diff., Actual/diff., blank line, Process value act., Process difference

[Size-/Size+] softkey

Reduce or increase the size of the display (with and without bar graph).

Selection: 1/12...12/12

[Line +] softkey

Insert a new line above the highlighted line. Up to 10 lines can be defined.

[Line -] softkey

Delete highlighted line.

3. Exit the menu using the EXIT key.
4. If necessary, save the configuration.

5.4.13 Simulation

This function is needed in order to simulate the material flow of a process without real materials.

It is possible to test whether the settings/links of the digital inputs and outputs have been parameterized correctly.

In a test structure, the process can be simulated in advance so that any necessary changes can be made before installation.

The dosing signals for Coarse, Fine and Discharge are also operated in the simulation. The speed of the coarse flow to be simulated is adjustable in units/minutes (e.g. 10 kg/min for a scale with kg graduations).

The fine flow is carried out at approx. ⅕ of the speed of the coarse flow. The discharge is carried out at 5 times the speed of the coarse flow.

After a cold start, the simulation is off. The parameters are saved.

⚠ WARNING

Risk due to uncontrolled material flow!

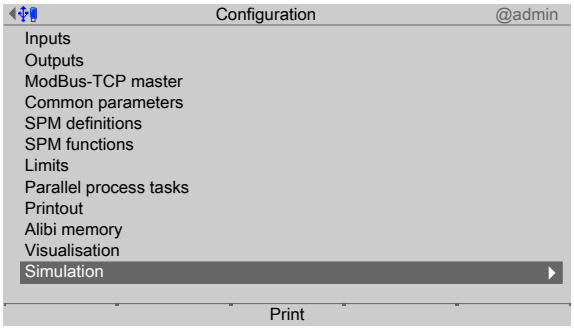
All signals are operated for real when the function is activated.

▶ The simulation may only be carried out in a test structure!

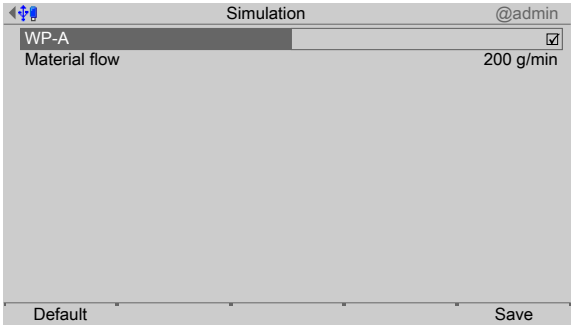
Note:

A scale can only be simulated if the "Settings locked" parameter has not been activated under [System setup] - [Weighing points] - [Parameters].

▶ After exiting the simulation, set the parameter "Settings locked" to reactivate overwrite protection via the software under [System setup] - [Weighing points] - [Parameters].



1. In the operating menu, select and confirm [Configuration] - [Simulation].



2. Check the box ☑ to activate the simulation mode.
3. Enter the coarse flow speed.
4. Press the [Default] softkey to return to the factory settings, if required.
5. Press the [Save] softkey to save the settings for the simulation.
6. To select/create the process and start, see Chapter 7.3.
7. After the end of the test phase, deactivate the simulation and perform a cold start (see PR 5500 operating instructions) in order to switch off the simulation.

5.5 Switching off the device

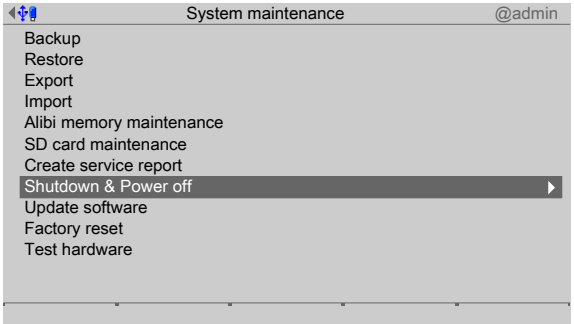
This function is required to disconnect the device from the power immediately, e.g., to install an option card. The rechargeable battery is immediately deactivated.

Note:

With a menu-driven shutdown, not all the content of the SD-RAM will be saved to a NAND flash memory.

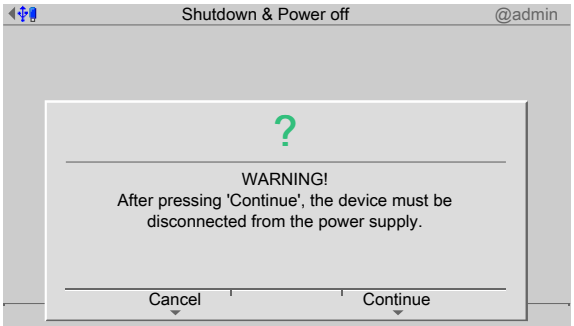
When restarting, a cold start is forced. For example, database entries **no longer** exist.

It is recommended to first make a backup on the SD card and/or export the data to a USB stick; see Chapter PR 5500 operating instructions.



1. In the operating menu, select and confirm [System maintenance] - [Shutdown & Power off].

   ▷ A prompt window opens.



2. Press the [Next] soft key.
3. Disconnect the power plug.

6 Application

6.1 General notes

Operation takes place via the application menu, see also Chapter 4.

The following functions are available:

The application is operated via the application menu, see Chapter 4.

The following functions are available in the application menu:

- Production (see Chapter 7)
- Print tickets and reports (see Chapters 6.3.8, 6.4.7, 6.5.5, 6.6.5, 6.7.5, 12.3, 12.4 and 12.5)
- Databases (see Chapter 11)
- Application maintenance (see Chapter 6.8)
- Configuration (see Chapter 5.4)

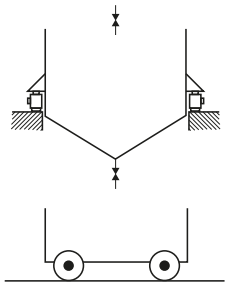
6.2 Overview

The following batching examples are possible with the IBC Controller:

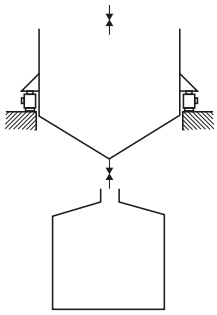
- Filling container, see Chapter 6.2.1
- Filling station, see Chapter 6.2.2
- Loading station, see Chapter 6.2.3

Note:

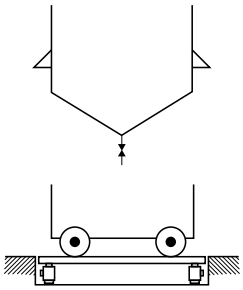
Component types, e.g. batching mode B1, see Chapter 6.3.3.



"Filling container" application example
This relates to fill batching into an intermediate weighing container (batching container) with subsequent complete discharge. Consequently, the batching container always has precisely the content that needs to be filled into e.g. big bags.
The batching modes relate to the weighing point (here: batching container).
Start of the filling process for the batching container with a pre-defined amount of material in mode B1/B3. Subsequent start of the discharge process for the container in mode B8 (see also Chapter 6.2.1).

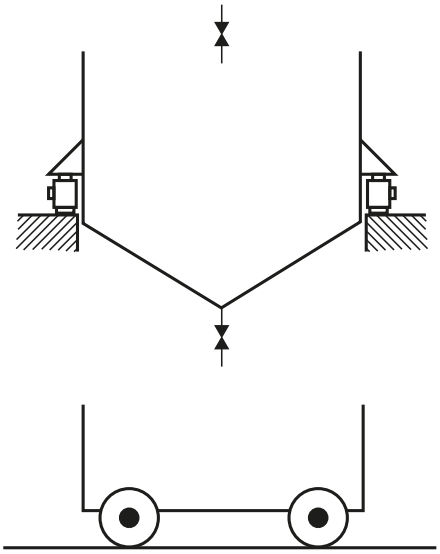


"Filling station" application example
Start of discharge batching from a supply container stored on load cells, e.g. into a container. This filling method is also used for truck loading.
The supply container is filled up to a specific supply volume either manually or via fill batching in mode B1 or B3. Subsequently, one or more discharge batching processes are carried out in mode B4 (see also Chapter 6.2.2).



"Loading station" application example
Start of a filling batching process for a big bag, container or barrel on a weighing platform in mode B1, B2 or B3. Preset tare values can be entered in mode B2 (see also Chapter 6.2.3).

6.2.1 Filling container



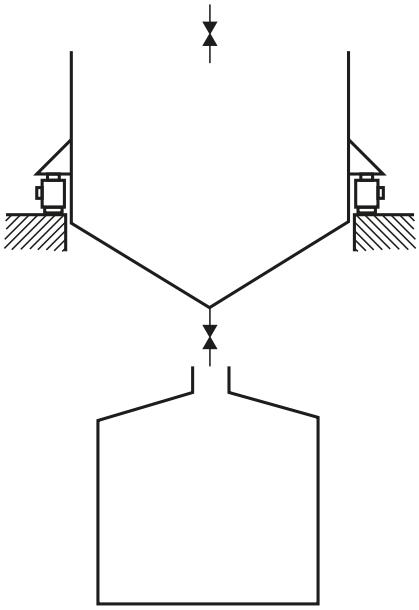
In the filling container, the batching container itself is the weighing point. Various process steps are required, for which various parameters need to be entered, see Chapter 7. The filling valves of the batching container and the discharge valve are controlled. In addition, the discharge can be locked via an input signal.

Process task

Separate processes for filling and discharge:

- Start prompt, if defined.
- Set point input, if defined.
- Start of fill batching.
- Filling with pre-defined amount.
- Start prompt, if defined.
- Separate start of discharge batching with total discharge.

6.2.2 Filling station



The batching container itself is the weighing point. The container can be controlled by the IBC Controller. Discharge batching is carried out e.g. in the container, which takes place according to predefined parameters or can be freely selected.

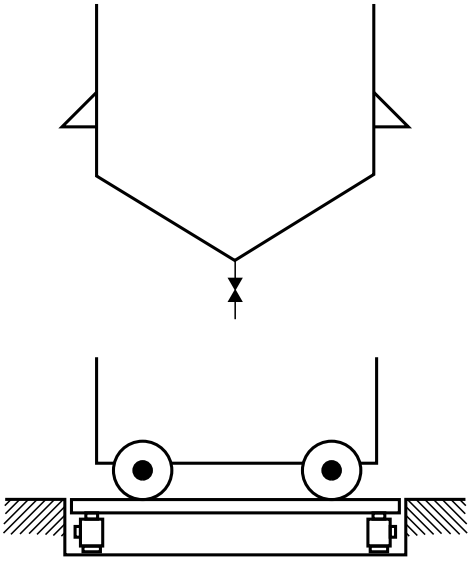
Various process steps are needed for the discharge batching, for which various parameters need to be defined, see Chapter 7. The filling valve and the discharge valve of the batching container are controlled. The start of batching can be locked via an input signal. Preset tare values can be specified.

Process task

Discharge batching into container or barrel:

- Start prompt, if defined.
- Set point input, if defined.
- Calling up a container, if defined.
- Start of discharge batching.
- Discharge batching of a pre-defined amount.

6.2.3 Loading station



The container itself is only a batching container. The weighing point is the platform/the vehicle scale.

Various process steps are needed for the loading station, for which various parameters need to be entered, see Chapter 7.

Only the valves under the batching container are controlled. The start of batching can be locked via an input signal. Preset tare values can be specified.

Process task

Fill batching in a car or truck:

- Start prompt, if defined.
- Set point input, if defined.
- Calling up a bundle, if defined.
- Start of fill batching.
- Fill batching of a pre-defined amount.

6.3 Components

6.3.1 General

Before a process can be created, the components listed in it must be defined. The following components are available:

- Material components (substances to be weighed)
- Control components (control the process)

Components can be created, edited, deleted and printed. They can be listed in processes.

6.3.2 Use of the components

In general, each control component is only carried out once. However, functionally identical control components can be switched in succession, and this can be started via enable bits if necessary.

6.3.3 Component types

There are 18 different component types.

Legend for column 1...7							
1	**Internal index[1)]**		**4**	**Label ticket**			
2	**Mode[2)]**		**5**	**Order ticket**			
3	**Batch report**		**6**	**Order, direct**			
			7	**Consumption[3)]**			

Component type	**1**	**2**	**3**	**4**	**5**	**6**	**7**
Net filling	1	B1	✗	✗	✗	✗	✗
Net refilling	2	B2	✗	✗	✗		✗
Net decrease	3	B4	✗	✗	✗	✗	✗
Gross filling	4	B3	✗	✗	✗	✗	✗
Gross decrease	5	B6	✗	✗	✗	✗	✗
Discharge	6	B8					
Manual filling	8	D1	✗	✗	✗	✗	✗
Manual filling, no check	9	D2	✗	✗	✗	✗	✗
Timer	10	D3	✗				
Stop	11	D4					
Wait for SPM	12	D5					
Set SPM	13	D6					
Reset SPM	14	D7					
Waiting + reset SPM	15	D8					
Analog output	16	A1	✗				
Analog input	17	A2	✗				
Dialog	18	Dialog	✗				
Wait for analog input	19	A3	✗				

[1)] Mode index: used in the component and report database.

[2)] Designations of the batching modes as in the X series.

[3)] The material component actually transported is recorded.

6.3.4 Component parameters

The parameters of the following components are described:

- Net filling (B1), see Chapter 6.3.4.2
- Net refilling (B2), see Chapter 6.3.4.3
- Gross filling (B3), see Chapter 6.3.4.4
- Net decrease (B4), see Chapter 6.3.4.5
- Gross decrease (B6), see Chapter 6.3.4.6

- Discharge (B8), see Chapter 6.3.4.7
- Manual filling (D1), see Chapter 6.3.4.8
- Manual filling, no check (D2), see Chapter 6.3.4.9
- Timer (D3), see Chapter 6.3.4.10
- Stop (D4), see Chapter 6.3.4.11
- Wait for SPM (D5), see Chapter 6.3.4.12
- Reset SPM (D7), see Chapter 6.3.4.13
- Wait + reset SPM (D8), see Chapter 6.3.4.14
- Analog output (A1), see Chapter 6.3.4.15
- Analog input (A2), see Chapter 6.3.4.16
- Wait for analog input value (A3), see Chapter 6.3.4.17
- Dialog, see Chapter 6.3.4.18
- Restart modes, see Chapter 6.3.4.19

6.3.4.1 Table

The following table shows which parameters are assigned to the different component types.

Legend for column 1...18

1	**Internal index[1)]**	**7**	**Max. batching**	**13**	**Material flow**
2	**Mode[2)]**	**8**	**Weighing point**	**14**	**Restart mode**
3	**Set point**	**9**	**Preset fine + middle**	**15**	**Tolerance**
4	**Tolerance**	**10**	**Dosing signals, coarse, middle, fine**	**16**	**Calming time in s**
5	**Total**	**11**	**Batching mode digital, digital+analog**	**17**	**Enable bit/name**
6	**Relative**	**12**	**Overshoot**	**18**	**Active bit/name**

Component type	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**
		Process editor (column 3...7)							**Component editor (column 8...18)**									
Net filling	1	B1	kg	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
Net refilling	2	B2	kg	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
Net decrease	3	B4	kg	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
Gross filling	4	B3	kg	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
Gross decrease	5	B6	kg	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
Discharge	6	B8					✗	✗	✗							✗	✗	✗
Man. filling	8	D1	kg	✗	✗	✗	✗	✗							✗		✗[4)]	✗
Man. filling, no check	9	D2	kg		✗	✗	✗	✗									✗	✗
Timer	10	D3	s				✗	✗									✗	✗
Stop	11	D4					✗	✗									✗	✗
Wait for SPM	12	D5					✗	✗									✗	✗
Set SPM	13	D6					✗	✗										✗

Legend for column 1...18

1	**Internal index[1)]**	**7**	**Max. batching**	**13**	**Material flow**
2	**Mode[2)]**	**8**	**Weighing point**	**14**	**Restart mode**
3	**Set point**	**9**	**Preset fine + middle**	**15**	**Tolerance**
4	**Tolerance**	**10**	**Dosing signals, coarse, middle, fine**	**16**	**Calming time in s**
5	**Total**	**11**	**Batching mode digital, digital+analog**	**17**	**Enable bit/name**
6	**Relative**	**12**	**Overshoot**	**18**	**Active bit/name**

Component type	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**
		Process editor (column 3...7)							**Component editor (column 8...18)**									
Reset SPM	14	D7					✗	✗										✗
Wait + reset SPM	15	D8					✗	✗									✗	✗
Analog output	17	A1	✗[5)]				✗	✗						✗	✗			✗[6)]
Analog input	16	A2					✗	✗						✗	✗		✗[7)]	
Dialog	18	Dialog					✗	✗										✗
Wait for analog input	19	A3	✗	✗			✗	✗			✗	✗		✗	✗		✗	✗

[1)] Mode index: used in the component and report database.

[2)] Designations of the batching modes as in the X series.

[3)] This unit is also used for preset, overshoot, etc.

[4)] Confirms the batching of the manual components.

[5)] The unit for the set points can be t, kg, lb, etc; however if there are several scales they must all belong to the same group (e.g. metric).

[6)] The set point is logged to this SPM address.

[7)] The value is read from this SPM address.

Legend for column 1...8			
1	Internal index[1)]	4	Message
2	Unit	5	Dialog
3	Set point scaling (0/4 mA and 20 mA)	6	Check name
		7	Area (0...20 or 4...20 mA)
		8	Decimals

Component type	1	2	3	4	5	6	7	8
			Component editor (column 2...8)					
Net filling	1		✗		✗			
Net refilling	2		✗		✗			
Net decrease	3		✗		✗			
Gross filling	4		✗		✗			
Gross decrease	5		✗		✗			
Discharge	6		✗					
Man. filling	8		✗		✗	✗		
Man. filling, no check	9		✗		✗	✗		
Timer	10		✗					
Stop	11		✗					
Wait for SPM	12		✗					
Set SPM	13		✗					
Reset SPM	14		✗					
Wait + reset SPM	15		✗					
Analog output	16	✗	✗					
Analog input	17	✗	✗					
Dialog	18		✗	✗	✗			
Wait for analog input	19	✗	✗			✗	✗	✗

[1)] Mode index: used in the component and report database.

Note:

The common parameters for automatic batching are explained under the component [Net filling] in Chapter 6.3.4.2.

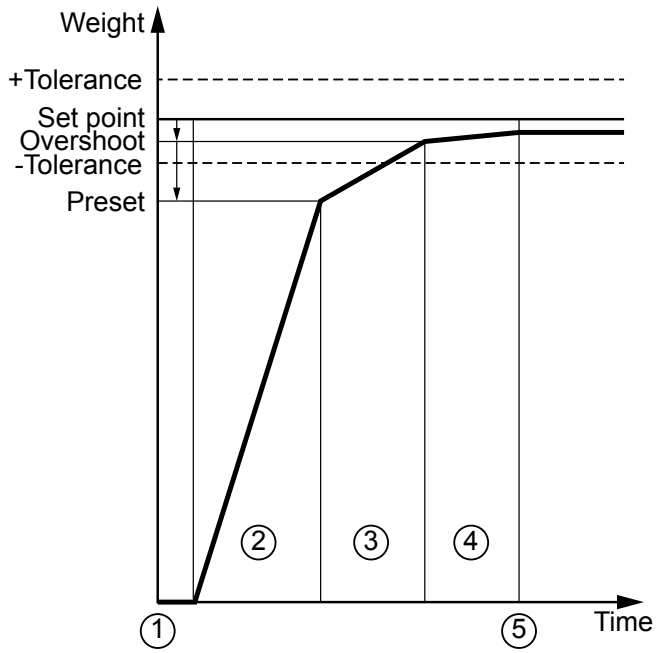
6.3.4.2 Net filling (B1)

The scale is tared and then the amount listed in the process line is automatically (Coarse/Middle/Fine) added.

The overshoot can be automatically tracked in order to achieve optimum accuracy.

Net = gross - tare

[Net filling] with dosing signals "Coarse/Fine" procedure



① Taring:
The current gross weight is saved as tare weight, and the net weight starts at zero.

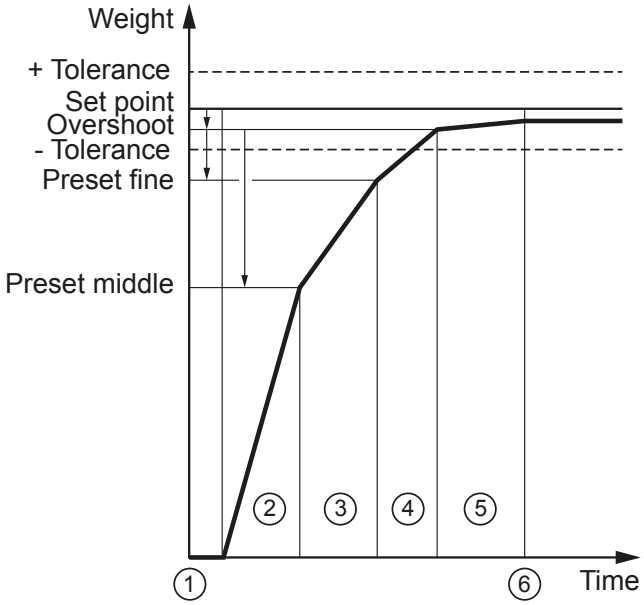
② Coarse:
A coarse flow (coarse and fine) is batched until the preset is reached.

③ Fine:
A fine flow is batched until the switch-off point (overshoot) is reached.

④ Calming:
Time to wait during which the overshoot is effective and scale vibrations may settle.

⑤ Tolerance checking:
The weight is determined and checked against the tolerance values.

[Net filling] with dosing signals "Coarse/Middle/Fine" procedure



① Taring:
The current gross weight is saved as tare weight, and the net weight starts at zero.

② Coarse:
A coarse flow (coarse, middle and fine) is batched until the preset is reached.

③ Middle:
A middle batch (middle and fine) is batched until the "Fine" preset is reached.

④ Fine:
A fine flow is batched until the switch-off point (overshoot) is reached.

⑤ Calming time:
Time to wait during which the overshoot is effective and scale vibrations may settle.

⑥ Tolerance checking:
The weight is determined and checked against the tolerance values.

[Signal mode]

Each dosing signal can be linked to a signal mode.

The following signal modes are available:

- Digital (configuration of the digital outputs, see Chapter 5.4.3.3)
- Digital + analog

Valves/worm drives can be set to a specified value for each batching phase using the analogue valve control.

Example:

Coarse value	100 %	≙	20 mA
Middle value	50 %	≙	10 mA
Fine value	10 %	≙	2 mA

Note:

Select analog output, see Chapter 6.3.4.2.1.

Link dosing signals to analog output, see Chapter 6.3.4.2.2.

[Preset]

The preset determines the time (set point – overshoot – preset) for switching from Coarse to Middle/Fine (coarse flow valve closes) during the batching cycle.

Note:

The fine flow signal is also active during the coarse flow phase.

Use only the fine flow signal, if only one batching speed is required.

	Coarse flow signal	Middle flow signal	Fine flow signal
Coarse flow phase	✗	✗	✗
Middle flow phase		✗	✗
Fine flow phase			✗

[Overshoot] (OVS)

All the material filled into the container after the fine flow valve has closed (Preset "Fine" = Set point - overshoot) is known as overshoot.

When entering the start value for the overshoot, the “in-flight” material which is still on its way into the container must be taken into account. To prevent the set point from being exceeded due to overshoot when starting for the first time, the initial overshoot setting should be higher than expected.

Only the portion of the overshoot that flows in once the calming time has elapsed is recorded.

Overshoot calculation/correction only takes place if tolerance checking has been enabled.

[Material flow]

The parameter is used to monitor the material flow. If the specified value (in weight/min) is not reached then a warning (bit in the SPM is set, see Chapter 10) is issued.

In order to ensure that a warning is not received as soon as the coarse flow is switched on, the monitoring starts after 10 s. The monitoring is switched off if 0.0 is entered.

The specified value (in weight/min) refers to the coarse flow; for the fine flow 1/8 of the value is valid.

[Calming time]

As the calming time (time to wait) starts straight after the fine flow valve has closed, the time for the overshoot must be taken into account. The weighing system can be put into vibration by dynamic effects. To determine the weight correctly, a corresponding time in seconds must be selected for calming. Before starting a system for the first time, set a higher value for the calming time in order to permit settling of the weight value before the tolerance check is performed.

The calming time (time to wait) to be set depends primarily on the following characteristics:

- Time for the overshoot after the fine flow valve has closed
- Consistency of the material
- Characteristics of the infeed system
- Delays in the infeed system

[Tolerance checking]

The tolerance is specified as a percentage of the set point for each material and can be determined with [+Tolerance] for weight above set point and with [–Tolerance] for weight below set point.

Note:

In the event of automatic batching, the tolerance settings should be sufficiently large to ensure that overshoot optimization is executed.

A smaller tolerance does not improve the batching result.

Tolerance errors cause generation of a tolerance alarm that must be acknowledged.

If a set point tolerance is exceeded then there is a production stop for a process step.

Note:

If [+Tolerance] and [–Tolerance] are set to 0, tolerance checking is omitted. Overshoot correction and/or post-batching are not performed.

The overshoot value remains unchanged!

[Enabled by bit]

SPM address %MX, see Chapter 10. The SPM address is entered when creating a material component (may not be occupied by another function). An input is then assigned the same address during the input configuration.

A non-active input blocks the batching. The input can be used e.g. as feedback for the connected path.

If the SPM address is set to 0, the material component is released immediately.

[Activ bit]

SPM address %MX, see Chapter 10. The SPM address is entered when creating a material component (may not be occupied by another function). An output is then assigned the same address during the output configuration.

The corresponding bit is set as soon as the material is active. The status is independent of Enabled by bit.

[Dialog data type]

This parameter is only used if a dialog is configured.

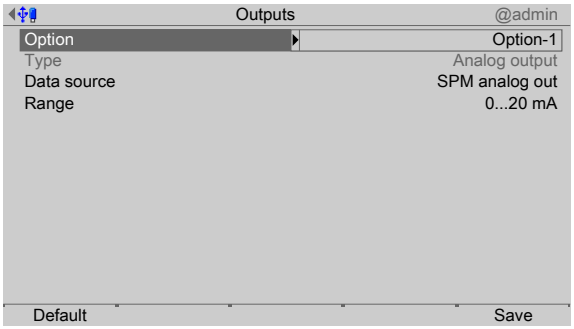
The dialog can either take place before the batching or as a separate process line.

There are 8 different settings. The data recorded with the dialog (2...7) is only significant for the report.

In the case of 8, a query is started for set point change of the material component:

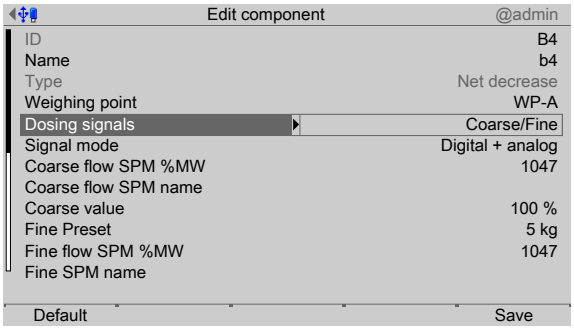
No.	Selection	Description
1	No dialog	Dialog is switched off.
2	Message only	The message must be acknowledged or it will be displayed for a defined time.
3	Text	Enter free text.
4	Integer number	Enter integer, if necessary with dimension.
5	Real number	Enter floating point number, if necessary with dimension.
6	Weight	Enter weight value.
7	Yes/No	Prompt only.
8	New set point	Set point change.

6.3.4.2.1 Select analog output



1. In the operating menu, select [Configuration]- [Outputs]- [Option] and confirm.
2. In the selection window, select the relevant interface (here: [Option-1]) and confirm.
3. Select [Data source] and confirm.
4. In the selection window, select [SPM analog output] and confirm.
5. Select [Range] and confirm.
6. In the selection window, select [0...20 mA] and confirm.
7. Press the [Save] softkey to save the settings.

6.3.4.2.2 Assign dosing signals to the analog output



1. In the operating menu [Databases]- [Components], press the softkey [New]/[Edit].
2. Select [Dosing signals] and confirm.
3. In the selection window, select the desired signals (here: [Coarse/Fine]) and confirm.
4. Select [Signal mode] and confirm.
5. In the selection window, select [Digital + analog] and confirm.
6. Select [Coarse SPM %MW], enter the fixed value for the selected interface (here: [Option-1] = 1047) (see Chapter 10.5) and confirm.
7. Press the [Save] softkey to save the settings.

6.3.4.3 Net refilling (B2)

The scale is not tared and is refilled to the specified net weight. A material of this type follows e.g. a line with a material which is hard to batch due to its consistency.

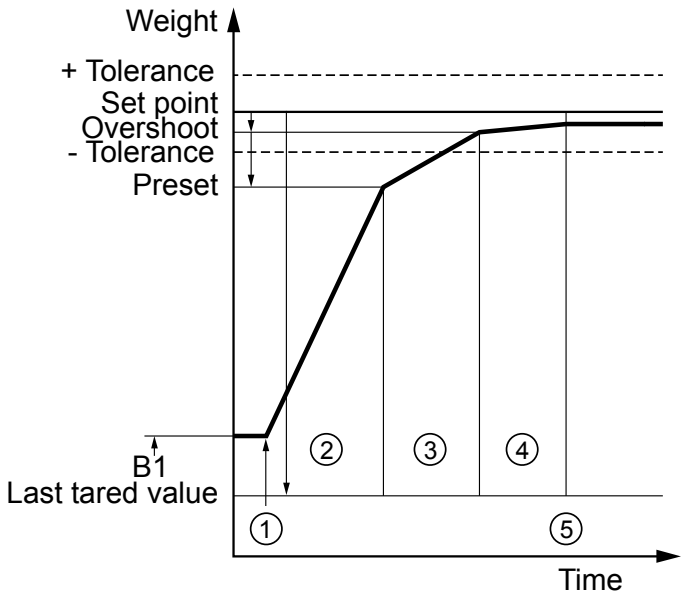
With the refill function, the same substance but with a better consistency is automatically brought to the precise set point.

Note:

When using B3 components, the setting of the "Process total" parameter must be considered in the process!

Net = gross - tare

Sequence of [net refilling] with dosing signals "coarse/fine"



① Start:
Batching start after the last tared value.

② Coarse:
A coarse flow (coarse and fine) is batched until the preset value is reached.

③ Fine:
A fine flow is batched until the switch-off point (overshoot) is reached.

④ Calming:
Time to wait during which the overshoot is effective and scale vibrations may settle.

⑤ Tolerance checking:
The weight is determined and checked against the tolerance values.

6.3.4.4 Gross filling (B3)

The scale is automatically refilled to the specified gross weight.

The other parameters and the process correspond to the type [Net filling], see Chapter 6.3.4.2.

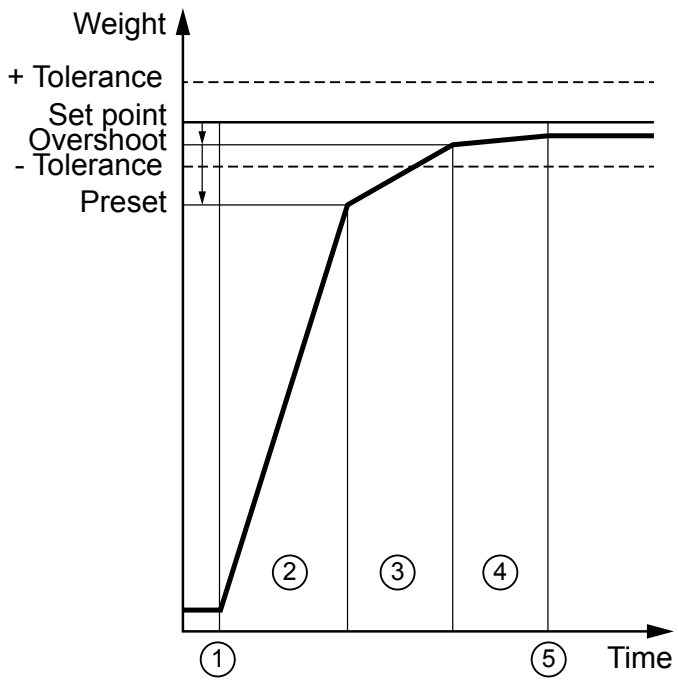
Note:

When using B3 components, the setting of the "Process total" parameter must be considered in the process!

Net = gross - tare

Tare = 0

Sequence of [gross filling] with filling signals "coarse/fine"



① Taring:
The tare weight is set to zero.
Therefore the gross and net weight are the same. The gross/net weight starts from the actual gross value.

② Coarse:
A coarse flow (coarse and fine) is batched until the preset value is reached.

③ Fine:
A fine flow is batched until the switch-off point (overshoot) is reached.

④ Calming time:
Time to wait during which the overshoot is effective and scale vibrations may settle.

⑤ Tolerance checking:
The weight is determined and checked against the tolerance values.

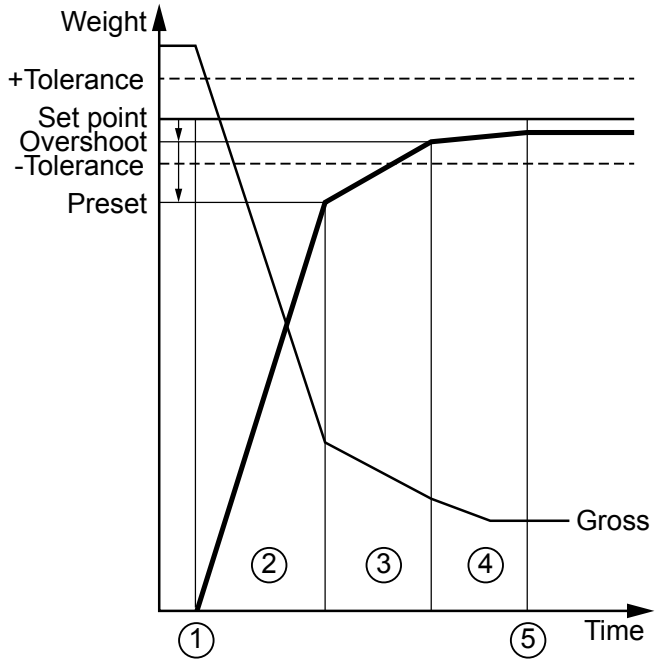
6.3.4.5 Net decrease (B4)

The scale is automatically discharged up to the specified value. The other parameters and the process correspond to the [Net filling] mode; see Chapter 6.3.4.2.

Net = gross - tare

Tare = gross

Sequence of [Net decrease] with dosing signals "coarse/fine"



① Taring:
The current gross weight is saved as the tare and the net weight starts at zero.

② Coarse:
A coarse flow (coarse and fine) is batched until the preset value is reached.

③ Fine:
A fine flow is batched until the switch-off point (overshoot) is reached.

④ Calming:
Time to wait during which the overshoot is effective and scale vibrations may settle.

⑤ Tolerance checking:
The weight is determined and checked against the tolerance values.

6.3.4.6 Gross decrease (B6)

The scale is automatically discharged up to the specified value.

Note:

The use of this component type is only effective at precisely defined points in a process.

The other parameters and the process correspond to the type [Net filling], see Chapter 6.3.4.2.

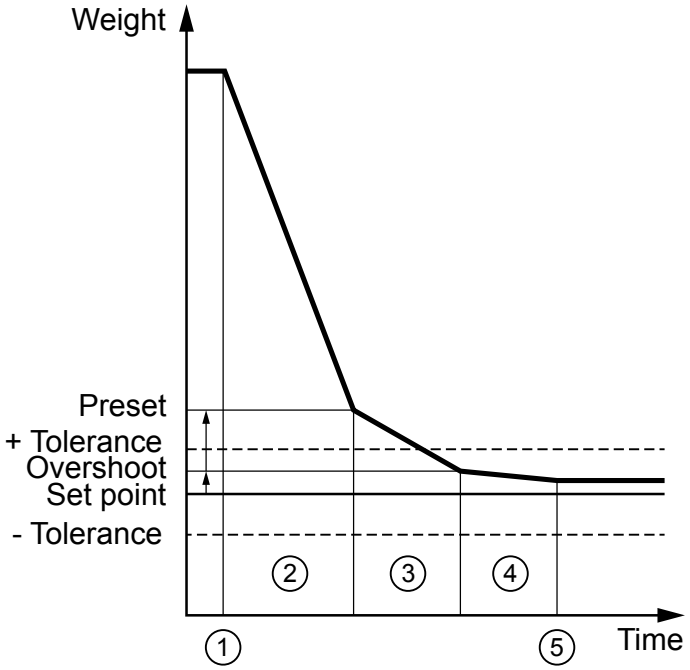
Note:

When using B6 components, the setting of the "Process total" parameter must be considered in the process!

Net = gross - tare

Tare = 0

Sequence of [Gross decrease] with dosing signals "coarse/fine"



① Taring:
Before batching, the tare weight is set to zero. The net weight is equal to the gross weight. The input value for this component is the gross weight.

② Coarse:
A coarse flow (coarse and fine) is batched until the preset value is reached.

③ Fine:
A fine flow is batched until the switch-off point (overshoot) is reached.

④ Calming time:
Time to wait during which the overshoot is effective and scale vibrations may settle.

⑤ Tolerance checking:
The weight is determined and checked against the tolerance values.

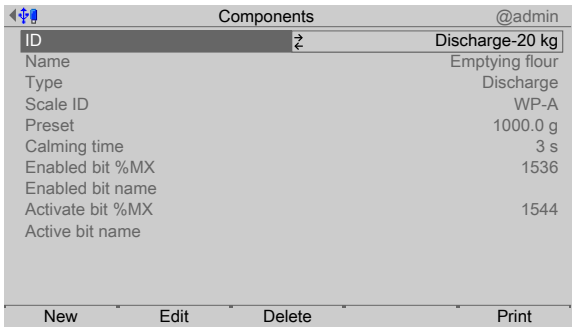
6.3.4.7 Discharge (B8)

The aim here is to discharge the scale automatically and completely. The output stipulated under [Active bit] is set up to the maximum remainder specified under [Preset]. Once the remainder is reached, the time specified under [Time to wait] is waited in order to discharge the last remainder from the scale.

The remainder value should be greater than the expected remainder amount, which does not flow out of the container independently (deposit build-up).

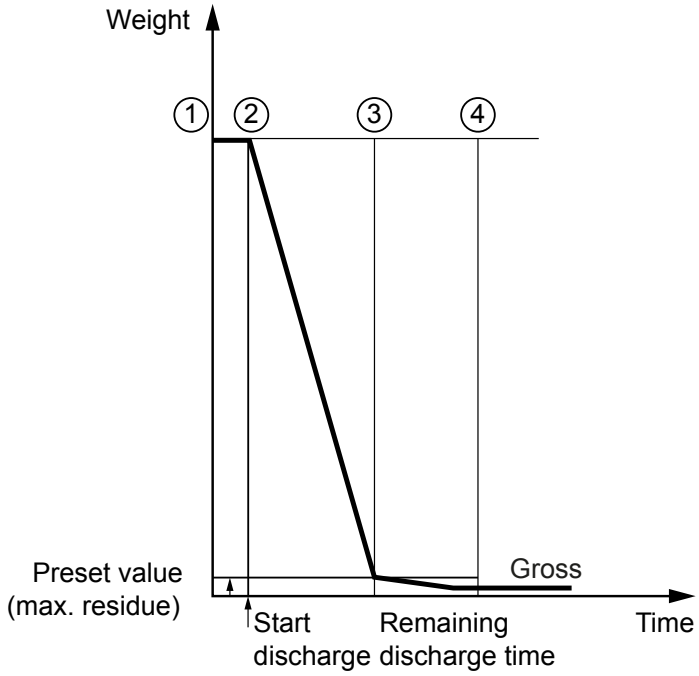
Note:

The use of this component type is only effective at precisely defined points in a process. Suitable mechanical/electrical equipment is needed.



Example for the "Discharge" component type.

[Drain] process



① Discharge:
The material is batched in the coarse flow until the gross weight is under the maximum remainder. This parameter is saved under "Preset".

② Output discharge signal [Active bit].

③ Maximum remainder [Preset] reached.

④ Remainder discharge time [Calming time] expired. Output [Active bit] is reset.
After this, the valve remains open for a few seconds longer so that any remaining material can be discharged. This parameter is saved under "Overshoot".

6.3.4.8 Manual filling (D1)

A material component is manually added; the amount is weighed and then checked for tolerance. Manual additions apply the actual value amount (no consideration of the plus/minus sign). This means that it is possible both to fill a container on the scale and to remove a material component from a weighed container.

The batching is preceded by a tare step, i.e. the net weight when starting the batching process is zero. The input value for this component is the net weight.

[Enable bit]

SPM address %MX, see Chapter 10. The address is entered when creating a material component (may not be occupied by another function). An input is then assigned the same address during the input configuration.

A non-active input blocks the batching. The input can be used e.g. as feedback for the connected path. If the SPM address is set to 0, the material component is released immediately.

[Active bit]

SPM address %MX, see Chapter 10. A signal is given to the operator via an output that the material component is active.

6.3.4.9 Manual filling, no check (D2)

A material is added manually and the specified set point is used as the actual value.

Manual additions apply the actual value amount (no consideration of the plus/minus sign).

The parameters correspond to those of [Manual filling], only the tolerance specification is omitted.

Note:

In verifiable operation, it must be considered that only the set point is saved in batching mode "D2".

6.3.4.10 Timer (D3)

SPM address %MX, see Chapter 10. The timer is set for a specified time. The time starts when the input for the [Active bit] is activated.

Note:

This component type should be used with caution in manual processes. Processes which can be recalculated should not contain this component type.

6.3.4.11 Stop (D4)

An automatic process is held and the specific output is activated. The process is continued by the user.

The function can be used, for example, to take samples.

6.3.4.12 Wait for SPM (D5)

The material component sets the [Active bit] until the specified SPM address [Ready bit] has been set.

Note:

Use in manual processes requires appropriate mechanical/electrical equipment.

6.3.4.13 Reset SPM (D7)

An SPM address %MX is reset, see Chapter 10. This means that conveyor belts, heating, suction systems, etc. can be switched off again.

Note:

[Reset SPM] and [Set SPM] must be viewed together.

Process which can be recalculated should not contain this component type.

6.3.4.14 Wait + reset SPM (D8)

This is used as a "handshake" function with internal functions.

6.3.4.15 Analog output (A1)

The set point is scaled using a linear function and specified in the SPM in the data type "WORD". SPM addresses %MX, see Chapter 10.

The range is 0...20 mA. The analog output value between 0/4 mA (Min) and 20 mA (Max) is scaled with a specified unit (e.g. rpm) to the set point at 0/4 mA (Setp04mA) and the set point at 20 mA (Setp20mA).

The set point from the process line is transferred into the batch report.

The scaling is adapted to the analog output card.

$$SPM_{out} = \frac{20000 \bullet (\text{set point} - \text{Setp04mA})}{\text{Setp20mA}}$$

Use

Set point specification e.g. for an external temperature regulator or determination of the speed of a mixer.

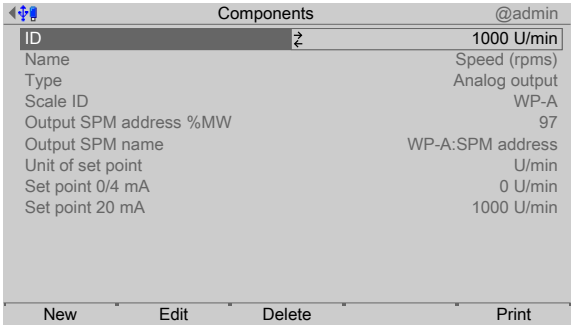
Apart from for scaling, the [Set point...] parameters are also used as a permitted input range for the set point in the process line.

NOTICE

Warning of property and/or environmental damage.

These components should be used with caution in manual processes.

- If, for instance, they are used to set the speed of a mixer, it must be ensured that a corresponding component that switches the mixer off again can still be carried out at the end of the process.
- Processes which can be recalculated should not contain these components.



Example for the "Analog output" component type.

6.3.4.16 Analog input (A2)

An analog input signal is imported and provided to the SPM in the "WORD" data type. SPM addresses %MX, see Chapter 10.

The range is 0...20 mA. The analog input value between 0/4 mA (Min) and 20 mA (Max) is scaled with a specified unit (e.g. °C) to the set point at 0/4 mA (Setp04mA) and the set point at 20 mA (Setp20mA).

The current value is transferred into the batch report.

The scaling is adapted to the analog input card.

$$SPM_{in} = \frac{20000 \bullet \text{analog input}}{20\ \text{mA}}$$

$$\text{current} = \frac{(\text{Setp20mA} - \text{Setp04mA}) \bullet \text{analog input}}{20\ \text{mA}} + \text{Setp04mA}$$

Use

Read a value from the SPM which stands for a process parameter, e.g. a temperature.

Under-control or over-control of the input set the to [On hold].

6.3.4.17 Wait for analog input value (A3)

An analog input signal is imported and provided to the SPM in the "WORD" data type. SPM addresses %MX, see Chapter 10.

This component waits until the agreed condition for the agreed period is met.

The range can be selected to be 0...20 mA or 4...20 mA. The analog input value is scaled with a specified unit (e.g. °C) to the set point at 0/4 mA (Setp04mA) and the set point at 20 mA (Setp20mA).

The scaled current value is displayed on the device during the current process.

The set point and the tolerance ranges are shown in the bar graph until the component ends or is canceled.

The current value is incorporated into the batch report.

A linear function is used to scale the value to the application.

The scaling is adapted to the analog input card.

$$SPM_{in} = \frac{20000 \bullet \text{analog input}}{20\ \text{mA}}$$

$$\text{current} = \frac{(\text{analog input - min}) \bullet (\text{Setp20mA - Setp04mA})}{\text{max - min}} + \text{Setp04mA}$$

Min = 0/4 mA, Max = 20 mA

Use

Wait for an analog value which shows a process parameter, e.g. a temperature value during a specified condition within a period of time.

The process line oes to [On hold] in the event of an input value

under 0 mA/over 20 mA for 0...20 mA

or

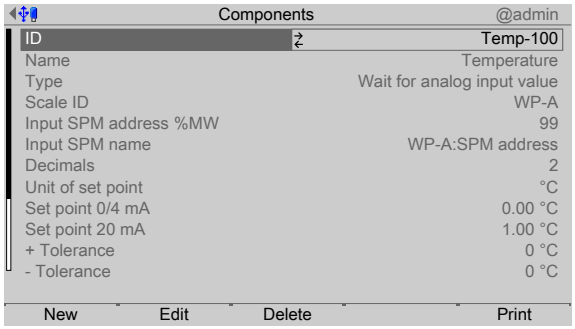
under 2 mA/over 20 mA for 4...20 mA.

The process also goes to [On hold] if:

Max – Min $<10^{-6}$

or

(set point + pos. tolerance) – (set point – neg. tolerance) < (max - min) • 0.01.



Example for the component type "Wait for analog input value".

Coarse, middle and fine

It is possible to use the [Active bit] to determine the status. The SPM logic function (AND conjunctions) must be used for this purpose, see Chapter 10.

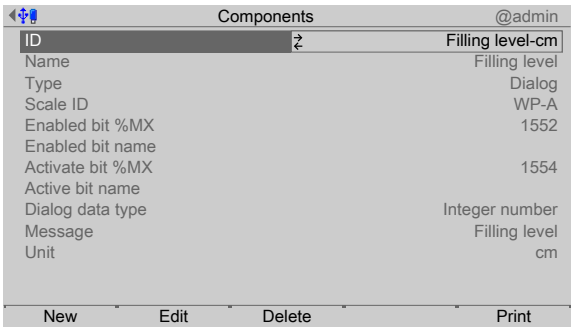
The coarse, middle and fine bits are used as status outputs:

Coarse is true as long as the material component is active AND the analog input value is valid.

Fine is true as long as the material component is active AND the analog input value is within the tolerance.

6.3.4.18 Dialog

This type is used to hold a dialog with the user, see also Chapter 7.4.7.



Example for "Dialog" component type.

[Dialog data type]

Selection: [No dialog], [Message only], [Text], [Integer number], [Real number], [Weight], [Yes/No]

[Unit]

Only in the case of [Integer number] and [Real number].

[Time out]

Only in the case of [Message only].

6.3.4.19 Restart modes

The restart modes determine the optimization process for the batched weight according to the tolerance control depending on the result, as well as for further batches of a material component.

Ideally, the batched weight will be the same as the set point for all restart modes, as no corrective measures are then required.

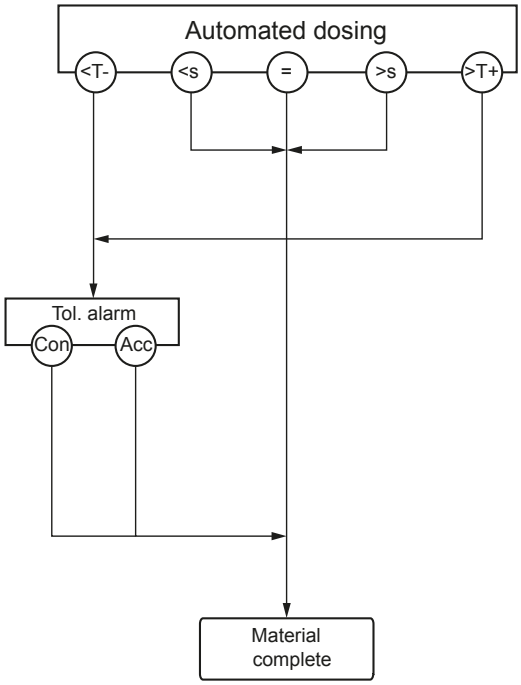
The following restart modes are available for the controller:

- RST Mode 0
- RST Mode 1
- RST Mode 2
- RST Mode 3
- RST Mode 4

Restart mode (RST Mode 0)

No post-batching and no overshoot correction.

RST Mode 0

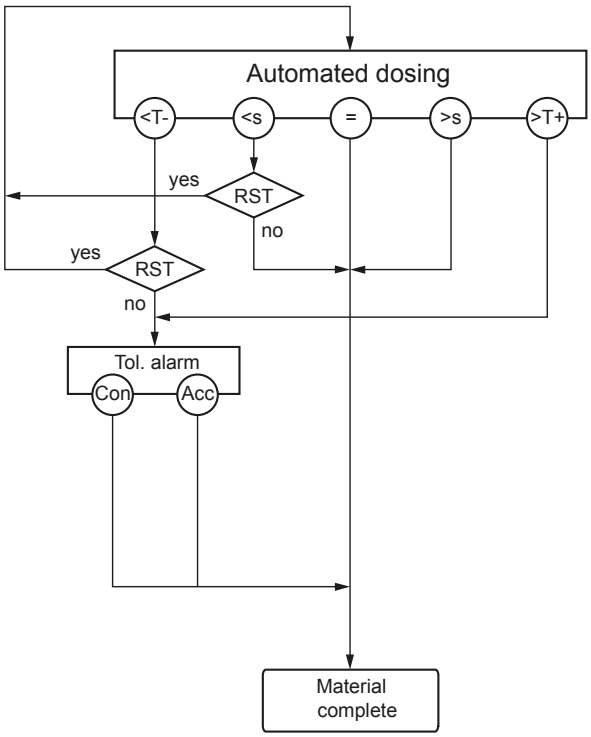


Symbol/abbreviation	Description
<T-	Below -tolerance limit
<s	Below set point
=	Set point reached exactly
>s	Above set point
>T+	Above +tolerance limit
Con	[Continue], accept over/under-batching.
Acc	[Accept], accept over/under-batching.
Tol. alarm	Tolerance alarm
Material complete	The batching for the material component is complete.

Restart mode (RST Mode 1)

Post-batching but no overshoot correction.

RST Mode 1

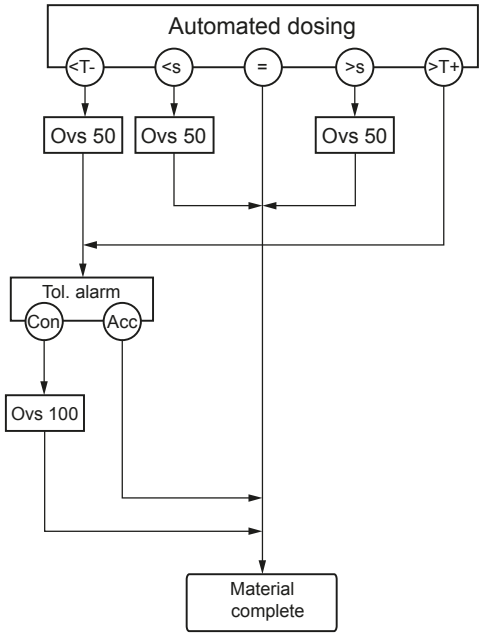


Symbol/abbreviation	Description
<T-	Below -tolerance limit
<s	Below set point
=	Set point reached exactly
>s	Above set point
>T+	Above +tolerance limit
Con	[Continue], accept over/under-batching.
Acc	[Accept], accept over/under-batching.
RST	Post-batching
yes/no	yes (overshoot smaller than difference)/no
Tol alarm	Tolerance alarm
Material complete	The batching for the material component is complete.

Restart mode (RST Mode 2)

Overshoot correction but no post-batching.

RST Mode 2

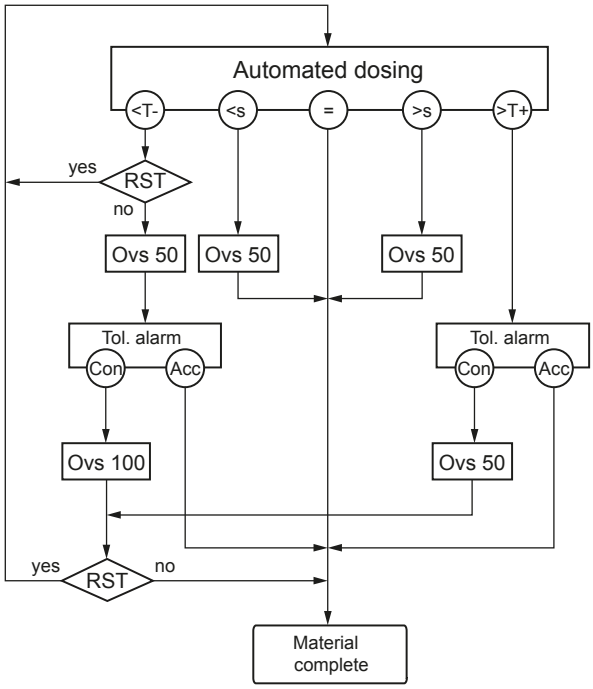


Symbol/abbreviation	Description
<T-	Below -tolerance limit
<s	Below set point
=	Set point reached exactly
>s	Above set point
>T+	Above +tolerance limit
Con	[Continue], set overshoot 100.
Acc	[Accept], accept over/under-batching.
OVS 50	Overshoot 50: Old overshoot – (set point - weight on tolerance check)/2
OVS 100	Overshoot 100: Old overshoot – (set point - current weight)
Tol alarm	Tolerance alarm
Material complete	The batching for the material component is complete.

Restart mode (RST Mode 3)

First post-batching and then overshoot correction.

RST Mode 3



Symbol/abbreviation	Description
<T-	Below -tolerance limit
<s	Below set point
=	Set point reached exactly
>s	Above set point
>T+	Above +tolerance limit
Con	[Continue] change overshoot, post-batch if applicable.
Acc	[Accept], accept over/under-batching.
OVS 50	Overshoot 50: Old overshoot – (set point - weight on tolerance check)/2
OVS 100	Overshoot 100: Old overshoot – (set point - current weight)
RST	Post-batching

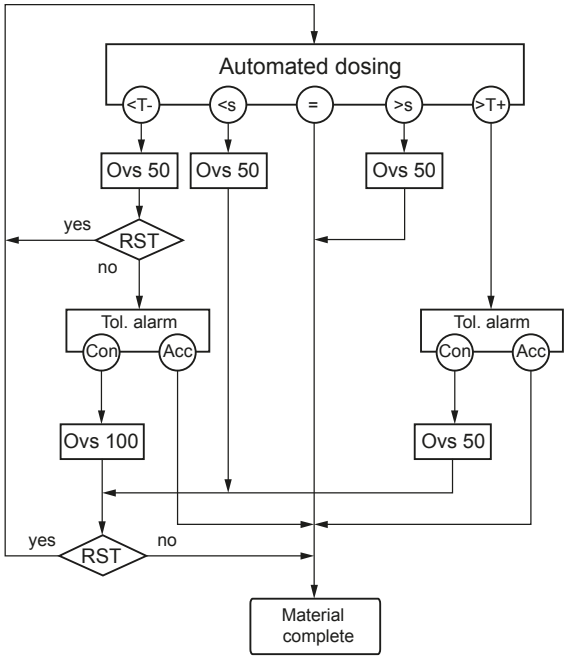
Symbol/abbreviation	Description
yes/no	yes (overshoot smaller than difference)/no
Tol alarm	Tolerance alarm
Material complete	The batching for the material component is complete.

Restart mode (RST Mode 4)

First overshoot correction and then post-batching.

This mode is suitable for automatic sequences only.

RST Mode 4

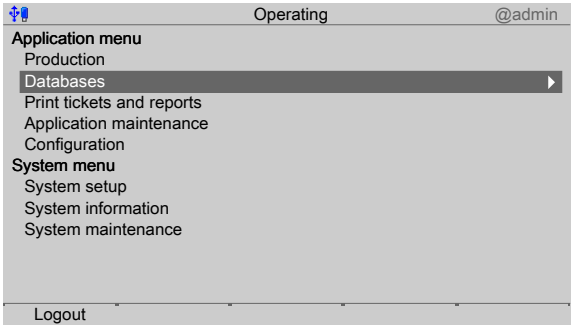


Symbol/abbreviation	Description
<T-	Below -tolerance limit
<s	Below set point
=	Set point reached exactly
>s	Above set point
>T+	Above +tolerance limit
Con	[Continue] change overshoot, post-batch if applicable.
Acc	[Accept], accept over/under-batching.

Symbol/abbreviation	Description
OVS 50	Overshoot 50: Old overshoot – (set point - weight on tolerance check)/2
OVS 100	Overshoot 100: Old overshoot – (set point - current weight)
RST	Post-batching
yes/no	yes (overshoot smaller than difference)/no
Tol alarm	Tolerance alarm
Material complete	The batching for the material component is complete.

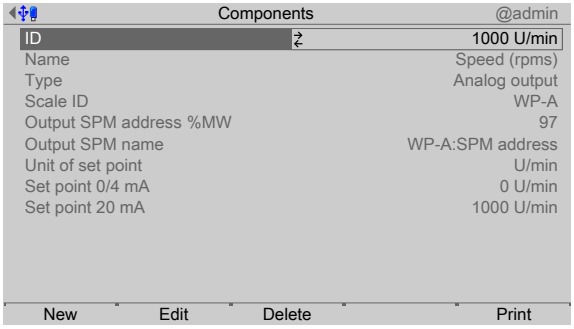
6.3.5 Create component

Components are created under this menu item.

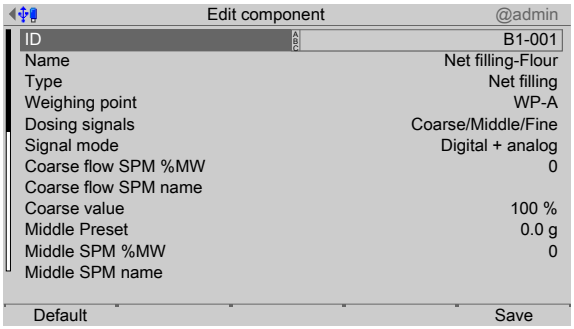


1. In the operating menu, select and confirm [Databases].
   ▷ A selection window opens.

2. Select and confirm [Components].
   ▷ If components have already been added to the database, parameters of the first component will be displayed.



3. Press the [New] softkey to create a new entry.



4. Select and confirm the individual parameters.

[ID]

Input: max. 18 alphanumeric characters

Note:

The field must not be left "empty" and must not include any control commands or quotation marks.

[Name]

Input: max. 18 alphanumeric characters

[Type]

Selection: see Chapter 6.3.4

[Weighing point]

Selection: WP-A

[Dosing signals]

Selection: Coarse, Coarse/Fine, Coarse/Middle/Fine

[Signal mode]

Selection: Digital, Digital + analog

[Coarse SPM %MW]

Only possible if the signal mode "Digital + analog" has been selected.

Input: SPM address %MW, see Chapter 10.

[Coarse name]

Only possible if the signal mode "Digital + analog" has been selected.

Input: max. 18 alphanumeric characters

[Coarse value]

Only possible if the signal mode "Digital + analog" has been selected.

Input: 0.01...<100%>

[Middle Preset]

Only possible if the dosing signal "Coarse/Middle/Fine" has been selected.

Input: Weight value; adopt unit from the calibration.

[Middle SPM %MW]

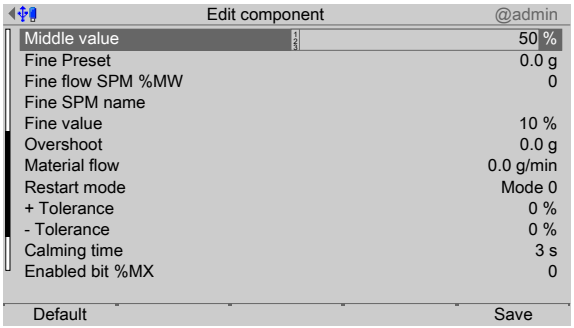
Only possible if the dosing signal "Coarse/Middle/Fine" and the signal mode "Digital + analog" have been selected.

Input: SPM address %MW, see Chapter 10.

[Middle name]

Only possible if the dosing signal "Coarse/Middle/Fine" and the signal mode "Digital + analog" have been selected.

Input: max. 18 alphanumeric characters



[Middle value]

Only possible if the dosing signal "Coarse/Middle/Fine" and the signal mode "Digital + analog" have been selected. Input: 0.01...<50>...100%

[Fine Preset]

Only possible if the dosing signal "Coarse/Fine" has been selected.

Input: Weight value; adopt unit from the calibration.

[Fine SPM %MW]

Only possible if the dosing signal "Coarse/Fine" and the signal mode "Digital + analog" have been selected.

Input: SPM address %MW, see Chapter 10.

[Fine name]

Only possible if the dosing signal "Coarse/Fine" and the signal mode "Digital + analog" have been selected.

Input: max. 18 alphanumeric characters

[Fine value]

Only possible if the dosing signal "Coarse/Fine" and the signal mode "Digital + analog" have been selected.

Input: 0.01...<10>...100%

[Overshoot]

Input: Weight value; adopt unit from the calibration.

[Material flow]

Material flow monitoring: monitoring is switched off if "0" is used.

Input: in g/min, kg/min ...; depending on the unit in the calibration

[Restart mode]

Performance when tolerance exceeded, post-batching

Selection: Mode 0...4 (see Chapter 6.3.4.19)

[+ Tolerance/- Tolerance]

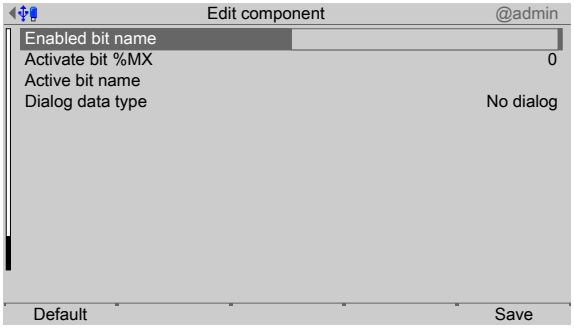
Input: in % above/below set point

[Calming time]

Calming time (Time to wait) before determining weight. Input: in s

[Enabled by bit %MX]

Input: SPM address %MX; input address for "ready", see Chapter 10.



[Enable bit name]

Input: max. 18 alphanumeric characters

[Activ bit %MX]

Input: SPM address %MX; input address for the release of batching, see Chapter 10.

[Active bit name]

Input: max. 18 alphanumeric characters

[Dialog data type]

Selection: No dialog, Message only, Text, Integer number, Real number, Weight, Yes/No, New set point

5. Press the [Default] softkey to return to the factory settings, if required.
6. Finally, press the [Save] softkey to save the settings.

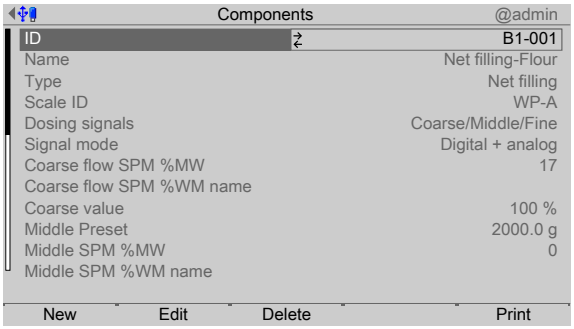
6.3.6 Edit component

In this menu item, you can edit the components that have been created.

If parameters are changed, this will influence (with the exception of tolerance) existing processes and orders (if they have not yet been started).

The display of the selected component varies according to the configuration or the mode of batching.

The tables of the characteristics and parameters of the different components are listed in Chapters 6.3.3 and 6.3.4.



1. In the [Databases]- [Components] operating menu, select the relevant component and press the [Edit] softkey.
2. Select, change and confirm the individual parameters.

Note:

Apart from [Type], all the parameters of a component can be changed.

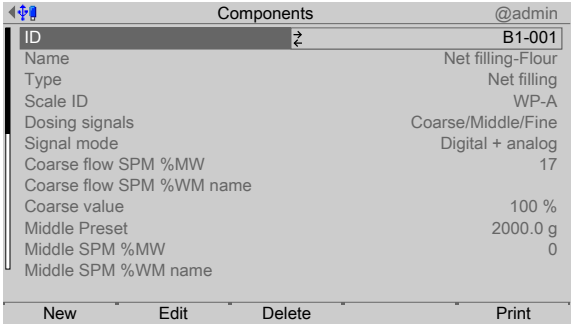
3. Finally, press the [Save] softkey to save the settings.

6.3.7 Delete component

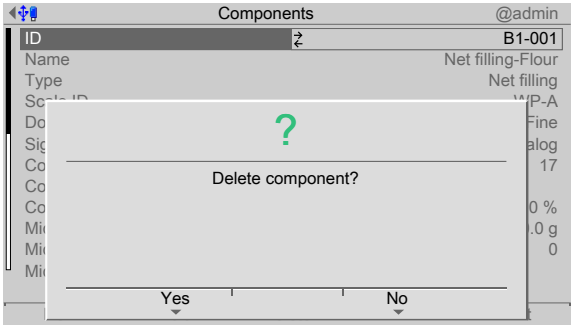
In this menu item, selected components are deleted.

Note:

A component cannot be deleted if it is listed in an order or process.



1. In the [Databases]- [Components] operating menu, select the relevant component and press the [Delete] softkey.
   ▷ A prompt window appears.



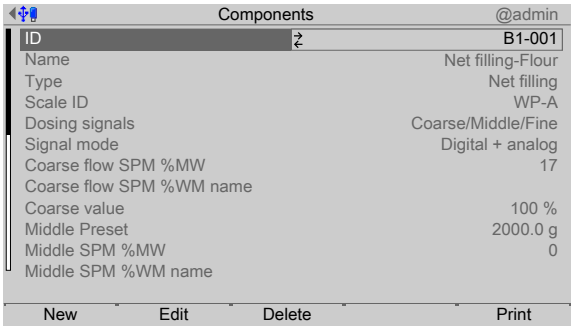
2. Press the [No] softkey, if necessary, in order to return to the menu.
3. Press the [Yes] softkey to delete the entry.
   ▷ is permanently deleted and the next database entry is displayed.

6.3.8 Print component

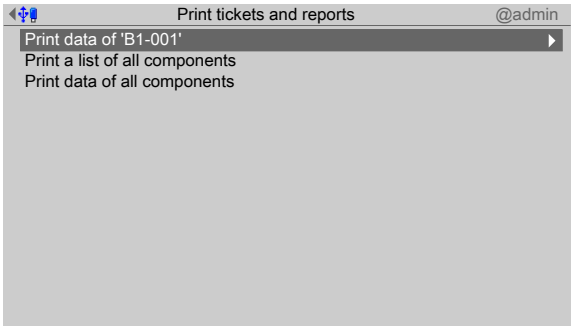
In this menu item, selected components are printed.

Requirements:

- Printer setup in the system menu under [System setup]- [Connected devices]
- Printer selection under [Configuration]- [Parameters]- [Report printer]



1. In the [Databases]- [Components] operating menu, select the relevant component and press the [Print] softkey.
   ▷ A selection window opens.



2. Select and confirm the relevant line (here: Print data of "B1-001").

▷ The result is printed.

```
                    10/14/2013 08:14:25
Net filling-flour                B1-001
Changed by                        admin
Changed at          10/11/2013 09:39:57
---------------------------------------
Consumption                       0.0 g
Type                        Net filling
Weighing point                     WP A
Dosing signals       Coarse/Middle/Fine
Signal mode              Digital+analog
Coarse SPM%MW                       17
Coarse SPM Name
Middle preset                  2000.0 g
Middle SPM%MW                       18
Middle SPM Name
Fine preset                    1000.0 g
Fine SPM%MW                         19
Fine SPM Name
Overshoot                       500.0 g
Restart mode                     Mode 0
+ Tolerance                         2 %
- Tolerance                         2 %
Calming time                        3 s
Material flow                 0.0 g/min
Ready bit %MX                      1556
SPM name
Active bit %MX                     1560
Active bit name
Dialog data type           Only message
Message                   Please check!
Time out                            3 s
```

6.4 Process

6.4.1 General notes

The process describes the steps for the execution of an order.

When starting an order, the process is automatically expanded. In this case, the parameters of the order are transferred from the process line by line into a production instruction.

The instructions are saved as a docket in the database.

Processes can be started directly without previously issuing an order.

Note:

Special notes if a liquid counter has been assigned to the weighing point.

At the beginning of the recipe the following materials must be used:

1st line: Set SPM

Activ bit = "Zero device" (WPA: 112)

2nd line: Reset SPM

Activ bit = "Zero device" (WPA: 112)

This way, the weighing point is set to zero before the batching.

6.4.2 Process structure

A process consists of a number of lines that is only limited by the memory size. Each line contains a reference to a material (raw material or control instruction). During the expansion, the parameters of the process line are expanded to include the parameters of the component.

The parameters of a line, together with the parameters of the component, produce a complete dataset to control a process step. Exception: Consumed amount and overshoot are updated.

Changes to the process or to the components have no influence on the production following the expansion (important for manual processes which are interrupted).

The structure of the process database is described in Chapter 11.2.6.

Each line also contains the header information of the process:

- Process ID/name
- Process type (production, refilling, tidy up)
- Production start total (used at the start of an order)
- Total amount produced
- Internal characteristics

The remaining values describe the lines of the process:

- process line no.
- Weighing point
- Component ID/name
- Set point for the line
- Permitted tolerance
- Last change (by which user and when)
- Internal characteristics

6.4.3 Process parameters

6.4.3.1 Process header

[Process ID]

Identification of the process. The identification must be unique because it is used as a key field in the database. It is always saved as text and can be entered as numbers or text according to the configuration. Text form is recommended.

[Process name]

Name of the process. The name must be unique because it is used as a key field in the database.

It is always saved as text and can be entered as numbers or text according to the configuration. Text form is recommended.

[Process type]

The type for the production of the process is selected from a list (see also Chapter 6.4.3.3):

[production] or [refilling] or [tidy up]

[Set point]

Set point of this process to be batched. If necessary, the set points of the components are recalculated (set point scaling mode).

6.4.3.2 Process lines

[Process line number (L)]

Number (e.g. ⅔) of the line. The line number can be increased or decreased using the softkeys [Line +] and [Line -] or can be entered directly.

[Component ID]

The name is used to select the component from the component database. The database entry determines the scale and the parameters linked to the component.

[Set point]

Depending on the type of component, this value may be missing or have its own dimension:

- Weight in kg, lb, etc.
- Time in s
- Defined by the component (e.g. rpm) definiert

[+ Tolerance, - Tolerance]

The values specified in the process apply. For a new line the values are provided from the component database but can be changed in the process editor.

The absolute tolerance is at least 1 d. With an indication of 0.0%, no check is performed (see also Chapter 6.3.4.2).

[Add to total of process (Process total mode)]

This parameter determines whether the process line set point should be added to the process total. In the case of components with the batching modes B1 to B6, D1 and D2 (see Chapter 6.3.3), it is possible to define whether the amounts of the process line need to be added to the process total. The process total forms the basis of the line set point recalculation (line set point scaling mode). The process total mode is independent of the line set point scaling mode.

Example:

Process			
B1	80 kg	Process total (PT)	☑
B1	40 kg	Process total (PT)	☑
Total:	120 kg	Process total = ∑ all lines with PT	☑

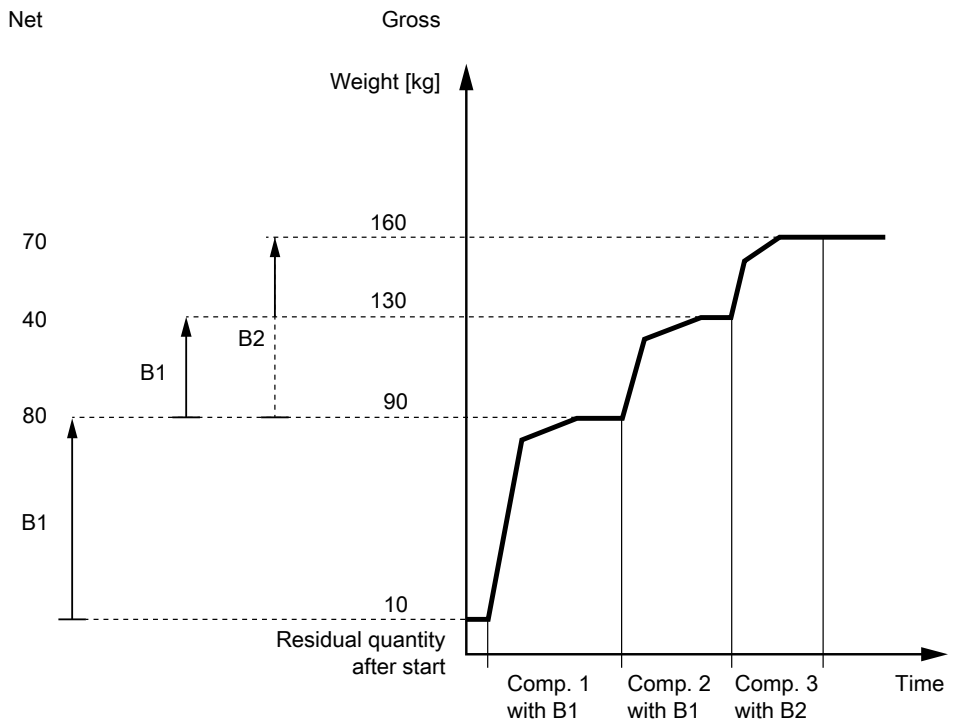
Process total = process set point

All components contain the type "Net filling" (batching mode "B1").

In this process, all quantities are added to the process total.

In this example, the process total is calculated with 120 kg. If the process is actually run with 120 kg, then all components will be batched with

the set points specified in the process lines. In this case, the process total is equal to the process set point. In the case of another process set point, all line set points are adjusted proportionately (recalculated).



Process			
B1	80 kg	Process total (PT)	☑
B1	40 kg	Process total (PT)	☐
B2	70 kg	Process total (PT)	☑
Total:	150 kg	Process set point = 150 kg	

If the process is expanded to include the component type "Net refilling" (batching mode "B2") or "Gross filling" (batching mode "B3"), then an incorrect process total is calculated. In the event of expansion to include a component of type "Net refilling", the previous

component with "Net filling" (batching mode "B1") must not be used for calculating the process total.

The "Net refilling" batching is based on the last tare value of "Net filling" and, in a manner of speaking, has the line set point of the previous component as the line set point.

If a component of type "Gross filling" (batching mode "B3") is used instead of "Net refilling" (batching mode "B2"), then the parameter [Add to total of process] only needs to be activated for the component with type "Gross filling" (see example "Process 2").

Other examples:

Process 1			
B1	20 kg	Process total (PT)	☑
B1	20 kg	Process total (PT)	☑
D1	20 kg	Process total (PT)	☑
Total:	60 kg	Process total = ∑ all lines with PT	☑

Process total = process set point

Process 2			
B1	50 kg	Process total (PT)	☐
B1	40 kg	Process total (PT)	☐
B3	100 kg	Process total (PT)	☑
Total:	100 kg	Process set point = 100 kg	

Process 3			
D1	100 kg	Process total (PT)	☐
B2	120 kg	Process total (PT)	☐
B3	150 kg	Process total (PT)	☐
B1	20 kg	Process total (PT)	☐
B3	180 kg	Process total (PT)	☑
Total:	180 kg	Process set point = 180 kg	

Process 4			
B1	100 kg	Process total (PT)	☐
B1	120 kg	Process total (PT)	☐
B2	150 kg	Process total (PT)	☐
B6	20 kg	Process total (PT)	☑
B1	180 kg	Process total (PT)	☑
Total:	200 kg	Process set point = 200 kg	

Note:

When using the component types "Net refilling" (batching mode "B2"), "Gross filling" (batching mode "B3") and "Gross decrease" (batching mode "B6"), the process total mode must be enabled/disabled accordingly.

[Line set point recalculation]

The line set point recalculation (line set point scaling mode) is usually always set.

The line set points correspond to a specific process total.

If the process is started with a set point (process set point) other than the process total, then the individual line set points will need to be adjusted. The recalculated line set points are then referred to as process line set points.

$$\text{Scaling factor} = \frac{\text{Batch set point (Process set point)}}{\text{Process total}}$$

Examples:

Process 1				**after recalculation**
B1	50 kg	Process total (PT)	☑	
		Recalculation (LR)	☑	100 kg
B1	50 kg	Process total (PT)	☐	
		Recalculation (LR)	☑	100 kg
B2	100 kg	Process total (PT)	☑	
		Recalculation (LR)	☑	200 kg
Total:	150 kg			300 kg
Process set point = 300 kg				
Scaling factor = 2				

Process 2				**after recalculation**
B1	50 kg	Process total (PT)	☐	
		Recalculation (LR)	☑	100 kg
B1	50 kg	Process total (PT)	☐	
		Recalculation (LR)	☑	100 kg
B3	100 kg	Process total (PT)	☑	
		Recalculation (LR)	☑	300 kg
Total:	150 kg			300 kg
Process set point = 300 kg				
Scaling factor = 2				

Process 3				after recalculation
B1	50 kg	Process total (PT)	☐	
		Recalculation (LR)	☐	50 kg
B1	50 kg	Process total (PT)	☐	
		Recalculation (LR)	☑	75 kg
B3	200 kg	Process total (PT)	☑	
		Recalculation (LR)	☑	300 kg
Total:	200 kg			300 kg
Process set point = 300 kg				
Scaling factor = 1.5				

In process 3, the first component should not be recalculated. Then the line set point is batched irrespective of the scaling factor.

The line set point scaling mode is not dependent on the process total mode.

[Type]

The component type is specified during creation and is saved in the component database. It cannot be subsequently changed.

[Weighing point]

Weighing point (WP-A) is taken from the component database. The lines cannot be edited here.

6.4.3.3 Process types

The available process types are automatic processes.

The following process types are available:

- Production (for example, see Chapter 7.5.1.1 and 7.5.2.1)
- Refilling (for example, see Chapter 7.2.3)
- Tidy up (for example, see Chapter 7.2.4)

The sequence of the individual production instructions is strictly controlled by the process.

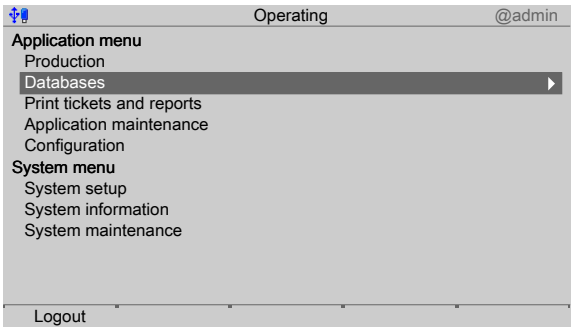
An automatic process can be canceled.

An automatic process can be interrupted in order to be continued later.

An automatic process cannot be recalculated.

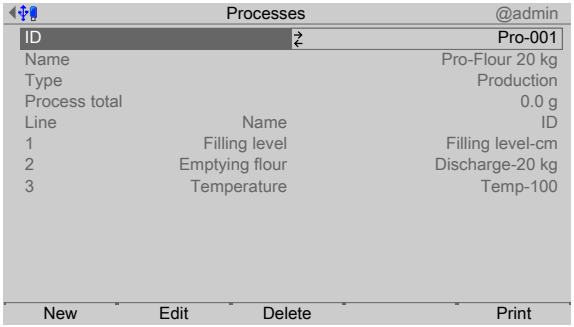
6.4.4 Create process

Processes are created under this menu item.

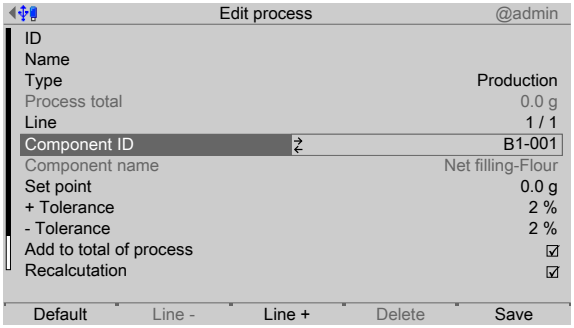


1. In the operating menu, use the cursor to select and confirm [Databases].
   ▷ A selection window opens.

2. Use the cursor to select and confirm [Processes].
   ▷ If processes have already been added to the database, an overview of the first process will be displayed.



3. Press the [New] softkey to create a new entry.



4. Select and confirm the individual parameters.

   [ID]

   Input: max. 18 alphanumeric characters

Note:

The field must not be left "empty" and must not include any control commands or quotation marks.

[Name]

Input: max. 18 alphanumeric characters

[Type]

Selection: see Chapter 6.4.3.3.

[Line]

This line shows the current line number/number of lines in the process.

[Component ID]

The component is selected from the database. The selection of the component starts for new lines with the first entry in the components database.

The display of the parameters depends on the component type, see Chapter 6.3.3.

[Set point]

This line set point, as it stands in the pure process, can differ during production as a result of recalculation and is then referred to as the "process line set point."

Input: corresponding weight

[+ Tolerance/– Tolerance]

The permitted tolerances are initially copied from the components database and can be overwritten.

The reselection of a component sets the tolerance back to the value from the components database if 0% is listed in the process.

[Add to total of process]

Check the box if the line set point should be added to the total of process.

[Recalculation]

Check the box if the line set point should be recalculated with each process start.

[Insert]

Insert a new line in order to select an available component or create a new one.

[Line –/Line +]

Flick backwards/forwards through the process. When the end of the process is reached, the [Line+] softkey will automatically add a new line.

[Delete]

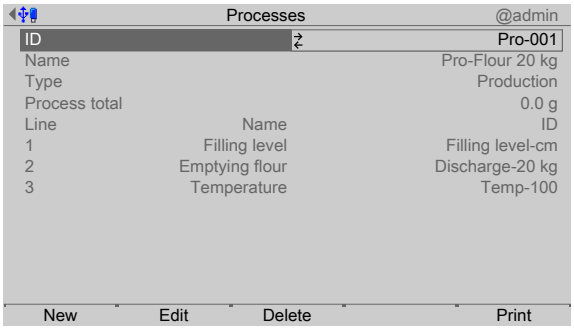
Delete a process line.

[Save]

Save the newly created process.

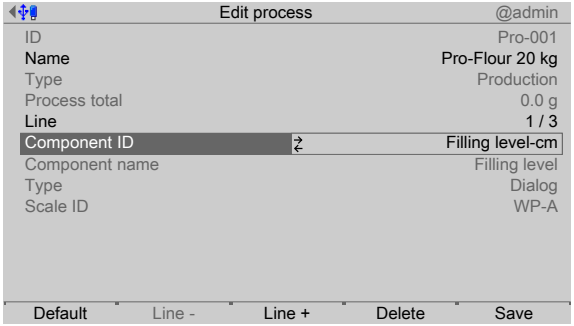
6.4.5 Edit process

In this menu item, you can edit the processes that have been created.



1. In the [Databases]- [Processes] operating menu, select the relevant process and press the [Edit] softkey.

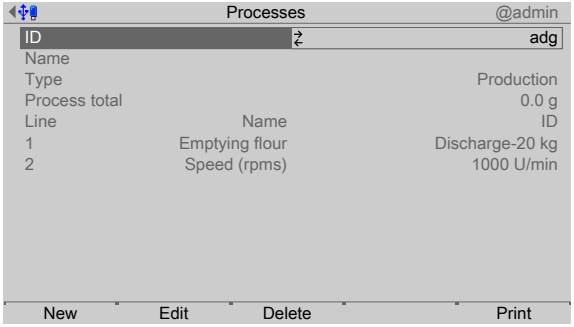
   ▷ The process editor appears.



2. Select, change and confirm the individual parameters.
3. Finally, press the [Save] softkey to save the settings.

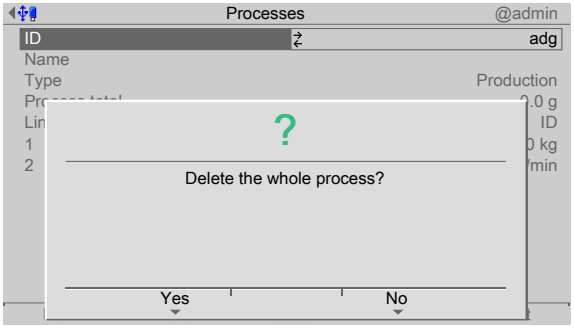
6.4.6 Delete process

In this menu item, selected processes are deleted.



1. In the [Databases]- [Processes] operating menu, select the relevant process and press the [Delete] softkey.

   ▷ A prompt window appears.



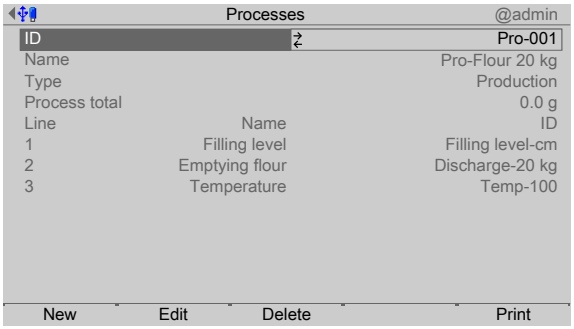
2. Press the [No] softkey, if necessary, in order to return to the menu.
3. Press the [Yes] softkey to delete the entry.
   ▷ The process is permanently deleted and the next database entry is displayed.

6.4.7 Print process

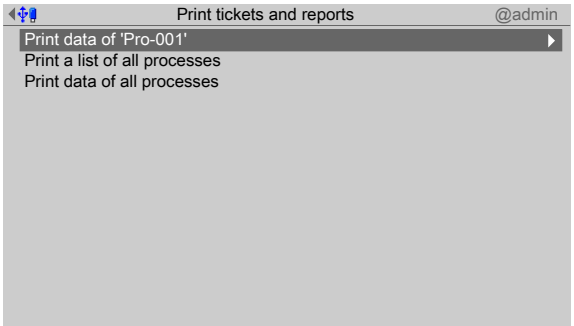
Selected processes are printed under this menu item.

Requirements:

- Printer setup in the system menu under [System setup] - [Connected devices]
- Printer selection under [Configuration] - [Parameters] - [Report printer]



1. In the operating menu [Databases] - [Processes], select the corresponding process and press the [Print] softkey.
   ▷ A selection window opens.



2. Select and confirm the appropriate line (here: Print data of "Pro-001").

▷ The result is printed.

```
                    14.10.2013 14:14:30
Pro-Flour 2 0 kg                Pro-001
Type                         Production
Process total         A           0.0  g
Changed by                        admin
Changed by          11.10.2013 15:21:31

L  #  Component    Set point %   + Tolerance  - Tolerance
-------------------------------------------------------
1 A   Filling level-cm
2 A   Discharge-20 kg
3 A   Temp-100       0.0 g °C        5 °C         5 °C
```

6.5 Order

6.5.1 General notes

An order contains a reference to a process. In addition, the product identification, container name, comments and the user name are saved according to the configuration.

In the configuration, parameters that are not checked will be faded out in the forms. An order can specify a different target amount than the total components in the process.

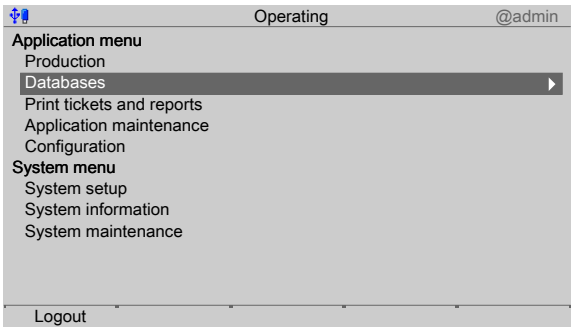
Several orders can refer to the same process. If an order has already been started then changes that are subsequently made will no longer have any effect on the process.

If they have not been completed, orders will be saved in a database.

For the structure of the ORD database, see Chapter 11.2.1.

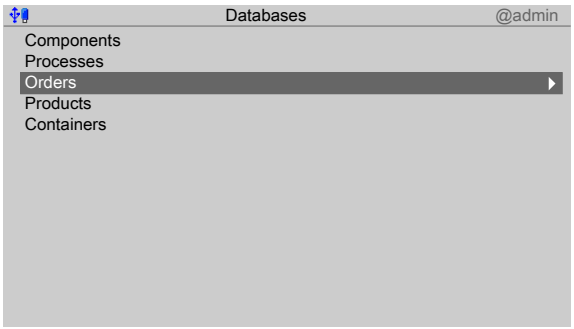
6.5.2 Create order

In this menu item, orders are created.

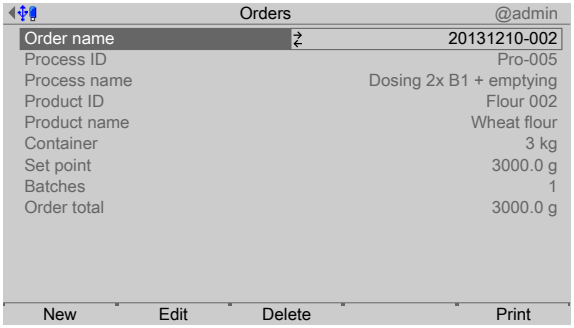


1. Using the the operating menu, select and confirm [Databases].

   ▷ A selection window opens.



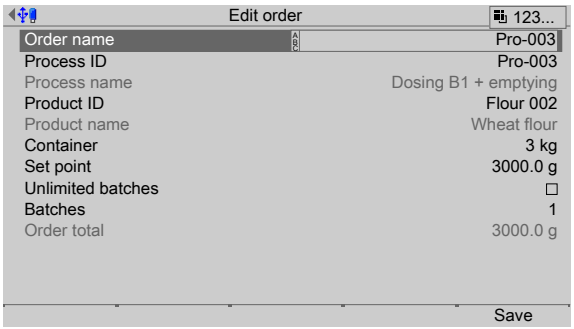
2. Select and confirm [Orders].



▷ If there are already orders in the order database, then an overview of the first order appears on the display.

3. Press the [New] softkey to create a new entry.

▷ The displayed process ID is automatically adopted as order name.



4. Select the individual parameters and confirm.

[Order name]

Input: max. 18 alphanumeric characters

Note:

The field must not be left "empty" and must not include any control commands or quotation marks.

[Process ID]

Selection: Entries of the process database

[Product ID]

Selection: Entries of the product database

[Containers]

Selection: Entries of the container database

[Set point]

Batch set point

Input: corresponding weight

[Unlimited batches]

Check the box ☑, if no defined quantity of batches needs to be specified.

[Batches]

Only appears if "Unlimited batches" is not checked.

Input: Defined quantity of batches

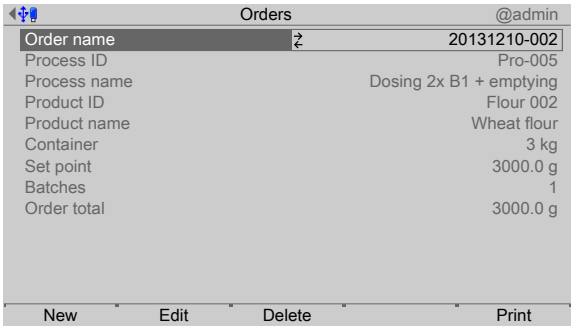
[Order total act.]

Only appears if "Unlimited batches" is not checked.

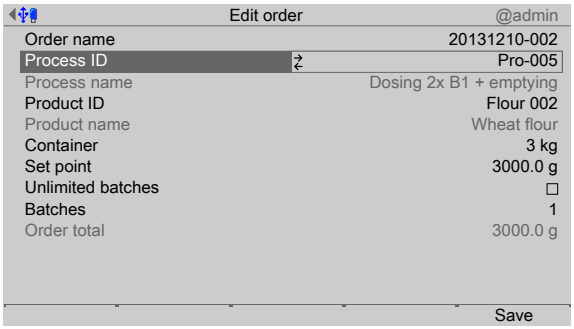
Display only

6.5.3 Edit order

In this menu item, you can edit the orders that have been created.



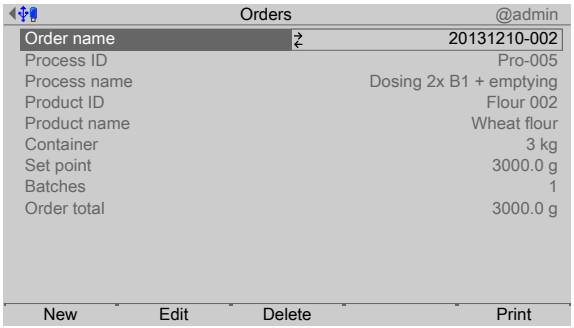
1. In the [Databases]- [Orders] operating menu, select the relevant order and press the [Edit] softkey.
   ▷ The order editor appears.



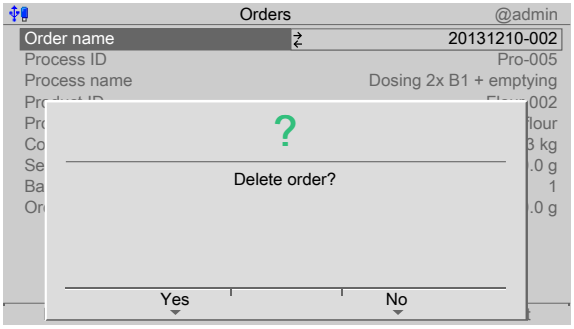
2. Select, change and confirm the individual parameters.
3. Finally, press the [Save] softkey to save the settings.

6.5.4 Delete order

In this menu item, selected orders are deleted.



1. In the [Databases]- [Orders] operating menu, select the relevant order and press the [Delete] softkey.
   ▷ A prompt window appears.



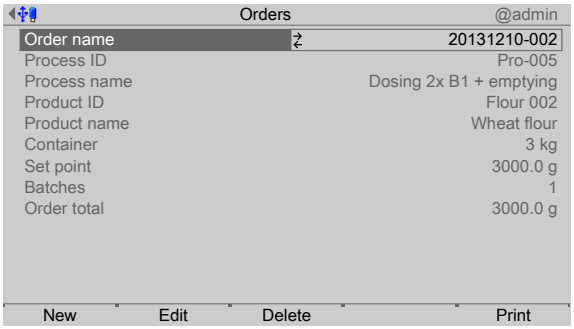
2. Press the [No] softkey, if necessary, in order to return to the menu.
3. Press the [Yes] softkey to delete the entry.
   ▷ The order is permanently deleted and the next database entry is displayed.

6.5.5 Print order

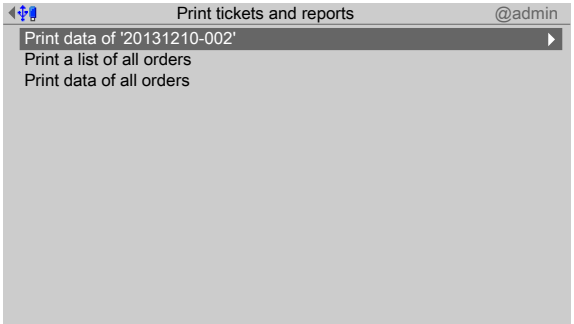
In this menu item, selected orders are printed.

Requirements:

- Printer setup in the system menu under [System setup]- [Connected devices]
- Printer selection under [Configuration]- [Parameters]- [Report printer]



1. In the [Databases]- [Orders] operating menu, select the relevant order and press the [Print] softkey.
   ▷ A selection window opens.



2. Select and confirm the relevant line (here: Print data of "20131210-002").

▷ The result is printed.

```
                    12/11/2013 08:27:50
                           20131210-002
Changed by                        admin
Changed at          12/10/2013 14:21:33
---------------------------------------
Process ID                      Pro-005
Process name      Dosing 2x B1 + Disch.
Product ID                    Flour 002
Product name                Wheat flour
Container                         3 kg
Set point                      3000.0 g
Batches                            0/1
Act. Order total    3000.0 g (3000.0 g)
In progress...                       No
```

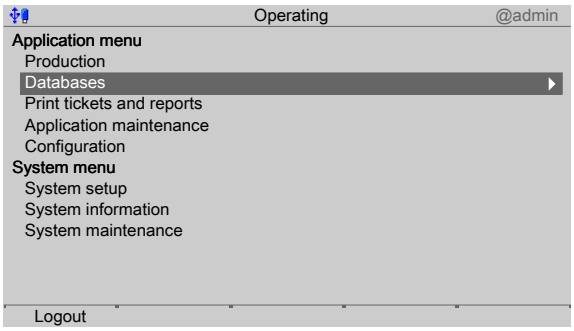
6.6 Product

6.6.1 General

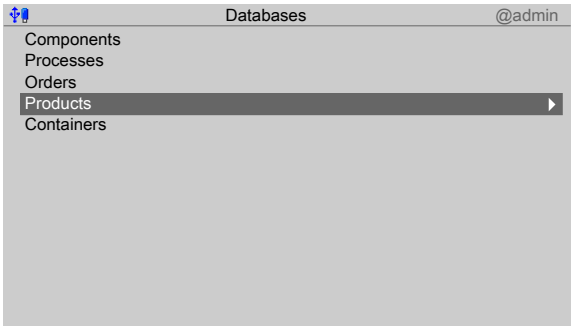
The products which are processed in the orders are created in the product database.

6.6.2 Create product

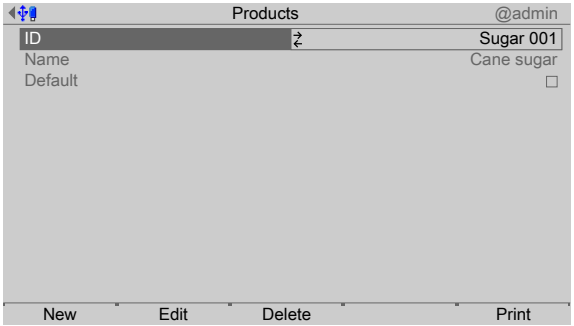
In this menu item, products are created.



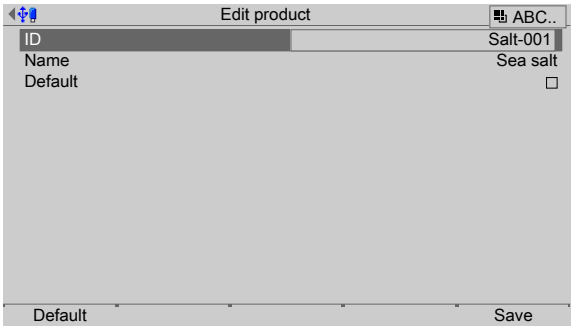
1. In the operating menu, select [Databases] and confirm.
   ▷ A selection window opens.



2. Select [Products] and confirm.
   ▷ If there are already products in the database, then an overview of the first product appears on the display.



3. Press the [New] softkey to create a new entry.



4. Select the individual parameters and confirm.

   [ID]

   Input: max. 20 alphanumeric characters

   Note:

   The field must not be left "empty" and must not include any control commands or quotation marks.

   [Name]

   Input: max. 20 alphanumeric characters

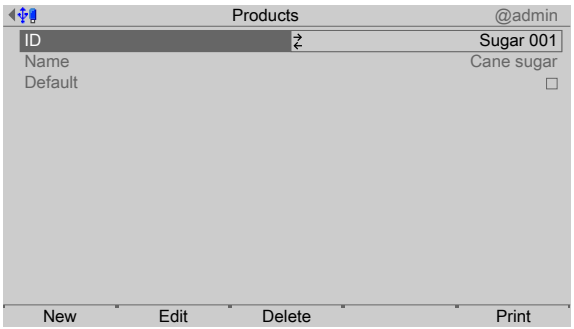
   [Default]

   Check the box ☑ if this product should be displayed first in the selection by default.

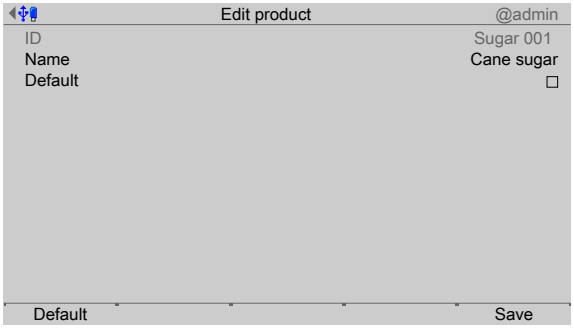
5. Press the [Default] softkey to return to the factory settings, if required.
6. Finally, press the [Save] softkey to save the settings.

6.6.3 Edit product

In this menu item, you can edit the products that have been created.



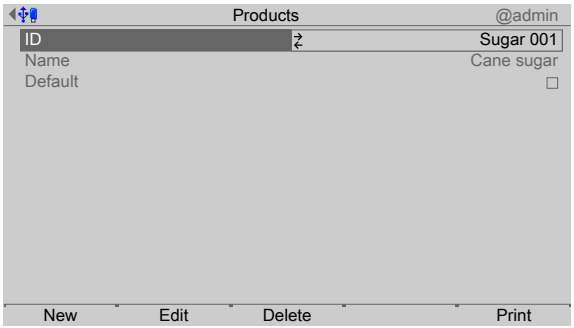
1. In the [Databases] - [Products] operating menu, select the relevant product and press the [Edit] softkey.
   ▷ The order editor appears.



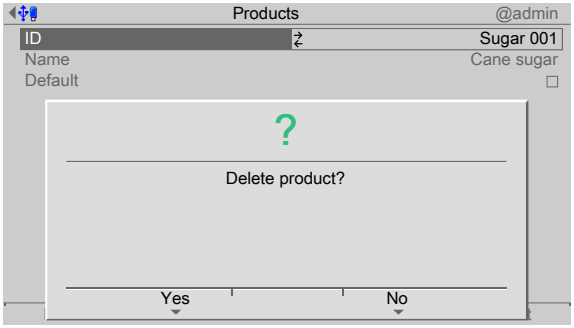
2. Select, change and confirm the individual parameters.
3. Finally, press the [Save] softkey to save the settings.

6.6.4 Delete product

In this menu item, selected products are deleted.



1. In the [Databases]- [Products] operating menu, select the relevant product and press the [Delete] softkey.
   ▷ A prompt window appears.



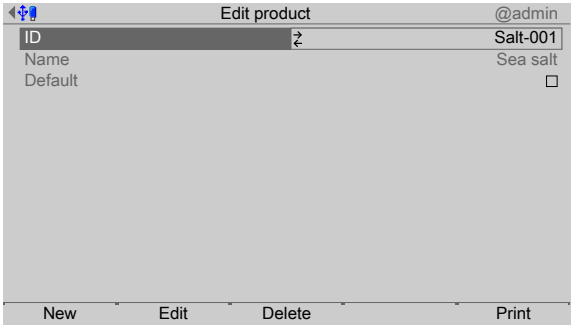
2. Press the [No] softkey, if necessary, in order to return to the menu.
3. Press the [Yes] softkey to delete the entry.
   ▷ The product is permanently deleted and the next database entry is displayed.

6.6.5 Print product

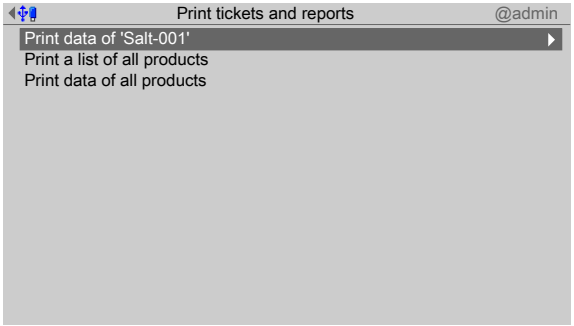
In this menu item, selected products are printed.

Requirements:

- Printer setup in the system menu under [System setup] - [Connected devices]
- Printer selection under [Configuration] - [Parameters] - [Report printer]



1. In the [Databases]- [Products] operating menu, select the relevant product and press the [Print] softkey.
   ▷ A selection window opens.



2. Select and confirm the relevant line (here: Print data of "Salt-001").
   ▷ The result is printed.

```
                    10/16/2013 14:59:32
Sea salt                       Salt-001
Changed by                        admin
Changed at          10/16/2013 14:13:24
---------------------------------------
Default                              No
```

6.7 Containers

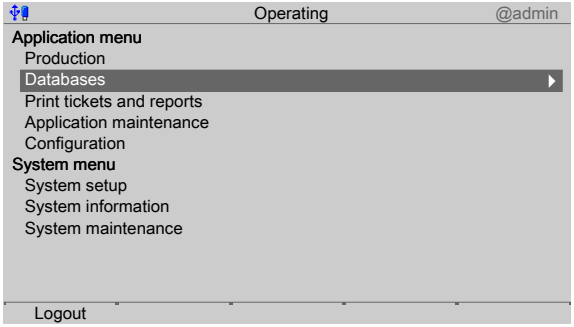
6.7.1 General

Containers are used so that only specific set points can be selected when a process starts, or in order to ensure that the entered set point fits in a container.

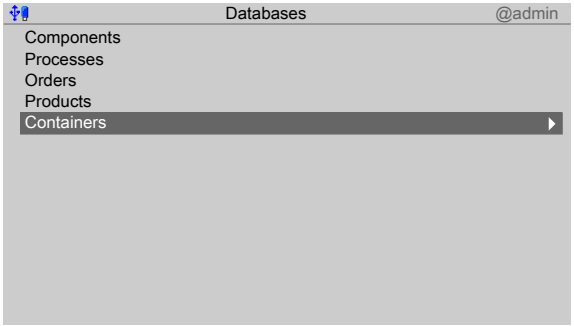
The containers which can be selected in the orders are created in the container database.

6.7.2 Create container

The parameters for containers are created under this menu item.

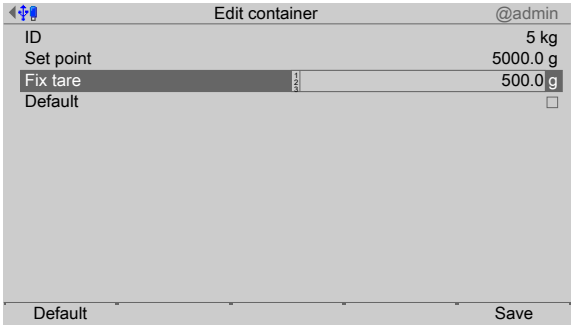


1. In the operating menu, select [Databases] and confirm.
   ▷ A selection window opens.



2. Select [Containers] and confirm.
   ▷ If there are already containers in the container database, then an overview of the first container appears on the display.

3. Press the [New] softkey to create a new entry.



4. Select the individual parameters and confirm.

[ID]

Input: max. 18 alphanumeric characters

Note:

The field must not be left "empty" and must not include any control commands or quotation marks.

[Name]

Input: max. 18 alphanumeric characters

[Default]

Check the box ☑ if this container should be displayed first in the selection by default.

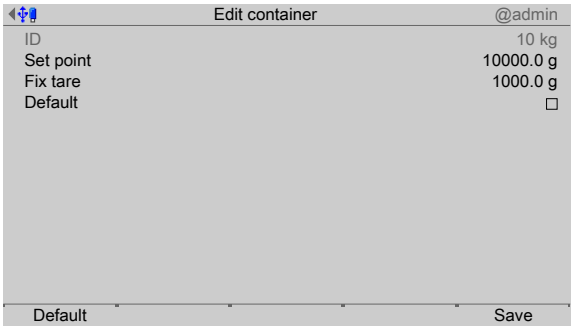
5. Press the [Default] softkey to return to the factory settings, if required.
6. Finally, press the [Save] softkey to save the settings.

6.7.3 Edit container

The parameters for containers are edited under this menu item.

1. In the [Databases]- [Containers] operating menu, select the relevant container and press the [Edit] softkey.

   ▷ The order editor appears.

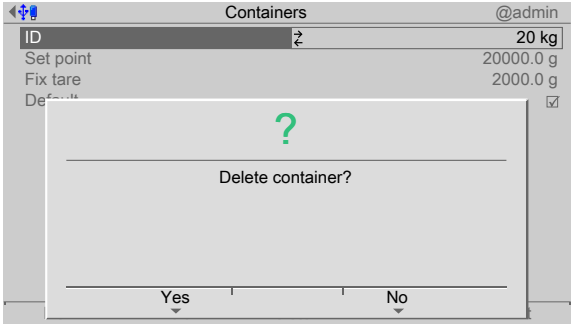


2. Select, change and confirm the individual parameters.
3. Finally, press the [Save] softkey to save the settings.

6.7.4 Delete container

In this menu item, a container is deleted.

1. In the [Databases]- [Containers] operating menu, select the relevant container and press the [Delete] softkey.
   ▷ A prompt window appears.



2. Press the [No] softkey, if necessary, in order to return to the menu.
3. Press the [Yes] softkey to delete the entry.
   ▷ The container is permanently deleted and the next database entry is displayed.

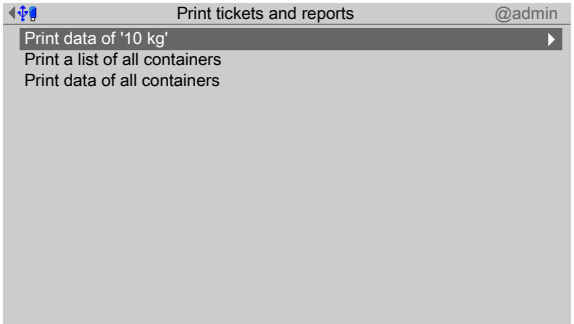
6.7.5 Print container

In this menu item, a container is printed.

Requirements:

- Printer setup in the system menu under [System setup]- [Connected devices]
- Printer selection under [Configuration]- [Parameters]- [Report printer]

1. In the [Databases]- [Containers] operating menu, select the relevant container and press the [Print] softkey.
   ▷ A selection window opens.



2. Select and confirm the relevant line (here: Print data of "10 kg").
   ▷ The result is printed.

```
                    10/17/2013 08:25:27
                                 10 kg
Changed by                       admin
Changed at          10/09/2013 16:25:42
--------------------------------------
Set point                     10000.0 g
Fix tare                       1000.0 g
Default                            No
```

6.8 Application maintenance

6.8.1 General notes

Note:

Application maintenance can only be performed if a user of category "Supervisor" or "Administrator" is logged in.

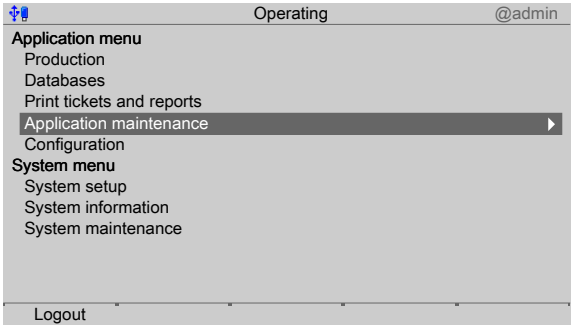
Material movements are recorded in the production and consumption report.

According to the configuration, database entries are created after each order is processed. They are intended for transfer to AccessIt and, if necessary, will have to be deleted manually. This also applies for printing data which cannot be transferred to the printer.

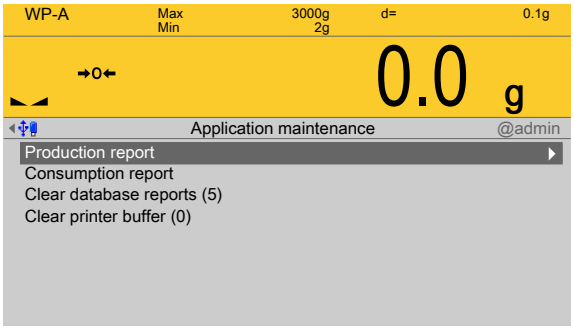
6.8.2 Production report

In this menu item, a production report is printed.

The produced amount for each process is added up. The production can be printed in the form of a report.



1. In the operating menu, select [Application maintenance] and confirm.



2. Select [Production report] and confirm.

   ▷ A selection window opens.

Softkey **[Clear]**

The amount displayed under [Production] for the selected component is set to zero.

Softkey **[Clear all]**

After a security prompt, the amounts produced for all processes are set to zero.

Softkey **[Print]**

A printout will be produced via the "report printer".

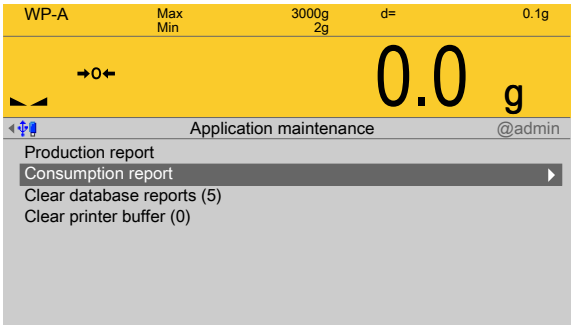
```
Production          10/17/2013 09:41:31

Process                      Production
------------------------------------------
Pro-005                        8998.6 g
Pro-006                        2999.6 g
```

3. Use the **EXIT** key to exit the menu.

6.8.3 Consumption report

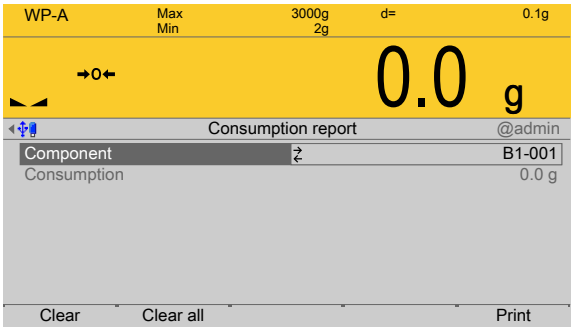
In this menu item, a consumption report is printed.

The consumption for each batched material is added up. The consumption can be printed in the form of a report.



1. In the operating menu, select [Application maintenance]- [Consumption report] and confirm.

   ▷ A selection window opens.



Softkey **[Clear]**

The amount displayed under "Consumption" for the selected component is set to zero.

Softkey **[Clear all]**

After a security prompt, the amounts of all components consumed are set to zero.

Softkey **[Print]**

A printout will be produced via the "report printer".

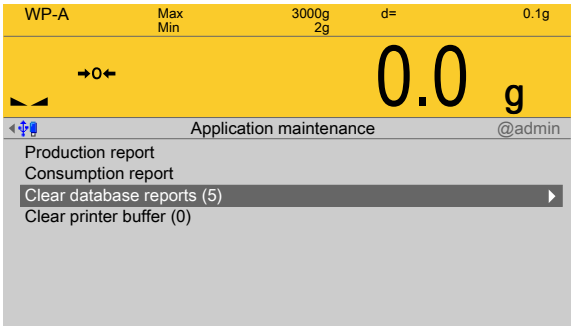
```
Consumption                10/17/2013 10:06:35

Component                     Consumption
-------------------------------------
B1-002                          5998.3 g
B1-004                          1499.8 g
B1-005                          5999.2 g
B1-006                          4999.3 g
B1-007                          1499.6 g
```

2. Use the **EXIT** key to exit the menu.

6.8.4 Clear database reports

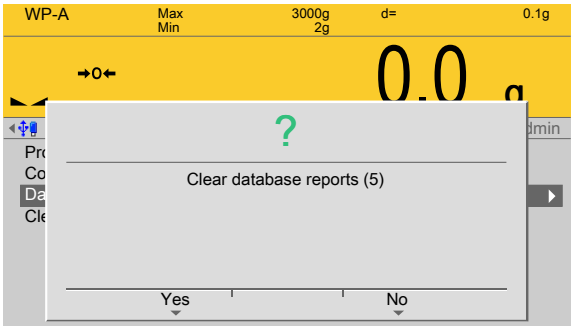
In this menu item, database reports are deleted.

The "Administrator" can also delete the relevant database (REP). If necessary, the function will have to be deactivated in the user menu [Configuration]- [Parameters]- [Store report in database].



The number of datasets is given in parentheses.

1. In the operating menu, select [Application maintenance]- [Clear database reports (x)] and confirm.
   ▷ A prompt window appears.



2. Press the [No] softkey, if necessary, in order to return to the menu.
3. Press the [Yes] softkey to delete the entry.
   ▷ The reports are permanently deleted.

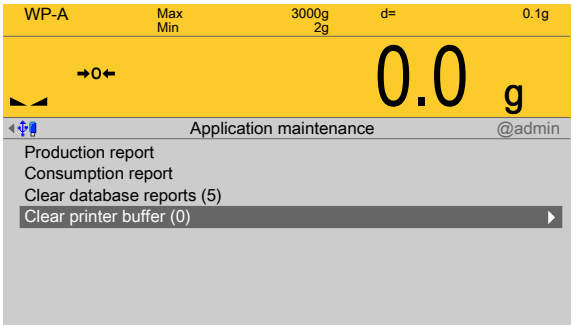
6.8.5 Clear printer buffer

In this menu item, the printer buffer is deleted.

Batch reports are initially entered into a database (SPL) ready to be sent to the printer as part of a background process. An attempt is made by the printer buffer to start printing every second, without a time limit.

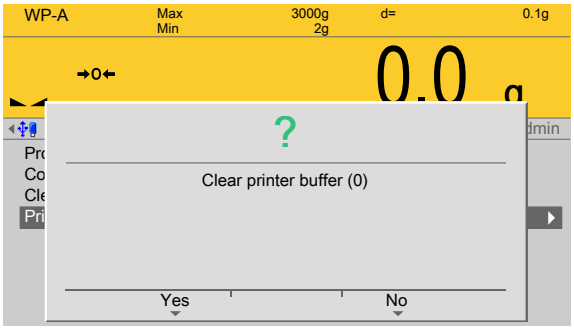
If the printer buffer is not able to print due to incorrect configuration of the interface, the reports build up and fill the memory unnecessarily.

The "Administrator" user category can clear the printer buffer.



The number of datasets is given in parentheses.

1. In the operating menu, select [Application maintenance]- [Clear printer buffer (x)] and confirm.
   ▷ A prompt window appears.



2. Press the [No] softkey, if necessary, in order to return to the menu.
3. Press the [Yes] softkey to delete the entry.
   ▷ The datasets are permanently deleted.
4. Press the ESC/EXIT key to leave the menu.

7 Production

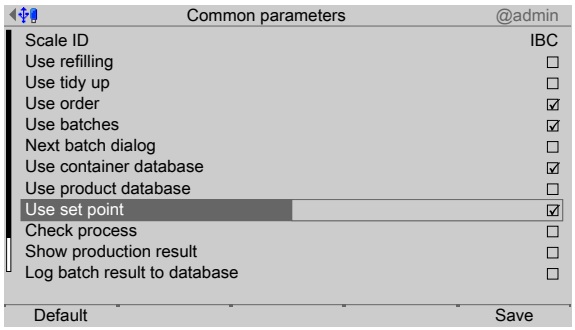
7.1 General notes

An automatic process is processed in the order of the process lines. If necessary, interaction with the operator can take place during processing for control components and release signals. The order and the dependencies of the production steps are saved in the process. The operator can hold, continue or prematurely terminate the process. It is not possible to continue an interrupted process at a later date. The STOP key is used to stop all scales irrespective of the current operation.

7.2 Start options

7.2.1 Set point, order, container

The start menu and the other menus in the batching process can be configured.



For the start of a process, the following parameters are important in the operating menu [Configuration] - [Common parameters] :

- Use order
- Use batches
- Use container database
- Use set point

7.2.2 Check process

Before the starting of a batching process, the IBC Controller uses a batching simulation to check whether the conditions for this batching are met. This means that the maximum weight of the weighing point (container or platform) is not exceeded, and that the weight may not fall below zero (set point > content). If these conditions are not met, then the batching process cannot be started.

7.2.3 Refilling

In the operating menu under [Configuration]- [Common parameters], it is possible to enable the [Use refilling] start option in order to start processes of the "Refilling" type in addition to the normal process selection. These processes involve special processes, such as refilling to an end value, or additional measures which are not part of the normal production process.

7.2.4 Tidy up

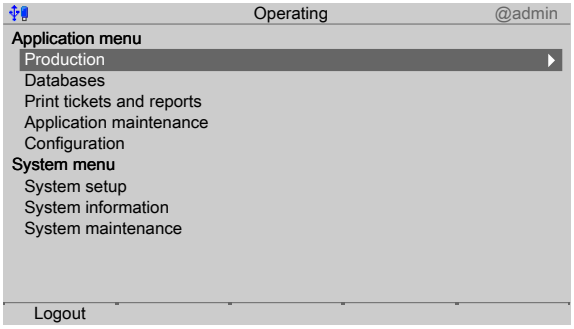
In the operating menu under [Configuration]- [Common parameters], it is possible to enable the [Use tidy up] start option in order to start processes of the "Tidy up" type in

addition to the normal process selection. These processes involve exceptional statuses, such as the discharge and cleaning of canceled production processes.

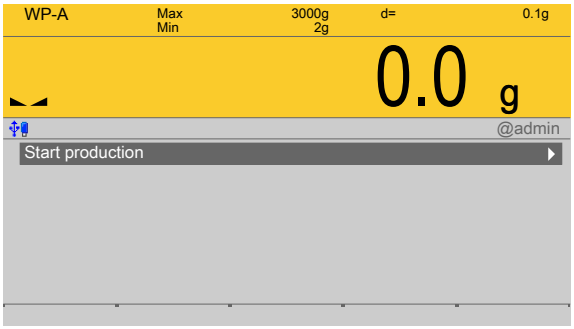
7.3 Start process

7.3.1 Simple start

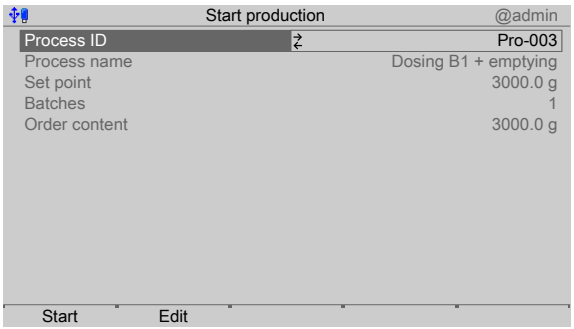
In the simplest case, only the start option [Use set point] is enabled in the operating menu [Configuration] - [Common parameters] .



1. In the operating menu, select [Production] and confirm.
   ▷ The start window appears.



2. Select [Start production] and confirm.
   ▷ The selected process appears with a set point, which corresponds to that of the process total.



3. Press the [Edit] softkey in order to edit the start parameter process and set the set point to the desired value.
4. Press the [Save] softkey.
5. Press the [Start] softkey to start the process.

7.3.2 Number of batches

In order to start several batches in succession, the start option [Use batches] is additionally enabled in the operating menu [Configuration]- [Common parameters]. The number of batches can then be entered as the start parameter, or can be selected by checking the [Unlimited batches] box.

7.3.3 Container database

In order to start a process via the selection of containers, the start option [Use container database] is enabled in the operating menu [Configuration]- [Common parameters] .

If the container selection is used instead of the set point entry, then the container set point determines the process set point.

If the set point is also enabled in the configuration, then the entered set point must fit into the selected container.

If a preset tare is entered for a container, then taring is carried out using this value before the start. For this purpose, the first component in the process must be of type "Net refilling" (B2).

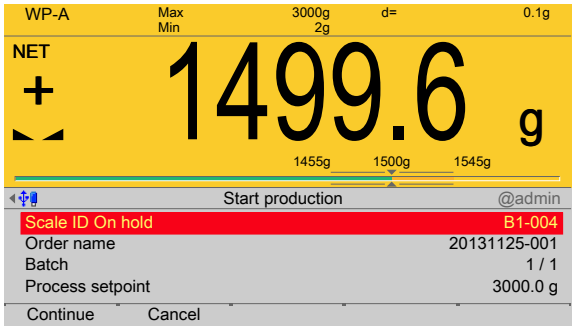
7.3.4 Order database

If the process needs to be started via predefined orders, then the start option [Use order] is enabled in the operating menu [Configuration]- [Common parameters].

7.4 Operation and visualization of the processes

7.4.1 Bar graph and tolerance field

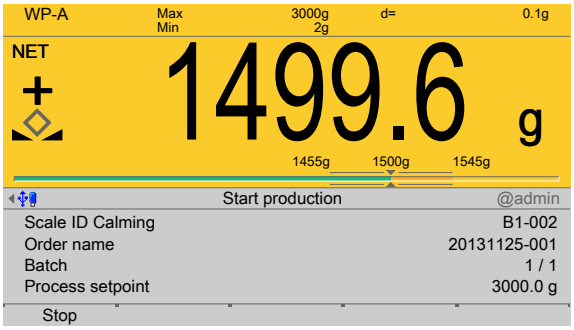
In the case of batching, a bar graph appears under the weight display, which is always scaled to the set point for the current material. The tolerance field is labeled and is always the same width irrespective of the absolute value. The set point is marked using 2 triangles and is always (even if the tolerance is not symmetrical) in the middle of the field.



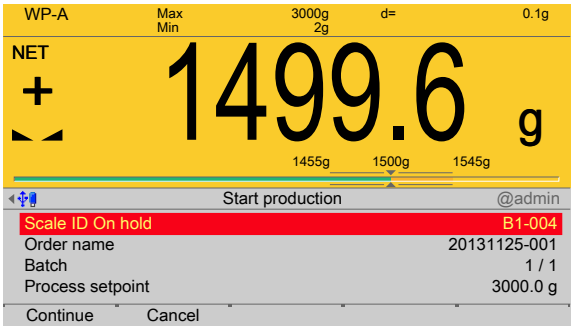
As soon as the tolerance field is reached, the color changes from orange to green, and when the field is exceeded the bar graph turns red. If both tolerance values are set to "0", then no tolerance field is displayed and the bar graph changes from green to red when the set point is exceeded.

7.4.2 Automatic components

Automatic batching is valid for the component types [Net filling], [Net refilling], [Net decrease], [Gross filling] and [Gross decrease].



The started process is processed.



▶ If [Stop] is pressed, the notification "On hold" appears; likewise the "Tolerance alarm" appears when the tolerance is exceeded.

If several scales are batching at the same time, only this process line will be held and the others will continue. The component displays the status "On hold" or "Tolerance alarm". The signals "Coarse"/"Middle"/"Fine" are reset.

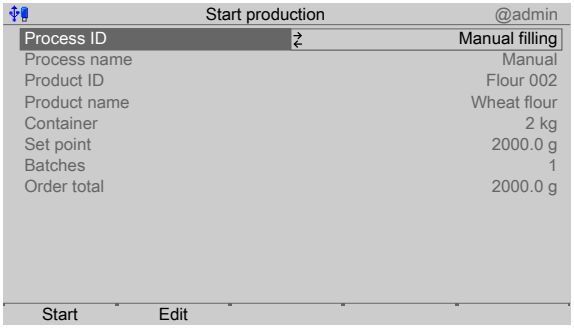
The [Continue] softkey can be used to continue the batching or accept the tolerance/ re-batch (dependent on the restart mode), see also Chapter 6.3.4.19. Use the [Cancel] softkey to cancel the process.

7.4.3 Material flow monitoring

If the material flow monitoring for a material component in the operating menu [Database]- [Create/edit component]- [Material flow] is not equal to 0 (activated), the line will be marked in yellow if the value specified for the corresponding scale is not met. The signals for the coarse/fine control are still available, i.e. the batching continues.

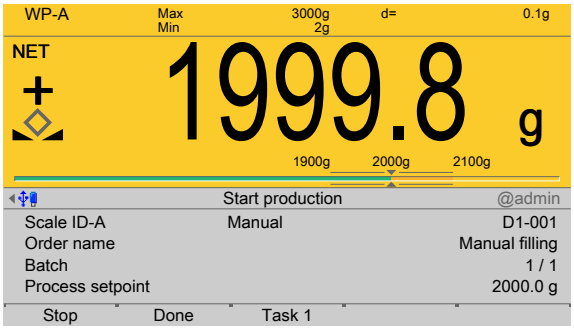
7.4.4 Manual components

In the case of manual components [Manual filling] and [Manual filling, no check], it is assumed, as in automatic processes, that the scale is tared at the time of display.

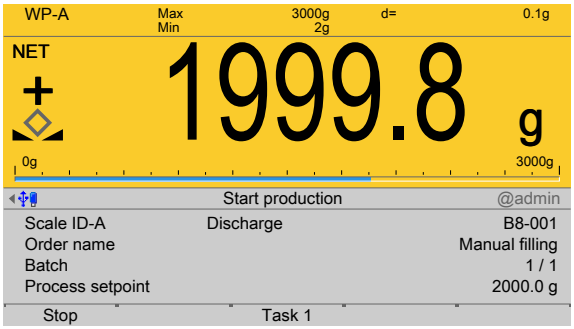


1. In the operating menu [Production]- [Start production], press the [Start] softkey in order to start the batching.

▷ The manual component waits for a signal.



2. Press the [Done] softkey in order to enable the batching for the next component.



3. Discharge the container.
4. Finally, press the [Done] softkey to confirm that batching is complete.

   ▷ The batch report is printed:

```
Sequence                                29
Process ID                Manual filling
Process name                     Manual
Set point                        2000 g
Print time            11/27/201 16:15:02
Actual                          1999.9 g
Batch status                       Done
Scale ID                       WP-A IBC
Ordered by                        admin
Weighed by                        admin

---------------------------------------
```

```
Order                Manual filling
Batch                            1 / 1
Process ID                Manual filling
Scale ID                       WP-A IBC
Sequence                            29
Act. order total              20000.0 g

---------------------------------------
```

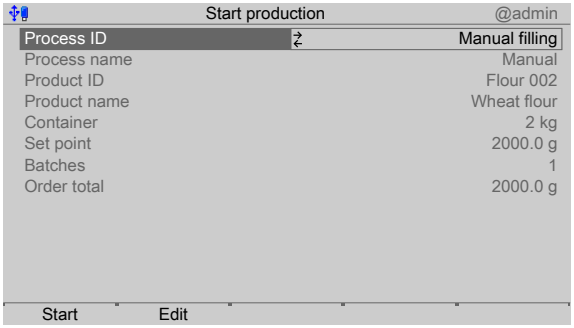
```
L  Component ID    Set point    Actual    Consumption   Status
-----------------------------------------------------------------
1  Dialog 1
2  D1-002            2000.0 g    1999.7 g   1999.7 g    T

Ordered by                       admin
Weighed by                       admin
Start time           11/27/2013 16:14:25
End time             11/27/2013 16:15:02
11/27/201 16:14:52 Manual filling Man. filling 1999.7 g T
```

7.4.5 Time monitoring

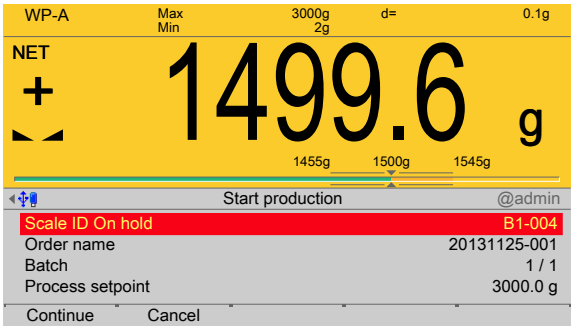
If the [Timer] component is held using [Stop], then the time will be frozen. If [Continue] is selected, the time that had not previously expired will be caught up. If [Cancel] is selected, the [Timer] will be prematurely ended.

7.4.6 Components for the control of the process sequence

For the component types [Stop], [Wait for SPM], [Set SPM], [Reset SPM], [Wait + reset SPM], [Analog input] and [Analog output], no/few parameters are displayed, e.g. no set point or no tolerance. These types are components which control the process.



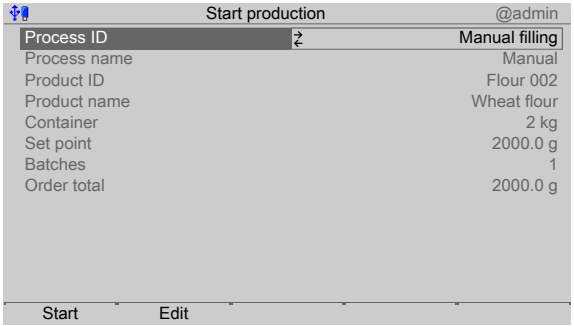
1. In the operating menu [Production]- [Start production], press the [Start] softkey in order to start the batching.
   ▷ The automatic batching stops (here: type "Set SPM"). The line is marked in red.



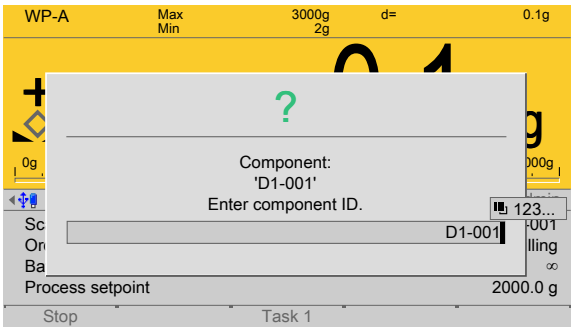
2. Press the [Continue] softkey to continue the batching.

7.4.7 Dialog

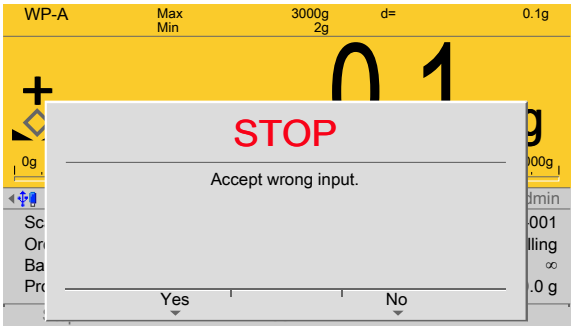
This parameter is used for the following component types: [Net filling], [Net refilling], [Net decrease], [Gross filling], [Gross decrease], [Man. filling], [Man. filling, no check], [Dialog].



1. In the operating menu [Production]- [Start production], press the [Start] softkey in order to start the batching.
   ▷ If [Check name] was activated when creating the component, an input window appears.

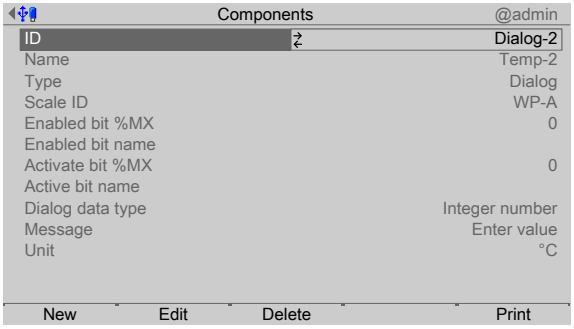


2. Enter/scan in the component ID and confirm.
   ▷ A prompt window will appear if there is an incorrect entry.



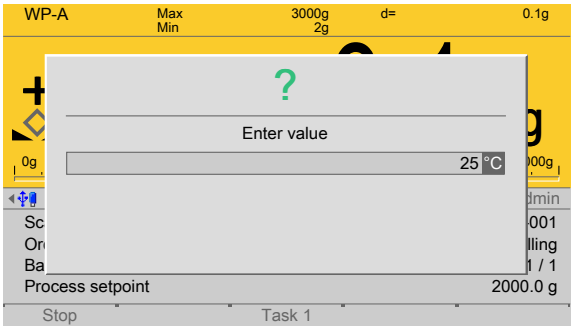
3. Press the [Yes] softkey in order to include the incorrect entry in the report.
4. Press the [No] softkey in order to query the component ID again.
5. Perform the weighing operation.

   The [Dialog data type] parameter has several options, see Chapter 4.2.1.



6. e.g. select and confirm [Integer number].
7. Enter and confirm the text under [Message].
8. Select and confirm the relevant unit under [Unit].

   The dialog appears in the process cycle.



9. Enter the value using the keypad and confirm.

7.5 Example configurations

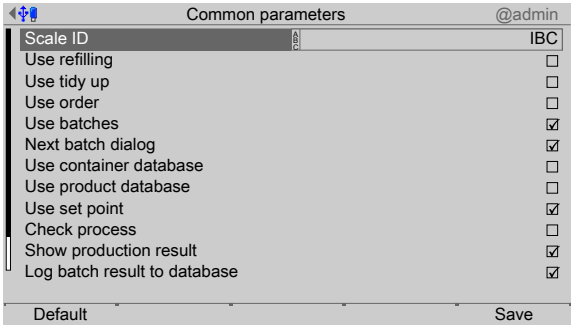
7.5.1 Example with set point

7.5.1.1 Configure process

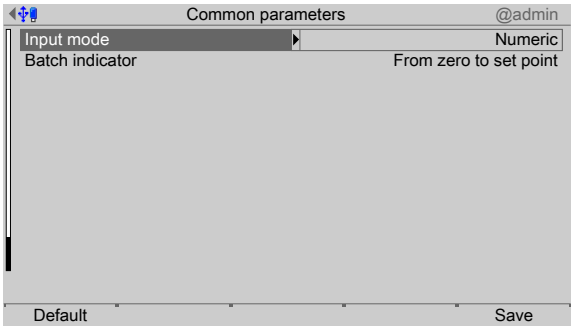
The following example shows the configuration of a simple **process** for the filling of a batching container with a pre-defined material amount and the subsequent discharge in weighing point "A":

- Select common parameters.
- Configure printout for the label ticket.
- Configure visualization.
- Create "Net filling" (B1) and "Discharge" (B8) components.
- Configure digital outputs for coarse and fine flow and discharge so that the valves open and close accordingly.
- Create process, "Production" process type.

Select Common Parameters

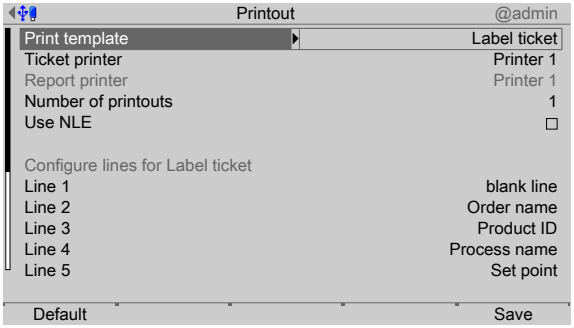


1. In the operating menu [Configuration]- [Common parameters], enable/disable the following parameters.



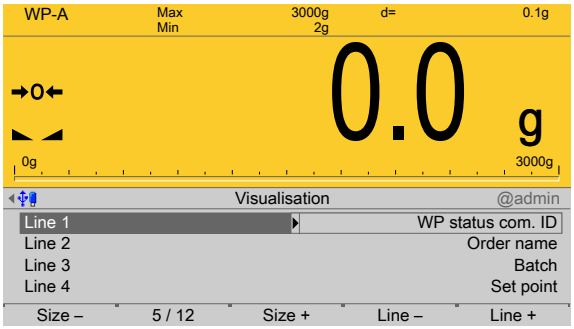
2. Press the [Save] softkey to save the settings.

Configure printout for the label ticket

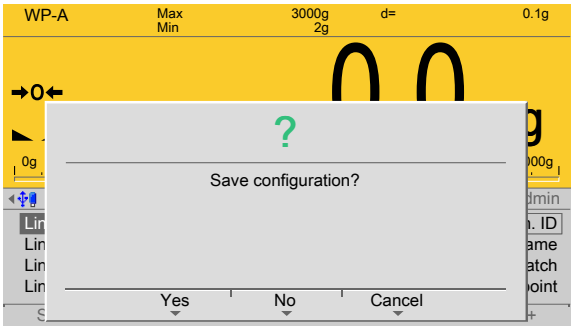


3. In the operating menu [Configuration]- [Printout], configure the [Label ticket].
4. For the remaining print templates, set the number of printouts to "0" so that only the label ticket is printed out.
5. Configure the individual info lines.
6. Finally, press the [Save] softkey to save the settings.

Configure visualization

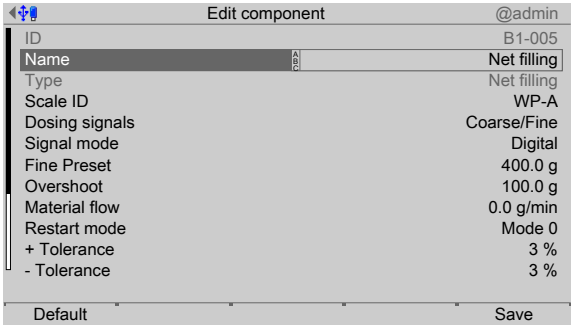


7. In the operating menu [Configuration]- [Visualization], configure the weight display and info lines.
8. Press the [Size -]/[Size +] softkey in order to select the weight display (here: 5/12).
9. Press the [Line -]/[Line +] softkey in order to delete/insert individual lines.
10. Select and configure the relevant line.
11. Finally, press the [EXIT] softkey.
    ▷ A prompt window appears.

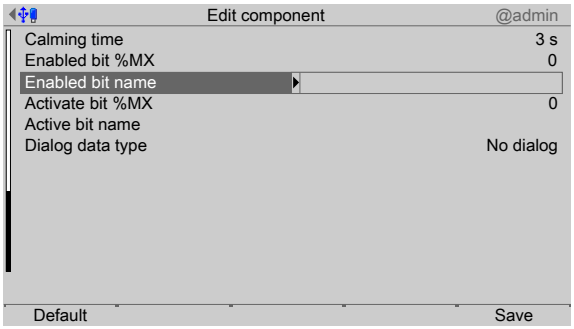


12. Press the [Yes] softkey to save the configuration.

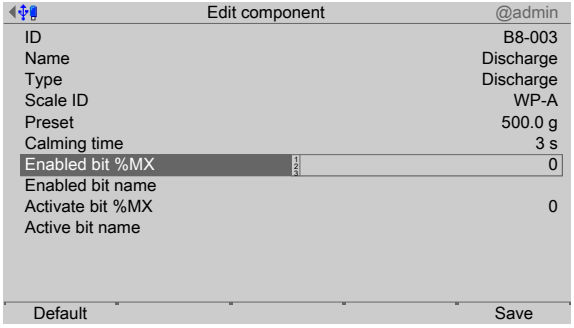
Create components (B1 and B8)



13. In the operating menu [Databases]- [Components]- [New], create the component [B1-005] (B1 = net filling).
14. Enter the parameters.

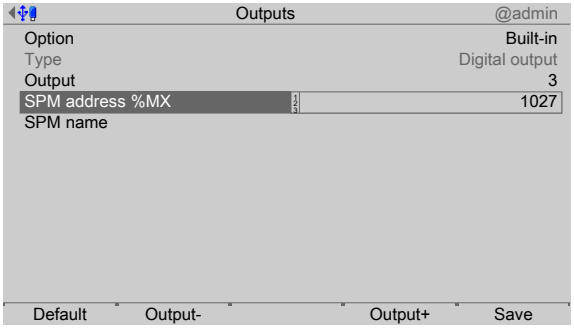


15. Leave the values at zero for the parameters [Enabled by bit %MX] and [Active bit %MX].
16. Finally, press the [Save] softkey to save the settings.

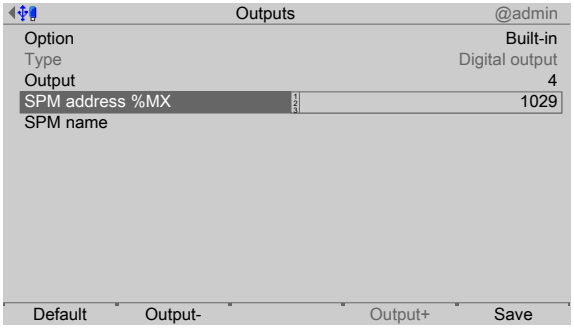


17. In the operating menu [Databases]- [Components]- [New], create the component [B8-003] (B8 = discharge).
18. Enter the parameters.
19. Leave the values at zero for the parameters [Enabled by bit %MX] and [Active bit %MX].
20. Finally, press the [Save] softkey to save the settings.

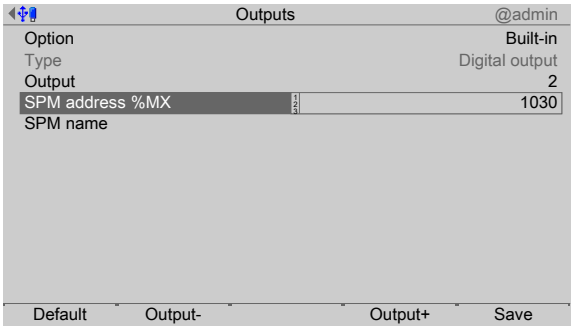
Configure digital outputs



21. In the operating menu [Configuration]- [Outputs]- [Option]- [Internal], press the [Output+]/[Output-] softkey in order to select a free output.
22. Enter the fixed SPM address for coarse flow (here for WP-A: 1027) and confirm, see also Chapter 10.

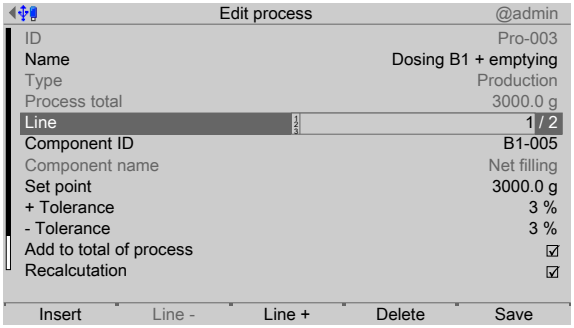


23. Press the [Output+]/[Output-] softkey in order to select a free output.
24. Enter the fixed SPM address for fine flow (here for WP-A: 1029) and confirm, see also Chapter 10.

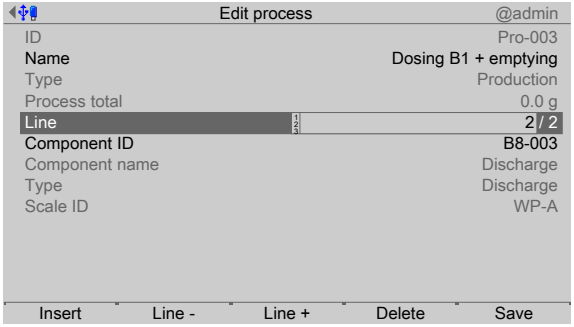


25. Press the [Output+]/[Output-] softkey in order to select a free output.
26. Enter the fixed SPM address for discharge (here for WP-A: 1030) and confirm, see also Chapter 10.

Create Process

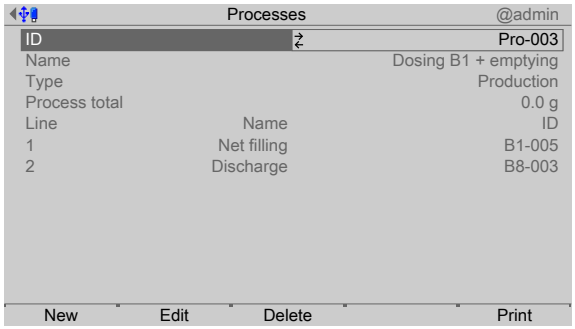


27. In the operating menu [Databases]- [Processes]- [New], enter the process identification and name.
28. In the [Type] line, select the [Production] process type, see also Chapter 6.4.3.3.
29. In the first process line, select the previously created component [B1-005].
30. Enter the set point (here: 3000 g).
31. Enable the parameters [Add to total of process] and [Recalculation].
32. Press the [Line+] softkey.

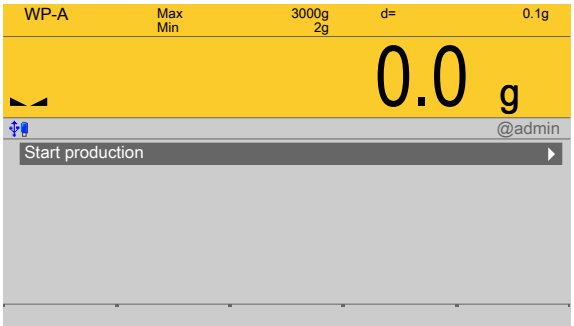


33. In the second process line, select the previously created component [B8-003].
34. Press the [Save] softkey to save the settings.

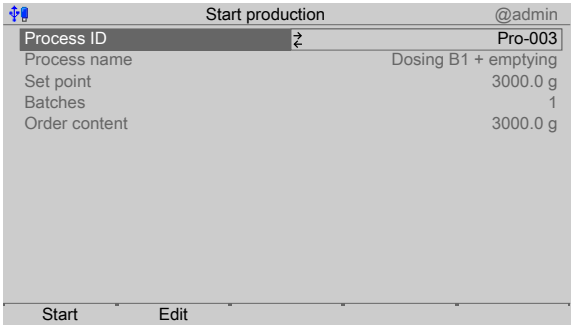
    ▷ The overview of the created process appears.



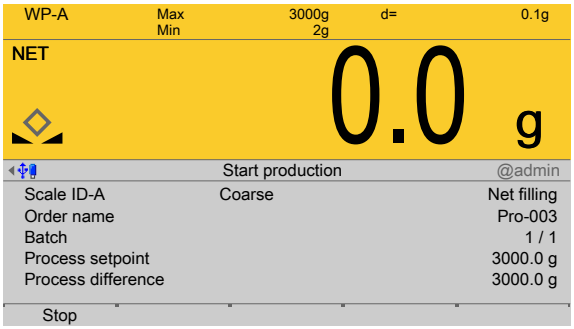
7.5.1.2 Start process



1. In the operating menu, select [Production]- [Start production] and confirm.



2. Select the previously created process and press the [Start] softkey in order to start the process/production.



3. Fill and discharge batching container.
   ▷ The label ticket is printed:

```
-----------------------------------

Sequence                          11
Process ID                   Pro-003
Process name            Batching B1+E
Set point                   3000.0 g
Print time                  13:28:54
Actual                      2999.8 g
Batch status                   Ready
Scale ID                         IBC
Ordered by                     admin
Weighed by                     admin

-----------------------------------
```

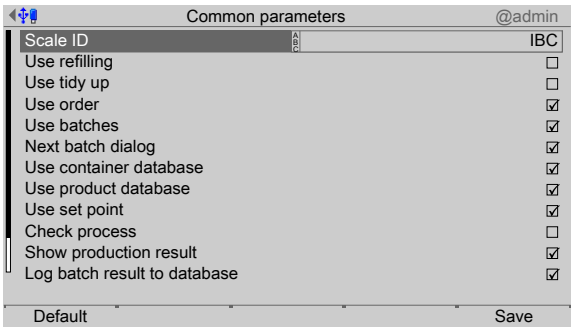
7.5.2 Example with order

7.5.2.1 Configure order

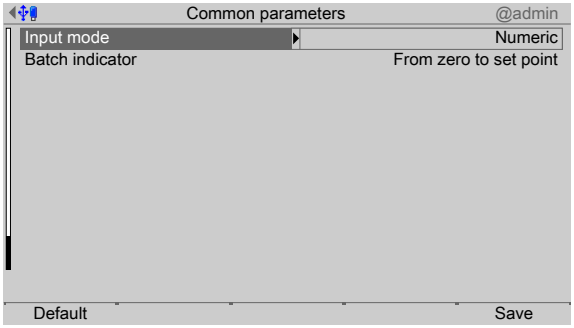
The following example shows the configuration of an **order** for the filling of a batching container with two material components with pre-defined material amounts and the subsequent discharge of the product into a 3 kg container in weighing point "A":

- Select common parameters.
- Configure printout for batch report with header and trailer.
- Configure visualization.
- Create product.
- Create containers.
- Create two "Net filling" (B1) components and one "Discharge" (B8) component.
- Configure digital outputs for coarse and fine flow and discharge so that the valves open and close accordingly.
- Create process, "Production" process type.
- Create order.

Select common parameters

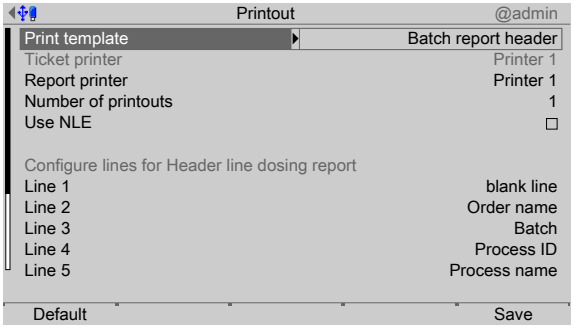


1. In the operating menu [Configuration]- [Common parameters], enable/disable the following parameters.



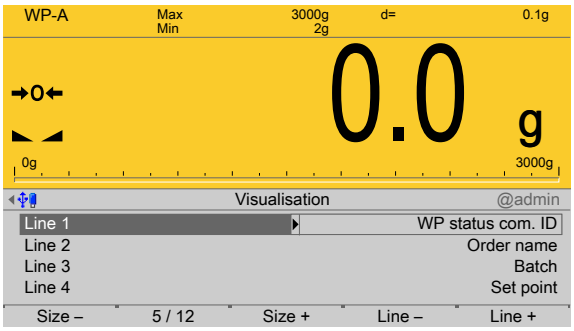
2. Press the [Save] softkey to save the settings.

Configuring printout

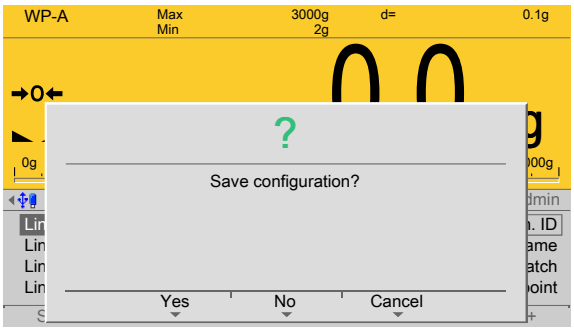


3. In the operating menu [Configuration]- [Printout], configure the batch report header, batch report line and batch report trailer.
4. For the remaining print templates, set the number of printouts to "0" so that only the configured print templates are printed out.
5. Configure the individual lines.
6. Finally, press the [Save] softkey to save the settings.

Configure visualization

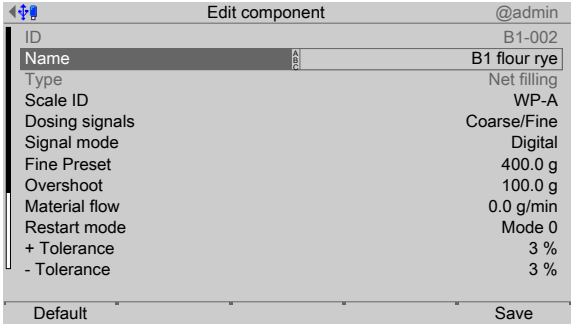


7. In the operating menu [Configuration]- [Visualization], configure the weight display and info lines.
8. Press the [Size -]/[Size +] softkey in order to select the weight display (here: 5/12).
9. Press the [Line -]/[Line +] softkey in order to delete/insert individual lines.
10. Select and configure the relevant line.
11. Finally, press the [EXIT] softkey.
    ▷ A prompt window appears.

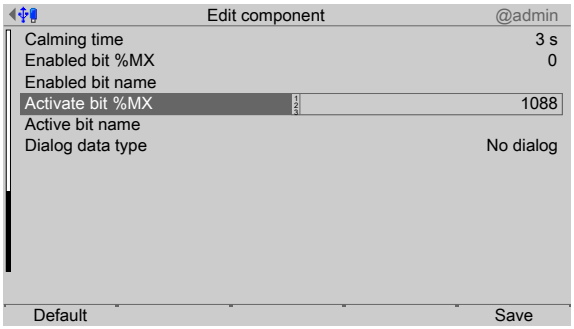


12. Press the [Yes] softkey to save the configuration.

Create components for rye flour

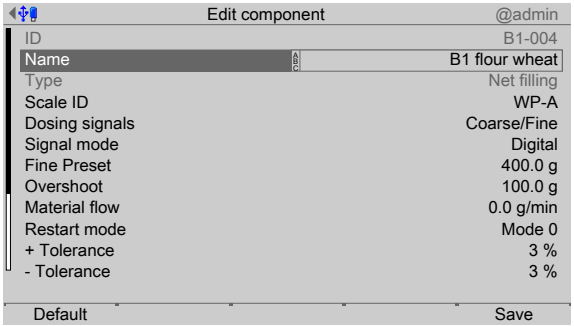


13. In the operating menu [Databases]- [Components]- [New], create the component [B1-004] (B1 = net filling).
14. Enter the parameters.

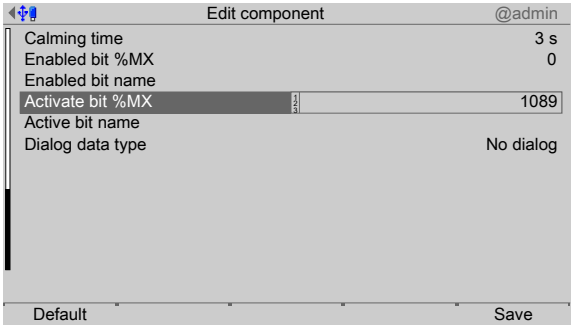


15. Leave the value at zero for the parameter [Enabled by bit %MX].
16. For the parameter [Active bit %MX], enter the SPM address (here for WP-A: range 1088...1151) and confirm, see also Chapter 10.
17. Finally, press the [Save] softkey to save the settings.

Create components for wheat flour

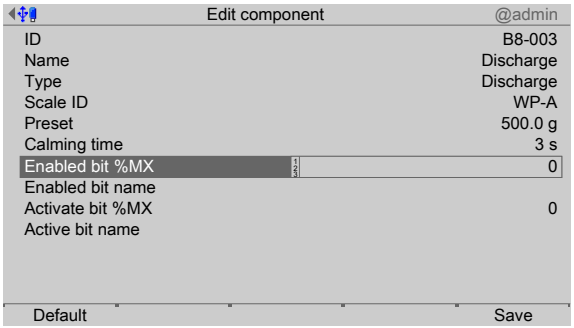


18. In the operating menu [Databases]- [Components]- [New], create the component [B1-004] (B1 = net filling).



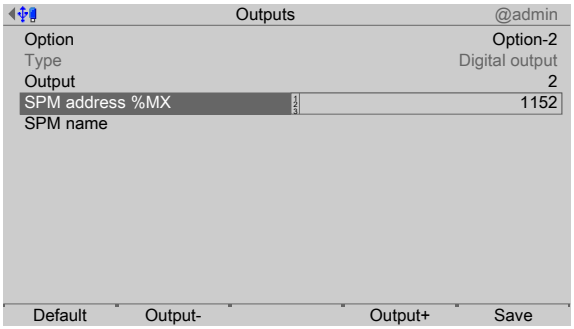
19. Leave the value at zero for the parameter [Enabled by bit %MX].
20. For the parameter [Active bit %MX], enter the SPM address (here for WP-A: range 1088...1151) and confirm, see also Chapter 10.
21. Finally, press the [Save] softkey to save the settings.

Create components for the discharge

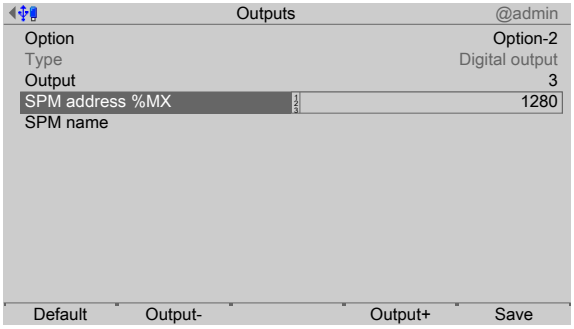


22. In the operating menu [Databases]- [Components]- [New], create the component [B8-003] (B8 = discharge).
23. Enter the parameters.
24. Leave the values at zero for the parameters [Enabled by bit %MX] and [Active bit %MX].
25. Finally, press the [Save] softkey to save the settings.

Configure digital outputs for rye flour

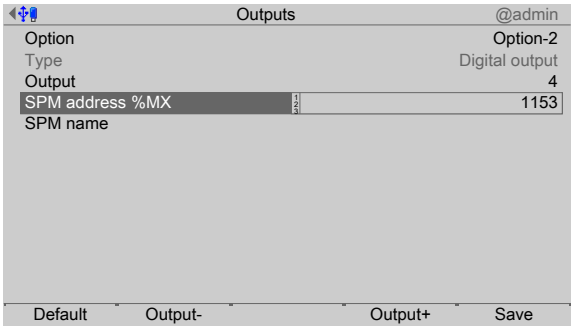


26. In the operating menu, select [Configuration]- [Outputs]- [Option] e.g. [Option-2] and confirm.
27. Press softkey [Output+]/[Output-] in order to select a free output.
28. Enter the SPM address for active bit AND coarse flow (here for WP-A: (X1152...X1215) and confirm, see also Chapter 10.

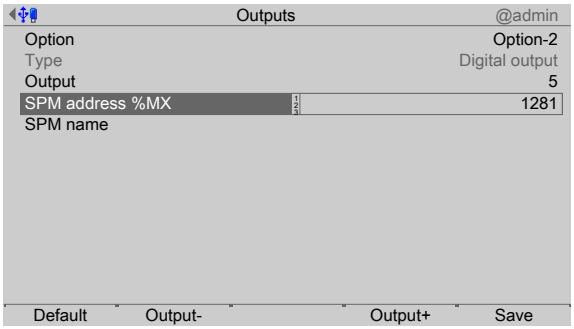


29. Press softkey [Output+]/[Output-] in order to select a free output (here: 3).
30. Enter the SPM address for active bit AND fine flow (here for WP-A: (X1280...X1343) and confirm, see also Chapter 10.

Configure digital outputs for wheat flour

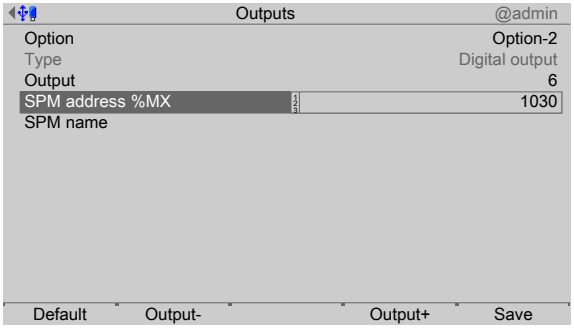


31. Press softkey [Output+]/[Output-] in order to select a free output (here: 4).
32. Enter the SPM address for active bit AND coarse flow (here for WP-A: (X1152...X1215) and confirm, see also Chapter 10.



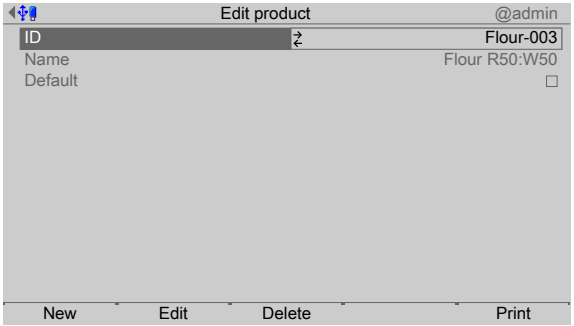
33. Press softkey [Output+]/[Output-] in order to select a free output (here: 5).
34. Enter the SPM address for active bit AND fine flow (here for WP-A: (X1280...X1343) and confirm, see also Chapter 10.

Configure digital output for the discharge



35. Press softkey [Output+]/[Output-] in order to select a free output (here: 6).
36. Enter the SPM address for discharge (here for WPA: 1030) and confirm, see also Chapter 10.
37. Finally, press the [Save] softkey to save the settings.

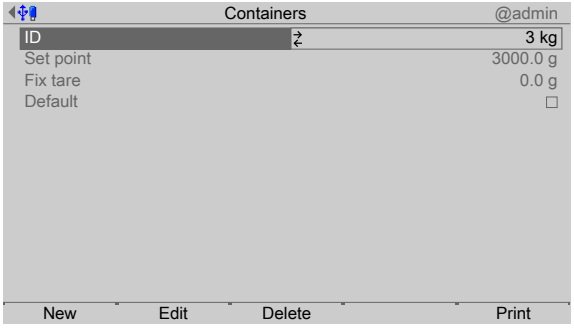
Create product



38. In the operating menu [Databases]- [Product list], define the product to be batched.

    In this case: Product ID: Flour 003; Product name: Flour R50:W50
39. Finally, press the [Save] softkey to save the settings.

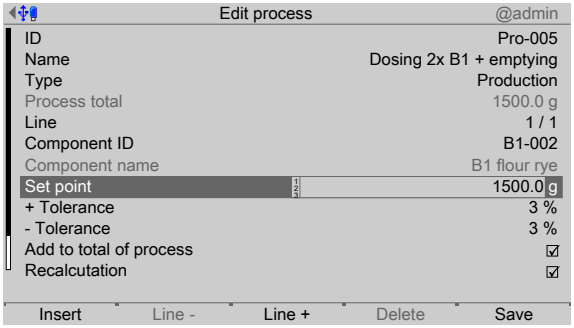
Create containers



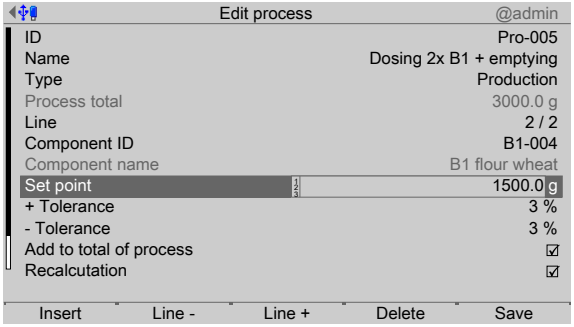
40. In the operating menu [Databases]- [Container list], define the container to be filled.

    In this case: Container ID: 3 kg; Set point: 3000 g; Preset tare: 0 g
41. Finally, press the [Save] softkey to save the settings.

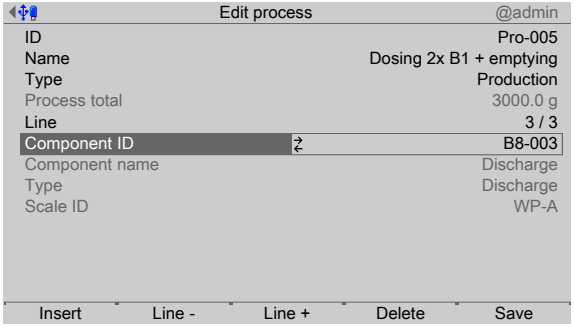
Create process



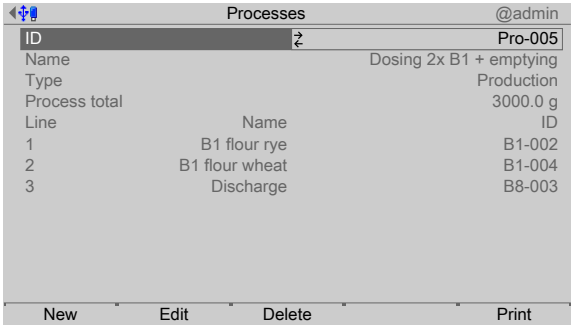
42. In the operating menu [Databases]- [Processes]- [New], enter the process ID and name.
43. In the [Type] line, select the [Production] process type, see also Chapter 6.4.3.3.
44. In the first process line, select the previously created component [B1-002].
45. Enter the set point (here: 1500 g).
46. Enable the parameters [Add to total of process] and [Recalculation].
47. Press the [Line+] softkey.



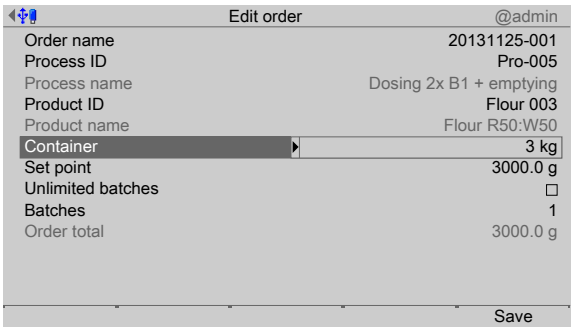
48. In the second process line, select the previously created component [B1-004].
49. Enter the set point (here: 1500 g).
50. Enable the parameters [Add to total of process] and [Recalculation].
51. Press the [Line+] softkey.



52. In the third process line, select the previously created component [B8-003].
53. Press the [Save] softkey to save the settings.
    ▷ The overview of the created process appears.



Create order



54. In the operating menu [Databases]- [Orders]- [New] or [Production]- [Start production]- [New] , enter the order identification.
55. Select the previously created process.
56. Select the previously created product.
57. Select the previously created container.

Note:

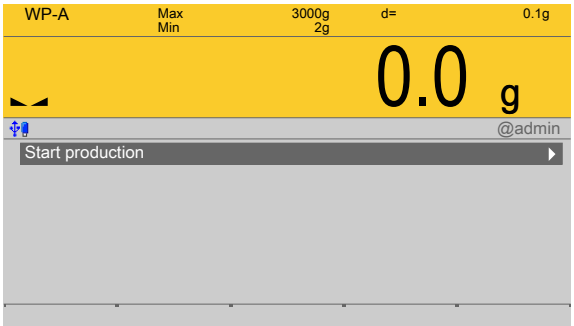
When using containers which contain a preset tare value, at the start the process will be tared with this value. However, this is only possible if the first batched component in the process does not tare itself.

The first component must contain the "Net refill" (B2) type.

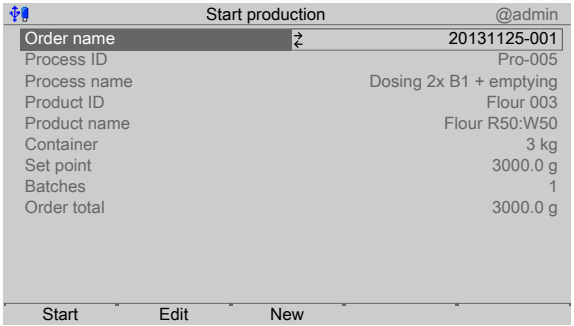
---

58. Enter the product set point (here: 3000 g).
59. Enter the number of batches (here: 1).
60. Finally, press the [Save] softkey to save the settings.

7.5.2.2 Start order



1. In the operating menu, select [Production]- [Start production] and confirm.



2. Select the previously created order and press the [Start] softkey in order to start the order/production.
3. Fill the batch container and discharge the batched product into the 3 kg container.
   ▷ The batch report is printed:

```
Order                    20131125-001
Batch                           1 / 1
Process ID                    Pro-005
Scale ID                     WP-A IBC
Sequence                           14
Order content                3000.0 g
```

```
L  Component ID    Set point    Actual    Consumption   Status
-----------------------------------------------------------------
1  B1-002          1500.0 g    1499.6 g   1499.6 g      T
2  B1-004          1500.0 g    1499.8 g   1499.8 g      T
3  B8-003          3000.0 g    2999.4 g   2999.4 g      T

Ordered by                       admin
Weighed by                       admin
Start time         11/25/2013 16:25:41
End time           11/25/2013 16:26:30
11/25/201 16:26:12  20131125-001   Pro-005    2999.4 g  T
```

8 Signal control

8.1 General

All signals are in an internal memory and can be used in various ways from there. Each control or status signal has its addressing, which is specified in the SPM layout (see Chapter 10).

Digital inputs can transfer their status to one of these addresses. In addition, the status of an internal signal can be transferred to a digital output. SPM addresses can be read or written via DDE/OPC communication.

Freely assignable ranges (see Chapter 10.8) are free for any signals e.g. component signals.

The other addresses are defined in advance for various status and control signals, and functions.

Note:

The selected SPM address must be unique within the system.

The SPM addresses for the input and output cards are unchanged after a cold start.

The SPM parameters of the components are lost after the cold start!

Before a cold start, the created databases must be saved on the SD card under System maintenance Backup.

8.2 Digital inputs and outputs

8.2.1 General

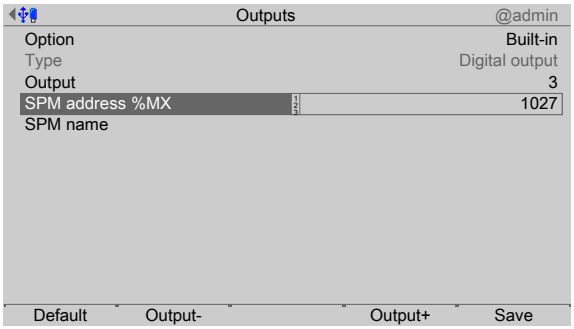
Digital inputs and outputs can be configured so that they release status signals or transfer control signals to an SPM address.

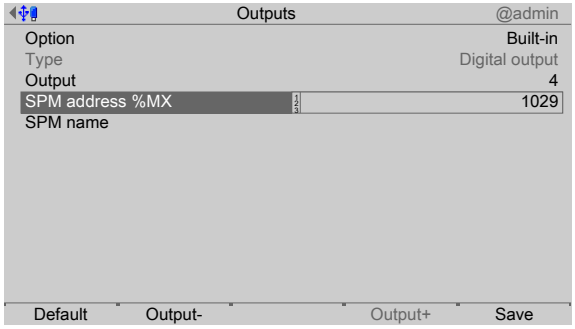
8.2.2 Transfer to digital outputs

Any signal bits (depending on the weighing point) can be configured on a digital output.

Example for WP-A

The coarse and fine flow signals must be transferred to two digital outputs. The signals on the SPM addresses %MX "1027" (coarse) and "1029" (fine) are specified (see Chapter 10.5) and are always set accordingly when batching is active. Corresponding active bits do not need to be set.





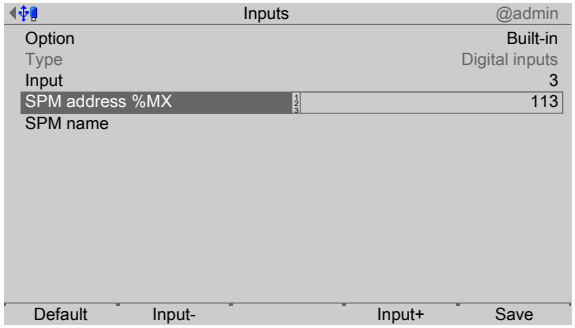
The writing of the SPM address %MX "1027"/"1029" into the configuration of output 3/4 means that the status of this address is transferred to the output.

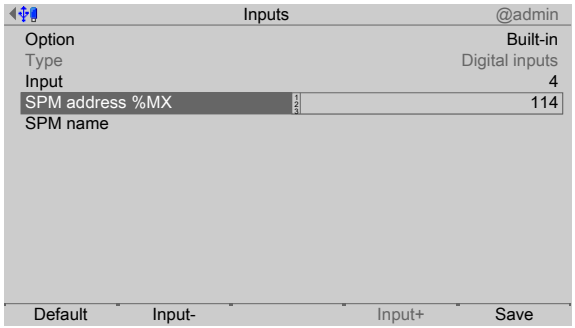
8.2.3 Transferred by digital inputs

Signals can be configured to any signal bits in the specified address range from a digital input.

Example for WP-A

The weighing point A must be tared and have the tare reset via digital inputs. The SPM addresses %MX "113" (tare device) and "114" (reset device tare) are specified (see Chapter 10). If an active signal is transferred to these addresses, then the weighing point is tared or the tare is reset.





The writing of the SPM address %MX "113"/"114" into the configuration of the input ¾ means that the status of the input is transferred to this address.

8.2.4 Signals of manual components

The component parameters for manual filling (D1 and D2) require an "Acknowledgment" signal (active bit) from the operator.

In the case of the component parameter [Enable bit], a free SPM address %MX (see Chapter 10) must be entered.

The relevant SPM address must be set for the digital input for the parameter [SPM address %MX].

8.2.5 Signals from auxiliary components

Auxiliary components D5 and D8 wait for an input signal.

In the case of the component parameter [Enable bit], a free SPM address %MX (see Chapter 10) must be entered.

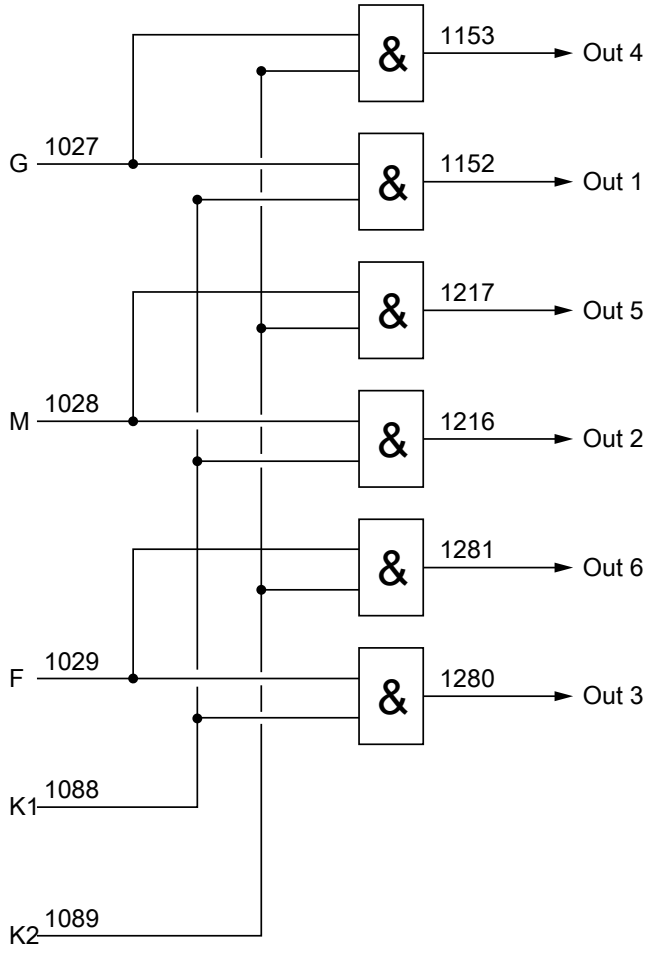
The relevant SPM address must be set for the digital input for the component parameter [SPM address %MX].

8.2.6 Output component signals

Example for use with predefined AND conjunctions

In order to differentiate different components, an SPM address %MX (WP-A: 1088...1151) must be entered for the "Active bit" component parameter. The coarse, middle and fine flow signals must be linked to the individual component signals. There are predefined AND conjunctions available for this purpose (see Chapter 10, SPM addresses %MX for WP-A: coarse 1027, middle 1028, fine 1029).

In the next step, these bits must be configured to the digital outputs, see Chapter 8.2.2.



Code	Identifier
G	Coarse flow
M	Middle flow
F	Fine flow
K1	Component 1, active
K2	Component 2, active
Out 1...6	Output 1...6
1xxx	SPM address

8.3 Analog inputs and outputs

8.3.1 General

The option card PR 5500/07 provides an analog input and an analog output. It is possible to use an option card in interface Option-1 and another in interface Option-2 in order to increase the number of inputs and outputs from 1 to 2.

8.3.2 Analog input

The analog input is written as 16-bit value in the SPM address %SPM "1040" (option-1) and/or "1042" (option-2).

Reading an analog value into a process

When using with a process, the relevant SPM address %SPM must be entered in the [Enable bit] parameter (component type "Analog input", mode "A2"). This component can then read an analog measurement in a process line.

Reading and writing via DDE/OPC

If an analog input card is inserted, the analog input value can be read on the SPM address %SPM "1041" (option-1) and/or "1042" (option-2).

If no analog input card is inserted, then it is possible to write to the SPM address %SPM "1041" (option-1) and/or "1042" (option-2).

8.3.3 Analog output

A 16 bit value is read from the SPM address %SPM "1047" (option-1) and/or "1049" (option-2) and released as an output value via an analog card.

Output of a weight value as analog value

During the output configuration of the analog card, the parameter [Analog value] must be set e.g. to "Gross". Then the SPM address %SPM is cyclically specified with scaled weight values.

Output of an analog value from a process

During the output configuration of the analog card, the parameter [Data source] must be set to "SPM analog out". The analog card (option-1) reads the data from SPM address %SPM "1047". The analog card (option-2) reads the data from SPM address %SPM "1049".

When using in a process, the relevant SPM address %MW must be entered in the [Enable bit] parameter (component type "Analog output", mode "A1").

9 Fieldbus interface

9.1 General notes

The interface is configured under [System settings] - [Fieldbus parameters] .

There are two different access protocols.

Scale protocol

8 bytes for simple scale functions: Read weights and states.

The protocol and the functions of the firmware are described in the operating instructions PR 5500.

SPM protocol

This wider interface can be used to access all the data described in the SPM table.

The protocol and the functions of the firmware are described in the operating instructions PR 5500.

10 SPM

10.1 General information

The memory accessible to the user is the SPM (Scratch Pad Memory). This memory is used to store lots of internal data from which weights, statuses and reports can be read and control data can be written.

- System data are defined by the firmware and the respective application.
- The free user range can be used freely, for example, via the configuration of logical links.

The SPM table can be accessed via OPC and ModBus communication.

In addition, individual bits are copied back and forth between digital inputs and outputs and the SPM via the I/O configuration.

Note:

If a text is defined e.g. from SPM address B401, this must be defined in the OPC server from SPM address B400 so that the content actually begins at B401.

10.2 Elementary data types

The elementary data types are characterized by their bit width and possible value range.

All commands of the data type BOOL are executed with a rising edge.

Data type	Description	Value range
BOOL	bool	0 (FALSE) or 1 (TRUE)
SINT	short integer	-128 to 127
INT	integer	-32768 to 32767
DINT	double integer	-2^{31} to $2^{31}-1$
LINT	long integer	-2^{63} to $2^{63}-1$
USINT	unsigned short integer	0 to 255
UINT	unsigned integer	0 to 65535
UDINT	unsigned double integer	0 to $2^{32}-1$
ULINT	unsigned long integer	0 to $2^{64}-1$
REAL	real number	±1.18E-38 bis 3.4E38 (with approx. 7 significant digits)
LREAL	long real number	±1.18E-308 bis 3.4E308 (with approx. 16 significant digits)
TIME	time duration	1 ms to $\pm 2^{47}$ ms
DATE	date (only)	1.1.1900 to 31.12.2099
TIME_OF_DAY	time of day (only)	00:00:00.00 to 23:59:59.99
DATE_AND_TIME	Date and time of day	see DATE and TIME_OF_DAY

Data type	Description	Value range
STRING	variable-long character string	max. 255 characters (ISO)
WSTRING	variable-long wide character string	max. 255 characters (Unicode)
BYTE	bit-sequence 8	...
WORD	bit-sequence 16	...
DWORD	bit-sequence 32	...
LWORD	bit-sequence 64	...

10.3 Addressing

The SPM table can be addressed via different counts. Bit addressing is used to count the individual bits (MX). Byte addressing is used to count individual bytes (MB), whereby, e.g. bits MX0...MX7 are identical to byte MB0.

Accordingly, addresses ML20, MD40-41, MW80-83, MB160-167 and MX1280-1343 contain the same data (see Chapter 10.8).

Code	Data type	Address example
%ML	LWORD	L21
%MD	DINT	D42...43
%MW	WORD	W84...87
%MB	BYTE	B168...175
%MX	BOOL (bit)	X1344...1407

10.4 System data weighing point A

SPM address	Data type	R/W	Function
X0...X3	BOOL	R	Internal digital input 1...4
X8...11	BOOL	R	Internal digital output 1...4
X16...18	BOOL	R	Output limit 1...3
B4	**BYTE**	R	**Indicator status**
X32	BOOL	R	ADC error
X33	BOOL	R	> Max (FSD = Full Scale Deflection)
X34	BOOL	R	> Max + permitted range (OVL)
X35	BOOL	R	< zero
X36	BOOL	R	Zero ±¼ d
X37	BOOL	R	Within the zeroset range (ZSR)
X38	BOOL	R	The weight is stable
X39	BOOL	R	Weight < zero or > Max (FSD = Full Scale Deflection)

SPM address	Data type	R/W	Function
B5	**BYTE**	R	**ADC status**
X40	BOOL	R	Measuring signal negative (error 7)
X41	BOOL	R	Measuring signal >36 mV (error 3)
X42	BOOL	R	Internal arithmetic error; CAL data are perhaps faulty (error 1)
X43	BOOL	R	No or too low sense voltage (error 6)
X44	BOOL	R	No communication with xBPI scale (error 9)
B6	**BYTE**	R	**Command status**
X48	BOOL	R	Command error
X49	BOOL	R	Command active
X50	BOOL	R	Network failure signal
B7	**BYTE**	R	**Active status**
X56	BOOL	R	Test mode active
X57	BOOL	R	Calibration active
X58	BOOL	R	Instrument is tared
X59	BOOL	R	Pendeo only: parameter [Unbalanced check deviation]
X60	BOOL	R	Pendeo only: operation with a simulated load cell
X72	BOOL	R/W	Switch D11 to net weight.
X112	BOOL	W	Zero device.
X113	BOOL	W	Tare device
X114	BOOL	W	Reset the tare of the device
X115	BOOL	W	Start the test mode
X116	BOOL	W	Finish the test mode
X117	BOOL	W	Reset the power fail signal
X118	BOOL	W	Set fixed tare weight D31 as tare
X119	BOOL	W	Store the current gross weight in the preset tare memory (D31)
X121	BOOL	W	Reset error B19 = 0.
B16	SINT	R	Exponent Number of decimal places Example: 1.23 is displayed Exponent: 2
B17	SINT	R	Weight unit 1 = mg, 2 = g, 3 = kg, 4 = t, 5 = lb, 9 = oz
B18	SINT	R	Verification interval (for multi-interval/multi-range = d1 or e1)
B19	BYTE	R	Last weighing point error, see PR 5500 operating instructions.
B20	BYTE	R	Higher byte of product code (0x59)
B21	BYTE	R	Lower byte of product code (0x00)
B22	BYTE	R	Major part of version number (1.0)
B23	BYTE	R	Minor part of version number (1.0)

SPM address	Data type	R/W	Function
B31	BYTE	R	ADC status
D6	UDINT	R	Serial number (board number)
W14	INT	R	Counter will be increased for every measured value.
D8	DINT	R	Current gross weight
D9	DINT	R	Current net weight
D10	DINT	R	Current tare weight
D11	DINT	R	Current gross/net weight selected with X72
D14	DINT	R	Max weight (FSD = Full Scale Deflection)
D15	DINT	R	Min weight
D23	DINT	R	Activity counter, test of communication with device
D24	DINT	R	Limit 1 on
D25	DINT	R	Limit 1 off
D26	DINT	R	Limit 2 on
D27	DINT	R	Limit 2 off
D28	DINT	R	Limit 3 on
D29	DINT	R	Limit 3 off
D31	DINT	R/W	Preset tare memory (X118, X119)
X1027	BOOL	R	Coarse flow
X1028	BOOL	R	Middle flow
X1029	BOOL	R	Fine flow
X1030	BOOL	R	Discharge
X1031	BOOL	R	Direction for the simulation
X1035	BOOL	R/W	Batching alarm Material flow warning
X1036	BOOL	R	Tolerance alarm
L17 X1088...1151	**LWORD** BOOL	W R	 Active bits of components
L18 X1152...1215	**LWORD** BOOL	W R	 Active bits (X1088...1151) AND coarse flow (X1027)
L19 X1216...1279	**LWORD** BOOL	W R	 Active bits (X1088...1151) AND middle flow (X1028)
L20 X1280...1343	LWORD BOOL	W R	 Active bits (X1088...1151) AND fine flow (X1029)

Note:

Freely assignable SPM addresses D42...D127, see Chapter 10.8.

Note:

The system variables (e.g. ST_WGT_A) for communication via OPC are described in operating instructions PR 1792 (Chapter 4 + 5).

10.5 Digital and analog inputs and outputs

SPM address	Data type	R/W	Function
D512	DINT	R	Digital input 1 (option-1)
D513	DINT	R	Digital input 2 (option-2)
D514	DINT	R	Digital input 3 (built-in)
D516	DINT	R/W	Digital output 1 (option-1)
D517	DINT	R/W	Digital output 2 (option-2)
D518	DINT	R/W	Digital output 3 (built-in)
D520	DINT	R	Analog input 1 (option-1)
D521	DINT	R	Analog input 2 (option-2)
D523	DINT	R/W	Analog output 1 (option-1)
D524	DINT	R/W	Analog output 2 (option-2)

10.6 ModBus TCP modules

SPM address	Data type	R/W	Function
W1052	**UINT**	R	Input module 1
X16832...16847	BOOL	R	Digital inputs 1...16
W1053	**UINT**	R	Input module 2
X16848...16863	BOOL	R	Digital inputs 1...16
W1054	**UINT**	R	Input module 3
X16864...16879	BOOL	R	Digital inputs 1...16
W1055	**UINT**	R	Input module 4
X16880...16895	BOOL	R	Digital inputs 1...16
W1056	**UINT**	R	Input module 5
X16896...16903	BOOL	R	Digital inputs 1...8
W1057	**UINT**	R	Input module 6
X16912...16919	BOOL	R	Digital inputs 1...8
W1058	**UINT**	R	Input module 7
X16928...16935	BOOL	R	Digital inputs 1...8

SPM address	Data type	R/W	Function
W1059	**UINT**	R	Input module 8
X16944...16951	BOOL	R	Digital inputs 1...8
W1062	**UINT**	R/W	Output module 1
X16992...17007	BOOL	R/W	Digital outputs 1...16
W1063	**UINT**	R/W	Output module 2
X17008...17023	BOOL	R/W	Digital outputs 1...16
W1064	**UINT**	R/W	Output module 3
X17024...17039	BOOL	R/W	Digital outputs 1...16
W1065	**UINT**	R/W	Output module 4
X17040...17055	BOOL	R/W	Digital outputs 1...16
W1066	**UINT**	R/W	Output module 5-0
X17056...17071	BOOL	R/W	Digital outputs 1...16
W1067	**UINT**	R/W	Output module 5-1
X17072...17087	BOOL	R/W	Digital outputs 17...32
W1068	**UINT**	R/W	Output module 5-2
X17100...17103	BOOL	R/W	Digital outputs 33...36
W1069	**UINT**	R/W	Output module 6-0
X17104...17119	BOOL	R/W	Digital outputs 1...16
W1070	**UINT**	R/W	Output module 6-1
X17120...17135	BOOL	R/W	Digital outputs 17...32
W1071	**UINT**	R/W	Output module 6-2
X17148...17151	BOOL	R/W	Digital outputs 33...36
W1072	**UINT**	R/W	Output module 7-0
X17152...17167	BOOL	R/W	Digital outputs 1...16
W1073	**UINT**	R/W	Output module 7-1
X17168...17183	BOOL	R/W	Digital outputs 17...32
W1074	**UINT**	R/W	Output module 7-2
X17184...17199	BOOL	R/W	Digital outputs 33...48
W1075	**UINT**	R/W	Output module 7-3
X17212...17215	BOOL	R/W	Digital outputs 49...52
W1076	**UINT**	R/W	Output module 8-0
X17216...17231	BOOL	R/W	Digital outputs 1...16
W1077	**UINT**	R/W	Output module 8-1
X17232...17247	BOOL	R/W	Digital outputs 17...32
W1078	**UINT**	R/W	Output module 8-2
X17248...17263	BOOL	R/W	Digital outputs 33...48
W1079	**UINT**	R/W	Output module 8-3
X17276...17279	BOOL	R/W	Digital outputs 49...52

10.7 Common SPM addresses

SPM address	Data type	R/W	Function
B2560	**BYTE**	R	**System status**
X20480	BOOL	R	The application is ready.
X20481	BOOL	R	A process is active.
X20482	BOOL	R	The batching process has been stopped.
X20483	BOOL	R	Flow warning of a component
X20484	BOOL	R	A tolerance alarm was triggered at a weighing point.
X20487	BOOL	R	If a ModBus module is configured and the connection is disconnected, then the error bit is set.
B2561	**BYTE**	R	**Batching commands**
X20488	BOOL	R/W	Start of the current recipe. The system reacts as if the [Start] softkey was pressed.
X20489	BOOL	R/W	Carry out a restart.
X20490	BOOL	R/W	Accept the tolerance alarm.
X20491	BOOL	R/W	Stop batching.
X20492	BOOL	R/W	Cancel the batching via the system stop mode. Always perform a "stop" first and then abort with "abort."

10.8 Freely assigned ranges

Weighing point A

%ML	%MD	%MW	%MB	%MX							
				0	1	2	3	4	5	6	7
21	42	84	168	1344	1345	1346	1347	1348	1349	1350	1351
			169	1352	1353	1354	1355	1356	1357	1358	1359
		85	170	1360	1361	1362	1363	1364	1365	1366	1367
			171	1368	1369	1370	1371	1372	1373	1374	1375
	43	86	172	1376	1377	1378	1379	1380	1381	1382	1383
			173	1384	1385	1386	1387	1388	1389	1390	1391
		87	174	1392	1393	1394	1395	1396	1397	1398	1399
			175	1400	1401	1402	1403	1404	1405	1406	1407
22	44	88	176	1408	1409	1410	1411	1412	1413	1414	1415
			177	1416	1417	1418	1419	1420	1421	1422	1423
		89	178	1424	1425	1426	1427	1428	1429	1430	1431
			179	1432	1433	1434	1435	1436	1437	1438	1439
	45	90	180	1440	1441	1442	1443	1444	1445	1446	1447
			181	1448	1449	1450	1451	1452	1453	1454	1455
		91	182	1456	1457	1458	1459	1460	1461	1462	1463
			183	1464	1465	1466	1467	1468	1469	1470	1471
23	46	92	184	1472	1473	1474	1475	1476	1477	1478	1479
			185	1480	1481	1482	1483	1484	1485	1486	1487
		93	186	1488	1489	1490	1491	1492	1493	1494	1495
			187	1496	1497	1498	1499	1500	1501	1502	1503
	47	94	188	1504	1505	1506	1507	1508	1509	1510	1511
			189	1512	1513	1514	1515	1516	1517	1518	1519
		95	190	1520	1521	1522	1523	1524	1525	1526	1527
			191	1528	1529	1530	1531	1532	1533	1534	1535
24	48	96	192	1536	1537	1538	1539	1540	1541	1542	1543
			193	1544	1545	1546	1547	1548	1549	1550	1551
		97	194	1552	1553	1554	1555	1556	1557	1558	1559
			195	1560	1561	1562	1563	1564	1565	1566	1567
	49	98	196	1568	1569	1570	1571	1572	1573	1574	1575
			197	1576	1577	1578	1579	1580	1581	1582	1583
		99	198	1584	1585	1586	1587	1588	1589	1590	1591
			199	1592	1593	1594	1595	1596	1597	1598	1599

Weighing point A

%ML	%MD	%MW	%MB	%MX							
				0	1	2	3	4	5	6	7
25	50	100	200	1600	1601	1602	1603	1604	1605	1606	1607
			201	1608	1609	1610	1611	1612	1613	1614	1615
		101	202	1616	1617	1618	1619	1620	1621	1622	1623
			203	1624	1625	1626	1627	1628	1629	1630	1631
	51	102	204	1632	1633	1634	1635	1636	1637	1638	1639
			205	1640	1641	1642	1643	1644	1645	1646	1647
		103	206	1648	1649	1650	1651	1652	1653	1654	1655
			207	1656	1657	1658	1659	1660	1661	1662	1663
26	52	104	208	1664	1665	1666	1667	1668	1669	1670	1671
			209	1672	1673	1674	1675	1676	1677	1678	1679
		105	210	1680	1681	1682	1683	1684	1685	1686	1687
			211	1688	1689	1690	1691	1692	1693	1694	1695
	53	106	212	1696	1697	1698	1699	1700	1701	1702	1703
			213	1704	1705	1706	1707	1708	1709	1710	1711
		107	214	1712	1713	1714	1715	1716	1717	1718	1719
			215	1720	1721	1722	1723	1724	1725	1726	1727
27	54	108	216	1728	1729	1730	1731	1732	1733	1734	1735
			217	1736	1737	1738	1739	1740	1741	1742	1743
		109	218	1744	1745	1746	1747	1748	1749	1750	1751
			219	1752	1753	1754	1755	1756	1757	1758	1759
	55	110	220	1760	1761	1762	1763	1764	1765	1766	1767
			221	1768	1769	1770	1771	1772	1773	1774	1775
		111	222	1776	1777	1778	1779	1780	1781	1782	1783
			223	1784	1785	1786	1787	1788	1789	1790	1791
28	56	112	224	1792	1793	1794	1795	1796	1797	1798	1799
			225	1800	1801	1802	1803	1804	1805	1806	1807
		113	226	1808	1809	1810	1811	1812	1813	1814	1815
			227	1816	1817	1818	1819	1820	1821	1822	1823
	57	114	228	1824	1825	1826	1827	1828	1829	1830	1831
			229	1832	1833	1834	1835	1836	1837	1838	1839
		115	230	1840	1841	1842	1843	1844	1845	1846	1847
			231	1848	1849	1850	1851	1852	1853	1854	1855

Weighing point A

%ML	%MD	%MW	%MB	%MX							
				0	1	2	3	4	5	6	7
29	58	116	232	1856	1857	1858	1859	1860	1861	1862	1863
			233	1864	1865	1866	1867	1868	1869	1870	1871
		117	234	1872	1873	1874	1875	1876	1877	1878	1879
			235	1880	1881	1882	1883	1884	1885	1886	1887
	59	118	236	1888	1889	1890	1891	1892	1893	1894	1895
			237	1896	1897	1898	1899	1900	1901	1902	1903
		119	238	1904	1905	1906	1907	1908	1909	1910	1911
			239	1912	1913	1914	1915	1916	1917	1918	1919
30	60	120	240	1920	1921	1922	1923	1924	1925	1926	1927
			241	1928	1929	1930	1931	1932	1933	1934	1935
		121	242	1936	1937	1938	1939	1940	1941	1942	1943
			243	1944	1945	1946	1947	1948	1949	1950	1951
	61	122	244	1952	1953	1954	1955	1956	1957	1958	1959
			245	1960	1961	1962	1963	1964	1965	1966	1967
		123	246	1968	1969	1970	1971	1972	1973	1974	1975
			247	1976	1977	1978	1979	1980	1981	1982	1983
31	62	124	248	1984	1985	1986	1987	1988	1989	1990	1991
			249	1992	1993	1994	1995	1996	1997	1998	1999
		125	250	2000	2001	2002	2003	2004	2005	2006	2007
			251	2008	2009	2010	2011	2012	2013	2014	2015
	63	126	252	2016	2017	2018	2019	2020	2021	2022	2023
			253	2024	2025	2026	2027	2028	2029	2030	2031
		127	254	2032	2033	2034	2035	2036	2037	2038	2039
			255	2040	2041	2042	2043	2044	2045	2046	2047
32	64	128	256	2048	2049	2050	2051	2052	2053	2054	2055
			257	2056	2057	2058	2059	2060	2061	2062	2063
		129	258	2064	2065	2066	2067	2068	2069	2070	2071
			259	2072	2073	2074	2075	2076	2077	2078	2079
	65	130	260	2080	2081	2082	2083	2084	2085	2086	2087
			261	2088	2089	2090	2091	2092	2093	2094	2095
		131	262	2096	2097	2098	2099	2100	2101	2102	2103
			263	2104	2105	2106	2107	2108	2109	2110	2111
33	66	132	264	2112	2113	2114	2115	2116	2117	2118	2119
			265	2120	2121	2122	2123	2124	2125	2126	2127
		133	266	2128	2129	2130	2131	2132	2133	2134	2135
			267	2136	2137	2138	2139	2140	2141	2142	2143
	67	134	268	2144	2145	2146	2147	2148	2149	2150	2151
			269	2152	2153	2154	2155	2156	2157	2158	2159
		135	270	2160	2161	2162	2163	2164	2165	2166	2167
			271	2168	2169	2170	2171	2172	2173	2174	2175

Weighing point A

%ML	%MD	%MW	%MB	%MX							
				0	1	2	3	4	5	6	7
34	68	136	272	2176	2177	2178	2179	2180	2181	2182	2183
			273	2184	2185	2186	2187	2188	2189	2190	2191
		137	274	2192	2193	2194	2195	2196	2197	2198	2199
			275	2200	2201	2202	2203	2204	2205	2206	2207
	69	138	276	2208	2209	2210	2211	2212	2213	2214	2215
			277	2216	2217	2218	2219	2220	2221	2222	2223
		139	278	2224	2225	2226	2227	2228	2229	2230	2231
			279	2232	2233	2234	2235	2236	2237	2238	2239
35	70	140	280	2240	2241	2242	2243	2244	2245	2246	2247
			281	2248	2249	2250	2251	2252	2253	2254	2255
		141	282	2256	2257	2258	2259	2260	2261	2262	2263
			283	2264	2265	2266	2267	2268	2269	2270	2271
	71	142	284	2272	2273	2274	2275	2276	2277	2278	2279
			285	2280	2281	2282	2283	2284	2285	2286	2287
		143	286	2288	2289	2290	2291	2292	2293	2294	2295
			287	2296	2297	2298	2299	2300	2301	2302	2303
36	72	144	288	2304	2305	2306	2307	2308	2309	2310	2311
			289	2312	2313	2314	2315	2316	2317	2318	2319
		145	290	2320	2321	2322	2323	2324	2325	2326	2327
			291	2328	2329	2330	2331	2332	2333	2334	2335
	73	146	292	2336	2337	2338	2339	2340	2341	2342	2343
			293	2344	2345	2346	2347	2348	2349	2350	2351
		147	294	2352	2353	2354	2355	2356	2357	2358	2359
			295	2360	2361	2362	2363	2364	2365	2366	2367
37	74	148	296	2368	2369	2370	2371	2372	2373	2374	2375
			297	2376	2377	2378	2379	2380	2381	2382	2383
		149	298	2384	2385	2386	2387	2388	2389	2390	2391
			299	2392	2393	2394	2395	2396	2397	2398	2399
	75	150	300	2400	2401	2402	2403	2404	2405	2406	2407
			301	2408	2409	2410	2411	2412	2413	2414	2415
		151	302	2416	2417	2418	2419	2420	2421	2422	2423
			303	2424	2425	2426	2427	2428	2429	2430	2431
38	76	152	304	2432	2433	2434	2435	2436	2437	2438	2439
			305	2440	2441	2442	2443	2444	2445	2446	2447
		153	306	2448	2449	2450	2451	2452	2453	2454	2455
			307	2456	2457	2458	2459	2460	2461	2462	2463
	77	154	308	2464	2465	2466	2467	2468	2469	2470	2471
			309	2472	2473	2474	2475	2476	2477	2478	2479
		155	310	2480	2481	2482	2483	2484	2485	2486	2487
			311	2488	2489	2490	2491	2492	2493	2494	2495

Weighing point A

%ML	%MD	%MW	%MB	%MX							
				0	1	2	3	4	5	6	7
39	78	156	312	2496	2497	2498	2499	2500	2501	2502	2503
			313	2504	2505	2506	2507	2508	2509	2510	2511
		157	314	2512	2513	2514	2515	2516	2517	2518	2519
			315	2520	2521	2522	2523	2524	2525	2526	2527
	79	158	316	2528	2529	2530	2531	2532	2533	2534	2535
			317	2536	2537	2538	2539	2540	2541	2542	2543
		159	318	2544	2545	2546	2547	2548	2549	2550	2551
			319	2552	2553	2554	2555	2556	2557	2558	2559
40	80	160	320	2560	2561	2562	2563	2564	2565	2566	2567
			321	2568	2569	2570	2571	2572	2573	2574	2575
		161	322	2576	2577	2578	2579	2580	2581	2582	2583
			323	2584	2585	2586	2587	2588	2589	2590	2591
	81	162	324	2592	2593	2594	2595	2596	2597	2598	2599
			325	2600	2601	2602	2603	2604	2605	2606	2607
		163	326	2608	2609	2610	2611	2612	2613	2614	2615
			327	2616	2617	2618	2619	2620	2621	2622	2623
41	82	164	328	2624	2625	2626	2627	2628	2629	2630	2631
			329	2632	2633	2634	2635	2636	2637	2638	2639
		165	330	2640	2641	2642	2643	2644	2645	2646	2647
			331	2648	2649	2650	2651	2652	2653	2654	2655
	83	166	332	2656	2657	2658	2659	2660	2661	2662	2663
			333	2664	2665	2666	2667	2668	2669	2670	2671
		167	334	2672	2673	2674	2675	2676	2677	2678	2679
			335	2680	2681	2682	2683	2684	2685	2686	2687
42	84	168	336	2688	2689	2690	2691	2692	2693	2694	2695
			337	2696	2697	2698	2699	2700	2701	2702	2703
		169	338	2704	2705	2706	2707	2708	2709	2710	2711
			339	2712	2713	2714	2715	2716	2717	2718	2719
	85	170	340	2720	2721	2722	2723	2724	2725	2726	2727
			341	2728	2729	2730	2731	2732	2733	2734	2735
		171	342	2736	2737	2738	2739	2740	2741	2742	2743
			343	2744	2745	2746	2747	2748	2749	2750	2751
43	86	172	344	2752	2753	2754	2755	2756	2757	2758	2759
			345	2760	2761	2762	2763	2764	2765	2766	2767
		173	346	2768	2769	2770	2771	2772	2773	2774	2775
			347	2776	2777	2778	2779	2780	2781	2782	2783
	87	174	348	2784	2785	2786	2787	2788	2789	2790	2791
			349	2792	2793	2794	2795	2796	2797	2798	2799
		175	350	2800	2801	2802	2803	2804	2805	2806	2807
			351	2808	2809	2810	2811	2812	2813	2814	2815

Weighing point A

%ML	%MD	%MW	%MB	%MX							
				0	1	2	3	4	5	6	7
44	88	176	352	2816	2817	2818	2819	2820	2821	2822	2823
			353	2824	2825	2826	2827	2828	2829	2830	2831
		177	354	2832	2833	2834	2835	2836	2837	2838	2839
			355	2840	2841	2842	2843	2844	2845	2846	2847
	89	178	356	2848	2849	2850	2851	2852	2853	2854	2855
			357	2856	2857	2858	2859	2860	2861	2862	2863
		179	358	2864	2865	2866	2867	2868	2869	2870	2871
			359	2872	2873	2874	2875	2876	2877	2878	2879
45	90	180	360	2880	2881	2882	2883	2884	2885	2886	2887
			361	2888	2889	2890	2891	2892	2893	2894	2895
		181	362	2896	2897	2898	2899	2900	2901	2902	2903
			363	2904	2905	2906	2907	2908	2909	2910	2911
	91	182	364	2912	2913	2914	2915	2916	2917	2918	2919
			365	2920	2921	2922	2923	2924	2925	2926	2927
		183	366	2928	2929	2930	2931	2932	2933	2934	2935
			367	2936	2937	2938	2939	2940	2941	2942	2943
46	92	184	368	2944	2945	2946	2947	2948	2949	2950	2951
			369	2952	2953	2954	2955	2956	2957	2958	2959
		185	370	2960	2961	2962	2963	2964	2965	2966	2967
			371	2968	2969	2970	2971	2972	2973	2974	2975
	93	186	372	2976	2977	2978	2979	2980	2981	2982	2983
			373	2984	2985	2986	2987	2988	2989	2990	2991
		187	374	2992	2993	2994	2995	2996	2997	2998	2999
			375	3000	3001	3002	3003	3004	3005	3006	3007
47	94	188	376	3008	3009	3010	3011	3012	3013	3014	3015
			377	3016	3017	3018	3019	3020	3021	3022	3023
		189	378	3024	3025	3026	3027	3028	3029	3030	3031
			379	3032	3033	3034	3035	3036	3037	3038	3039
	95	190	380	3040	3041	3042	3043	3044	3045	3046	3047
			381	3048	3049	3050	3051	3052	3053	3054	3055
		191	382	3056	3057	3058	3059	3060	3061	3062	3063
			383	3064	3065	3066	3067	3068	3069	3070	3071
48	96	192	384	3072	3073	3074	3075	3076	3077	3078	3079
			385	3080	3081	3082	3083	3084	3085	3086	3087
		193	386	3088	3089	3090	3091	3092	3093	3094	3095
			387	3096	3097	3098	3099	3100	3101	3102	3103
	97	194	388	3104	3105	3106	3107	3108	3109	3110	3111
			389	3112	3113	3114	3115	3116	3117	3118	3119
		195	390	3120	3121	3122	3123	3124	3125	3126	3127
			391	3128	3129	3130	3131	3132	3133	3134	3135

Weighing point A

%ML	%MD	%MW	%MB	%MX							
				0	1	2	3	4	5	6	7
49	98	196	392	3136	3137	3138	3139	3140	3141	3142	3143
			393	3144	3145	3146	3147	3148	3149	3150	3151
		197	394	3152	3153	3154	3155	3156	3157	3158	3159
			395	3160	3161	3162	3163	3164	3165	3166	3167
	99	198	396	3168	3169	3170	3171	3172	3173	3174	3175
			397	3176	3177	3178	3179	3180	3181	3182	3183
		199	398	3184	3185	3186	3187	3188	3189	3190	3191
			399	3192	3193	3194	3195	3196	3197	3198	3199
50	100	200	400	3200	3201	3202	3203	3204	3205	3206	3207
			401	3208	3209	3210	3211	3212	3213	3214	3215
		201	402	3216	3217	3218	3219	3220	3221	3222	3223
			403	3224	3225	3226	3227	3228	3229	3230	3231
	101	202	404	3232	3233	3234	3235	3236	3237	3238	3239
			405	3240	3241	3242	3243	3244	3245	3246	3247
		203	406	3248	3249	3250	3251	3252	3253	3254	3255
			407	3256	3257	3258	3259	3260	3261	3262	3263
51	102	204	408	3264	3265	3266	3267	3268	3269	3270	3271
			409	3272	3273	3274	3275	3276	3277	3278	3279
		205	410	3280	3281	3282	3283	3284	3285	3286	3287
			411	3288	3289	3290	3291	3292	3293	3294	3295
	103	206	412	3296	3297	3298	3299	3300	3301	3302	3303
			413	3304	3305	3306	3307	3308	3309	3310	3311
		207	414	3312	3313	3314	3315	3316	3317	3318	3319
			415	3320	3321	3322	3323	3324	3325	3326	3327
52	104	208	416	3328	3329	3330	3331	3332	3333	3334	3335
			417	3336	3337	3338	3339	3340	3341	3342	3343
		209	418	3344	3345	3346	3347	3348	3349	3350	3351
			419	3352	3353	3354	3355	3356	3357	3358	3359
	105	210	420	3360	3361	3362	3363	3364	3365	3366	3367
			421	3368	3369	3370	3371	3372	3373	3374	3375
		211	422	3376	3377	3378	3379	3380	3381	3382	3383
			423	3384	3385	3386	3387	3388	3389	3390	3391
53	106	212	424	3392	3393	3394	3395	3396	3397	3398	3399
			425	3400	3401	3402	3403	3404	3405	3406	3407
		213	426	3408	3409	3410	3411	3412	3413	3414	3415
			427	3416	3417	3418	3419	3420	3421	3422	3423
	107	214	428	3424	3425	3426	3427	3428	3429	3430	3431
			429	3432	3433	3434	3435	3436	3437	3438	3439
		215	430	3440	3441	3442	3443	3444	3445	3446	3447
			431	3448	3449	3450	3451	3452	3453	3454	3455

Weighing point A

%ML	%MD	%MW	%MB	%MX							
				0	1	2	3	4	5	6	7
54	108	216	432	3456	3457	3458	3459	3460	3461	3462	3463
			433	3464	3465	3466	3467	3468	3469	3470	3471
		217	434	3472	3473	3474	3475	3476	3477	3478	3479
			435	3480	3481	3482	3483	3484	3485	3486	3487
	109	218	436	3488	3489	3490	3491	3492	3493	3494	3495
			437	3496	3497	3498	3499	3500	3501	3502	3503
		219	438	3504	3505	3506	3507	3508	3509	3510	3511
			439	3512	3513	3514	3515	3516	3517	3518	3519
55	110	220	440	3520	3521	3522	3523	3524	3525	3526	3527
			441	3528	3529	3530	3531	3532	3533	3534	3535
		221	442	3536	3537	3538	3539	3540	3541	3542	3543
			443	3544	3545	3546	3547	3548	3549	3550	3551
	111	222	444	3552	3553	3554	3555	3556	3557	3558	3559
			445	3560	3561	3562	3563	3564	3565	3566	3567
		223	446	3568	3569	3570	3571	3572	3573	3574	3575
			447	3576	3577	3578	3579	3580	3581	3582	3583
56	112	224	448	3584	3585	3586	3587	3588	3589	3590	3591
			449	3592	3593	3594	3595	3596	3597	3598	3599
		225	450	3600	3601	3602	3603	3604	3605	3606	3607
			451	3608	3609	3610	3611	3612	3613	3614	3615
	113	226	452	3616	3617	3618	3619	3620	3621	3622	3623
			453	3624	3625	3626	3627	3628	3629	3630	3631
		227	454	3632	3633	3634	3635	3636	3637	3638	3639
			455	3640	3641	3642	3643	3644	3645	3646	3647
57	114	228	456	3648	3649	3650	3651	3652	3653	3654	3655
			457	3656	3657	3658	3659	3660	3661	3662	3663
		229	458	3664	3665	3666	3667	3668	3669	3670	3671
			459	3672	3673	3674	3675	3676	3677	3678	3679
	115	230	460	3680	3681	3682	3683	3684	3685	3686	3687
			461	3688	3689	3690	3691	3692	3693	3694	3695
		231	462	3696	3697	3698	3699	3700	3701	3702	3703
			463	3704	3705	3706	3707	3708	3709	3710	3711
58	116	232	464	3712	3713	3714	3715	3716	3717	3718	3719
			465	3720	3721	3722	3723	3724	3725	3726	3727
		233	466	3728	3729	3730	3731	3732	3733	3734	3735
			467	3736	3737	3738	3739	3740	3741	3742	3743
	117	234	468	3744	3745	3746	3747	3748	3749	3750	3751
			469	3752	3753	3754	3755	3756	3757	3758	3759
		235	470	3760	3761	3762	3763	3764	3765	3766	3767
			471	3768	3769	3770	3771	3772	3773	3774	3775

Weighing point A

%ML	%MD	%MW	%MB	%MX							
				0	1	2	3	4	5	6	7
59	118	236	472	3776	3777	3778	3779	3780	3781	3782	3783
			473	3784	3785	3786	3787	3788	3789	3790	3791
		237	474	3792	3793	3794	3795	3796	3797	3798	3799
			475	3800	3801	3802	3803	3804	3805	3806	3807
	119	238	476	3808	3809	3810	3811	3812	3813	3814	3815
			477	3816	3817	3818	3819	3820	3821	3822	3823
		239	478	3824	3825	3826	3827	3828	3829	3830	3831
			479	3832	3833	3834	3835	3836	3837	3838	3839
60	120	240	480	3840	3841	3842	3843	3844	3845	3846	3847
			481	3848	3849	3850	3851	3852	3853	3854	3855
		241	482	3856	3857	3858	3859	3860	3861	3862	3863
			483	3864	3865	3866	3867	3868	3869	3870	3871
	121	242	484	3872	3873	3874	3875	3876	3877	3878	3879
			485	3880	3881	3882	3883	3884	3885	3886	3887
		243	486	3888	3889	3890	3891	3892	3893	3894	3895
			487	3896	3897	3898	3899	3900	3901	3902	3903
61	122	244	488	3904	3905	3906	3907	3908	3909	3910	3911
			489	3912	3913	3914	3915	3916	3917	3918	3919
		245	490	3920	3921	3922	3923	3924	3925	3926	3927
			491	3928	3929	3930	3931	3932	3933	3934	3935
	123	246	492	3936	3937	3938	3939	3940	3941	3942	3943
			493	3944	3945	3946	3947	3948	3949	3950	3951
		247	494	3952	3953	3954	3955	3956	3957	3958	3959
			495	3960	3961	3962	3963	3964	3965	3966	3967
62	124	248	496	3968	3969	3970	3971	3972	3973	3974	3975
			497	3976	3977	3978	3979	3980	3981	3982	3983
		249	498	3984	3985	3986	3987	3988	3989	3990	3991
			499	3992	3993	3994	3995	3996	3997	3998	3999
	125	250	500	4000	4001	4002	4003	4004	4005	4006	4007
			501	4008	4009	4010	4011	4012	4013	4014	4015
		251	502	4016	4017	4018	4019	4020	4021	4022	4023
			503	4024	4025	4026	4027	4028	4029	4030	4031
63	126	252	504	4032	4033	4034	4035	4036	4037	4038	4039
			505	4040	4041	4042	4043	4044	4045	4046	4047
		253	506	4048	4049	4050	4051	4052	4053	4054	4055
			507	4056	4057	4058	4059	4060	4061	4062	4063
	127	254	508	4064	4065	4066	4067	4068	4069	4070	4071
			509	4072	4073	4074	4075	4076	4077	4078	4079
		255	510	4080	4081	4082	4083	4084	4085	4086	4087
			511	4088	4089	4090	4091	4092	4093	4094	4095

11 Databases

11.1 General notes

The editing of the databases via OPC is divided into 2 classes.

Class 1

Databases with unrestricted access rights (read and write)

ORD: New orders are created and stored here by the user.

REP: The batch reports from the system are saved here by line.

CONT: The containers are created and stored here by the user.

PROD: The products are created and stored here by the user.

MAT: The components are created and stored here by the user.

REC: The processes are created and stored here by the user.

Class 2

Databases that cannot be accessed (hidden)

WRK: Docket for active processes.

TMP: Copy of the last batch report.

SPL: Printer buffer for batch reports.

11.2 Databases with unrestricted access rights

11.2.1 Order (ORD)

The user uses this database to create and store new orders. There is one entry in the database per order.

Structure

```
T_ORD          : STRUCT
  ID           : WSTR20;    (* order identification *)
  RecMat       : WSTR20;    (* ID of the process *)
  RecMat2      : WSTR20;    (* name of the process *)
  Mode         : INT;       (* how to do it *)
  isRec        : BOOL;      (* TRUE is assigned to a process *)
  WP           : INT;       (* WP = 0 is process *)
  Batches      : DINT;      (* number of batches *)
  ActBatch     : DINT;      (* actual batch *)
  Container    : WSTR20;    (* container ident *)
  ProdID       : WSTR20;    (* product id *)
  ProdName     : WSTR20;    (* product name *)
  ActTotal     : WEIGHT;    (* actual order total *)
  Total        : WEIGHT;    (* order total *)
  Setp         : WEIGHT;    (* set point process *)
  Fixtare      : WEIGHT;    (* Fixtare used for B2 component *)
  Batch Max    : WEIGHT;    (* Max for each batch *)
  Expanded     : BOOL;      (* process was already expanded *)
  Active       : BOOL;      (* order is active *)
  Unlimited    : BOOL;      (* unlimited cycles *)
  UseFixtare   : BOOL;      (* use fixtare *)
  ChgBy        : STR20;     (* user has created /
                                  changed this order *)
  ChgAt        : DT;        (* at this date *)  END_STRUCT;
```

Description

Variable	Contents
ID	Order identification. Double identification is not possible.
RecMat	Process identification as saved in the REC database.
RecMat2	Process name (for the reports), as included in the report.
Mode	Index of the batching mode, see Chapter 6.3.3.
isRec	Is assigned to a process.
WP	WP = 0 is process
Batches	Number of batches.
ActBatch	Number of the current batch.
Container	Container identification
ProdID	Product identification as entered for the order.
ProdName	Product name as entered for the order.
ActTotal	Result of the current order.
Total	Result of the total orders.
Setp	Set point for the process.
Preset tare	Preset tare is needed for component "B2".
BatchMax	Max for each batch.
Expanded	Process has already been expanded.
Active	Order is active.
Unlimited	Unlimited cycles.
UseFixtare	Used preset tare.
ChgBy	Identification of the "User", as included in the report.
ChgAt	Date as included in the report.

11.2.2 Report (REP)

The system saves a report for each processed process line in this database. Prerequisite is that this function has been activated in the operating menu [Configuration]- [Common parameters]- [Store report in database].

The system only writes to the database; it does not use the written data.

Normal usage is as follows:

- The system saves one or more records.
- The user reads the saved records.
- The user deletes the read records.

There is therefore a risk that when the function is activated, after a while this database will fill the entire memory if the records are not deleted, see also Chapter 6.8.4.

Structure

```
T_REP          : STRUCT
  Sequence     : DINT;       (* sequence number *)
  Order        : WSTR20;     (* order identification *)
  Body         : BOOL;       (* only for sorting the report *)
  Clean        : BOOL;       (* was from cleaning process *)
  Line         : INT;        (* line number *)
  Done         : BOOL;       (* was done *)
  ProdID       : WSTR20;     (* product id*)
  ProdName     : WSTR20;     (* product name *)
  RecID        : WSTR20;     (* process id *)
  RecName      : WSTR20;     (* process name *)
  MatID        : WSTR20;     (* component id *)
  MatName      : WSTR20;     (* component name *)
  Repl         : WSTR64;     (* result from dialog *)
  Scale        : WSTR20;     (* used scale *)
  WP           : INT;        (* WP index (internal) *)
  Mode         : INT;        (* batch mode index *)
  Batches      : DINT;       (* number of batches *)
  ActBatch     : DINT;       (* number of current batch *)
  Recalc       : BOOL;       (* was recalculated *)
  OrdTotal     : WEIGHT;     (* order total *)
  OrdActual    : WEIGHT;     (* order current *)
  Setp         : WEIGHT;     (* set point *)
  Actual       : WEIGHT;     (* actually dosed material *)
  Cons         : WEIGHT;     (* consumption of this line *)
  PosTol       : REAL;       (* abs. upper tolerance *)
  NegTol       : REAL;       (* abs. lower tolerance *)
  Unit         : WSTR8;      (* unit if not a weight *)
  User1        : STR20;      (* user who entered the order *)
  User2        : STR20;      (* name of weighing user *)
  Status       : INT;        (* dosing result status *)
  Begin        : DT;         (* dosing started at *)
  End          : DT;         (* dosing ready at *)
  ContID       : WSTR20;     (* container ident *)
  ContSetp     : WEIGHT;     (* set point container *)
  ContFT       : WEIGHT;     (* fixtare container *)
  Copy         : BOOL;       (* TRUE if a copy is requested *)
  CRC          : UINT;       (* CRC from this record *)
END_STRUCT;
```

Variable	Contents
Sequence	Sequence number under which this order was edited (1...999999.)
Order	Identification of the order.
Body	Used internally for the sorting of the database.
Clean	Line from the tidying up process.
Line	Line number in the process. The main part and tidy up part each start counting from 1. Line 0 contains summary data.
Done	This line has been edited (FALSE: e.g. left out due to "Cancel").
ProdID	Product identification as entered for the order.

Variable	Contents
ProdName	Product name as entered for the order.
RecID	Process identification.
RecName	Process name.
MatID	Component identification of this line.
MatName	Component name of this line.
Repl	Result of the component verification and dialog. Syntax:* [ID=<ident>][;][<prompt=<value>[<dimension>]]
Scale	Name of the scale from the configuration, if necessary with appended WP (e.g.: IBC-A).
WP	Index of the weighing point (A=1)
Mode	Index of the batching mode, see Chapter .6.3.3
Recalc	This line has been recalculated.
Batches	Number of batches.
ActBatch	Number of the current batch.
Setp	Set point for this line "kg" for weights, "s" for timer. For analog inputs and outputs in accordance with the material definition.
Actual	Result of the batching in relation to the set point. **
Cons	Actually moved component (important in the case of components which do not re-tare).
PosTol	Relative upper tolerance limit (in %/100) for batching.
NegTol	Relative lower tolerance limit (in %/100) for batching.
Unit	Unit of the set point and actual values (for weights "kg", "lb" or "oz" or the material definition.)
User1	Name of the user who issued/changed the order.
User2	Name of the user who produced the line.
Status	Status of batching (0: no error, 1: outside the tolerance limits, 2: interrupted)
Begin	Start time for the production of this line (line 0 of the order).
End	End (time) of production
ContID	Identification of the container.
ContSetp	Set point of the container.
ContFT	Preset tare of the container.
Copy	Internal use
CRC	CRC for checking the integrity of the dataset.
*	"ID=" only if an incorrect ID has been entered; <prompt>, <value> and <dimension> originate from the component definition. ";" separates ID and dialog part if required.

Variable	Contents
**	The timer components are rounded to 0.1 s. Analog components are released with full resolution and scaled. Weights in kg/lb/oz.

11.2.3 Container (CONT)

The user uses this database to create and store new container data. This can be assigned to an order and printed.

Structure

```
T_CONT      : STRUCT
  ID        : WSTR20;  (* Container ident *)
  Default   : BOOL;    (* default container *)
  Setp      : WEIGHT;  (* set point container *)
  Fixtare   : WEIGHT;  (* fixtare container *)
  ChgBy     : STR20;   (* user has created /
                        changed this order *)
  ChgAt     : DT;      (* at this date *)
END_STRUCT;
```

Description

Variable	Contents
ID	Container identification. Double identification is not possible.
Default	If "Default" was activated when creating the container, this container is displayed first in the selection.
Setp	Capacity of the container.
Preset tare	Container with preset tare.
ChgBy	Identification of the "User", as included in the report.
ChgAt	Date as included in the report.

11.2.4 Product (PROD)

The user uses this database to create and store new product data. This can be assigned to an order and printed.

Structure

```
T_PROD     : STRUCT
  ID       : WSTR20;  (* product ident *)
  Name     : WSTR20;  (* product name *)
  Default  : BOOL;    (* default product *)
  ChgBy    : STR20;   (* user has created /
                        changed this order *)
  ChgAt    : DT;      (* at this date *)
END_STRUCT;
```

Description

Variable	Contents
ID	Product identification. Double identification is not possible.
Name	Product name (for the reports), as included in the report.
Default	If "Default" was activated when creating the product, this product is displayed first in the selection.
ChgBy	Identification of the "User", as included in the report.
ChgAt	Date as included in the report.

11.2.5 Component (MAT)

The user uses this database to create and store new components. Each component occupies an entry in the database.

Structure

```
T_MAT        : STRUCT
  ID         : WSTR20;   (* id of component *)
  Name       : WSTR20;   (* name of component *)
  WP         : INT;      (* assigned WP, 0 = selected by
                          the user *)
  BMode      : INT;      (* code of batch mode *)
  Cons       : WEIGHT;   (* consumption report *)
  Auto       : BOOL;     (* usage in automatic processes *)
  Clean      : BOOL;     (* usage in cleaning processes *)
  Choice     : BOOL;     (* usage in real manual processes *)
  Sequent    : BOOL;     (* usage sequential processes *)
  Order      : BOOL;     (* usage to create an order *)
  ConsRep    : BOOL;     (* has consumption report *)
  dsp1       : WSTR20;   (* dialog prompt message *)
  ChgBy      : STR20;    (* user has changed this line *)
  dsp2       : WSTR8;    (* dimension for dialog *)
  Unit       : WSTR8;    (* unit if has set point *)
  ChgAt      : DT;       (* at this date *)
  BatchMax   : WEIGHT;   (* max for each batch *)
  OVS        : WEIGHT;   (* overshoot *)
  Dens       : REAL;     (* density in kg/l, not yet used *)
  PTol       : REAL;     (* upper tolerance in % *)
  NTol       : REAL;     (* lower tolerance in % *)
  Calm       : REAL;     (* calming time *)
  Flow       : REAL;     (* min flow in kg/min *)
  AMin       : WEIGHT;   (* set point for 0/4 mA *)
  AMax       : WEIGHT;   (* set point for 20 mA *)
  PresetF    : WEIGHT;   (* preset for fine *)
  PresetM    : WEIGHT;   (* preset for middle *)
  ValueG     : REAL;     (* analog value for gross in % *)
  ValueM     : REAL;     (* analog value for middle in % *)
  ValueF     : REAL;     (* analog value for fine in % *)
  RstMode    : UINT;     (* restart mode for automatic
                          batching *)
  OutSig     : INT;      (* out going sign. gross, gross/fine,
                          gross/middle/fine *)
```

```
  OutMode    : INT;      (* outp. 0: digit., 1: anal.,
                          2: digit. + anal. *)
  SPMAnaG    : INT;      (* SPM for analog gross *)
  SPMAnaM    : INT;      (* SPM for analog middle *)
  SPMAnaF    : INT;      (* SPM for analog fine *)
  SPMin      : INT;      (* enable bit *)
  SPMout     : INT;      (* component select *)
  SPMTare    : INT;      (* tare bit *)
  Dialog     : INT;      (* mode of dialog *)
  Decimal    : USINT;    (* number of decimals for
                          visualization *)
  RangeG     : BOOL;     (* Range gross, false=0...20 mA,
                          true=4...20 mA *)
  RangeM     : BOOL;     (* Range middle, false=0...20 mA,
                          true=4...20 mA *)
  RangeF     : BOOL;     (* Range fine, false=0.20 mA,
                          true=4...20 mA *)
  Report     : BOOL;     (* report to database *)
  Ticket     : BOOL;     (* print a ticket *)
  DlgOnly    : BOOL;     (* material has a dialog only *)
  ChkID      : BOOL;     (* verify material ID *)
END_STRUCT;
```

Description

Variable	Contents
ID	Component identification Double identification is not possible.
Name	Component name.
WP	Assigned weighing point, 0 = selected by the user.
BMode	Index of the batching mode, see Chapter 6.3.3.
WP	WP = 0 is process Choice >0 is component
BMode	Batching mode
Cons	Component actually moved (important in the case of components which do not re-tare).
Auto	Internal
Clean	Internal
Choice	Internal
Sequent	Internal
Order	Internal
ConsRep	Actually moved component, as included in the report.
dsp1	Dialog window
ChgBy	Identification for the "User" who last edited the table.
dsp2	Dialog window
Unit	Unit of the set point

Variable	Contents
ChgAt	Date as included in the report.
BatchMax	Max for each batch.
OVS	Overload/overshoot
Dens	Reserved
PTol	Relative upper tolerance limit (in %/100) for batching.
NTol	Relative lower tolerance limit (in %/100) for batching.
Flow	Min. material flow in kg/min
AMin	Set point for 0/4 mA
AMax	Set point for 20 mA
Variable	Contents
PresetF	Preset for "Fine".
PresetM	Preset for "Middle".
ValueG	Analog value for "Coarse" in %.
ValueM	Analog value for "Middle" in %.
ValueF	Analog value for "Fine" in %.
RstMode	Restart mode for automatic batching.
OutSig	Output signals for "Coarse", "Coarse/Fine", "Coarse/Middle/Fine"
Out Mode	Output 0: digital, output 1: analog, output 2: digital + analog
SPMAnaG	SPM address for analog "Coarse"
SPMAnaM	SPM address for analog "Middle"
SPMAnaF	SPM address for analog "Fine"
SPMin	Enabled by bit
SPMout	Selected component
SPMTare	Tare bit
Dialog	Dialog "Yes/No"
Decimal	Decimals of the set point. Is only used in the A modes.
RangeG	Range for "Coarse": FALSE = 0...20 mA, TRUE = 4...20 mA
RangeM	Range for "Middle": FALSE = 0...20 mA, TRUE = 4...20 mA
RangeF	Range for "Fine": FALSE = 0...20 mA, TRUE = 4...20 mA
Report	Save report in the database.
Ticket	Print ticket.
DlgOnly	Component only as dialog.
ChkID	Check component identification.

11.2.6 Process (REC)

The user uses this database to create and store new processes. The database contains one entry per line.

Structure

```
T_REC       : STRUCT
  ID        : WSTR20;  (* id of the recipe *)
  Clean     : BOOL;    (* not used *)
  Line      : INT;     (* line number *)
  Section   : INT;     (* not used *)
  fixTol    : BOOL;    (* not used *)
  Temp      : BOOL;    (* not used *)
  Name      : WSTR20;  (* name of the component *)
  Mat       : WSTR20;  (* name of the process *)
  Batch Max : WEIGHT;  (* not used *)
  Setp      : WEIGHT;  (* set point of this line *)
  Total     : WEIGHT;  (* last set point of the process *)
  Prod      : WEIGHT;  (* not used *)
  PTol      : REAL;    (* upper tolerance *)
  NTol      : REAL;    (* lower tolerance *)
  RMode     : INT;     (* 1:Production, 2:Filling,
                        3:Discharging *)
  SPMin     : INT;     (* not used *)
  SPMout    : INT;     (* not used *)
  CalcTotal : BOOL;    (* use line to calculate total
                        report *)
  Relative  : BOOL;    (* set point of line must be
                        recalculated *)
  Recalc    : BOOL;    (* not used *)
  ChgBy     : STR20;   (* user has changed this line *)
  ChgAt     : DT;      (* at this date *)
END_STRUCT;
```

Description

Variable	Contents
ID	Process identification. Double identification is not possible.
Line	Line number
Name	Process name
Mat	Component identification. Double identification is not possible.
Setp	Set point for this line.
Total	Last set point of the process.
PTol	Relative upper tolerance limit (in %/100) for batching.
NTol	Relative lower tolerance limit (in %/100) for batching.
RMode	Restart mode 1: Production, restart mode 2: Filling, restart mode 3: Discharge
CalcTotal	Controls whether actual value goes into the total.
Relative	Set point of the line must not be recalculated.

Variable	Contents
ChgBy	Identification of the "User", as included in the report.
ChgAt	Date as included in the report.

11.3 Databases without access rights

11.3.1 Docket (WRK)

The docket database (WRK) cannot be viewed from the terminal.

12 Printouts

12.1 General notes

The following printouts are available in PR 5500 using the IBC application:

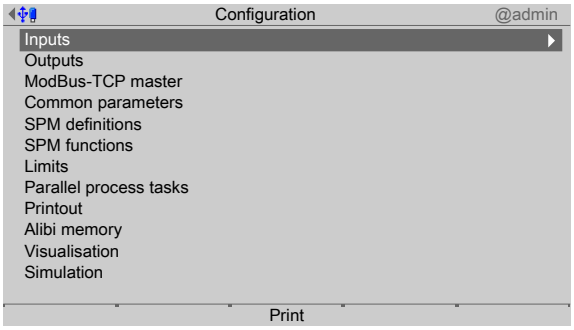
- Device configuration data, see PR 5500 operating instructions
- IBC configuration data, see Chapter 12.2
- Tickets, see Chapter 12.3
- Batch reports, see Chapter 12.4.

12.2 IBC-Configuration data

The option is available to print out the IBCconfiguration data. The configuration data is output to the printer configured in the [System setup] - [Connected devices] system menu under "General Devices" (see PR 5500 operating instructions).

The print width is limited to 39 characters per line. This means a ticket printer can also be used. When printing the first line, the program checks whether printing is possible. In the event of a printer failure during printing, a time-out of approximately 3 s is active for each print line.

The printout cannot be changed using "NiceLabelExpress." The printout reflects the current data status.



▶ Press the [Print] soft key or the button to print out the configuration.

▷ An example printout is shown on the next pages.

12.2.1 Example printout

```
Configuration              IBC 00.09.00
 Changed by                       admin
 Changed at         12/10/2013 13:55:07
---------------------------------------

Inputs
 Option 1                     No inputs
 Option 2                     No inputs
 Option 3                 Digital input

Output
 Option 1                     No output
 Option 2                     No output
 Option 3                Digital output
  Output 1                          1415
  Output 2                             0
  Output 3                             0
  Output 4                             0

ModBus-TCP Master
ModBus-TCP Module             Phoenix 8
  IP address                172.24.22.7
  Digital input         SPM address %MX
   1                               1345
   2                               1347
   3                                  0
   4                                  0
   5                                  0
   6                                  0
   7                                  0
   8                                  0
  Digital output        SPM address %MX
   1                               1152
   2                               1280
   3                               1153
   4                               1281
   5...52                             0
```

```
SPM definitions
 SPM address                   SPM name
 MX 1415               WPA: Output LED1
 MB 100                         Hundred
 MX 1344                 Valve: Filling
 MX 1352               Valve: Discharge
 MX 1345               Enable for valve
 MX 1152                          V12.34
 MX 1280                          V56.78
 MX 1347               Enable discharge
 MX 1153                          V13.12
 MX 1281                          V23.21
 MX 1355     Discharge dosing container
 MX 1357           Dischar. dosing cont
SPM functions
```

```
Limits
 WP-A Limit 1 On                  0.0 g
 WP-A Limit 1 Off                 0.0 g
 WP-A Limit 2 On                  0.0 g
 WP-A Limit 2 Off                 0.0 g
 WP-A Limit 3 On                  0.0 g
 WP-A Limit 3 Off                 0.0 g
```

```
Parallel tasks
  Parallel process task
Process task 1
  Parallel process task        disabled
  Start by              SPM address %MX
  Start SPM address %MX               0
  Start SPM name
  Softkey text
  Output SPM Adr. %MX                 0
  Output SPM name
  High pulse duration               0 s
  Low pulse duration                0 s
  Parallel process task
Process task 2
  Parallel process task        disabled
  Start by              SPM address %MX
  Start SPM address  %MX              0
  Start SPM name
  Softkey text
  Output SPM Adr. %MX                 0
  Output SPM name
  High pulse duration               0 s
  Low pulse duration                0 s
  Parallel process task
Process task 3
  Parallel process task        disabled
  Start by              SPM address %MX
  Start SPM address %MX               0
  Start SPM name
  Softkey text
  Output SPM Adr. %MX                 0
  Output SPM name
  High pulse duration               0 s
  Low pulse duration                0 s
```

```
Common parameters
 Parameter
  Scale ID                          IBC
  Use refilling                      No
  Use tidy up                        No
  Use order                         Yes
  Use batches                       Yes
  Next batch dialog                 Yes
  Use container database            Yes
  Use product database              Yes
  Use set point                     Yes
  Check process                      On
  Display production result         Yes
  Save in database                  Yes
  Input mode                    Numeric
  Batching displ.From zero to set point
```

```
Components
  Component ID                    Type
  ------------------------------------
  1000 rpm               Analog output
  B1-001                  Net filling
  B1-002                   Net filling
  B1-003                   Net filling
  B1-004                   Net filling
  B1-005                   Net filling
  B1-006                   Net filling
  B1-007                   Net filling
  B1-008                   Net filling
  B3-001                 Gross filling
  B8-001                     Discharge
  B8-002                     Discharge
  B8-003                     Discharge
  D1-001                Manual filling
  D1-002                Manual filling
  Dialog 1                      Dialog
  Dialog 2                      Dialog
  Discharge 20 kg            Discharge
  Discharge 20 kg            Discharge
  Filling level cm              Dialog
  Filling level cm              Dialog
  Manual filling        Manual filling
  Manual filling        Manual filling
  Temp-100                   Wait for
analog input value
```

```
Processes
  Process ID                          Type
  ------------------------------------
  ALL                            Production
  Tidy up with B1                   Tidy up
  Manual filling                 Production
  Manual filling                 Production
  Net refilling B2                Refilling
  Pro 002                        Production
  Pro-001                        Production
  Pro-003                        Production
  Pro-004                        Production
  Pro-005                        Production
  Pro-006                        Production
```

```
Printout
 Print template              Label ticket
  Ticket printer                Printer 1
  Number of printouts                   1
  Use NLE                              No
  Line 1                       Blank line
  Line 2                       Order name
  Line 3                       Product ID
  Line 4                     Process name
  Line 5                 Process line no.
  Line 6                     Component ID
  Line 7                   Component name
  Line 8                   Line set point
  Line 9                 Actual date+time
  Line 10              Actual line value
  Line 11                      Tolerance
  Line 12                    Batch status
  Line 13                        Scale ID
  Line 14         Order from the 1st user
  Line 15                  Last user prod
  Line 16                 Start date+time
  Line 17                   End date+time
  Line 18                      Blank line
 Print template     Batch report header
  Line printer                  Printer 1
  Number of printouts                   0
  Use NLE                              No
  Line 1                       Blank line
  Line 2                       Order name
  Line 3                            Batch
  Line 4                       Product ID
  Line 5                   Line set point
  Line 6                     Batch status
  Line 7                         Scale ID
  Line 8          Order from the 1st user
  Line 9                   Last user prod
  Line 10                 Start date+time
  Line 11                   End date+time
  Line 12                      Blank line
```

```
 Print template    Batch report line
  Line printer               Printer 1
  Number of printouts                0
  Use NLE                           No
  Line 1              Process line no.
  Line 2                  Component ID
  Line 3                --------------
  Line 4                Line set point
  Line 5             Actual Line value
  Line 6                  Batch status
 Print template         Report trailer
  Line printer               Printer 1
  Number of printouts                0
  Use NLE                           No
  Line 1                  Product name
 Print template     Short batch report
  Line printer               Printer 1
 Number of printouts                 0
  Use NLE                           No
  Line 1             Short report line
 Print template           Order ticket
  Ticket printer             Printer 1
  Number of printouts                0
  Use NLE                           No
  Line 1                    Blank line
  Line  2                   Order name
  Line 3                    Product ID
  Line 4                         Batch
  Line 5                   Order total
  Line 6  Act. order total/Order total
  Line 7                  Batch status
  Line  8                     Scale ID
  Line 9       Order from the 1st user
  Line 10               Last user prod
  Line 11              Start date+time
  Line 12                End date+time
  Line 13                   Blank line
```

```
Alibi memory
  Log in Alibi memory              Yes
  Delimiter                          ;
  Line 1                    Process ID
  Line 2              Process line no.
  Line  3               Line set point
  Line  4          Current consumption
```

```
Visualization
  Line 1            WP status comp. ID
  Line 2                    Order name
  Line 3                         Batch
  Line 4          Set point act. batch
  Line 5            Process difference
```

12.3 Tickets

12.3.1 General notes

The configuration for tickets is performed in the [Configuration] - [Printout] - [Print template] operating menu, see Chapter 5.4.10.

To start printing, the application must be started.

The following ticket printout options are available:

- Tickets without NLE (NiceLabelExpress)
- Tickets with NLE (NiceLabelExpress)
- Multiple printout using the button, provided no new ticket has been produced.

The following items are printed by line if no NLE ticket has been defined:

Item	Ticket		Note
	Lines	Order	
Blank	✗	✗	
Dotted line	✗	✗	
Form feed	✗	✗	
Order name	✗	✗	
Product ID	✗	✗	
Product name	✗	✗	Only if configured
Process ID	✗	✗	
Process name	✗	✗	Only if configured
Setpoint	✗	✗	
Actual line value *	✗	✗	
Dosing status	✗	✗	
Scales ID	✗	✗	
Order from 1st user	✗	✗	First operator
Last user production	✗	✗	Second operator
Start date & time	✗	✗	
End date & time	✗	✗	
Current date & time	✗	✗	
Container ID	✗	✗	
Order sum		✗	
Sequence number	✗	✗	
Batch		✗	

Item	Ticket		Note
	Lines	Order	
Container set point		✗	
Container preset tare		✗	

* The timer components are rounded to 0.1 s.
Analog components are released with full resolution and scaled; weights according to the scale.

12.3.2 Label ticket

This ticket is automatically printed after each batch (if configured in the operating menu [Configuration]- [Printout]).

The ticket can also be printed in the operating menu under [Configuration]- [Print tickets and reports]- [Print last label ticket].

The ticket is printed with 39 characters per line.

The items listed in the table above can be included in the ticket by means of the configuration. The ticket can be printed multiple times according to the configuration.

Example without NLE (NiceLabelExpress)

```
Order                      20131102002
Product ID                   Flour 002
Process name                    Manual
Line                                 0
Component ID
Component name
Set point                       3000 g
Print time                    15:15:41
Actual                          0.0 g
+ Tolerance - Tolerance     0 %   0 %
Batching status   Ready Process Total
Weighing point                     IBC
Ordered by                       admin
Weighed by                       admin
Start time         11/04/201 15:13:39
End time           11/04/201 15:14:11
```

12.3.3 Order ticket

The ticket is printed automatically at the end of all batches of an order/process (if configured in the operating menu [Configuration]- [Printout]).

The ticket can also be printed in the operating menu under [Configuration]- [Print tickets and reports]- [Print last label ticket].

The ticket is printed with 39 characters per line.

The items listed in the table above can be included in the ticket by means of the configuration. The ticket can be printed multiple times according to the configuration.

Example without NLE (NiceLabelExpress)

```
Order                      20131102002
Product ID                   Flour 002
Batch                            1 / 1
Total order                  20000.0 g
Current order                    0.0 g
Batch status      Ready Process Total
Weighing point                     IBC
Ordered by                       admin
Weighed by                       admin
Start time         11/04/201 15:13:39
End time           11/04/201 15:14:11
```

12.4 Batch report

12.4.1 General notes

To start printing, the application must be started.

12.4.2 Short report

The short batch report is a one-line report which, in addition to the date/time and weight, records the name of the order and process as well as the status.

The report is printed automatically at the end of the order (if configured with "1" in the operating menu [Configuration] - [Printout] - [Number of printouts]).

The report is printed with 80 characters per line.

This one-line report cannot be configured with NLE (NiceLabelExpress).

Example:

```
11/04/201 15:20:18  20131102003   Manual filling  3000.0 g T
```

Statuses

Code after the weight	Description
O	Process total is outside of the tolerance.
A	Batching was canceled.
R	Line set point after recalculation
T	Process total

12.4.3 Long report

The report is printed automatically at the end of the process (if configured with "1" in the operating menu [Configuration]- [Printout]- [Number of printouts]).

The data are taken from the docket (working database).

The long report can also be printed in the operating menu [Print tickets and reports]- [Print last batch report].

If the number of columns in a line is restricted in the configuration, a printout with 39 characters per line is possible.

Otherwise, the report will be printed with 80 characters per line.

Long reports can be configured with NLE (NiceLabelExpress), see Chapter 12.5.

In addition to the header data, for certain process lines, a line will be printed in the report for specific components. The components for which a report is issued are detailed in Chapter 6.3.3.

The configuration for the long batch report is performed in the operating menu [Configuration]- [Print layout]- [Print template] (see also Chapter 5.4.10).

The following items are printed by line if no NLE ticket has been defined:

Item	Headers	Long batch report (Columns in a) Line	Trailers	Note
Blank line	✗		✗	
Dotted line	✗		✗	
Form feed	✗		✗	
Order name	✗		✗	
Product ID	✗		✗	
Product name	✗		✗	Only if configured
Process ID	✗		✗	
Process name	✗		✗	Only if configured
Process line number		✗		
Component ID		✗		
Component name		✗		Only if configured
Set point	✗	✗	✗	
Batch status	✗	✗	✗	Character in recipe line: "#" = tolerance "*" = canceled; "-" = skipped
- Tolerance		✗		
+ Tolerance		✗		
Actual consumption		✗		Material actually transported
Reply from dialog		✗		as 2nd line: Dialog and material identification (incorrect)
Scale ID	✗		✗	
Order from the 1st user	✗		✗	
Last user production	✗		✗	
Start date + time	✗		✗	
End date + time	✗		✗	

Item	Headers	Long batch report (Columns in a) Line	Trailers	Note
Actual date + time	✗		✗	
Order total	✗			
Actual order	✗			
Sequence number			✗	
Batch	✗			

Example without NLE (NiceLabelExpress)

```
Order                     20131021-004
Batch                            1 / 1
Product ID                   Sugar 001
Set point                     3000.0 g
Scale ID                           IBC
Start time          11/04/201 13:41:59
End time            11/04/201 13:42:42

L  Component ID    Set point    Actual    Consumption   Status
-------------------------------------------------------------
1  Manual filling   3000.0 g    3000.0 g  3000.0 g      T

Ordered by                       admin
Weighed by                       admin
 11/04/201 13:42:42 20131021-004   Manual filling  3000.0 g  T
```

Statuses

Code after the weight	Description
1	Process total is outside of the tolerance.
2	Batching was canceled.
R	Line set point after recalculation
T	Process total

12.5 Tickets and batch reports with NLE (NiceLabelExpress)

12.5.1 General notes

To create a user-defined log, the "NiceLabelExpress" program is required.

All variable contents (e.g., weights) and invariable texts (e.g., "Sequence number") for these logs are transmitted to the log using variables. In many cases this enables the user to create language adjustments for NLE with "TranslateIt".

In this case, "NiceLabelExpress" does not need to be called up. A fixed structure of variables from the application is provided for "NiceLabelExpress."

In the case of tickets, all variables contain the data of the most recently edited line or order.

In batch reports, "Line" is printed as many times as there are lines that need to be printed in the report. Control instructions do not have any lines in the batch report. The relevant data applicable for the lines are entered into the variables line, material, set point, actual, etc.

By default, no printouts are printed using "NiceLabelExpress" (= no NLE files integrated). If customer-designed NLE files are integrated, printing will take place via NLE with this layout. All data required for a printout will be made available for NLE.

Note:

An NLE layout is not included with the equipment supplied.

The names of the NLE files are:

- For label tickets: "TLine.lbl"
- For order ticket: "TOrder.lbl "
- For header of the batch report: "RHeader.lbl"
- For a line of the batch report: "RLine.lbl"
- For footer of the batch report "RTrailer.lbl"

The data in the following table is available for all tickets and reports with "NiceLabelExpress."

Data format

STR20/ WSTR20	=	Max. 20 alphanumeric characters. 9/18/30 are also allowed.
DINT	=	Double integer, pure numeric value
WEIGHT	=	Weight value with plus/minus sign and unit
Date	=	Current date and time

12.5.2 Table of available data

Key Columns 1...5:	**2 order ticket,**	**4 batch report - footer,**
1 label ticket,	**3 batch report - header,**	**5 batch report - (columns in a) line**

Variable for NLE	**Formatdata**	**Description**	**1**	**2**	**3**	**4**	**5**
		Parameter content					
Order ID	WSTR20	Order identification	✗	✗	✗	✗	
ProductID	WSTR20	Product identification	✗	✗	✗	✗	
Prod.Name	WSTR20	Product name	✗	✗	✗	✗	
Sequence	DINT	Internal number	✗	✗	✗	✗	
ProcessID	WSTR20	Process identification	✗	✗	✗	✗	
Proc.Name	WSTR20	Process name	✗	✗	✗	✗	
Proc.line no.	INT	Process line number					✗

Key Columns 1...5: **1 label ticket,**	**2 order ticket,** **3 batch report - header,**	**4 batch report - footer,** **5 batch report - (columns in a) line**					
Variable for NLE	**Formatdata**	**Description**	**1**	**2**	**3**	**4**	**5**
ComponentID	WSTR20	Component identification					✗
Comp.Name	WSTR20	Component name					
Set point	WSTR20	Set point, related to the line or order, depending on the printout	✗	✗	✗	✗	✗
Actual	WSTR20	Batch result (net) depending on the order line	✗	✗	✗	✗	✗
Cons	WSTR20	Material consumption (net)					✗
PosTol	REAL	relative upper tolerance in %					✗
NegTol	REAL	relative lower tolerance in %					✗
Status	WSTR20	Status (tolerance, cancel, recalculated)	✗	✗	✗	✗	
SStatus	WSTR8	Status (short: "-", "*" or "#")					✗
Scale	WSTR20	Scale name	✗	✗	✗	✗	
User1	WSTR20	Created the order	✗	✗	✗	✗	
User2	WSTR20	Last user to carry out filling	✗	✗	✗	✗	
NowDate	WSTR20	Current date	✗	✗	✗	✗	
NowTime	WSTR20	Current time	✗	✗	✗	✗	
BegDate	WSTR20	Beginning date	✗	✗	✗	✗	
BegTime	WSTR20	Start time	✗	✗	✗	✗	
EndDate	WSTR20	End date	✗	✗	✗	✗	
EndTime	WSTR20	End time	✗	✗	✗	✗	
ContID	WSTR20	Container identification		✗			
ContSp	WSTR20	Container set point		✗			
ContFT	WSTR20	Container preset tare		✗			

Key Columns 1...5: **1 label ticket,**	**2 order ticket,** **3 batch report - header,**	**4 batch report - footer,** **5 batch report - (columns in a) line**					
Variable for NLE	**Formatdata**	**Description**	**1**	**2**	**3**	**4**	**5**
		Parameter name					
TOrder	WSTR20	Fixed text	✗	✗	✗	✗	
TProductID	WSTR20	Fixed text	✗	✗	✗	✗	
TProdName	WSTR20	Fixed text	✗	✗	✗	✗	
TSeq	WSTR20	Fixed text	✗	✗	✗	✗	
TProcID	WSTR20	Fixed text	✗	✗	✗	✗	

Key Columns 1...5: **1 label ticket,**	**2 order ticket,** **3 batch report - header,**	**4 batch report - footer,** **5 batch report - (columns in a) line**					
Variable for NLE	**Formatdata**	**Description**	**1**	**2**	**3**	**4**	**5**
TProcNam	WSTR20	Fixed text	✗	✗	✗	✗	
TLine	WSTR20	Fixed text					
TCompID	WSTR20	Fixed text					
TCompNam	WSTR20	Fixed text					
TMsg	STR20	Dialog answer					
TSetp	WSTR20	Fixed text	✗	✗	✗	✗	
TActual	WSTR20	Fixed text	✗	✗	✗	✗	
TCons	WSTR20	Fixed text					
TRecalc	WSTR20	Fixed text	✗	✗	✗	✗	
TPTol	WSTR20	Fixed text	✗				
TNTol	WSTR20	Fixed text	✗				
TStatus	WSTR20	Fixed text	✗	✗	✗	✗	
TScale	WSTR20	Configurable text	✗	✗	✗	✗	
TUser1	WSTR20	Fixed text	✗	✗	✗	✗	
TUser2	WSTR20	Fixed text	✗	✗	✗	✗	
TNow	WSTR20	Fixed text	✗	✗	✗	✗	
TBegin	WSTR20	Fixed text	✗	✗	✗	✗	
TEnd	WSTR20	Fixed text	✗	✗	✗	✗	
TContID	WSTR20	Fixed text		✗			
TContSp	WSTR20	Fixed text		✗			
TContFT	WSTR20	Fixed text		✗			

13 Glossary

Term	Explanation
Order	An order consists of a process with one or more batches (batch quantity), a batch set point and an order total.
Order name	Name of the order.
Order total	The order total is the value which was assigned or calculated at the start for the entire order. It is the total of all batch set points.
Order total, current	Quantity of the production volume for this order that has been completed so far.
Containers	Components/products are filled/discharged into containers, sacks etc.
Container ID	Container identification
Container set point	Defined capacity of the container
Container, preset tare	Weight of the empty container
Batch	A batch consists of a defined process and a batch set point.
Batch, current	Number of the batch that is currently underway or pending.
Batch quantity	Amount for the batch at the start of the order
Batch set point	Set point of a batch
Difference	= (process line set point) - (current process line set point)
Component	A component consists of the identification, component type and dependent component parameters. The following components are available: - Material components (substances to be weighed) - Control components (control the process)
Component ID	Component identification
Component name	Name of the component
Component parameters	Preset point, tolerance etc.
Component type	Batching mode: Net filling (B1), timer (D3), etc.
Product	Current value, depending on use as: - Line actual value - Process actual value - Order actual value
Product ID	Product identification
Product name	Name of the product
Process	A process (recipe) consists of a sequence of process steps.
Process ID	Process identification
Process name	Name of the process

Term	Explanation
Process step	A process step consists of a component with process step parameters according to the component type: Line set point, process total mode, process line set point scaling mode
Process total	The total of all line set points, the totalizing market of which = 1.
Process line set point	Line set point following recalculation (line set point scaling mode is activated) in the ongoing process.
Process line value, current	Current value of the process line
Scaling factor	Factor from the batch set point/process total
Line set point	Set point as it was written in a process line. This line set point, as it is in the pure process, may deviate due to recalculation during production and is then referred to as the process line set point.

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