Operation manual

Control box DryRapid BD103

Code No. 99-97-4441 GB

Edition: 10/18

1 Basic instructions

NOTICE!

Please take care of this manual and always keep it close to the system for quick reference. All persons working with this system, assembling, cleaning and servicing it must be familiar with the contents of these instructions.

Observe the comprised safety instructions!

If this manual is damaged or lost, request a new copy from **Big Dutchman**.

1.1 Basics

The system may only be assembled, used, maintained and repaired

- in accordance with its designated use;
- in an excellent state from the safety and technical point of view;
- by persons who are familiar with the safety regulations.

Should specific problems occur which are not described in detail in this manual, we recommend you contact us for your own safety.

The **Big Dutchman** system has been built with state-of-the-art technology and fulfils the recognized technical safety requirements. It is safe to operate. However, danger to the life and limb of third parties or impairments to the system or other property can occur if it is used in an incorrect manner.

1.2 Explanation of the symbols

You will come across the following symbols when reading this **manual** .

⚠ WARNING!

This symbol indicates risks possibly leading to personal injury resulting in death or to severe injuries.

⚠ CAUTION!

This symbol indicates risks or insecure procedures possibly leading to injuries or material damage.

NOTICE!

This symbol indicates notes leading to an effective, economic and environmentally-conscious handling of the system.

1.3 Scope of delivery

Check the product for completeness and intactness after removing the packaging.

Contact the supplier immediately if parts are missing or damaged.

⚠ CAUTION!

Never install damaged or incomplete devices.

1.4 Obligations

Closely adhere to the instructions in this manual. A basic condition for safe operation and trouble-free handling of this system is the knowledge of the basic safety instructions and regulations.

This user and assembly manual, particularly the safety instructions, must be observed by everyone working with this system. Moreover, the regulations and instructions for the prevention of accidents valid at the respective place of use must be observed.

The manufacturer is not liable for any damage resulting from modifications to the system.

1.5 Warranty and liability

Warranty and liability claims regarding personal injury or property damage are excluded if they result from one or several of the following causes:

- non-designated use of the system;
- inappropriate assembly and operation of the system;
- operation of the system with defective safety equipment or not duly fixed or not functioning safety and protective devices;
- non-compliance with the instructions in this manual regarding transport, storage, assembly, maintenance, operation and upgrading of the system;
- unauthorized modifications to the system;
- improper repairs;
- disasters caused by external factors or force majeure.

1.6 Waste disposal

After completing the assembly or repair of this system, dispose of the packaging material and remains which cannot be used further according to the legal provisions for recycling. The same applies to parts of the system after putting it out of service.

1.7 Copyright

For further information please contact:

Big Dutchman International GmbH, P.O. Box 1163, 49360 Vechta, Germany
Phone +49 (0)4447 801 0, Telex 25510 big d, Fax +49 (0) 4447 801 237

Email: big@bigdutchman.de, internet: www.bigdutchman.de

2 Safety instructions

This assembly and operation manual, particularly the safety information, must be observed by all persons working with this system. Moreover, the regulations and instructions for the prevention of accidents valid at the respective place of use must be observed.

NOTICE!

Warning

Never repair or bypass fuses!

Damaged fuses must be replaced by new fuses!

2.1 General safety instructions

Applicable safety precautions and other generally accepted regulations regarding safety and operational health must be observed. Please check safety and function control devices to ensure safe and accurate operation

- before putting into operation;
- at adequate time intervals;
- after modifications or repairs.

Check the proper functioning of the system after any kind of repair works. You may only put the system into operation after all protective systems have been put into place again. Also observe the regulations of local water distribution and power supply companies.

2.2 Safety instructions when operating electrical appliances

Ensure that the system with its electrical appliances is operated and maintained according to the electro-technical regulations.

NOTICE!

Installations and works on electric components/building units may only be carried out by qualified persons according to electro-technical regulations (e.g. EN 60204, DIN VDE 0100/0113/0160).

If equipment is open, dangerous electric tensions are bare. Be aware of the danger and keep workers of other professions away from the danger zone.

NOTICE!

Never repair or bypass defective fuses!

Always replace defective fuses with new ones!

Immediately switch off the system in the event of malfunctions of the power supply. Use a bipolar voltage probe to make sure that the electrical equipment is not alive.

Check the electrical wiring and cables for recognisable damage before putting the system into operation. Replace damaged wiring and cables before taking the system into operation.

Only use the fuses indicated in the circuit diagram. Immediately replace defective fuses. Never repair or bypass fuses!

Never cover the electric motor. This can cause high temperatures resulting in fires and the destruction of the equipment.

Always keep the control cabinet and all terminal and connection boxes of the system locked.

Have an electrician repair damaged or destroyed plugs immediately.

Never pull a plug from the socket at the flexible cable.

For the respective connections please see the enclosed connecting plan of the system parts delivered.

2.3 Dangers resulting from non-compliance with the safety instructions

Lack of compliance with these instructions can cause severe danger to personal life and limb and damage the environment or the system and may lead to the forfeiture of any damage claims. The non-compliance with these instructions can specifically lead to:

- failure of vital functions of the system;

- failure of prescribed maintenance methods;
- risk of injuries due to electrical and mechanical influences.

3 System description

The DryRapid BD103 control box is used to control dry feeding systems. The control box is available in two versions:

- control for 1 feed circuit;
- control for 2 feed circuits.

The DryRapid BD103 control box is operated via touch screen. The control box has four inputs and outputs. One or two protective motor switches are included for control of the feed chain motors. The other inputs and outputs can be used to connect sensors and other actuators.

Figure 3-1: BD103 control box and extension box

The DryRapid BD103 control box can be extended by up to two extension boxes. Each extension box provides an additional 8 digital inputs and outputs. They can be used for additional sensors or volume dispenser releases, for example.

figure 3-2 shows an example for a dry feeding system. The dry feeding system consists of one feed circuit with a silo (2). The feed chain's drive motor (1) and the silo (2) are both controlled by the control box (5). The inputs of the control box are responsible for checking the full sensor (3) and the drive motor's safety switch (1).

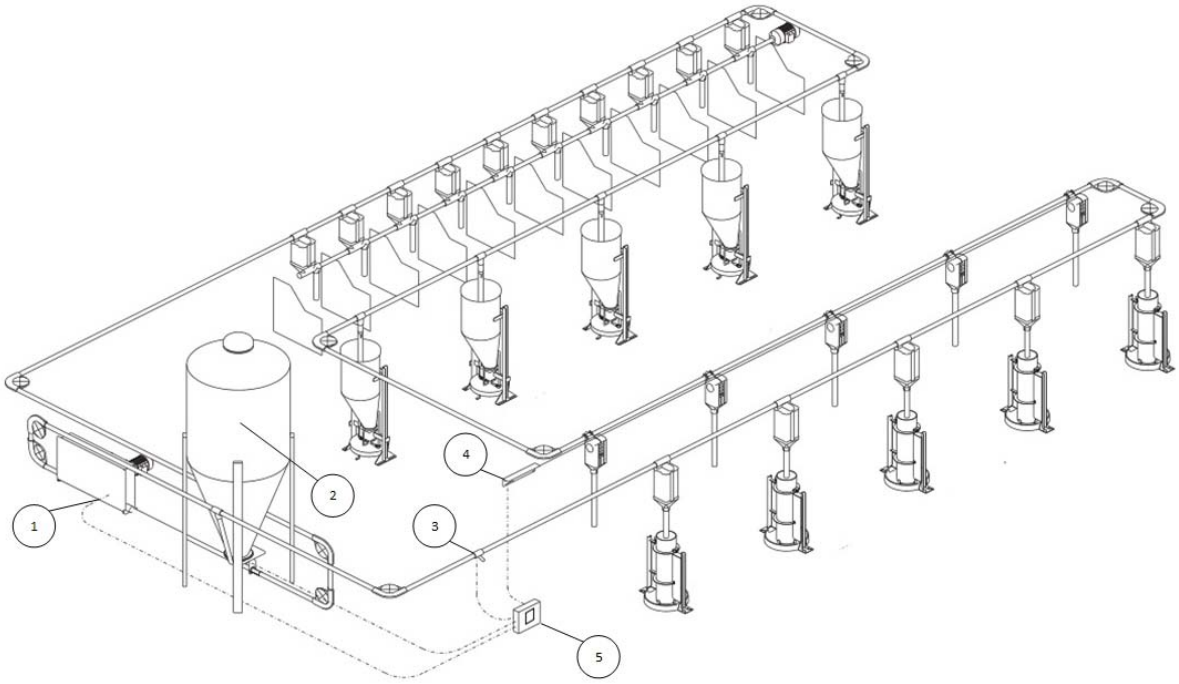


Figure 3-2: Example of a dry feeding system

1	Feed chain drive motor with safety switch
2	Silo
3	Full sensor
4	Volume dispenser release
5	DryRapid BD103 control box

4 Assembly and electrical connection

The specific wiring diagram indicates how to connect the control box. The wiring diagram is enclosed with the control box.

⚠ WARNING!

Any connected tasks may only be carried out by authorized and qualified personnel and under consideration of local regulations (e.g. VDE)!

This chapter describes the connection assignments of the terminal strips for both versions.

Terminal strips for the one-circuit version

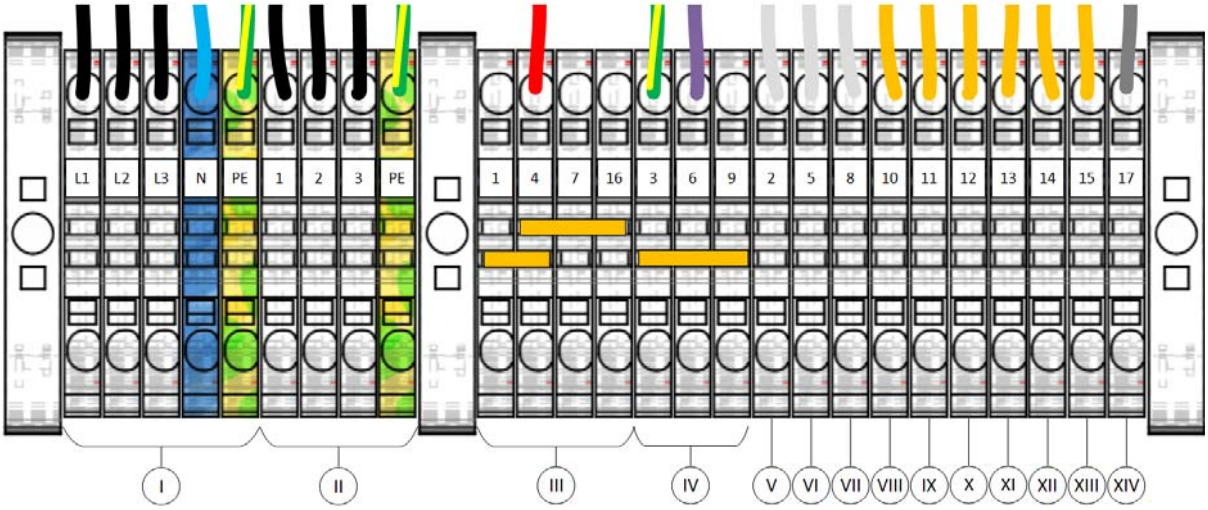


Figure 4-1: Terminal strips – version for one circuit

Pos.	Assignment
I	Supply line 230/400 V / 50 Hz / approx. 3 kW
II	Feed chain drive 1 / 1.5 kW
III	+24 VDC
IV	GND
V	Input sensor
VI	Input sensor
VII	Input sensor
VIII	Digital output 1 / NO / max. 230 V 1 A (normally open)
IX	Digital output 1 / C (common)
X	Digital output 2 / NO / max. 230 V 1 A (normally open)
XI	Digital output 2 / C (common)

Pos.	Assignment
XII	Digital output 3 / NO / max. 230 V 1 A (normally open)
XIII	Digital output 3 / C (common)
XIV	Safety switch, circuit 1

Terminal strips for the two-circuit version

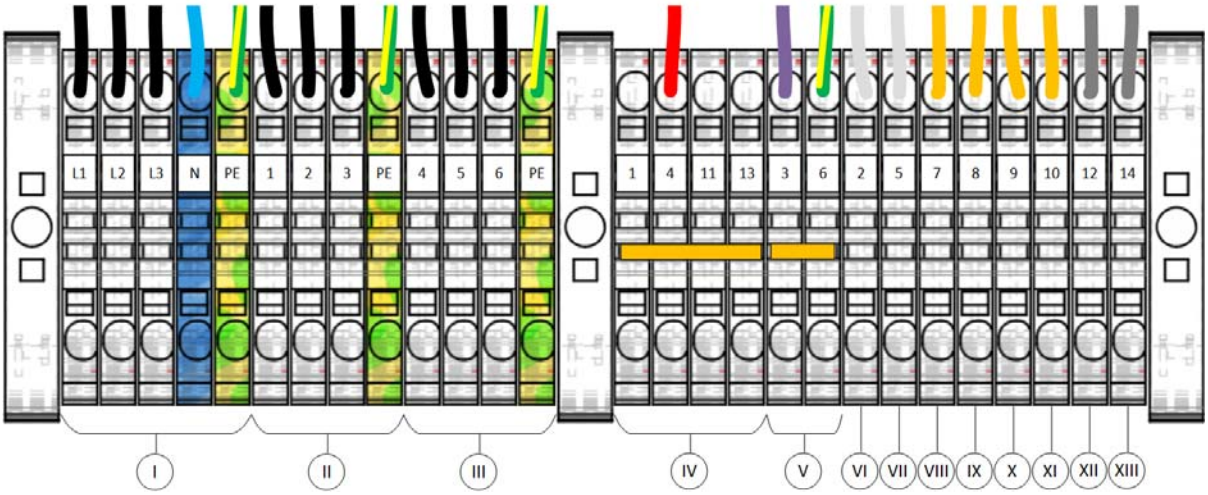


Figure 4-2: Terminal strips – version for two circuits

Pos.	Assignment
I	Supply line 230/400 V / 50 Hz / approx. 3 kW
II	Feed chain drive 1 / 1.5 kW
III	Feed chain drive 2 / 1.5 kW
IV	+24 VDC
V	GND
VI	Input sensor
VII	Input sensor
VIII	Digital output 1 / NO / max. 230 V 1 A (normally open)
IX	Digital output 1 / C (common)
X	Digital output 2 / NO / max. 230 V 1 A (normally open)
XI	Digital output 2 / C (common)
XII	Safety switch, circuit 1
XIII	Safety switch, circuit 2

Terminal strips for the one-circuit version (US version)

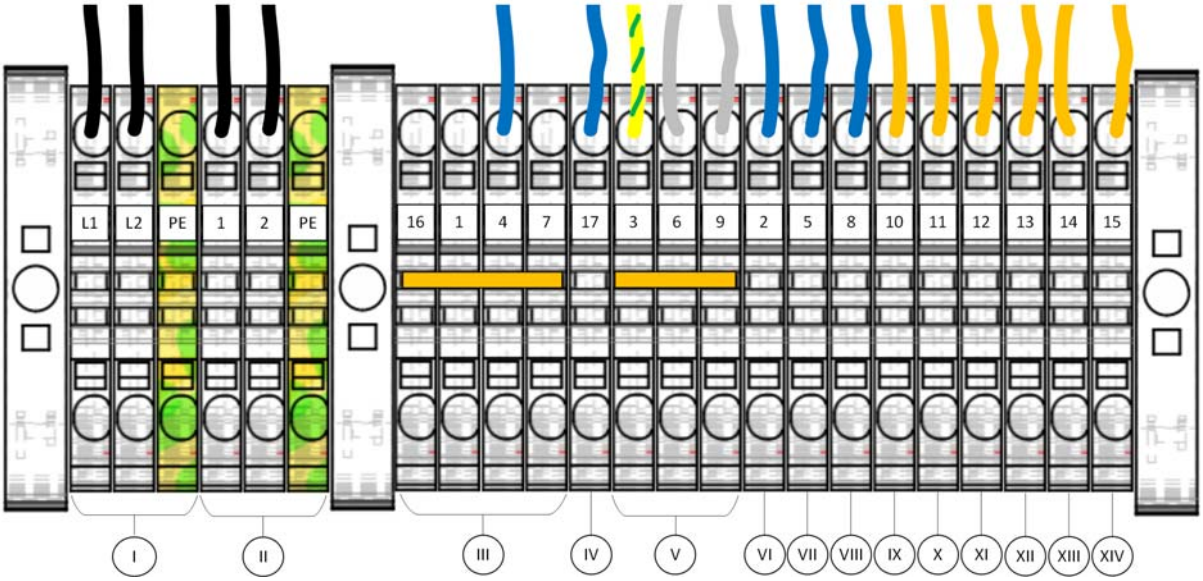


Figure 4-3: Terminal strips – version for one circuit (US version)

Pos.	Assignment
I	Supply line 230V / 60 Hz / approx. 3 kW
II	Feed chain drive 1 / 1.5 kW
III	+24 VDC
IV	Safety switch, circuit 1
V	GND
VI	Input sensor 1
VII	Input sensor 2
VIII	Input sensor 3
IX	Digital output 1 / NO / max. 230 V 1 A (normally open)
X	Digital output 1 / C (common)
XI	Digital output 2 / NO / max. 230 V 1 A (normally open)
XII	Digital output 2 / C (common)
XIII	Digital output 3 / NO / max. 230 V 1 A (normally open)
XIV	Digital output 3 / C (common)

Terminal strips for the two-circuit version (US version)

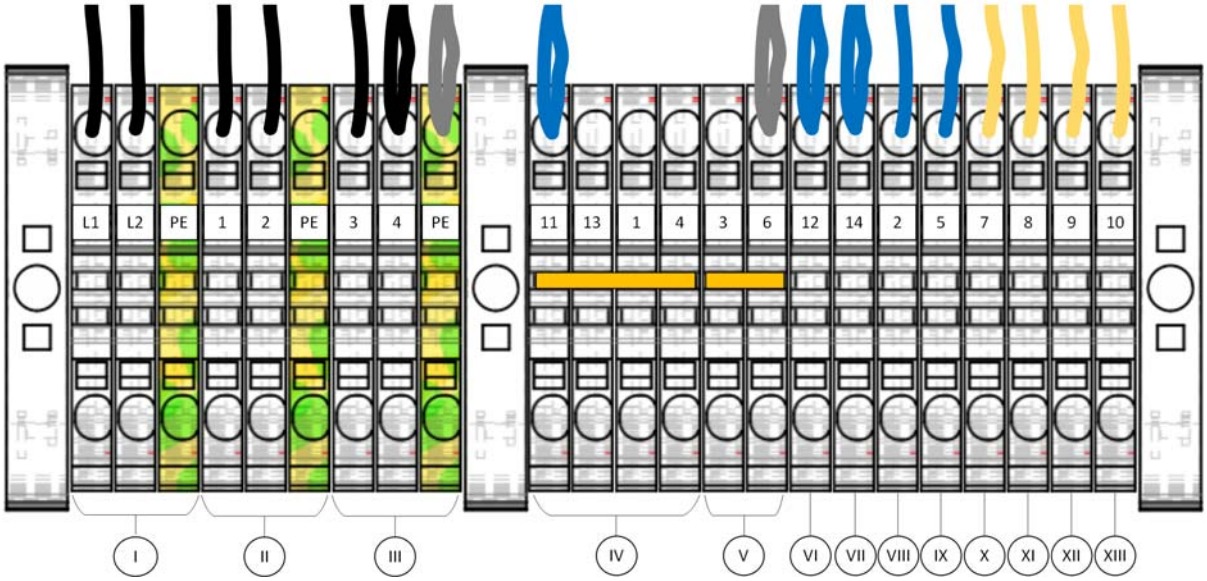


Figure 4-4: Terminal strips – version for two circuits (US version)

Pos.	Assignment
I	Supply line 230V / 60 Hz / approx. 3 kW
II	Feed chain drive 1 / 1.5 kW
III	Feed chain drive 2 / 1.5 kW
IV	Safety switch, circuit 1
V	GND
VI	Safety switch, circuit 1
VII	Safety switch, circuit 2
VIII	Input sensor 1
IX	Input sensor 2
X	Digital output 1 / NO / max. 230 V 1 A (normally open)
XI	Digital output 1 / C (common)
XII	Digital output 2 / NO / max. 230 V 1 A (normally open)
XIII	Digital output 2 / C (common)

5 Initial operation

The DryRapid BD103 control box must be put into operation following three steps.

Configure the basic system settings (language, system time, etc.) in the first step.

Configure the inputs and outputs in the IO Manager in the second step.

Configure the feed circuit settings in the third step. If two circuits are used, two circuits must be configured.

Configuration sequence:

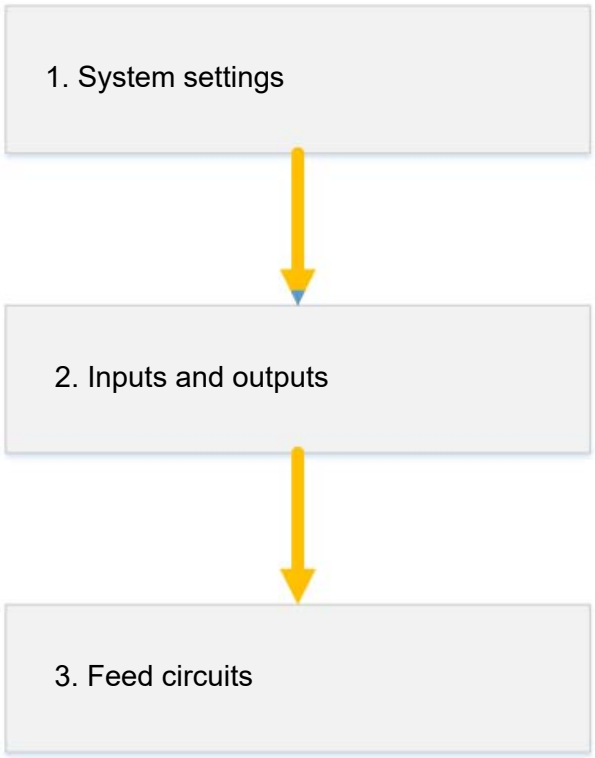
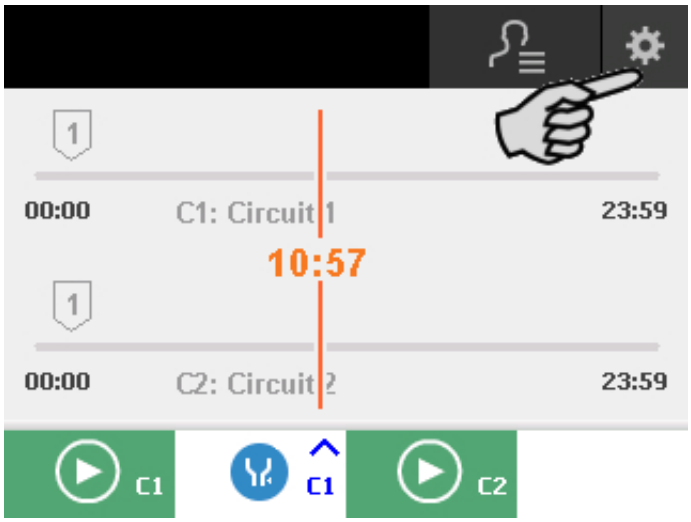


Figure 5-1: Putting DryRapid BD103 into operation

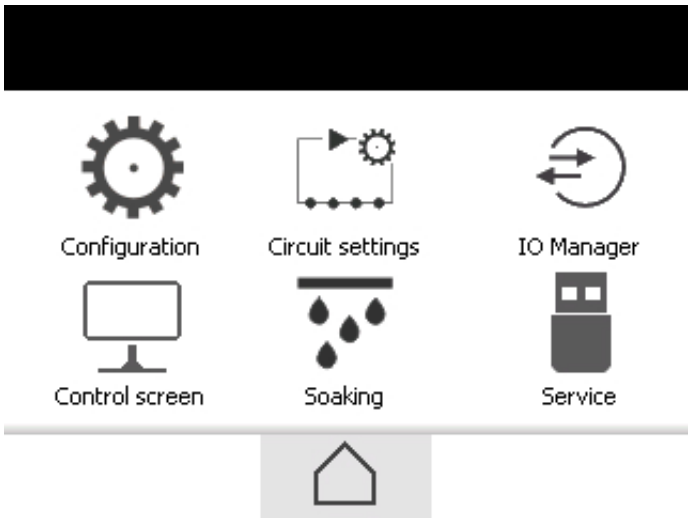
5.1 General system configuration

Make basic adjustments to the system in the "Configuration" menu. Open the menu as follows:

1. On the start screen, press  to switch to the main menu.



2. Press on "Configuration"  in the main menu.
   Press  if you want to return to the start screen.



Setting the language

Configure the system language in the "Language" menu. Use the arrow buttons to select the language and save your input by pressing .

Figure 5-2: Setting the language

English and German are installed by default. One more language can be added using a USB flash drive. The icon appears when a USB flash drive has been inserted.

Number of circuits

Configure the number of circuits of the system directly in the "Configuration" menu. Select the correct number using the slider:

- = 1 circuit
- = 2 circuits

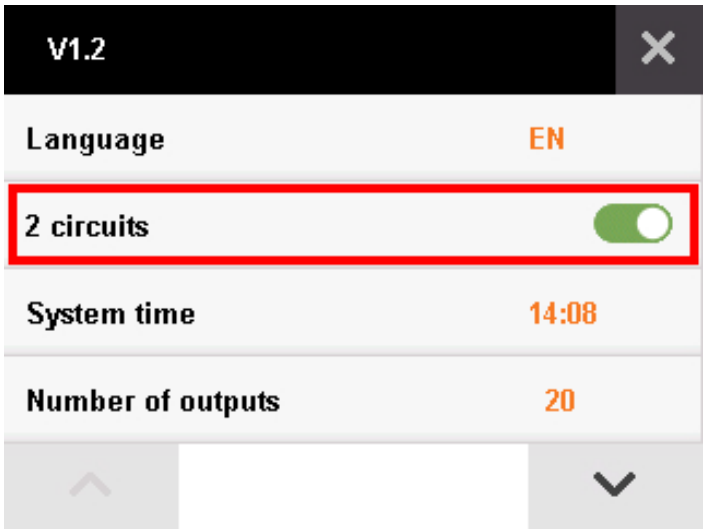


Figure 5-3: Number of circuits

Setting the system time

Set the system time in the "System time" menu. Use the arrow buttons to set the system time and save your input by pressing .

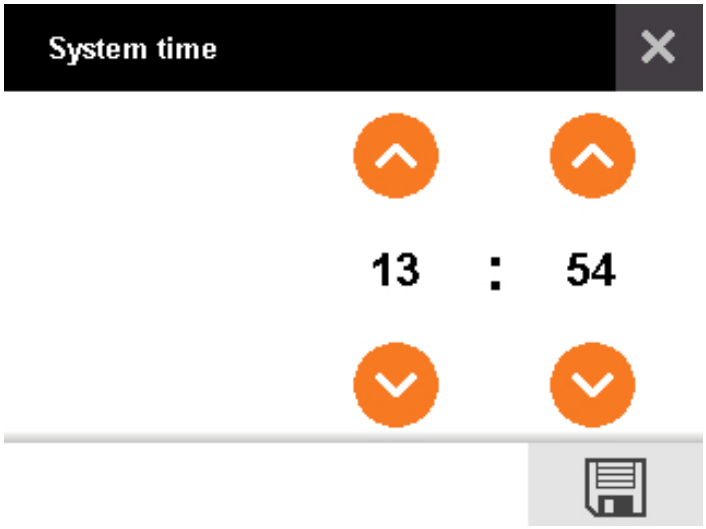


Figure 5-4: System time

Number of outputs

Define the correct number of outputs the system uses in the "Number of outputs" menu. Use the arrow buttons to select the correct number and save your input by pressing .

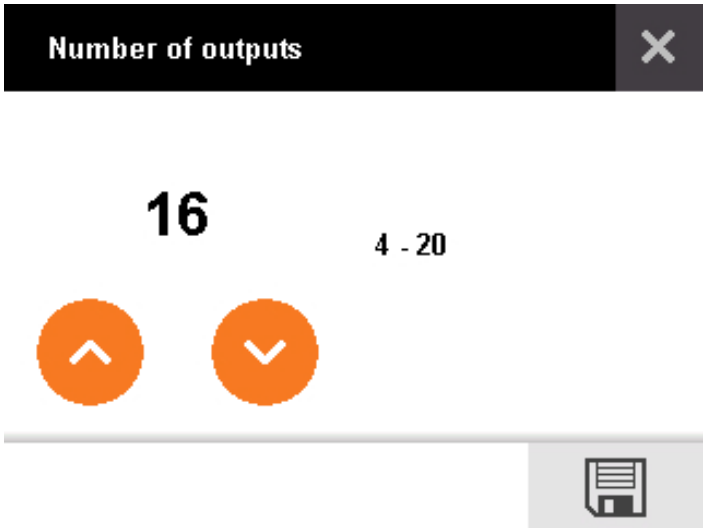


Figure 5-5: Number of outputs

Number of inputs

Define the correct number of inputs the system uses in the "Number of inputs" menu. Use the arrow buttons to select the correct number and save your input by pressing .

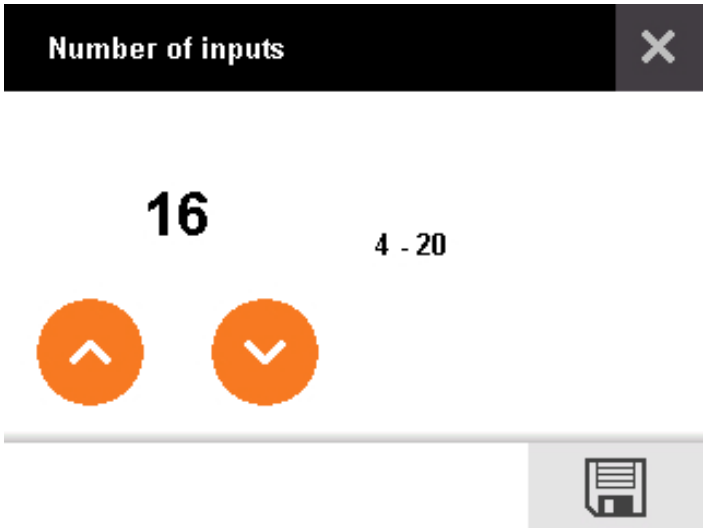


Figure 5-6: Number of inputs

Password

Protect the settings of the following menus by a password:

- Configuration
- Circuit settings
- IO Manager
- Service

Activate or deactivate password protection using the slider.

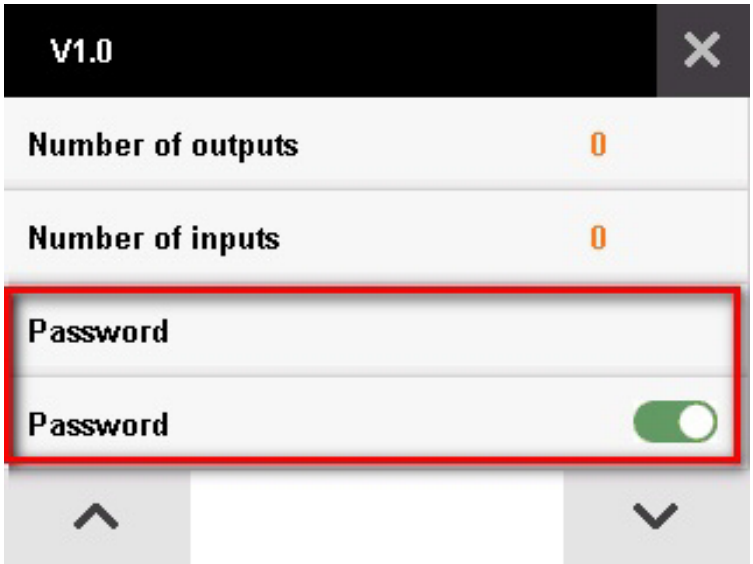


Figure 5-7: Password

Change the password under "Password": Enter the old password first and then enter the new password twice.

NOTICE!

Password according to factory settings: '0000'

5.2 IO Manager

The system inputs and outputs are assigned their purposes in the IO Manager. Press to open the "IO Manager" menu.

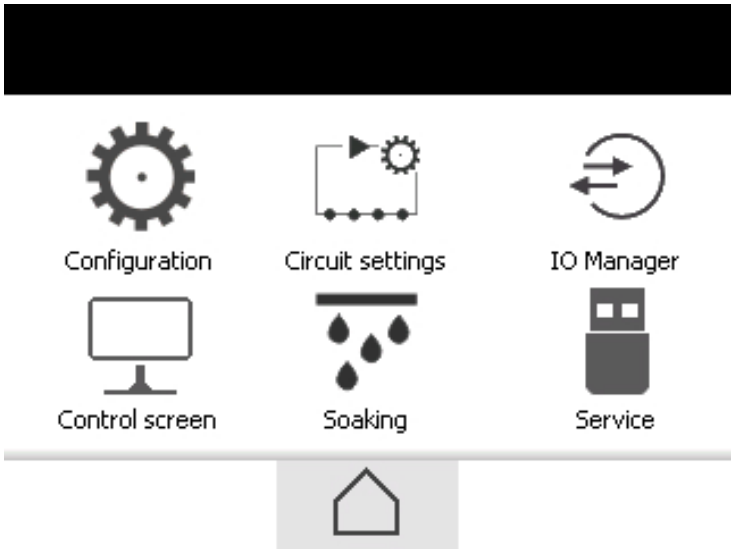


Figure 5-8: Main menu

The IO Manager consists of two parts. Outputs are displayed on the left, inputs on the right.

- Green fields are active (HIGH).
- Grey fields are inactive (LOW).

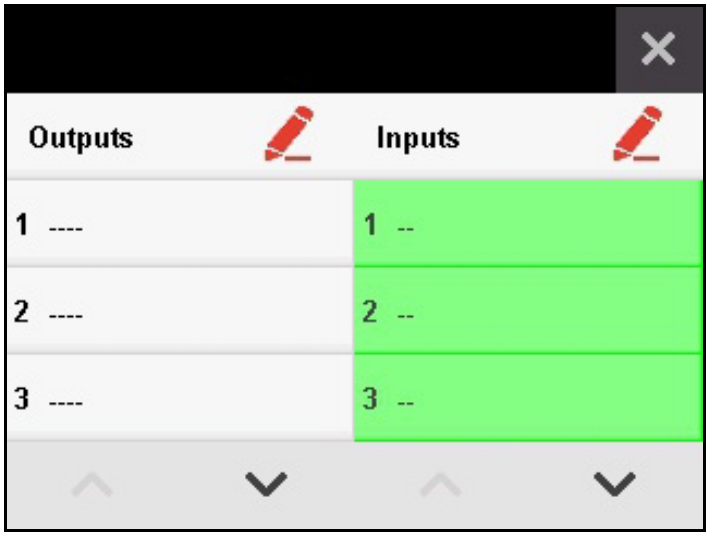
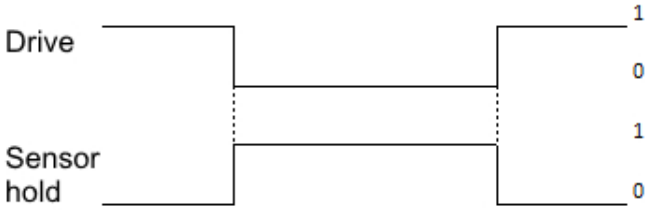
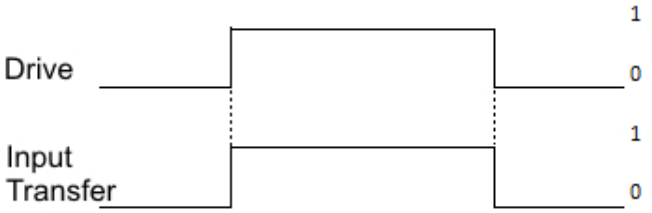


Figure 5-9: IO Manager

Use and to navigate in the input and output lists.

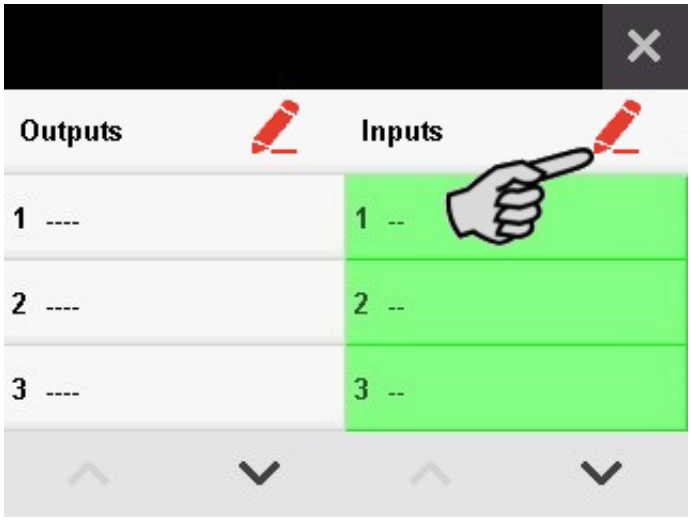
Table 5-1: Inputs

Input	Explanation
Safety circuit #	Safety switch and protective motor switch are connected in series.
Full sensor circuit #	The control box switches off when the hoppers are full.
Silo # empty circuit #	Sensor (empty sensor) directly at the silo
Sensor conveying monitoring circuit #	If more than one silo is in use, the sensor conveying monitoring (empty sensor) monitors all silos if no feed is transported by the chain.
Sensor stop circuit #	The control box sets the circuit into pause mode with active signal from the sensor and continues feeding when the signal is deactivated. 
External start circuit #	Feeding is started like in manual mode when the input is activated. It is not possible to select mineral dosing in this case.
Transfer circuit #	This input can be assigned if it is used as transfer circuit. The control box switches the drive on as long as there is an active signal at the transfer input. 

Assigning an input or an output

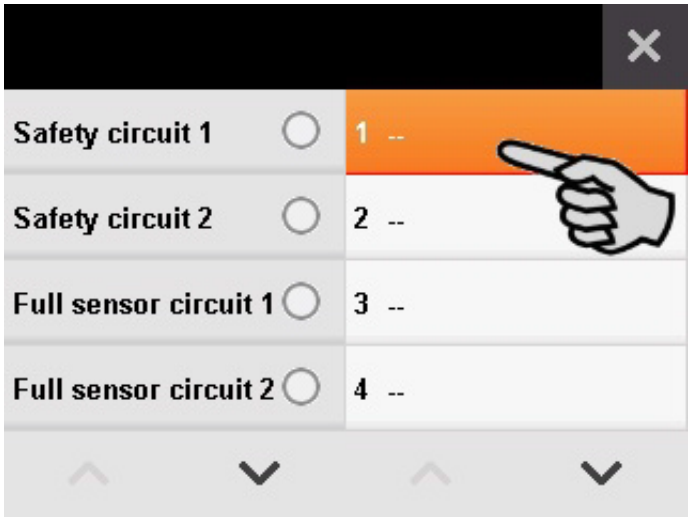
The following example for input 1 shows how to assign inputs and outputs.

1. Press on the right next to "Inputs".



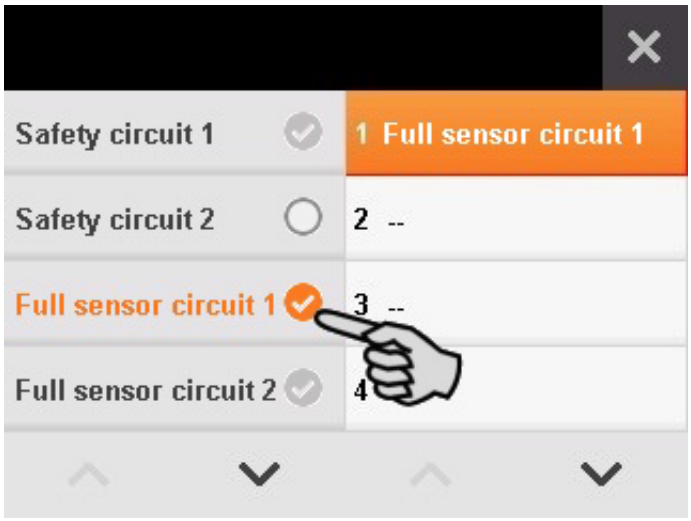
2. Select (input) 1 -- on the right.

   Use and to navigate in the list.



3. Assign input 1 its function from the list on the left.

   Use ⌄ and ⌃ to navigate in the list.



4. Press ✕ to confirm and complete the assignment.

NOTICE!

All used inputs and outputs must be assigned in the IO Manager during initial operation.

5.3 Configuring a feed circuit

The feed circuits can be accessed via the main menu > "Circuit settings" . Define the parameters individually for each feed circuit.

The selected feed circuit is indicated at the top. If the system is configured with two circuits, press on the name of one circuit to switch to the other one.

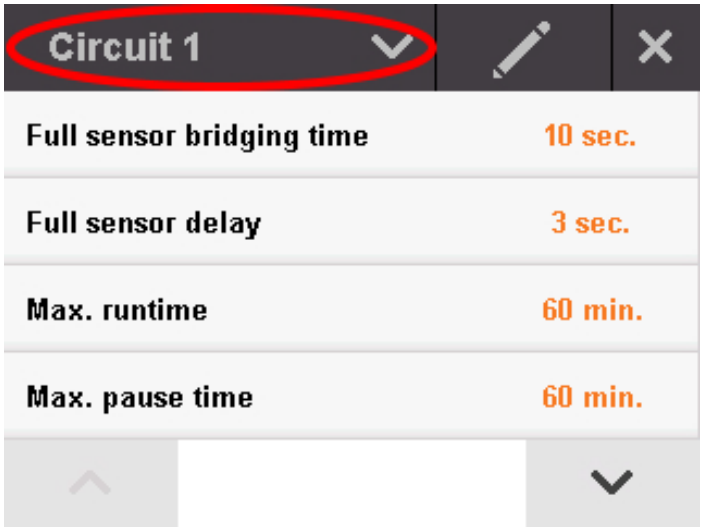


Figure 5-10: Selected feed circuit

Changing the name of a feed circuit

Press to open the menu in which you can change the name of the feed circuit.

- **Entering a letter:** Press the button with the correct letter as often as necessary. To enter the letter R, for example, press the button 7 three times because the R is in third place.
- **Entering a number:** Press the button with the correct number for at least 2 seconds.

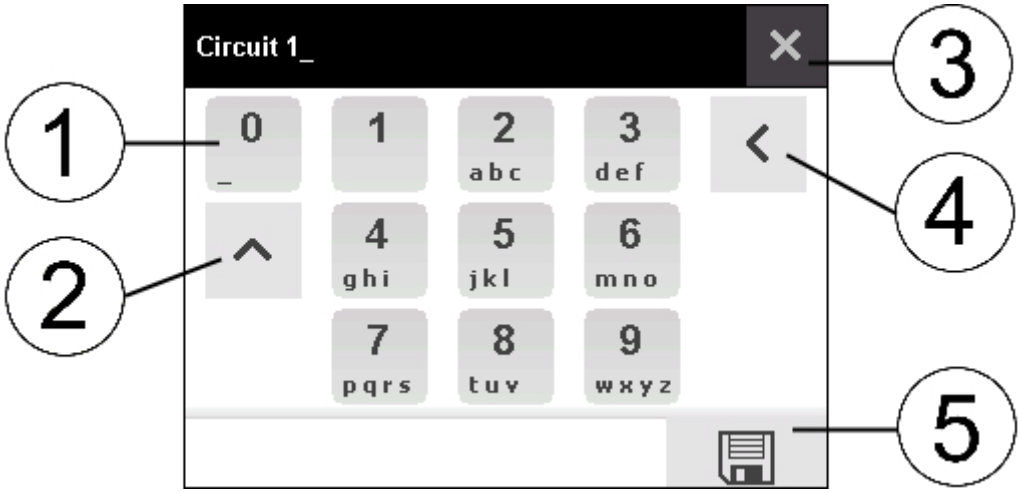


Figure 5-11: Changing the name of a feed circuit

Position	Explanation
1	Blank
2	Shift key for upper/lower case
3	Close
4	Delete
5	Save

Full sensor bridging time

Set the time for which the control box will ignore the full sensor after the start of the feeding process in the "Full sensor bridging time" menu. The maximum duration is 999 seconds. Save the set time by pressing .

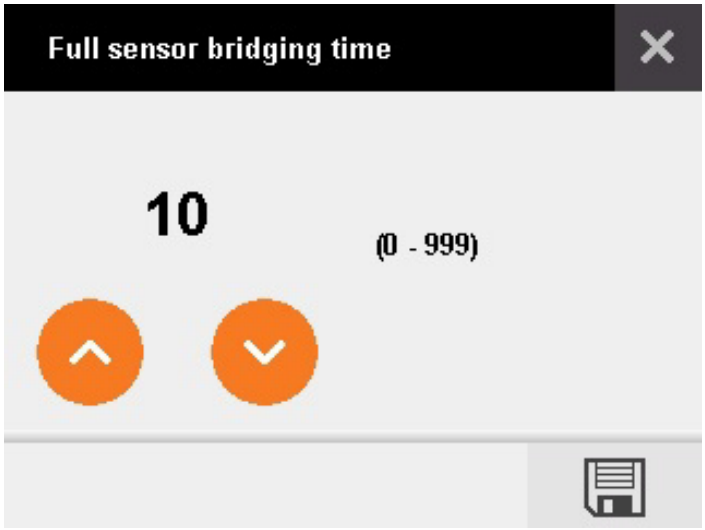


Figure 5-12: Full sensor bridging time

Full sensor delay

The "Full sensor delay" is the full sensor's response time. When the full sensor detects feed, it waits for the delay before it reports. The maximum delay time is 999 seconds. Save the set time by pressing .

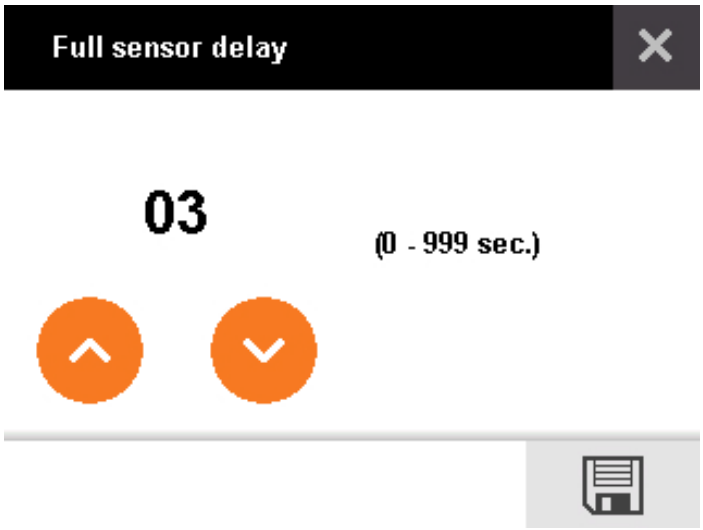


Figure 5-13: Full sensor delay

Maximum runtime of the feed circuit

Set the maximum runtime for one feeding process in the menu "Max. runtime". The feeding process stops and an alarm is triggered after the time set here has expired. This function becomes active e.g. when the full sensor is defective or in case of pipe breaks. The maximum time is 9999 minutes. Save the set time by pressing .

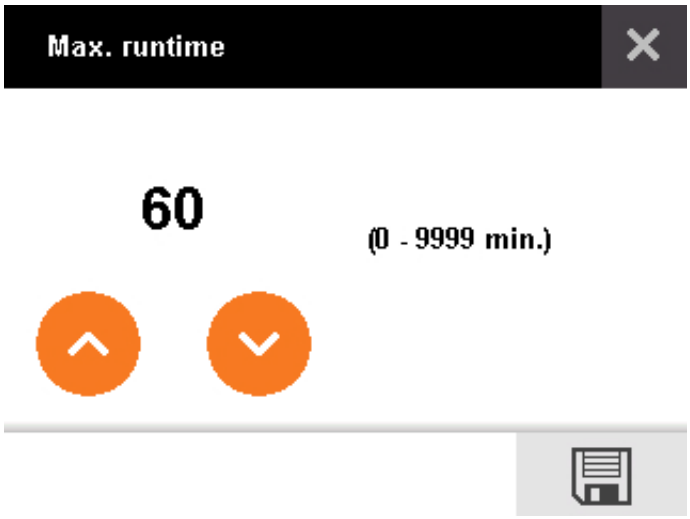


Figure 5-14: Maximum runtime of the feeding system

Maximum pause time of the feed circuit

Set the maximum pause time of the feed circuit in the menu "Max. pause time". An alarm is triggered after the time set here has expired. This function becomes active e.g. when feeding is not started again after a pause. The maximum time is 9999 minutes. Save the set time by pressing .

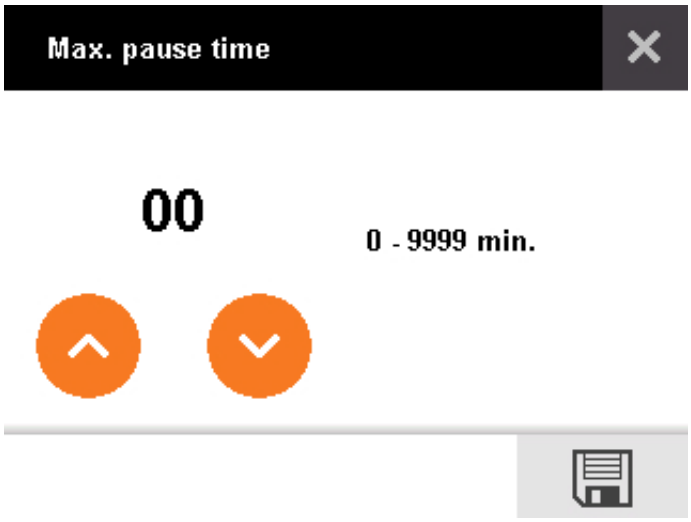


Figure 5-15: Maximum pause time of the feed circuit

Start delay of the silo

Set the delay after which silo contents are extracted in the menu "Silo start delay". The maximum delay time is 999 seconds. Save the set time by pressing .

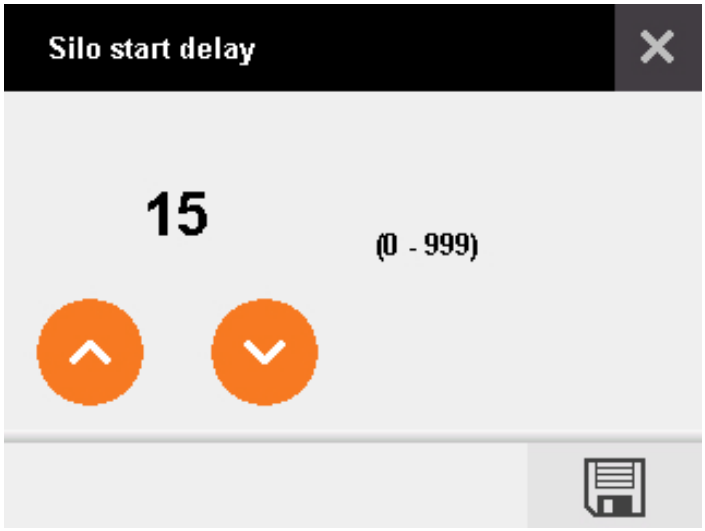


Figure 5-16: Start delay of the silo

Start delay of the mineral dosing unit

Set the delay after which minerals are extracted from the dosing unit in the menu "Mineral dosing start delay". The maximum delay time is 999 seconds. Save the set time by pressing .

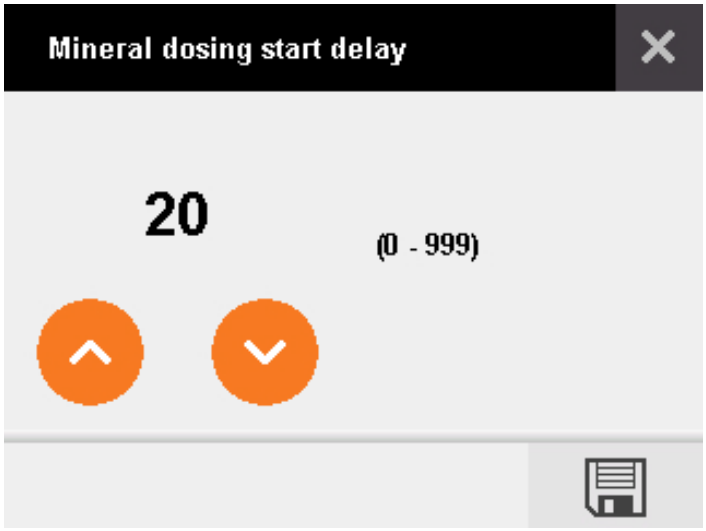


Figure 5-17: Start delay of the mineral dosing unit

Residual flow time of the feed circuit

Set the time for which the feed circuit runs without contents being extracted from the silo in the "Residual flow time" menu. The maximum residual flow time is 999 seconds. Save the set time by pressing .

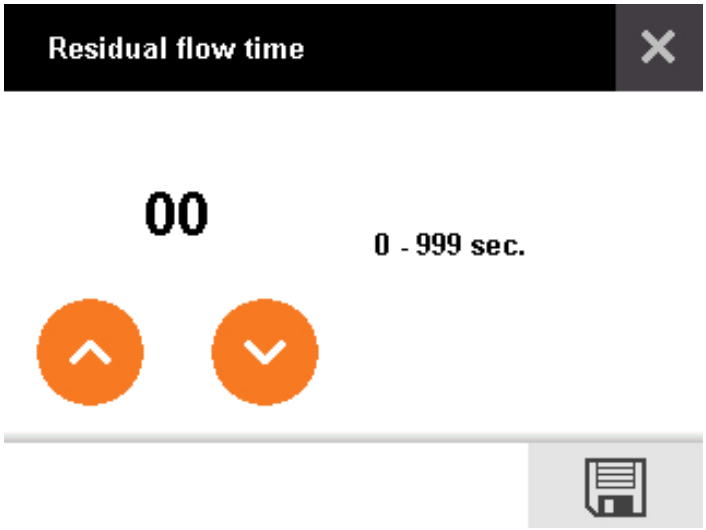


Figure 5-18: Residual flow time of the feed circuit

Opening time of the volume dispensers

Set the opening duration for the volume dispensers in the "Time volume dispenser" menu. The maximum duration is 999 seconds. Save the set time by pressing .

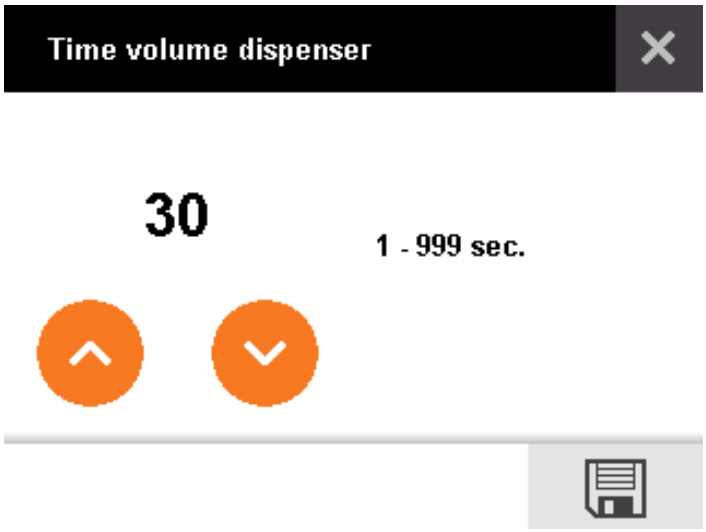


Figure 5-19: Opening time of the volume dispensers

Sensor delay silo

The "Sensor delay silo" applies to both the "Sensor conveying monitoring" and the direct full sensor. It is a bridging time during which the sensor is ignored. The maximum delay time is 999 seconds. Save the set time by pressing .

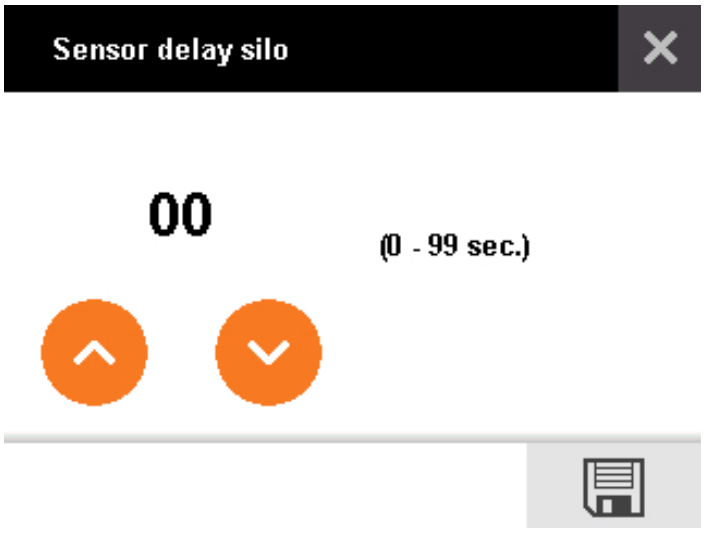


Figure 5-20: Sensor delay silo

Replacement component silo

For each connected silo, it is possible to select a component from a different silo as replacement component. A maximum of 3 silos can be stored in the system. Save the setting by pressing .

Figure 5-21: Replacement component silo

Delay light

Set a time to delay switching off of the light after the end of feeding in the "Delay light" menu. The maximum delay time is 999 minutes. Save the set time by pressing .

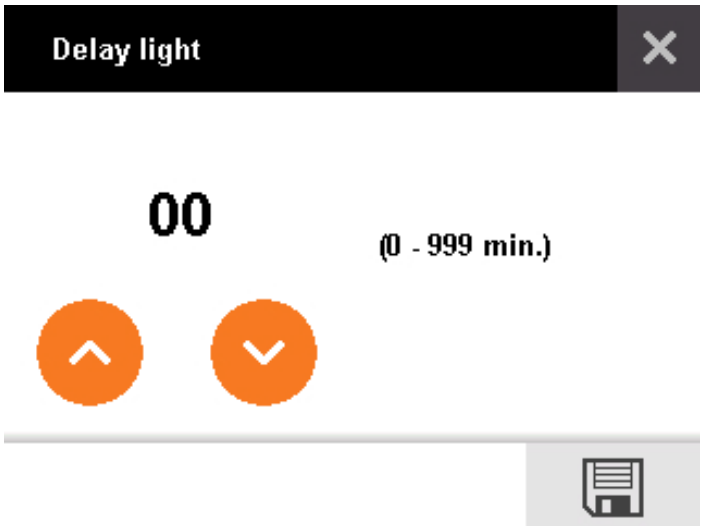


Figure 5-22: Delay light

Time loop

If feed is conveyed without removal from the silo, the drive switches off after the time set under "Time loop". The maximum duration is 999 minutes. Save the setting by pressing .

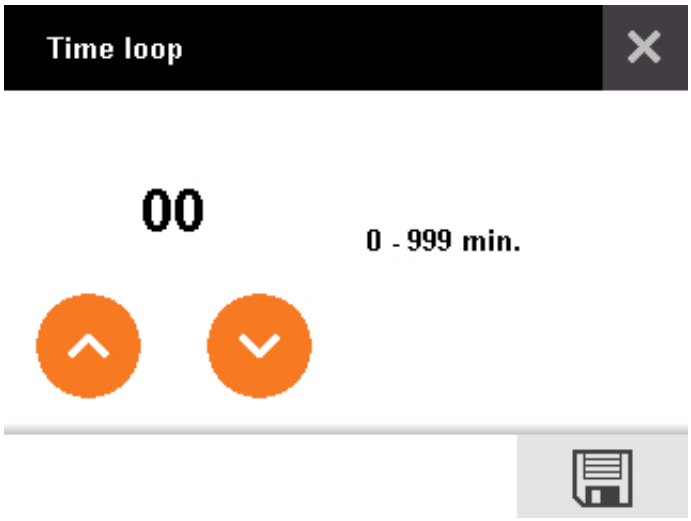


Figure 5-23: Time loop

6 Operation

6.1 Start screen

After a restart of the DryRapid BD103 control box, the start screen is displayed. The display switches to standby mode if it is not used for a longer time while the control box is running. Touch the display to view the screen that was last active.

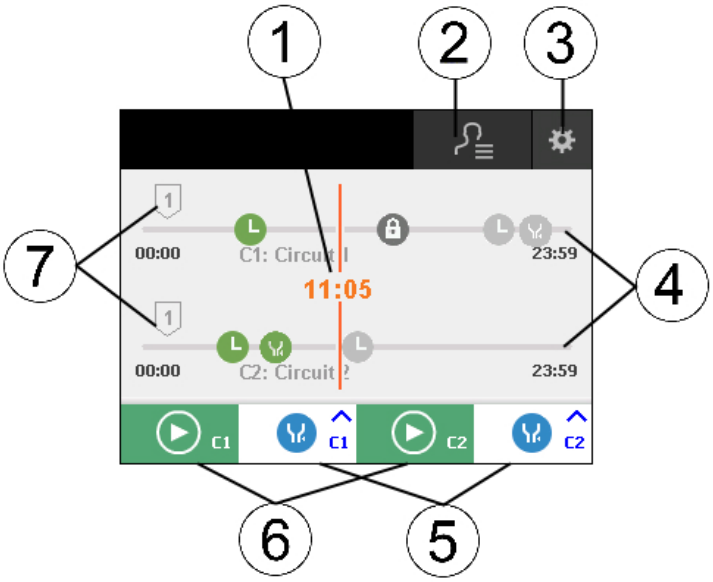


Figure 6-1: Start screen with two feed circuits

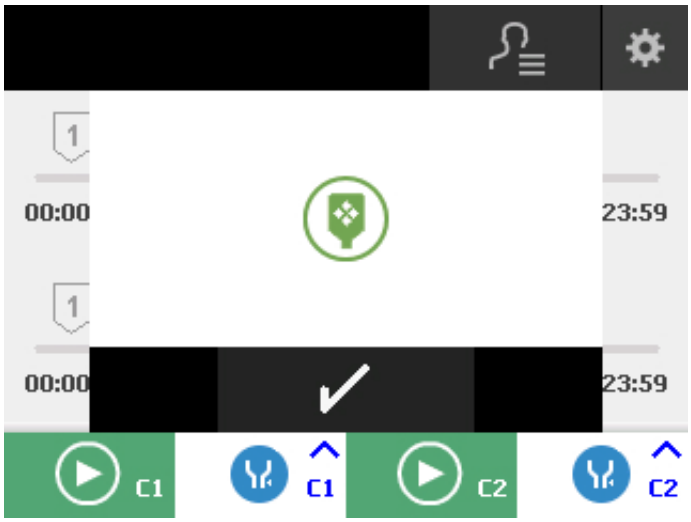
Position	Explanation
1	Current system time
2	Open feeding review
3	Open main menu
4	Timeline circuit 1 and circuit 2 with configured starting times: Action/feeding completed Action/feeding pending Action "Open volume dispensers" completed Action "Open volume dispensers" pending Action/feeding locked An action that is currently carried out is indicated by this icon: .
5	Quick access volume dispenser circuit 1 (C1) and circuit 2 (C2)
6	Manual operation circuit 1 (C1) and circuit 2 (C2)
7	Silo

6.2 Manual operation

The lower part of the main menu contains the manual operation function for the feed circuits (C1 = circuit 1, C2 = circuit 2). Press C1 to start feeding immediately.

If a mineral dosing unit has been configured for the circuit, the system asks whether mineral dosing should be started as well:

- If yes: press the mineral dosing icon. The icon changes its colour from inactive to active. Confirm the manual start by pressing ✓.
- If no: confirm manual start only by pressing ✓.



If feeding was started manually, press C1 to pause the process. Press ✕ to cancel the feeding process.

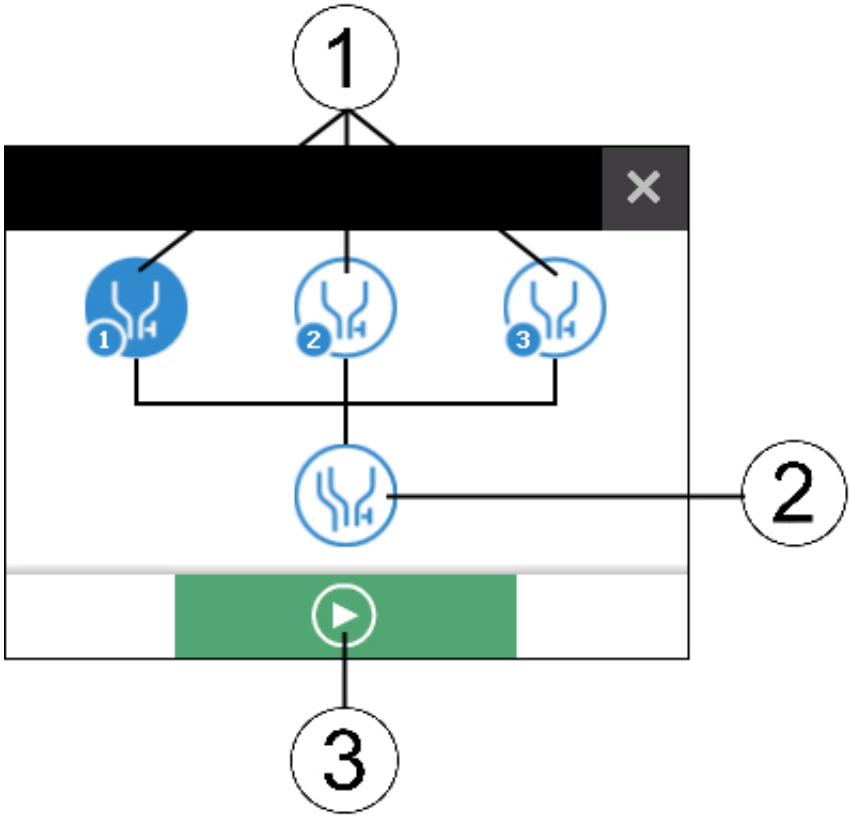
NOTICE!

The button to cancel the feeding process only appears after the program has been paused.

6.3 Quick access volume dispenser

You can access the volume dispensers of one feed circuit from the start screen to open them immediately. The number of volume dispensers is configured through the outputs in the IO Manager. Up to 3 volume dispensers can be configured per feed circuit.

The volume dispensers can be selected either individually or all at once. In case of multiple selection, the dispensers are opened with a delay.



Position	Explanation
1	Select volume dispensers individually
2	Select all volume dispensers at once
3	Immediately open selected volume dispensers

6.4 Overview of starting times

Press on a feed circuit timeline on the start screen to open the starting times menu. Configure the starting times for feeding and other actions in this menu, see chapter 6.5 ”Configuring a starting time”.

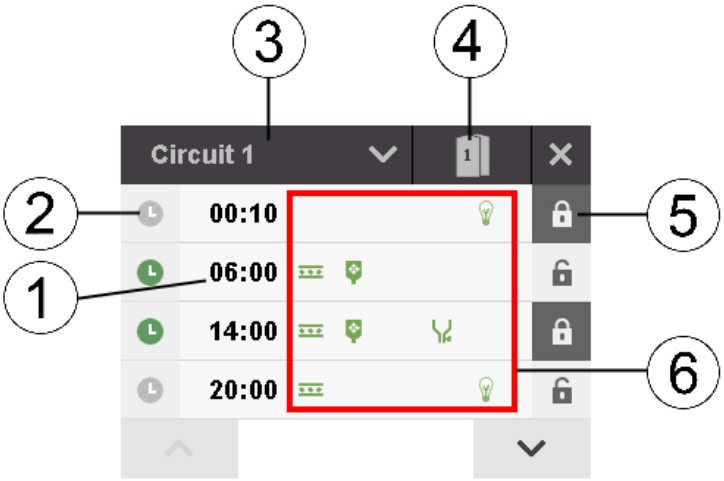
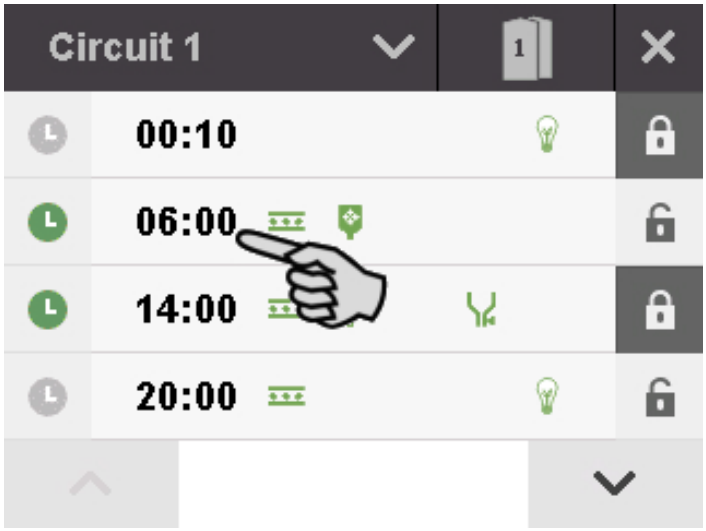


Figure 6-2: Menu starting times

Position	Explanation
1	Starting time of the action/feeding Press on the time to configure the starting time.
2	Action/feeding completed Action/feeding pending Press the clock icon to change the status, e.g. if a feeding should be skipped or carried out later.
3	Press the name to switch between feed circuits.
4	Press the silo icon to select the silo from which feed should be removed.
5	Starting time locked Starting time released Press the lock icon to lock or release the configured starting time. Only actions with released starting time will be carried out.
6	The icons next to the starting time indicate which actions will be carried out. Define these actions during configuration of the starting times, see chapter 6.5 ”Configuring a starting time”.

6.5 Configuring a starting time

1. Press on the time to configure or change an action/feeding.



2. Use the arrows to set the starting time of the action/feeding.

3. Use the icons to select the action(s) that should start at the configured time.

Icon	Explanation
	Start feed chain
	Use mineral dosing unit – can only be activated together with the feed chain.
	Open volume dispensers
	Switch on light
	Feeding time without removal from silo – is carried out when the feed chain shall be emptied.

Press  to save the configured starting time.

Press  to delete the configured starting time.

6.6 Configuring the soaking function

The settings in the menu "Soaking" apply to the soaking/cleaning system.

Press  in the main menu to open the "Soaking" menu.

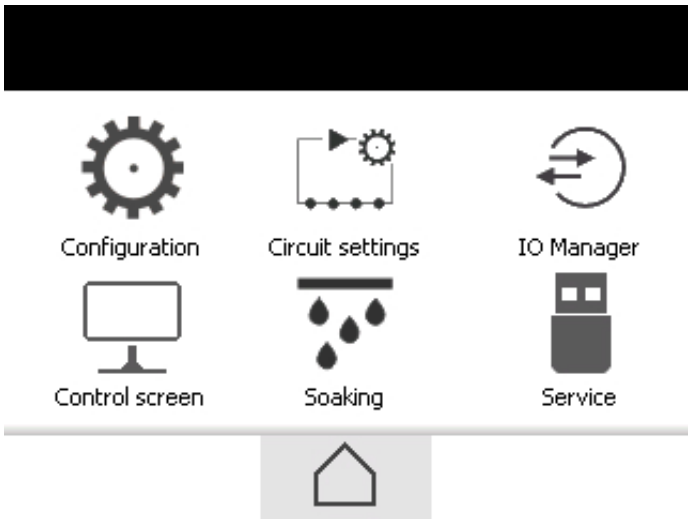


Figure 6-3: Main menu

The following parameters can be defined for the soaking function:

- **Duration** is the total runtime of the soaking/cleaning system.
- **Duration open** indicates for how long the soaking/cleaning system is active in interval (ON).

- **Duration closed** indicates for how long the soaking/cleaning system is passive in interval (OFF).

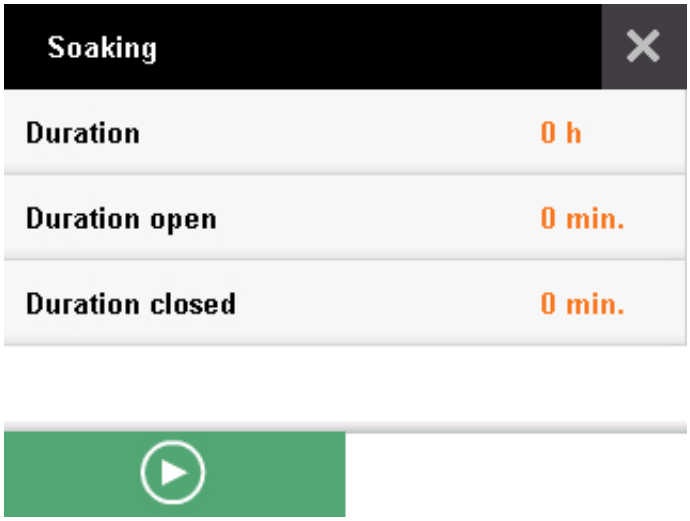


Figure 6-4: Soaking menu

When the soaking/cleaning system is active, the lower bar shows the system's current runtime. Stop the process by pressing  .

Press  to define the timer before the soaking/cleaning system starts.

If the timer is active, the lower bar of the "Soaking" menu shows the time until start. Stop the timer by pressing  .

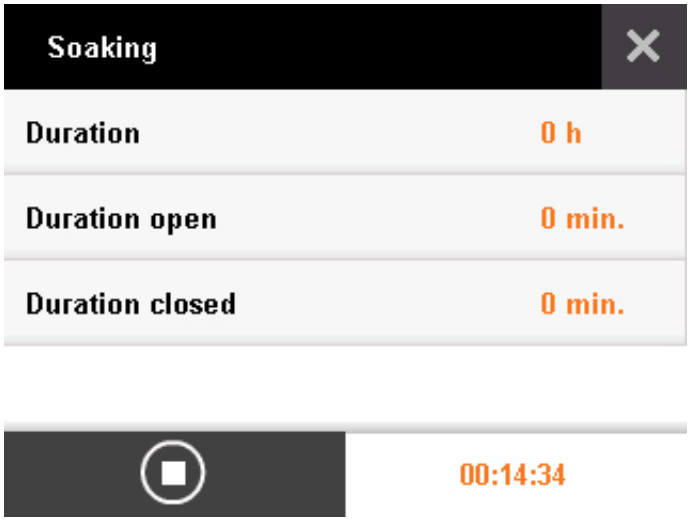


Figure 6-5: Soaking menu with elapsed time of the timer

6.7 Feeding review

If you press  on the start screen, this opens a menu in which you can lock and release feed circuits.

Press the circuit icon of the correct feed circuit to lock or release the feed circuit (C1 = circuit 1, C2 = circuit 2).

Figure 6-6: Feeding review menu

Icon	Explanation
	Feed circuit active
	Feed circuit locked

Press  to open the feeding review. Starting with the current day (day 0), the actions/feeding processes of the past 14 days are displayed. The lower edge of the screen indicates how many minutes the feeding processes took in total on the corresponding day. If the system is configured with two circuits, press on the name of one circuit to switch to the other one.

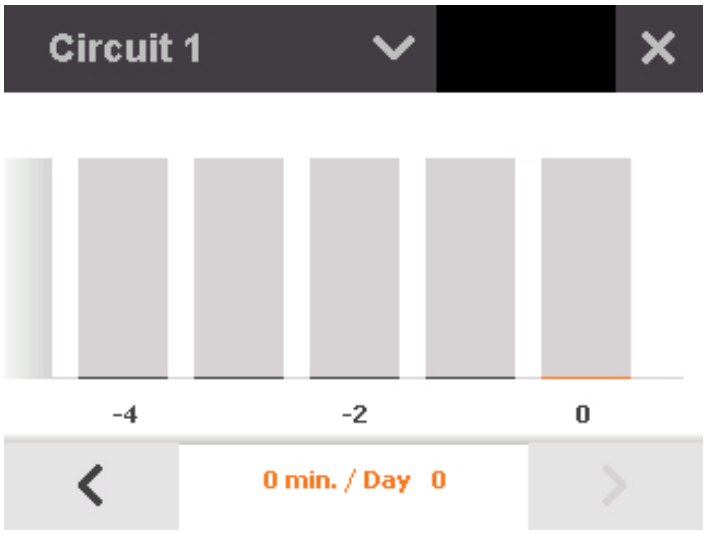


Figure 6-7: Previous feeding processes in the day view

Press on a specific day to see a detailed view of this day. The starting time of the action/ feeding is displayed on the left. The duration of the action/feeding is indicated by the bar. The actions carried out during each individual feeding process are also shown, see chapter 6.5 ”Configuring a starting time”.

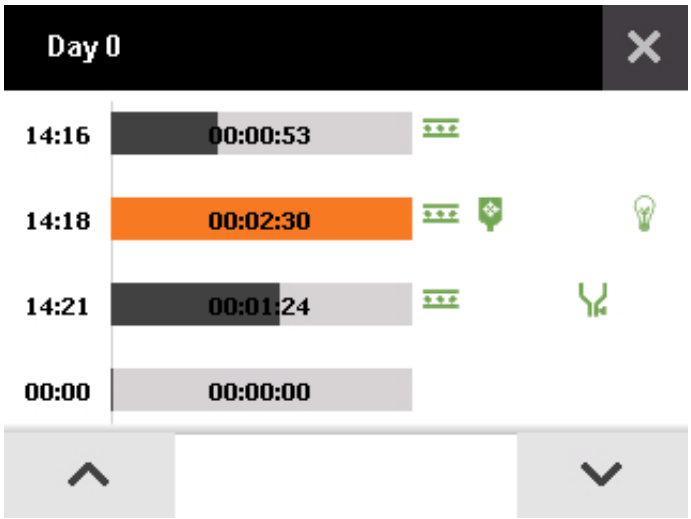


Figure 6-8: Previous feeding processes of a single day

7 Service

NOTICE!

Functions in the "Service" menu may only be used by a service technician.

Press in the main menu to open the "Service" menu. The following functions are available:

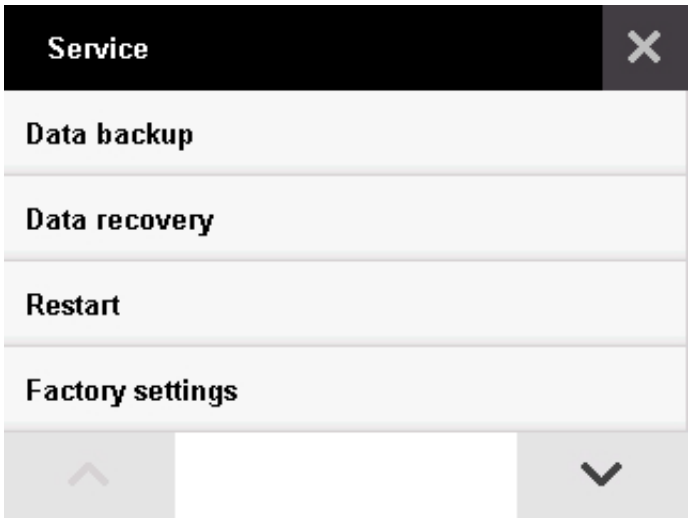


Figure 7-1: Service menu

- **Data backup:** Existing data can be stored on a USB flash drive.
- **Data recovery:** Data previously stored on a USB flash drive can be recovered.
- **Restart:** The control box is restarted, e.g. after an update.
- **Factory settings:** The control box is reset to factory settings. Existing data is deleted.
- **System update:** New firmware can be installed.
- **I/O card update:** This function is intended for update of the IO card(s) of the extension box(es) only.

8 Maintenance

The DryRapid BD 103 control box is virtually maintenance-free. Clean the exterior of the control box with a damp cloth in case it is dirty.

NOTICE!

Make sure that the control box is not damaged by a high-pressure cleaner.

9 Technical data

Control box DryRapid BD103 1 circuit

Code no.	91-08-3023
Supply voltage	230/400 V 3 PH/N/PE
Input power	max. 1.5 kW
Dimensions	284 mm x 364 mm x 120 mm
Housing / Protection rating	IP66
Weight	4.05 kg
Ambient temperature	0-50°

Control box DryRapid BD103 2 circuits

Code no.	91-08-3024
Supply voltage	230/400 V 3 PH/N/PE
Input power	max. 3 kW
Dimensions	284 mm x 364 mm x 120 mm
Housing / Protection rating	IP66
Weight	4.7 kg
Ambient temperature	0-50°

Control box DryRapid BD103 1 circuit US version

Code no.	91-08-3051
Supply voltage	230 V 2 PH/PE
Input power	max. 1.5 kW
Dimensions	284 mm x 364 mm x 120 mm
Housing / Protection rating	IP66
Weight	4.05 kg
Ambient temperature	0-50°

Control box DryRapid BD103 2 circuits US version

Code no.	91-08-3052
Supply voltage	230 V 2 PH/PE
Input power	max. 3 kW
Dimensions	284 mm x 364 mm x 120 mm
Housing / Protection rating	IP66
Weight	4.05 kg
Ambient temperature	0-50°

Control box DryRapid BD103 1 circuit 0.75 kW

Code no.	91-08-3053
Supply voltage	230/400 V 3 PH/N/PE
Input power	max. 0.75 kW
Dimensions	284 mm x 364 mm x 120 mm
Housing / Protection rating	IP66
Weight	4.05 kg
Ambient temperature	0-50°

Control box DryRapid BD103 2 circuits 0.75 kW

Code no.	91-08-3054
Supply voltage	230/400 V 3 PH/N/PE
Input power	max. 1.5 kW
Dimensions	284 mm x 364 mm x 120 mm
Housing / Protection rating	IP66
Weight	4.05 kg
Ambient temperature	0-50°