KFM-6400

MULTIPHASE FEEDING SYSTEM

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Copyright/Disclaimer

1 General introduction

The manual is intended for the user of this device. It contains all the information necessary for operating and cleaning this product. Please read all information and instructions carefully before using the product.

Symbols mark warnings, important notes, tips, etc. in this manual.

Stienen has compiled this manual with all due care. If you find any errors, please let us know.

1.1 Symbols and definitions


Risk of injury by dangerous electric shock. Danger to people and animals.


Warning indicating danger to product, people and animals if procedures are not strictly complied with.


Warning indicating damage to products if procedures are not strictly complied with.


Pressure cleaning is not allowed.


Collect as separate flows


Important note


Additional information


Example of a concrete application of the functionality described.


Example calculation


Manual control


Tips and advice


Screenshot


Application note

1.2 Customer service

If you have any questions, please contact your installer. Be sure to have all the necessary data handy. You should also always write down the cause of a fault and the circumstances that occurred during the fault. This will enable you to avoid any ambiguities and it will enable your installer to deal with any faults quickly and effectively.

2 Safety instructions and warnings

Read the general safety instructions in this chapter carefully before using the device. A certified installer must install the device and resolve any faults, in accordance with the applicable guidelines. If this product is installed and used in any other way, the warranty will not apply.

2.1 Sound, independent alarm system

Although we have designed and built our control equipment with the greatest care possible, technical faults can never be ruled out. Insurance requirements in many countries are becoming increasingly stringent. This requires the alarm contacts of the various control computers to be connected a central alarm unit.


We recommend also installing a sound independent alarm system, for example a min/max thermostat.


We advise you to manually test the alarm at least once a week.

2.2 During use

The people who operate the device have read the manual carefully. They are aware of potential hazards that may arise from improper use and maintenance of the product.


The device must only be opened by authorised personnel.


Do not switch off the control computer while the house is empty, but switch it to *Off* mode. This will prevent condensation caused by the equipment cooling down.


Check the device for any damage at regular intervals. A damaged device is unsafe. Always report any damage to your installer.


Electronic equipment is splash-proof and must not be cleaned using a pressure cleaner.


If any emergency has occurred, write down: the circumstances under which the emergency occurred, installation settings, software date, software version number and possible causes.

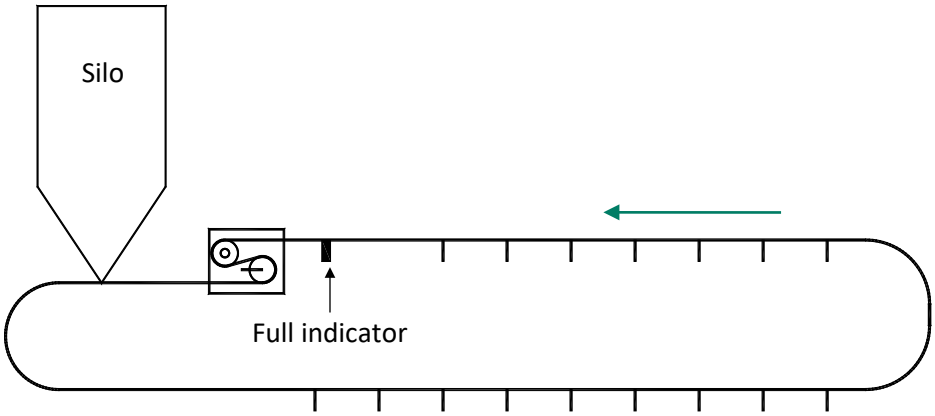
2.3 Disposal

The EU has set up systems for the separate collection of waste electrical and electronic equipment and batteries (Directive 20212/19/EU). If you do not dispose of the device properly, you risk a fine.


Electrical and electronic equipment must be collected separately at the end of its life.

3 Multi-phase feeding system

3.1 Circular circuit without supply auger



1. The system starts after a start signal and ignores the *Full indicator* for a certain time.
2. After this delay time, filling starts (*Status = Filling*).
3. Immediately after the start, the *Maximum running time* also activates..
4. The system continuously checks whether the *Full indicator* detects feed. As soon as the full indicator reports feed, the system stops and the maximum running time is reset.

If the *Maximum running* time is exceeded, the system stops and sounds an alarm. Reset the alarm or turn the *Alarm circuit* off and on (see page 9) to restart the system (see page 13).

Recommendation: Install a chain break or motor protection detection.

- With a chain break, the system stops and gives an alarm. After solving the problem or resetting the alarm, the system restarts.
- With motor protection, the system stops and gives an alarm.

The chain feed system automatically restarts if:

- the thermal protection is reset;
- the motor protection alarm is cleared (*Alarm status* screen: *Reset* = *yes*, see page 9).

Start signal

You can generate a start signal in several ways:

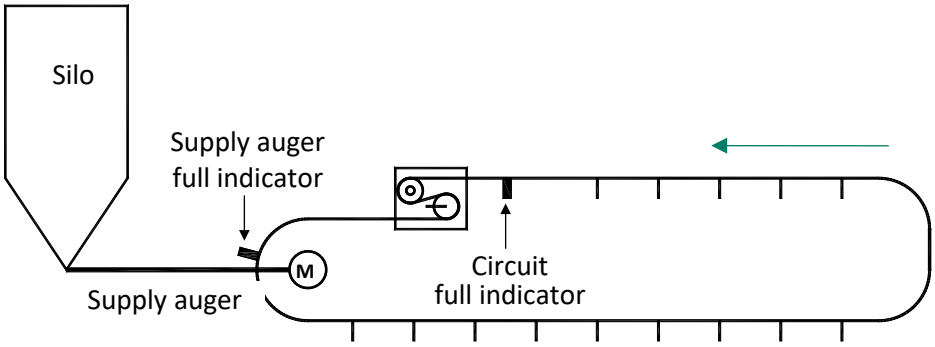
- via the *Start* setting on your feed computer.
- via a timer that can be set per circuit. You can feed the piglets fresh feed a maximum of 6 times a day.
- via an external push button.

Maximum runtime

The *Maximum runtime* setting allows you to stop the system once this maximum runtime has expired. This prevents the feed system from being unnecessarily active in the following situations:

- empty silo
- feed drop tube not straight above feed hopper

3.2 Circular circuit with supply auger



1. A supply auger transports the feed from the silo to the circuit. This has the following advantages:
   - Fewer curves
   - More accurate feed dosing in the circuit based on speed, pitch and auger diameter
2. The operation of the circuit is identical to that of the circular circuit, see page 3.
3. The supply auger starts after a set time (installer setting).
4. If the *Supply auger full indicator* has been installed, the supply auger will stop as soon as this full indicator detects feed.

5. If the *Motor protection* detection of the supply auger is activated, the system will stop the feeding process and generate an alarm.

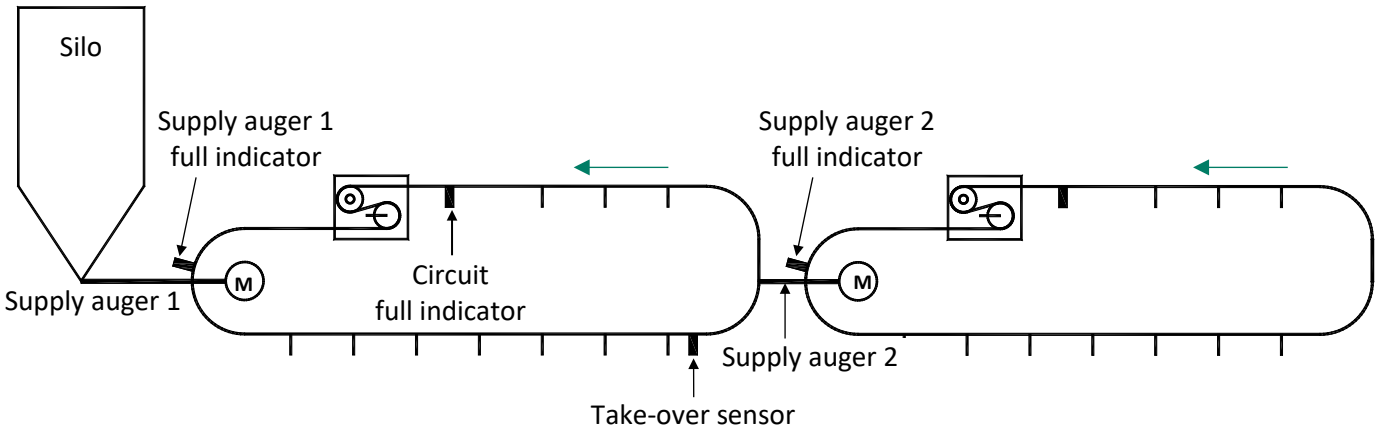
   The feed auger restarts automatically if:
   - The thermal safety device is physically reset;
   - The motor protection alarm is cleared (enter yes after Reset in the *Alarm status* screen to clear the motor protection alarm, see page 9).

Delayed switching on prevents the circuit from getting obstructed. There is still some feed in the pipe immediately after start-up. This should first be discharged into the troughs before new feed is added to the circuit (pipe too full).

You can omit the *Supply auger full indicator* in certain situations. Have the circuit run one full cycle after starting and then start filling.

3.3 Circular circuit in cascade

If a circuit is too long, you can divide it into several cascaded circuits.

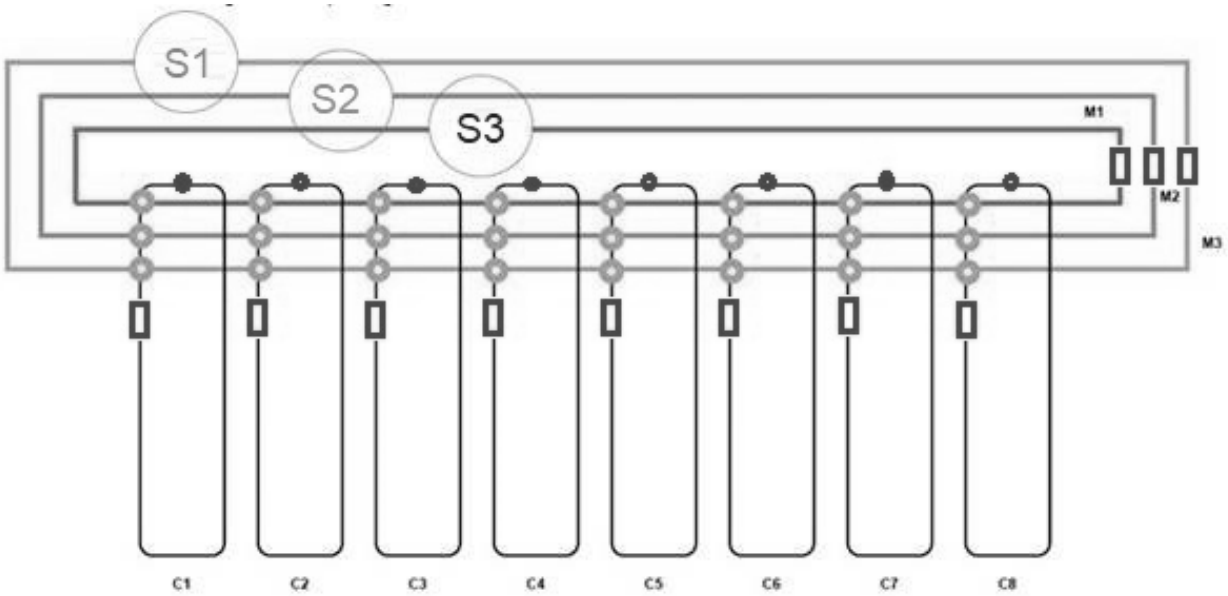


1. A supply auger transports the feed from the silo to the circuit.
2. The operation of the individual circuits is identical to that of the circuits described above, see pages 3+4.
3. The *Take-over sensor* is ignored for an adjustable time after the circuit start signal.
4. The next cascade circuit starts when the *Take-over sensor* detects feed after this adjustable time has elapsed.
5. There is a pause during the maximum propagation time of the main circuit.
6. The *Propagation time* concerns the active circuit. This enables you to set a realistic maximum propagation time for each circuit.
7. If an alarm is detected in one of the circuits, all the circuits and the corresponding supply augers will stop.

If the cascade circuit is too full, the system will stop. The circuit does not see any feed for a while now and again sends a *full* signal. This means that it cannot be restarted by the *Take-over sensor*.

The supply auger drawn in the cascade circuit is optional.

3.4 Multi-phase feeding system with circuits



1. After the start signal, the first circuit in the series is started.
2. After the waiting time for this circuit has elapsed, the silo circuits and the valves programmed for this recipe are started.
3. As soon as the system's full indicator detects that the system is full, the status changes to *ready* and the next circuit starts.

4 Screen and keyboard

4.1 Screen

If some text lines extend beyond the screen, you will see in the title bar.
You can then use ▲ ▼ to display these settings and/or measurements.

If some text lines extend beyond the screen, you will see in the title bar.
You can then use ◀ ▶ to display these settings and/or measurements.

If is shown in the title bar and you press function key F3, the settings will be displayed graphically. The dot (●) in the graph indicates the calculated value. Pressing F3 again turns off the graphical display. The display lights up for a few minutes every time a key is pressed. This enables you to see the settings and measurements in a dark animal house.

◀◀ = select previous screen
▶▶ = select next screen

4.2 Keyboard

Change language

F1 ▶ = next language

◀ F1 = previous language

Press and hold F1 and press ◀ ▶ to select the previous or the next language.

4.3 Numeric keys (0..9)

Use the numeric keys to enter a screen number, a valve number, value or text.

Key	Character
0	_0
1	.,1'-:+
2	abcäáàâç2ABCÄÁÀÂÇ
3	defëéèê3DEFËÉÈÊ
4	ghiïíìî4GHIÏÍÌÎ
5	jkl5JKL
6	mnoöóòô6MNOÖÓÒÔ
7	pqrs7PQRS
8	tuvüúùû8TUVÜÚÙÛ
9	wxyz9WXYZ

Text input

Use 2 ... 9 to change the name (max. 15 characters including spaces) of a recipe, timer, external alarm, etc. The character is shown in a little box. Press the numeric key repeatedly until the character to be selected is shown. To enter a punctuation mark, press 1 repeatedly. Use 0 to insert spaces.

2 : Press once for a, twice for b, etc.
Use ◀ and ▶ to move the text cursor.

4.4 Navigation keys

▶ ◀ In control mode, press and hold to move the cursor to the right or left.
Move cursor left or right in edit mode.

▲ ▼ Move cursor up or down in control mode.
Increase or decrease value in edit mode.

▶▶ ◀◀ Select next or previous screen in control mode.

4.5 Control keys

✓ Confirm the selected menu option, start edit mode and confirm the change.

✗ Abort menu option or change. Press and hold this key to return to the main menu.

Shortcut to alarm screen.

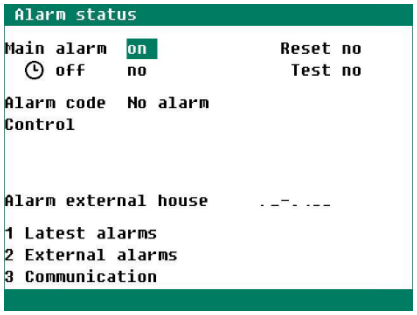
4.6 Adding or removing breakpoint or period

1. Press ✓ (Enter key) to enter edit mode.
2. Press and hold F1 and press ▲ to add a breakpoint/period (provided that the maximum value for periods/breakpoints has not been reached).
3. Press and hold F1 and press ▼ to remove a breakpoint/period (provided there is a period/breakpoint).
4. The number of breakpoints/periods is adjusted automatically.

4.7 Alarm key

Shortcut for alarm screen. The LED in the alarm key lights if one of the controls has an alarm situation.

You can use this to switch the main alarm on and off. If the main alarm is off, the LED will flash evenly. No alarms will be generated then. Installation errors cannot be switched off.



Testing the alarm

Set *Test* to *yes* to test the alarm relay (siren) for 10 seconds.
Set *Test* to *no* to clear the alarm test time.

Temporary switching off the alarm (🕒 *off*)

Option to temporarily switch off the alarm (siren); you cannot temporarily switch off hardware alarms. The main alarm will be switched off for 30 minutes and the LED will flash unevenly. The main alarm will automatically switch on again after 30 minutes. If the cause of the alarm has not been remedied, the alarm relay will de-energize again, causing an alarm. You can clear the temporary alarm deactivation time by setting 🕒 *off* to *no*.

Reset alarm

First all alarms are cleared, after that all active alarms are set again.

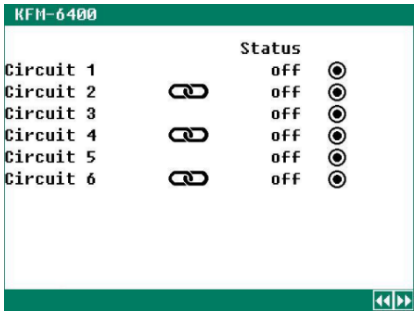
4.8 Terminal numbers

The terminal number of an input/output consists of: a 2-digit module address, the input/output type (letter) and a 2-digit serial number.

Letter	I/O type	Description
A	0-10V output	Analogue output: 0-10V or 10-0V
B	Relay output	Relay contact output (not: alarm relays, digital outputs, etc.).
C	Digital output	Optocoupler output (max. 35Vdc, 30mA), e.g. kg pulse output.
D	Open / close output	N/A
F	30-230Vac output	Controlled triac output: 30-230Vac
G	2-10V output	N/A
K	Temperature sensor	N/A
L	0-10V input	Analogue input: 0-10V
M	Digital input	Contact and counter inputs, etc.
N	Meteo station	N/A
R	Pressure sensor	N/A

5 Overview screen / main menu

5.1 Overview screen



Cascade circuit

Full indicator detects no feed

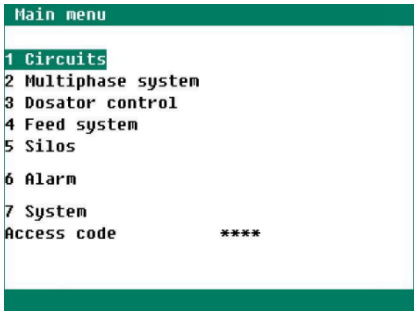
Full indicator detects feed; delay time is still active

Full indicator detects feed; delay time is over

Feeding process is active

Press a numerical or navigation key to go to the main menu.

5.2 Main menu



When using an access code, we recommend that you write it down and keep it somewhere safe. You will not be able to change any settings if you do not have the access code.

If one access code is active, you can only change the setting after entering the correct access code.

The access code will remain active until the overview screen is selected. If you want to change a setting, you will then have to enter it again.

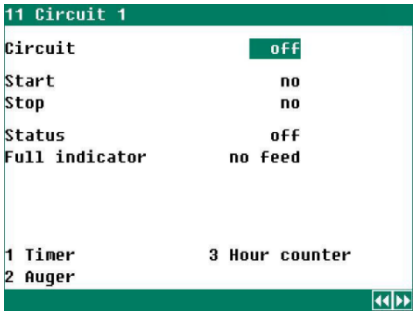
5.3 Access code

You can set an access code (four digits) to prevent unauthorized personnel from changing settings. Your installer can set a maximum of 6 access codes for you.

You can program a separate access code for the status screen. If you only set an access code for the status screen, this will apply to all user screens.

6 Circuits

6.1 Circuit



Circuit Switch circuit on/off.

Start Manual start of basic circuit

This function is not available in a multi-phase feeding system with circuits.

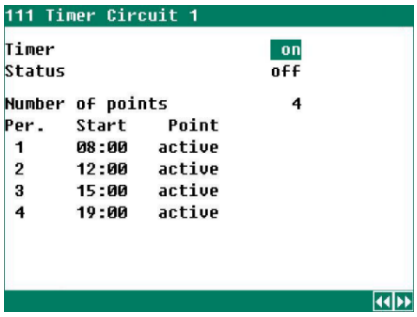
Stop Manual stop of basic circuit

Status

- *rest* System is waiting for start command.
- *wait* System is waiting for the linked dosator to close.
- *start* Circuit has started and is waiting for the system to empty.
- *fill* The system can be switched off if the *Full indicator* or *Take-over indicator* detects feed.
- *ready* External start command is still present.

Full indicator The *Full indicator* and *Take-over indicator* times only show when these times are counting down. There is feed in front of the sensor.

Timer



Timer You can switch the timer *on* and *off* here.

Status Current timer status (*on* or *off*)

Number of points Setting for max. eight starting points.

Per. Timer period number.

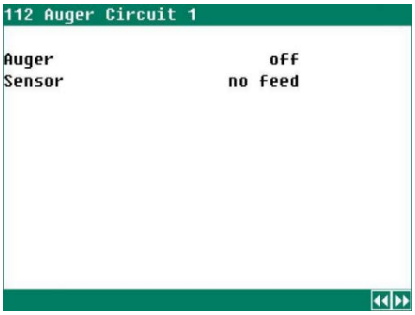
Start Timer start time.

Point You can set each point to *active* or *off*.

The *active / off* option enables you to temporarily switch points off, e.g.:

- To make sure the troughs are empty when the pigs are moved to another location.
- To make sure that the pigs empty the troughs once a week or once every two weeks.

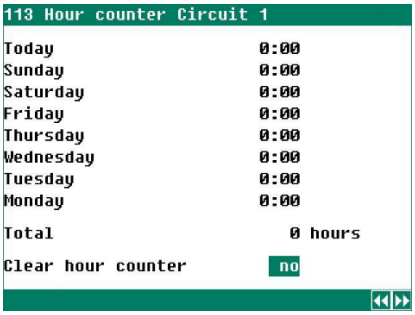
Auger



Supply auger Current supply auger status.
Sensor Current sensor status (supply auger full indicator): *feed* or *no feed*

The supply auger stops as soon as the *Sensor* detects feed.

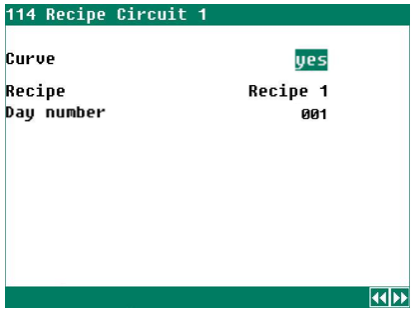
Hours counter



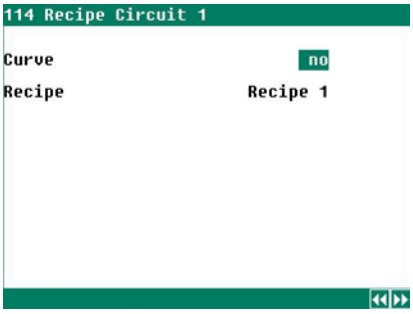
You see the operating hours and minutes for today, for the past seven days and the total number of operating hours for the selected circuit.

You can delete all the operating hours for the selected circuit by setting *Clear hour counter* to *yes*.

Recipe



Curve = yes



Curve = no

In this screen, you select the recipe to be fed per circuit.

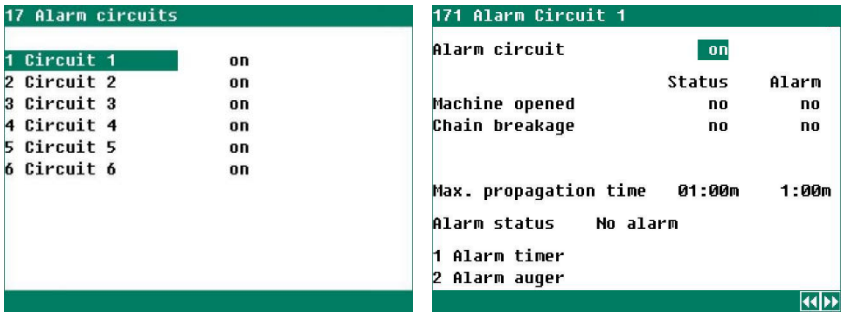
Only available for multi-phase feeding system with circuits.

6.2 Alarm

For a multi-phase feed system with circuits, the alarm screen looks different:

- It is not possible to switch circuits on and off here.
- Instead of six choices, there are now 20 choices per page.
- At the bottom of the page there is a link at menu choice 1 instead of a menu choice

(see screen 1 and screen 10).



Alarm circuit — Here you can switch the alarm on/off.

Machine opened — Opening the machine stops the system and causes an alarm to be generated. First resolve the cause of the alarm. You can restart the system by switching *Alarm circuit* off and on or by activating *Reset* in the Alarm screen.

Chain breakage — If a *Chain breakage* alarm occurs, the system stops and an alarm is given. Remedy the cause of the alarm first. You can restart the system by switching *Alarm circuit* off and on or by activating *Reset* in the Alarm screen.

Alarm delay — Chain breakage detection by means of pulse counter: If no pulses are received during the set *Alarm delay* time, the *Chain breakage* alarm will activate.

Motor protection — The motor protection alarm is cancelled when the fault has been remedied and the motor protection alarm is cleared, see page 9.

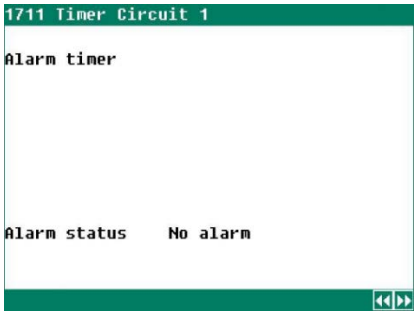
Max. propagation time — The system checks whether the *Full indicator* detects an uninterrupted column of feed for a set time. If so, the system stops and the *Maximum propagation time* is reset. If the *Max. propagation time* is exceeded, the system will stop and an alarm will be generated. You can restart the system by resetting the alarm on the KFM-6400 or by switching *Alarm circuit* off and on.

The changed times will be taken over if:

- *Alarm circuit* = off
- *Status circuit* = rest
- The new propagation time is shorter than the previous propagation time that had been set.

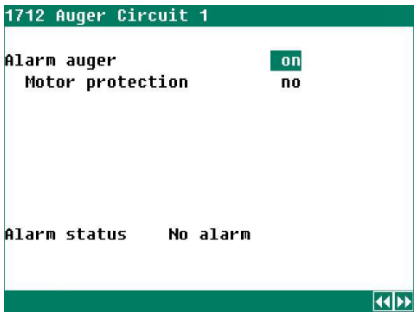
Alarm status — Display of the cause of the alarm.

Timer alarm



Alarm status Display of the cause of the alarm.
Alarm: set the correct timer periods, page 11

Supply auger alarm

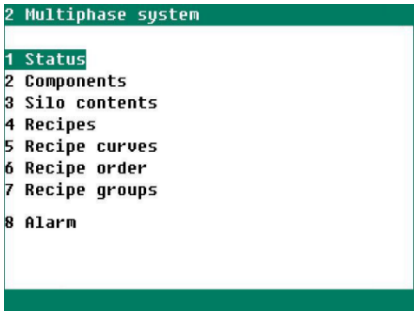


Alarm auger Switch the alarm on/off.

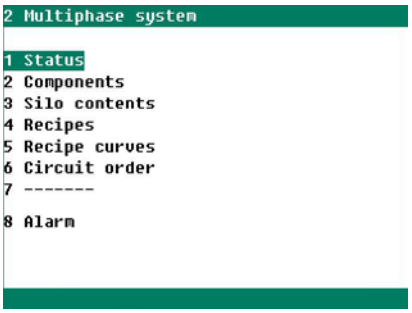
Motor protection Find the cause of why the motor protection was triggered and resolve the problem, possibly with the help of your installer.

7 Multiphase feeding system

The multi-phase feeding system enables several recipes to be transported to the feeding places along one and the same circuit. A recipe is a feed mixture of ingredients from several silos. The silos are controlled sequentially (relay) or in parallel (via their own frequency controllers).

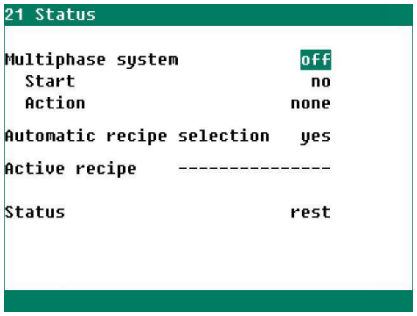


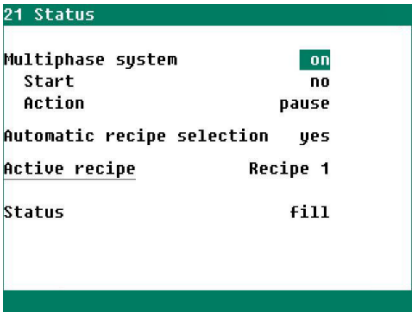
Multi-phase feeding system with selection slider or recipe groups

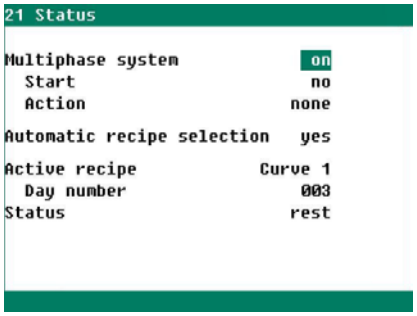


Multi-phase feeding system with circuits

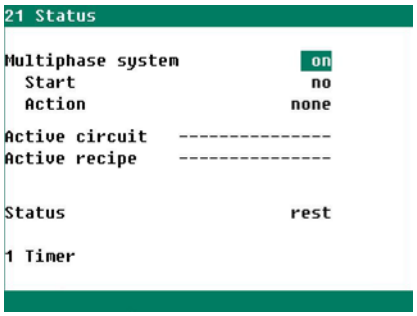
7.1 Status

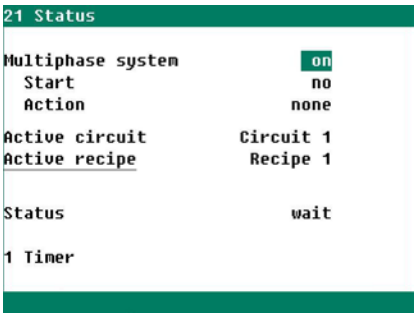


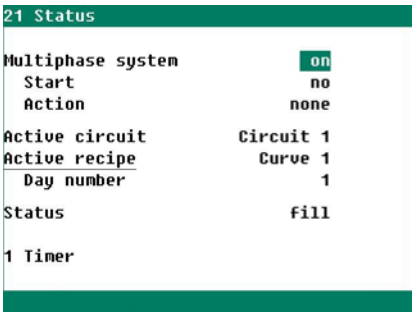


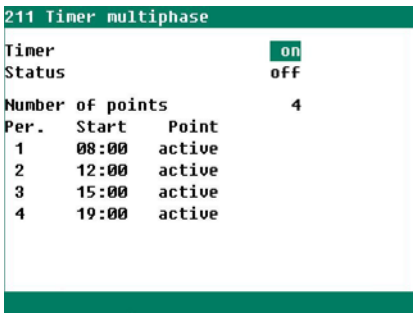


In a multi-phase system with circuits, the status screen looks slightly different:









The timer menu works the same as the timer menu at the circuit.

As long as the feeding system has not yet started, you can adjust the number and order of recipes for that day. The system can be started manually, automatically or via a digital input. After the system is started, changes are only implemented the next day

Normally, the KFM-6400 multiphase feeding system will run its program normally. Abnormal situations can occur: faults, no feed component in the silo, etc.

If a silo is empty and the feed recipe cannot be created, you have the following options:

1. Wait for the feed component to be delivered and then proceed
2. Skip this feed recipe and start feeding the recipes that can be created.
3. As soon as the relevant component is present again, feed the skipped recipe manually.
4. Continue with a different ingredient.

Multiphase system — You can use this to switch the multiphase feeding system on and off.

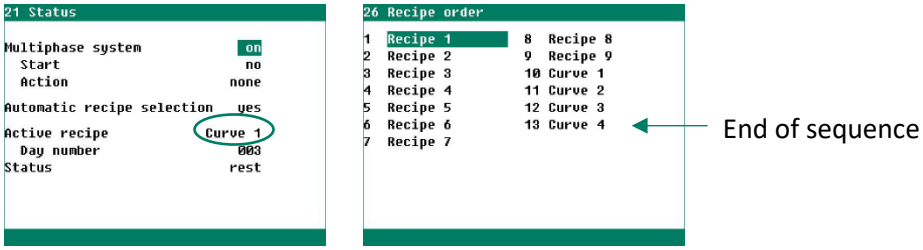
Start — Manual start of multiphase feeding system.

Action

- *none* — No action.
- *pause* — The multiphase feeding system is paused, all motors stop.
- *abort* — The process is aborted.
  - ! The system may still contain feed, depending on the status.
- *skip* — The current recipe is skipped.

Automatic recipe selection — *Yes* = follow the sequence described in screen 26.
No = finish the selected recipe/curve and then stop.

Active recipe



Active recipe lets you set the active recipe or curve. This recipe causes the system to start feeding according to the sequence set in screen 26.

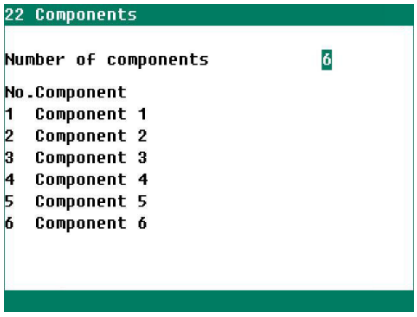
! The system will not circulate until all sequences have been completed.

- E.g.: *Curve 1* has been set as the active recipe. All recipe groups with setting *Curve 1* will be gone through first. The corresponding day number is used to determine the recipe from the curve.
- The *Recipe order* is then referred to in order to determine which recipe (or curve) is next. If this is *Curve 2*, all the recipe groups with the setting Curve 2 will be gone through.
- The system stops as soon as *Curve 4* has been completed.

Day number — Day number of the recipe curve. This day number is needed to determine the current recipe from the recipe curve.

Status — Display of the active status: *rest, wait, start, fill* or *ready*.

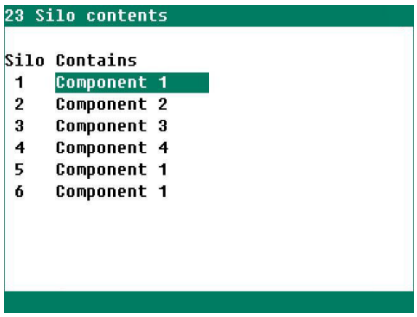
7.2 Components



Do not set more components than necessary.

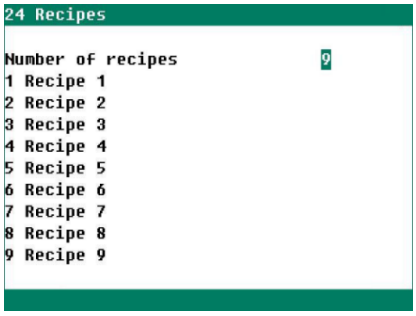
You can change the component names using the 0..9 keys.

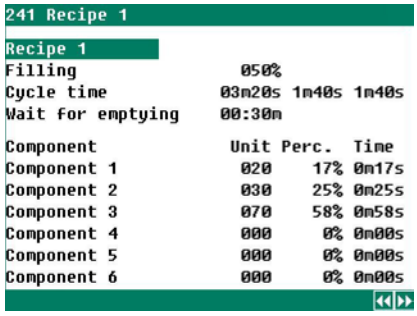
7.3 Silo contents



You can set the components contained in the individual silos.

7.4 Recipes





Number of recipes — You can set a maximum of 9 different recipes. You can use the 0..9 keys to change the names of the recipes.

Filling — You can enter a filling percentage and cycle time for each recipe. The reason for this is that a different filling of the transport pipe is needed for each type of feed. Young animals eat less. Completely filling the transport pipe would lead to a long waiting time until the next feed cycle can start. To prevent this, the transport pipe filling percentage can be set.

Cycle time — The distribution of the feed in the transport pipe and, as a result, the amount of feed for the animals is determined on the basis of the filling percentage and the cycle time.

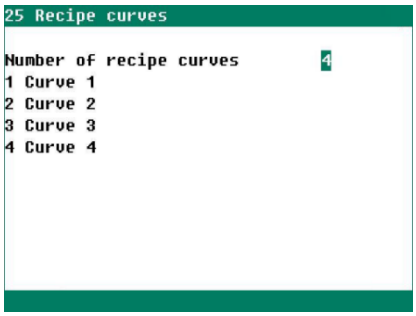
Wait for emptying — The transport pipe is emptied after the time set here.

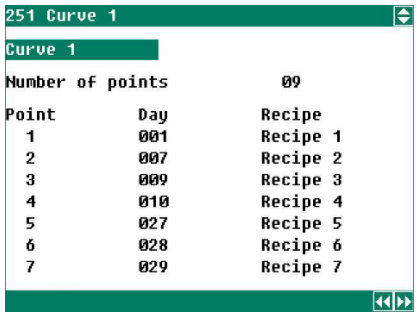
Unit — You can set the mutual dosing ratios of the different components here.

Perc. — The percentage calculated from the ratio settings.

Time — The time calculated on the basis of the ratio settings.

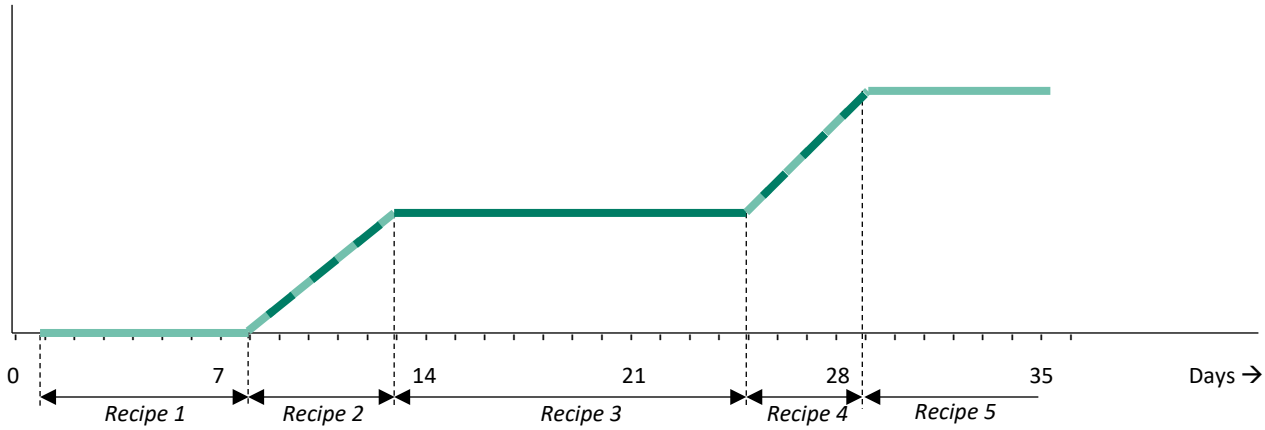
7.5 Recipe curves (multiphase = recipe group)





You can set a maximum of 4 recipe curves, each with a maximum of 15 breakpoints.

Example of a recipe curve



Curve 1

```
251 Curve 1
Curve 1

Number of points          05

Point        Day          Recipe
  1          001          Recipe 1
  2          008          Recipe 2
  3          013          Recipe 3
  4          025          Recipe 4
  5          029          Recipe 5
```

```
24 Recipes

Number of recipes          5
1 Recipe 1
2 Recipe 2
3 Recipe 3
4 Recipe 4
5 Recipe 5
```

```
241 Recipe 1
Recipe 1          on
Filling           050%
Cycle time        03m20s 1m40s 1m40s
Wait for emptying 00:20m

Component         Unit Perc.
Component 1       100   100%
Component 2       000     0%
Component 3       000     0%
```

```
242 Recipe 2
Recipe 2          on
Filling           050%
Cycle time        03m20s 1m40s 1m40s
Wait for emptying 00:00m

Component         Unit Perc.
Component 1       050    50%
Component 2       050    50%
Component 3       000     0%
```

```
243 Recipe 3
Recipe 3          on
Filling           050%
Cycle time        03m20s 1m40s 1m40s
Wait for emptying 00:00m

Component         Unit Perc.
Component 1       000     0%
Component 2       100   100%
Component 3       000     0%
```

```
244 Recipe 4
Recipe 4          on
Filling           050%
Cycle time        03m20s 1m40s 1m40s
Wait for emptying 00:00m

Component         Unit Perc.
Component 1       000     0%
Component 2       050    50%
Component 3       050    50%
```

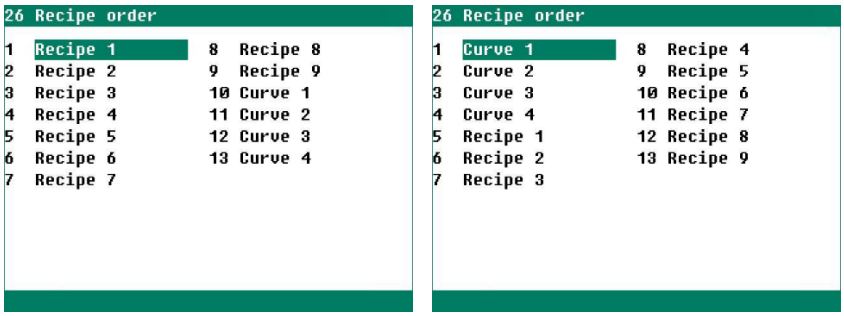
```
245 Recipe 5
Recipe 5          on
Filling           050%
Cycle time        03m20s 1m40s 1m40s
Wait for emptying 00:00m

Component         Unit Perc.
Component 1       000     0%
Component 2       000     0%
Component 3       100   100%
```

7.6 Recipe order

Multi-phase feeding system with selection slider or recipe groups

This screen allows you to change the recipe/curve order.

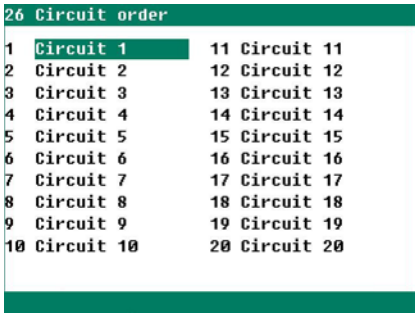


This screen enables you to change the recipe/curve order.

In the left-hand screen, you see that the names of the last four recipes (*Recipe 10 …. Recipe 13*) have been changed to *Curve 1 …. Curve 4.* See section 4.3 for changing names.
To put the recipes *Curve 1, Curve 2, Curve 3* and *Curve 4* at the top of the recipe order, do the following:

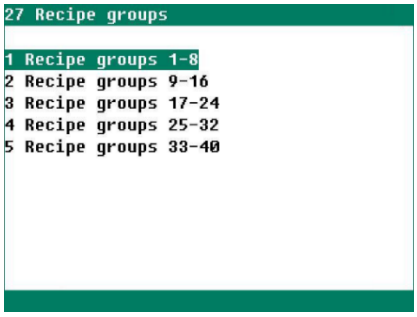
1. Go to the *Recipe 1*.
2. Use the buttons ▲ ▼ to select the recipe you want to be at this position here.
3. The recipe that was here automatically moves to the position where the one you just selected was. The positions are swapped.

Multi-phase feeding systems with circuits

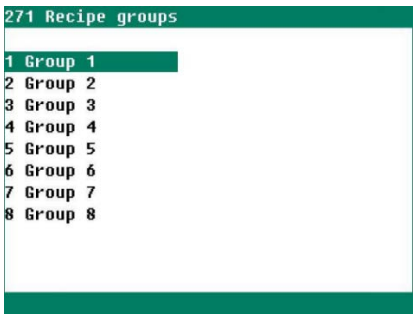


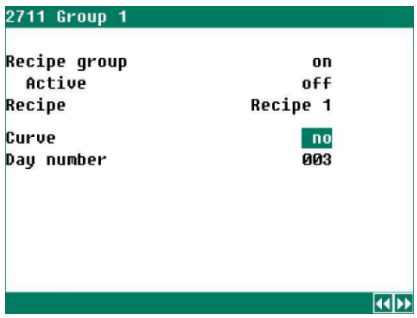
For a *multi-phase system with circuits*, the circuit order can be changed in the same way

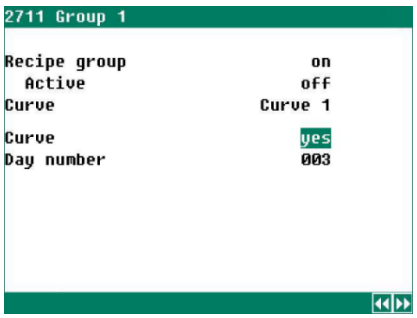
7.7 Recipe group (multiphase = recipe group)



If *Automatic recipe selection* = *yes* in screen 21, at least one recipe group should be active.

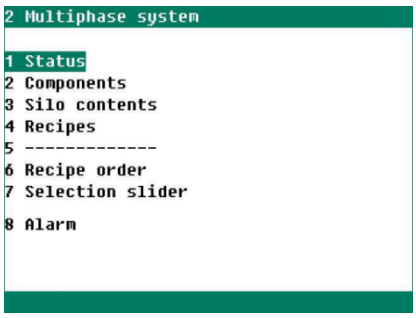


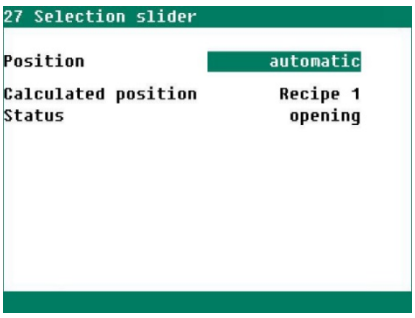




Recipe group *Active*	Switch the recipe group on/off. Current recipe group status.
Curve	Desired recipe curve.
Recipe	Desired feed recipe.
Curve	yes = recipe curves are used instead of recipes.
Day number	Start day number of the recipe group. The day number is increased automatically at 24:00.

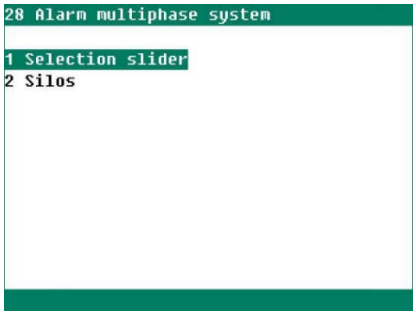
7.8 Multi-phase system with selection slider

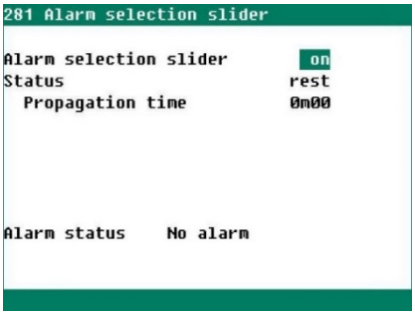


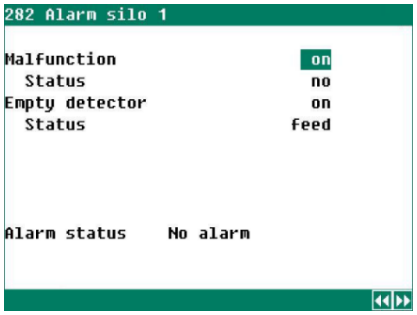


Position	*automatic*	The order set in screen 26 is followed.
	recipe x	You can check the operation of the motors and/or the slider positions by manually selecting a recipe
Calculated position		The current position is calculated from the position setting.
Status	*off*	No action.
	rest	The process has started, awaiting follow-up action.
	closed	The slider has closed.
	opening	The slider is opening to assume a new position.
	open	The slider has opened.
	closing	The slider is closing.
	ready	The slider is on standby, a new action can follow.

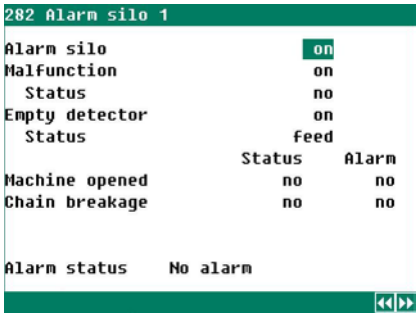
7.9 Alarm







Multi-phase system with selection slider

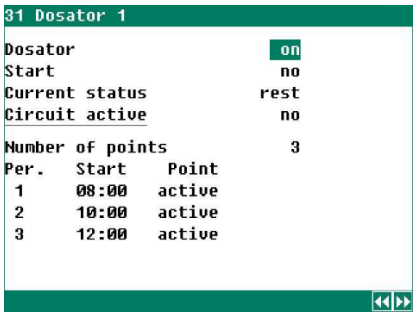


Multi-phase system with circuits

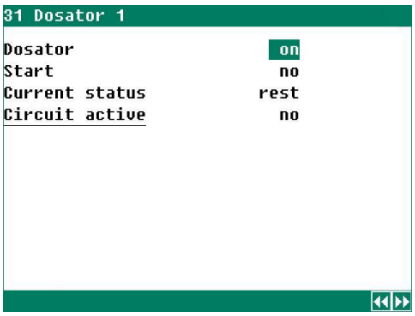
Alarm selection slider	Switch the selection slider fault alarm on/off.
Status	Current selection slider status.
Propagation time	Remaining propagation time (minutes, seconds) of the selection slider.
Malfunction	Switch the silo fault alarm on/off.

Status *Empty detector*	Current silo status. Switch the empty detector alarm on/off.
Status	Current empty detector status: *feed* or *no feed*.
Machine opened	When you open the machine, the system stops and an alarm is given. First solve the cause of the alarm. Then you can restart the system by turning the alarm circuit *off* and *on* again or by setting *Reset* to *yes* in the alarm screen..
Chain breakage	When there is a chain breakage, the system stops and an alarm is given. You must first resolve the cause of the alarm. Then you can restart the system by turning the alarm circuit *off* and *on* again or by setting *Reset* to *yes* in the alarm screen. Chain breakage detection by pulse counter: If the system does not receive pulses during the set *Alarm delay time*, the chain breakage alarm activates.
Motor protection	After the cause of the motor protection alarm has been resolved, you can reset the alarm by setting *Reset* to *yes* in the alarm screen. See section 4.7.

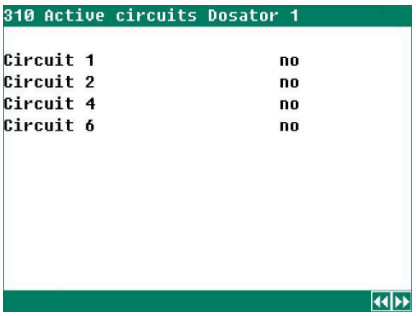
8 Dosator control



Dosator with timer



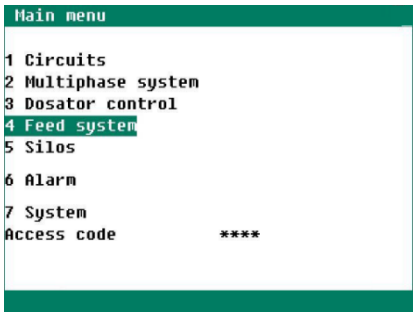
Dosator without timer

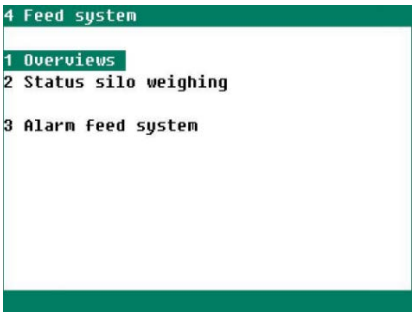


Dosator		Switch the dosator on/off
Start		Yes = manually open the dosator; not possible if the linked circuit is active.
Current status	*off*	Dosator off.
	rest	Dosator on.
	waiting	Waiting for the *circuit to be cleared*.
	open	Dispense supplement.
	---	Transition state to reach closed state. Only visible if the installer has entered a relay output at *Output closed*.
	closed	The dosator has stopped dispensing. Only visible if the installer has entered a relay output at *Output closed*.
	---	Transition state to reach ready state. Only visible if the installer has entered a relay output at *Output closed*.
	ready	Dispensing is ready.
Circuit active		Current status of the linked circuits: *no/yes*. This will say *yes* is one of the circuits is active. Select the link to see a list of corresponding circuits.
Number of points		A maximum of 6 switch points.
Per.		Period number.
Start		Dispensing start time.
Point		Period status: *off* or *active* (dispense/do not dispense during the period).
Active		Time during which the dosator is active.

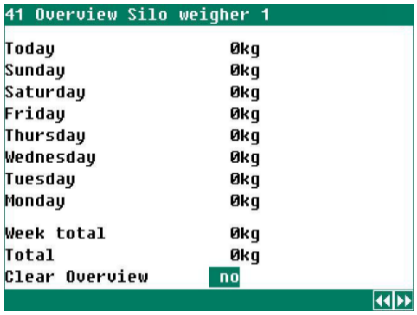
! If the dosator status is *waiting*, the status can only be cleared by performing a *Reset* in the *Alarm status* screen.

9 Feeding system





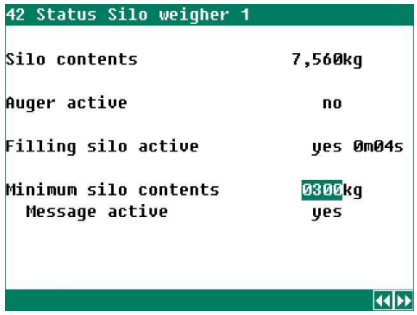
9.1 Overviews



If your installer has assigned a counter to the silo weigher and filled in the corresponding silo number at *Silo info via communication*, you can call up a counter reading overview.

Clear overview Clear all counter readings, including today's.

9.2 Silo weigher status



← Silo filling state active (bulk switch “enable” delay time).

Silo contents Display of the current silo contents.

Auger active If the silo auger is running *(yes)* and silo filling is taking place, the silo contents might not change.

Filling silo active

With bulk switch As soon as the bulk switch is operated, the KFM-6400 assumes that silo filling is taking place.

Without bulk switch The weight filled is determined automatically. If the silo contents increase by more than 50 kg every 30 seconds, the KFM-6400 assumes that filling is taking place (*Filling silo active*). If the weight does not increase for 5 minutes, the filling silo active state is cancelled.

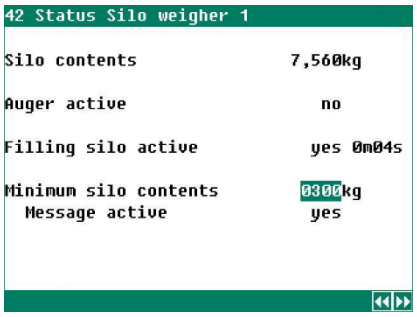
Minimum silo contents If the silo contents drop to below the *Minimum silo contents* setting and the message is active, the corresponding relay (message) is switched on.

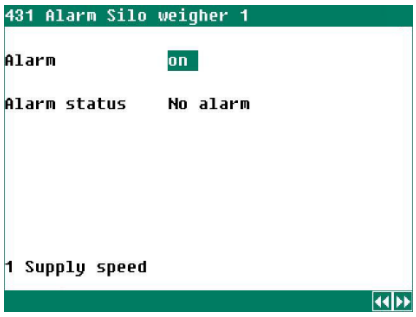
Message active The message can be switched off by entering *No* for *Message active*.

! If you receive a new message if the contents have dropped to below the minimum level, reactivate the message after filling.

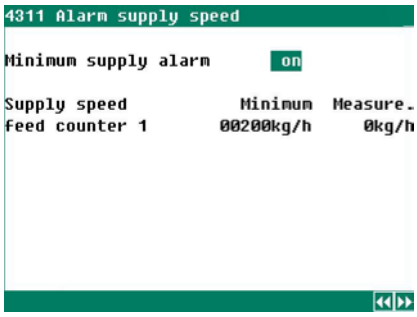
9.3 Feed system alarm

Silo weighing



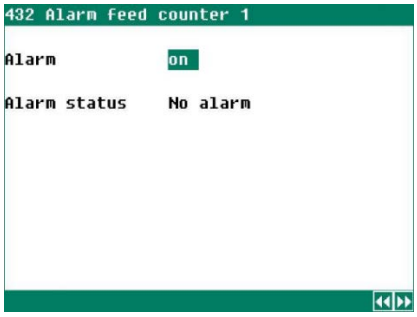


Supply speed



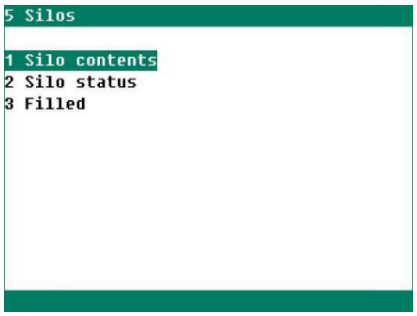
Alarm	Switch the silo weigher alarm on/off.
Alarm status	Current alarm status.
Minimum supply alarm	Switch the supply speed alarm on/off.
Supply speed	Counter that measures the supply speed.
Minimum	Minimum supply speed in kg/h. If the supply speed is below the minimum supply speed (kg/h) for 60 seconds, a supply speed will be generated.
Measure.	If the silo weigher is connected to a counter, the current supply speed will be shown.

Counters

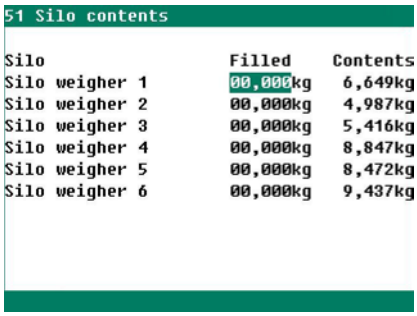


Alarm	Switch the feed counter alarm on/off.
Alarm status	Current alarm status.

10 Silos



10.1 Silo contents

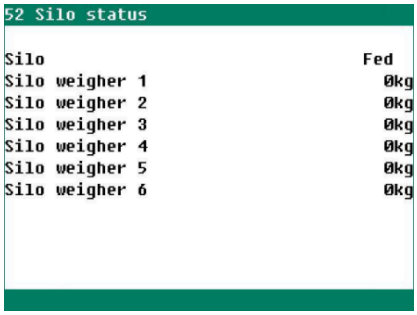


Display of current silo contents: stock or shortage.

Filled and *Contents* are added together after entering the amount filled. The amount filled is set to 0 after this.

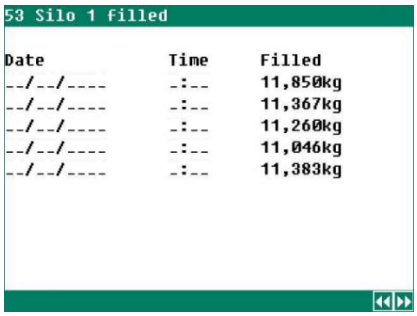
This fill data should be entered immediately after filling, for the next feeding period.

10.2 Silo status



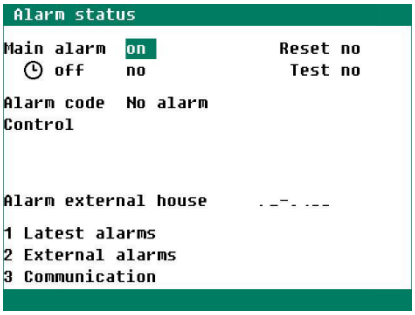
Display of today's component amounts fed per silo.

10.3 Filled



Overview per silo of the last five times the filling data was entered in screen 51 Silo contents. You also see the filling date and time.

11 Alarm



You can use this to switch the main alarm on and off. If the main alarm is off, the LED will flash evenly. No more alarms will be generated then. This does not apply to installation errors. These alarms cannot be switched off.

Testing the alarm

Set *Test* to *yes* to test the alarm relay (siren) for 10 seconds.
Set *Test* to *no* to clear the alarm test time.

Temporary switching off the alarm (🕒 *off*)

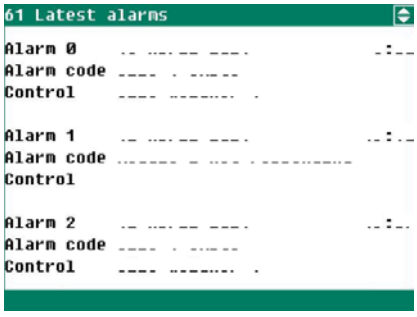
Option to temporarily switch off the alarm (siren); you cannot temporarily switch off hardware alarms. The main alarm will be switched off for 30 minutes and the LED will flash unevenly. The main alarm will automatically switch on again after 30 minutes. If the cause of the alarm has not been remedied, the alarm relay will de-energize again, causing an alarm. You can clear the temporary alarm deactivation time by setting 🕒 *off* to *no*.

⚠ Do not forget to switch the alarm back *on*, e.g. if it was switched off to resolve a fault. Preferably use the 🕒 *off* (alarm temporarily off) function to resolve a fault.

Resetting the alarm

First all alarms are cleared, after that all active alarms are set again

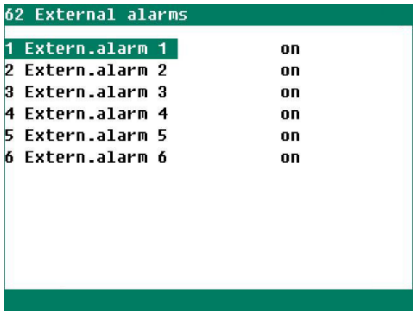
11.1 Latest alarms

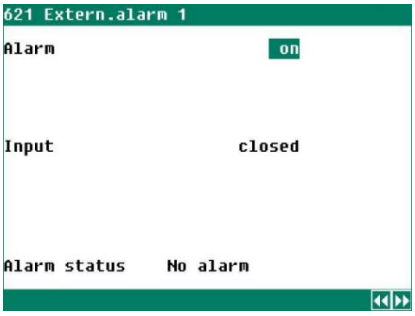


The last 5 alarm causes which caused the alarm relay to de-energize are stored. The date and time are displayed in addition to the cause. Press ▼ to display previous alarm details.

Alarm 0 The cause of the *most recent alarm* with the time until which the alarm has been/was active.

11.2 External alarms

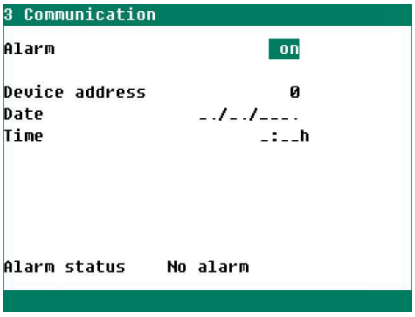




Switching external alarm on/off

Your installer can change the external alarm names (max. 15 characters).

11.3 Communication



Switching the communication alarm on / off.

A communication alarm can only occur on a KFM-6400 which is set as the main station.

If the main station does not receive any data from a device in the same communication loop, a communication alarm will occur.

When the communication alarm occurs, *Date* and *Time* are filled with the current date and time.

11.4 Alarm codes

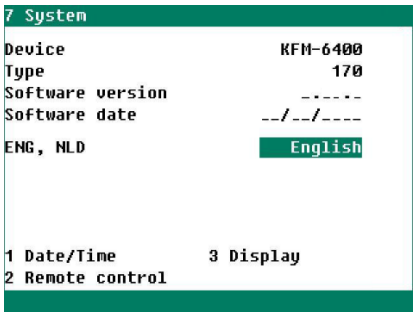
Alarm code	Description
Alarm unknown (xxxx)	This alarm code cannot be translated into text. Note down the number displayed and contact your installer.
Auger motor protection	Auger motor protection contact input activated. Check auger motor.
Beginning of day in period	*Beginning new day* is in a period; this is not allowed. This time must be before the first period.
Chain breakage	Chain breakage contact input activated. Check the feed chain.
Circuit active	Circuit active when activating the dosator.
Circuit already assigned	Circuit assigned doubly for dosator.
Circuit full	Circuit input detects feed.
Communication	Main station: communication error with an address (external device).
Communication error	▪ No communication with device; TxD/RxD LEDs do not flash. ▪ Faulty communication address. ▪ Poor connection with silo weigher.
Communication WEB-485	No communication with WEB-485. Check the connection.
Counter already assigned	The counter has been assigned to two or more controls.
External alarm	An external alarm has occurred, see screen 62, page 28.
Faulty terminal setting	Faulty assignment. The module does not support the assigned functionality.
Incorrect position	The selection slider position is not correct.
Incorrect type of input	The control does not support this type of input.
Incorrect type of output	The control does not support this type of output.
Input already assigned	The input has been assigned to two or more controls.
Invalid basic circuit	No (valid) basic circuit linked to cascade circuit
Invalid circuit	No valid circuit for dosator.
Invalid curve x	Multiphase: Curve invalid
Invalid recipe x	Multiphase: Recipe invalid
Invalid period (x)	The times set for a timer must be ascending and the difference between *Begin* and *End* and between two periods must be at least 1 minute.
Invalid position	Selection slider in incorrect position (propagation time elapsed).

Alarm code	Description
Invalid propagation time	Selection slider propagation times are invalid.
Invalid silo weigher	Software version too low: The software version in the PSW-1(D) silo weigher should be at least *1.00*.
Load cell x faulty	▪ Load cell x: Not connected. ▪ Load cell x: The voltage between E- and S+ and/or between E- and S- is not between 2.0 V and 3.0 V. Check the voltage and the wiring. ▪ Check the load cell operation.
Load cell x not active	Load cell x does not respond, configuration error.
Machine open	Machine open contact input activated.
Max. propagation time invalid	No maximum propagation time has been entered for the circuit.
Module not installed	The module number set for the terminal does not exist.
Module not responding	Module address not found, check the settings on the module.
Module reset alarm	Module continues to reset due to a fault, check the module
Module x changed	Module configuration (inputs/outputs etc.) changed. Read in the module again.
Motor protection circuit	Motor protection circuit contact input activated.
Multiphase already assigned	Only 1 multiphase circuit allowed.
No addresses in loop	The master has been set, but *Number of addresses in loop* is set to 0.
No basic circuit present	No basic circuit present in case of cascade or multiphase; the supply auger circuit is not set to *multiphase*.
No communication address	Device address is missing.
No input assigned	No input terminal number entered.
No output assigned	No output terminal number entered.
No recipe	Multiphase: no or invalid recipe.
Not closed	Dosator not closed.
Not open	Dosator not open.
Not a valid input	The input number does not exist on the module.
Not a valid output	The output number does not exist on the module.
Output already assigned	The output has been assigned to two or more controls.
Running time expired	Selection slider: Circuit propagation time has elapsed.
Silo x empty	▪ Silo weigher: Weight lower than set empty weight. ▪ Multiphase: Silo x empty
Silo x malfunction	Multiphase: Silo x malfunction.
Supply speed	Silo weigher: supply speed too low.
Unknown type of terminal	Terminal type does not exist

Do not forget to switch the alarm back *on*, e.g. if it was switched off to resolve a fault. Preferably use the *off* (alarm temporarily off) function to resolve a fault.

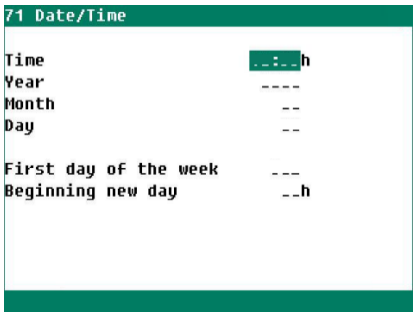
Installation errors, such as *Output already assigned*, *Incorrect type of output*, *Input already assigned* etc. must always be resolved before putting the installation into operation.

12 System



Device	Device type name, KFM-6400.
Type	Device type number: 170 = KFM-6400.
Program version	Software program version number.
Program date	Software program date.
ENG, NLD, DEU	You can set the screen text language here. Set the language to ENG (English) for this manual. The language can also be changed by pressing and holding function key F1 while simultaneously pressing the left or right cursor key.

12.1 Date/Time

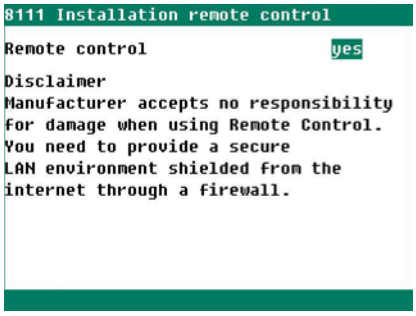


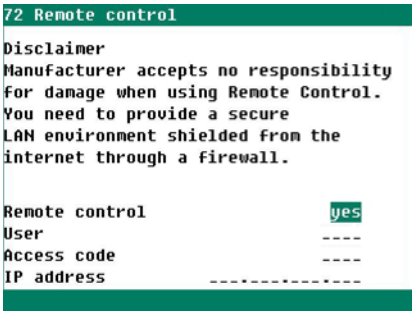
Setting the current date and time.

First day of the week	This setting is used to determine the weekly totals. If *First day of the week* is set to Sun (Sunday), the weekly totals are calculated on Sunday.
Beginning new day	Time when a new day begins. At this time: ▪ all day-dependent data is shifted by 1 day. Then today's data is erased. ▪ the day number is incremented ▪ all the data from the curve is redetermined.

! If *Beginning new day* is in a feeding period, the *Beginning new day in period* error message will display. You will then have to change the *Beginning new day* time or the *feeding period*.

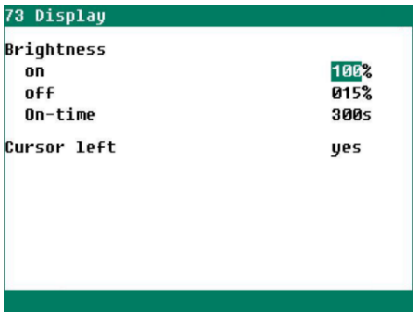
12.2 Remote control





ANote-Remote-N-ENxxxxx.

12.3 Display



Brightness	*on* *off* *on-time*	Display ratio between the "colours" white and black. You can set the light intensity of the backlighting here. Number of seconds for which the backlighting of the display continues to light up after the last key press.
Cursor left	*yes* *no*	Move the cursor to the far left when making changes. Move the cursor to the far right when making changes.