

Usermanual

AMACS -Feeding Layer

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Program version

The product described in this manual is computer-based, and most functions are realised by software. This manual corresponds to:

Software Version: V2.0.0

Product- and Documentation changes:

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IMPORTANT**Notes concerning the alarm system**

Where climatic control is used in livestock buildings, break-downs, malfunctions or faulty settings may cause substantial damage and financial losses. It is therefore **most important to install a separate, independent alarm system**, which monitors the house concurrently with climatic control. Please note that the product liability clause of **BIG DUTCHMAN**'s general terms and conditions of sale and delivery specifies that an alarm system **must be installed**.

We want to draw your attention to EU-directive No. 998 of 14/12-1993 concerning minimum requirements for domestic animals, which specifies that an alarm system must be installed in any house, which is mechanically ventilated. In addition to this, there must be a suitable emergency system.



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1 Main screen Feeding

Amacs can individually control the feeding process. The visual elements allow for intuitive and simple operation of the feeding menu.

This chapter only deals with the main screen feeding. The specific pictures as well as further detailed settings are treated in the respective chapters.

1.1 Conventional or alternative management

AMACS can represent the main screen of the feeding as conventional or alternative laying house. The settings are identical in both management systems.

1.1.1 Main screen Feeding - Conventional management system

1.1.1.1 Chain feeding

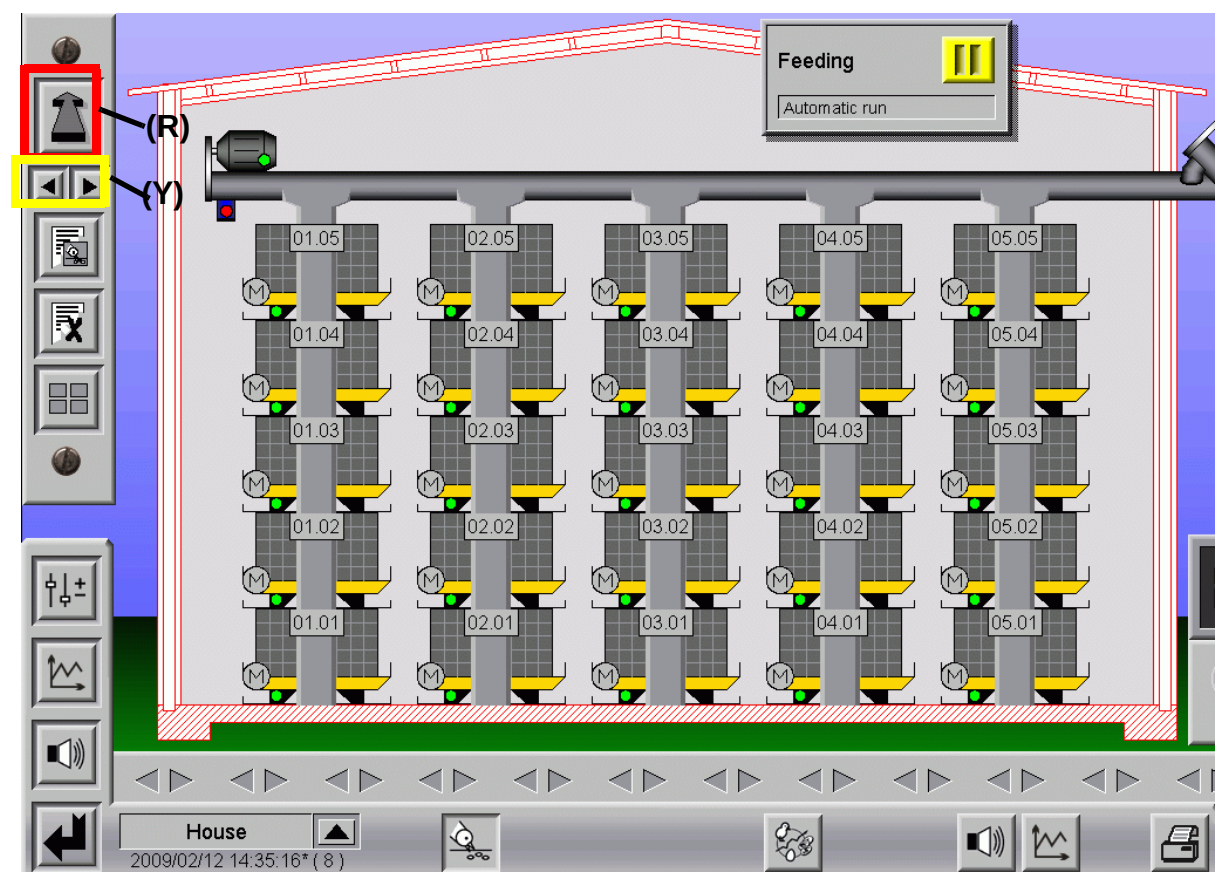


Figure 1-1: Main screen Feeding - Chain feeding

1.1.1.2 Feed cart



Figure 1-2: Main screen Feeding - Feed cart

1.1.2 Main screen Feeding - Alternative management system

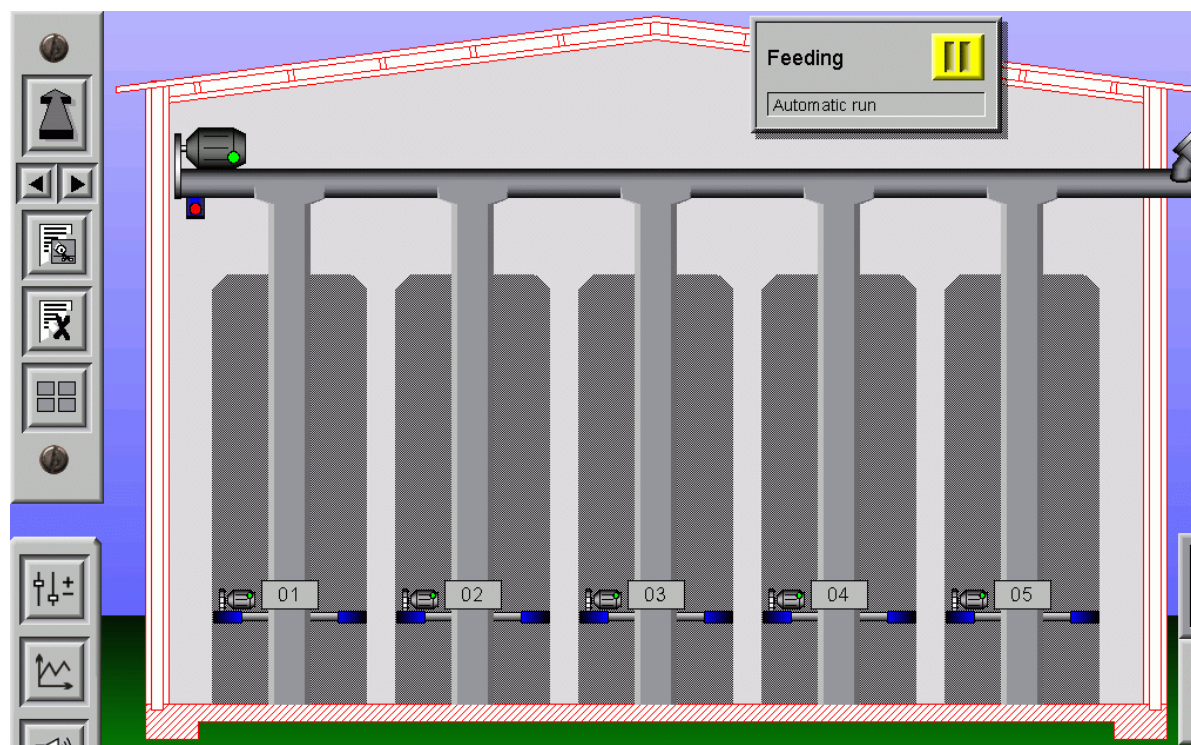


Figure 1-3: Main screen Feeding - Alternative management system

1.2 Setting display - Overview picture



Figure 1-4: Main screen Feeding

1.2.1 Switching between screen "House Feed" and zoomed picture

As can be seen in the above screenshot, it is easy to see how many rows and tiers are installed in the house. Click on the arrow highlighted red **(R)** (see figure 1-4) and the entire overview of the feeding appears as reduced or zoomed picture.

The marked area of the picture will appear correspondingly depending on what weighing system is installed in the house.

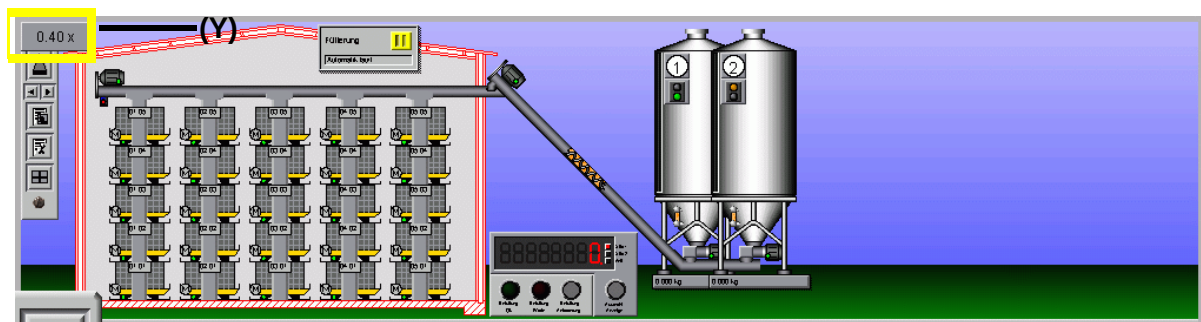


Figure 1-5: Picture of the entire feeding system

To leave the zoomed image, simply click on the field highlighted yellow **(Y)** in the previous screenshot. This will lead you back to the standard view.

1.2.2 Switching between the screen "house feed" and "silo feed"

If zooming is not desired, one can also switch between feed "House" and feed "Silo" by means of the two yellow-marked (Y) arrows.

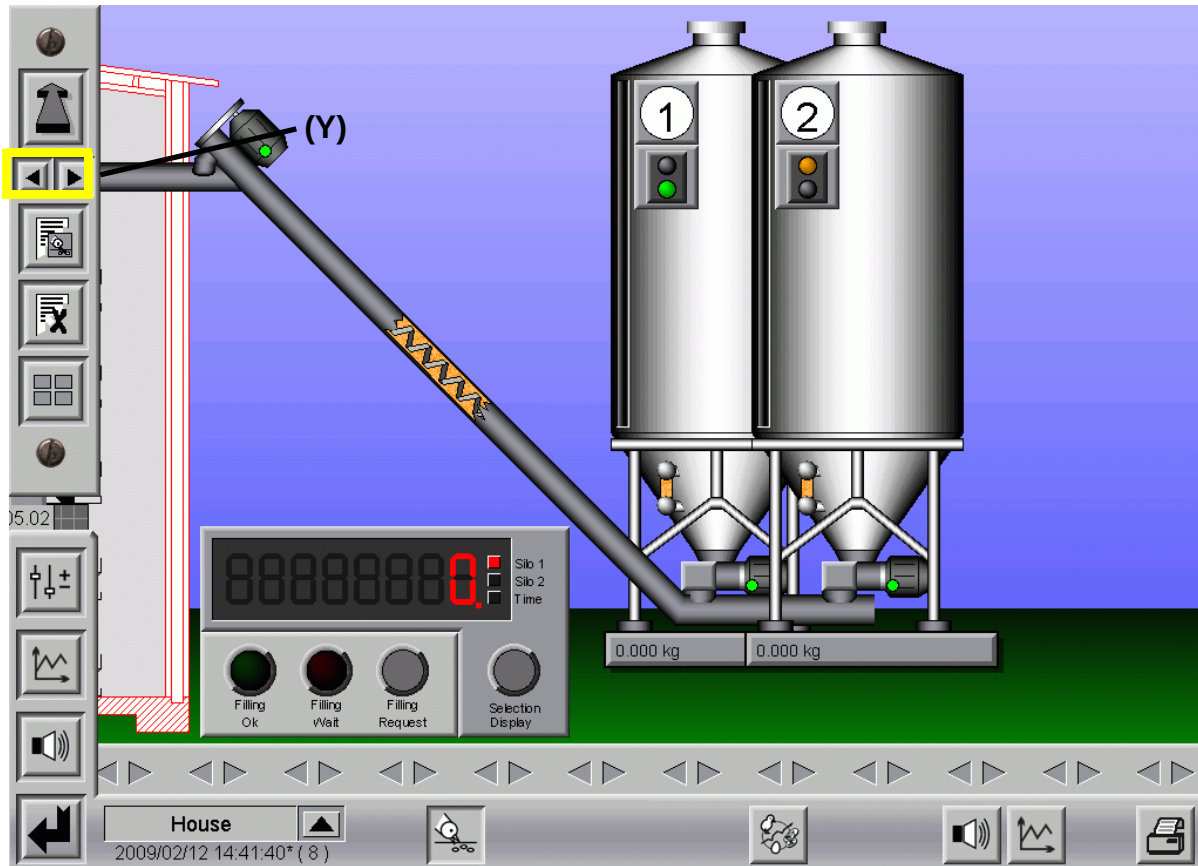


Figure 1-6: Picture of the page "Silos"

In order to return to the main view of the house, click on the left yellow-marked (Y) arrow in the previous picture.

1.2.3 Detailed zoom per cage

Even in big houses, the individual cage data may be examined quite easily. To do this, you can click in any desired area of the cage.

In those areas where zooming is possible, the cursor appears in the form of a loupe. Just click on the key. Now an enlarged picture of the selected area appears.

In order to close the zoomed picture, click either on the zoomed picture or on the yellow-marked (Y) field.

With the zoomed view it is also possible to change the area. The picture can be shifted by holding down the mouse button.

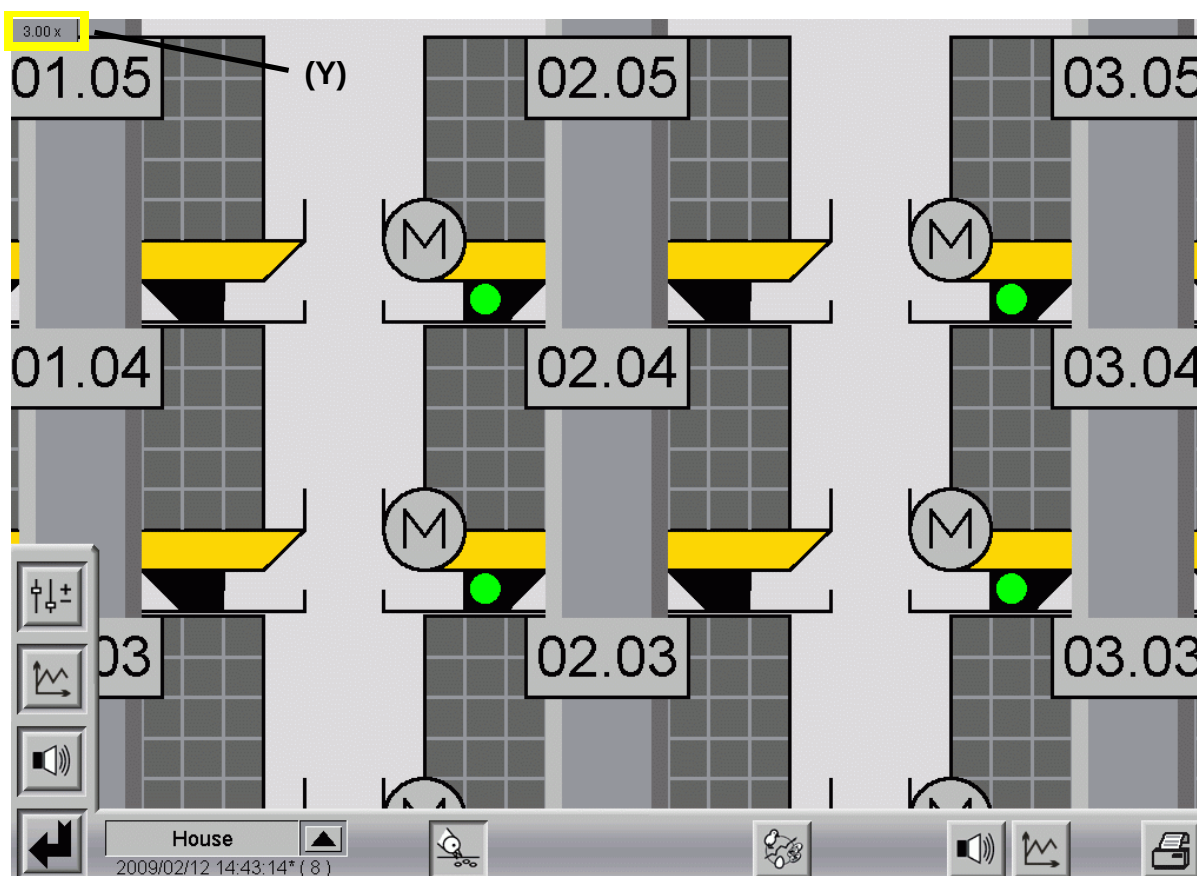


Figure 1-7: When clicking with the mouse on the cage, a zoomed view will appear (conventional management system)

1.2.4 List of all feedings carried out

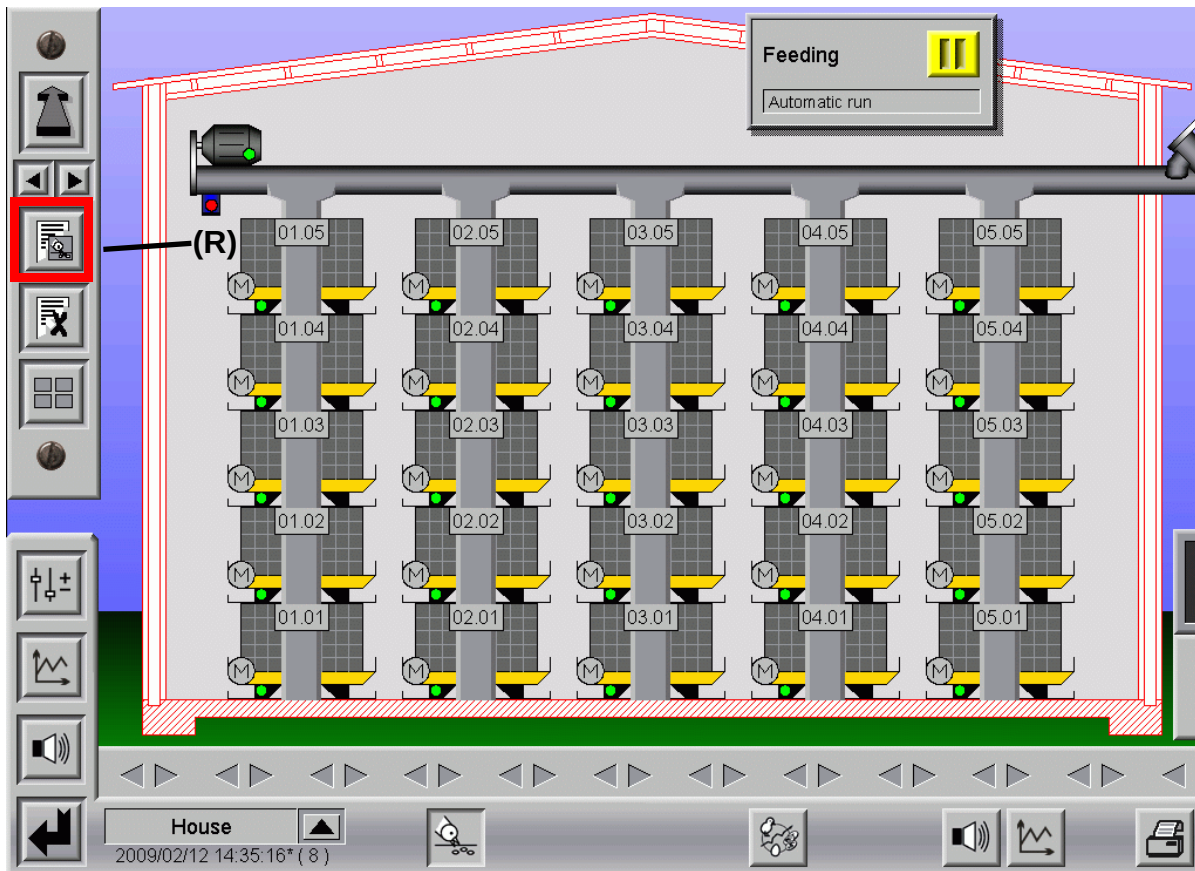


Figure 1-8: Main display feeding

A click on the red-marked **(R)** button in the previous picture opens the following feeding menu. All feedings are listed in this menu so that even the next feeding to be carried out can be read.

1.2.4.1 Open the list

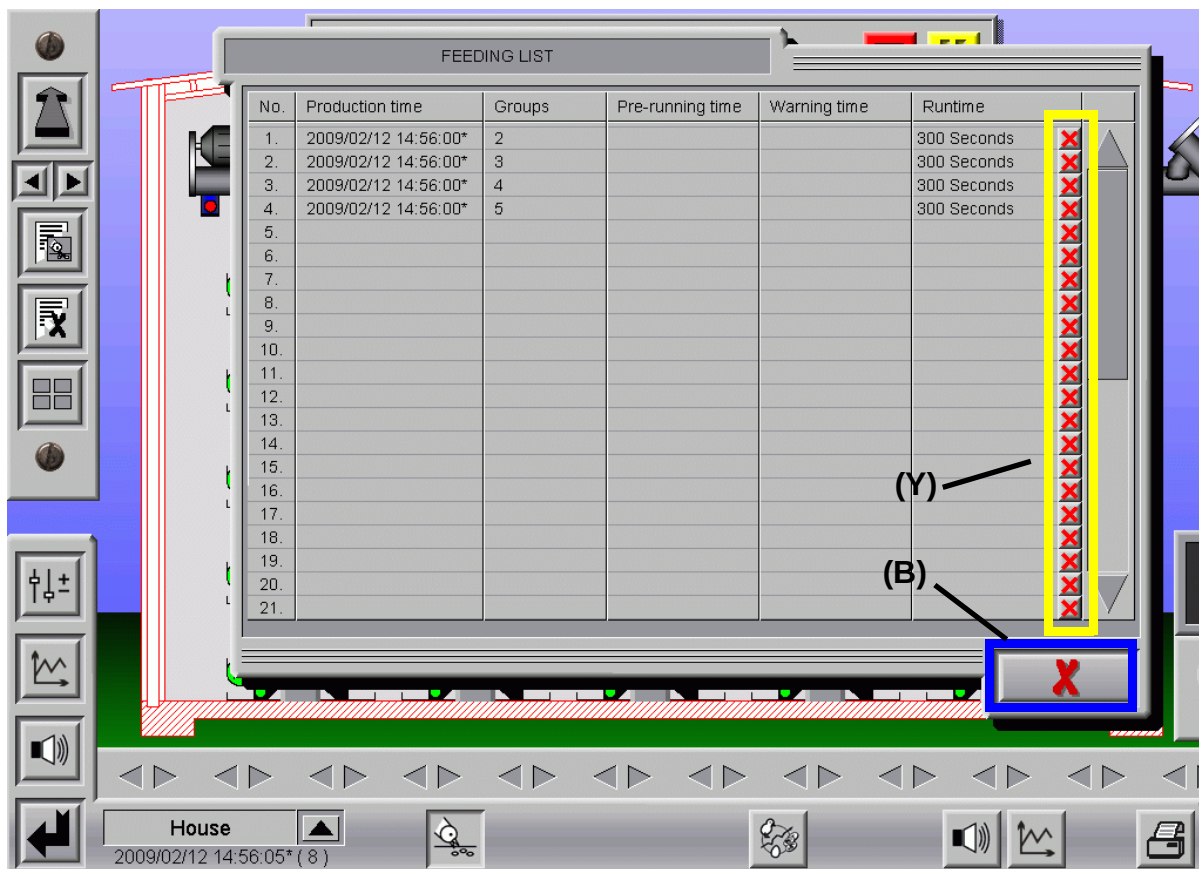


Figure 1-9: Feeding list

In this list, all feedings are listed. This can also be seen later on.

1.2.4.2 Erase a feeding from the list

When clicking on one of the yellow-marked **(Y)** buttons, the respective feeding is erased from the list after having confirmed the question "Erase Feeding? OK".

With a click on the blue-marked **(B)** field, this list can be left.

The following picture shows how to erase a feeding.

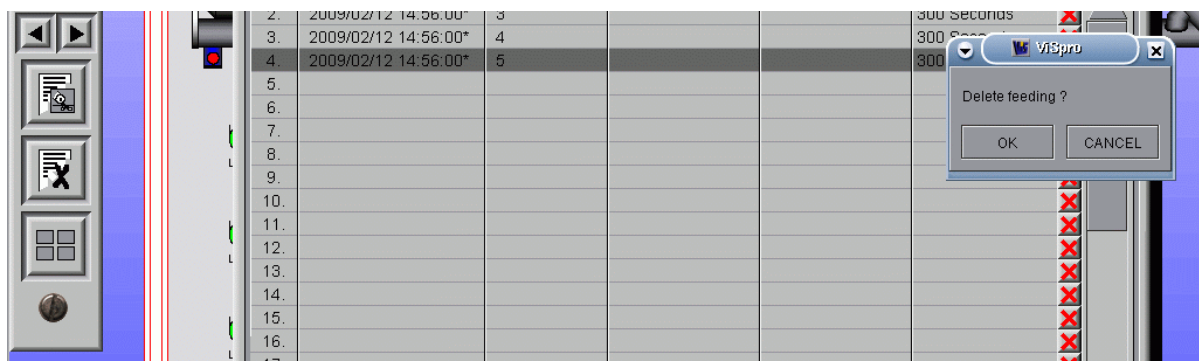


Figure 1-10: Erase a feeding from the list

1.3 Display of the feed consumption



Note:

The display of the feed consumption can only be selected if a feed registration exists.

1.3.1 Digital display of the feed consumption per tier and animal (only in case of feed registration)

To get an overview of the feed amounts per tier and animal, an additional information can be recalled from the main screen feeding.

In order to activate this function, you have to click on the button highlighted red **(R)** in the following picture.

Now, the consumed feed amount today, the quantity in gr/animal today as well as the current number of animals in this row/tier are alternately displayed.

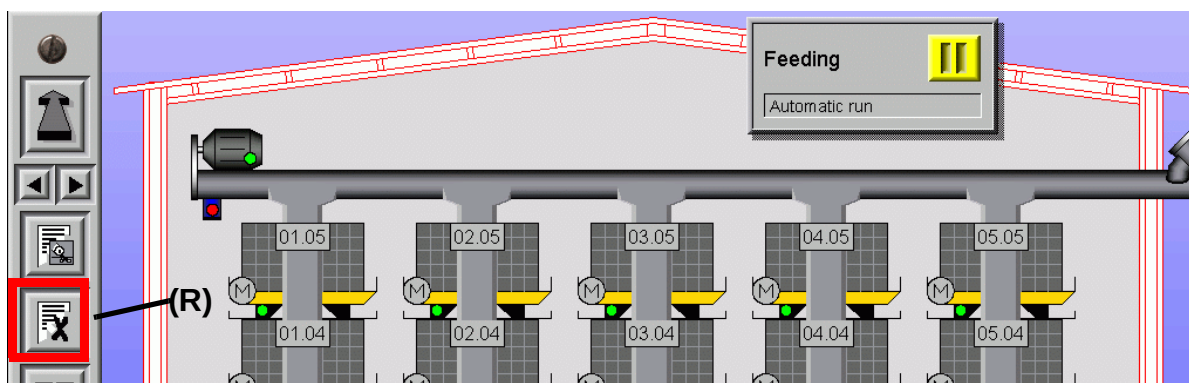


Figure 1-11: Open the detail display per cage

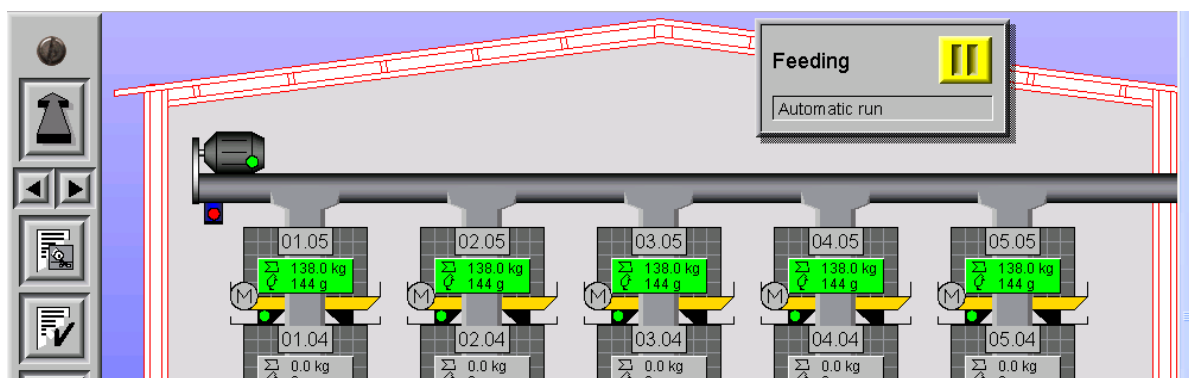


Figure 1-12: Display of the sum of feed and grams of feed per animal

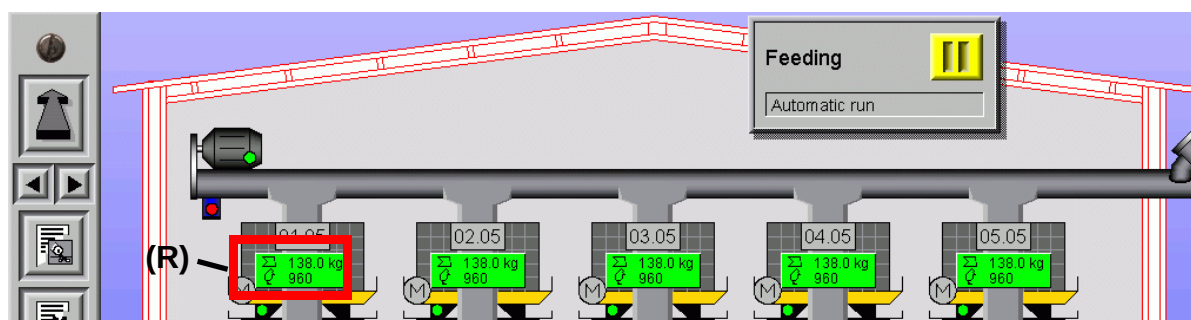


Figure 1-13: Display of the sum of feed and number of animals

1.3.2 Quick graphical overview of feed consumption

To provide the producer, especially in large production units, with a better view of whether the amount of feed that is registered as reference value in the **Amacs** system has really been fed out, there is an additional optical display. This shows the distributed feed amount in the form of a bargraph.

The screenshot below shows that tier 5 has reached the reference feed amount. Thus, the red-marked (R) button has turned green.

1.4 Display of the group during feeding

On large poultry farms, feeding is often carried out per tier or in groups since the cross augers do not have unlimited capacities.

The Amacs system can supply up to 12 groups with feed one after another. That means that when you plan the control system, you have to provide for a possibility to separately control and activate each individual tier.

To see how the groups are arranged, click on the button highlighted red (R) in the screenshot below.

The display of the group changes, as marked in yellow (Y) in the following picture.

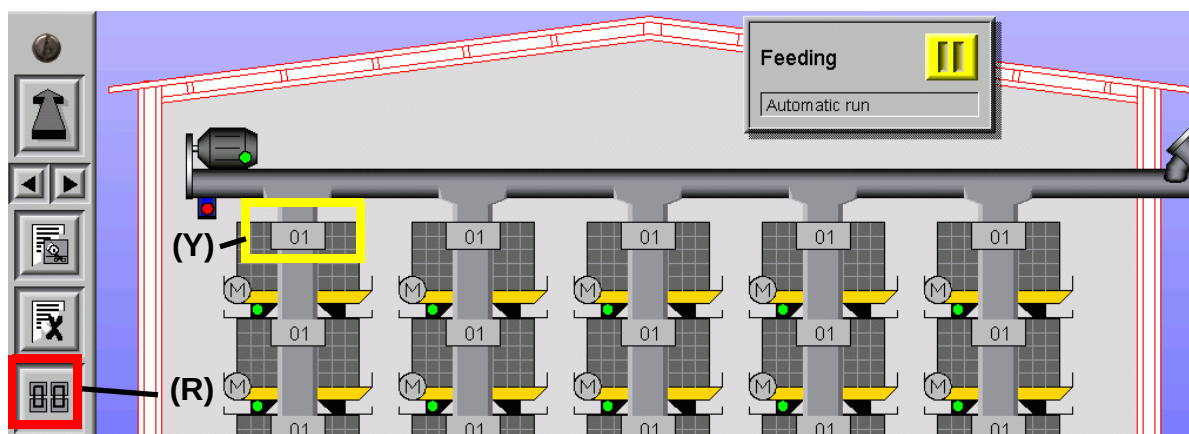


Figure 1-14: Display of the assigned feed group

1.5 Status feeding in the main screen

In the main screen feeding, there is a little status field above the cages showing the current action of the feeding.

In this status field, however, the feeding can also be set to pause or a feeding can be interrupted, if necessary.

1.5.1 Automatic feeding

If the feeding is in automatic mode, a pause button (see also chapter 3.1) as well as the note: „Automatic runs“ is displayed.

In this status, the automatic start of the feeding is awaited.

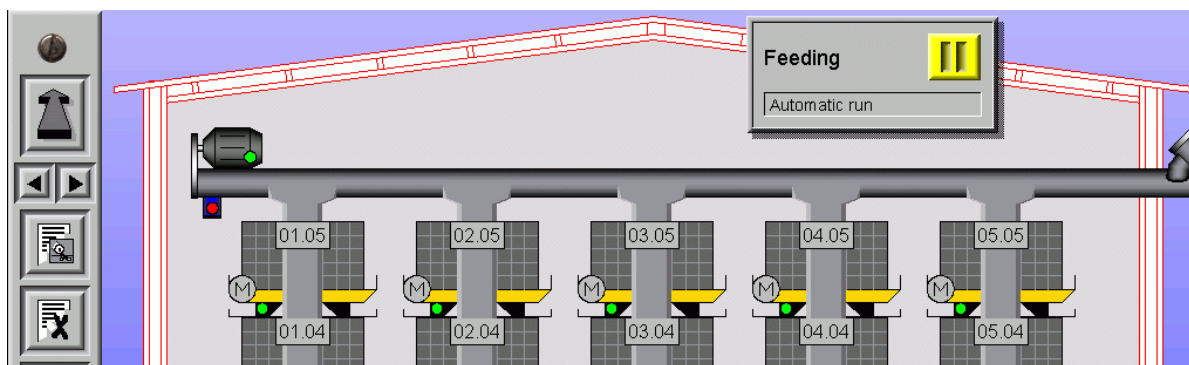


Figure 1-15: Automatic feeding

1.5.2 Switch feeding to pause

There are several reasons why the feeding might have to wait, for this reason **Amacs** offers the possibility to switch the feeding to pause. Click on the button placed in the yellow-marked (Y) field in the overview picture.

If the pause mode is activated, the button turns green and a text shows that it was switched to "automatic in pause".

With "automatic in pause" all feedings are retarded until you click on the same button once again. Then all feedings waiting in the queue are carried out.

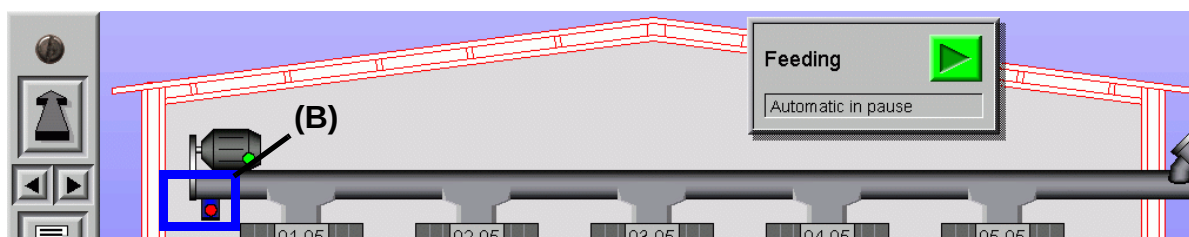


Figure 1-16: Automatic in pause

1.6 Graphic display of sensor cross auger

The sensor at the cross auger is an important tool for **Amacs** to determine the correct amount of feed per tier.

To keep you informed of the sensor status, the sensor icon in the main screen is always red when the sensor is covered with feed. When the sensor is not covered with feed, it is coloured green and if a feeding is soon to be started, the motors at the augers change their colour from grey to green, which means that feed is now being transported into the house.

The blue-marked **(B)** sensor in the previous picture lights up red. This means that it is covered with feed.

1.7 Manual operation

The motors can be switched on and off manually by clicking on the yellow **(Y)** marked motor symbol for feed chains, cross auger motor, silo augers or vibrator.

With the click a control panel with a switch is opened. With a mouse click, it can be switched to manual operation. Now the two keys are released with which the motor can be switched on and off.

In case of a cross auger, the signal of the sensor has always priority over a manual operation. If the sensor lights up red, as marked in blue **(B)** colour in the picture, the augers cannot be switched on manually.

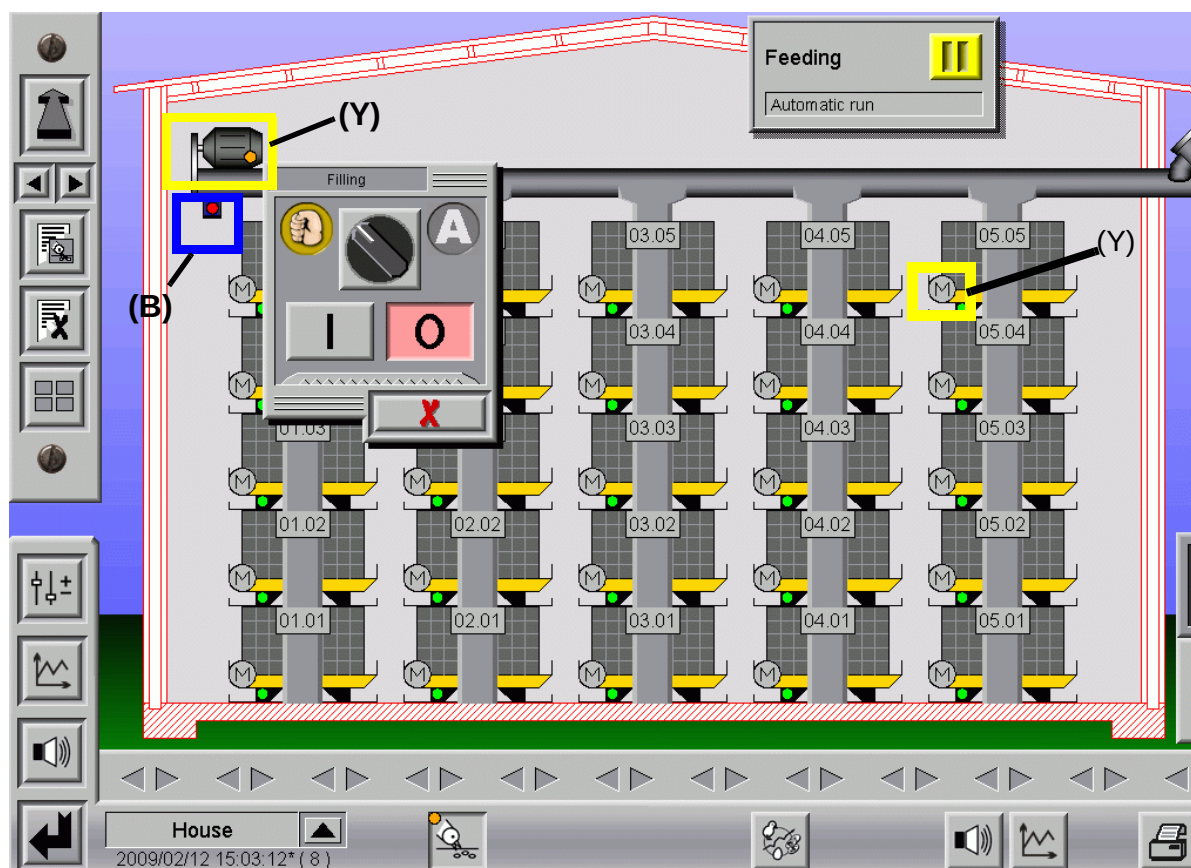


Figure 1-17: Manual operation of the motors

1.8 Manual operation feed cart

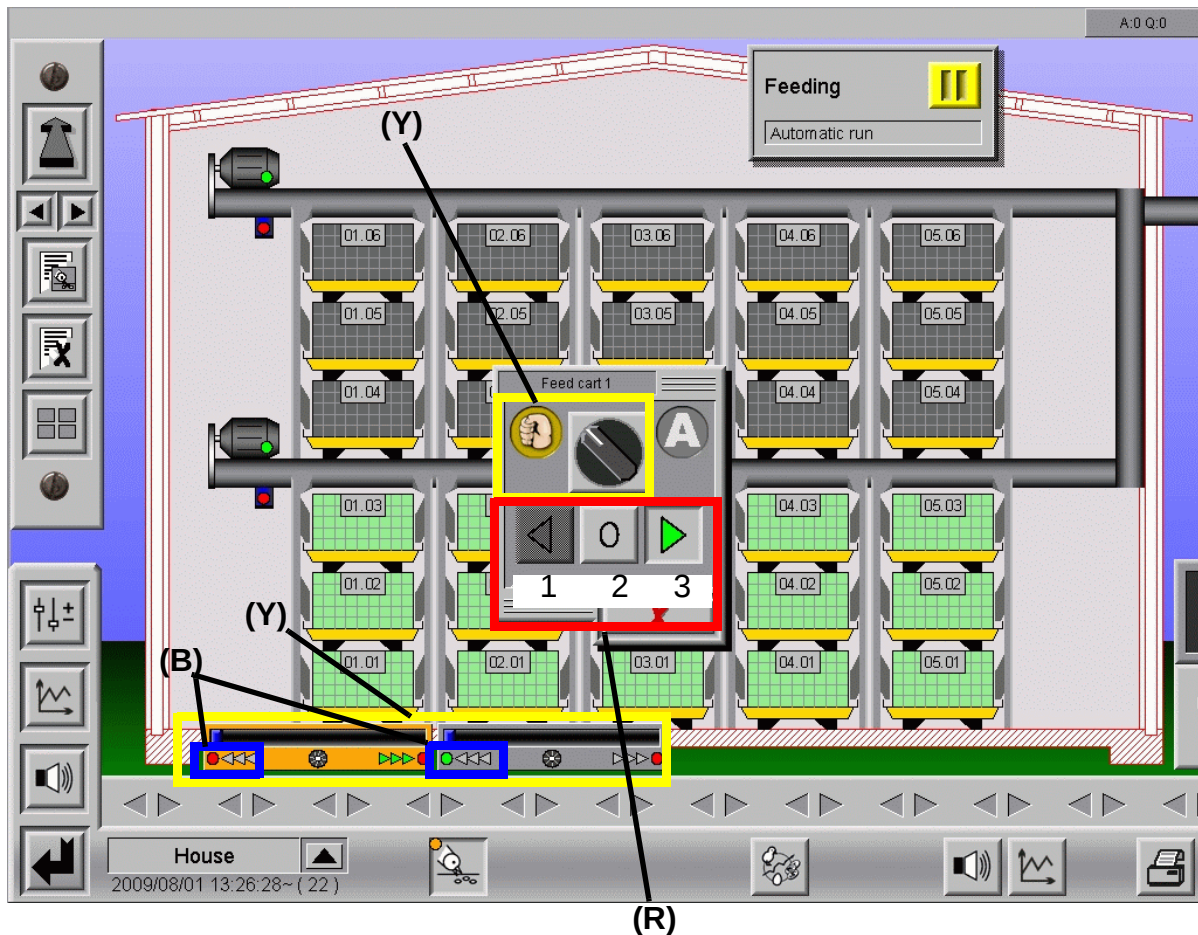


Figure 1-18: Manual operation feed cart

The feed carts can be switched on and off manually with a click on the position display; highlighted yellow **(Y)** in the picture above. This click opens a control panel with a switch.

With a mouse click on the middle round switch, it can be switched to manual operation. Now three keys are released allowing the feed cart to be moved forward **(R)1** backward **(R)3** or to be stopped **(R)2**. If the feed cart reaches a certain position, the motors will switch off.

In this case, the signal of the end position always has priority over a manual operation. If the sensor lights up red (highlighted blue **(B)** in the previous picture), the feed carts cannot be moved in this direction.

1.9 Notes

2 Feeding groups

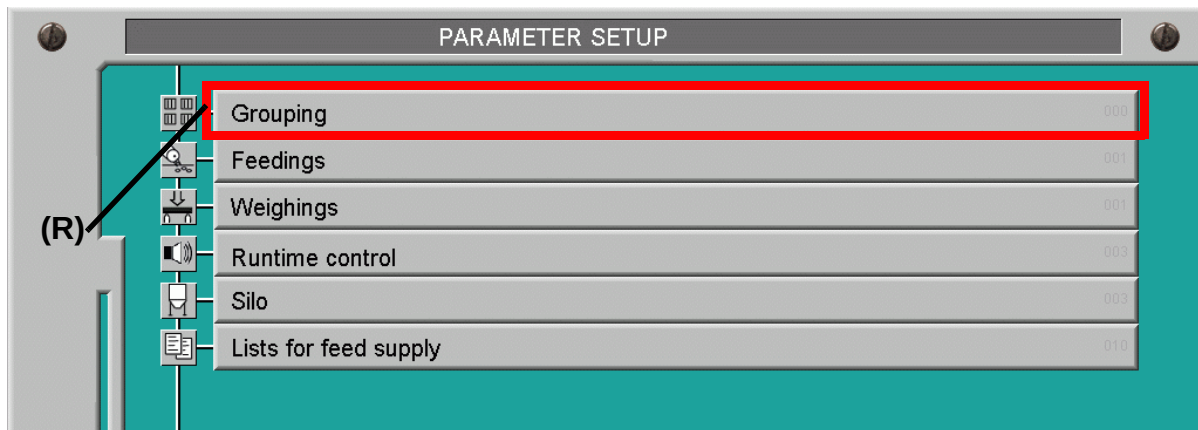


Figure 2-1: Group arrangement of tiers

A click on the red-marked **(R)** menu opens the window for the group arrangement for the feed amount.



Information:

For the feed carts, the groupings are determined when the system is put into operation and cannot be modified any more.

2.1 Group arrangement

To ensure that the feed amounts are correctly assigned to the groups, the tiers respectively rows have to be assigned to the groups. This is not done at random but depends on the electric control of the system.

The following picture shows how the groups can be distributed.

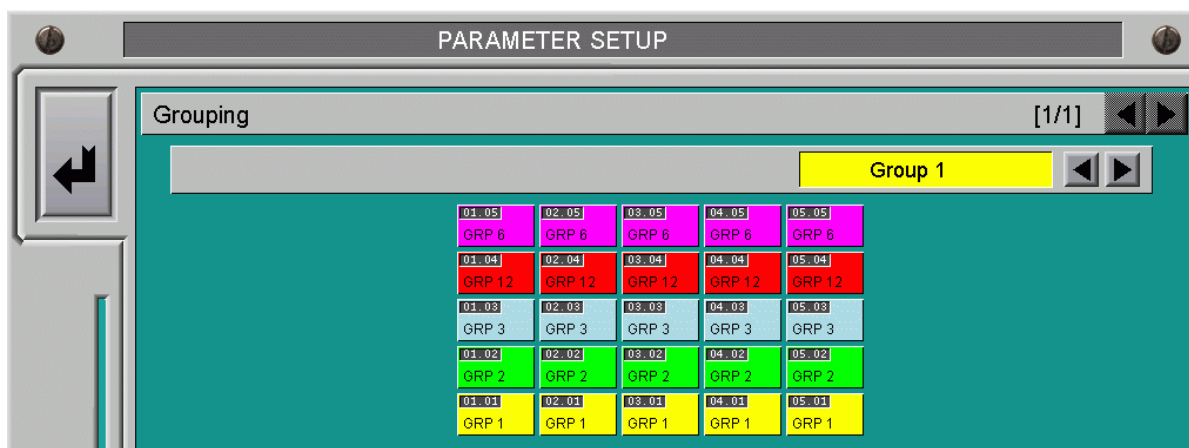


Figure 2-2: Group arrangement of tiers

The groups can be selected and assigned to the individual rows / tiers with a mouse click.

The definition of the cages depends very much on the electric control, as mentioned before. Therefore the set-ups already made should not be changed without reason.

2.2 Group arrangement per row

It is of course also possible to arrange in groups per row, but this means that feed is delivered to the house per row, which is normally not the case.

3 Feeding with feed chain

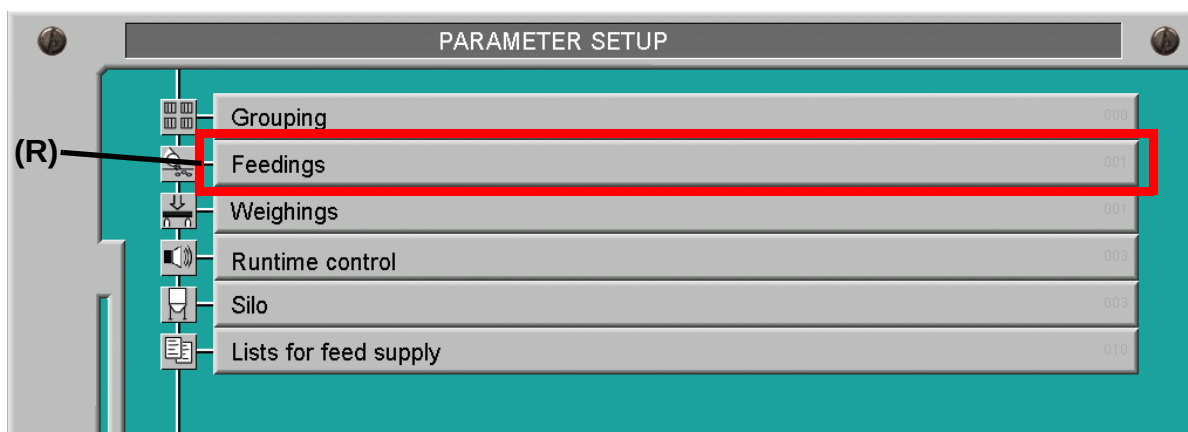


Figure 3-1: Set-up of the feeding manager

Click on the red **(R)** marked "feedings" button to open a window where all important settings for the feeding management can be made.

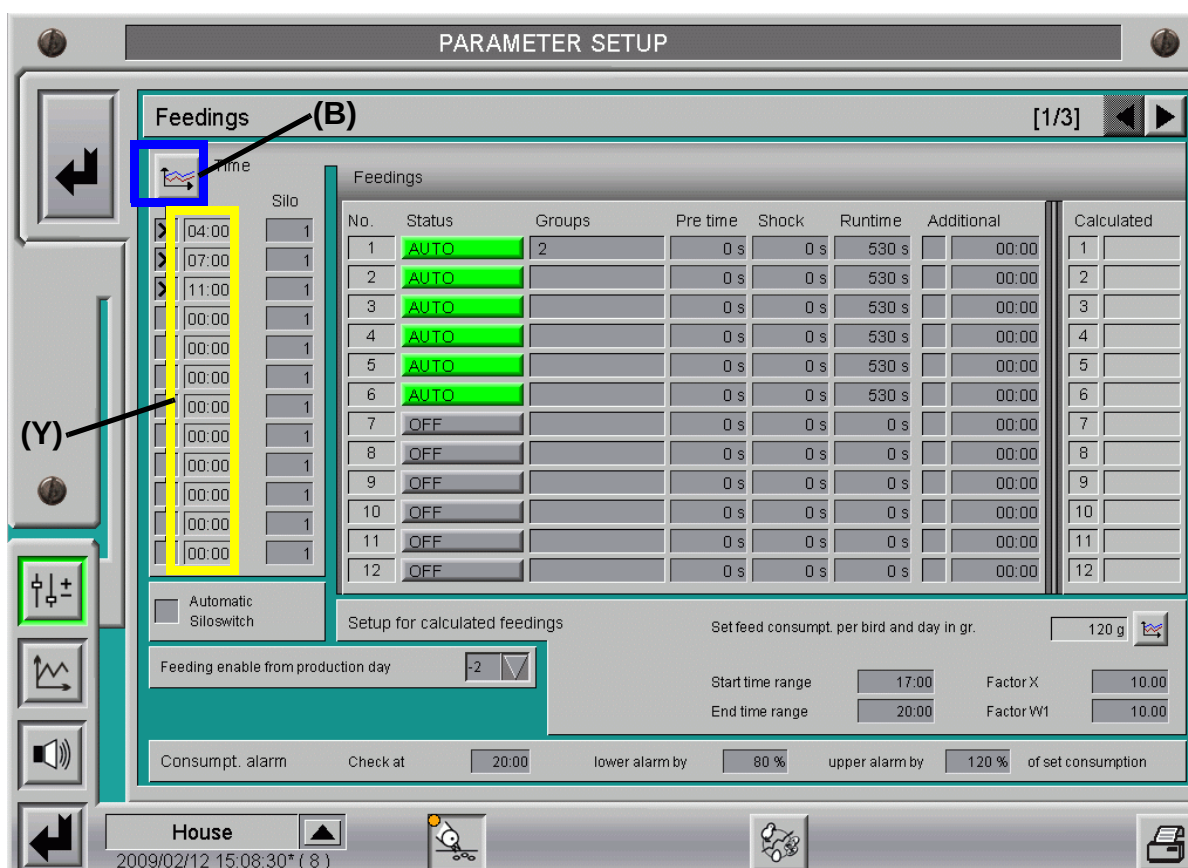


Figure 3-2: Feeding manager

3.1 Feeding times

In order to set the desired starting times for the feeding, click on the blue **(B)** marked button with the curve symbol in the previous picture.

Now, the start times for the feedings can be entered respectively (de)activated in the new opened window.

Depending on whether a numeric entry or a graphical surface is favoured, there is the possibility to set and modify curve points.

These values are taken over from the production manager as described in chapter "Production curves" of the **AMACS** user manual and can then be changed here.

3.1.1 Feeding activated

A cross in front of the time determines whether this feeding shall be effected. If the checkbox is not activated, a feeding will not be effected.

These values are taken over from the production manager as described in chapter "Production curves" of the **AMACS** user manual and can then be changed here.

3.1.2 Times for feeding

The yellow **(Y)** marked field specifies the time at which the feeding shall be carried out.

These values are taken over from the production manager as described in chapter "Production curves" of the **AMACS** user manual and can then be changed here.

3.2 Separate sandbath feeding

AMACS offers the possibility - if installed and configured by a service technician - to set up separate sandbath feedings in the feeding menu.

Below, you will find a specification for the control of the sandbath feeding and the registration of the feed in an aviary system.

3.2.1 Setting sandbath feeding

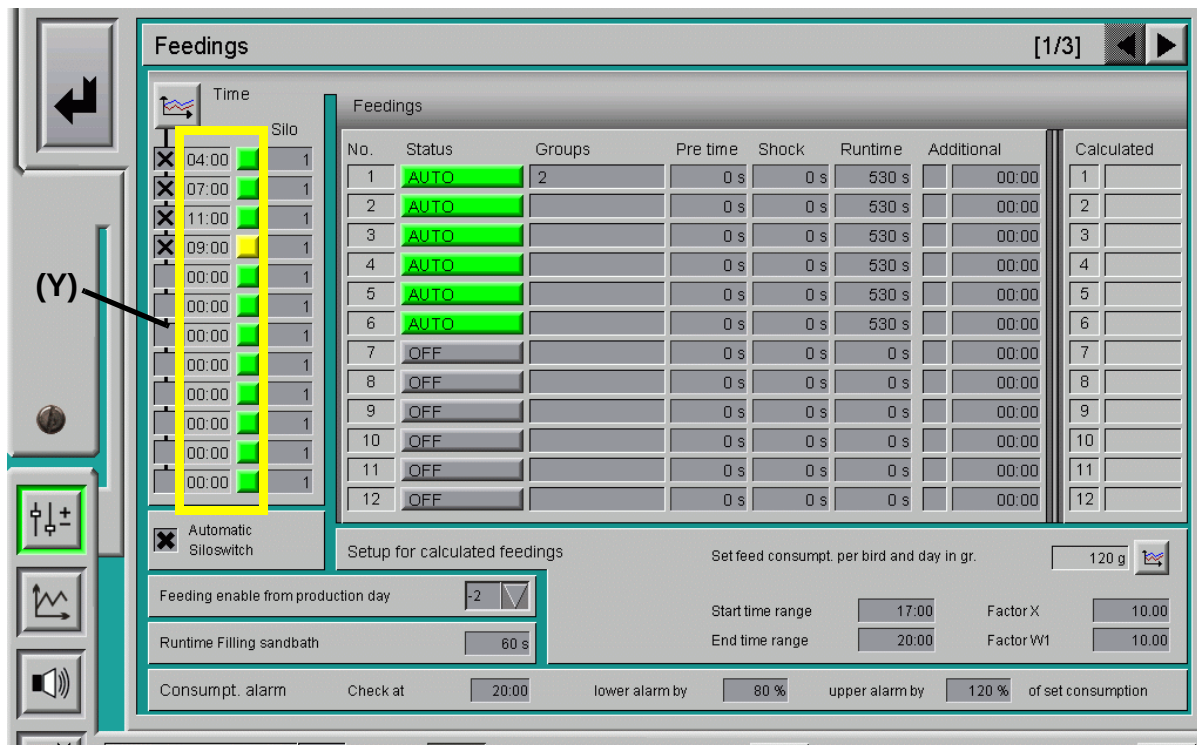


Figure 3-3: Setting sandbath feeding

3.2.1.1 Release of the sandbath feeding

In the yellow (Y) marked area, the time is specified at which a feeding shall be carried out, as also described under point 3.1.2.

If a sandbath feeding is desired instead of a normal feeding at the fixed time, the green button can be clicked behind the feeding time.

Now the button changes its colour from green to yellow.

green = normal feeding

yellow = sandbath feeding

3.2.1.2 Sandbath feeding without feedback

In order to regulate a sandbath feeding even without feedback of the motors, the time which the Augermatic system uses for the complete filling of the sandbath has to be entered under "Runtime sandbath filling".

This time is determined by a service technician when the system is put into operation and may not be changed without reason later on.



Figure 3-4: Sandbath filling without feedback

3.2.1.3 Sandbath feeding with feedback

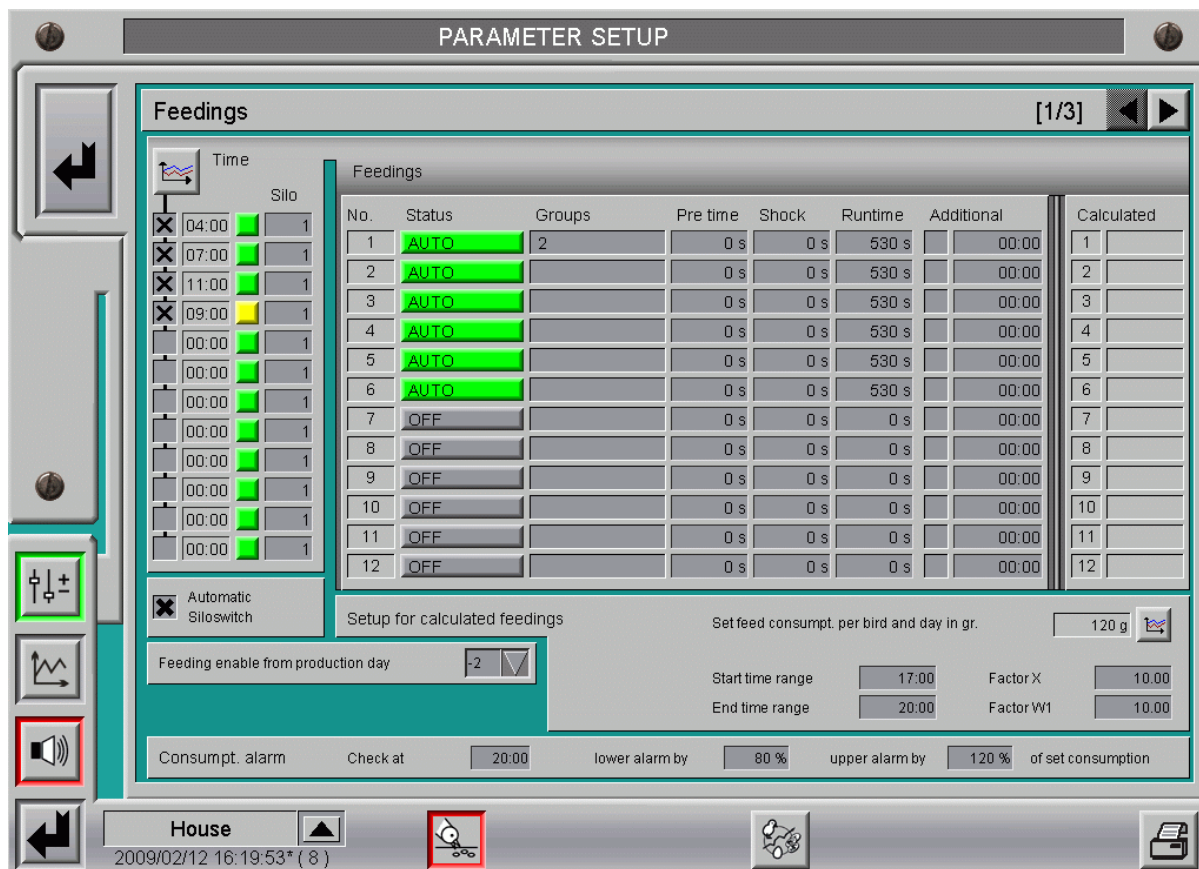


Figure 3-5: Sandbath feeding with feedback

If the feedbacks of the motors and the shafts of the sandbath are monitored, a "runtime sandbath feeding" does not have to be entered. In this case, there are special settings under runtime in chapter 5 which take over the monitoring of the sandbath.

As soon as the motors of the respective group have achieved the fixed minimum running time and did not run for at least 10 seconds, the sandbath feeding will be finished automatically.

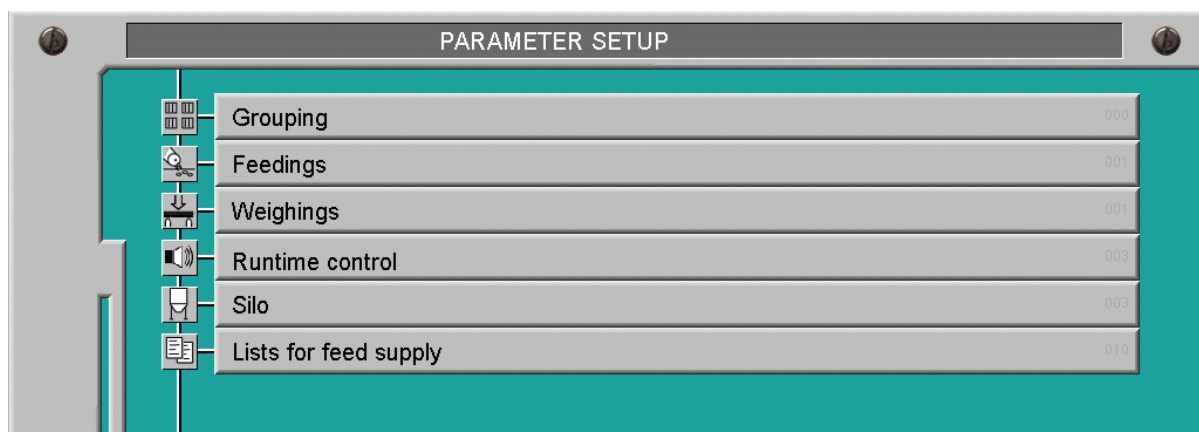


Figure 3-6: Runtime control

To proceed to the runtime control, the runtime control has to be clicked in the above feeding menu.

Further details regarding the runtime control can be found in chapter 5.

3.2.2 Sandbath feeding in the main screen

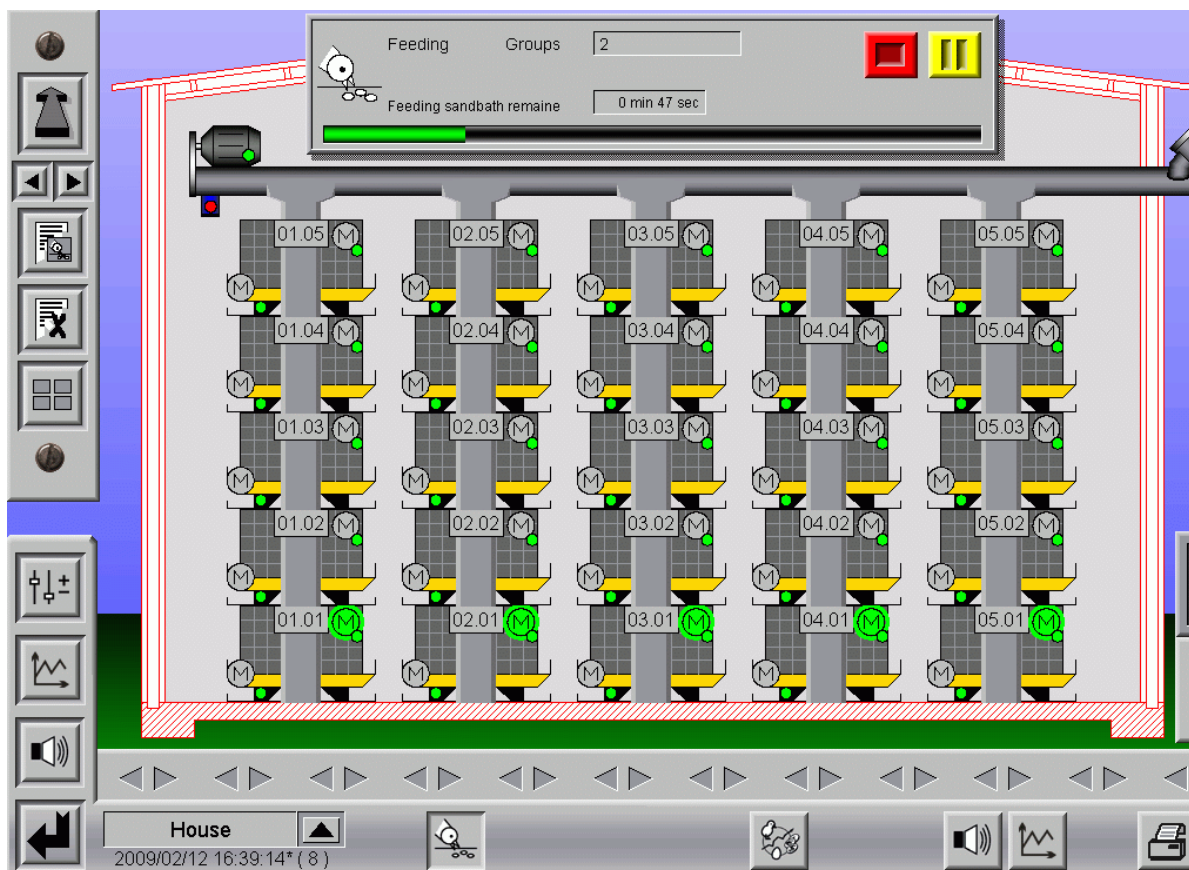


Figure 3-7: Active sandbath feeding in the main screen

3.2.2.1 Manual operation

The motors can be switched on or off manually by clicking on the blue **(B)** marked motor symbol for sandbath feeding in the following picture.

With the click a control panel with a switch is opened. With a mouse click, it can be switched to manual operation. Now the two keys are released with which the motor can be switched on and off.

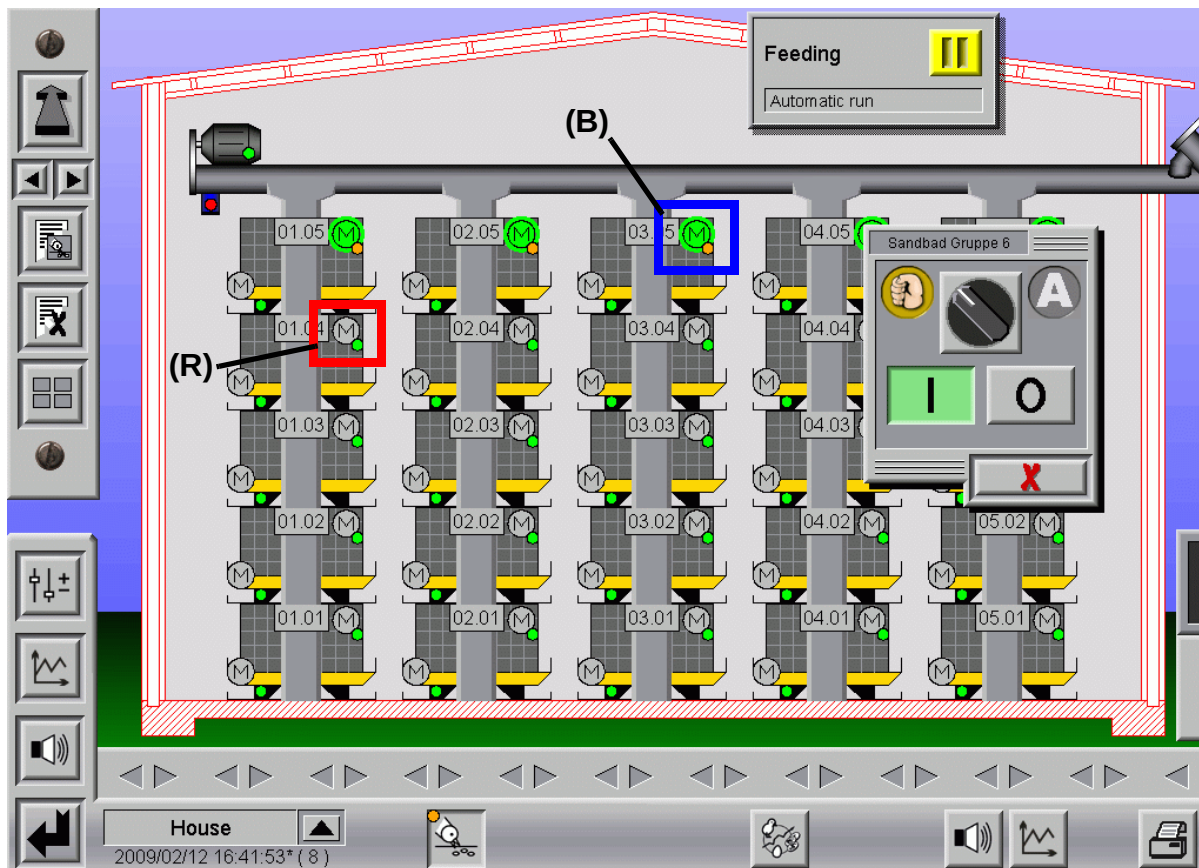


Figure 3-8: Manual operation of the motors for sandbath feeding

3.2.2.2 Release of motors for sandbath (with feedback)

If the motors of the sandbath are highlighted green, as marked in blue **(B)** in the above picture, they are released. Therefore, the motors cannot run as soon as the sensor of the Augermatic signalizes "empty".

In addition to the control of the release, a green lighting motor symbol also indicates that the sandbath is active. A grey motor symbol, marked red **(R)** in the above picture, indicates that the motor stops.

3.3 Feeding times with selection of silo (only with separate silo discharge)

In addition to the time fixing for the feeding, it can also be specified which silo shall be used for the feeding.

3.4 Automatic silo adjustment (only in case of signal "silo empty" and separate silo discharge)

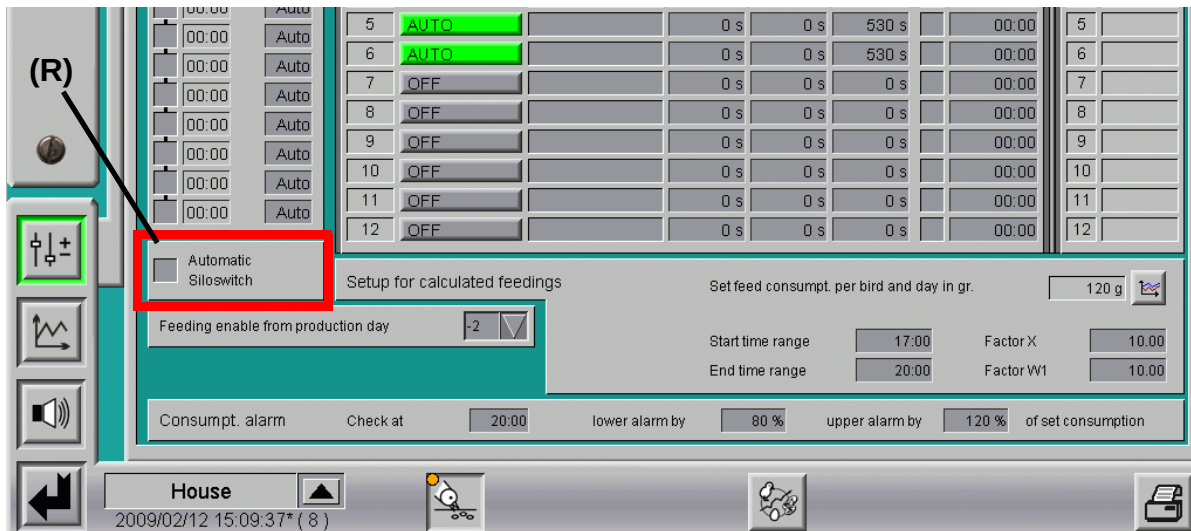


Figure 3-9: Automatic silo adjustment

The activation of the red **(R)** marked checkbox in the previous picture allows for an automatic silo adjustment, i.e. the entered times can be changed automatically by **AMACS**, if necessary.

Example:

If **AMACS** registers that the active silo (example silo 1) is emptied during a feeding, it is switched over to the alternative silo. The change-over is effected on the basis of certain presettings which are described later on.

Since the automatic silo adjustment was adapted, the entry of the silo number behind this time is set to e.g. 2 so that the next feeding is started with this silo.

This has the advantage that the empty silo will not start first before it is switched over to the alternative silo. In this case, however, the feedings already listed in the feeding list will initially be filled by the empty silo.

If "AUTO" is defined under silo for the feeding time, it will always be dosed from the silo presently activated.

If an automatic adjustment is not desired, this function can be cancelled by deactivating the checkbox.

3.4.1 Manual silo selection during feeding

If the silos shall be switched over manually during a feeding, just click on the orange **(O)** marked little orange LED at the silo. Now feed is taken from this silo.

The little control LED at the silo indicates which silo is presently active; green **(G)** means active and orange **(O)** means inactive.

This manual selection of the silo does not always have an influence on the feedings which are started automatically later on, since it is always switched to the silo chosen behind the start time.

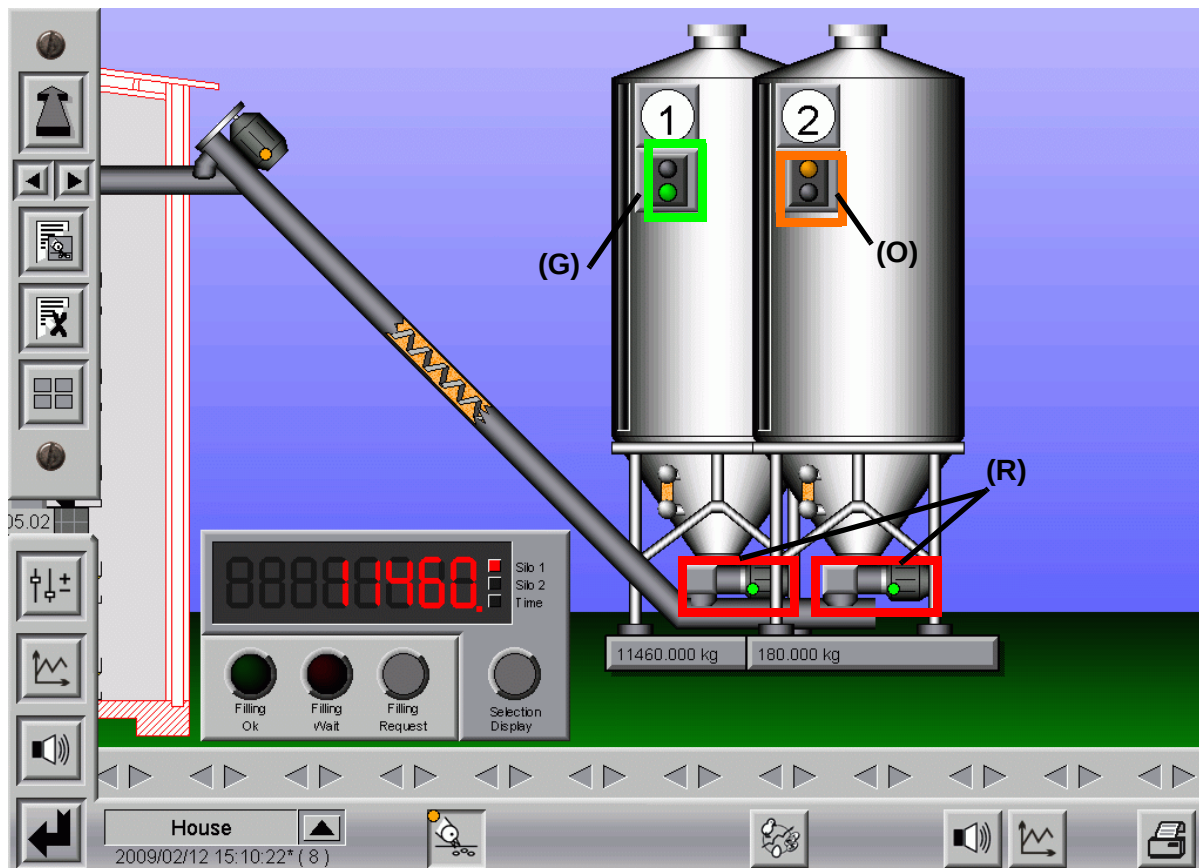


Figure 3-10: Manual selection of a silo

3.4.2 Manual operation of discharge augers

Since this configuration also comprehends a discharge auger per silo, this can be operated manually as well.

With a click on the red **(R)** marked motors at the silo in the previous picture, the control panel for these motors will be opened.

Now it can be switched over to manual operation. If the cross auger runs (sensor for cross auger may not be covered with feed), these motors can be started manually.



Caution:

Maintenance or service works at drive units or augers may only be carried out if the protective switch is in the OFF position. The drive units could be activated without prior warning e.g. by the time clocks or sensors. Also observe local security signs and instructions.

3.5 Status

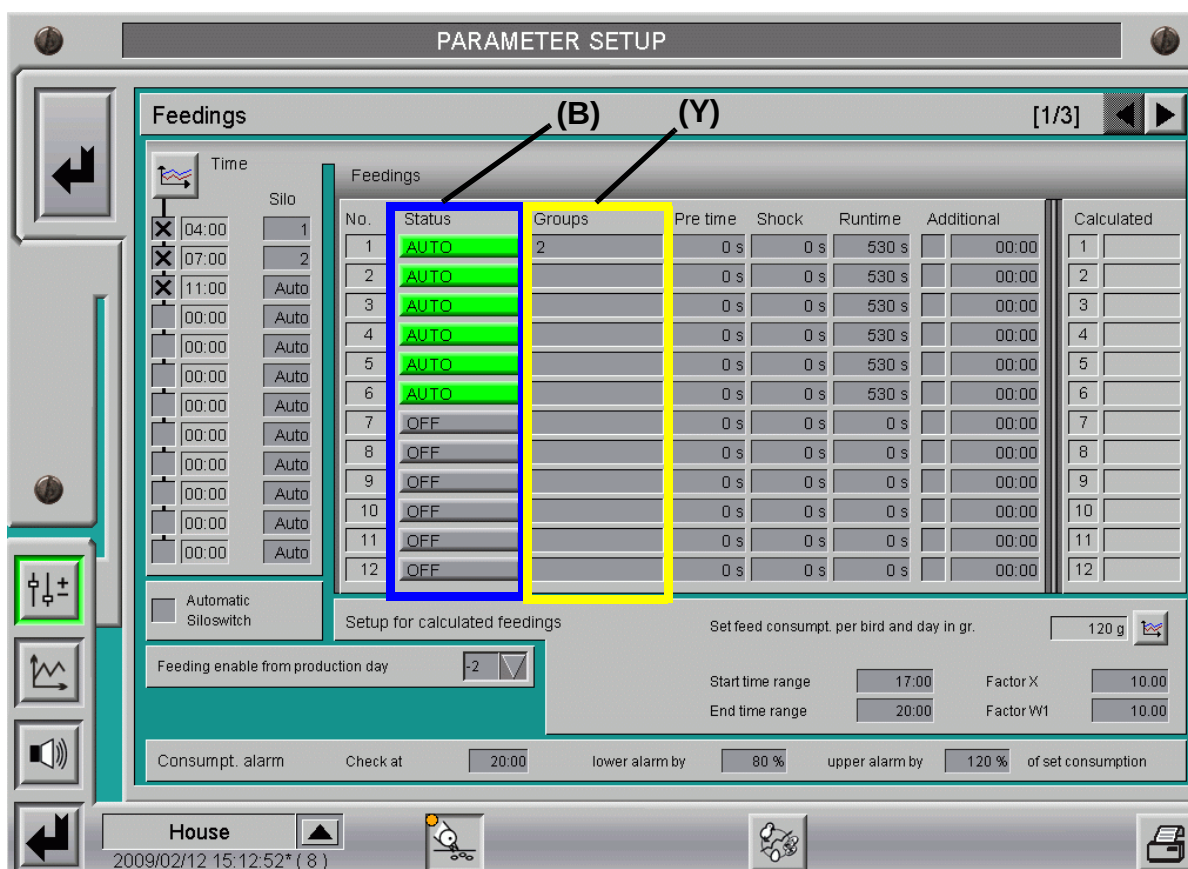


Figure 3-11: Status field of the single groups

The blue **(B)** marked field "status" gives you different options that can be activated. Just click on the button of the desired group to obtain the following display.

3.5.1 Status "Off"

If the status is "Off", the feeding for this group is not activated.

This function is very useful if for example the feed chain of tier 3 is defective and feeding is not possible until this is repaired.

In this case, the button will be grey.

3.5.2 Status "Auto"

If the status "Auto" is displayed, feeding for this group runs automatically.

The groups are activated one after another at any time and after the runtime has come to an end, the next group is activated.

In this case, the button is green.

3.5.3 Status "Off-Auto"

If the status "Off-Auto" is displayed, this group is left out at the next feeding.

Now it is switched back to "AUTO" without further entries.

In this case, the button is dark-green.

3.6 Feeding of groups

3.6.1 Group feeding in succession

In the yellow (Y) marked field of the picture 3-11 you can determine the order of the groups during the feeding process.

If there are for example 6 relays for switching on the feed chains, you can start with tier 1, then 2 and so on. Feeding is usually started in the bottom tier since the feed may be condensed in the feed columns in case of a feeding from top to bottom. But in principle this is of course possible if the mechanic conditions allow for such a solution.

The advantage of a feeding in succession of tiers/groups is that the feed can be dosed individually.

3.6.2 Feed groups together

If the system is designed that way that all tiers can run simultaneously, you can make a different entry. Thus you can determine that all groups run at the same time and that the amount of feed is distributed evenly among all animals of the individual groups.

It has to be emphasized that the electrical and mechanical conditions always have to support such an arrangement. The following picture shows the entries that would be necessary at the groups to control the system accordingly.

PARAMETER SETUP

Feedings [1/3]

No.	Status	Groups	Pre time	Shock	Runtime	Additional	Calculated
1	AUTO	1,2,3,4,5,6	0 s	0 s	530 s	00:00	1
2	AUTO		0 s	0 s	530 s	00:00	2
3	AUTO		0 s	0 s	530 s	00:00	3
4	AUTO		0 s	0 s	530 s	00:00	4
5	AUTO		0 s	0 s	530 s	00:00	5
6	AUTO		0 s	0 s	530 s	00:00	6
7	OFF		0 s	0 s	0 s	00:00	7
8	OFF		0 s	0 s	0 s	00:00	8
9	OFF		0 s	0 s	0 s	00:00	9
10	OFF		0 s	0 s	0 s	00:00	10
11	OFF		0 s	0 s	0 s	00:00	11
12	OFF		0 s	0 s	0 s	00:00	12

Automatic Siloswitch

Setup for calculated feedings

Set feed consumpt. per bird and day in gr. 120 g

Feeding enable from production day -2

Start time range 17:00 Factor X 10.00

End time range 20:00 Factor W1 10.00

Consumpt. alarm Check at 20:00 lower alarm by 80 % upper alarm by 120 % of set consumption

Figure 3-12: Simultaneous feedings per feeding time

3.7 Lead time and "scare time"

In both red **(R)** marked tables in picture **3-12** a lead time as well as a "scare time" can be entered.

Both together, they have following function:

If a feeding is to start at 11:00 h and a scare time has been set to 5 sec and the lead time to 120 sec, the group is switched on at 11:00 h for 5 seconds to cause an animation for the birds. At 11:02 h, the normal feeding will start with a running time of 530 seconds.

This function can also be used in systems where birds are bound to sit on the feed chains. In older rearing cages of different producers, the feed troughs lie directly inside the cage and you can use this function to "scare off" any animals that might sit on the troughs so that they leave this area.

3.8 Running time

The running time of the feed chain is determined when the system is taken into operation. The chain is marked and then it is stopped how long it takes to run the circuit plus 5 m. Now the determined time is entered in seconds in the blue **(B)** marked column in figure **3-12**.

3.9 Additional feeding

If an additional feeding shall be carried out from time to time, a time can be entered per group in the green **(G)** marked field "Additional" in picture **3-12**.

If the corresponding checkbox is activated, an additional feeding will be run when the set time comes up. In order to deactivate an additional running time, only remove the cross in the checkbox.



3.10 Automatically calculated last feeding time (only with feed registration)

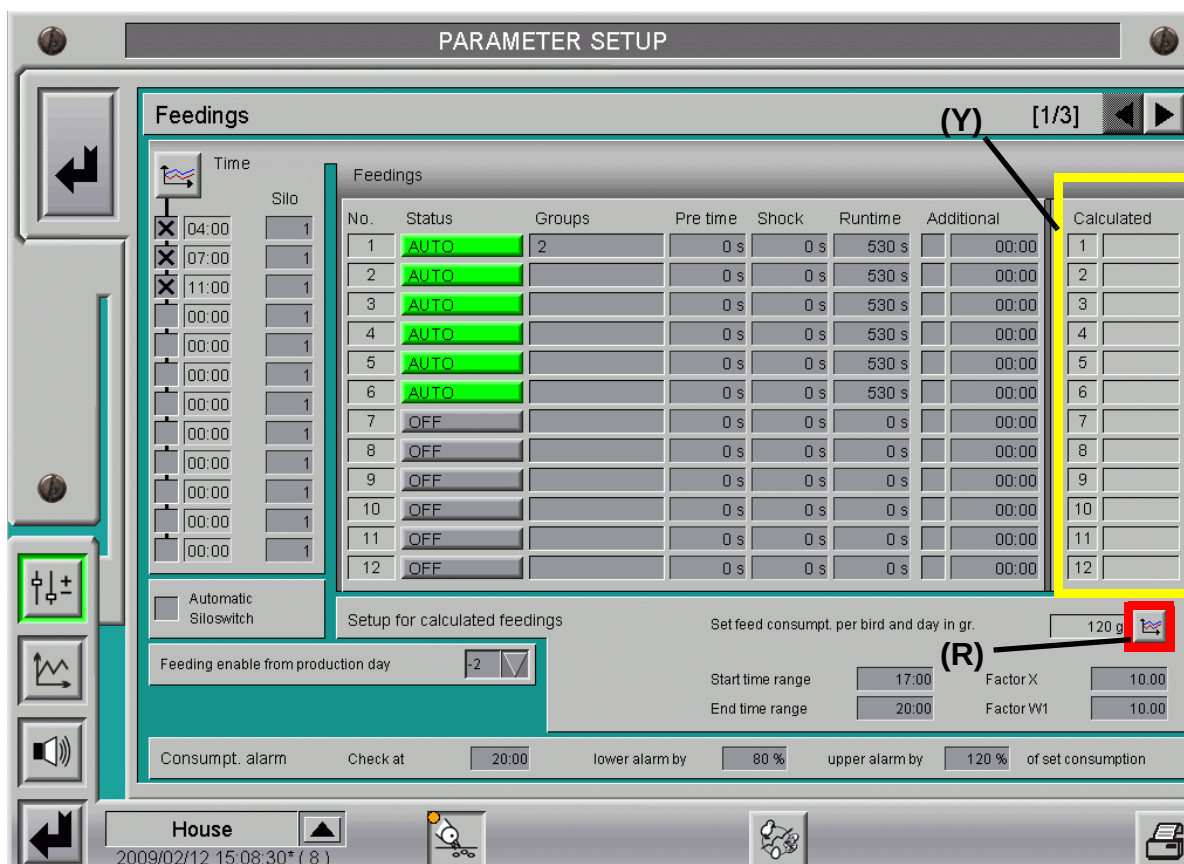


Figure 3-13: Settings for the automatically calculated last feeding time

3.10.1 Calculated last feeding

The computer can calculate the time of the last feeding. This method has been developed to allow for controlled feeding of layers. If an automatically calculated last feeding is not required, the times have to be set to **00:00** under menu point "Start time range" and "End time range".

The yellow (Y) marked area in picture **3-13** shows the table "Calculated". Here the computer enters the calculated last feeding time per group. The times cannot be changed since these are values calculated automatically by the computer.

3.10.2 Curve set: Feed consumption per animal and day

In order to set the desired feed consumption in the house, click on the red **(R)** marked button with the curve symbol, as shown in picture **3-13**.

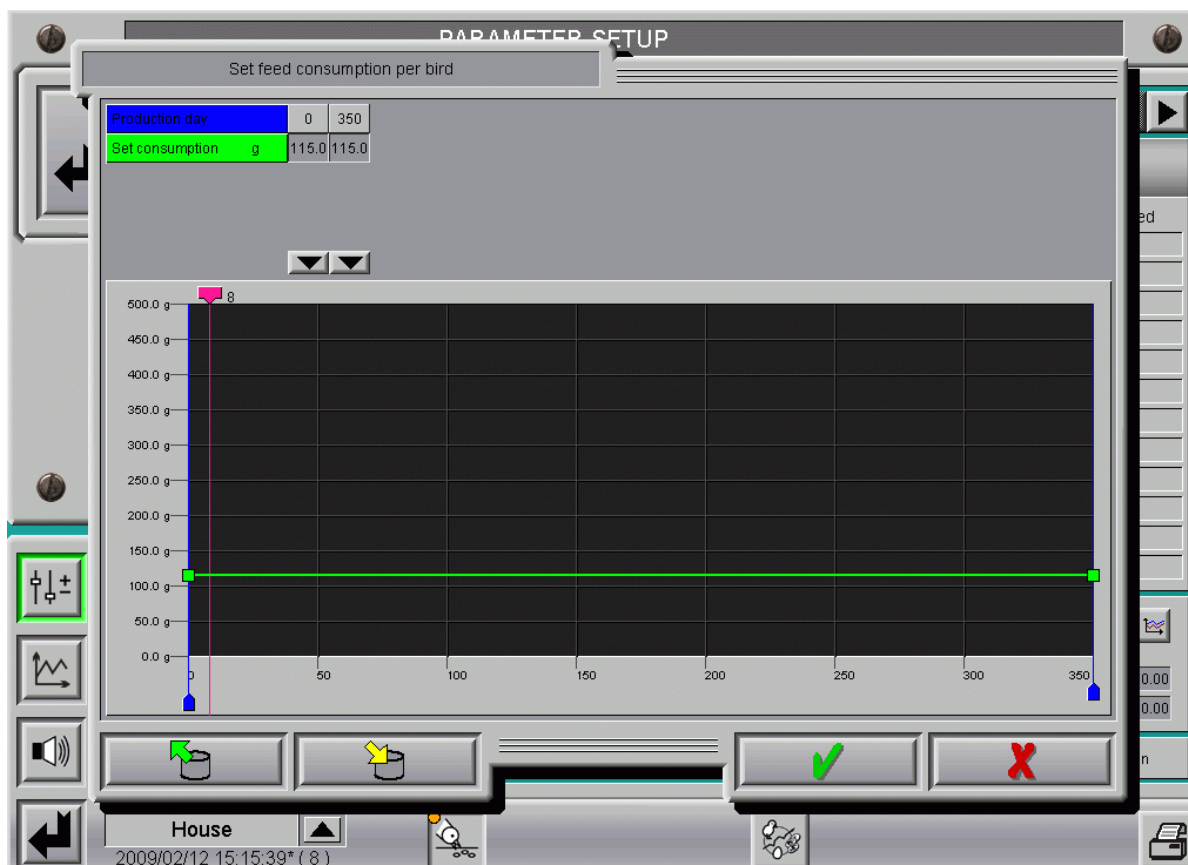


Figure 3-14: Feed curve layers

With this curve the set consumption can be preset per animal for the time of management. In this menu, there are 3 different options to enter data.

Depending on whether a numeric entry or a graphical surface is favoured, there is the possibility to set and modify curve points.

The values in this curve should be changed or stored as described in detail in chapter „Set curves” of the **AMACS** user manual.

3.10.3 Time of the last calculated feeding time

PARAMETER SETUP

Feedings [1/3]

No.	Status	Groups	Pre time	Shock	Runtime	Additional	Calculated
1	AUTO	2	0 s	0 s	530 s	00:00	1
2	AUTO		0 s	0 s	530 s	00:00	2
3	AUTO		0 s	0 s	530 s	00:00	3
4	AUTO		0 s	0 s	530 s	00:00	4
5	AUTO		0 s	0 s	530 s	00:00	5
6	AUTO		0 s	0 s	530 s	00:00	6
7	OFF		0 s	0 s	0 s	00:00	7
8	OFF		0 s	0 s	0 s	00:00	8
9	OFF		0 s	0 s	0 s	00:00	9
10	OFF		0 s	0 s	0 s	00:00	10
11	OFF		0 s	0 s	0 s	00:00	11
12	OFF		0 s	0 s	0 s	00:00	12

Automatic Siloswitch ☐

Setup for calculated feedings ☒

Set feed consumpt. per bird and day in gr. 120 g

Feeding enable from production day -2 (G)

Start time range 17:00 Factor X 10.00

End time range 20:00 Factor W1 10.00

Consumpt. alarm Check at 20:00 (Y) lower alarm by 80 % upper alarm by 120 % of set consumption

House 2009/02/12 15:08:30* (8)

Figure 3-15: Limit the duration of the last feeding

3.10.3.1 Limit the duration of the last feeding

To avoid that the computer carries out the last feeding at an unusual time, you can limit the duration time of the automatic feeding.

You can enter the desired values in the green (G) marked field in the picture above "start time range" and "end time range".

The computer is now going to move the time window so that a complete loop will be fed and not more or less (+/- X %) than the set amount is fed. If both times are set to 00:00 h an automatic feeding is not calculated.

3.10.3.2 Factors for the calculation of the last feeding

In order to avoid a strong variation of the feeding times, for example because of changes in the feeding behaviour or feeding speed of the birds, e.g. caused by changes in temperature etc., two factors are used to prevent this.

- **Factor X is a factor indicating the time delay**
- **Factor W1 refers to changes of the feed consumption of the previous day**

Both values should be set to approx. 7-10. Keep in mind however, that the lower value is going to cause changes in larger steps, that means the feeding time will be adjusted in larger steps.

3.11 Feeding activated from the day of production

In order to prefill the feed troughs so that the animals can eat directly when they are housed in, a corresponding entry can be made in the yellow **(Y)** marked field in figure **3-15**. An entry of e.g. -2 means that the feed troughs can be filled 2 days before housing in.

More information regarding the setting of the production start can be found in the production manual.

3.12 Feeding in the main screen

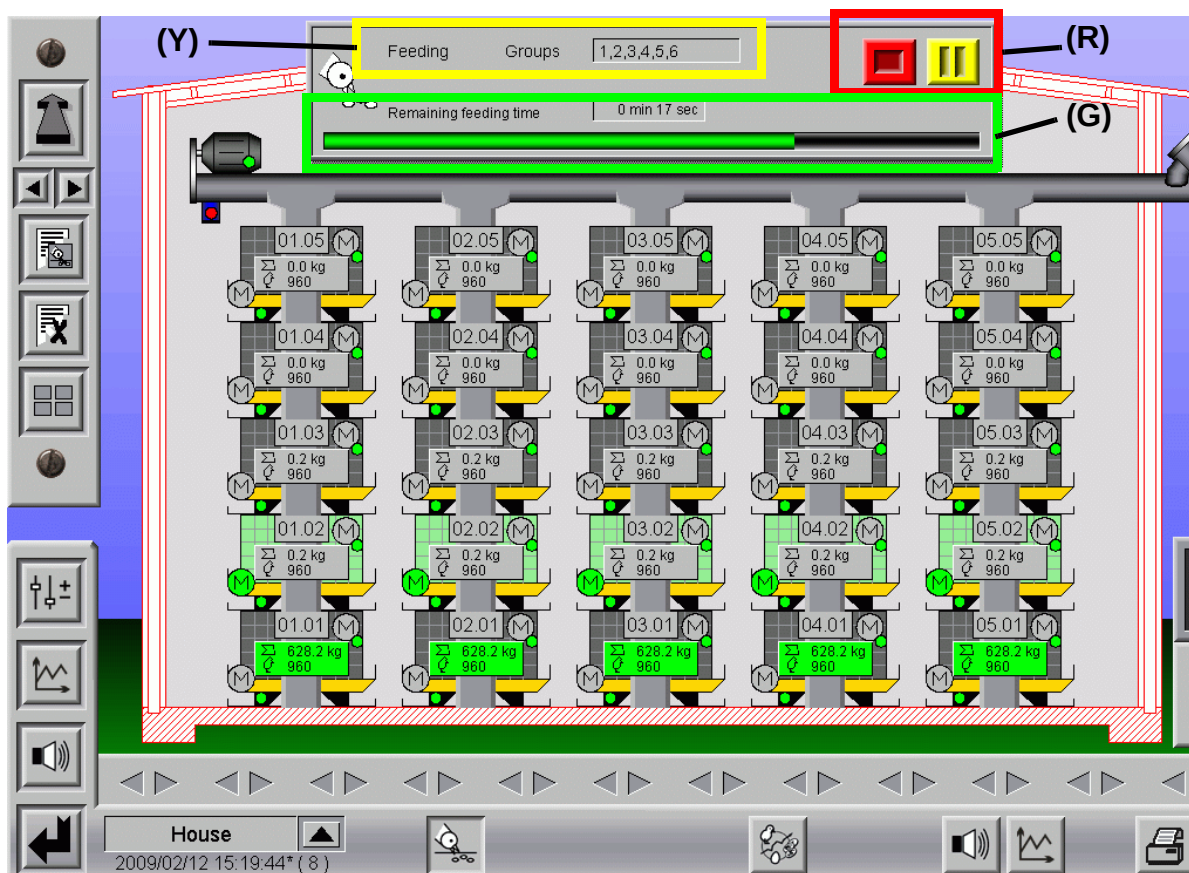


Figure 3-16: Feeding in main screen

3.12.1 Status feeding

3.12.1.1 Actual group

In the yellow (Y) marked field, the actual group is displayed which is presently fed.

3.12.1.2 Remaining feeding time

In the green (G) marked window, the remaining running time of the feeding is displayed.

To get an overview on the time already elapsed as well as the remaining time, a time bar is displayed under the remaining feeding time which indicates the elapsed time.

3.12.1.3 Start and stop / pause of a feeding in progress

A feeding already active can be stopped; see the red **(R)** marked area in figure 3-16.

As soon as a feeding process starts, a window is opened in the picture "feeding" where the remaining running time of the feeding is displayed for the current group.

With a click on the yellow button, the feeding can be stopped and restarted later on. If the red button is pressed, the current feeding is stopped. Both buttons are marked red **(R)** in figure 3-16.

3.13 Consumption alarm feeding (only with feed registration)

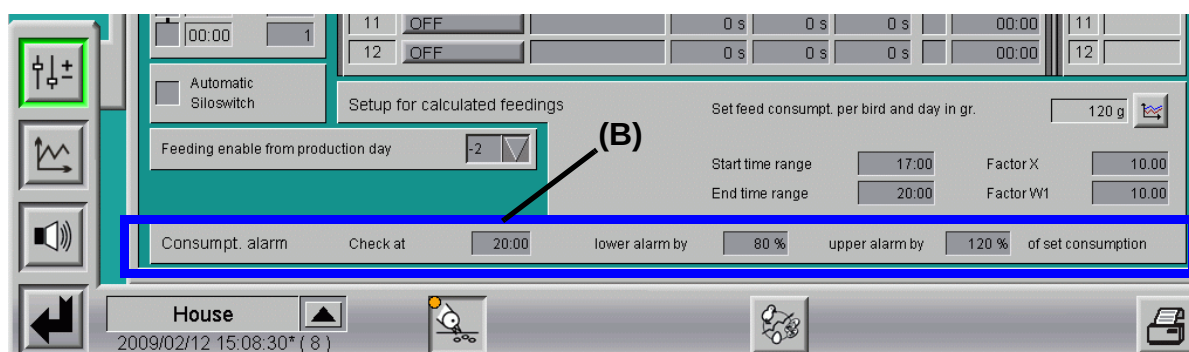


Figure 3-17: Consumption alarm feeding

A time and the limiting values can be entered as percentage in the blue **(B)** marked area of the above picture. As soon as the feed quantity in a group remains under the set value respectively exceeds this, an alarm is triggered.

The following picture shows what such a message looks like. Just click on the mouse to confirm the message.

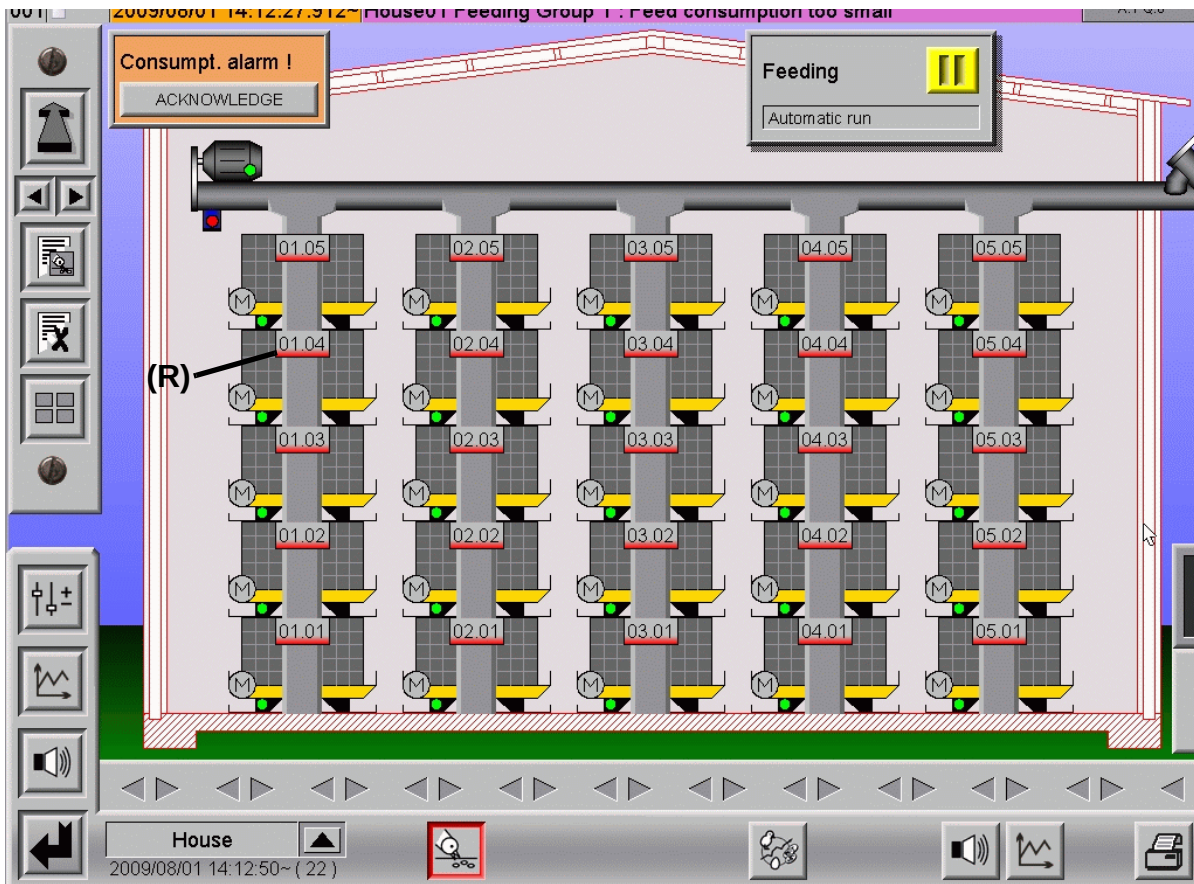


Figure 3-18: Consumption alarm during feeding X

The consumption alarm also indicates if too much or too little feed was consumed. If the red **(R)** marked bar appears below, the feed consumption is too little. If the red **(R)** marked bar appears above, too much feed was consumed.

3.14 Animation feeding

In order to proceed to the animation feeding, click on the blue **(B)** marked arrow in the next picture.

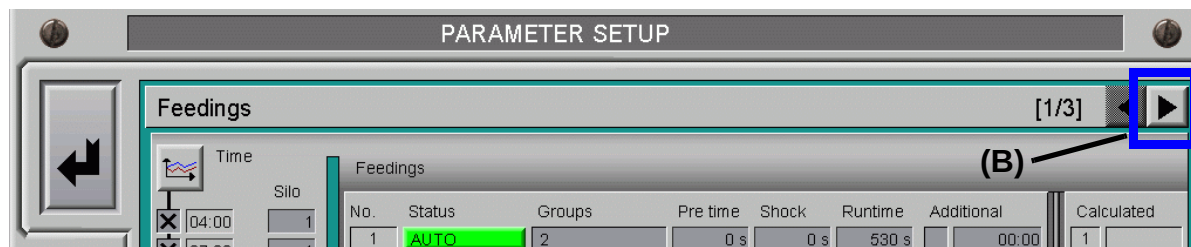


Figure 3-19: Animation feeding

In order to distribute the feed in the troughs between the feedings and to animate the animals with the chain noise to eat again, an animation feeding is available in the program.

In case of an animation feeding, the feed column is not filled again, i.e. the animation feeding starts with the above groups or all groups are animated together, provided this is possible with regard to the mechanics and electricity. This is reasonable since the feed sinks in the feed columns and the top groups will not get any feed in case of an inverse feeding mode.

The feed taken from the feed column is refilled before the next feeding starts and then distributed to all groups.

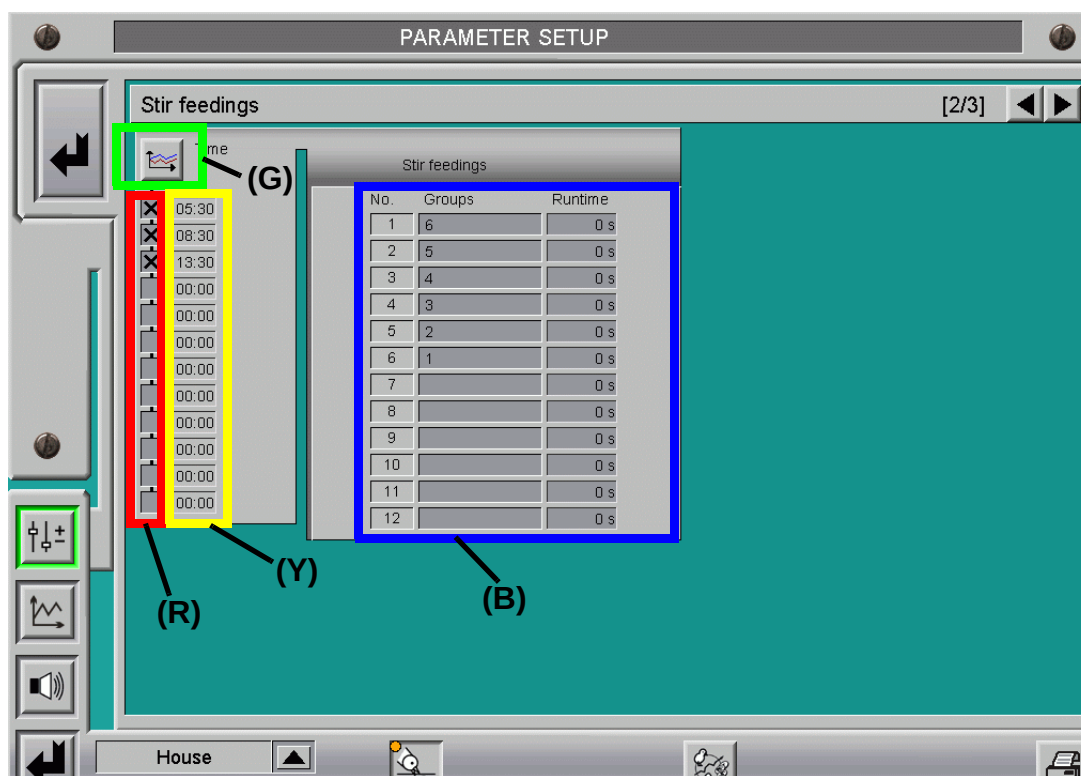


Figure 3-20: Animation feedings

3.14.1 Animation times

To set the desired start times for the animation feeding, click on the green **(G)** marked button with the curve symbol.

In the new opened window, the start times can be entered for the animation feeding and the animation feedings can be activated or deactivated.

The curve points can be set or modified depending on whether a numeric entry or a graphical surface is favoured.

These values are taken over from the production manager as described in chapter "Production curves" of the **AMACS** user manual and can then be changed here.

3.14.2 Animation feeding activated

The checkbox in front of the time (red **(R)** marked in the previous picture) determines if an animation feeding shall be carried out or not.

These values are taken over from the production manager as described in chapter "Production curves" of the **AMACS** user manual and can then be changed here.

3.14.3 Times for the animation feeding

The time at which an animation feeding shall be carried out is displayed in the yellow **(Y)** marked field.

These values are taken over from the production manager as described in chapter "Production curves" of the **AMACS** user manual and can then be changed here.

3.14.4 Animation feeding of the groups

During the animation feeding, feed will not be refilled in the feed columns. The filling of the feed columns is effected at the start of the next feeding. The feed will be evenly distributed to all groups.

3.14.4.1 Group feeding in succession

In the blue **(B)** marked field of the following picture you can determine the order of the group feeding. If there are 6 relays (see example) for switching on the feed chains tier by tier, it is possible to feed e.g. tier 6 first and then 5 etc. one after another.

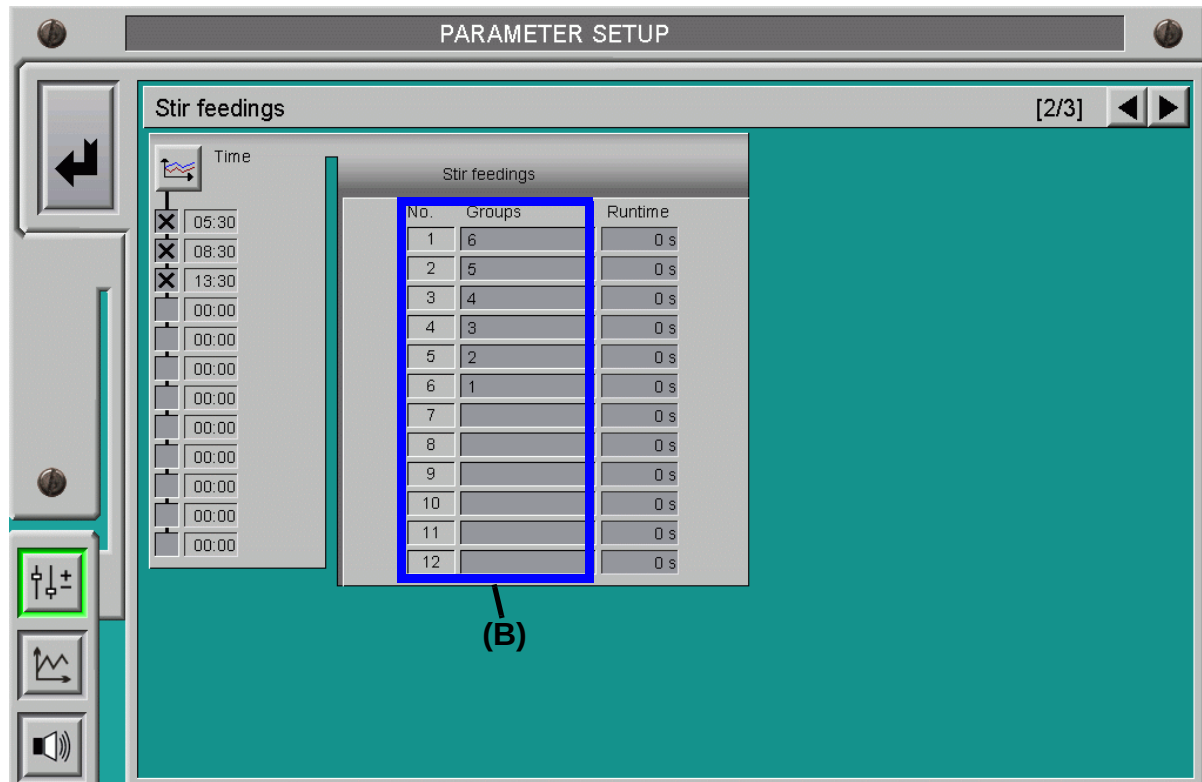


Figure 3-21: Feed groups in succession

3.14.4.2 Feed groups together

If the system is designed that way that all or several tiers can run simultaneously, it is also possible to make another entry. **But keep in mind that the electrical and mechanical conditions must support such a solution.**

The green **(G)** marking in the following picture shows which entry is necessary under groups to control the system accordingly.

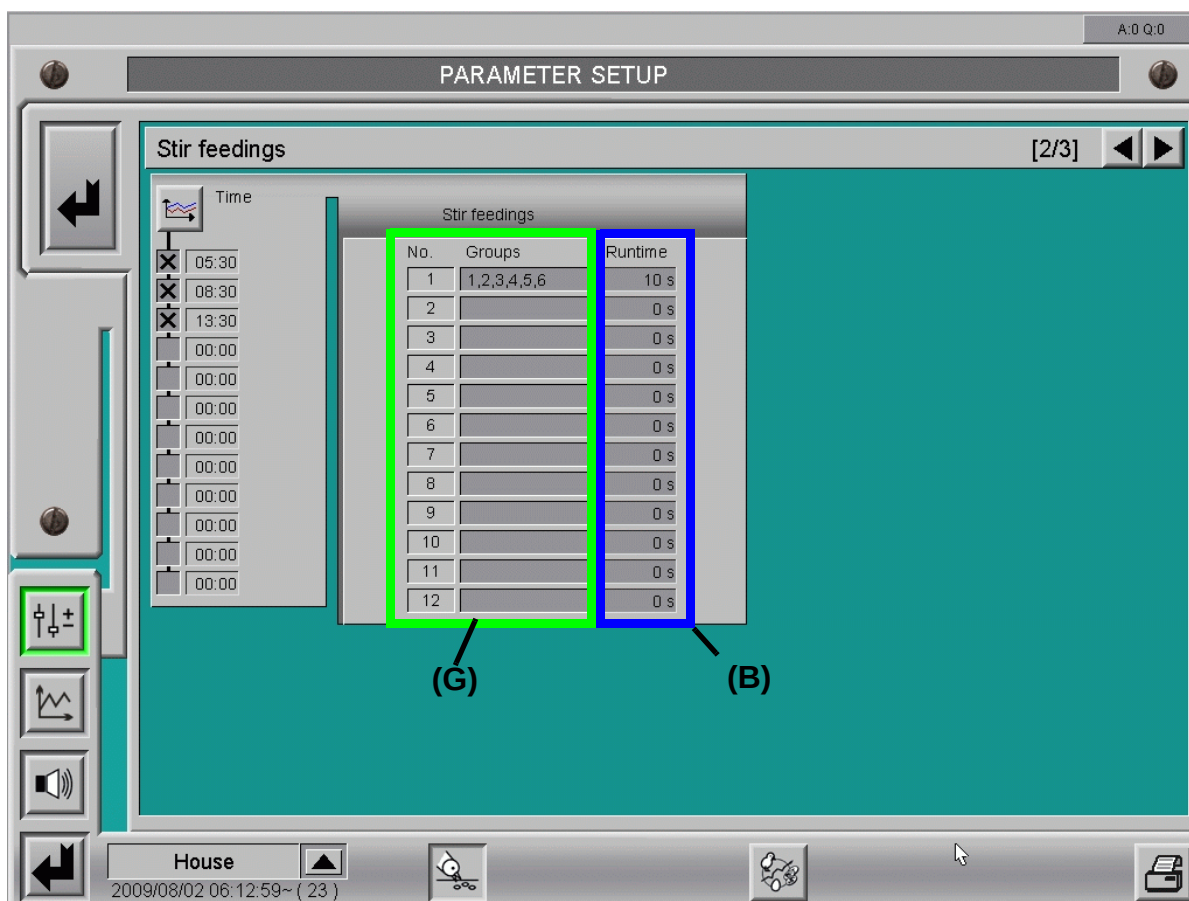


Figure 3-22: Feed groups together

3.14.5 Running time

The running time of the feed chain can be entered individually in the blue **(B)** marked field in the previous picture.

It is possible to enter a short running time of approx. 60 seconds. This time is sufficient to distribute the feed and attract the animals.

However, it is also possible to enter a time for the complete chain circuit.

The time is determined when the system is taken into operation. The chain is marked and it is then stopped how long it takes to run one circuit plus 5 m. The determined time is then entered in seconds in the blue **(B)** marked column.

3.14.6 Animation feeding in the main picture

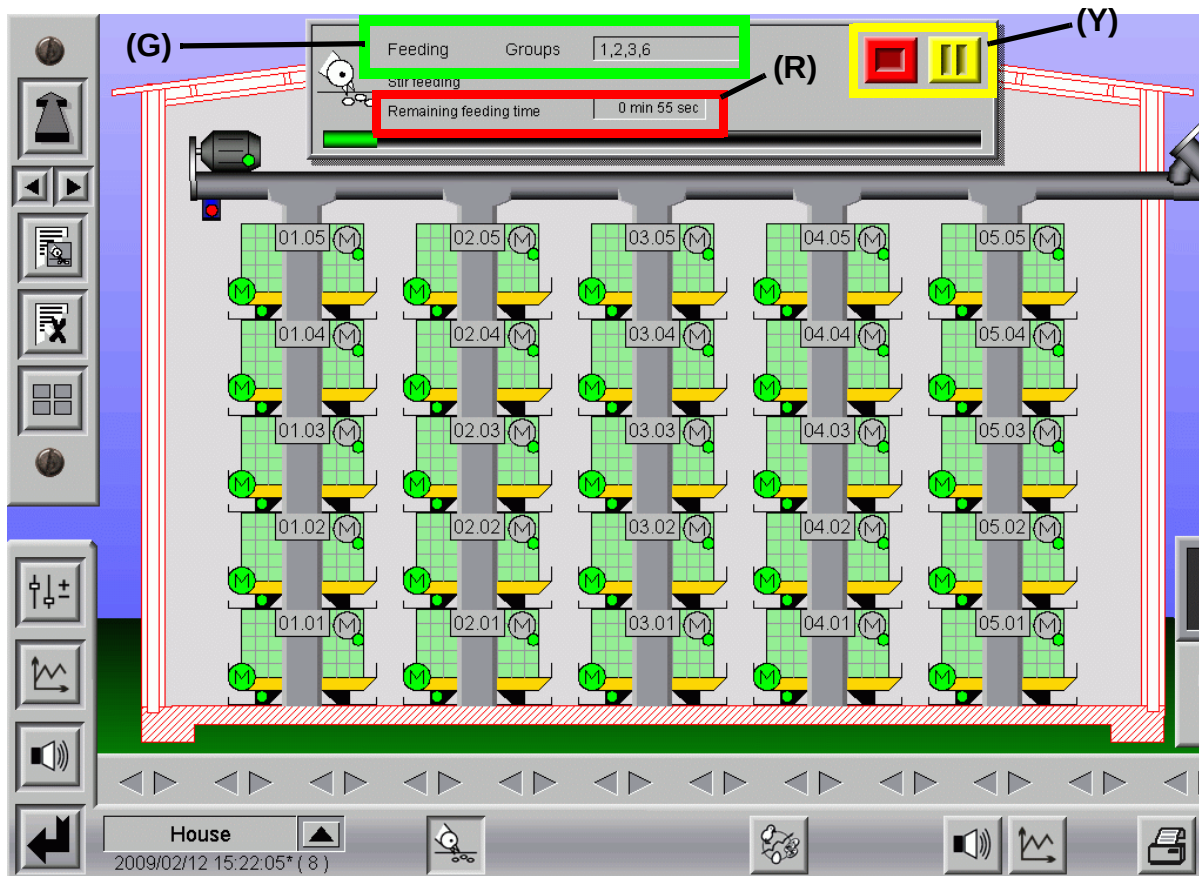


Figure 3-23: Animation feeding in the main picture

3.14.6.1 Actual group

In the green **(G)** marked field, the group is displayed which is presently animated.

3.14.6.2 Remaining feeding time

The remaining running time of the animation feeding is displayed in the red **(R)** marked field "Remaining feeding time".

To get an overview on the time already elapsed as well as the remaining time, a time bar is displayed under the remaining feeding time which indicates the elapsed time.

3.14.6.3 Start and stop of a running animation feeding

A feeding already running can be stopped, as shown in the yellow **(Y)** marked area of the picture.

As soon as a feeding process starts, a window is opened in the picture "feeding" where the remaining running time of the feeding is displayed for the current group.

The feeding can be stopped and restarted later on by clicking on the yellow button. If the red button is pressed, the current feeding is stopped. Both buttons are highlighted yellow **(Y)** in the picture.

3.15 Feeding list

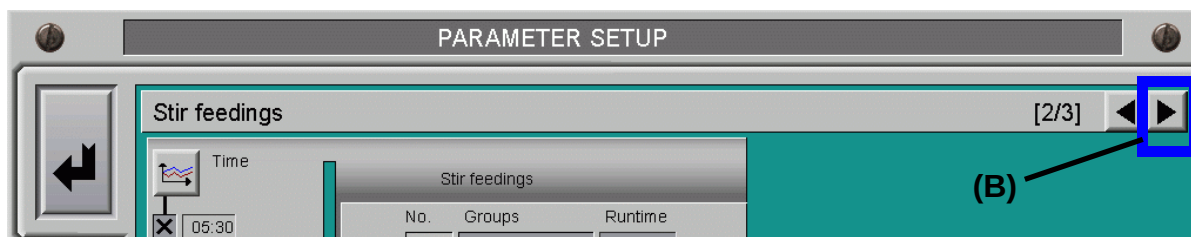


Figure 3-24: Feeding list

The feeding list described in chapter 1.2.4 can also be accessed directly from the feeding manager. Just click on the arrow highlighted blue (B) in the picture above. The feeding list mentioned in the above chapter opens but has some further functions that can be accessed from here.

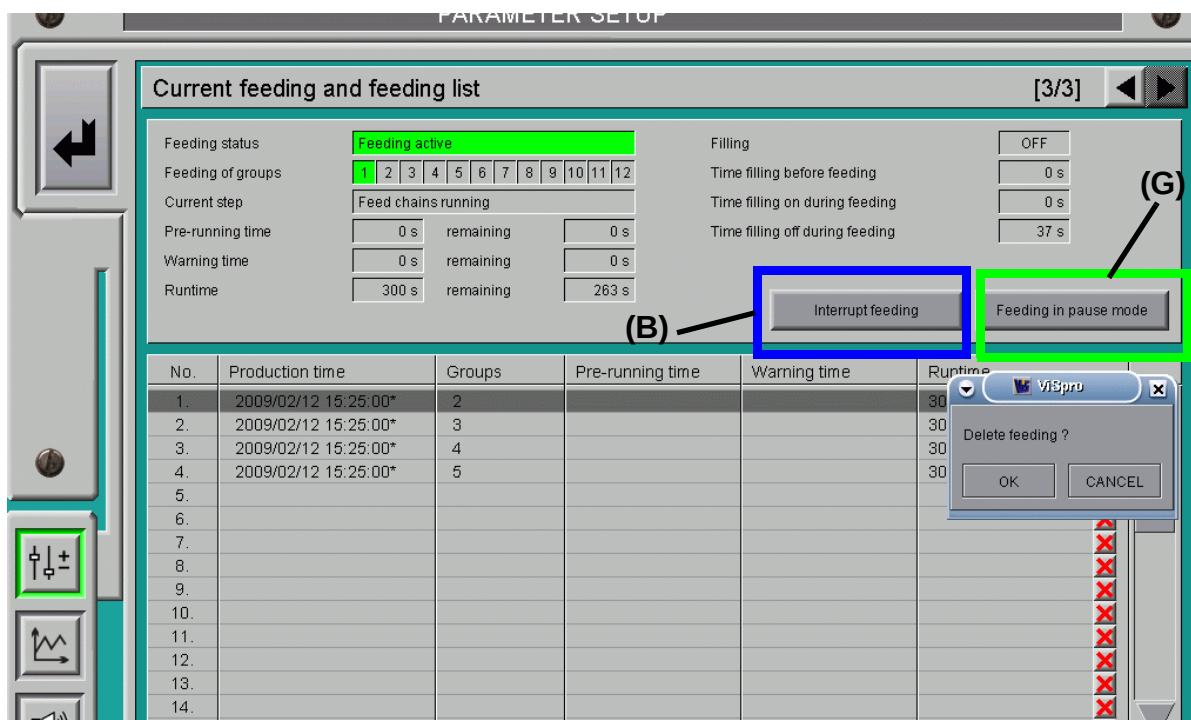


Figure 3-25: Current feeding and feeding list

3.15.1 Erase a feeding in progress

A feeding already in progress can be stopped by clicking on the blue (B) marked button in the previous picture. After the feeding has been stopped, the feed quantity consumed until then will be determined for the group (tier). Then the feeding is erased from the list.

3.15.2 Interrupt feeding

If, for example, there is no more feed in the silo or repairs have to be done, the feeding can be interrupted (green **(G)** marking).

If this button is pressed several times, the feeding continues.

It is also possible to erase a feeding (click on one of the red crosses), as already mentioned in chapter **3.11**.



Caution:

Works at the drive units or augers may only be carried out if the protective switch is in OFF position. The drive units could be activated without prior warning e.g. by the time clocks or sensors. Please observe the local security signs and instructions.

4 Feedings with feed cart

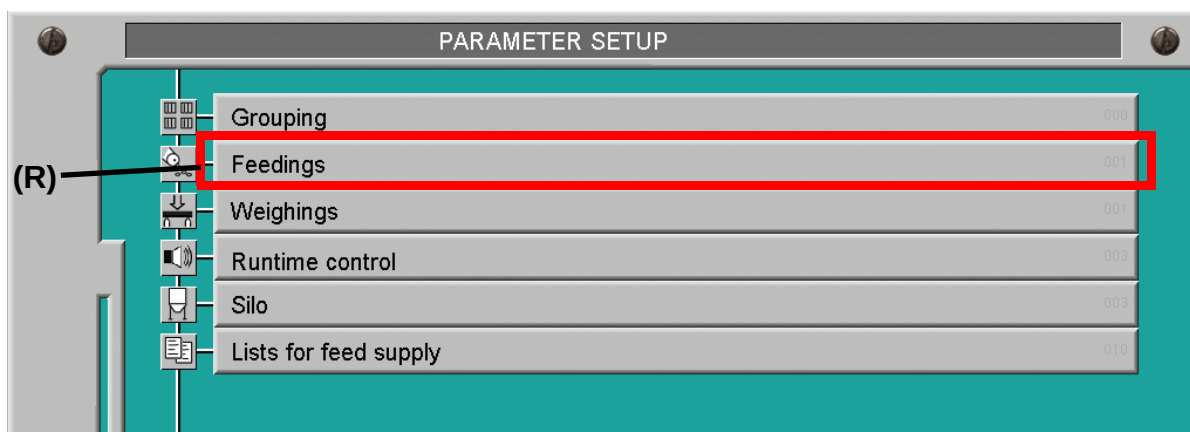


Figure 4-1: Set-up in the feeding manager

Click on the red **(R)** marked "feedings" button to open a window where all important settings for the feeding management can be made.

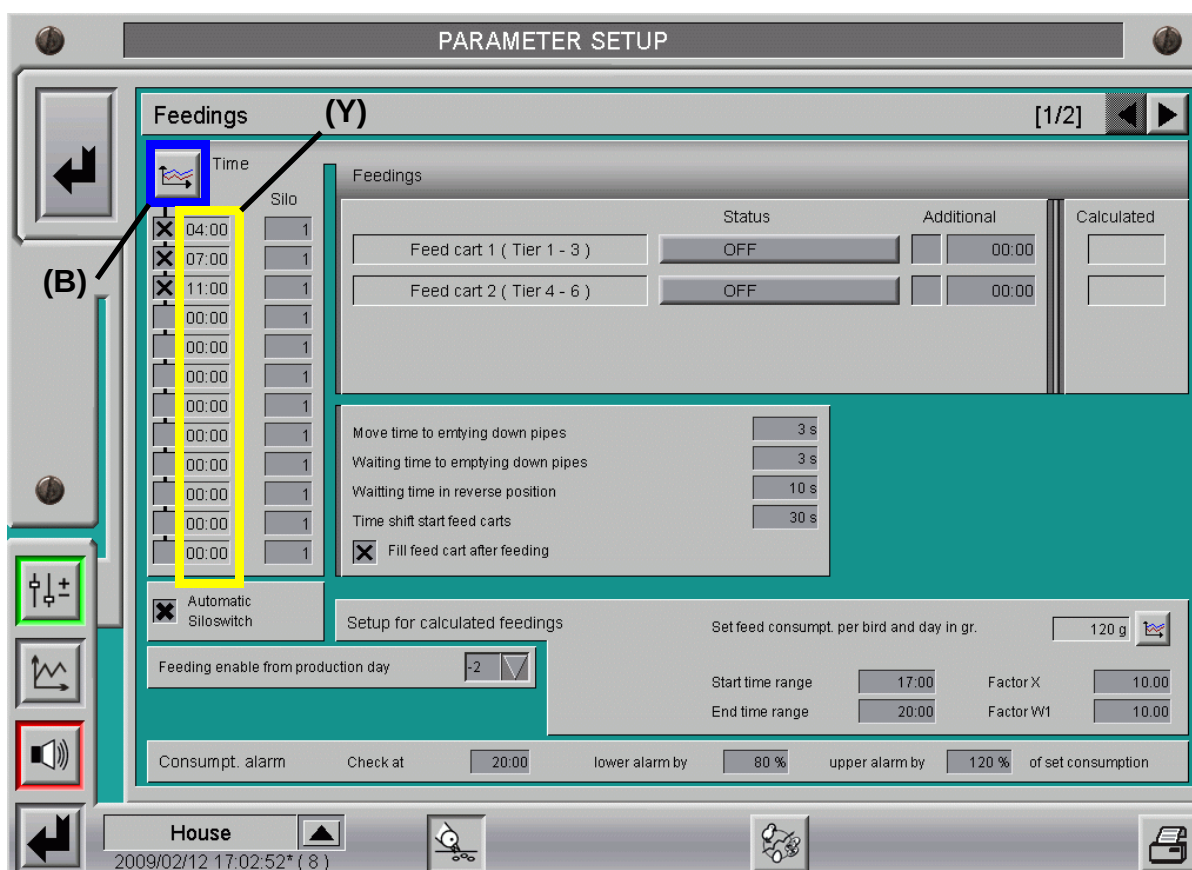


Figure 4-2: Feeding manager

4.1 Feeding times

In order to set the desired starting times for the feeding, click on the blue **(B)** marked button with the curve symbol in the previous picture.

Now, the start times for the feedings can be entered respectively (de)activated in the new opened window.

Depending on whether a numeric entry or a graphical surface is favoured, there is the possibility to set and modify curve points.

These values are taken over from the production manager as described in chapter "Production curves" of the **AMACS** user manual and can then be changed here.

4.1.1 Feeding activated

A cross in front of the time determines whether this feeding shall be effected. If the checkbox is not activated, a feeding will not be effected.

These values are taken over from the production manager as described in chapter "Production curves" of the **AMACS** user manual and can then be changed here.

4.1.2 Times for feeding

The yellow **(Y)** marked field specifies the time at which the feeding shall be carried out.

These values are taken over from the production manager as described in chapter "Production curves" of the **AMACS** user manual and can then be changed here.

4.2 Times for feeding with silo selection (only with separate silo discharge)

In addition to the time it can also be determined which silo shall be used for the feeding.

4.3 Automatic silo adjustment (only in case of signal "silo empty" and separate silo discharge)

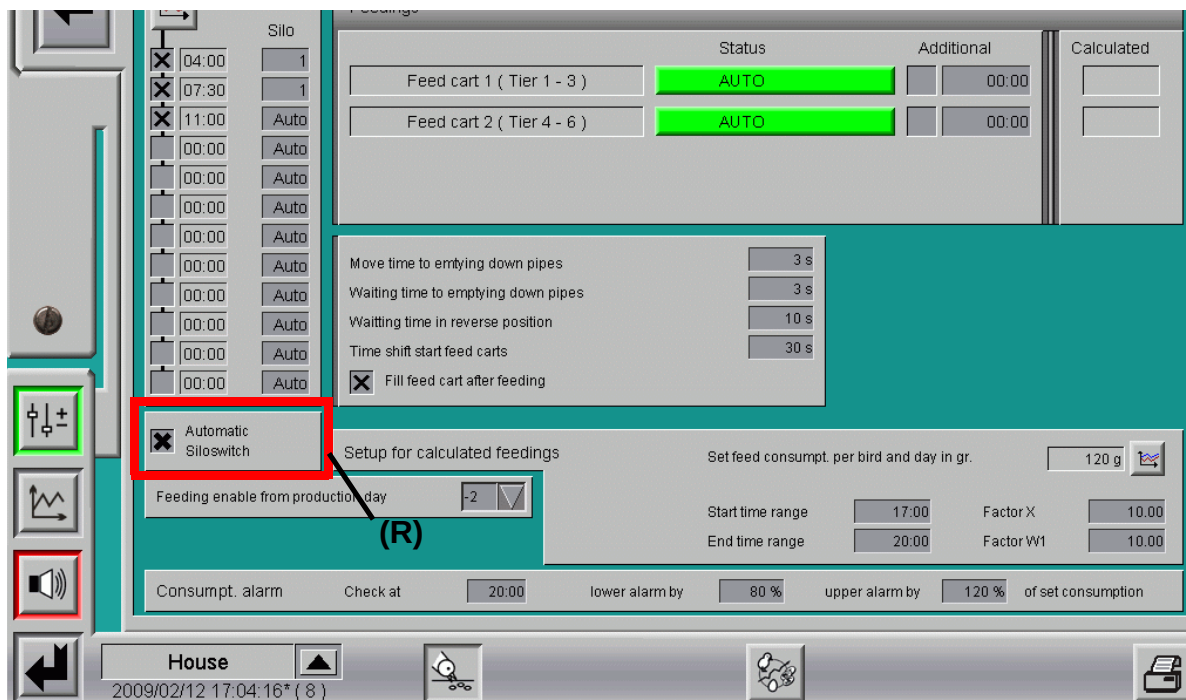


Figure 4-3: Automatic silo adjustment

The activation of the red **(R)** marked checkbox in the previous picture allows for an automatic silo adjustment, i.e. the entered times can be changed automatically by **AMACS**, if necessary.

Example:

If **AMACS** registers that the active silo (example silo 1) is emptied during a feeding, it is switched over to the alternative silo. The change-over is effected on the basis of certain presettings which are described later on.

Since the automatic silo adjustment was adapted, the entry of the silo number behind this time is set to e.g. 2 so that the next feeding is started with this silo.

This has the advantage that the empty silo will not start first before it is switched over to the alternative silo. In this case, however, the feedings already listed in the feeding list will initially be filled by the empty silo.

If "AUTO" is defined under silo for the feeding time, it will always be dosed from the silo presently activated.

If an automatic adjustment is not desired, this function can be cancelled by deactivating the checkbox.

4.3.1 Manual silo selection during feeding

If the silos shall be switched over manually during a feeding, just click on the orange **(O)** marked little orange LED at the silo. Now feed is taken from this silo.

The little control LED at the silo indicates which silo is presently active; green **(G)** means active and orange **(O)** means inactive.

This manual selection of the silo does not always have an influence on the feedings which are started automatically later on, since it is always switched to the silo chosen behind the start time.

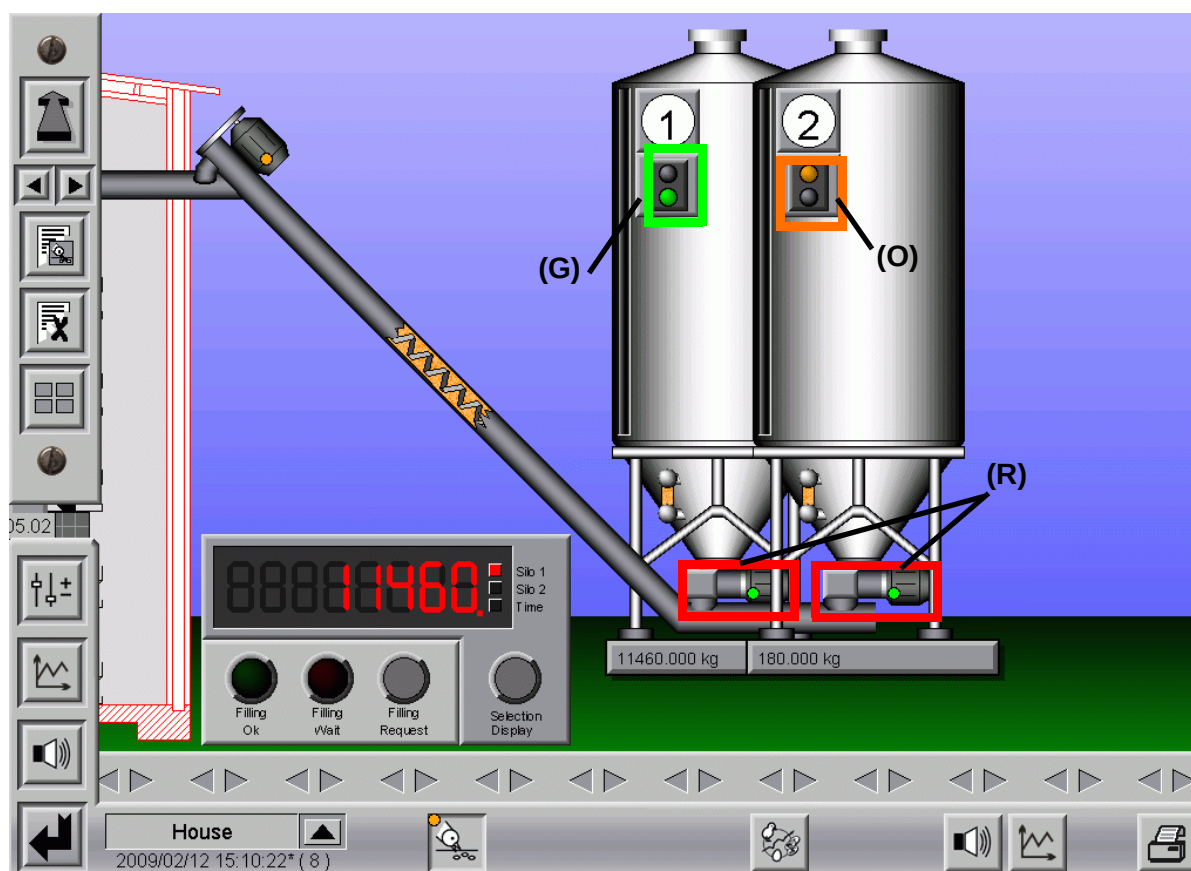


Figure 4-4: Manual selection of a silo

4.3.2 Manual operation of discharge augers

Since this configuration also comprehends a discharge auger per silo, this can be operated manually as well.

With a click on the red **(R)** marked motors at the silo in the previous picture, the control panel for these motors will be opened.

Now it can be switched over to manual operation. If the cross auger runs (sensor for cross auger may not be covered with feed), these motors can be started manually.

!

Caution:

Maintenance or service works at drive units or augers may only be carried out if the protective switch is in the OFF position. The drive units could be activated without prior warning e.g. by the time clocks or sensors. Also observe local security signs and instructions.

4.4 Status

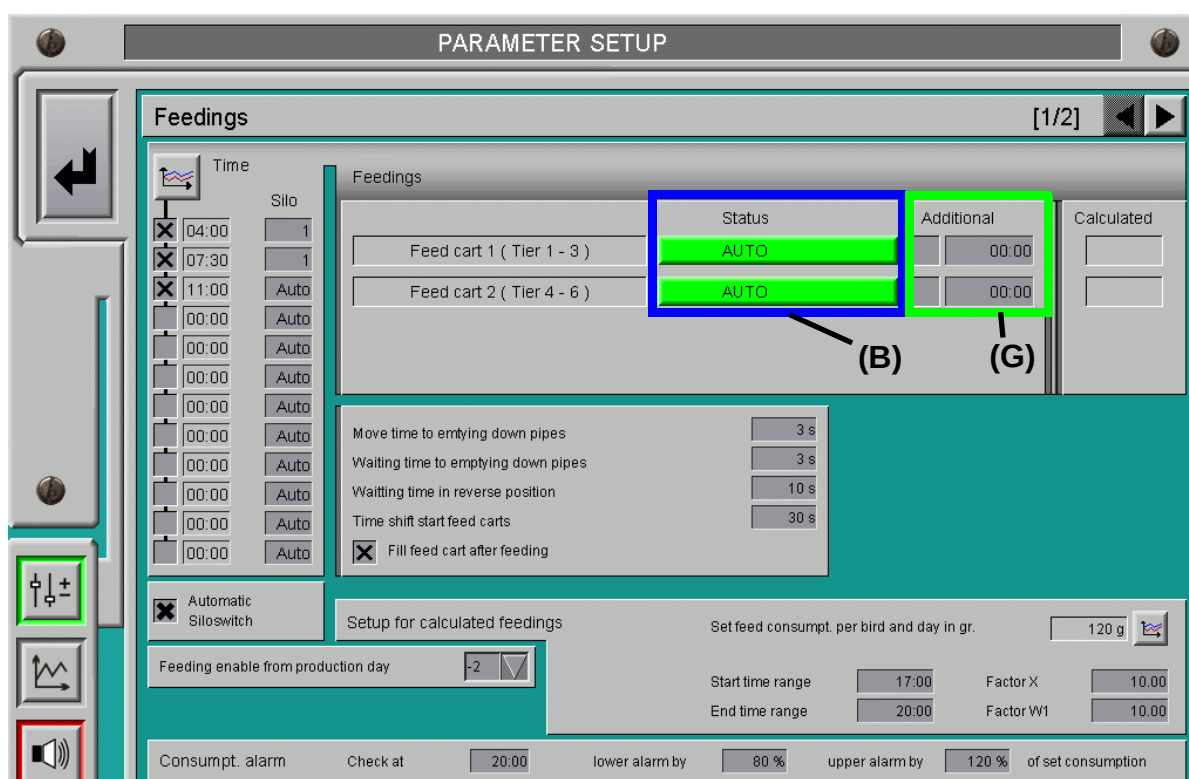


Figure 4-5: Status of the single groups

The blue **(B)** marked field "status" gives you different options that can be activated. Just click on the button of the desired group to obtain the following display.

4.4.1 Status "Off"

If the status is "Off", the feeding for this group is not activated.

This function can be used if e.g. the feed cart of group 2 is defective and feeding shall not be carried out until it is repaired.

In this case, the button will be grey.

4.4.2 Status "Auto"

If the status "Auto" is displayed, feeding for this group runs automatically.

The groups are activated one after another at any time and after the runtime has come to an end, the next group is activated.

In this case, the button is green.

4.4.3 Status "Off-Auto"

If the status "Off-Auto" is displayed, this group is left out at the next feeding.

Now it is switched back to "AUTO" without further entries.

In this case, the button is dark-green.

4.5 Additional feeding

If an additional feeding shall be carried out from time to time, a time can be entered per group in the green **(G)** marked field "Additional".

If the corresponding checkbox is activated, an additional feeding is carried out as soon as the specified time has been reached. To deactivate an additional running time, the cross has to be erased from the checkbox.

4.6.2 Curve set: Feed consumption per animal and day

In order to set the desired feed consumption in the house, click on the red **(R)** marked button with the curve symbol, as shown in picture 4-6.

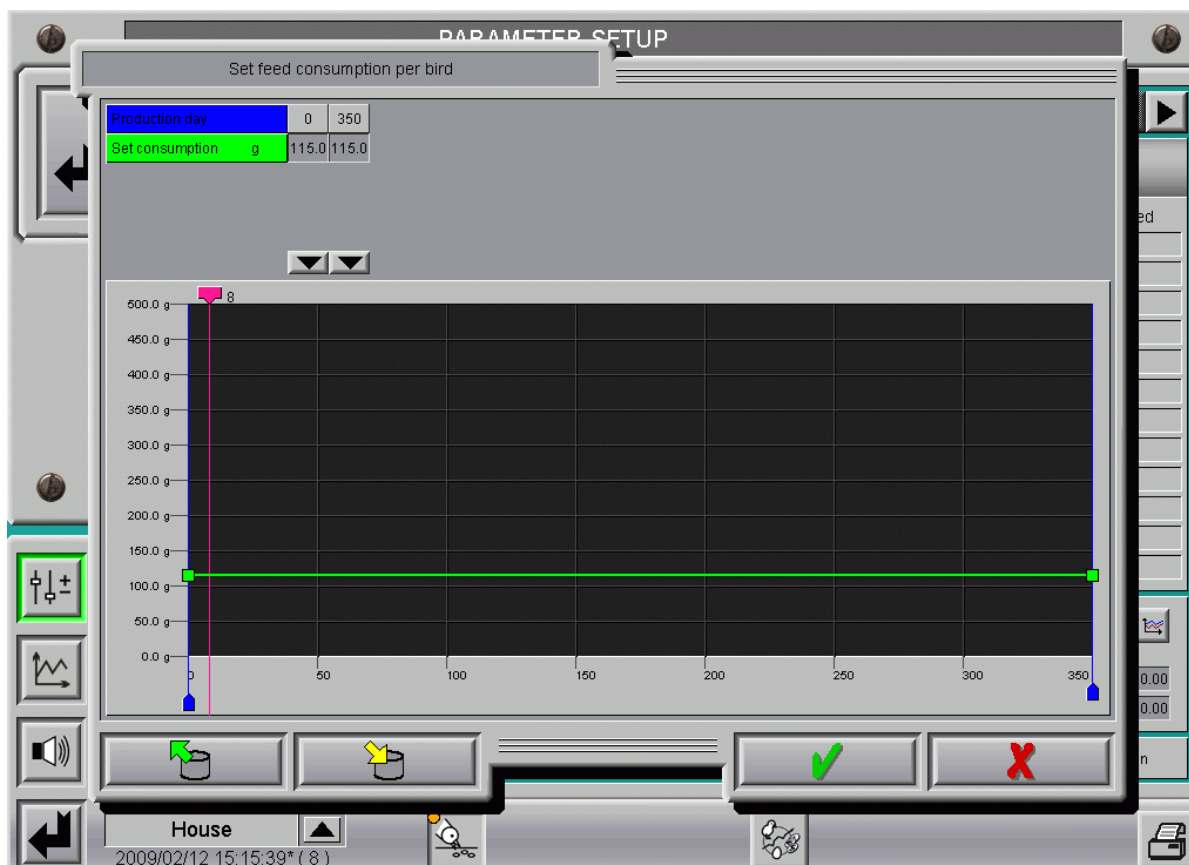


Figure 4-7: Feed curve layers

With this curve the set consumption can be preset per animal for the time of management. In this menu, there are 3 different options to enter data.

Depending on whether a numeric entry or a graphical surface is favoured, there is the possibility to set and modify curve points.

The values in this curve should be changed or stored as described in detail in chapter „Set curves” of the **AMACS** user manual.

4.6.3 Time of the last calculated feeding time

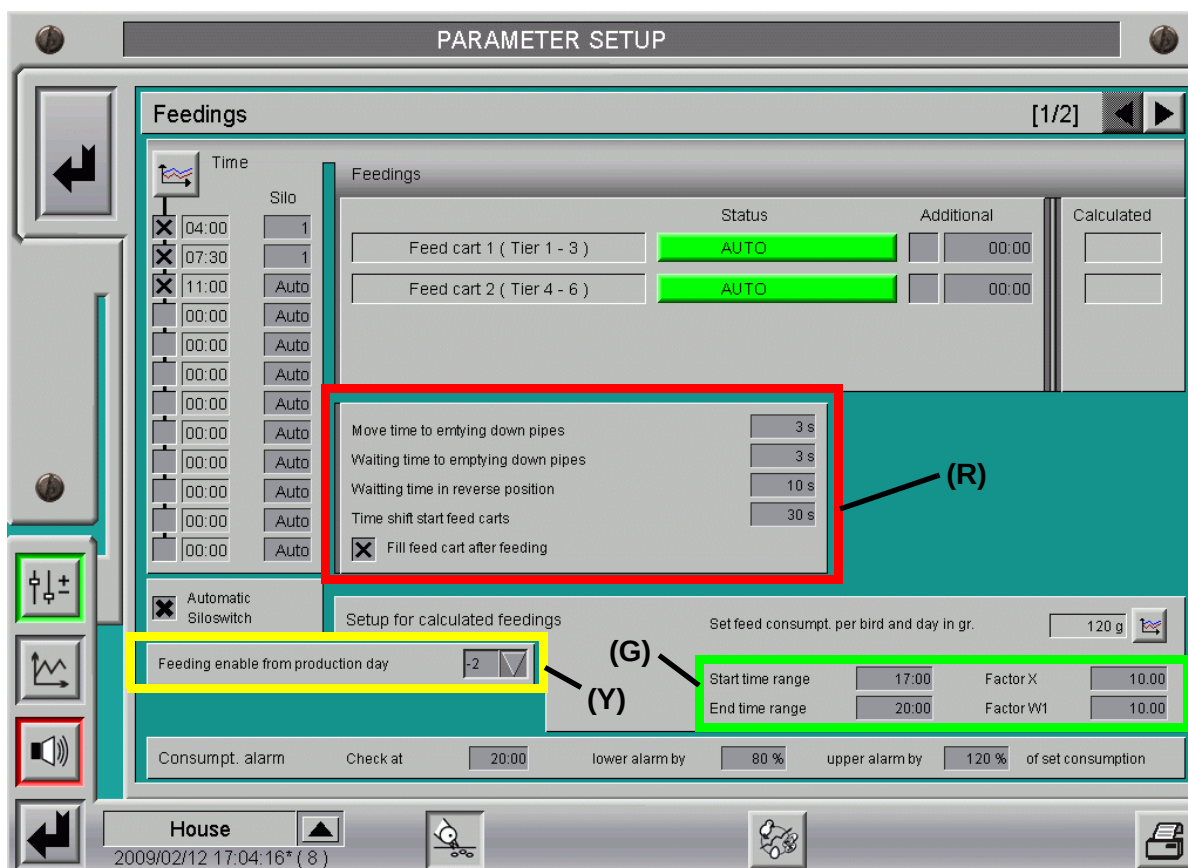


Figure 4-8: Limit the duration of the last feeding

4.6.3.1 Limit the duration of the last feeding

To avoid that the computer carries out the last feeding at an unusual time, you can limit the duration time of the automatic feeding.

You can enter the desired values in the green **(G)** marked field in the picture above "start time range" and "end time range".

The computer is now going to move the time window so that a complete loop will be fed and not more or less (+/- X %) than the set amount is fed. If both times are set to **00:00** h an automatic feeding is not calculated.

4.6.3.2 Factors for the calculation of the last feeding

In order to avoid a strong variation of the feeding times, for example because of changes in the feeding behaviour or feeding speed of the birds, e.g. caused by changes in temperature etc., two factors are used to prevent this.

- **Factor X is a factor indicating the time delay**
- **Factor W1 refers to changes of the feed consumption of the previous day**

Both values should be set to approx. 7-10. Keep in mind however, that the lower value is going to cause changes in larger steps, that means the feeding time will be adjusted in larger steps.

4.7 Settings for feed cart

The following settings refer to the red **(R)** marked field in the previous picture.

4.7.1 Empty the drop pipes

In order to take out the feed which is still in the drop pipes after the filling, a running time can be entered in seconds in the marked area under "Running time for emptying the drop pipes" which the feed carts shall drive up.

Under "Waiting time for emptying the drop pipes" it is entered how long the feed cart shall stay in this position until the drop pipes are emptied.

4.7.2 Waiting time in reversing position

To avoid that the feed cart immediately starts to move after having reached the reversing position, a waiting time can be entered here in seconds.

4.7.3 Time-delayed starting of the feed carts

Since not all groups will start simultaneously at the start of the feed carts, it is possible to enter a delay in seconds. This means, when the first feed cart starts, it will be waited exactly this time until the second cart will start. This is reasonable if e.g. the making current of the respective group is too large.

4.7.4 Refill feed cart after the feeding

The activation of the marked checkbox refills the feed carts after each feeding.

This is necessary if the feed consumption per feeding shall be exactly calculated and a calculated feeding is carried out.

4.8 Feeding activated from the day of production

The start day for the feeding may deviate from the actual day of housing in.

In order to prefill the feed troughs so that the animals can eat directly when they are housed in, a corresponding entry can be made in the yellow (Y) marked field in figure 4-8. An entry of e.g. -2 means that the feed troughs can be filled 2 days before housing in.

More information regarding the housing in and production start can be found in the manual "broiler".

4.9 Feeding in the main screen

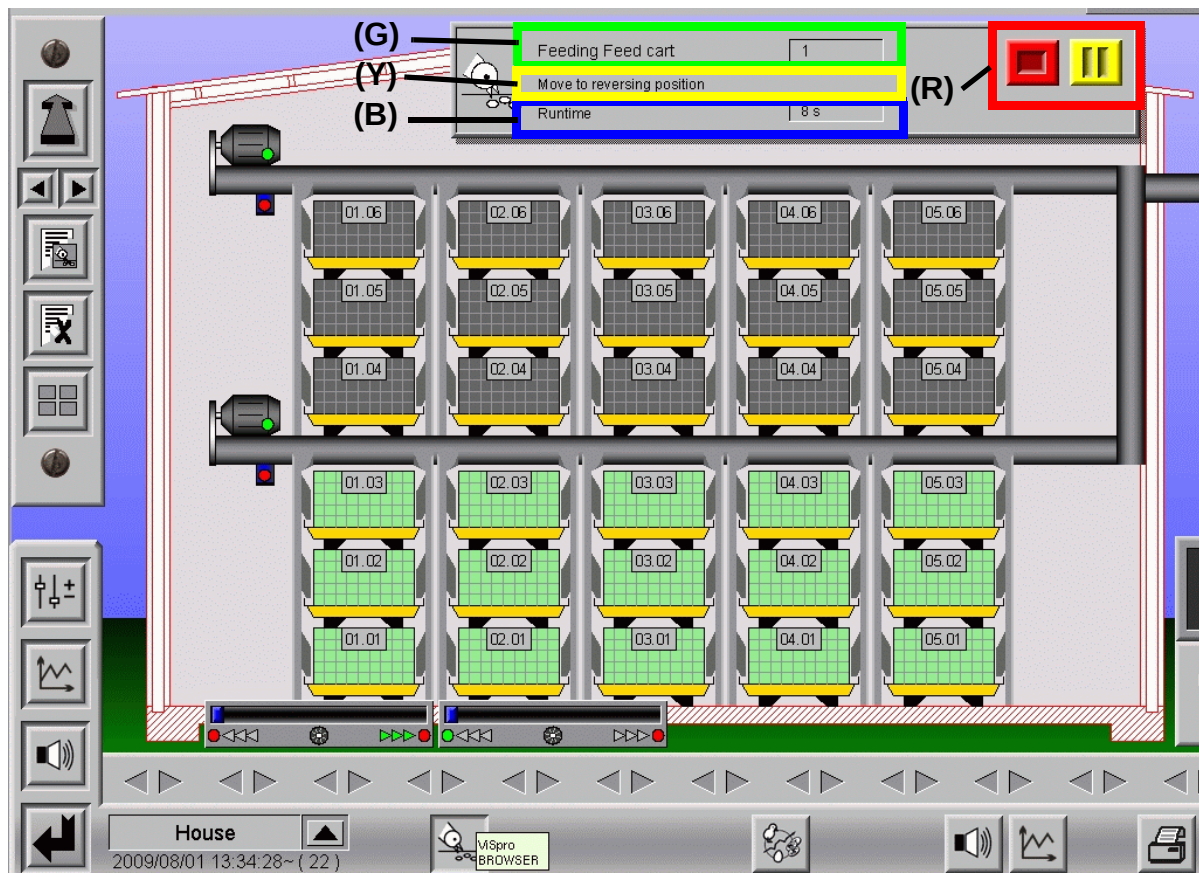


Figure 4-9: Feeding in the main screen

4.9.1 Status feeding

4.9.1.1 Actual group

In the green **(G)** marked field the current group is displayed which is presently fed.

4.9.1.2 Current direction of motion

The current direction of motion is displayed in the yellow **(Y)** marked field.

4.9.1.3 Running time

The time already run of the feed cart is displayed in the blue **(B)** marked field under running time.

4.9.1.4 Start and stop / pause of a feeding in progress

A feeding already in progress can be stopped, as shown in the red **(R)** marked area of the previous picture.

As soon as a feeding process starts, a window is opened in the picture "feeding" where the remaining running time of the feeding is displayed for the current group.

The feeding can be interrupted and restarted later on by clicking on the yellow button. If the red button is pressed, the current feeding will be stopped. Both buttons are marked in red **(R)** in the previous picture.

4.10 Consumption alarm feeding (only with feed registration)

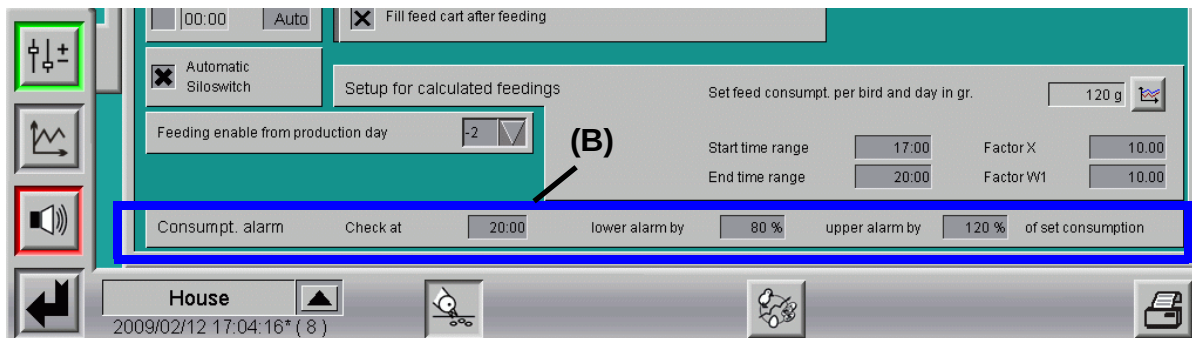


Figure 4-10: Consumption alarm feeding

A time and the limiting values can be entered as percentage in the blue **(B)** marked area of the above picture. As soon as the feed quantity in a group remains under the set value respectively exceeds this, an alarm is triggered.

The following picture shows what such a message looks like. Just click on the mouse to confirm the message.

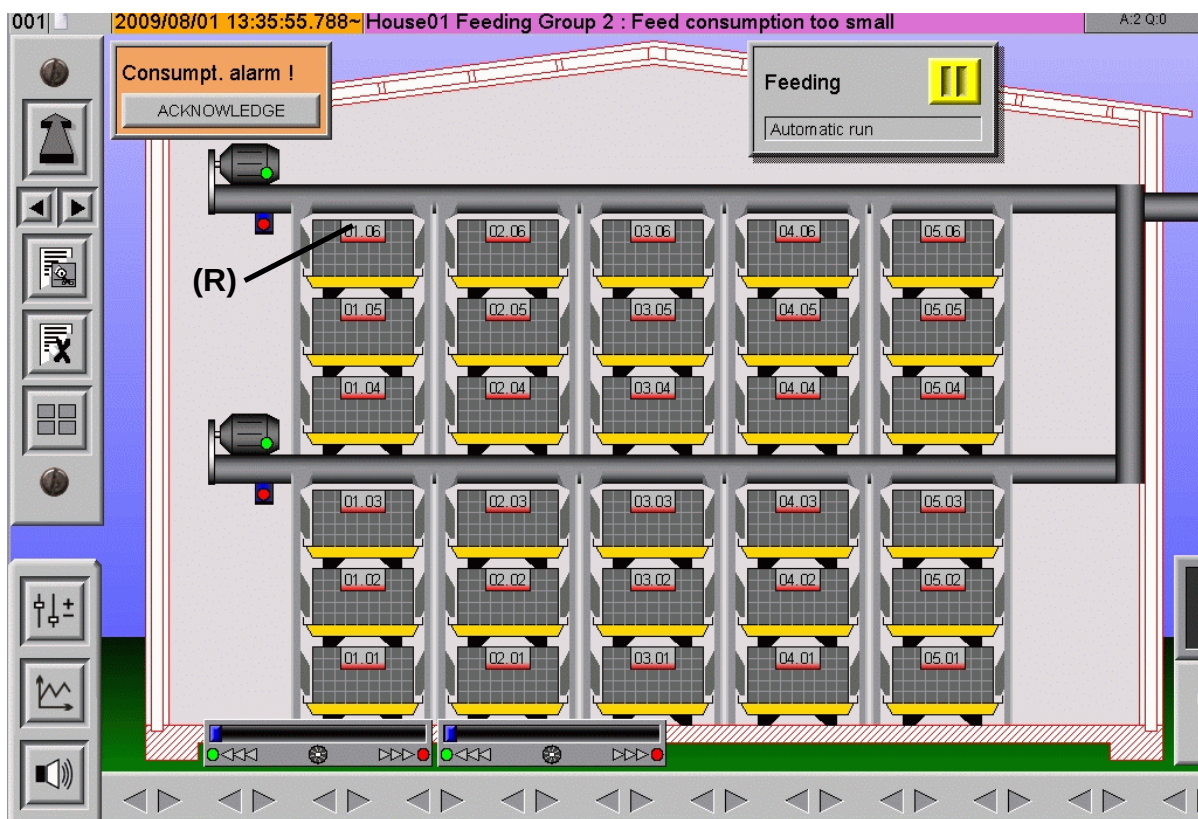


Figure 4-11: Consumption alarm at feeding X

The consumption alarm also indicates if too much or too little feed was consumed. If the red **(R)** marked bar appears below, the feed consumption is too little. If the red **(R)** marked bar appears above, too much feed was consumed.

4.11 Feeding list

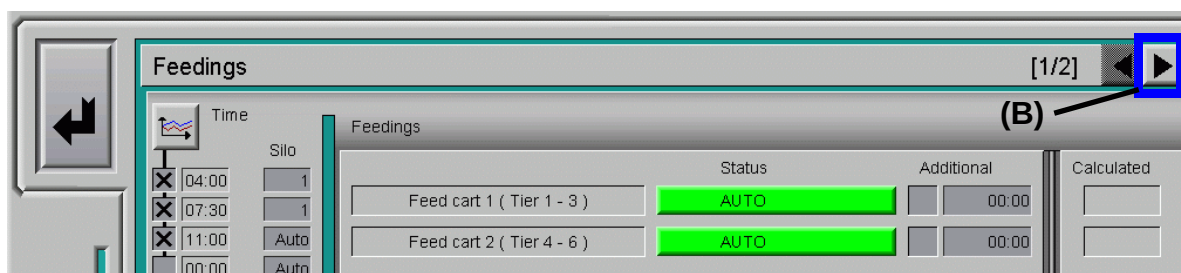


Figure 4-12: Feeding list

The feeding list described in chapter 1.2.4 can also be accessed directly from the feeding manager. Just click on the arrow highlighted blue (B) in the picture above. The feeding list mentioned in the above chapter opens but has some further functions that can be accessed from here.

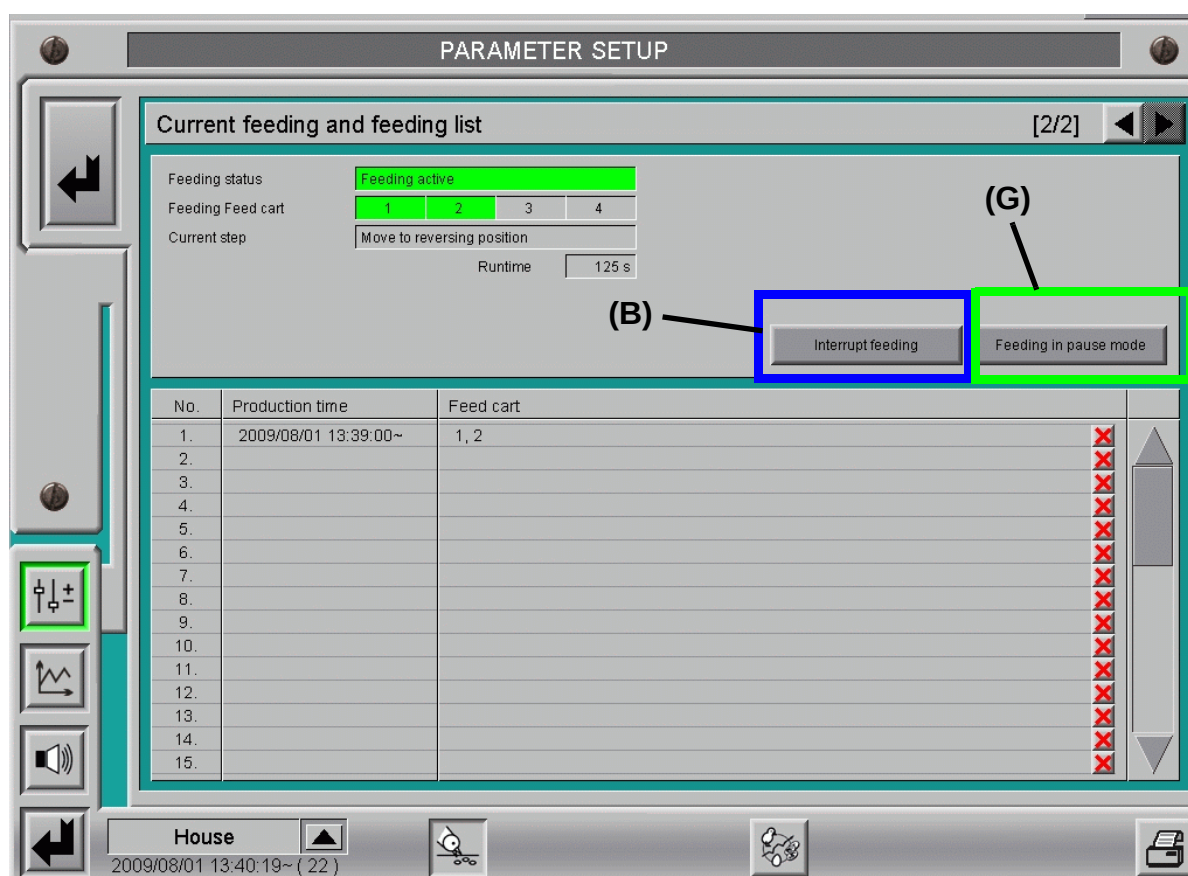


Figure 4-13: Current feeding and feeding list

4.11.1 Erase a feeding in progress

A feeding already in progress can be stopped by clicking on the blue **(B)** marked button in the previous picture. After the feeding has been stopped, the feed quantity consumed until then will be determined for the group (tier). Then the feeding is erased from the list.

4.11.2 Interrupt feeding

If no more feed is in the silo or repairs have to be carried out, feeding can be interrupted (green **(G)** marking).

If this button is pressed several times, the feeding continues.

It is also possible to erase a feeding (click on one of the red crosses), as already mentioned in chapter 4.8.



Caution:

Works at the drive units or augers may only be carried out if the protective switch is in OFF position. The drive units could be activated without prior warning e.g. by the time clocks or sensors. Please observe the local security signs and instructions.

5 Runtime control

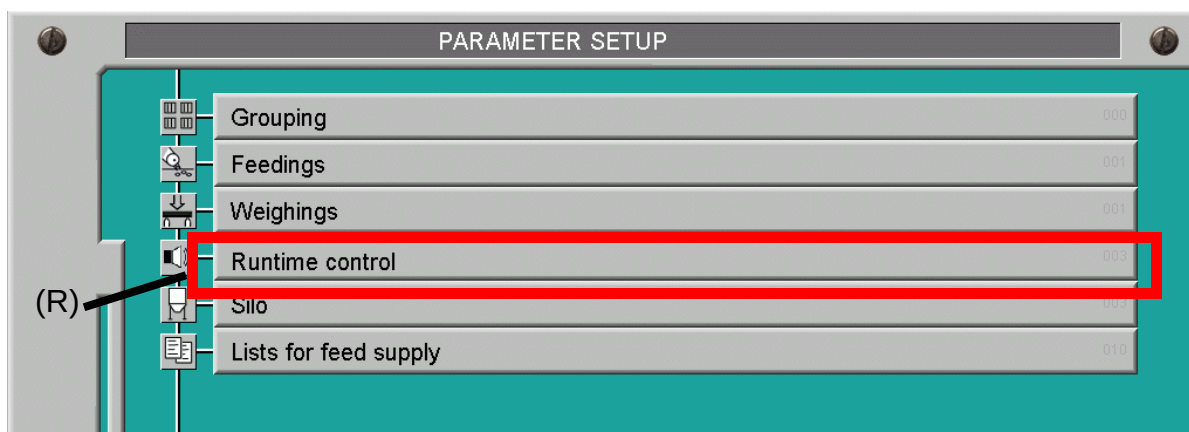


Figure 5-1: Setting the runtime control

Click on the red **(R)** marked button "Runtime control" to open a window where all settings for the control can be made.

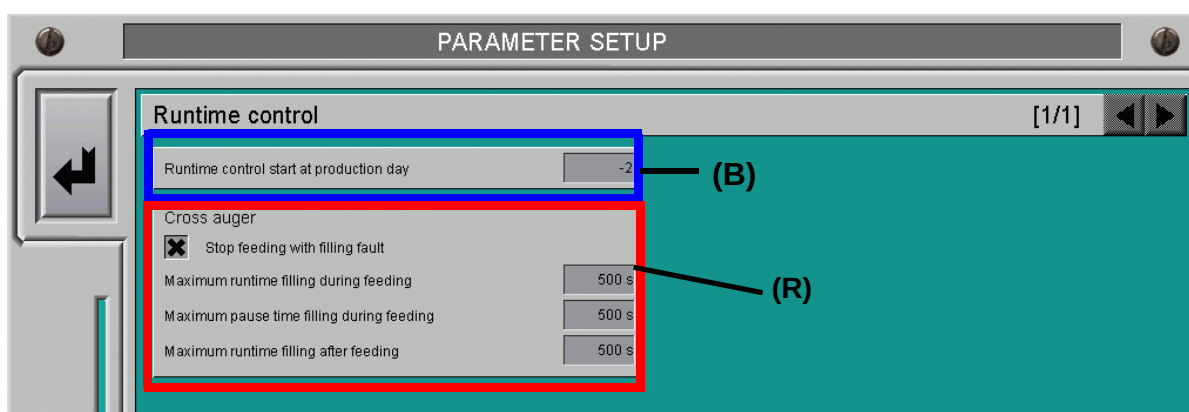


Figure 5-2: Menu Runtime control

5.1 Runtime control from the day of production

The start day for the runtime control may deviate from the actual day of housing in.

Since the animals do not eat so much when they are housed in, the runtime control (blue **(B)** marked in the previous picture) can be set to e.g. 1 since the feeding only runs correctly the next day.

More information regarding the setting of the production start can be found in the production manual.

5.2 Runtime control cross auger

With the runtime control cross auger, marked **(R)** in the previous picture, the cross auger as well as the sensor are controlled regarding malfunction.

5.2.1 Stop at error filling

If feeding shall be stopped at one of the three possible filling errors, the cross in the field "Stop at error filling" has to be activated.

If a filling error has interrupted the feeding, the status display for feeding in the main picture will be hidden.

If the feeding shall be restarted, click on "Acknowledge" and the runtime error will be reset.

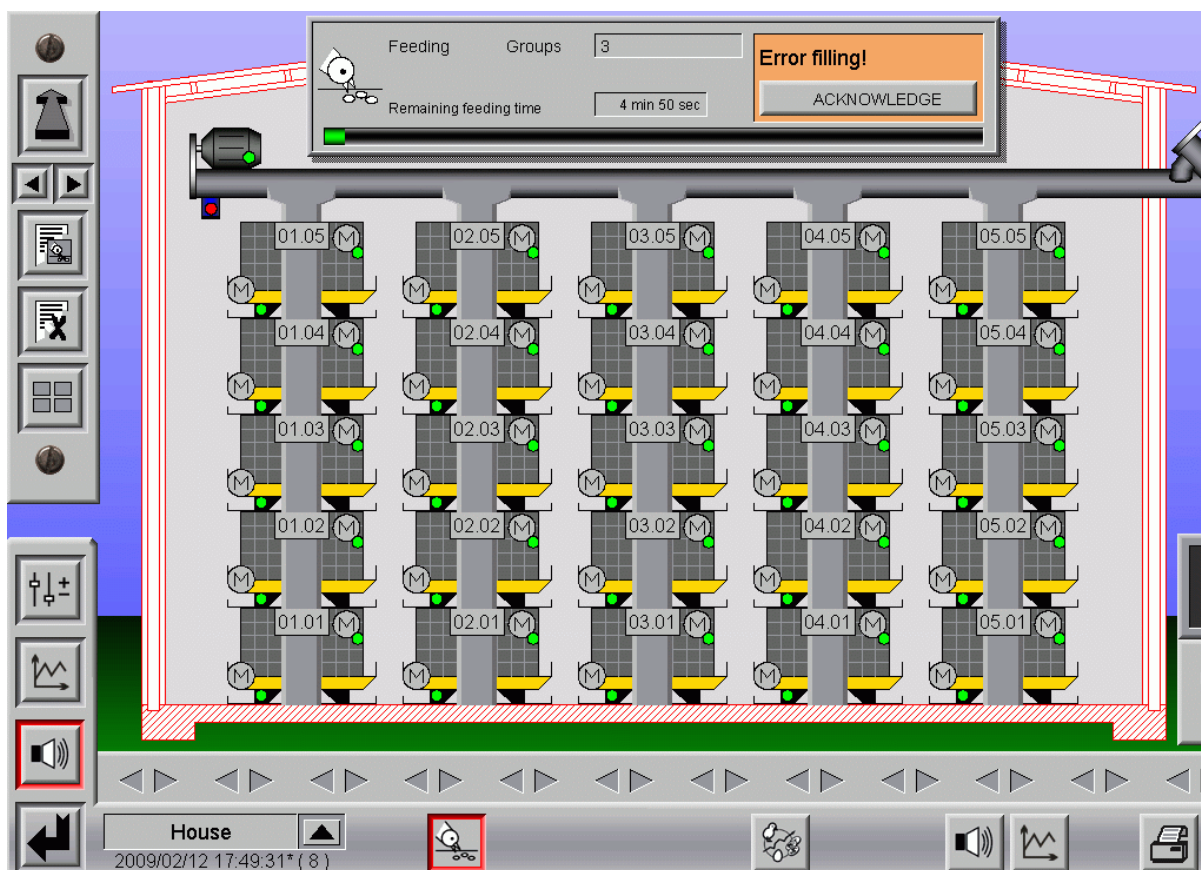


Figure 5-3: Filling error

5.2.2 Maximum running time during the feeding

The cross auger must be switched off once during the feeding in order to prevent that the auger will transport feed into the house although e.g. a drop pipe at the auger is broken.



Important:

The time specified must be **shorter than the running time of the feed chains** so that an alarm can be triggered.

5.2.3 Maximum pause time during feeding

In order to ensure that the cross auger did run, a maximum pause time can be entered here in seconds during which the cross auger must have run once.

This prevents an unnoticed stop of the auger in case a sensor is defective and feed is thus not transported into the house.



Important:

The time specified must be **shorter than the running time of the feed chains** so that an alarm can be triggered.

5.2.4 Maximum running time of filling prior to / after feeding

To ensure that the feed amounts per tier / group are correctly registered, the feed columns are filled up prior to and after feeding of each group. If the set time is exceeded, an alarm is activated. The alarm can be caused by a defective sensor at the cross auger or bridging in the silo.

5.2.4.1 Wait for feeding before in the main picture

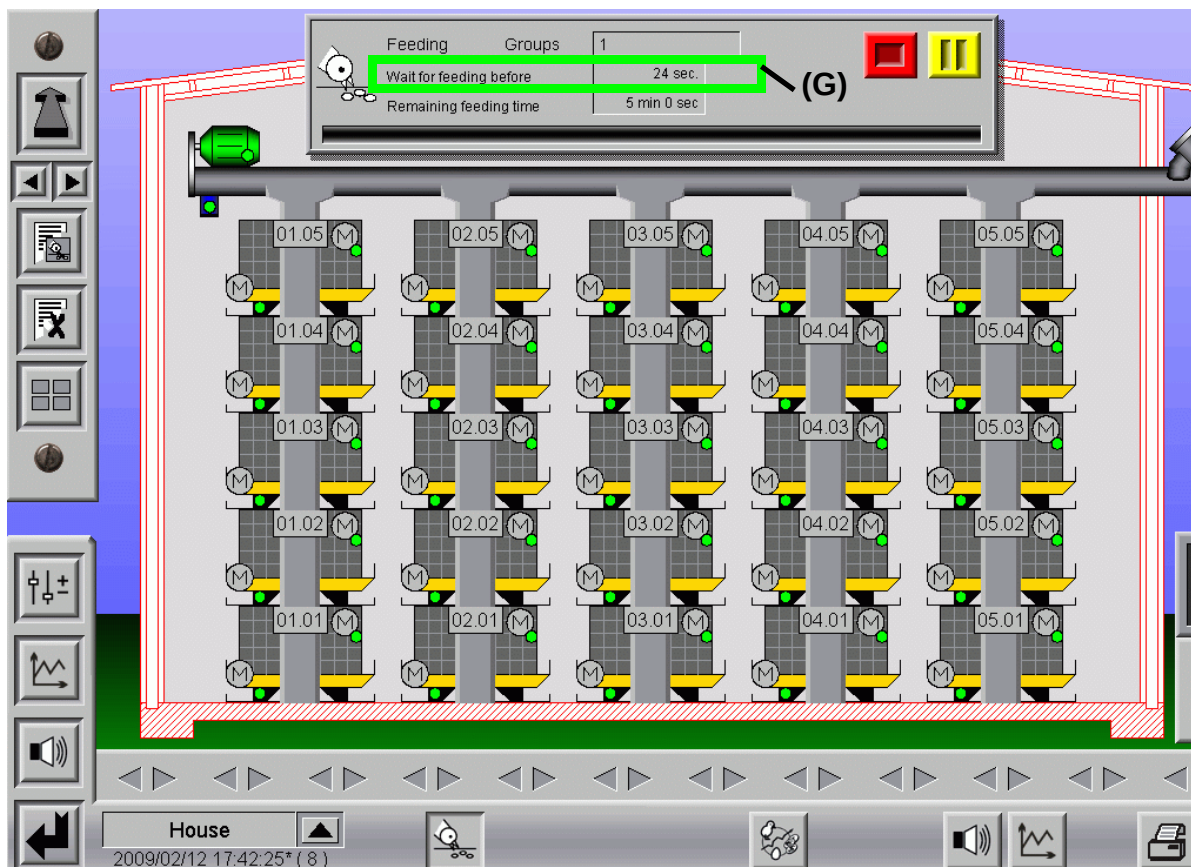


Figure 5-4: Waiting for prior filling

In the above picture the time can be read off in seconds in the green **(G)** marked field "Wait for feeding before" which **AMACS** takes to fill the feed columns.

The feeding time of the actual feeding does not lapse during this time.

The feed which was filled before in the feed columns during the feeding will be distributed evenly to all groups.

5.2.4.2 Wait for feeding afterwards in the main picture

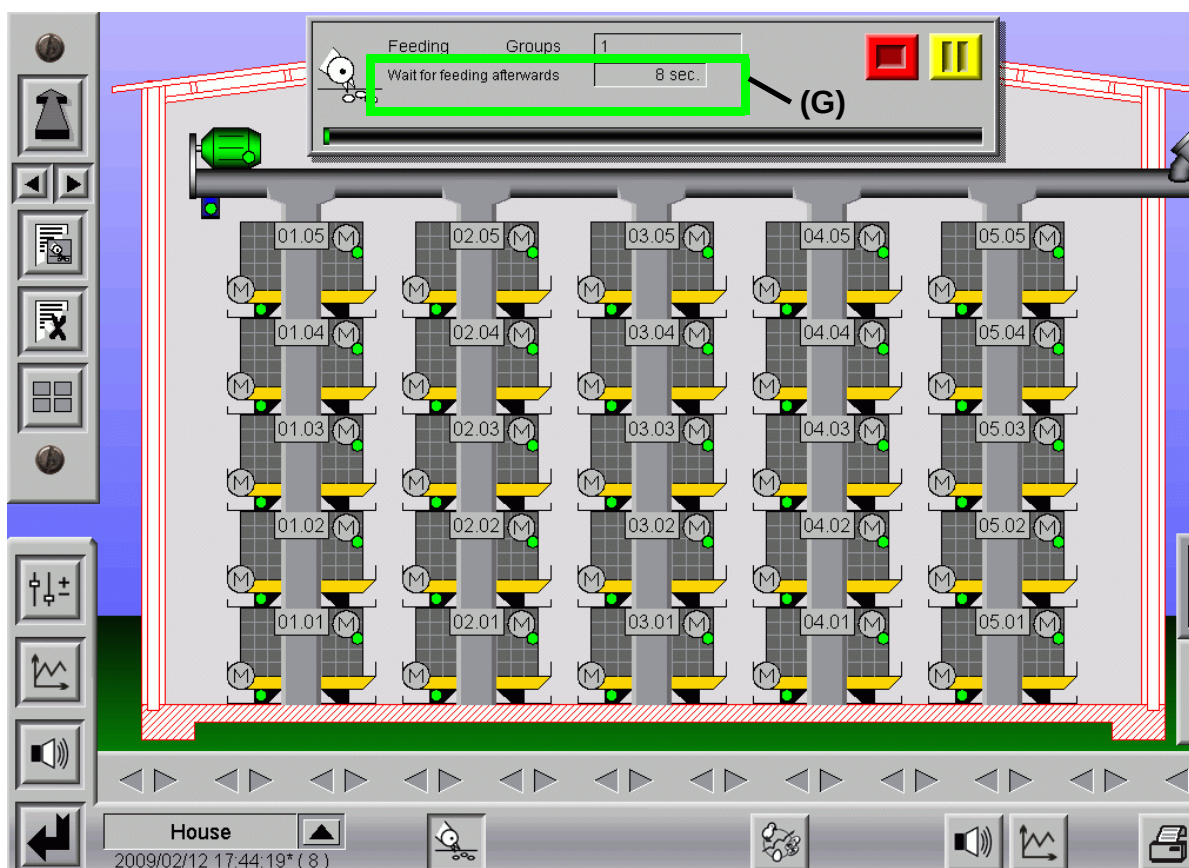


Figure 5-5: Wait for feeding afterwards

In the above picture the time can be read off in seconds from the green **(G)** marked field "Wait for feeding afterwards" which **AMACS** takes to fill the feed columns.

The feeding time of the actual feeding does not lapse during this time.

The feed which was filled afterwards into the feed columns is assigned to the current group.

5.3 Runtime control of the sandbath feeding

With the runtime control of the sandbath filling, marked red **(R)** in the following picture, the Augermatic system as well as the sensor are verified regarding malfunction.

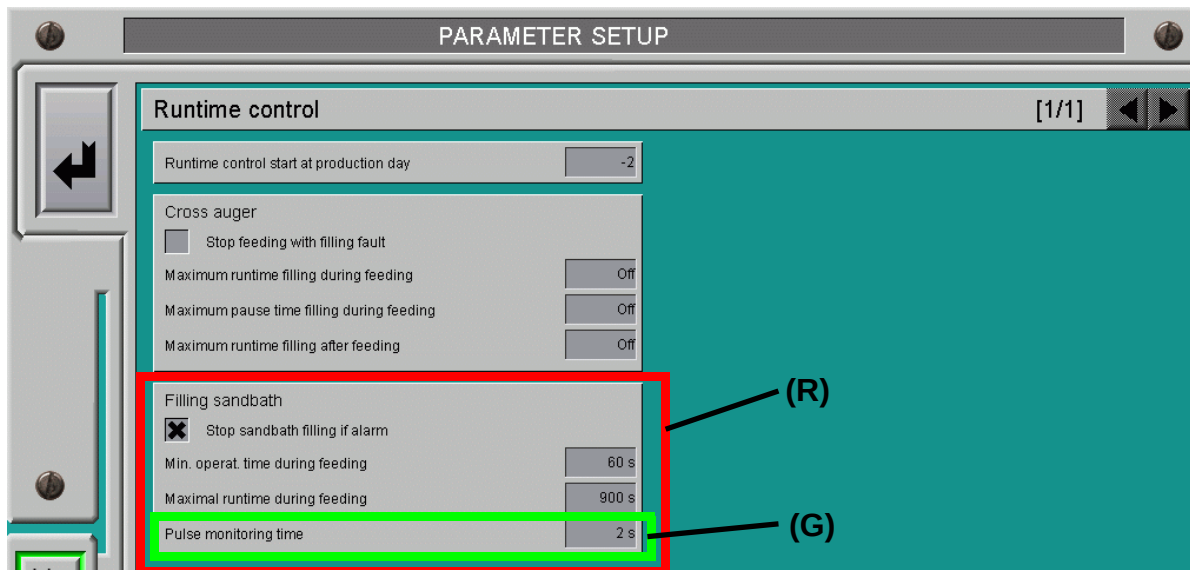


Figure 5-6: Runtime control sandbath filling

5.3.1 Stop sandbath filling in case of an alarm

In order to prevent that the sandbath filling continues running although it is defective, the checkbox is activated to stop the sandbath filling if an alarm is triggered.

5.3.2 Minimum runtime during the feeding

The sandbath filling must have run for a certain time to guarantee that feed is distributed all over the litter mats. This time can be entered in seconds in the marked field "Minimum runtime".

!

Important:

The time specified must be **shorter than the running time of the feed chains** so that an alarm can be triggered.

A red symbol appears at the respective motor in the main picture if this time is not observed.

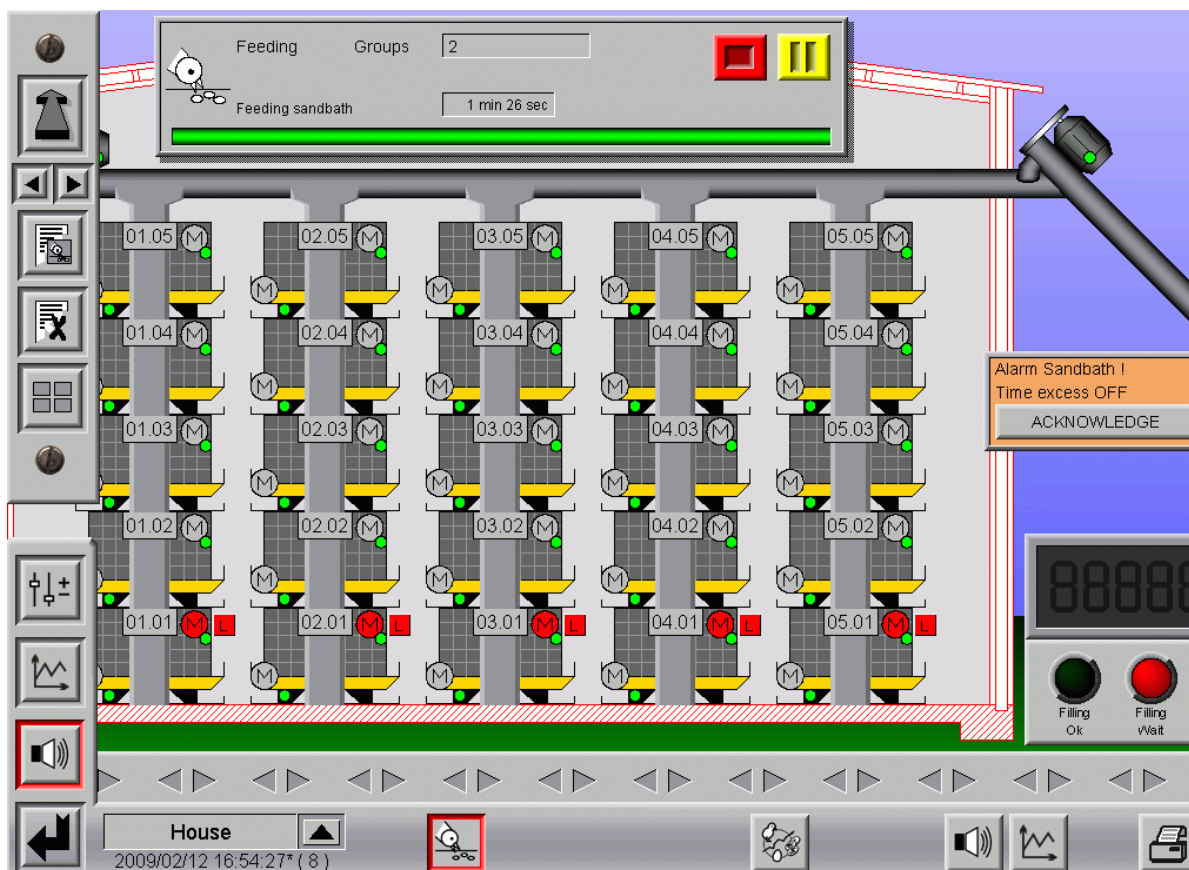


Figure 5-7: Alarm

5.3.3 Maximum runtime during the feeding

In order to prevent that feed is still conveyed to the litter mats although a sensor has failed or a leakage occurred at the Augermatic system, a "maximum runtime" can be entered here for the sandbath.

!

Important:

The time specified must be **shorter than the running time of the feed chains** so that an alarm can be triggered.

A red symbol appears at the respective motor in the main picture if this time is not observed.

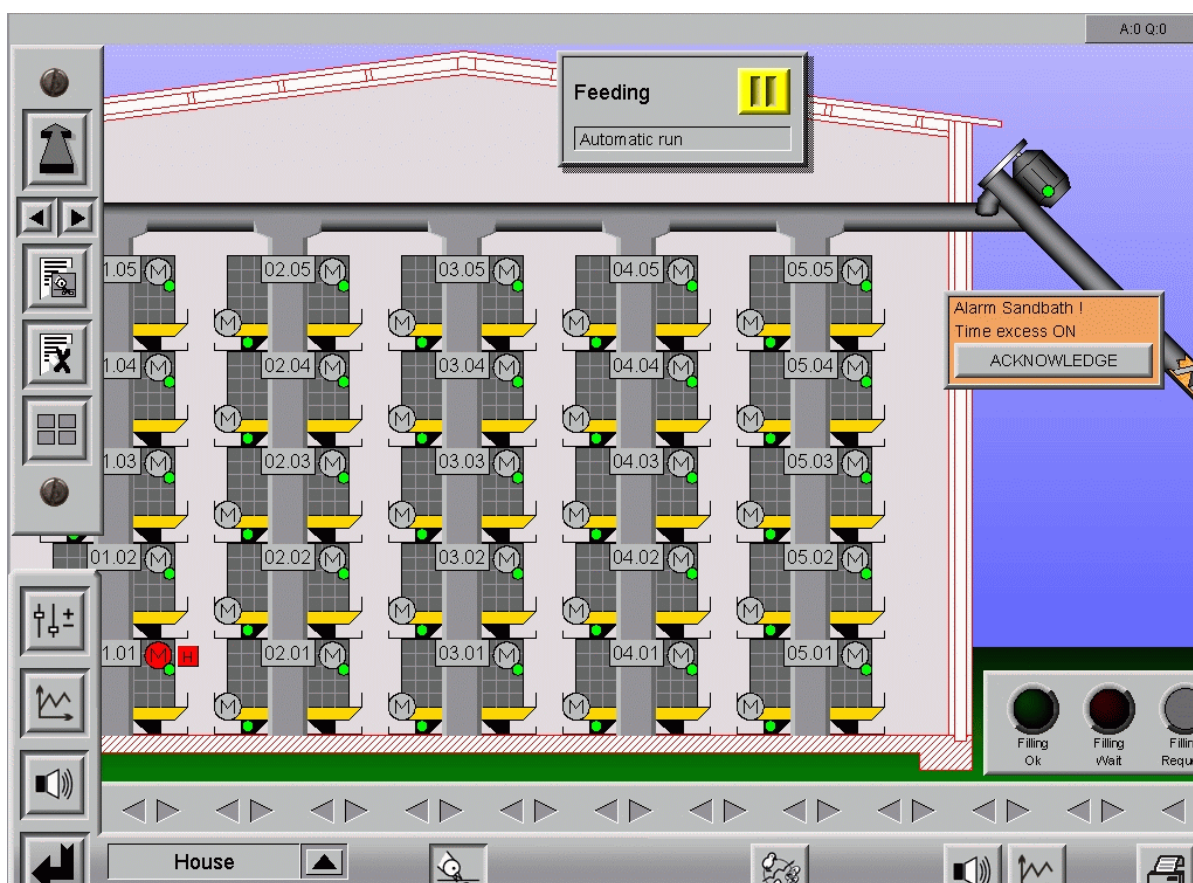


Figure 5-8: Alarm

5.3.4 Monitoring time for alarm pulse

The auger at the other end must turn while the motor is running. In order to ensure this, additional pulses are generated by a sensor which indicate whether the Augermatic system is running or has stopped.

In the green **(G)** marked field "Pulse monitoring time" in 5-6 a value determined beforehand by a service technician has to be entered at which at least one pulse must be triggered.

A red symbol appears at the respective motor in the main picture if this time is not observed.

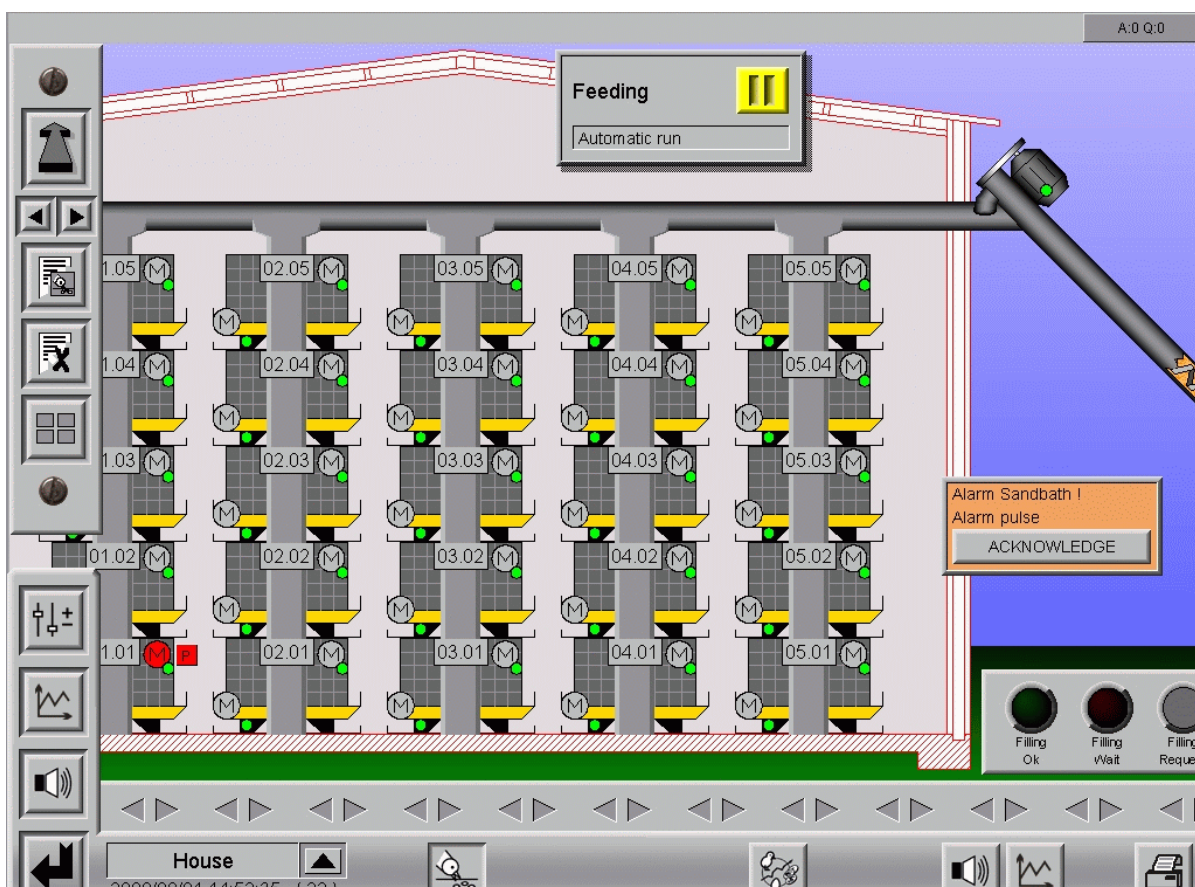


Figure 5-9: Alarm pulse

5.4 Runtime control feed cart

With the runtime control marked in red **(R)** in the following picture, the feed cart and sensor are checked regarding malfunction.

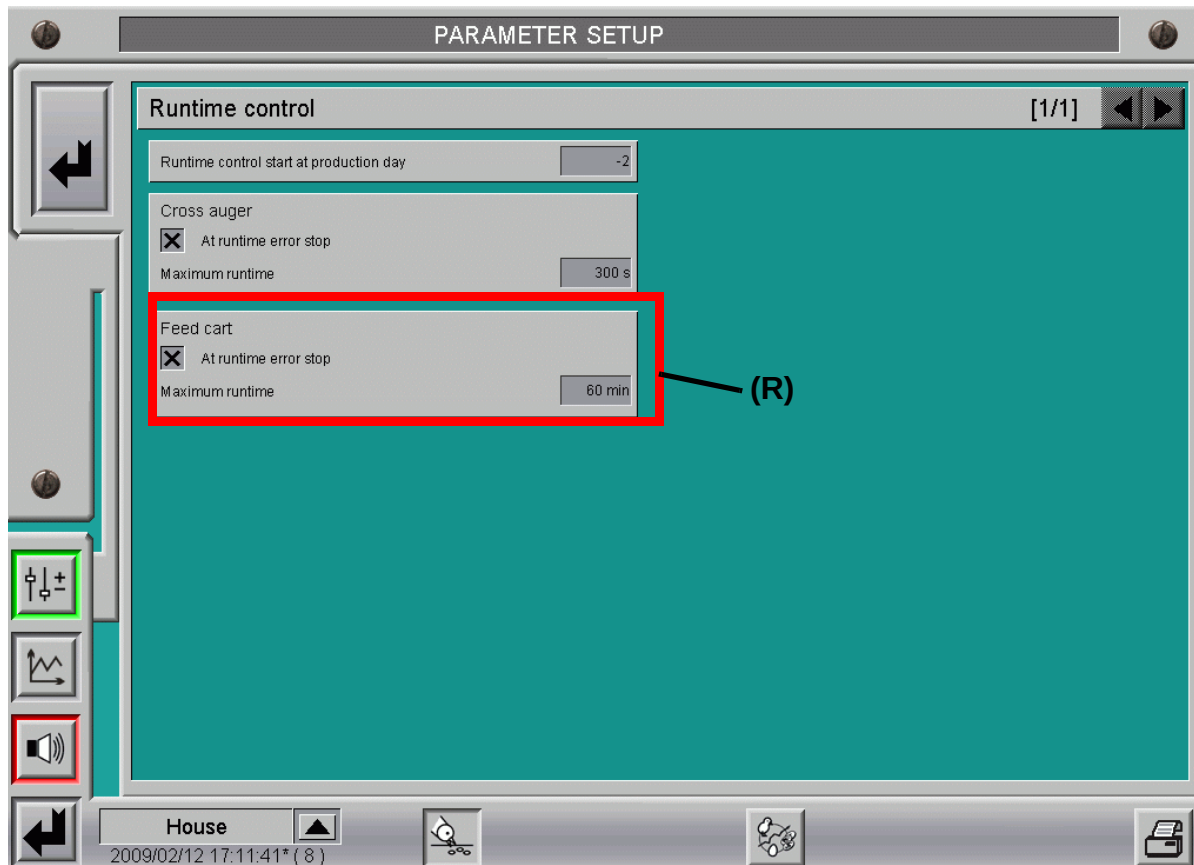


Figure 5-10: Runtime control feed cart

5.4.1 Stop feed cart in case of an alarm

In order to prevent that the sensors or motors continue running due to a defect, the feed carts are stopped in case of an alarm by activating the checkbox.

5.4.2 Maximum runtime

In the field "Maximum runtime" a time is entered in minutes which the feed cart takes to move from the front to the back. If the feed cart exceeds this time because of a failure, an alarm is triggered.

If a position error has stopped the feeding, the status indication in the main screen feeding will be hidden. If the feeding shall start again, click on "Acknowledge"; now the runtime error is reset.

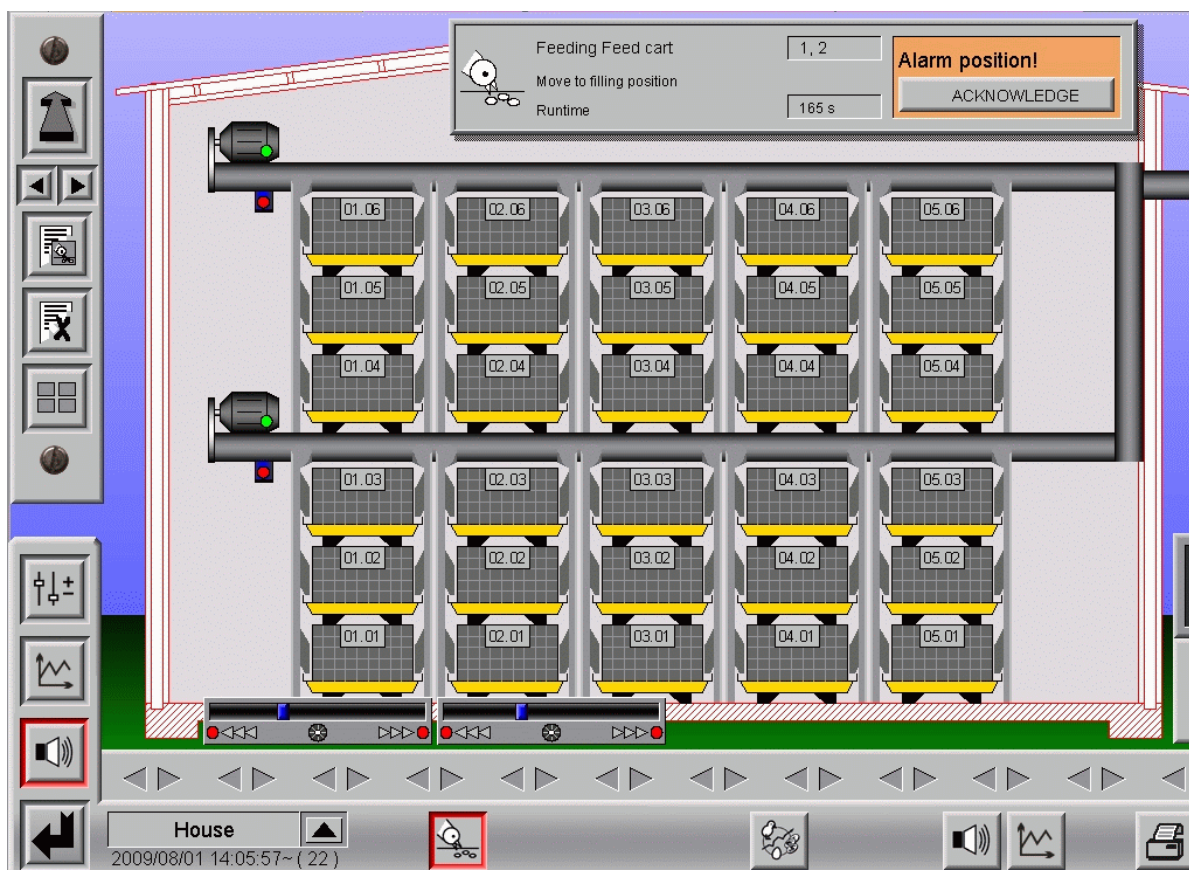


Figure 5-11: Position error feed cart

6 Storage silos

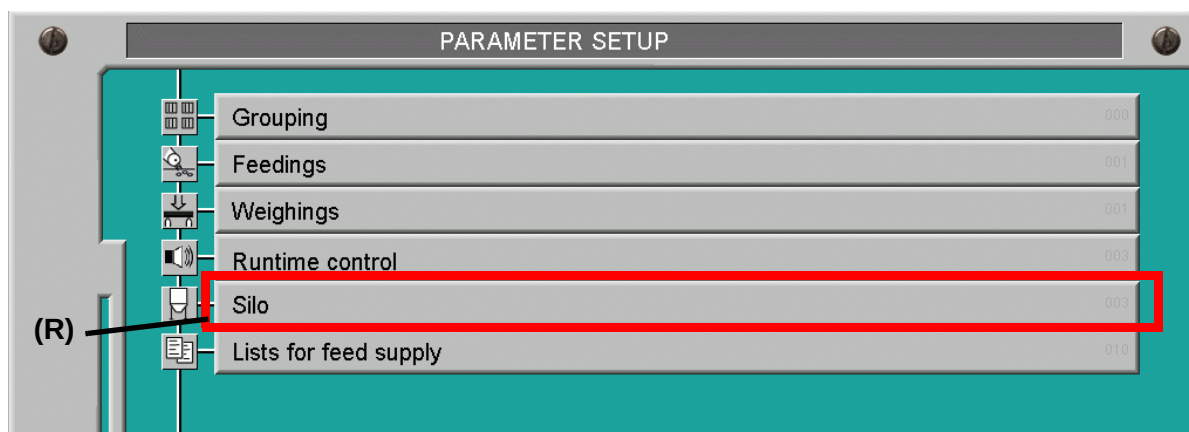


Figure 6-1: Setting-up storage silos

A click on the button "Silo" (R) opens a window where some data can be entered in addition to the menu points described in the chapters 3, 4 and 7.

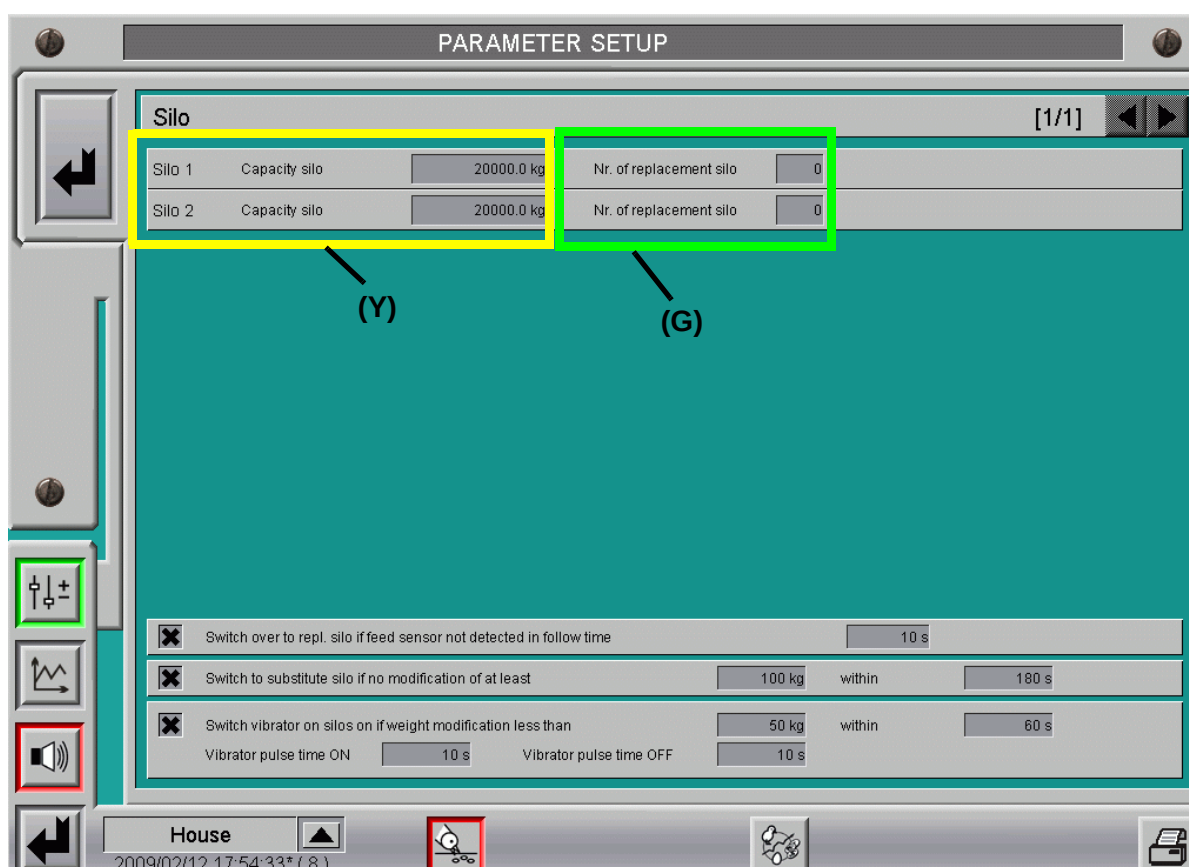


Figure 6-2: Capacity of the storage silos

6.1 Storage silo capacity

An entry in the yellow (Y) marked window is only necessary for the correct and proportional display of the current level at the silo in the main picture.

6.2 Alternative silo (only in case of silo weighing or with minimum sensor)

6.2.1 Identification number of alternative silo

If there are several silos, it can be determined in the green (G) marked window which silo shall be selected in case of an automatic switch-over.

Important!

Please consider that the feed type in the alternative silo must allow a switching-over.

6.2.2 Switch over to alternative silo if a sensor is installed additionally

As already mentioned above, the different functions which can be determined by the configuration may also make the menus appear differently.

In the menus there are only those settings for which a function is available. This facilitates the operation and improves the clarity.

In the following picture you will find an example which additional function will be provided through the installation of minimum sensors in the silo.

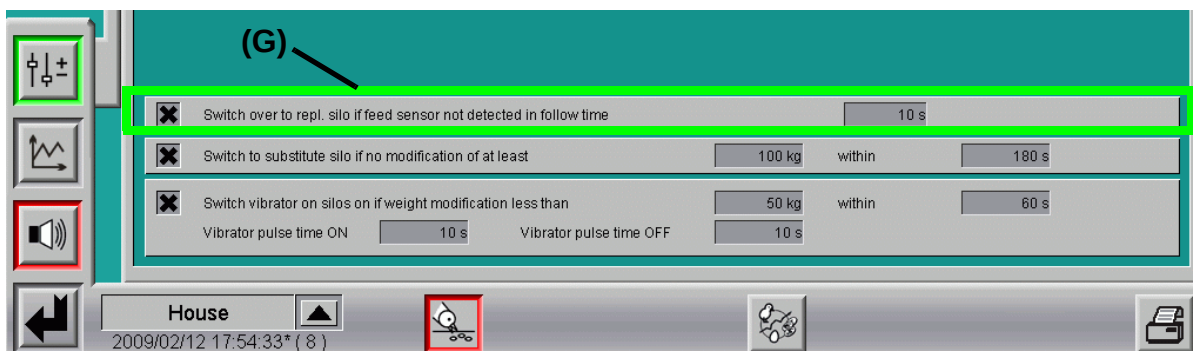


Figure 6-3: Switch over to replacement silo with minimum sensor

6.2.2.1 Activate silo change

The cross in the green (G) marked checkbox of the previous picture activates the automatic change via minimum sensor.

6.2.2.2 Conditions for a change-over to alternative silo

If the automatic change-over to an alternative silo is activated, a time can be entered in seconds in the green **(G)** marked field of the previous picture.

If a time of 10 sec has been entered as in the example, a change-over is effected if the sensor installed on the bottom of the silo is not covered with feed for more than 10 seconds.

The entry must of course be adjusted to the mechanical conditions and the conditions typical for the plant and may therefore also contain other values.

6.2.2.3 Minimum sensor in the main picture

The minimum sensors of the silo are displayed in the main picture feeding.

If the sensor is covered with feed it will take a beige colour, as marked yellow **(Y)** in the picture below.

If the sensor signalizes an empty silo, this will be displayed in blue in the main display (blue **(B)** marked in the following picture).

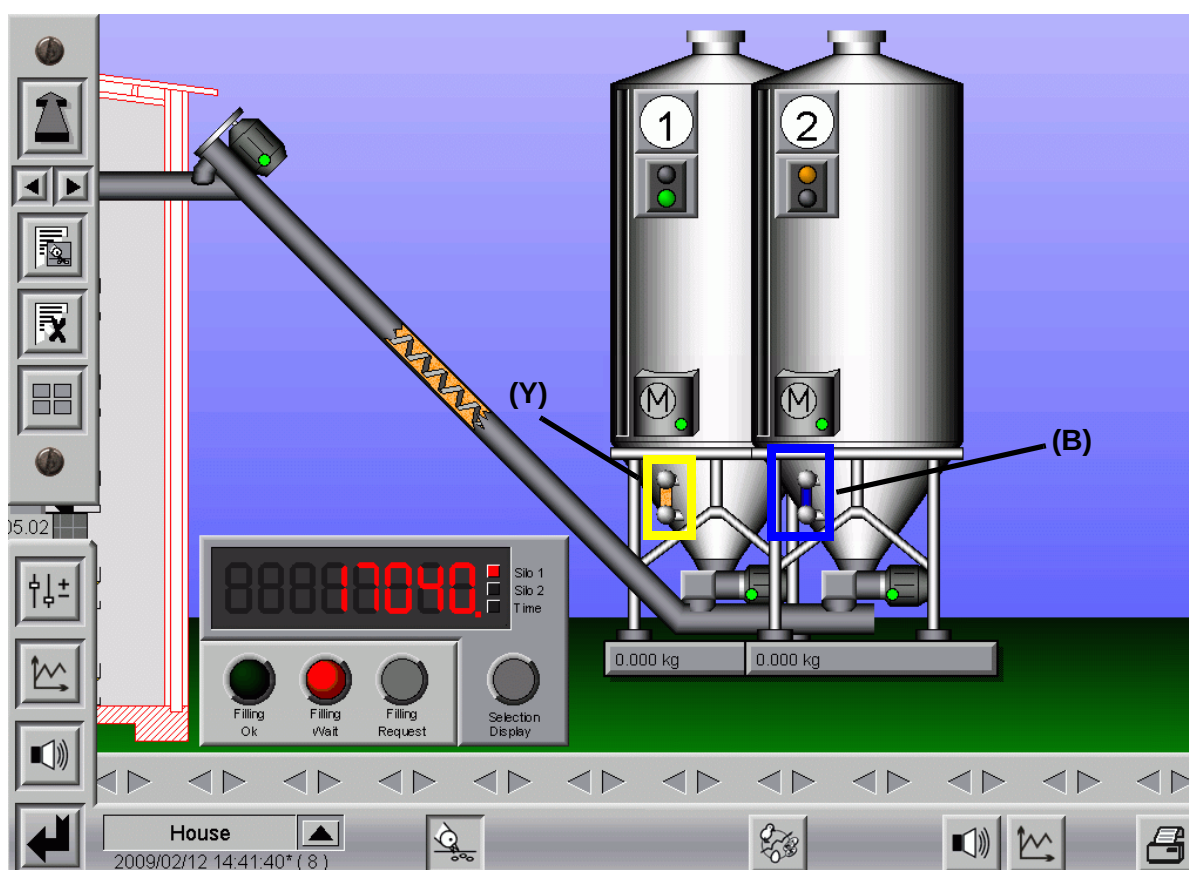


Figure 6-4: Minimum sensors in the main picture

6.2.3 Switch-over to replacement silo with installed silo weighing

Due to the different functions that can be determined by the configuration, the menus may appear differently.

In the menus there are only those settings for which a function is available. This facilitates the operation and improves the clarity.

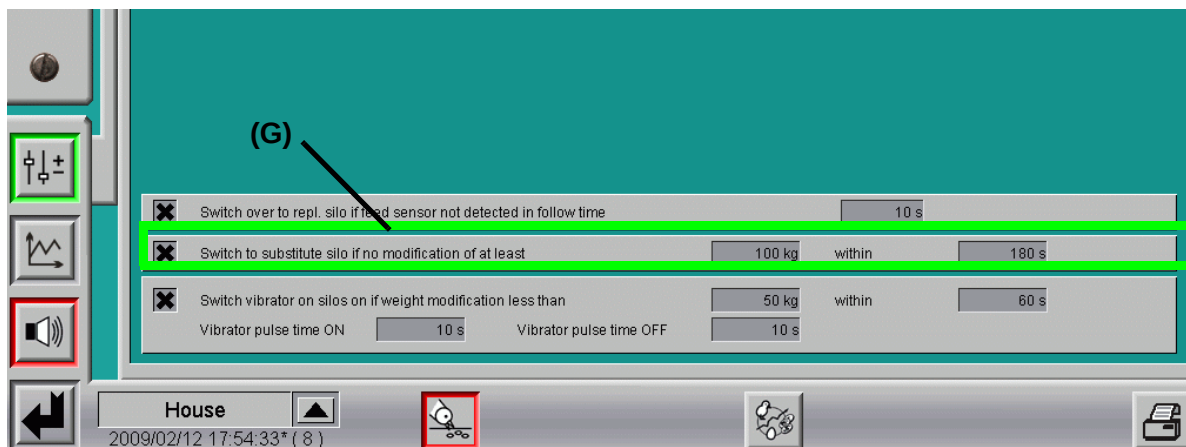


Figure 6-5: Switch-over to replacement silo via weighing value

6.2.3.1 Activate silo change

The cross in the green **(G)** marked checkbox of the previous picture activates the automatic change-over via weighing value.

6.2.3.2 Conditions for a change-over to alternative silo

If the automatic switch-over to a replacement silo is activated, a weight in kg can be entered as well as a time in seconds in the green **(G)** marked field.

If a weight of 100 kg has been entered and a time of 180 sec (see example), a switch-over is effected if the weighed value in the silo has **not** changed by at least more than 100 kg within 180 seconds.

The entry must of course be adjusted to the mechanical conditions and the conditions typical for the plant and may therefore also contain other values.



Note:

A switch-over to other types of feed may only be effected if the chosen feed type corresponds to the one primarily used. Please observe the official regulations.

6.3 Set-up parameters for storage silos if vibrators are installed

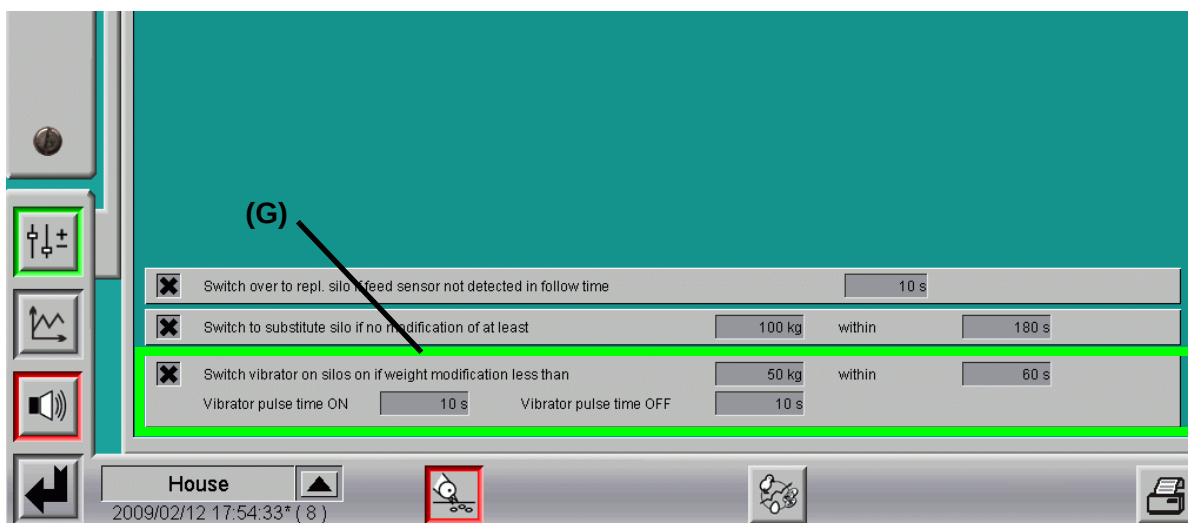


Figure 6-6: Parameters for switching on the vibrators

6.3.1 Switching on the vibrator

As already mentioned above, the different functions which can be determined by the configuration may make the menus appear differently.

The following example shows which additional function is provided by the installation of a vibrator at the silo.

6.3.2 Activating the vibrator

The cross in the green **(G)** marked checkbox in the previous picture will switch on the automatic activation of the vibrator.

6.3.3 Conditions for switching on the vibrators

According to the entry in the green **(G)** marked field, the vibrator shall only start if the feed quantity in the silo registered by the scale does not change by at least 50 kg within a time of 60 seconds.

This time should be shorter than the time for switching-over to a replacement silo to give the vibrator the chance to loosen a feed bridge, if necessary.

The entry must of course be adjusted to the mechanical conditions and the conditions typical for the plant and may therefore also contain other values.

6.3.4 Vibrator times for puls / pause mode

Since the vibrator shall not condense the feed, a pulse time "On" and a pulse time "Off" can be set for the vibrator, depending on the size and utilisation.

The most suitable times must be determined at a trial run.

6.3.5 Manual start of a vibrator in the main picture

If the vibrators shall be switched on manually e.g. during a feeding, click on the blue **(B)** marked M at the silo. Now **AMACS** starts the vibrator.

The small green point indicates that the vibrator runs in automatic mode. If it is orange, it indicates that this system is in manual operation.

Attention!

The vibrator should not run if no feed is taken, otherwise the feed will be further condensed in the cone (hopper) of the silo, and this is not the meaning of a vibrator.

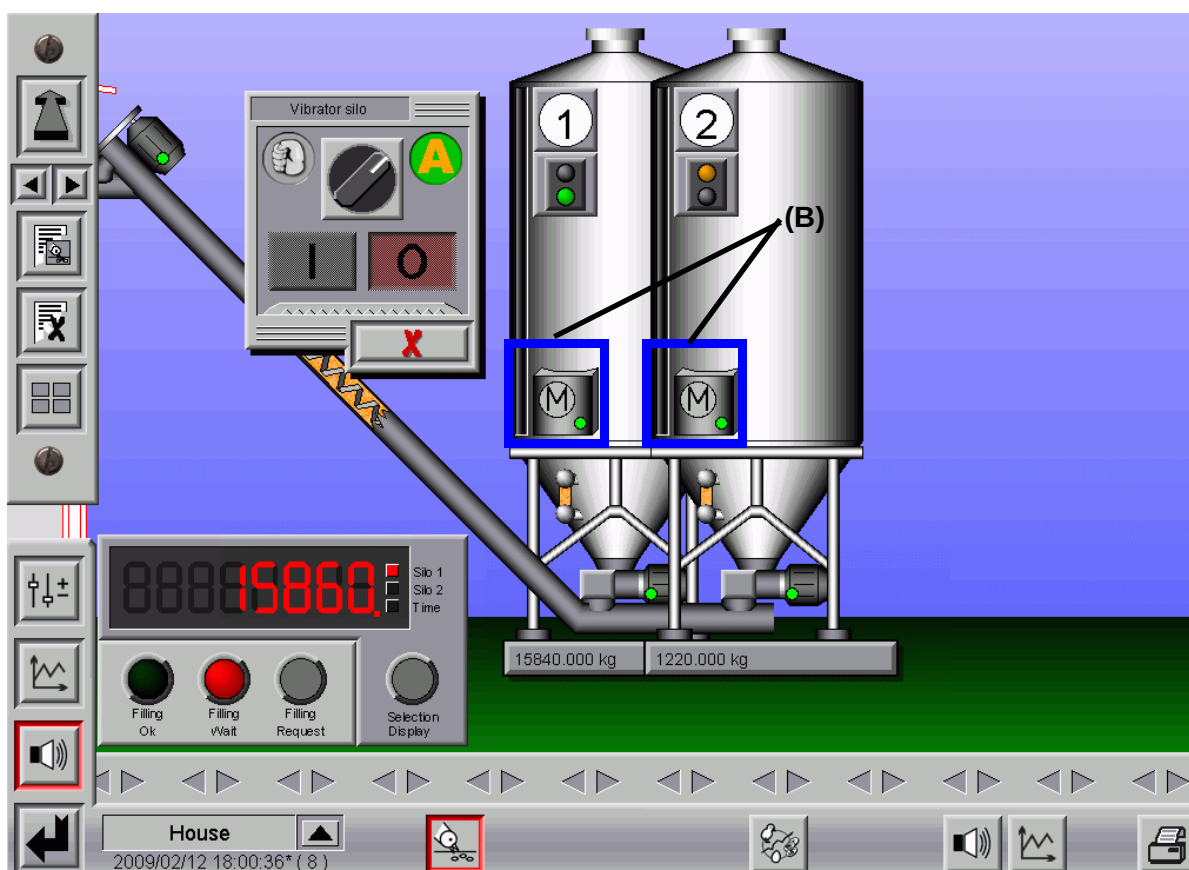


Figure 6-7: Manual operation of the vibrators

**Caution:**

Maintenance or service works at drive units or augers may only be carried out if the protective switch is in the OFF position. The drive units could be activated without prior warning e.g. by the time clocks or sensors. Also observe local security signs and instructions.



7 List for the feed delivery

7.1 Display of the delivery recognition

The red **(R)** marked lorry symbol which appears on the silo indicates that feed was supplied. There are following options:

- a lorry is displayed: The silo is currently filled
- the lorry flashes: The delivery is finished but has not yet been confirmed
- no lorry: It is not filled presently and all deliveries have been confirmed

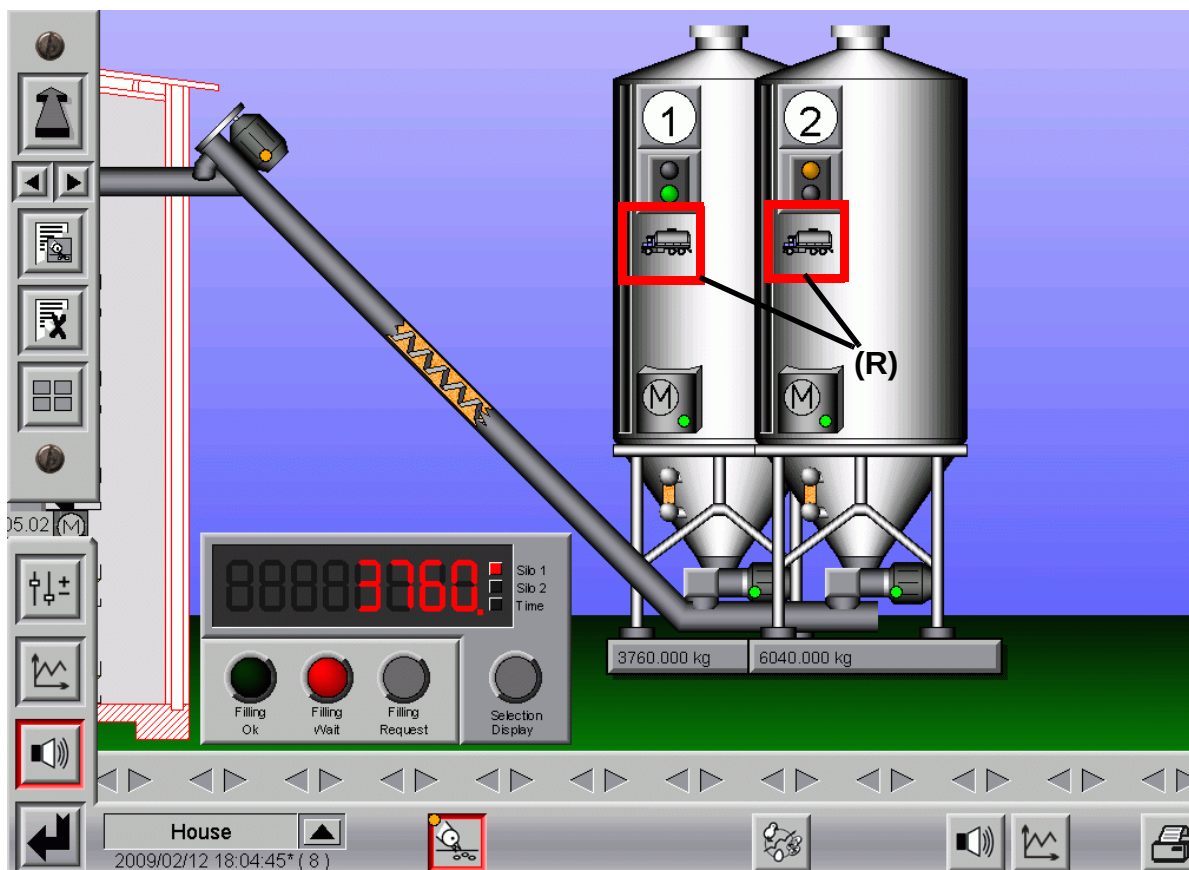


Figure 7-1: Display delivery recognition

7.2 Confirm delivery

In order to confirm a delivery click on the blue **(B)** marked button in the following picture. Now a window opens where you can click on the yellow **(Y)** marked lorry in the following picture.

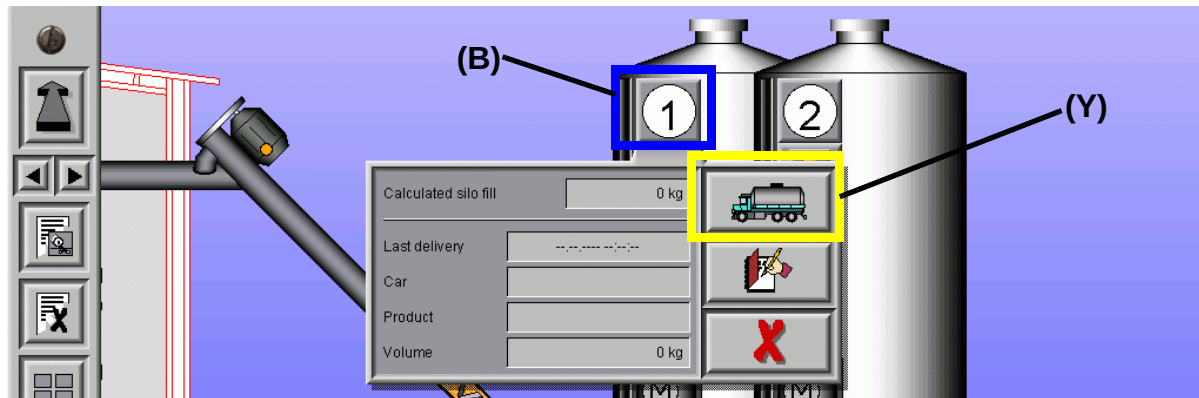


Figure 7-2: List delivery

Now additional information can be entered in the opening window, if available.

With the arrow keys (marked in red **(R)**) preset information can be chosen from a list. This is intended for a quick entry of standard values.

If the field "Volume" is bordered in green, the recognized delivery was entered in the field "Volume". The delivery can now be confirmed with the green key. If the red key is pressed, the entry will be reset.

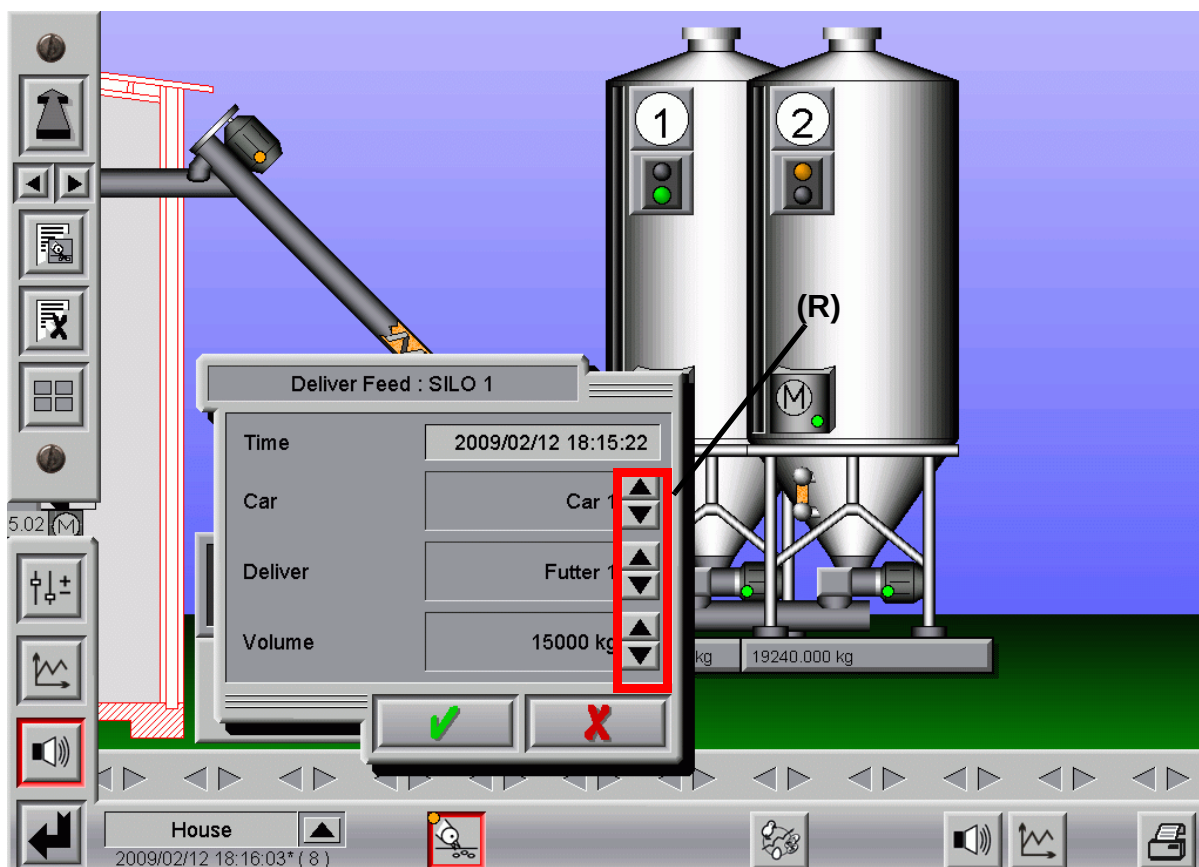


Figure 7-3: List delivery

7.3 Information lists regarding vehicles, products and delivery quantities

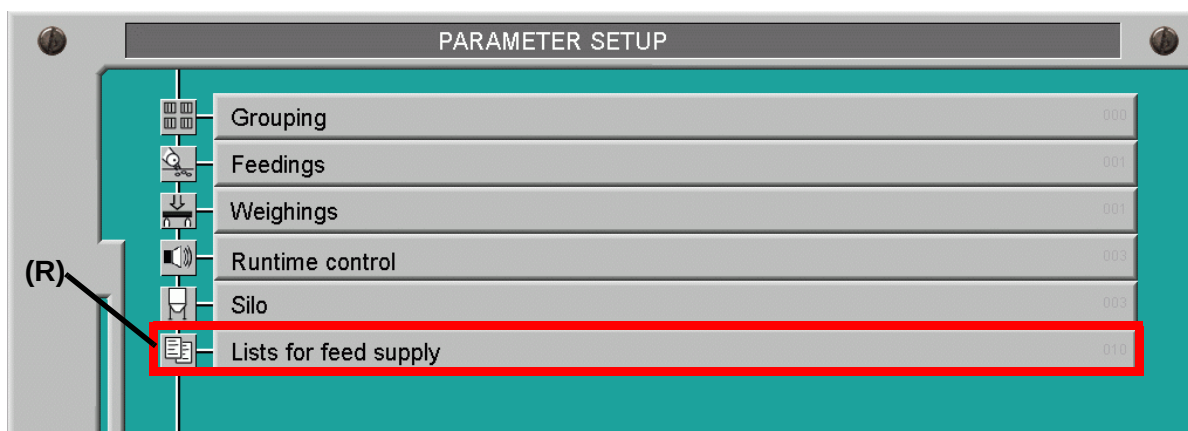


Figure 7-4: Lists for additional information for feed supply

In order to guarantee that additional information for a delivery to be confirmed are quickly available, a description can already be deposited regarding type and licence number of a silo car or type and quantity of a delivery so that the deliveries can be provided with additional information and confirmed.

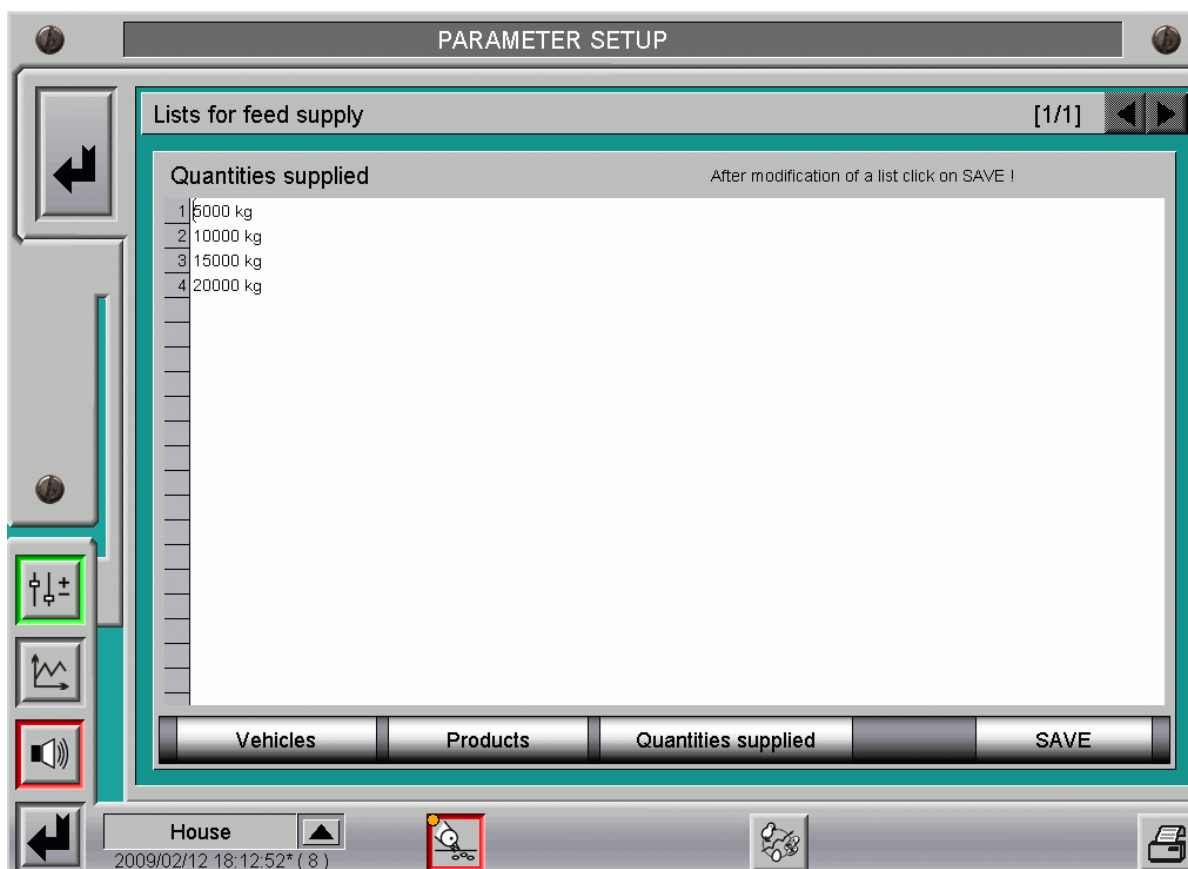


Figure 7-5: Process the lists, vehicles, products and delivery quantities

7.4 Last delivery and delivery list

It is possible to have a look at the last delivery or all deliveries in a list.

A click on the yellow-marked **(Y)** buttons in the following picture opens a window where the last delivery is displayed.

If an overview on all registered deliveries is required in the form of a list, click on the blue **(B)** marked notebook. The figures are now listed from the data base.

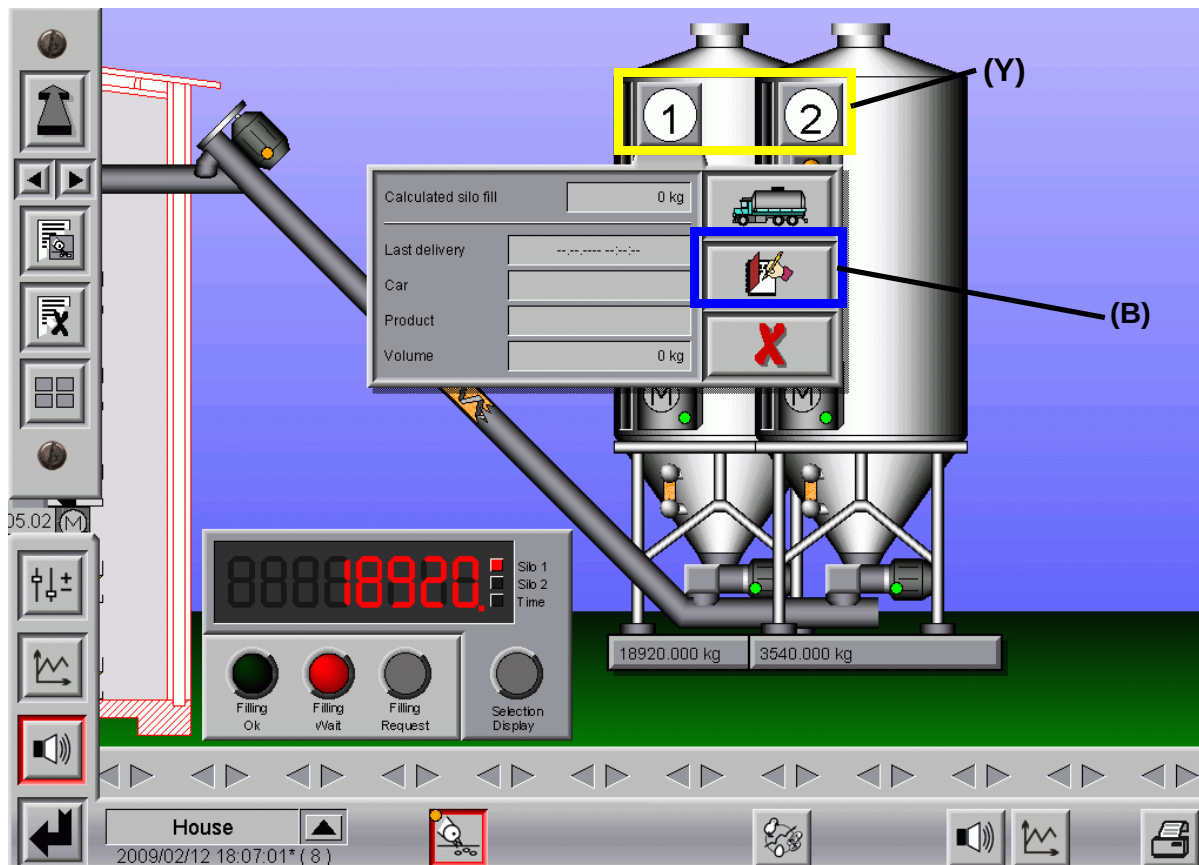


Figure 7-6: Display of the last delivery respectively of all registered deliveries

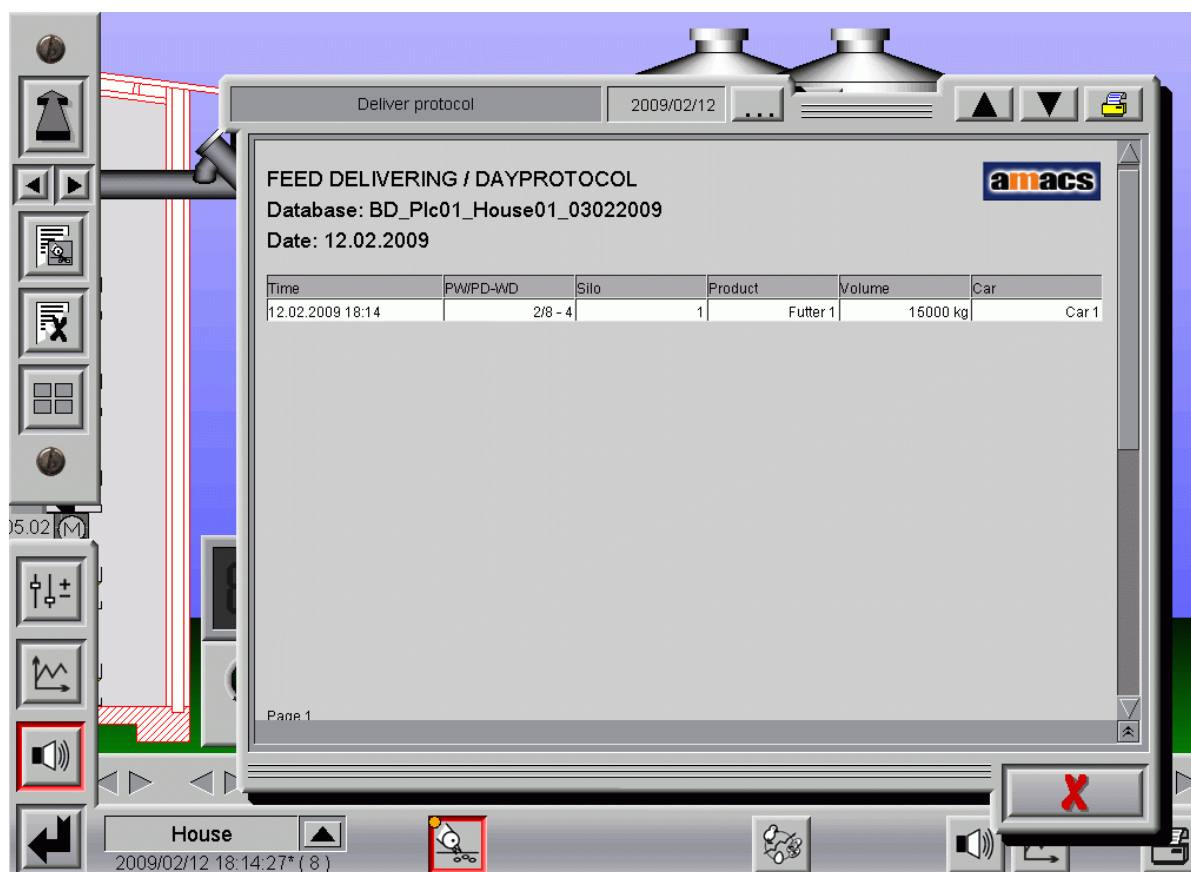


Figure 7-7: Delivery Protocol

**Note:**

Sunshine or changing temperatures (water condensation during the day and absorption of humidity during the night) might cause the display of the current silo status to vary slightly; however, this does not inhibit the registry of the feed amount per group or per bird.

7.5 Notes



8 Weighings

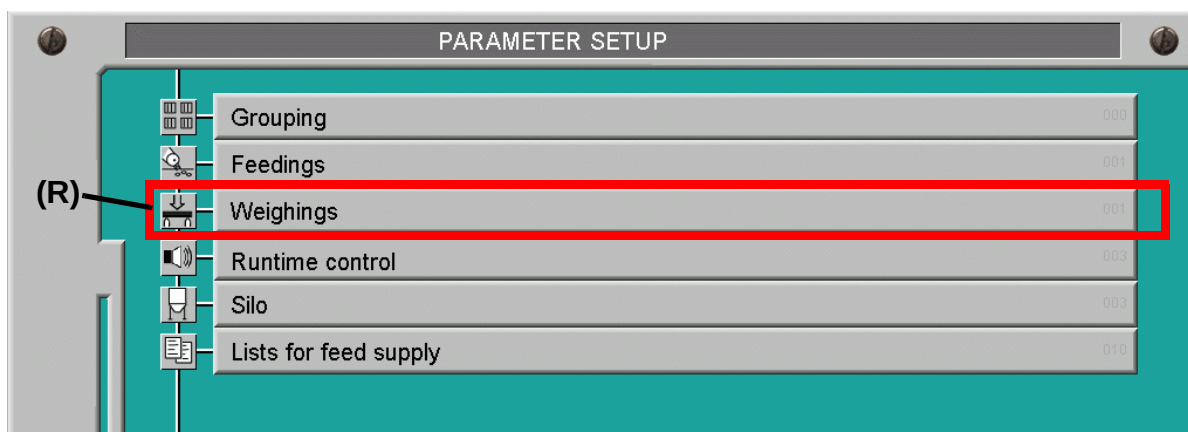


Figure 8-1: Set-up parameters weighings

When clicking on the red **(R)** marked button „Weighings“, a menu opens in which all settings necessary for the electronic weighing can be entered.

Since **AMACS** can control different silo weighers and feed weighers, this menu appears again later on in another form. Normally, the farm staff does not have to make entries here. The displayed values serve for the control.

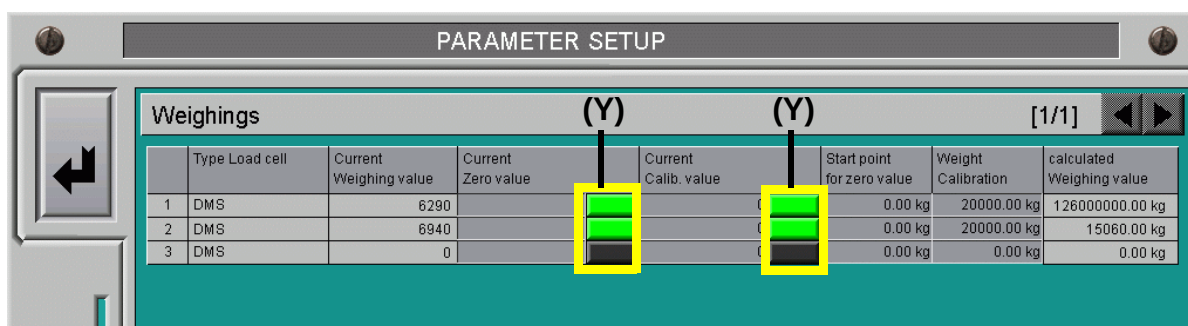


Figure 8-2: Values of the silo weigher

8.1 Type load cell

This field only serves for information since the type of silo scale is already determined by the service technician at the system configuration. Following signals are possible with other configurations.

8.1.1 WSG

Load cells with wire strain gauge that transmit the weight to **AMACS**.

8.1.2 0-10 Volt

Load cells or scales that transmit the signal of a weight as voltage signal in volt.

8.1.3 0(4)-20mA

Load cells or scales that transmit the signal of a weight as a current signal in mA.

8.2 Current weight value

The signal which is currently measured by the entry card is displayed. This is also referred to as raw value since with this value a service technician can notice if the load cell is correctly working.

8.3 Calibration of the silo-scale

8.3.1 Calibration of the silo-scale with a strain gauge signal

8.3.1.1 Read-out the calibration value from the W2 board

The entry card for the strain gauge weigh bars used by **Big Dutchman** (W2 Code No- 91-04-0009) is gauged in a procedure described in the next chapter. This means that the currently measured weighing value is stored as current zero value, generally known as tare weight, on the card.

Now the scale is loaded with a calibration weight and the entry card is notified to store the currently measured weighing value as calibration value. Now make a note which weight was calibrated since this has to be entered later on.

If the buttons on the right next to the current zero value and the current calibration value (marked in yellow **(Y)** in the picture) are pressed, these will become green. This means that **AMACS** will now permanently query the zero value and the calibration value from the entry card.

8.3.1.2 Calibrate W2 input

As soon as the mechanism of the silos and the cross auger have been installed, the silo can be filled. The silo should be filled as full as possible since the calibration is more precise with a maximum weight than with half a load.

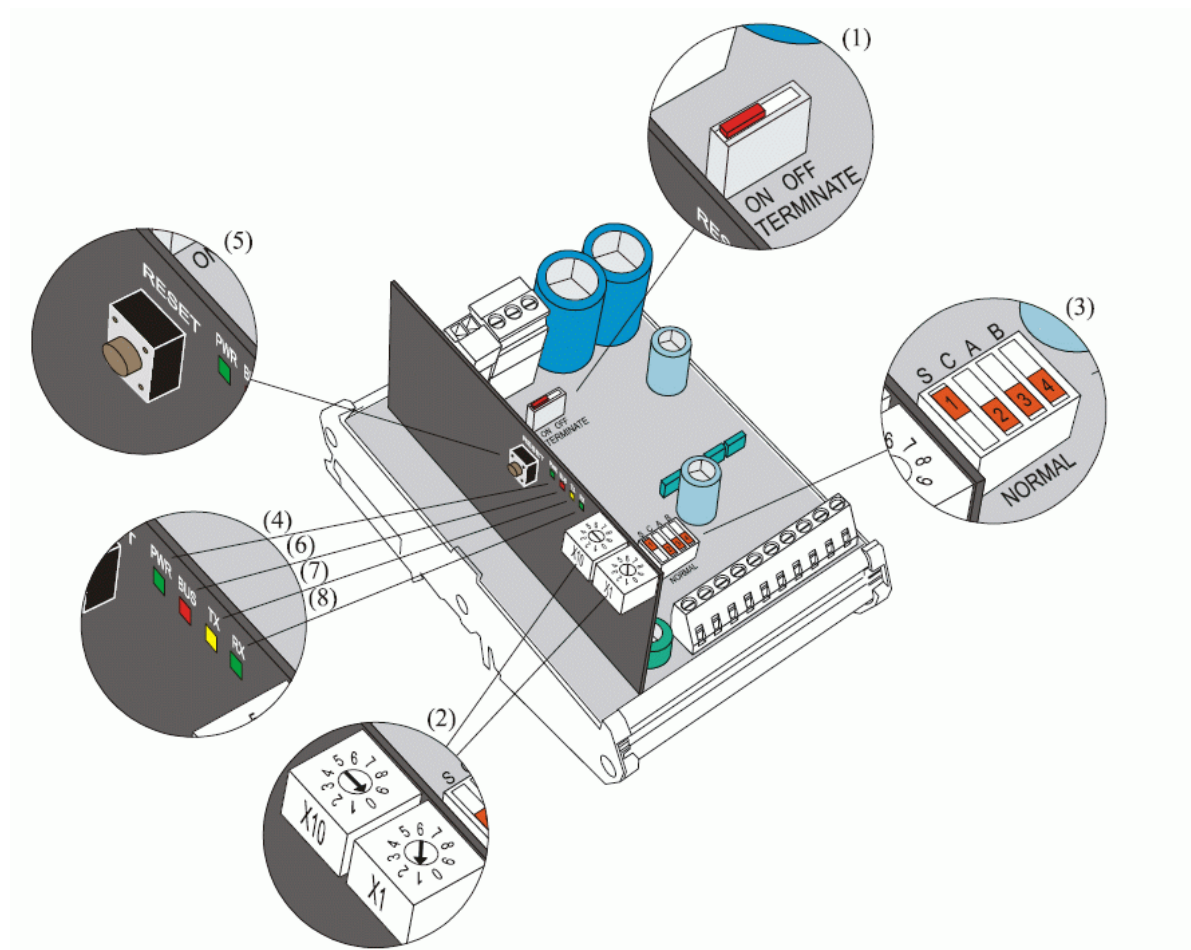


Figure 8-3: Calibration of the weighing module W2

In order to calibrate the weighing module, the following has to be considered:

- ensure that the green PWR lamp (4) lightens continuously (should not flash)
- the switch (3) (NORMAL- S) is set to "S" = setting (and C, A and B to NORMAL)
- the zero key (RESET) (5) is pressed
- wait until the red lamp (6) lights up
- the weighing channel is chosen which shall be calibrated (only one at the moment):
 - scale 1: switch (3) (NORMAL - A) to "A" or
 - scale 2: switch (3) (NORMAL - B) to "B"
- ensure that the scale is not loaded (TARE)
- the switch must be set to (3) (NORMAL - C) "C" = KAL position

- wait until the yellow lamp lights up
- load the scale with a known test weight
- wait some seconds until the scale is balanced out
- turn back the switch (3) (NORMAL - C) to „NORMAL“ position
- if the green lamp lights up, the calibration was carried out OK
- turn back the switch (3) S and A or B to NORMAL
- press the zero key (RESET) (5)

This program stores the calibration values TARE and TEST in the weighing module.

In order to finish the calibration of the scale, the test weight has to be entered in the menu.

*) In case of an error, the RED+YELLOW+GREEN lamp ight up. The error can be eliminated by setting the switches (3) S, C A and B to NORMAL. When the zero key is pressed (RESET) (5) the calibration will be repeated.

The calibration may fail if:

- the switch (3) A or B is not set correctly
- the scale is defective or there is no connection to the scale
- the calibration weight is too light:
 - the calibration weight must be at least 1 per mil or preferably at least 10 percent of the full load. "Full load" means that the load cell is weighted with 100 %. (2 mV/V)
- if errors occur at the data storage.

The calibration of the scale should be controlled in regular intervals and repeated, if necessary.

Moreover the automatic calibration procedure can be avoided by a manual entry. This is described in the following chapter 8.3.2 .

8.7.1 Use weigh value

During the normal operation, this method must always be active so that the feed quantities transported into the house for the feeding can be correctly calculated.

8.7.1.1 Unit of external delivery display

If an external supplier display exists - as described in chapter **8.9.2** - it can be adjusted if kg shall be displayed or lbs, as customary in the USA.

8.7.2 Use flow values

If the electronic scale is disturbed or not yet installed, the feed amount can temporarily also be determined as approximate value over the previously determined flow values. In this case, this point has to be activated by a mouse click.

Since the feed amount in kg per second varies only slightly during the time the cross auger runs, it can be determined via the permanently calculated values (kg/s) how much feed was transported into the house when the cross auger was switched on for e.g. 33 seconds.

8.7.2.1 Use fixed flow value

If a flow value shall be fixed to avoid that **AMACS** has to permanently calculate the value, the value which was calculated before via own tests can be entered in the blue **(B)** marked field „kg/s“ and the checkbox can be activated. Now it will be constantly calculated with this value in order to determine the feed amount.

8.7.2.2 Calculated flow value

In the green **(G)** marked field the currently valid flow value kg/s will always be calculated from the values of the feed scale.

The checkmark in the yellow **(Y)** marked checkbox signifies that the system continues to work with the calculated flow value in case of a failure.

In addition to the errors due to defective or faulty silo scales which do not occur so often, there is still a disturbing influence (see chapter **8.7.2**) where this function will ensure that the calculated feed amount can be registered.

- **Silo filling when feeding is in-progress:**

If the silo is filled while a feeding is in progress, **AMACS** can notice this and will then automatically determine the feed quantities for this feeding on the basis of the calculated flow value kg/s.

- **Minimal reduction of the weigh value within 5 seconds:**

In order to ensure that the calculation of the flow value does not vary too much, a maximum change of 5 sec can be specified. Normally a standard value of 2.5 kg is entered here.

- **Reset:**

If you wish to start a completely new calculation, you can use the reset-button to set all flow values back to 0 and enter values for a fixed flow value.

8.8 Automatic recognition of a delivery (only in case of silo weighing)

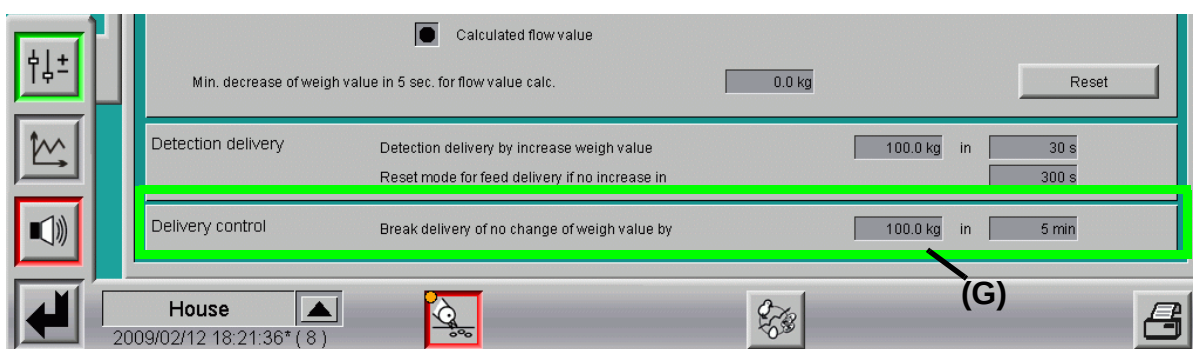


Figure 8-5: Set-up for the recognition of a delivery

8.8.1 Recognition of delivery

If **AMACS** has to automatically recognize the feed deliveries since e.g. no key button or display is available for the log-on or if one has forgotten to register the delivery via the key button, this will be carried out according to the set parameters.

If the silo contents increases by more than 200 kg in a time frame of e.g. 60 sec. **AMACS** will register this as delivery. If the delivery is now finished and the silo contents is stable during a time of 300 sec., the system switches back to standard mode, i.e. the supplied feed amount is transferred to delivery control and any remaining feedings that were put on hold because of the delivery will now be fed out.

8.9 Delivery control (only in case of silo weighing)

If the key button "Silo filling" is pressed as originally intended, the filling is signalized as finished when the key button is pressed once again. However, if the supplier has forgotten to press the key button to signalize that the feeding was finished, a delivery is automatically recognized and finished (green **(G)** marking) when not more than 100 kg are filled into the silo in a period of 5 minutes.

8.9.1 Option "Delivery control with or without display"

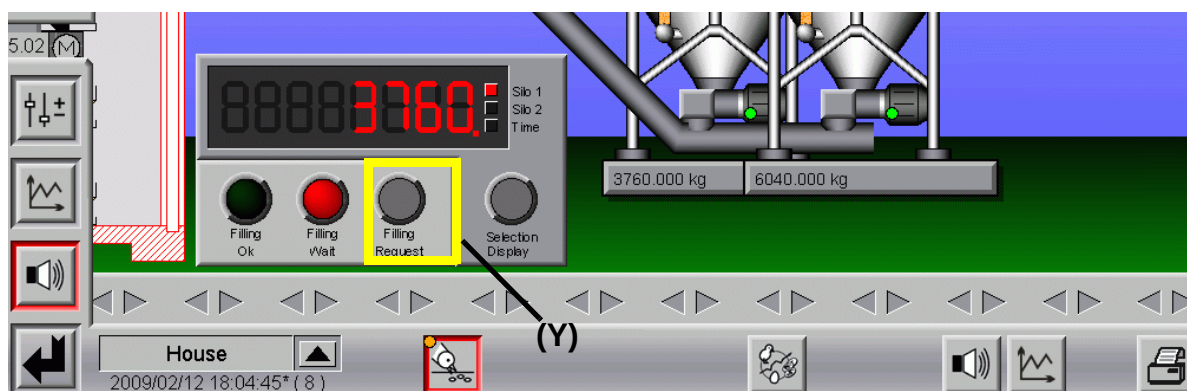


Figure 8-6: Filling request

The key "Filling Request", marked yellow **(Y)** in the picture above enables the supplier to interrupt a feeding in progress, however, the feeding of the currently running group is finished when this is activated.

At the red lamp "Filling Wait" one can see if a feeding is presently carried out (marked in red **(R)** in the picture below).

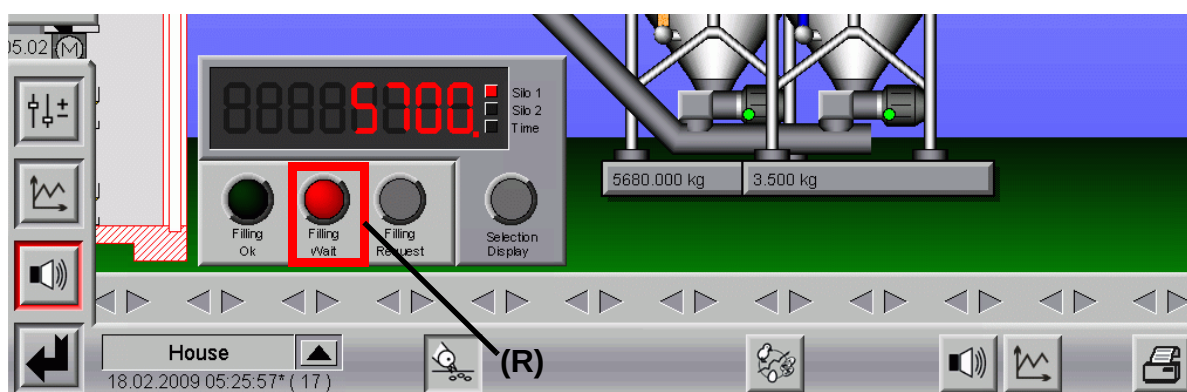


Figure 8-7: Filling Wait

Whether a request was sent for filling can be seen at the flashing green lamp "Filling OK" and the red lamp which is switched on at a running feeding (blue **(B)** marked in the following picture).

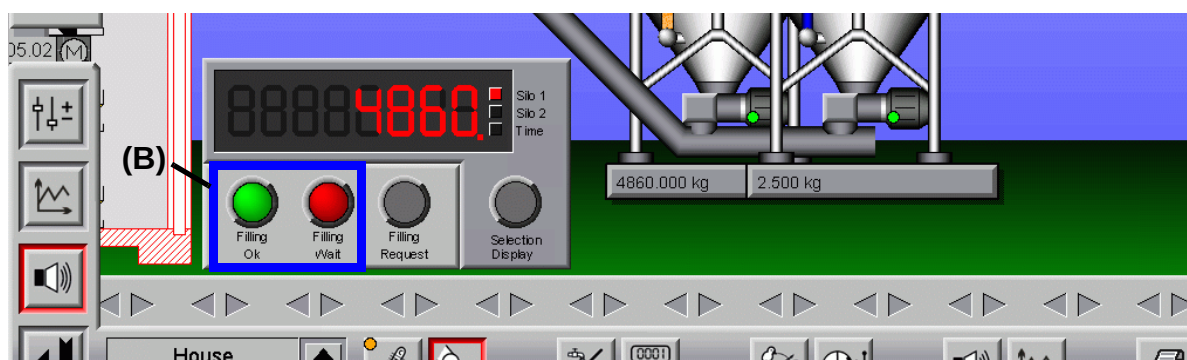


Figure 8-8: Feeding Active

As soon as the green lamp "Filling OK" lights and the red lamp "Filling Wait" is switched off (green **(G)** marked), the silo can be filled.

AMACS will continue feeding the remaining tiers/groups as soon as the delivery of feed was recognized as finished or the key "Filling Request" was pressed once again.

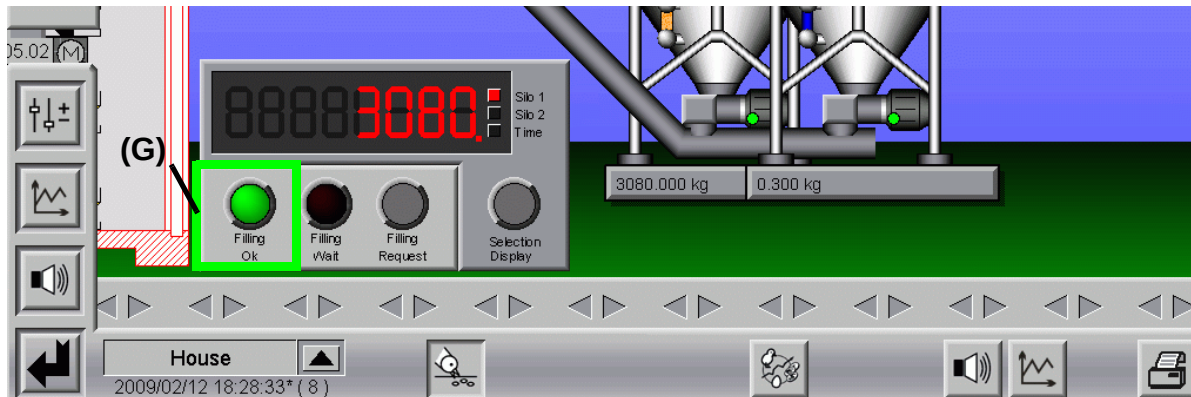


Figure 8-9: Filling OK

8.9.1.1 Information about the filling during a feeding

If a feeding is interrupted to fill a silo, an information window appears in the feeding picture indicating that the feeding is waiting for the filling. This can be seen in the picture below, marked yellow **(Y)**.

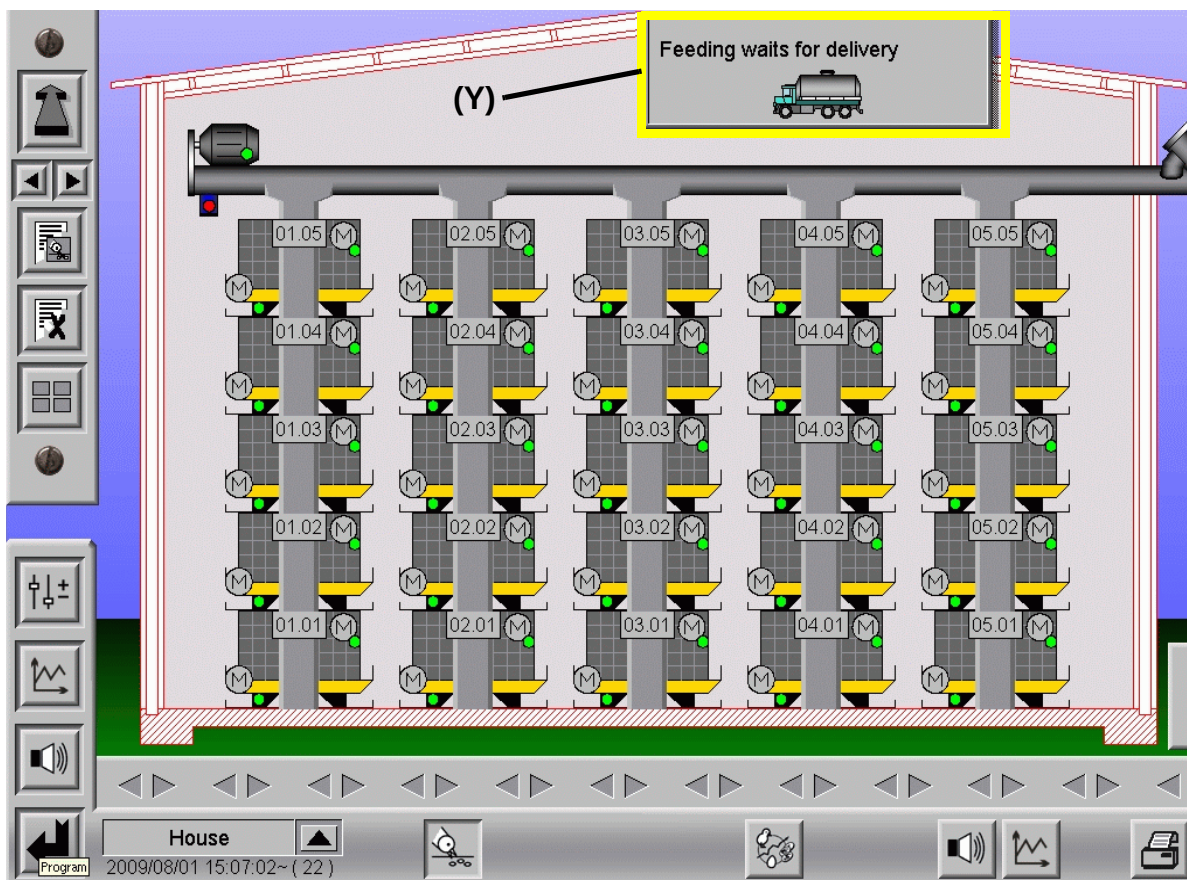


Figure 8-10: Feeding is waiting for delivery

8.9.2 Option "External display with control possibility for the supplier"

The external display with control possibility for the supplier in **AMACS** is marked in green **(G)** in the following picture. This allows the reading of the current silo level directly at the silo.

With the key "Selection Display" the supplier can query the silo levels of up to two silos. As third function the display shows the remaining running time at a feeding in-progress to avoid that feed is supplied while a feeding is still carried out.

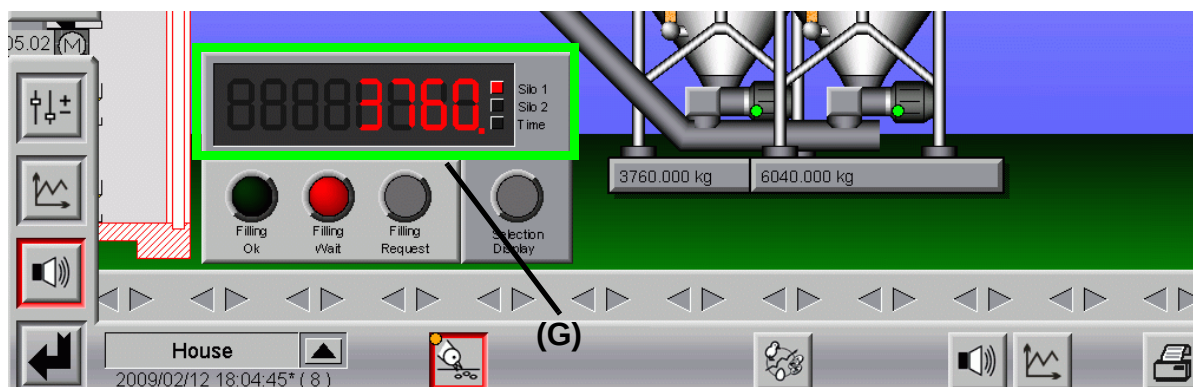


Figure 8-11: External display with control possibility for the supplier

8.9.2.1 Change external display in the main picture

If there are more than two silos, click on the red figures in the picture below. With the click the display changes from silo 1/2 to silo 3/4, see also the blue **(B)** marked field in the picture below. Thanks to this method, up to eight silos can be displayed with this single display.

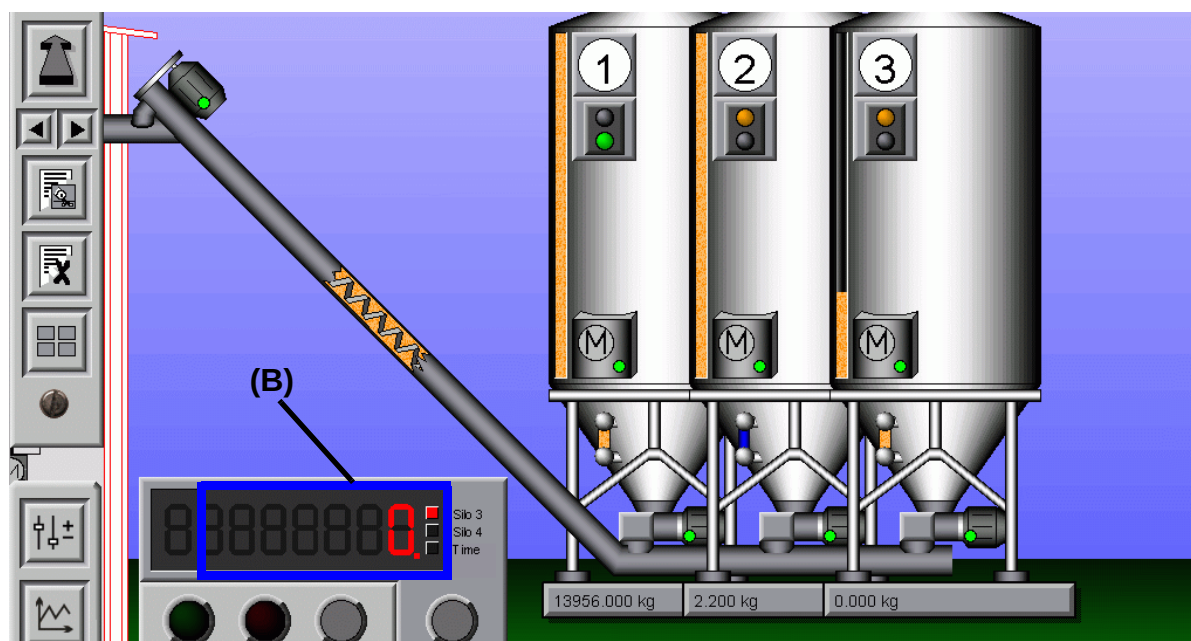


Figure 8-12: External display in the main picture

8.10 Overview weighings

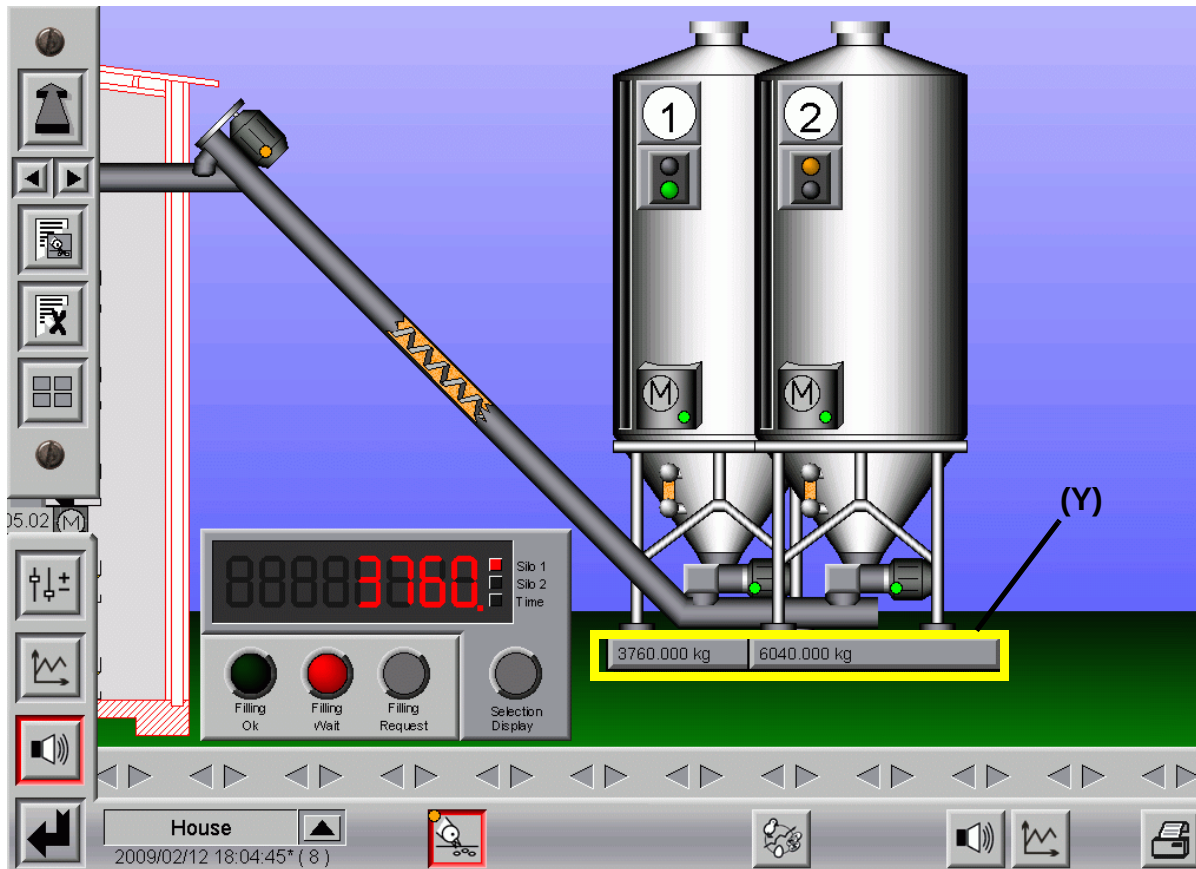


Figure 8-13: Electronic silo scale and external display with control possibility for the supplier

8.10.1 Current silo weight

If one electronic scale is installed per silo, the silo contents can be read off directly in the picture. In the previous picture, the display of the silo scales is marked in yellow (Y).

8.10.2 Curve view of the silo scale

If it is clicked on the current weigh value, the curve view of the weighing is opened in which the weigh value can be retraced.

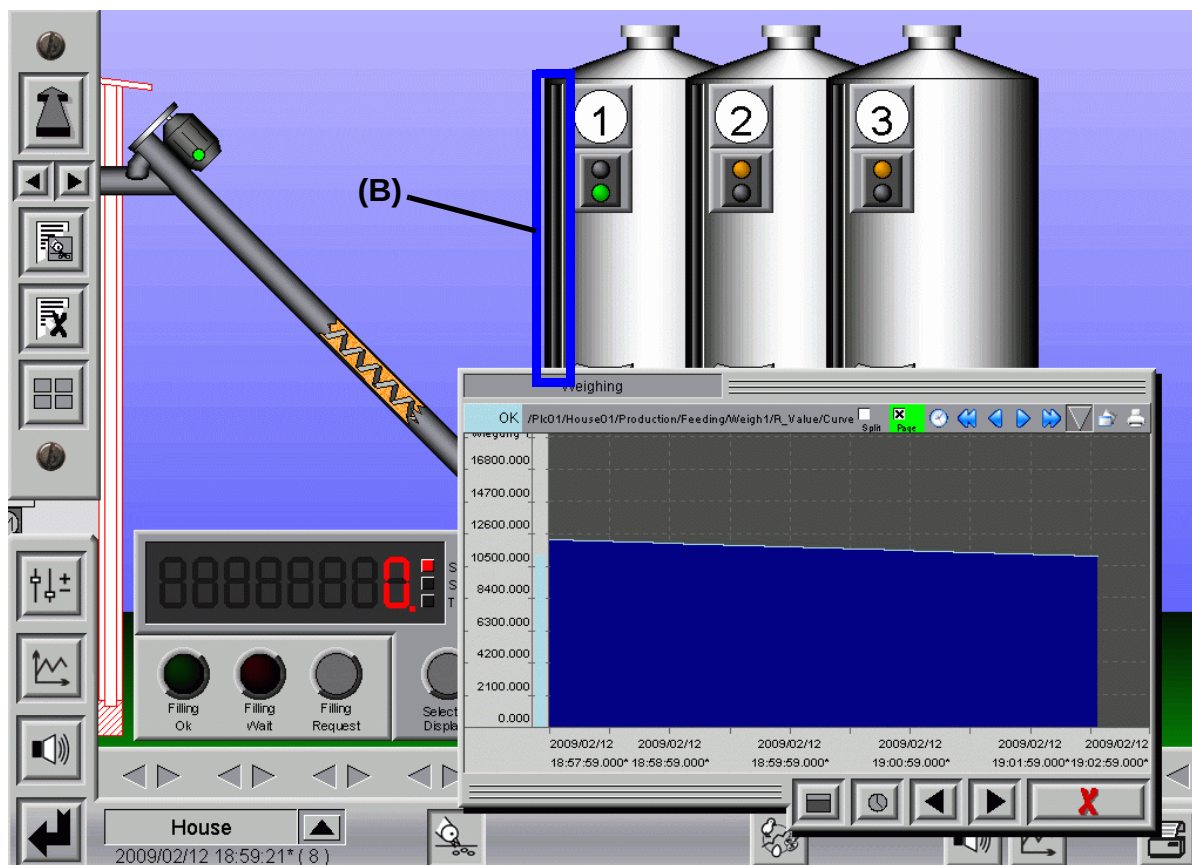


Figure 8-14: Curve view Weighing

8.10.3 Visual display of current filling status

The blue **(B)** marked field in the picture **8-14** allows an easy estimation of the current silo contents.

The window functions like a bar graph and will always show the current filling status.



Note:

Sunshine or changing temperatures (water condensation during the day and absorption of humidity during the night) might cause the display of the current silo status to vary slightly; however, this does not inhibit the registry of the feed amount per group or per bird.

8.11 Notes

9 Two houses, one silo weighing

Due to structural conditions it is often necessary to use one silo weighing for two houses.

In this case, however, **AMACS** must process the feedings of both houses logistically in order to register the distributed feed correctly.

9.1 Traffic light view in the main picture

In order to see which house has presently the control of the silo weighing, a traffic light is displayed in the main picture.

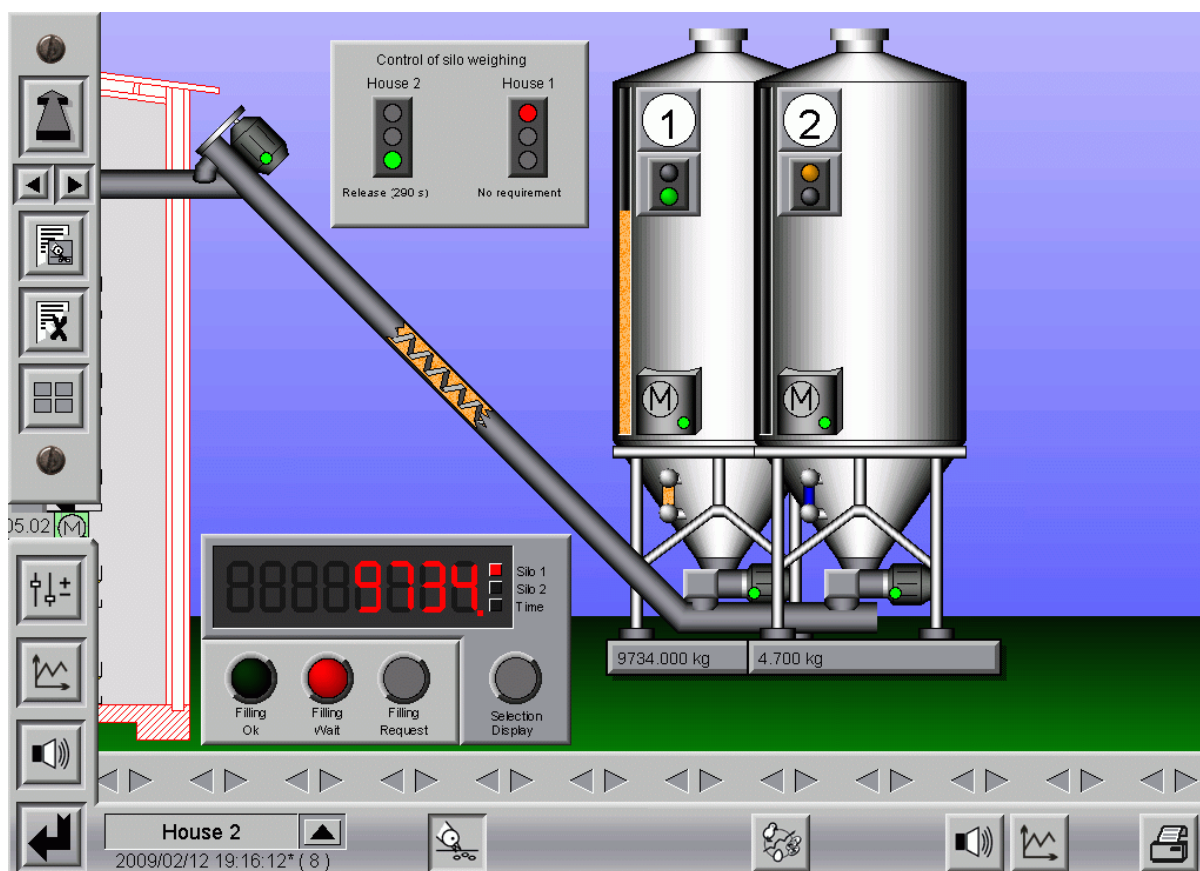


Figure 9-1: Traffic light in the main picture

The name of the house is indicated above the traffic light.

The traffic light informs about the current status of the house.

The colours of the traffic light do have the following meanings:

- **red** = no request
- **yellow** = wait for release
- **green** = release

Below the traffic lights the status of the respective houses is also displayed.

If a house has got the release, the display also shows how long it will take to finish this. Thus it will be possible for the other house to start a feeding group.

9.2 Release of the silos

In addition to the traffic light a window appears indicating that it is waited for the release if both houses will feed simultaneously.

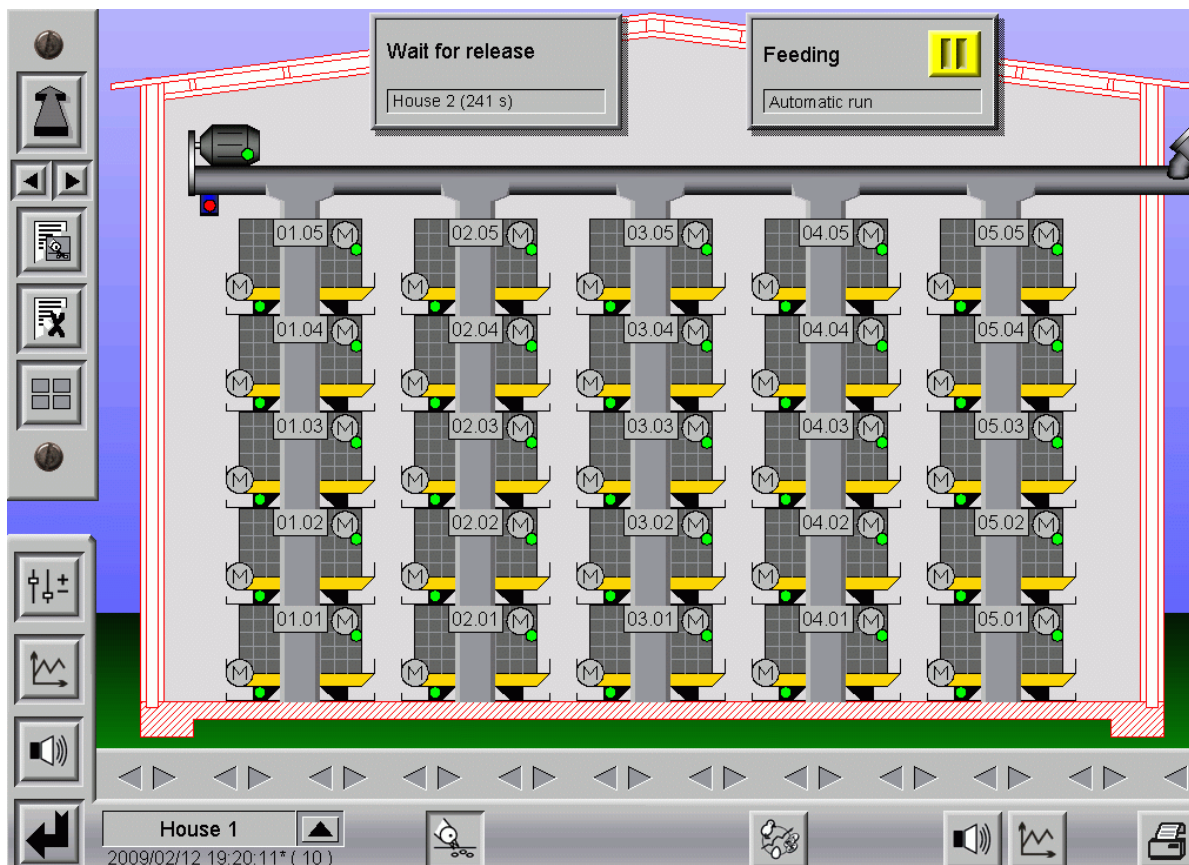


Figure 9-2: Release of silos

To avoid waiting for the feeding of the first house, the houses will alternate if it is fed in several groups. This means that the release is transmitted to the second house after the feeding of the first group was finished.

9.3 Set-up weighing

In order to ensure that both houses are working with the same calibration, the second house will get the values from the first one. Therefore a calibration is not necessary there for the silo weighing. In chapter 8 you will find more information regarding the calibration of the silo weighing.

PARAMETER SETUP A:0 Q:0

Weighings [1/1]

	Type Load cell	Current Weighing value	Current Zero value	Current Calib. value	Start point for zero value	Weight Calibration	calculated Weighing value
1	DMS	3357	0	10000	0.00 kg	20000.00 kg	6714.00 kg
2	DMS	2030	0	10000	0.00 kg	5.00 kg	1.00 kg

☒ Use weigh value Unit external delivery display: kg

☐ Use flow value ☐ Fixed flow value: 2.5 kg/s ☐ Fixed value: ☐ Current flow value: 2.5 kg/s

☒ Calculated flow value

Min. decrease of weigh value in 5 sec. for flow value calc.: 3.0 kg

Detection delivery Detection delivery by increase weigh value: 100.0 kg in 30 s
Reset mode for feed delivery if no increase in: 300 s

Delivery control Break delivery of no change of weigh value by: 100.0 kg in 5 min

House MISpro

Figure 9-3: Set-up of the weighing in house 1

PARAMETER SETUP

Weighings [1/1] ◀ ▶

	Type Load cell	Current Weighing value	Current Zero value	Current Calib. value	Start point for zero value	Weight Calibration	calculated Weighing value
1	DMS		Calibration in other house				0.00 kg
2	DMS		Calibration in other house				0.00 kg

☒ Use weigh value
 Unit external delivery display

☐ Use flow value

☐ Fixed flow value
☐ Fixed value

☒ Calculated flow value
 Current flow value

Min. decrease of weigh value in 5 sec. for flow value calc.

Detection delivery
Detection delivery by increase weigh value in

Reset mode for feed delivery if no increase in

House 2

2009/02/12 19:33:05* (10)

Figure 9-4: Set-up of the weighing in house 2

10 Electronic batch weigher

10.1 Overview weighings

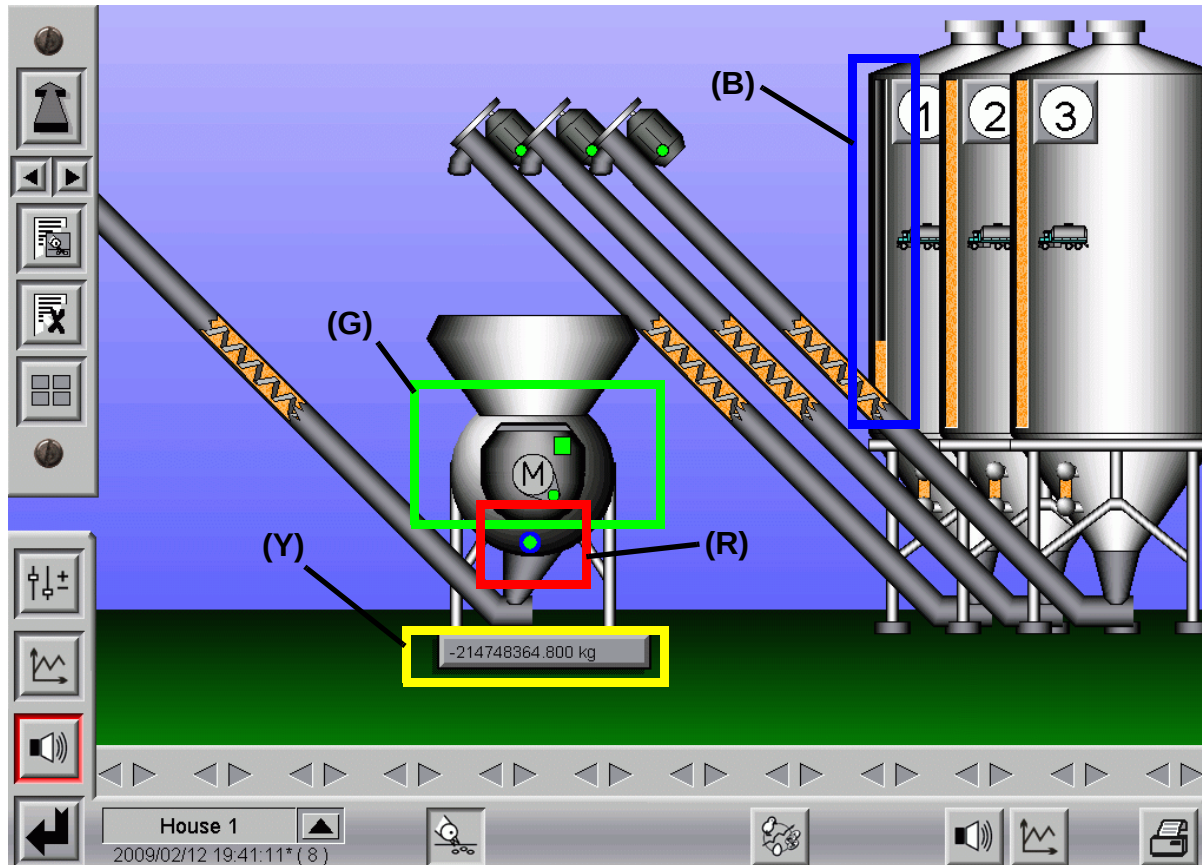


Figure 10-1: Electronic silo weigher

10.1.1 Current weight in the drum

If an electronic batch weigher is installed, the current weight in the drum can directly be read from the picture. In the previous picture the display of the weigh value is marked in yellow (Y).

10.1.1.1 Graphical view of the scale

A click on the current weigh value will open the graphical view of the weighing where the weigh value can be traced back.

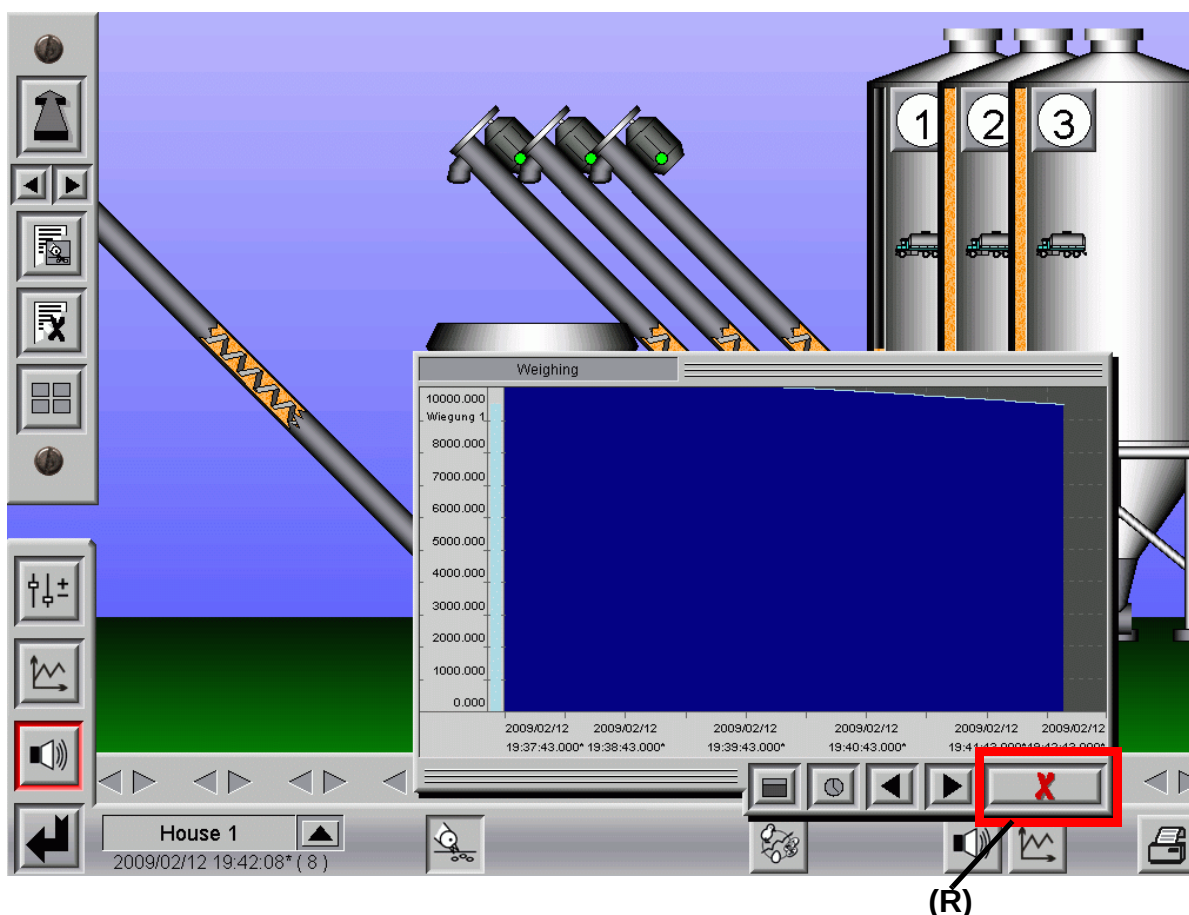


Figure 10-2: Graphical view Weighing

The graphical view can be closed again via the red **(R)** marked X.

10.1.2 Minimum sensor in the drum

The minimum sensor at the drum, marked red in the picture **10-1** gives a signal to **AMACS** if the batch weigher shall dose a batch.

If the sensor lights up green, more feed is required. However, if there is still enough feed in the hopper this will light up red.

10.1.3 Control of the drum position

To check the position of the drum, see the small display "Drum position top", green **(G)** marked in the picture **10-1**. If this display lights up green this means that the drum is in the correct position (opening above) and feed can be filled into the drum. If the display is grey, the drum is not in correct position.

10.1.4 Manual operation of scale drum

In order to check the scale, the drum can also be operated manually in the view picture. Click on the green **(G)** marked field in the drum in picture 10-1. Now the following menu appears.

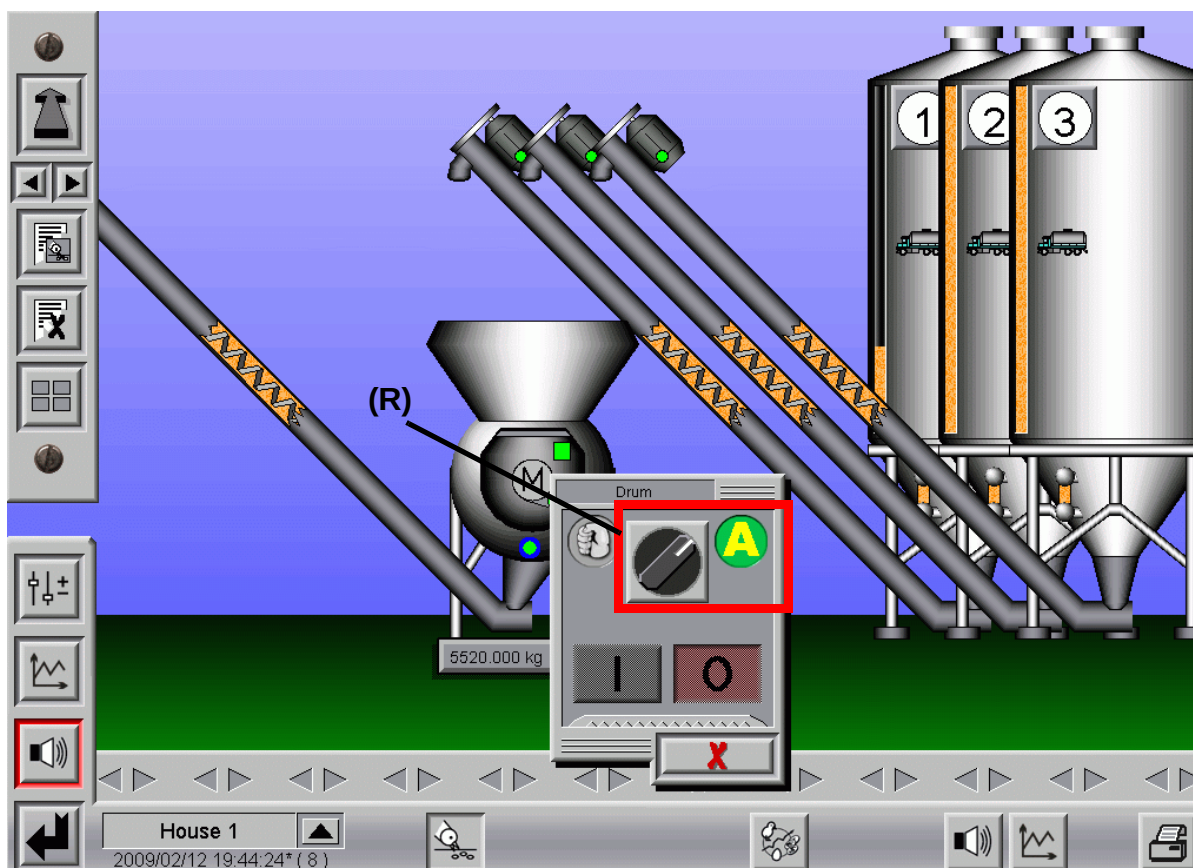


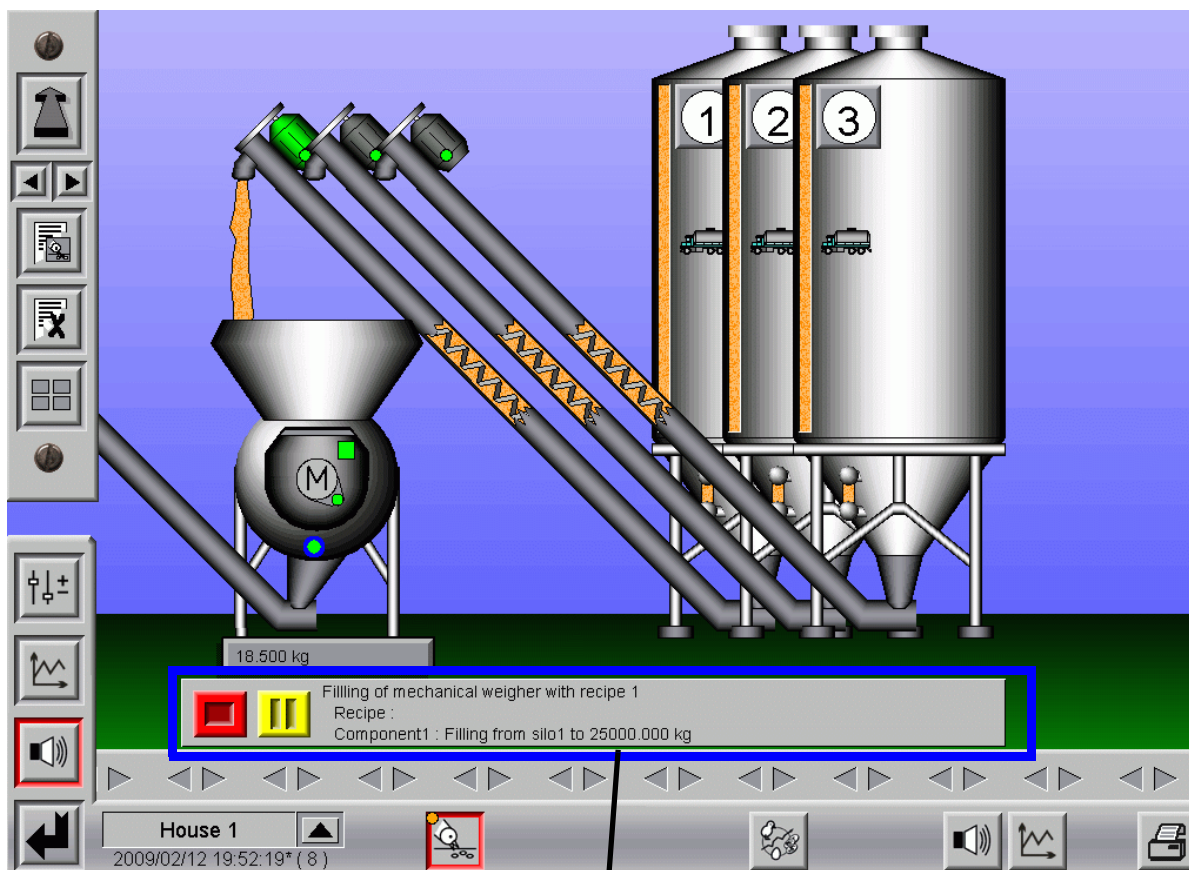
Figure 10-3: Turn the drum manually

Click on the red **(R)** highlighted switch or closed fist to switch the drum motor to manual operation.

Now the drum motor can be switched on or off by means of the marked pushbuttons. When the motor is started only one revolution can be carried out. As soon as the sensor (marked red **(R)** in the previous picture) is activated the drum will always stay in the "top" position.

10.1.5 Information regarding the filling of the batch weigher

As soon as a filling starts a window will be opened in the view picture "Feeding" where the set recipe with all parameters and an interruption function are displayed.



(B)

Figure 10-4: Information regarding the filling of the batch weigher

10.1.6 Stop filling

A filling already running can be stopped as shown in the blue **(B)** marked field of the previous picture. The current filling can be interrupted by clicking on the red button. The batch weigher is now rotated once and then waits for another demand.

10.1.7 Filling in pause

It may happen that the filling must wait. In order to switch the filling to pause, click on the pause button in the blue **(B)** marked field in the view picture. This will become green at a pause. Now the filling is delayed until this button is clicked again.

10.1.8 Defective feed scale 99 B

If the feed scale is defective, feed must nevertheless be transported into the house to feed the animals. In this case the hand operation of the drum described before can be used.

Start the drum as described under **10.1.4** and turn the opening to the bottom side. The cross auger as well as the silo auger can now be switched to manual operation if the "maximum sensor" that is installed above the scale will release and feed is transported into the house.

This "maximum sensor" is electromechanically integrated in the system and ensures that feed can be delivered into the house even in case of system failure.

(The maximum sensor is not shown in the main picture)



Attention:

Works at drive units or augers may only be carried out if the protective switch is in the OFF position. The drive units could be activated without prior warning e.g. by the time clocks or sensors. Also observe security signs and instructions.

10.2 Set-up parameters for the electronic batch weigher (page 1)

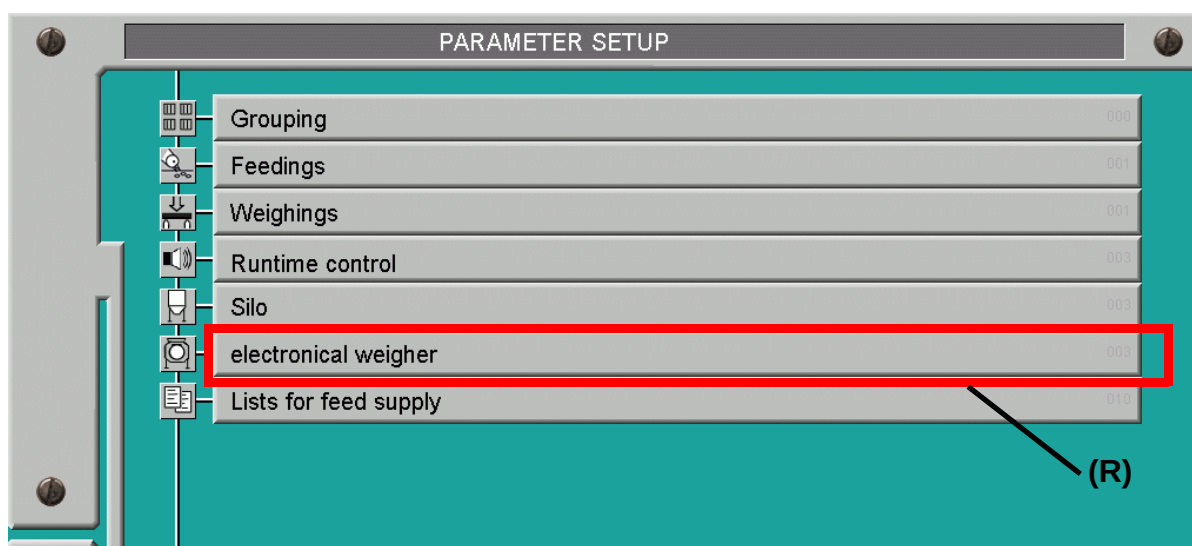


Figure 10-5: Settings of the batch weigher

When opening the red **(R)** marked field in the previous picture, a menu appears (marked yellow **(Y)** in the next picture) where some values are entered at the initiation which may not be changed without cause.

PARAMETER SETUP

electronical weigher Filling [1/2]

Capacity of electronical weigher: 25 kg

Filling of the balance with recipe: 1

Waiting time for sensor with start of drum: 4 s

Maximum runtime for turning of drum: 30 s

Wait for weighing after filling the weigher: 2 s

Maximum weight after discharge of weigher: 1.0 kg

Fill scale without request: ☐

Component 1

	Silo	Subst. silo	Relation
Recipe 1	1	3	20 %
Recipe 2	1	3	44 %
Recipe 3	1		100 %
Recipe 4	1		100 %
Recipe 5	1		100 %
Recipe 6	1		100 %
Recipe 7	1		100 %
Recipe 8	1		100 %

Component 2

	Silo	Subst. silo	Relation
	2		80 %
	2		56 %
	1		0 %
	1		0 %
	1		0 %
	1		0 %
	1		0 %
	1		0 %

Component 3

	Silo	Subst. silo	Relation
	3		0 %
	3		0 %
	1		0 %
	1		0 %
	1		0 %
	1		0 %
	1		0 %
	1		0 %

Automatic Siloswitch: ☒

Filling in charges: ☐ Size of charges: 0 kg

House 1

2009/02/12 19:55:36* (8)

Figure 10-6: Set-up parameters for the batch weigher

10.2.1 Batch weigher capacity

Here the feed quantity is determined per filling. Lightweight but voluminous feed types might only allow a filling of up to 25 kg.

Make sure that the drum does not overflow when it is filled.

10.2.2 Filling of the weigher using a recipe

If there are several silos it is determined which recipe is used for filling the weigher. The currently active recipe will be highlighted in dark-grey. For more information see also chapter 10.2.8.

10.2.3 Waiting time for sensors at drum start

This waiting time is required to allow the drum to turn away from the sensor "top position" without causing an error message. For the FW99 B we recommend a value of 4 seconds to guarantee a faultless operation.

10.2.4 Maximum running time for rotation of the drum

Use this menu to enter the allowed time for a full rotation of a drum. If the drum is not able to make a full rotation within this time, an error message will appear.

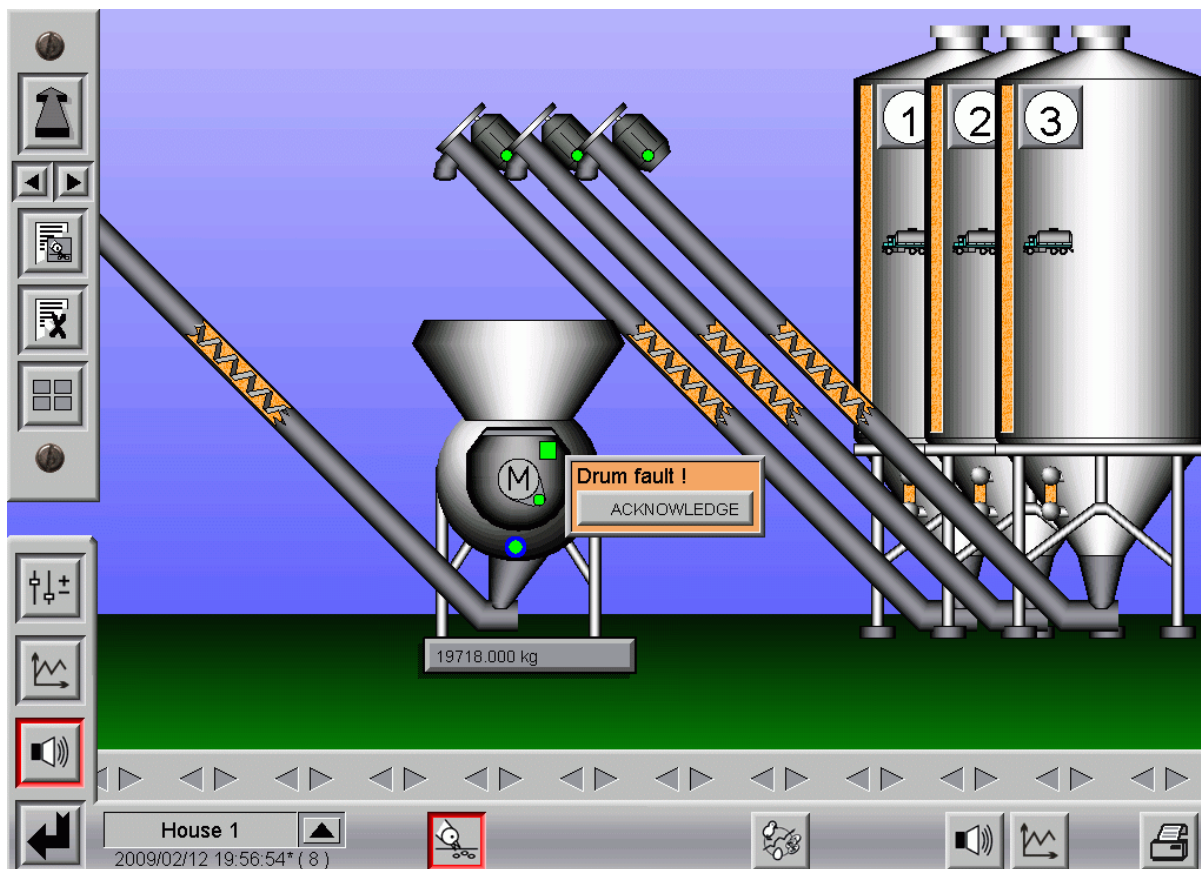


Figure 10-7: Error message

If the sensor does not give a signal this may have different reasons, e.g. ...

- there is too much feed in the drum and therefore it cannot rotate any more to the correct position;
- the drum motor is currentless;
- the position sensor is too far away from the drum;
- the position sensor or the cable is defective.

If the error message is acknowledged via the button "ACKNOWLEDGE" the drum will try to get into the correct position.

10.2.5 Waiting time for weighing after filling the weigher

In order to ensure that the after-flow control can register the filled feed correctly, a waiting time of approx. 2 seconds is necessary after the filling so that the feed which possibly still runs can be weighed as well.

10.2.6 Maximum weight after discharge of the weigher

If the weigher is not fully emptied after a drum rotation, the precision of the scale might be affected.

Use this menu to determine how many kilograms are allowed in the drum after rotation. Under normal operating conditions we recommend a value of 1.0 kg.

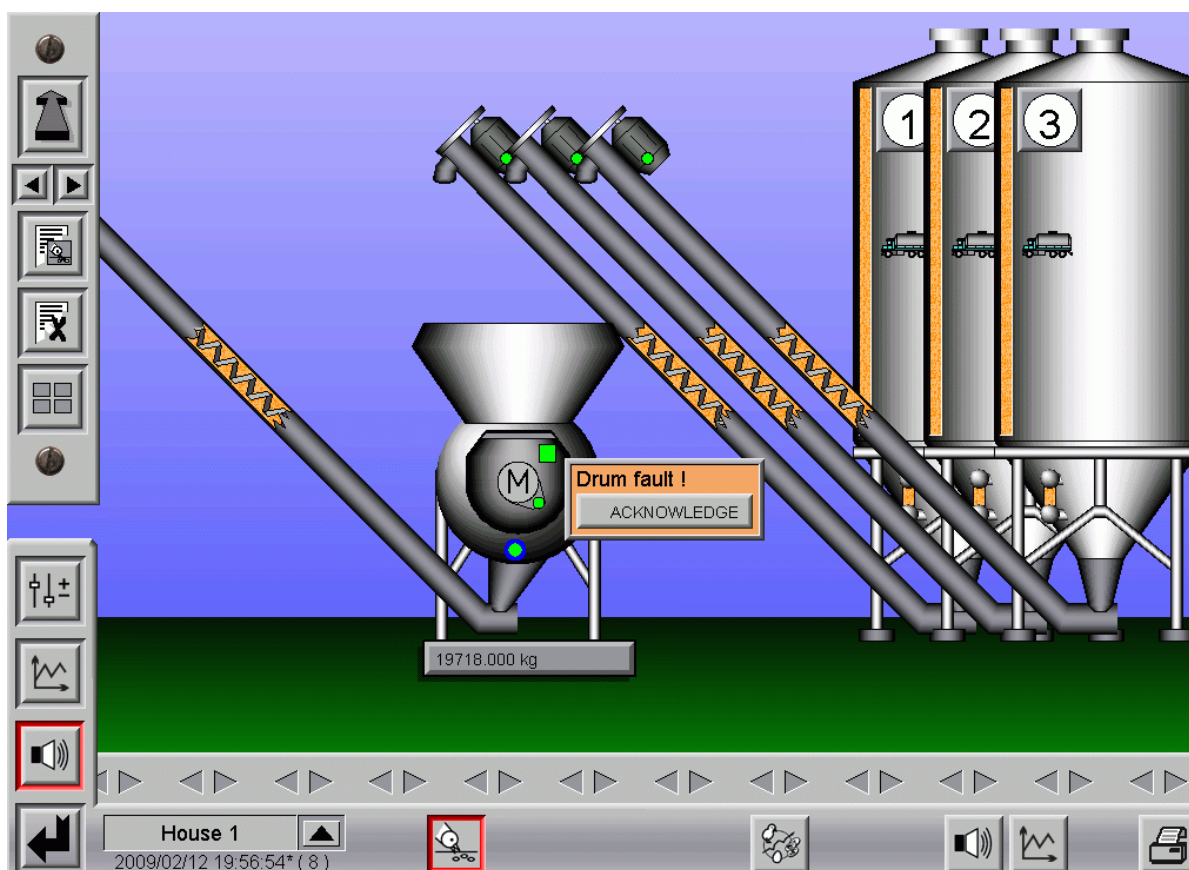


Figure 10-8: Error message

If the weigher is not fully discharged after the first rotation and the following two trials do not lead to a complete emptying, this may have several reasons, e.g.: ...

- there is too much feed under the drum and the drum cannot be completely emptied;
- deposits have formed in the drum which are heavier than the maximum weight;
- the weigher is not exactly calibrated.

If the error message is acknowledged via the button "ACKNOWLEDGE" the batch weigher waits for the next request.

10.2.7 Fill weigher without request

Filling of the batch weigher without request is intended for the case the cross auger transports the feed faster into the hopper than the batch weigher can refill it.

In this case the time which the "empty" signalling sensor takes to work is used for filling the batch weigher and a direct discharge on request.

10.2.8 Recipes

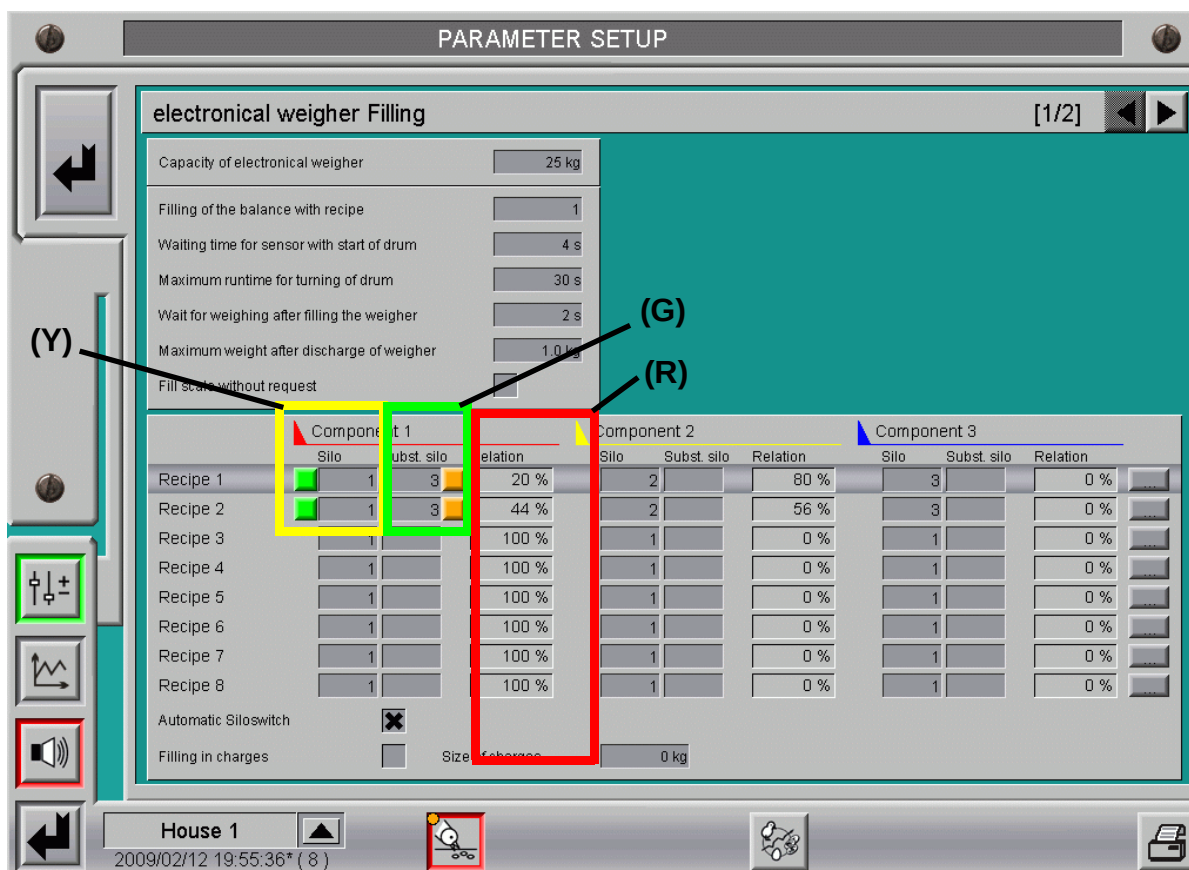


Figure 10-9: Set-up of recipes

10.2.8.1 Recipes 1-8

This menu is used to check and set the composition of the individual recipes.

10.2.8.2 Silo

Here it is specified for recipe 2, marked in yellow (Y) in the previous picture, from which silo the respective component will be taken.

10.2.8.3 Alternative silo

It is specified for recipe 2, marked in green (G) in the previous picture, to which silo it will be switched in case of a failure of the "normal" component.

10.2.8.4 Mixture ratio of the components

Click on the red (R) button in the previous screenshot to change the mixture ratio of the individual recipes.

10.2.8.7 Batch filling

This function marked blue **(B)** in the picture **10-10** may be used for the mixture when big batch weighers are used.

The function can be used e.g. to blend the fattening feed with home-grown wheat. Activate the checkbox and preset the batch size with 10 kg, for example. The feed amount is not filled into the drum in layers (batches).

The feed batches which are composed of e.g. 20% wheat and 80% feed are mixed when the drum rotates.



Note:

A switch-over to other types of feed may only be effected if the chosen feed type corresponds to the one primarily used. Please observe the official regulations.

10.3 Setting parameters for the electronic batch weigher (page 2)

The blue **(B)** marked button in the following picture makes further settings visible. With the arrow keys it can be changed between the pages.

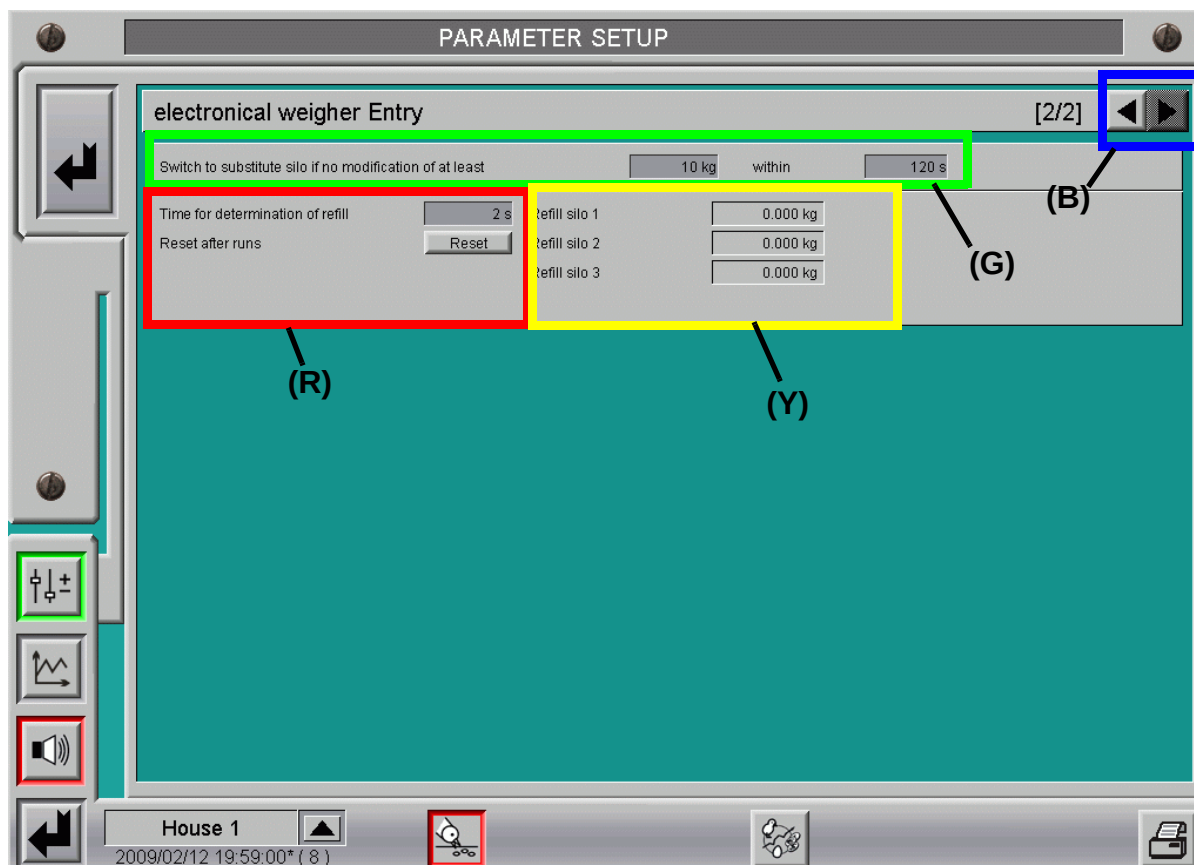


Figure 10-11: Electronic weigher Control parameters page 2

10.3.1 Switching to alternative silo

The parameters for switching to an alternative silo are determined in the green **(G)** marked field. If the weight in the drum does not change by at least 10 kg within the set time of 120 sec, it will be switched over to the substitute silo (if installed).

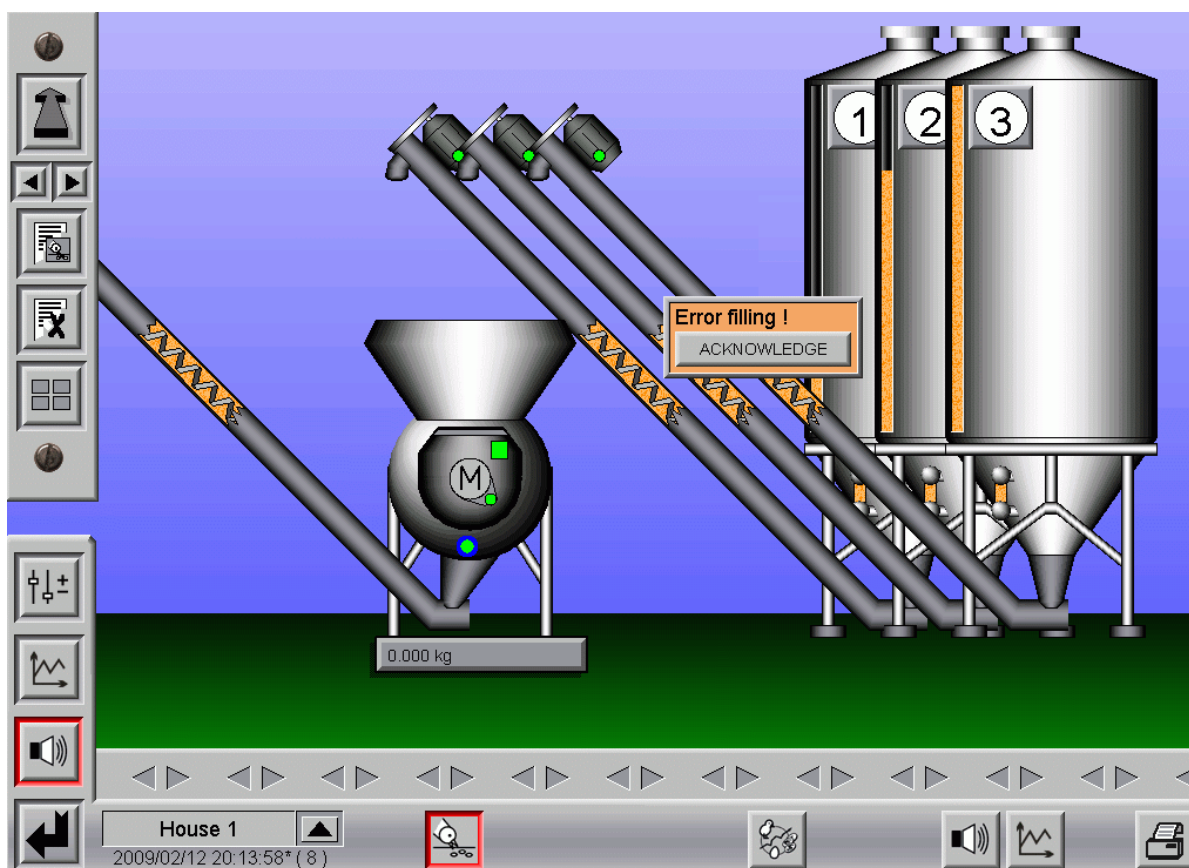


Figure 10-12: Filling error in the main picture

10.3.2 Time to determine the after-flow

To correctly determine the after-flow amount per auger, enter a pause time of 2 seconds (highlighted red **(R)**) after filling in each component.

The value is determined when the system is taken into operation. This value should not be reduced in order to ensure that the complete feed from the hopper above the weigher can fall into the drum within this time.

10.3.3 After-flow Silo 1-8

The after-flow of each component is permanently monitored and calculated from the average value of the last deliveries. The augers switch off, taking into consideration the calculated amount - according to the field highlighted yellow **(Y)** in figure 10-11 - to fill in the mix as accurately as possible.

10.3.4 Reset

The calculated after-flow values can reset to zero if you press this button.

11 Two houses, one electronic batch weigher

The structural conditions often require the utilisation of a batch weigher for two houses. However in this case **AMACS** has to process the feedings of both houses logistically to correctly register the distributed feed.

If two houses shall be supplied with feed at the same time, the house where the feeding was started first will get the release. If both houses start simultaneously, the "Master" house will get the release first.

11.1 Traffic light view in the main screenshot

A traffic light is displayed in the main screen feeding to see which house has presently the control on the batch weigher.

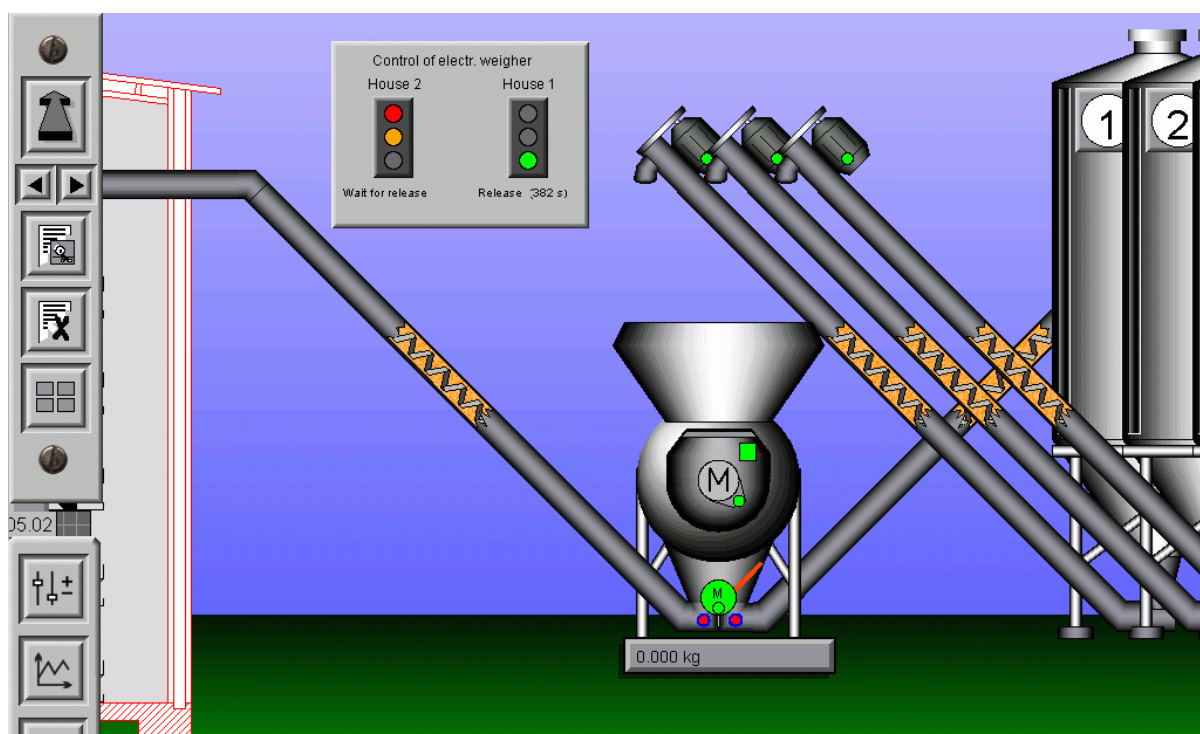


Figure 11-1: Traffic light in the main screen

The name of the house is displayed above the traffic light. The traffic light informs about the current status of the house. The colours of the traffic light have following meaning:

- **red** = no request
- **yellow** = wait for release
- **green** = release

The status of the respective house is also displayed below the traffic light. If a house has got the release, it is displayed how long time it will take to finish this. Thus the other house has the possibility to fill the batch weigher.

11.1.1 Release of the batch weigher

In addition to the traffic light a window appears indicating that it is waited for the release if both houses will feed simultaneously.

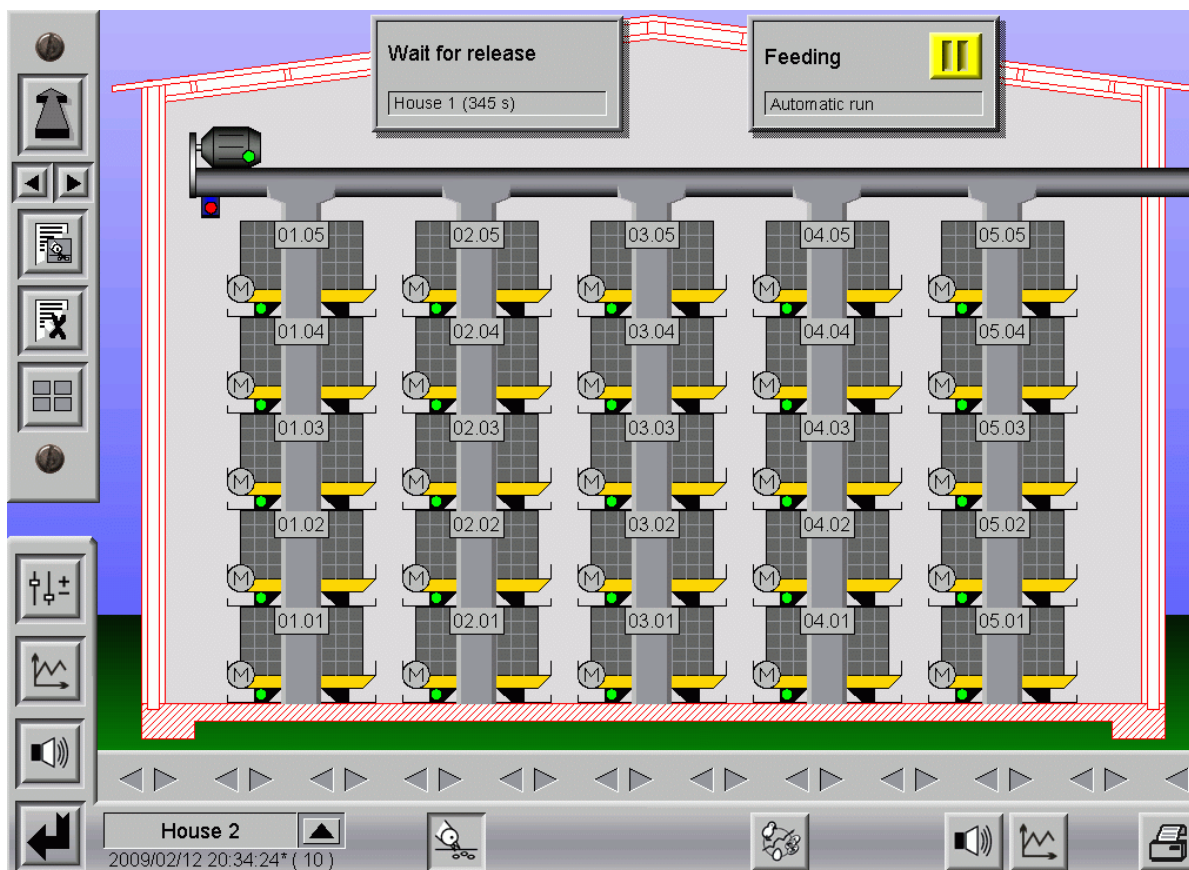


Figure 11-2: Release and cages

To avoid waiting for the feeding of the first house, the houses will alternate if it is fed in several groups. This means that the release is transmitted to the second house after the feeding of the first group was finished.

11.2 Set-up weighing

In order to ensure that both houses are working with the same calibration, the second house will get the values from the first one. Therefore a calibration for the silo weighing is not necessary. For more information regarding the calibration of the silo weighing, please refer to chapter 8.3.

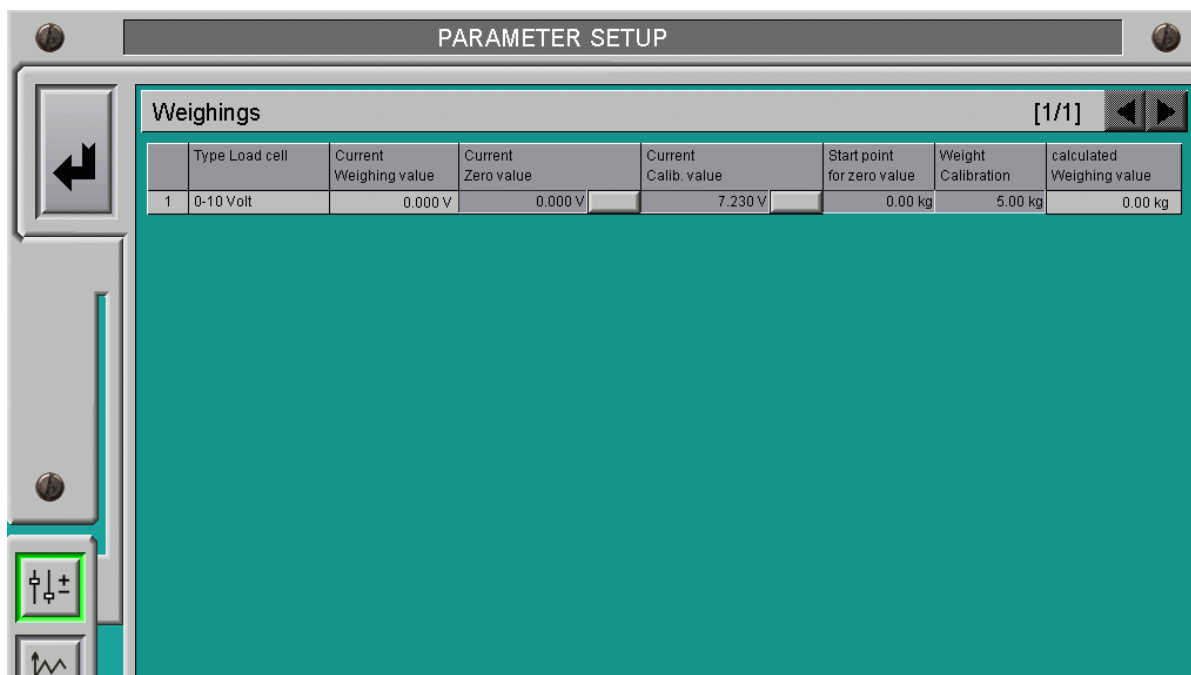


Figure 11-3: Adjustment of the weighing in house 1

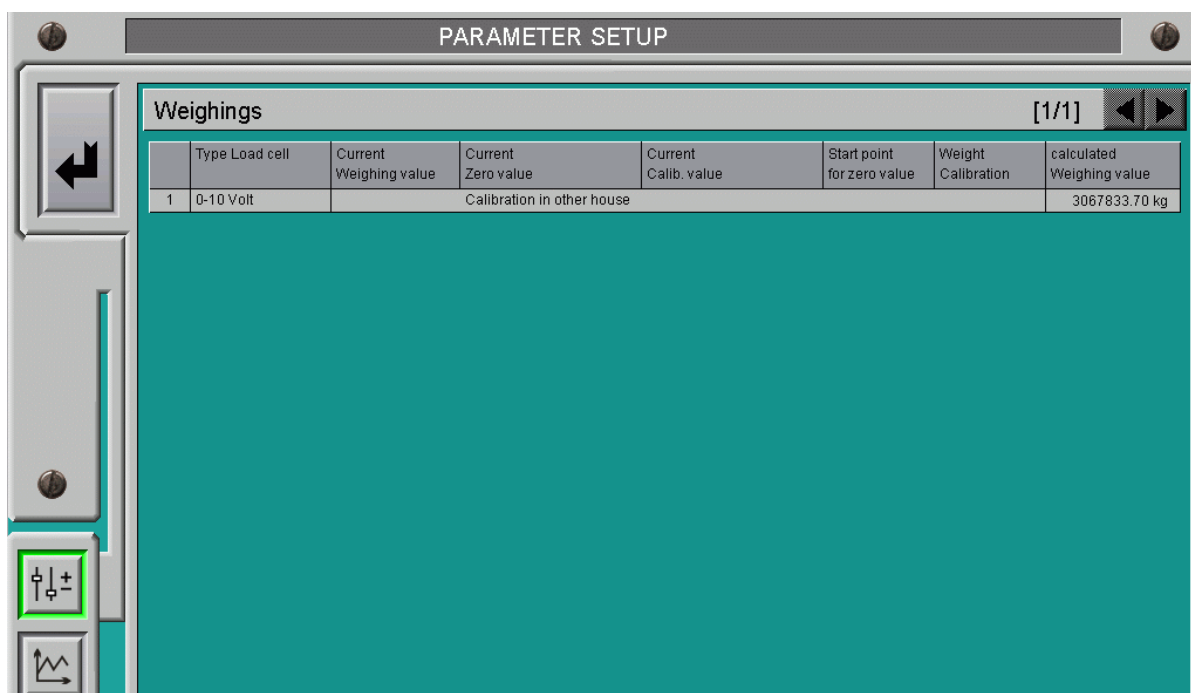


Figure 11-4: Adjustment of the weighing in house 2

11.3 Runtime control Distribution flap

11.3.1 Maximum runtime

In order to check if the position was reached with a batch weigher with distribution flap, there is a separate point under runtime control where the maximum running time of the distribution flap can be entered in seconds (marked red **(R)** in the following figure).

11.3.2 Calibration distribution flap

The distribution flap can be calibrated so that the computer will know at which position the batch weigher stands. Click on the button "Flap" marked yellow **(Y)** in the following figure.

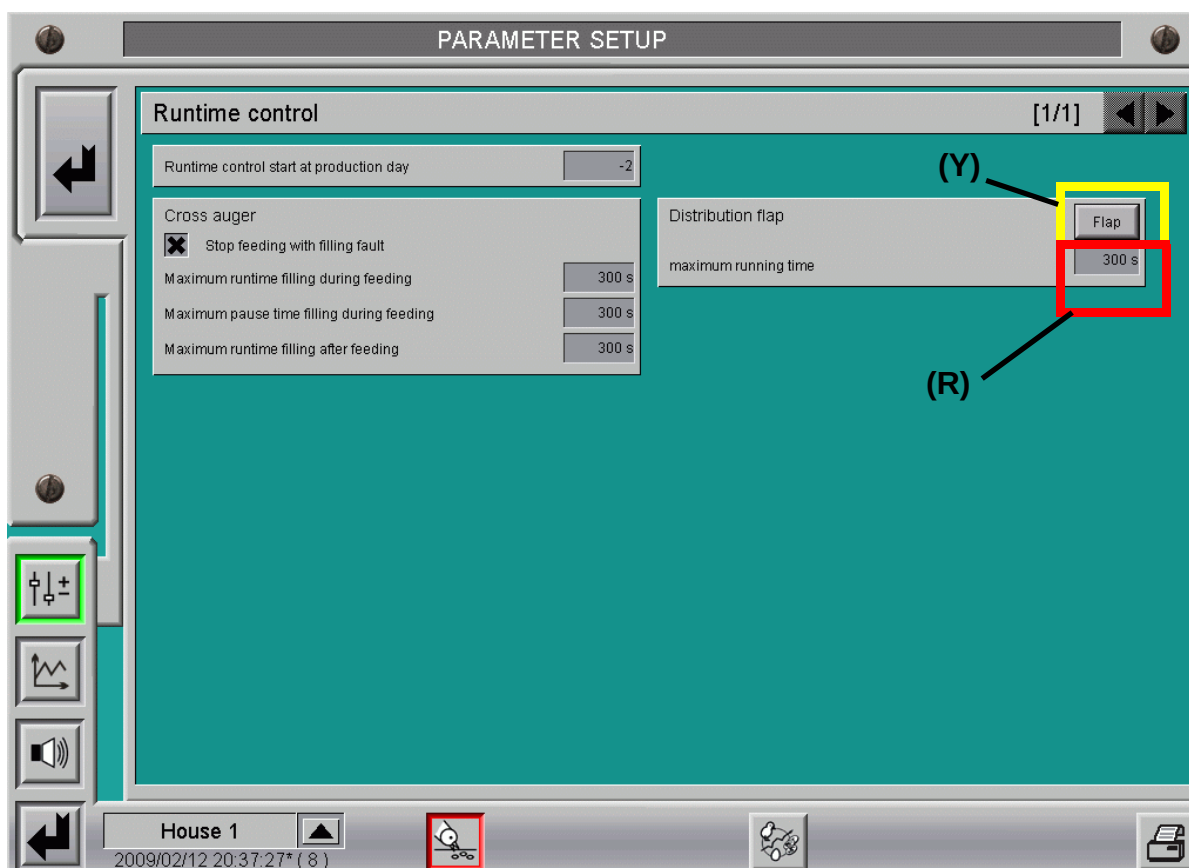


Figure 11-5: Distribution flap

Another menu opens, the functions of which will be explained in detail in the next chapters.

11.3.2.1 Distribution flap at hand operation

"A" in the green field of the following picture indicates that the flap is still switched to automatic operation and a hand operation is thus not allowed (in the picture below it was already switched over to manual operation).

The change-over to manual operation is effected either by a click on the black rotary knob or the closed fist. Both possibilities are marked red **(R)** in the previous picture. If it was switched over, the menu which was inaccessible before (highlighted in grey) will be released for calibration.

Moreover the field "Flap" lights up orange; in case of automatic operation this will appear in grey.

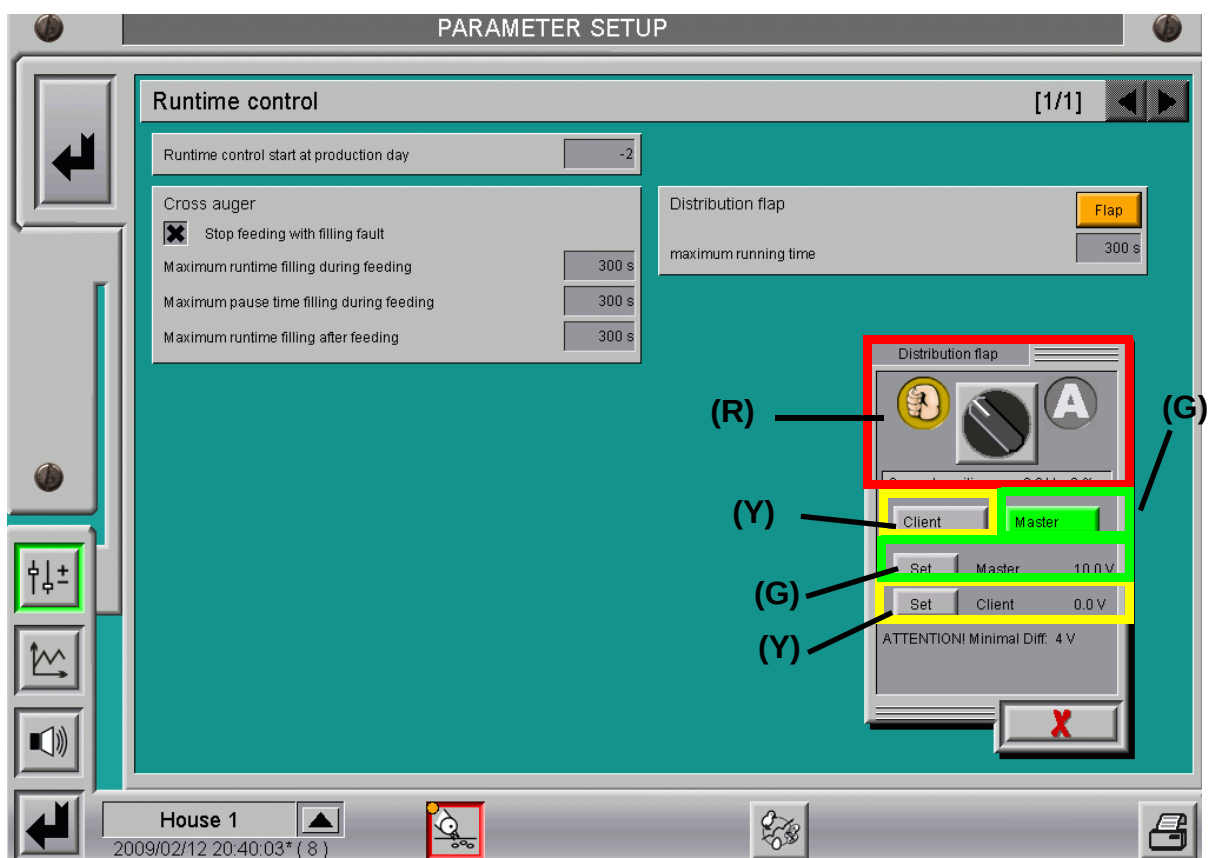


Figure 11-6: Calibrate distribution flap

!

Attention!

The difference between both points "Master" and "Slave" should be at least 4V to ensure a reasonable calibration. However, a minimum adjustment of 2V is also possible, if necessary.

11.3.2.2 Calibration at position "Slave"

The operation of the flap is started by pressing the yellow-marked **(Y)** button "Slave" in the previous figure. The distribution flap goes towards 0% (0V).

Hold down the key until no further modification can be seen in the field "Current position".

Now this position can be saved by clicking on the yellow **(Y)** marked button "Set Slave at X Volt".

11.3.2.3 Calibration at position "Master"

The operation of the flap is started by pressing the green **(G)** marked button "Master" in the previous figure. The distribution flap goes towards 100% (10V).

Hold down the key until no further modification can be seen in the field "Current position".

Now this position can be saved by clicking on the green (G) marked button "Set Master at X Volt".

12 Day silo

12.1 Overview weighings

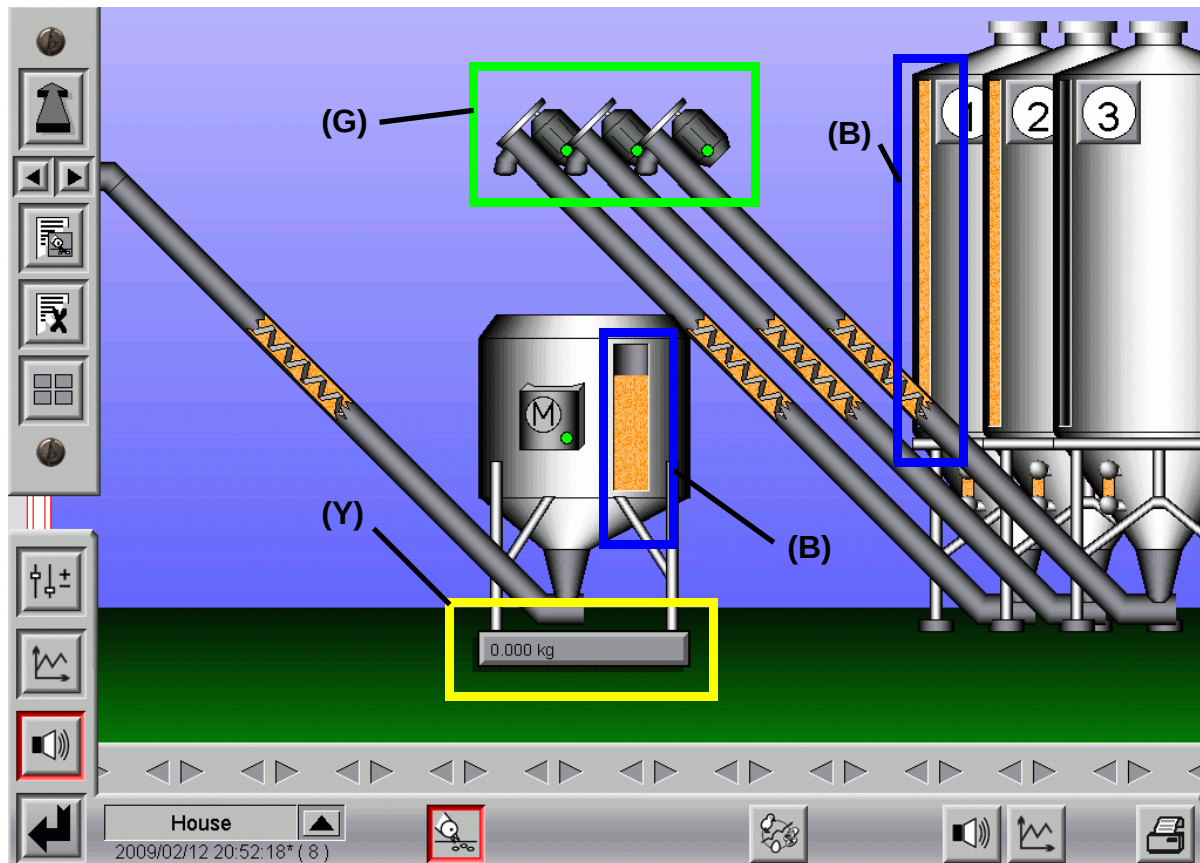


Figure 12-1: Electronic silo weigher under a day silo

12.1.1 Current silo weight

If a day silo with an electronic scale is installed, the current silo contents can always be directly read from the picture. In the previous picture the display of the weighing value is marked yellow (Y).

12.1.1.1 Graphical view of the scale

A click on the current weighing value will open the curve view of the weighing where the weigh value can be traced back.

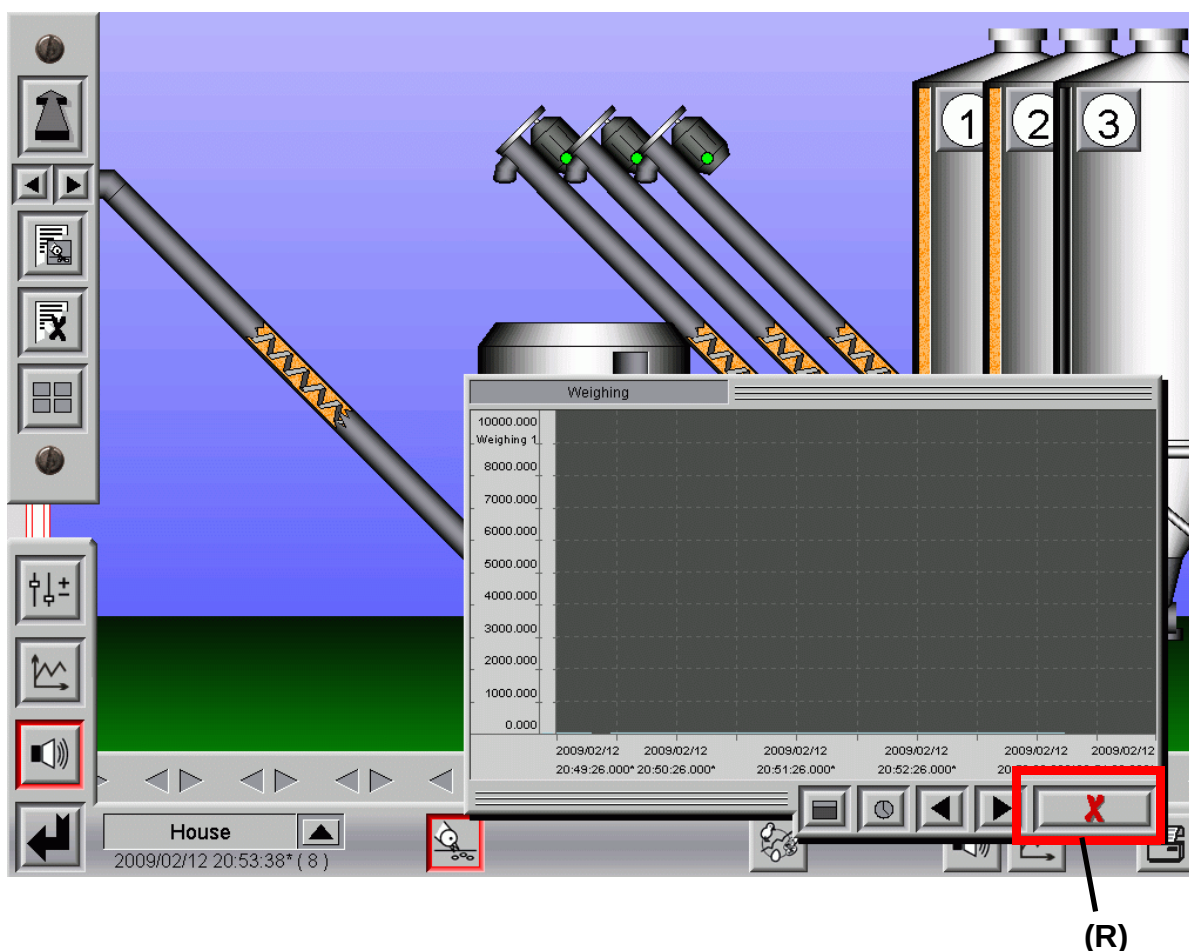


Figure 12-2: Curve view of the scale

The curve view can be easily closed with the red **(R)** marked X.

12.1.2 Visual display of current filling status

The current filling status of the day silo and storage silo can be easily estimated in the blue **(B)** marked window in figure 12-1.

The window functions like a bargraph and always shows the current level.

If all feed supplies are entered manually for each storage silo, the calculated silo level is displayed in the blue **(B)** marked window.

12.1.3 Manual operation of discharge augers

Since this configuration includes one conveyor auger per silo, the auger can also be operated manually. Click on the silo motors highlighted green **(G)** in figure 12-1 to open the control panel for these motors. You can now switch the motors to manual operation and if there is still space in the day silo, the feed may also be refilled manually.

	Caution:
	Maintenance or service works at the drive units or augers may only be carried out if the protective switch is in the OFF position. The drive units could be activated without prior warning e.g. by the time clocks or sensors. Also observe local security signs and instructions. The augers should not be switched to manual operation without supervision since otherwise the day silo might be overcharged.

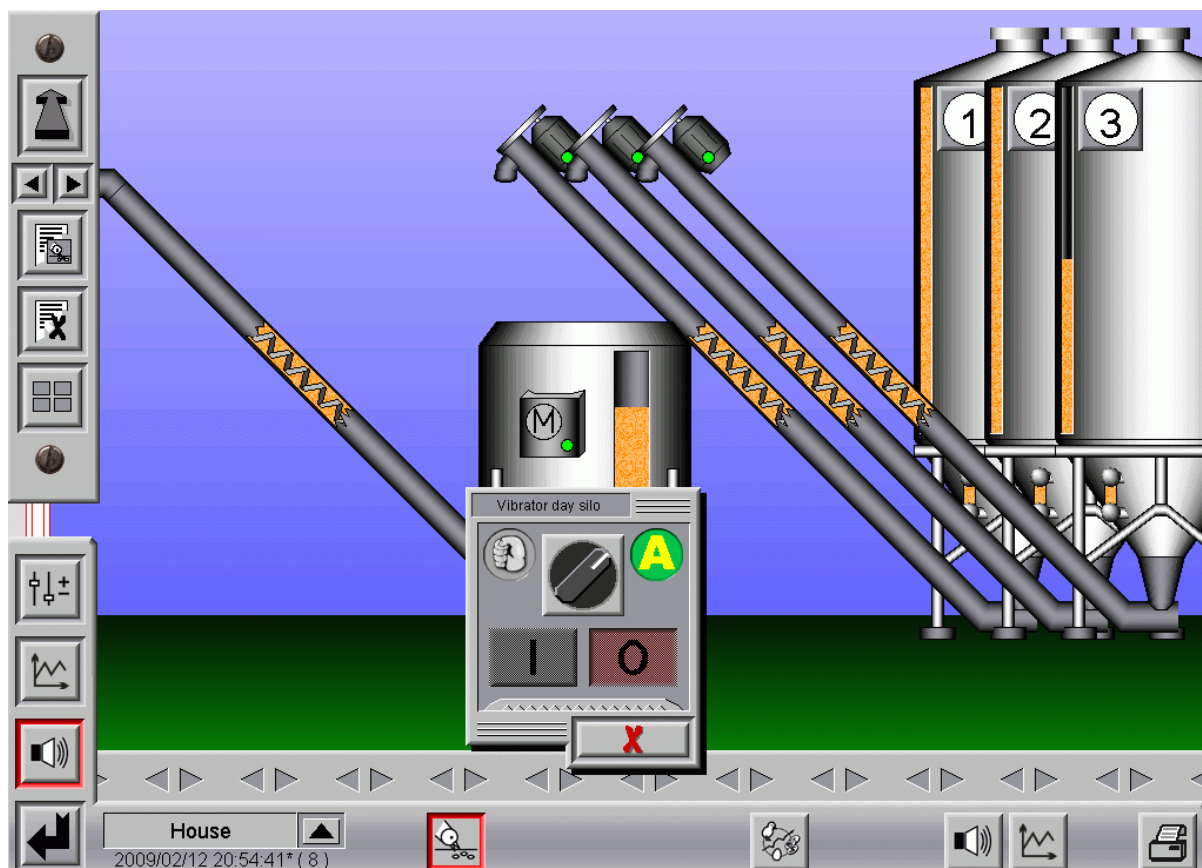


Figure 12-3: Vibrator at the silo

12.1.4 Feed scale at the day silo is defective

Even if the feed scale is defective, feed has to be transported into the house to feed the animals. In order to achieve this, you can use the above described manual operation of the auger. If the sensor is not covered with feed, feed will be conveyed into the house. In order to carry out this function, the cross auger sensor has to be included in the electromechanical system and has to ensure that feed can be delivered into the house even in case of system failure.

**Attention:**

Works at drive units or augers may only be carried out if the protective switch is in the OFF position. The drive units could be activated without prior warning e.g. by the time clocks or sensors. Also observe security signs and instructions.

12.2 Set-up parameters for the day silo (page 1)

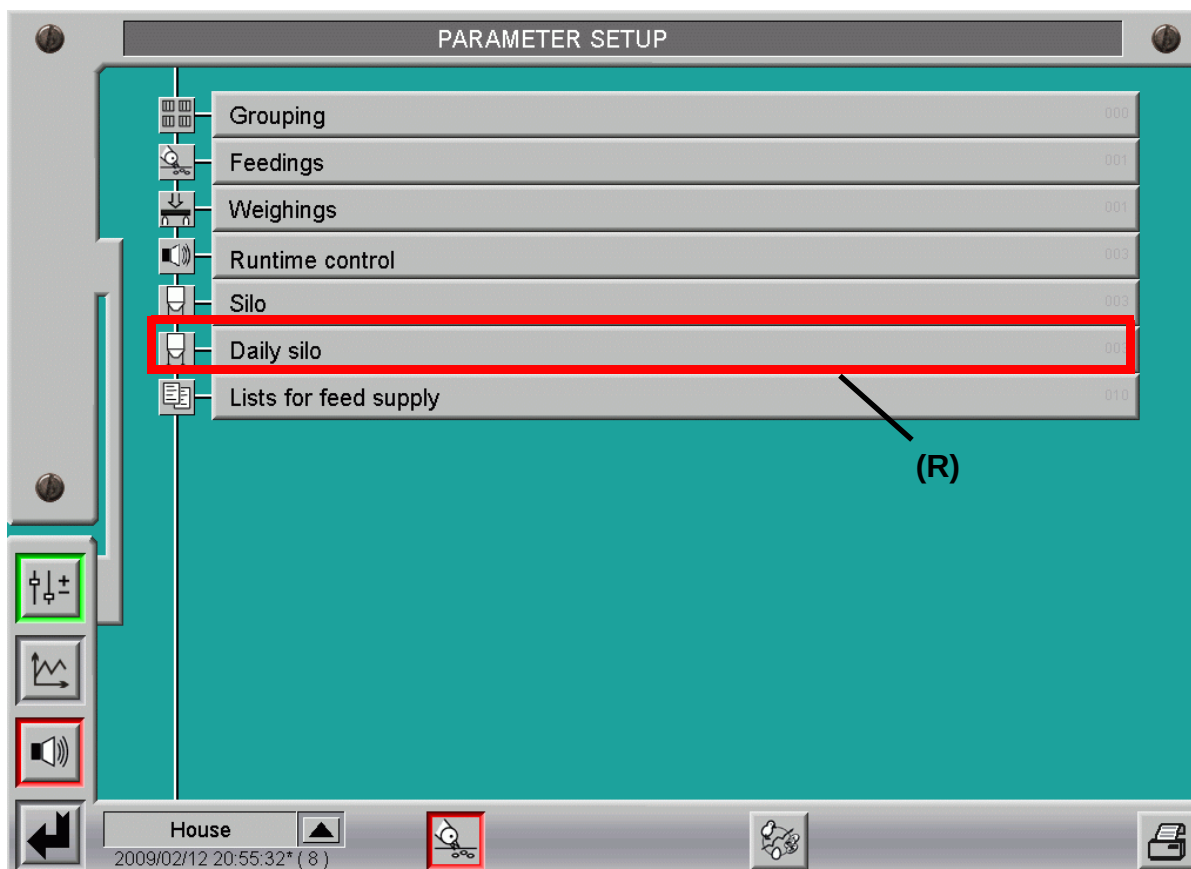


Figure 12-4: Overview feeding manager - day silo layer

Click on the field highlighted red **(R)** in the above picture to open a menu where you can enter all important parameters for filling and mixing of feed types in the day silo.

12.2.1 Day silo capacity

Use this menu to determine the maximum size of one filling. Lightweight but voluminous feed types might only allow a small filling amount. Make sure that the silo does not overflow when you set the filling amount.

12.2.2 Fill day silo at set times

PARAMETER SETUP

Daily silo Filling (R) [1/2]

Capacity of daily silo: 500 kg

☒ Filling daily silo according to schedule (B)

☐ Filling after each feeding cycle

Filling silo up to: 70 % with recipe: 1

☐ Filling if silo level is lower than: 20 %

Filling silo up to: 80 % with recipe: 1 0 is last

Time	Fill silo up to	with recipe
☒ 02:00	100%	
☐ 00:00	0%	
☐ 00:00	0%	
☐ 00:00	0%	
☐ 00:00	0%	
☐ 00:00	0%	
☐ 00:00	0%	
☐ 00:00	0%	
☐ 00:00	0%	

Component 1				Component 2			Component 3		
Recipe	Silo	Subst. silo	Relation	Silo	Subst. silo	Relation	Silo	Subst. silo	Relation
Recipe 1	1	3	20 %	2		80 %	3		0 %
Recipe 2	1	3	44 %	2		56 %	3		0 %
Recipe 3	1		100 %	1		0 %	1		0 %
Recipe 4	1		100 %	1		0 %	1		0 %
Recipe 5	1		100 %	1		0 %	1		0 %
Recipe 6	1		100 %	1		0 %	1		0 %
Recipe 7	1		100 %	1		0 %	1		0 %
Recipe 8	1		100 %	1		0 %	1		0 %

Automatic Siloswitch: ☒

Filling in charges: ☒ Size of charges: 20 kg

House 2009/02/12 20:56:58* (8)

Figure 12-5: Control parameter for filling of day silo page 1

12.2.2.1 Fill day silo at set times

Use the blue **(B)** highlighted area in the above figure to determine whether you want the silo to be filled at certain set times.

12.2.2.2 Time, amount and recipe for filling of the day silo

If you have made a selection in the blue **(B)** highlighted area in the figure above that you wish the silo to be filled at certain times, you can activate the desired filling times by setting check marks.

You can also determine how many percent (in reference to the previously programmed "day silo capacity") you want to fill into the silo per time unit.

Use the same row to determine which recipe is to be filled in per filling time. Highlighted red **(R)** in the above figure is the area where you can make such entries.

12.2.3 Filling of day silo after each feeding cycle

PARAMETER SETUP

Daily silo Filling [1/2]

Capacity of daily silo: 500 kg

☐ Filling daily silo according to schedule

☒ Filling after each feeding cycle (B)

Filling silo up to: 70 % with recipe: 1

☐ Filling if silo level is lower than: 20 %

Filling silo up to: 80 % with recipe: 1 0 is last

Time	Fill silo up to	with recipe
☒ 02:00	100%	3
☐ 00:00	0%	0
☐ 00:00	0%	0
☐ 00:00	0%	0
☐ 00:00	0%	0
☐ 00:00	0%	0
☐ 00:00	0%	0
☐ 00:00	0%	0

	Component 1			Component 2			Component 3		
	Silo	Subst. silo	Relation	Silo	Subst. silo	Relation	Silo	Subst. silo	Relation
Recipe 1	1	3	20 %	2		80 %	3		0 %
Recipe 2	1	3	44 %	2		56 %	3		0 %
Recipe 3	1		100 %	1		0 %	1		0 %
Recipe 4	1		100 %	1		0 %	1		0 %
Recipe 5	1		100 %	1		0 %	1		0 %
Recipe 6	1		100 %	1		0 %	1		0 %
Recipe 7	1		100 %	1		0 %	1		0 %
Recipe 8	1		100 %	1		0 %	1		0 %

Automatic Siloswitch: ☒

Filling in charges: ☒ Size of charges: 20 kg

House 2009/02/12 20:57:41* (8)

Figure 12-6: Fill day silo after each feeding cycle

With the activated checkbox highlighted blue (B) in the figure above you can determine that the silo is filled after each feeding cycle. Moreover you can choose how many percent of feed (in reference to the previously programmed "day silo capacity") you want to fill into the silo. Use the same row to determine which recipe is to be filled.

12.2.4 Filling of day silo if the silo content does not reach the set value

PARAMETER SETUP

Daily silo Filling [1/2]

Capacity of daily silo: 500 kg

☐ Filling daily silo according to schedule

☐ Filling after each feeding cycle

Filling silo up to: 70 % with recipe: 1

(B) ☒ Filling if silo level is lower than: 20 %

Filling silo up to: 80 % with recipe: 1 0 is last

	Component 1			Component 2			Component 3		
	Silo	Subst. silo	Relation	Silo	Subst. silo	Relation	Silo	Subst. silo	Relation
Recipe 1	1	3	20 %	2		80 %	3		0 %
Recipe 2	1	3	44 %	2		56 %	3		0 %
Recipe 3	1		100 %	1		0 %	1		0 %
Recipe 4	1		100 %	1		0 %	1		0 %
Recipe 5	1		100 %	1		0 %	1		0 %
Recipe 6	1		100 %	1		0 %	1		0 %
Recipe 7	1		100 %	1		0 %	1		0 %
Recipe 8	1		100 %	1		0 %	1		0 %

Automatic Siloswitch: ☒

Filling in charges: ☒ Size of charges: 20 kg

House 2009/02/12 20:59:52* (8)

Figure 12-7: Fill up day silo if silo content falls below X%

You can make a selection in the blue **(B)** highlighted area in the above figure whether you want to fill up the silo if the silo content falls for example below 20% (in reference to the previously programmed "day silo capacity"). You can also determine how many percent (in reference to the previously programmed "day silo capacity") you want to fill into the silo. Use the same row to determine which recipe is to be filled in.

12.2.5 Feed type recipes for day silo filling

PARAMETER SETUP

Daily silo Filling [1/2]

Capacity of daily silo: 500 kg

☒ Filling daily silo according to schedule

☐ Filling after each feeding cycle

Filling silo up to: 70 % with recipe: 1

☐ Filling if silo level is lower than: 20 %

Filling silo up to: 80 % with recipe: 1 0 is last

Time	Fill silo up to	with recipe
☒ 02:00	100%	3
☐ 00:00	0%	0
☐ 00:00	0%	0
☐ 00:00	0%	0
☐ 00:00	0%	0
☐ 00:00	0%	0
☐ 00:00	0%	0
☐ 00:00	0%	0

Component 1			Component 2			Component 3		
Silo	Subst. silo	Relation	Silo	Subst. silo	Relation	Silo	Subst. silo	Relation
Recipe 1	1	3	20 %	2	80 %	3	0 %	
Recipe 2	1	3	44 %	2	56 %	3	0 %	
Recipe 3	1		100 %	1	0 %	1	0 %	
Recipe 4	1		100 %	1	0 %	1	0 %	
Recipe 5	1		100 %	1	0 %	1	0 %	
Recipe 6	1		100 %	1	0 %	1	0 %	
Recipe 7	1		100 %	1	0 %	1	0 %	
Recipe 8	1		100 %	1	0 %	1	0 %	

Automatic Siloswitch: ☒ Filling in charges: ☒ Size of charges: 20 kg

House 2009/02/12 20:56:58* (8)

Figure 12-8: Setting of the recipes

12.2.5.1 Recipe 1-8

This menu is used to check and set the composition of the individual recipes.

12.2.5.2 Silo

Here it is specified for recipe 2, marked in yellow **(Y)** in the previous picture, from which silo the respective component will be taken.

12.2.5.3 Alternative silo

It is specified for recipe 2, marked in green **(G)** in the previous picture, to which silo it will be switched in case of a failure of the "normal" component.

12.2.5.4 Mixture ratio of the components

Click on the red **(R)** marked button in the previous picture to change the mixture ratio of the individual recipes.

12.2.5.5 Change of mixture in %

The following picture shows how the mixture of the components is adjusted. Keep the mouse pressed and move the yellow **(Y)** marked buttons upwards or downwards to adjust the mixture to the desired value.

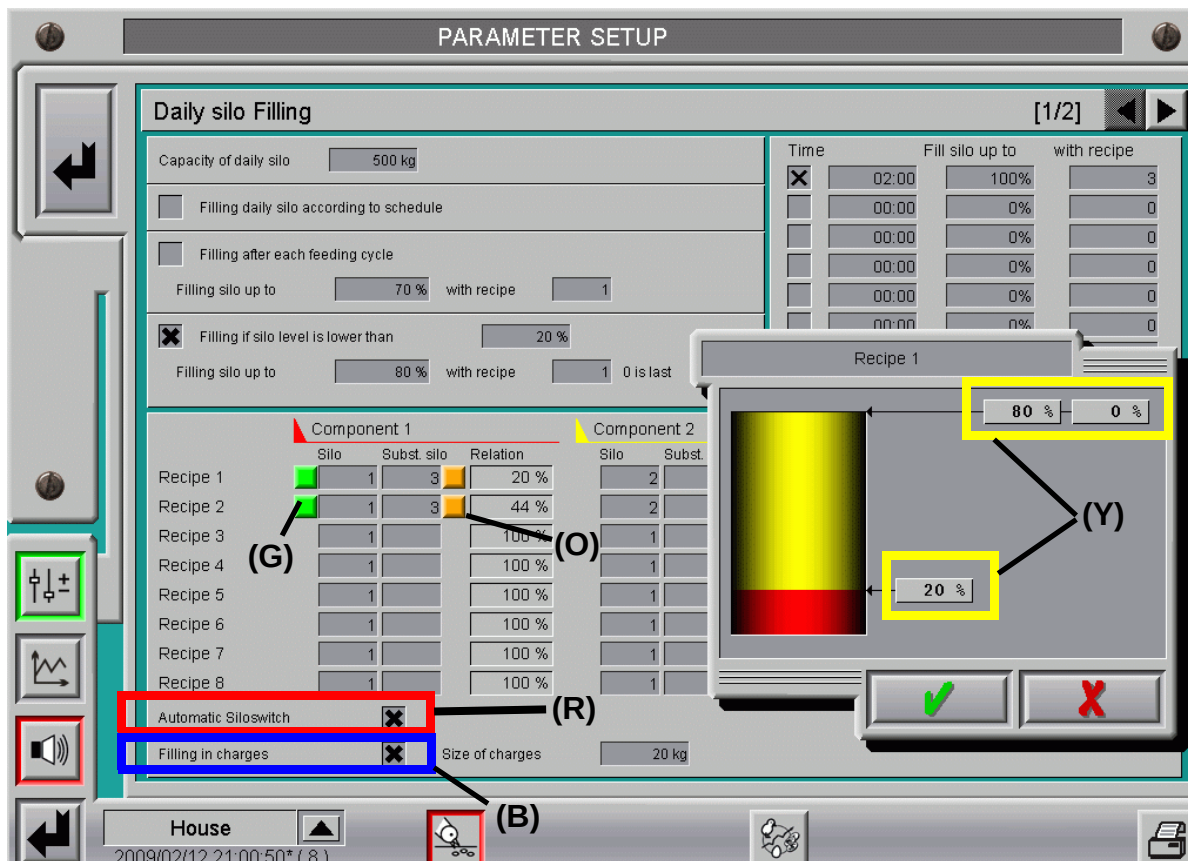


Figure 12-9: Adjusting the mixture ratio

12.2.5.6 Automatic silo adjustment

The activation of the red **(R)** marked checkbox in the previous picture allows an automatic adjustment of the silo, i.e. the set silos can be automatically adjusted by **AMACS**, if necessary.

If the automatic silo adjustment is activated, the alternative silo will be entered as standard silo when it is switched to this silo.

A button in front of the field "Silo" and "Subst. silo" which lights up green **(G)** when the silo is active and orange **(O)** when it is inactive indicates from which silo it is presently filled. Click on the orange **(O)** button if the silos shall be switched over manually during a feeding.

The pushbuttons are hidden if no substitute silo is entered for a component.

12.2.5.7 Batch filling

The function highlighted blue **(B)** in the previous picture is available if the day silo is used as a mixer.

This function can be used to blend the fattening feed with home-grown wheat. In order to use this function, place a cross in the check box and preset the batch size with 200kg for example. The feed amount is now filled into the silo in batches (layers) that blend together when the feed is dosed out; for example 80% fattening feed and 20% wheat.

However, the day silo does not have the same mixing effect as a drum weigher, thus it has to be verified if the function can be used in such a way.

**Note:**

You can only change the silos if the feed type corresponds to the previously selected feed type. Observe legal regulations.

12.3 Control parameters for the day silo (page 2)

The yellow (Y) highlighted button visualizes additional control parameters. Use the arrow keys to move between the pages.

PARAMETER SETUP

Daily silo Filling (Y) [1/2]

Capacity of daily silo: 500 kg

☒ Filling daily silo according to schedule

☐ Filling after each feeding cycle

Filling silo up to: 70 % with recipe: 1

☐ Filling if silo level is lower than: 20 %

Filling silo up to: 80 % with recipe: 1 0 is last

Time	Fill silo up to	with recipe
☒ 02:00	100%	3
☐ 00:00	0%	0
☐ 00:00	0%	0
☐ 00:00	0%	0
☐ 00:00	0%	0
☐ 00:00	0%	0
☐ 00:00	0%	0
☐ 00:00	0%	0
☐ 00:00	0%	0

	Component 1			Component 2			Component 3		
	Silo	Subst. silo	Relation	Silo	Subst. silo	Relation	Silo	Subst. silo	Relation
Recipe 1	1	3	20 %	2			3		0 %
Recipe 2	1	3	44 %	2		56 %	3		0 %
Recipe 3	1		100 %	1		0 %	1		0 %
Recipe 4	1		100 %	1		0 %	1		0 %
Recipe 5	1		100 %	1		0 %	1		0 %
Recipe 6	1		100 %	1		0 %	1		0 %
Recipe 7	1		100 %	1		0 %	1		0 %
Recipe 8	1		100 %	1		0 %	1		0 %

Automatic Siloswitch: ☒

Filling in charges: ☒ Size of charges: 20 kg

House [2009/02/12 20:56:58* (8)]

Figure 12-10: Control parameters for the day silo

PARAMETER SETUP

Daily silo discharge/charge [2/2]

Switch to substitute silo if no modification of at least: 10 kg within: 120 s

Time for determination of refill: 2 s Refill silo 1: 1.226 kg

Reset after runs: Reset Refill silo 2: 0.000 kg

Refill silo 3: 0.292 kg

(R)

(G)

Figure 12-11: Control parameters day silo discharge/charge

12.3.1 Switching to alternative silo

Use the red **(R)** marked field to set the parameters that activate a change to the alternative silo. If the weight in the day silo does not change within the set time of 120sec by at least 10 kg, the alternative silo is activated (if installed).

12.3.1.1 Error message in the main screen

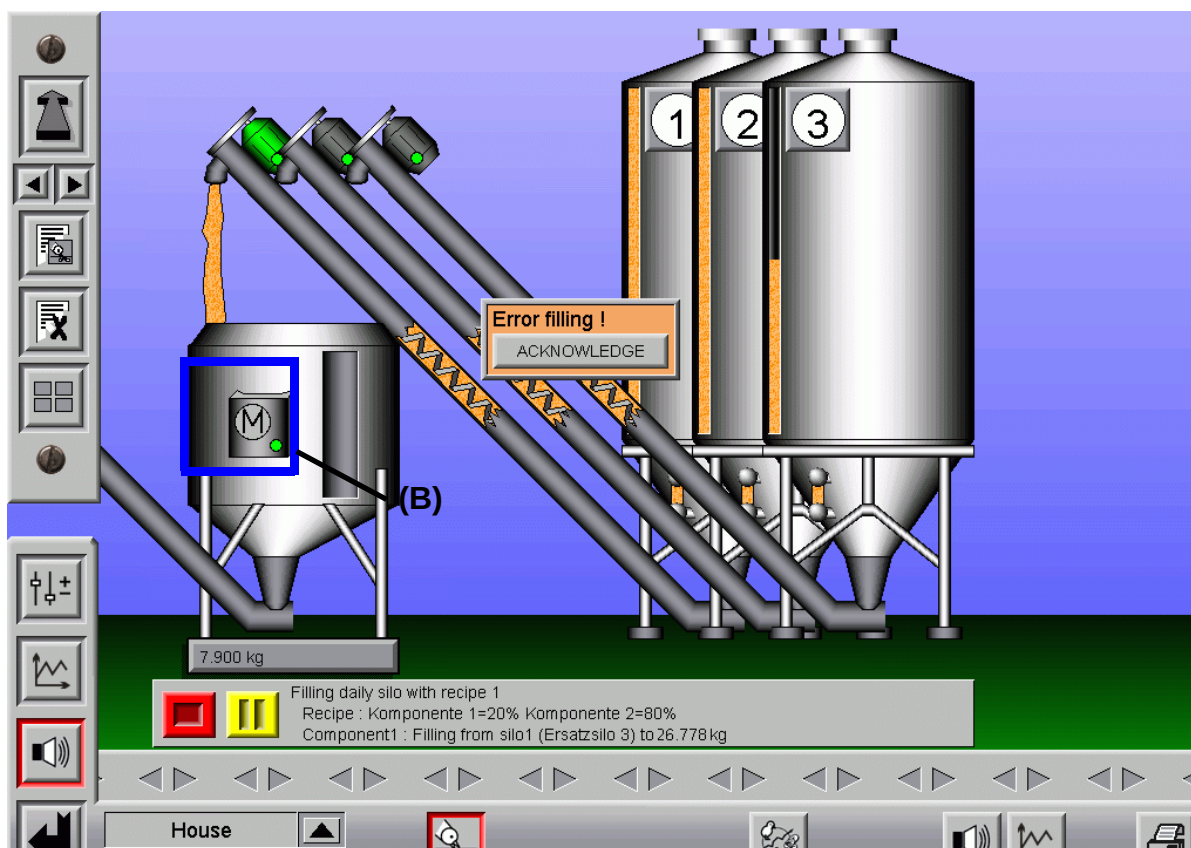


Figure 12-12: Filling error in the main screen

The error message can be confirmed via the button "ACKNOWLEDGE".

12.3.2 Time to determine the after-flow

To correctly determine the after-flow amount per auger, enter a pause time of 2 seconds after filling in each component. You have to ensure that the feed flow from the silo auger has ceased in order to correctly determine the after-flow amount (green **(G)** marking).

12.3.2.1 After-flow Silo 1-8

The after-flow of each component is permanently monitored and calculated from the average value of the last deliveries. The augers switch off, taking into consideration the calculated amount - according to the field highlighted yellow **(Y)** in figure 12-11 - to fill in the mix as accurately as possible.

12.3.2.2 Reset

The calculated after-flow values can reset to zero if you press this button.

12.4 Control parameters day silo, if a vibrator exists

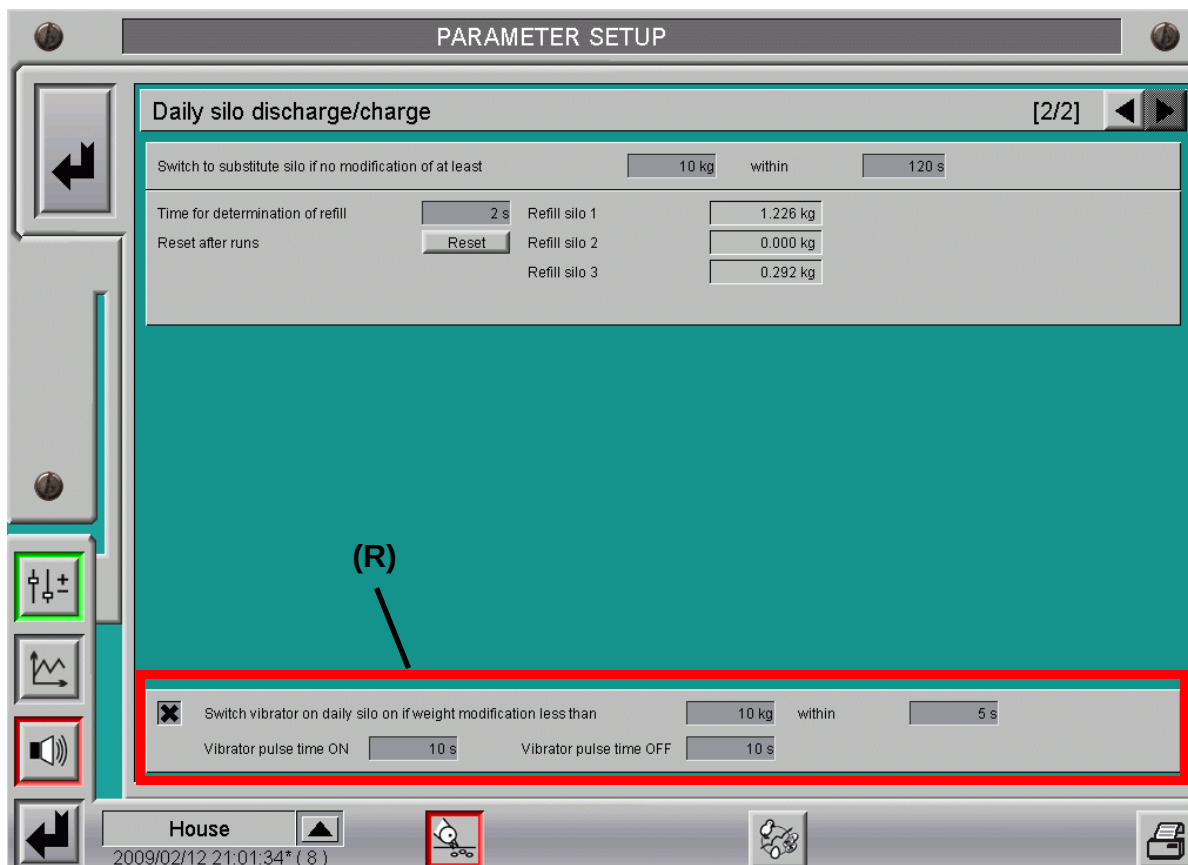


Figure 12-13: Parameters for activating the vibrators

12.4.1 Activation of the vibrators

A check mark in the area highlighted red **(R)** in the picture above activates the automatic start-up of the vibrators.

12.4.2 Conditions for an activation of the vibrators

According to the entry made in the area highlighted red **(R)** in the above picture, the vibrators shall only start if the feed content of the silo - as registered by the scale - does not change by at least 10 kg within a period of 120sec. This time should be shorter than the time after which the alternative silo is activated to give the vibrator a chance to loosen any obstructions.

Of course you have to take into consideration that the mechanic conditions of your individual installation might be different from our example, thus your entry might indicate different values.

12.4.3 Vibrator times for puls / pause mode

Since the vibrator shall not condense the feed, a pulse time "On" and a pulse time "Off" can be set for the vibrator, depending on the size and utilisation.

The most suitable times must be determined at a trial run.

12.4.4 Switch on the vibrator manually at the silo

If the vibrator shall be activated manually, for example during a feeding, you have to click on the blue **(B)** marked M at the silo in figure **12-12**.

Now a control panel is opened where the vibrator can be switched to manual operation. The A highlighted green signalizes that the vibrator is set to automatic operation.

Attention!

The vibrator should not run if no feed is taken, otherwise the feed will be further condensed in the cone (hopper) of the silo, and this is not the meaning of a vibrator.