PEC-9200(-i)

USER MANUAL PEC-9200(-i)

EGG BELT CONTROLLER

WITH EGG COUNTING

STIENEN

V 01.08.0

Shut down power before opening the egg belt controller!

This egg belt controller contains exposed live parts!

Only to be opened by authorized personnel!

WARNING

Although utmost care has been given to the quality of this equipment during the design and manufacturing stages, technical malfunctions can never be ruled out. ***The user should provide for an adequate alarm system and/or emergency provisions to prevent a technical failure of the equipment and peripheral facilities leading to danger to persons, animals or property.***

NOTE DOWN THE FOLLOWING IN CASE OF AN EMERGENCY

- **Possible causes**
- **Circumstances in which the emergency occurred**
- **Date and software version number**
- **Hardware and DIP-switch settings**

Please contact our Customer Service Department, if you have any questions. Be sure to have all necessary data at hand. To ensure a speedy solution to the malfunction and to avoid any misunderstandings, it is advisable to note down the cause and the circumstances in which the malfunction occurred before contacting us (www.stienenbe.com).

Contents **Page**

If the software version of a module and / or peripheral device does not comply with the requirements of the operating software, you must perform a software update of the module and / or peripheral device.

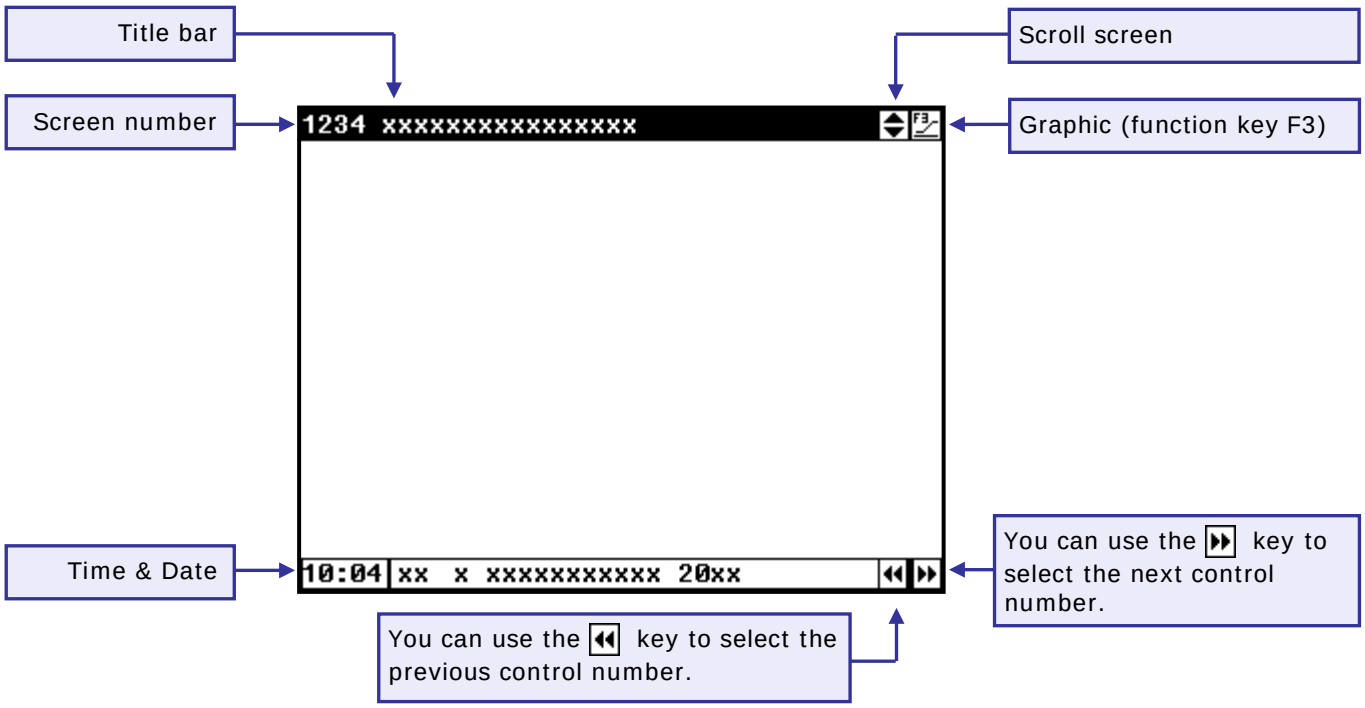
INTRODUCTION

A constant supply of eggs is vital in order to utilize your farmpacker's capacity to the full. Since the way in which the eggs are collected plays an important role in this, an accurately working egg belt controller is an important element of the egg packing system.
Stienen BE has developed an egg belt controller that offers a very high collection capacity and highly accurate registration of all eggs laid per tier and per row.

The PEC-9200 has been designed to offer the eggs to the farmpacker at an optimum speed, thus optimising the packing times. If necessary, the egg belt speed is adjusted. The PEC-9200 makes use of the collection data of the previous days. The PEC-9200 is suitable for a maximum of 10 tiers with a maximum of 24 rows and, therefore, a maximum of 240 counters. The PEC-9200 also features a vacuum cleaner and an egg saver control.

The PEC-9200 egg belt controller has no INPUTS or OUTPUTS. The PEC-9200 egg belt controller can be expanded by I/O modules for the necessary inputs and outputs.

WINDOW



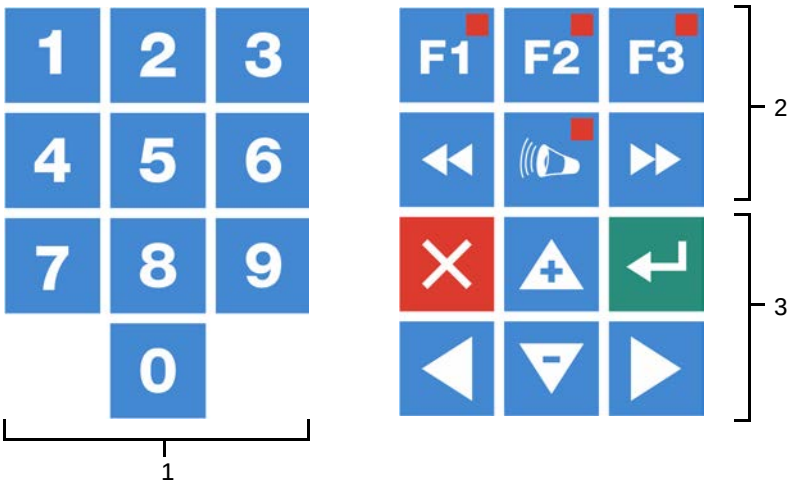
Whenever a key is pressed, the display will be lit for a couple of seconds so that you can also see the settings and measurements in a dark animal house.

SCROLL-SCREEM

If a window contains more lines than the screen can display, the title bar will show the ⇕ symbol. This symbol indicates that you can call up the remaining settings and/or measurements using the up and down cursor keys (▲ ▼).

If a window contains more columns than the screen can display, the title bar will show the ⇔ symbol. This symbol indicates that you can call up the remaining settings and/or measurements using the left and right cursor keys (◀ ▶).

KEYBOARD

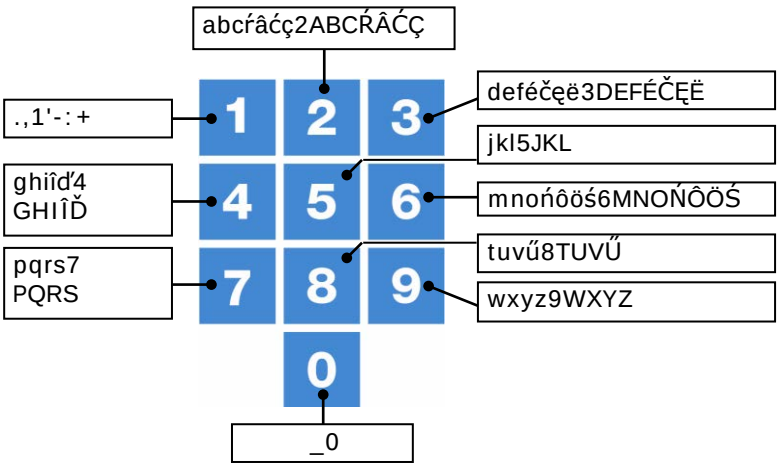


Caution!
Only press the keys with the tip of your finger. Sharp objects such as a pen, pencil or screwdriver may damage the keys!

The keyboard can be divided into four basic groups:

1. Numerical keys
2. Function keys
3. Navigation keys

1 NUMERICAL KEYS (0..9)



The numerical keys can be used to enter a screen number, a value or text. **You can select menu choice 10 by pressing key 0.**

Entering text

Numerical keys 2..9 can be used to change a text name. The maximum text length is 15 characters (including spaces). The character you enter is shown in a little box. Press the numerical key repeatedly until the required character is shown. You can enter a punctuation mark by repeatedly pressing numerical key 1 until the required punctuation mark is shown. You can enter a space using the 0 key.

Press once for **a**, twice for **b** etc. You can move the cursor with the ▶ and ◀ keys. Where relevant, e.g. for menu options etc., the text will automatically start with an initial capital.

2 FUNCTION KEYS (GRAPHIC, ALARM, PREVIOUS / NEXT CONTROL ETC.)

Function key F1 (change language)

Changing language: Hold down F1 and press on the left or right cursor key.

Function key F2

Use this function key to call up the egg belt controller status.

Function key F3 (graphic)

Use this function key to place a graph on a window. The “graph” function is active when the LED in the function key lights. You can switch off the “graph” function by pressing the function key again (the LED in the key is off then).

The values in a graph are linked to the window on the basis of which the graph was drawn up. The graph is updated automatically when you change the details in the window. If the details in the window are displayed in graph form, the F3 symbol will be displayed in the top right corner of the menu line.

Select previous / next control

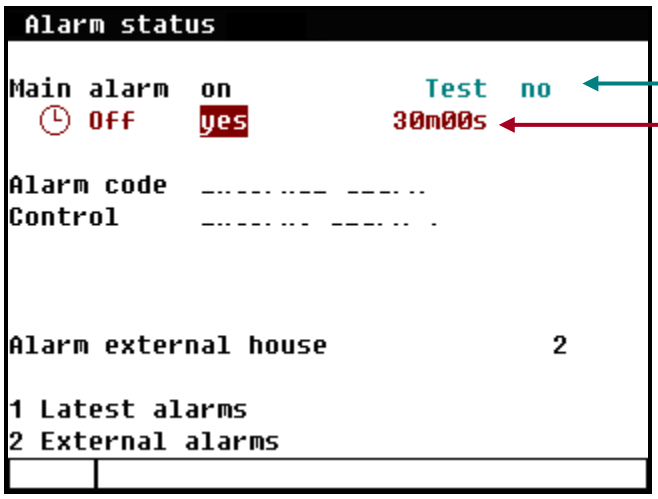
Select previous / next control.

If there are several rows, tiers and/or external alarms, you can use these keys to select the previous or next number in a group.

Alarm key

Hot key for alarm screen. The LED in the alarm key lights if there is an alarm on one of the controls.

Here you can switch the main alarm on and off. When the main alarm is off, the LED in the alarm key will flash to indicate that the main alarm is off. No alarm is generated anymore.



Test *(alarm test)*

Test "yes": This enables you to test the operation of the alarm relay (siren). If you enter "yes" in the line **Test**, the alarm relay (siren) will be switched on for 10 seconds.

You can clear the alarm test time by setting "no" in the line **Test**.

Off *(alarm temporary off)*

Off "yes": This enables you to temporarily switch off the alarm (siren). This does not apply to the hardware alarms which cannot be switched off temporarily. The main alarm is switched off for 30 minutes (the lamp will blink irregularly). The main alarm is switched on automatically again after 30 minutes. The alarm relay will then de-energize again, causing an alarm, if the cause of the alarm has not been removed.

You can clear the temporary alarm deactivation time by setting "no" in the line Off.

If no access code has been installed or if you have already entered the correct access code, you can switch off the main alarm.

Attention: ***NEVER FORGET TO SWITCH THE ALARM BACK "ON"*** when you have switched this feature off 'temporarily', e.g. to solve a problem. Failing to switch it back on may have adverse effects for humans, animals, equipment or property.

Preferably use the Off *(alarm retard)* function to solve a problem.

3 NAVIGATION KEYS (MENU, CURSOR, MODE)

(Cancel)

This key cancels changes or menu option selections.

Press and hold this key to select the main menu.

(Move cursor)

Move cursor

Holding down: move cursor to first/last setting on the screen.

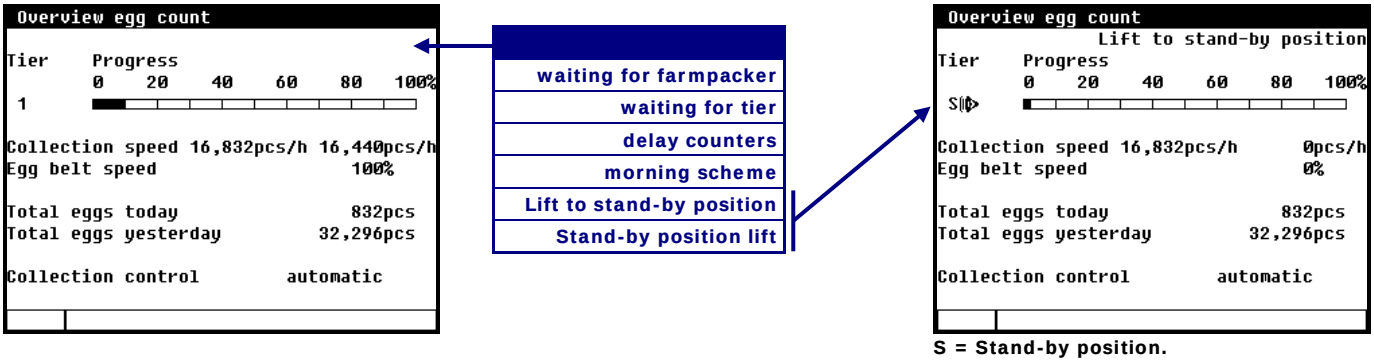
Move cursor or change value

(Confirm)

Menu option selection
Start change
Confirm change

- The cursor is displayed as a black rectangle, e.g. 00.000.
- While a change is being made, the cursor is displayed as a black border, e.g. 00.000.

OVERVIEW

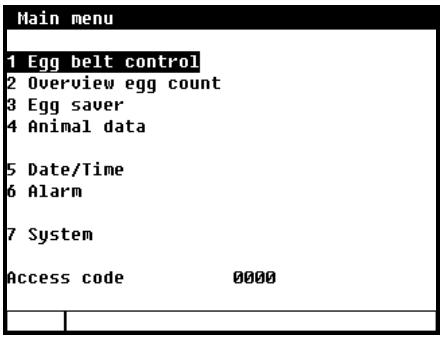


S = Stand-by position.

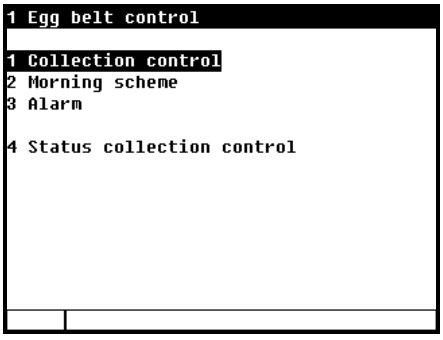
In addition to the tier number, the collection progress for the tier is also shown. The desired and current collection speeds are also displayed. The egg totals collected today and yesterday are shown as extra information. The collection control status is shown next to “Collection control”; for further information see “Collection control” page 5.

Press the ↵ key to go to the main menu.

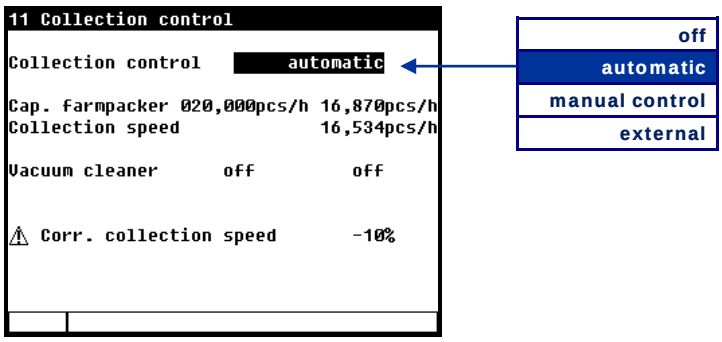
MAIN MENU



EGG BELT CONTROL



COLLECTION CONTROL



To solve any “supply” problems while the system is running, you can easily toggle from “automatic” to “manual control” status and vice versa.

Off: The “off” status serves to prevent the PEC-9200 from ending up in an undesired situation during installation, due to which unforeseen things may happen. The collection control will NOT start when the unit is in this status; the status must be changed to one of three other statuses ***after installation***.

Automatic: The egg belt speed is controlled using the “collection data” (history) of the previous “collection days” stored and the required supply capacity to the farmpacker.

If collecting has been skipped a day, regardless of the reason, the egg belt speed will be halved automatically (assuming that there are twice as many eggs on the egg belt). The text “day skipped” will be displayed.

If, for any reason, there are “holes” in the history, the text will temporarily change to “first collection”, the egg belt speed will automatically be adjusted to the speed of the potentiometer and the history of the “hole” will be updated.

Manual control: You can use the potentiometer to set the egg belt speed; the supply capacity to the farmpacker is also determined using the potentiometer position.

External: You can use an external switch to choose between “automatic” (0) and “manual control” (1) status. Functionally, these two statuses are equal to the “*Automatic*” and “*Manual control*” statuses described above.

CAP. FARMPACKER

You can change the maximum collection capacity of the farmpacker, but it must never be any greater than the maximum transport capacity of the cross belt as set by the installer. You can use the potentiometer to set the required supply capacity to the farmpacker independently of the “Collection control” (automatic, manual control or external control) setting.

COLLECTION SPEED

The current collection speed is stated in this line as pieces per hour (pcs/h). Since this is an average value, it will decrease slowly to 0 pieces per hour after the egg belt is stopped.

VACUUM CLEANER

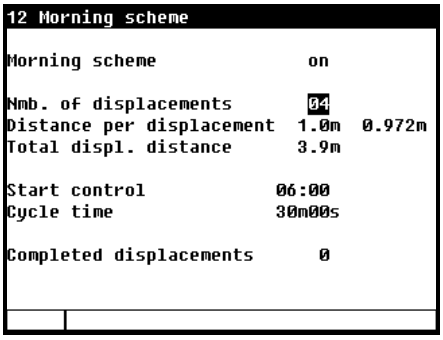
You can switch the vacuum cleaner on and/or off in this line. In addition, the current status of the vacuum cleaner is displayed. If one of the egg belts is running, the active status of the vacuum cleaner changes from “off” to “on”. When the vacuum cleaner lag time has elapsed, the status will change back to “off”.

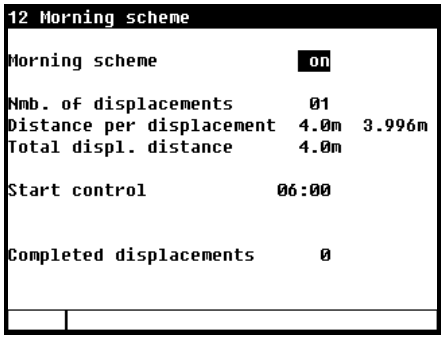
If installed in the right location, the vacuum cleaner will ensure excellent egg belt cleaning without the egg belt being touched. The absence of any mechanical contact with the egg belt makes a vacuum cleaner ideal for perforated polypropylene egg belts.

CORR. COLLECTION SPEED

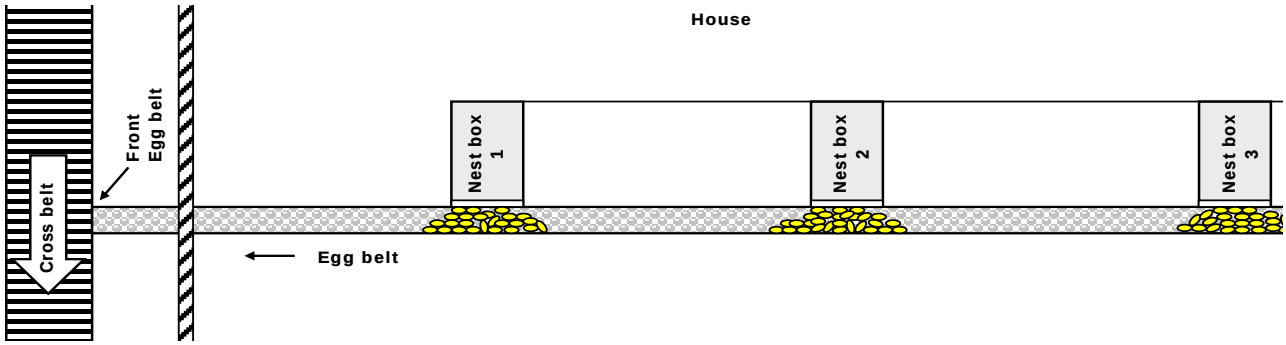
The calculated egg belt speed is corrected downwards if the current collection capacity exceeds the preset cross belt value. The screen will then show the text “Corr. collection speed” (correction collection speed) followed by a negative value (the correction).

MORNING SCHEME

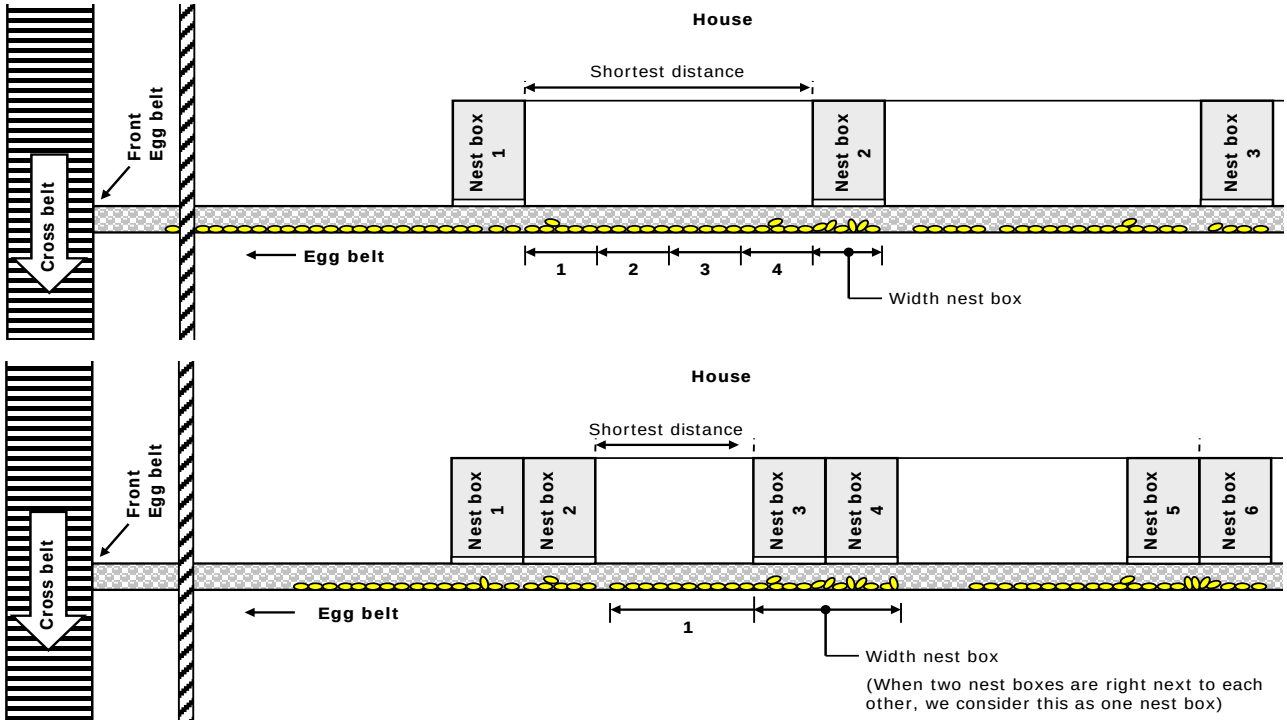




Egg distribution on egg belt ***without*** a morning scheme



Egg distribution on egg belt ***with*** a morning scheme



MORNING SCHEME

You can switch the morning scheme On/Off in this line.

The morning scheme serves to better distribute the eggs over the egg belt. The better distribution makes the control work more “smoothly” and creates a more even flow of eggs to the cross belt. An extra advantage is that the eggs in the nest box will be less easily damaged by other eggs.

NMB. OF DISPLACEMENTS

To make sure that the morning scheme works properly, you should measure the shortest distance between two nest boxes. Also measure the width of the nest box. You can then determine the no. of displacements by dividing the distance between the nest boxes by the nest box width.

Example:

Distance per displacement (nest box width)	Correction distance per displacement	Shortest distance		No. of displacements
1.0m	0.972cm	4.0m	4.0/0.972=4.12	4
4.0m	3.996m	4.0m	4.0/3.996=1.00	1

The distance between two pulses is 108 mm in the above example

DISTANCE PER DISPLACEMENT

You can enter the desired displacement here, after which the egg belt controller will adjust the distance. Since the egg belt controller measures the distance using pulses, the distance is rounded to a multiple of the distance between two pulses.

TOTAL DISPL. DISPL. DISTANCE

This is the "*No. of displacements*" x the "*Distance per displacement*"; make sure that this distance is less than the shortest distance between the nest boxes and/or the front of the egg belt.

START MORNING SCHEME

Enter the start time for the morning scheme here. If you also use an "Egg saver", you might choose to first have the "Egg saver" go up before having the morning scheme start (e.g. the egg savers start at 7:29 and the morning scheme at 7:30, but make sure that both cycle times have the same duration).

CYCLE TIME

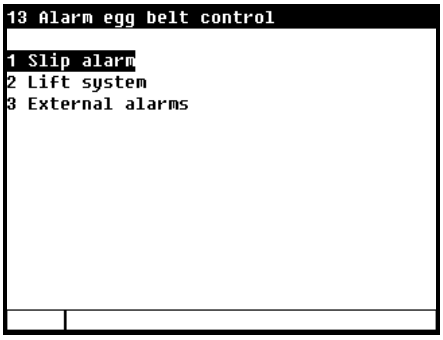
The time that should pass between two displacements. You only have to enter this in the event of two or more displacements. The cycle time should be sufficient to enable the displacement to be carried out on all tiers.

COMPLETED DISPLACEMENTS

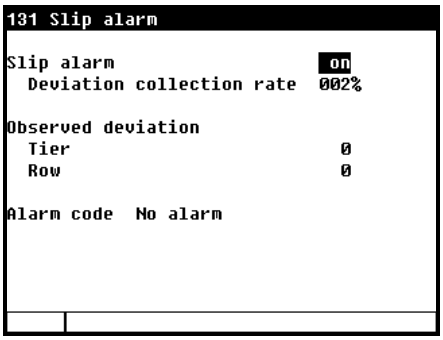
"Completed displacements" is followed by the number of displacements that have already been carried out. The last displacement may be ongoing still; this depends on such aspects as the extent of the displacement, the belt speed during the displacement and the number of tiers.

Note: The "*Morning scheme*" menu option is blocked if there is a lift system.

ALARM



SLIP ALARM



Deviation collection rate

The slip alarm serves to detect when the supply of eggs from the egg belt in question is lower than the supply calculated from the history (or the value that was set manually). If the percentage by which the supply differs is greater than the percentage set, a “Slip alarm” will occur. The slip alarm will not become active until the longest “egg counter delay per tier” setting has elapsed (ask your installer if this applies to your situation).

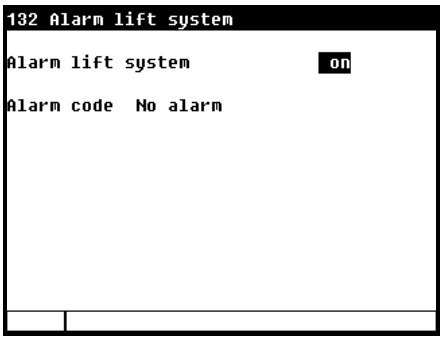
Observed deviation

If the slip alarm is active, the relevant tier and row where the slip alarm has occurred are shown.

Alarm code

Current “*Slip alarm*” alarm code

LIFT SYSTEM



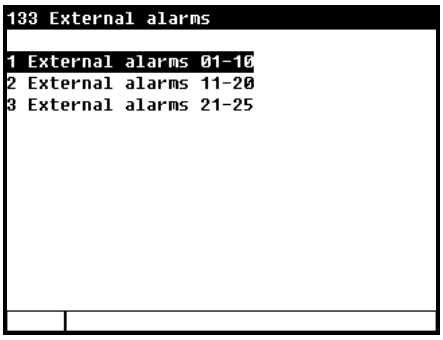
Alarm lift system

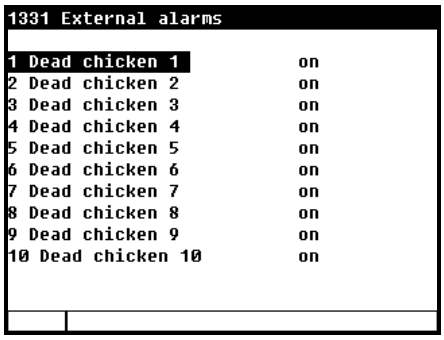
You can switch the lift system alarm on or off in this screen.

Alarm code

The current alarm code for the lift system is shown in the Alarm code line.

EXTERNAL ALARMS

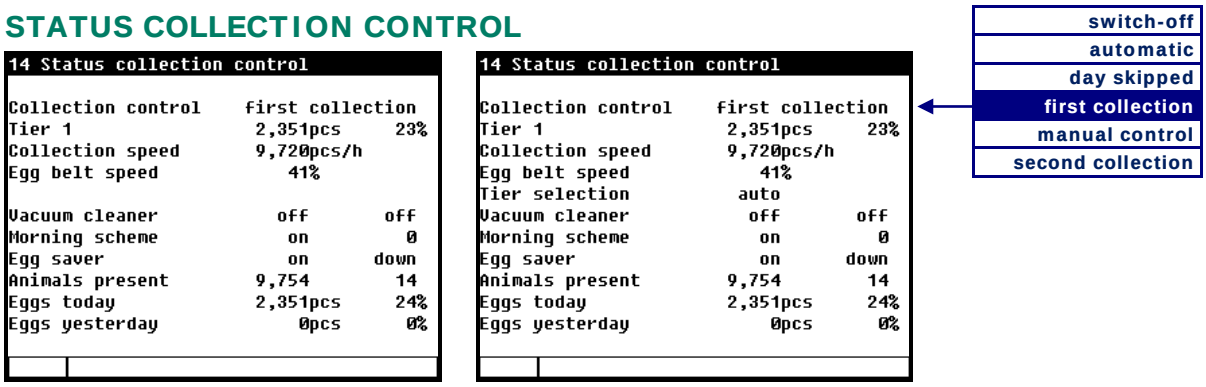




The PEC-9200 has 25 external alarm inputs. You can use them for example for a “dead chicken” detection on the egg belt. Your installer can change the names of the “External alarms” into any name of your choice (max. 15 characters per name).

NOTE! The egg belts are stopped as soon as an external alarm is active

STATUS COLLECTION CONTROL



PEC-R installed

COLLECTION CONTROL AT REST

This text is display if no tiers are active.

COLLECTION CONTROL

switch-off	The status does not change until the farm packer is ready to pack and a tier input is active.
automatic	The egg belt speed is controlled using the “collection data” (history) of the previous “collection day” stored and the required supply capacity to the farmpacker.
day skipped	If collecting has been skipped a day, regardless of the reason, the egg belt speed will be halved automatically (assuming that there are twice as many eggs on the egg belt). The text “*day skipped*” will be displayed.
first collection	The collection speed depends on the collection speed setting (potentiometer position), the “collection data” (history) *is updated*.
manual control	You can use the potentiometer to set the egg belt speed; the supply capacity to the farmpacker is also determined using the potentiometer position. The history ***is*** updated.
second collection	The collection speed depends on the collection speed setting (potentiometer position), the “collection data” (history) is *not* updated.

TIER

The tier where collection is currently taking place is shown, followed by the current number of eggs collected on the tier. The last item shown is the collection progress on the tier (100% = collection finished).

COLLECTION SPEED

This line displays the current collection speed.

EGG BELT SPEED

This line displays the current egg belt speed. If the belt speed is corrected, the current speed is followed by the positive or negative correction and the ⚠ symbol.

TIER SELECTION

If a PEC-R is installed, the status of the “AUTO” key of the PEC-R will be shown here. “auto”: the green LED in the “AUTO” key is lit, “manual” the green led in the “AUTO” key is off (manual: you can use the plus and minus keys to manually select a tier).

VACUUM CLEANER

The first status shows whether the control is “on”, the second status is the current status of the vacuum cleaner.

MORNING SCHEME

The first status shows whether the control is “on”, the second status is the current status of the morning scheme.

EGG SAVER

The first status shows whether the control is “on”, the second status is the current status of the egg saver.

ANIMALS PRESENT

The first number is the current number of animals in the house, the second number is the number that have died today.

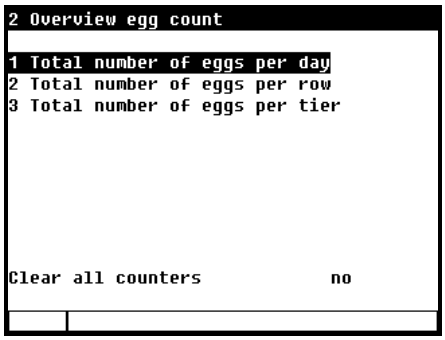
EGGS TODAY

The laying percentage is also shown, next to the total number of eggs collected in the house today.

EGGS YESTERDAY

The laying percentage is also shown, next to the total number of eggs collected in the house yesterday.

OVERVIEW EGG COUNT



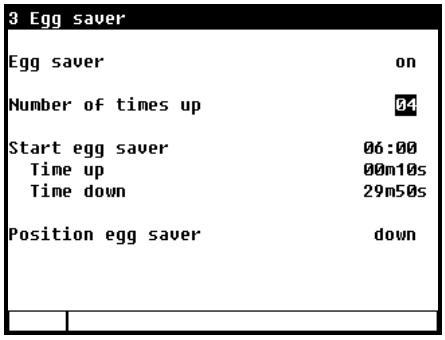
Overview of the number of eggs collected, in which the total number is shown, as well as the laying percentage (if animal data is available). The rounding of results may cause the laying percentages shown to differ from the actual laying percentages. If the laying percentage is higher than 100%, you have probably skipped a day or “yesterday” was collected earlier than today. In that event, yesterday's laying percentage will be considerably lower than today's.

You can request both the total number of eggs collected per day and the number per row per day or per tier per day (of the past 7 days).

CLEAR ALL COUNTERS

Setting “Clear all counters” to “yes” clears all counter readings for all rows, tiers and all days, **the *collection data (history)* saved is *NOT* cleared.**

EGG SAVER



EGG SAVER

You can switch the egg saver control on/off here.

The egg saver prevents the eggs from reaching the egg belt at a high speed. An excessively high speed might cause cracks in the egg shells. The egg speed is slowed down by running them against a wire. When this wire is lifted, the eggs will continue smoothly until they are on the egg belt. An additional advantage is that the eggs have the chance to dry against the wire. This reduces the risk of rings of dust occurring.

NUMBER OF TIMES UP

Enter the number of times that the egg saver should go up here.

START EGG SAVER

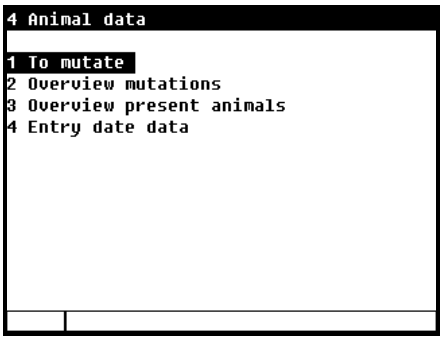
Enter the start time when the egg saver control is to become active at “Start egg saver”. If you also use a “Morning scheme” you might opt to first have the “Egg saver” go up before starting the morning scheme.
At “Time up”, enter how long the egg saver has to be up.

At “Time down”, enter how long the egg saver has to stay down before going up again. When the “number of times up” has been reached, the egg saver will be in its “down” position again

POSITION EGG SAVER

The current egg saver position is shown in this line.

ANIMAL DATA



TO MUTATE

Lost Indicate the number of animals that have died here. “Today's” mortality (or death rate) is lowered automatically by the value entered after which the entry is erased. If you have entered an incorrect value you can correct this by entering this as a positive value.

Lost “Today” Today's total mortality

Lost “Total” "Total" shows the total mortality calculated using the mortality of the previous days and of “Today”

Out If animals are removed from the house in the meantime, you can enter the number of animals removed at 'Out'.

Out “Total” The “Total” number of animals unloaded.

In If more animals are put in the house in the meantime, you can enter the number of animals added at 'In'.

In “Total” The “Total” number of animals added.

Animals present This is the sum of the number of animals at the time of entry – the total mortality - total out + total in.

Number at entry This is the number of animals at the time of entry.

OVERVIEW MUTATIONS

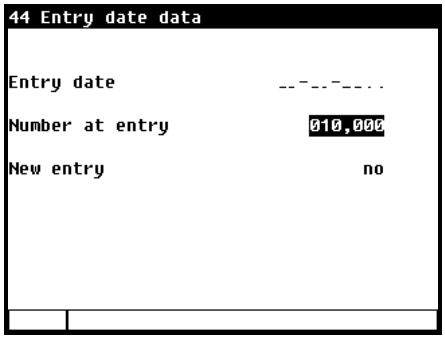
An overview of the mortality, the number of animals unloaded (out) and the number of animals added (in) per day is shown.

OVERVIEW PRESENT ANIMALS

An overview of the daily remaining number of animals in the house is shown.

ENTRY DATE DATA

This data in this screen has to be entered at the start of new entry (a new round). The egg belt controller uses this data to calculate the remaining number of animals, the laying percentage etc.



Entry date The entry date is entered automatically if you enter “yes” at “New entry”.

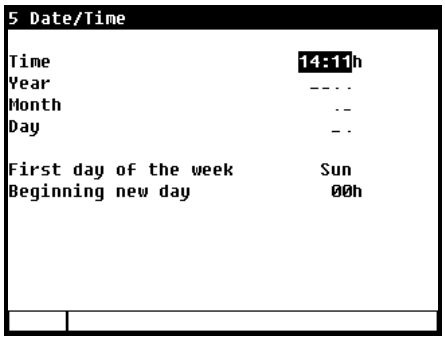
The egg belt controller uses these “Entry date” to calculate the animal age. Beside that the “Entry date” is used to fill in the mutation table. The egg belt controller can store the data of the past 7 days.

Number at entry This is the number of animals at the time of entry.

New entry If you enter “yes” at “New entry”:

- the “collection data” (history) is deleted. The next status is “first collection”, see also “Collection control” page 10.
- The mortality table is erased.
- The entry date is filled in.
- All counter readings and laying percentages are deleted.

DATE/TIME



In addition to date and time you can set the “First day of the week”. The “First day of the week” is used to determine the weekly totals.

If, for example, you set “First day of the week” to ***Su*** (*Sunday*) the week totals will be calculated on Sunday (a week total is the sum of Sunday, Saturday, Friday etc. to Monday)

In addition, you can also set the beginning of a new day here by entering the hour when the new day must start behind “Beginning new day”.

Be careful when changing the “*Beginning new day*” setting; if this time is in a dosing period the error message “Beginning new day in period” will be generated.

“Beginning new day”:

- ❑ All day-depending data is moved 1 day further and today's details are deleted.
- ❑ If a week has passed, the week total will be determined again.

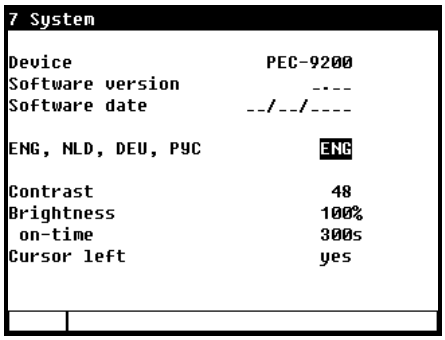
ALARM

See also “Alarm key” page 4.

ALARM CODES

Alarm code	Description
Alarm unknown (xxxx)	A non-documented alarm code has occurred. Note down the number that is displayed and contact your supplier.
Beginning new day in period	The collection control status (“Release collection control”) is still active. ● The status was not changed to “off” after collection; change the status to “off” now. Set the status back to “on” when you start collecting again. ● The previous collection process has not been completed yet, change the “Begin new day” time in the “Date & Time” menu.
Configuration changed	Module configuration (inputs/outputs etc.) changed. Read in the module number again
Tier xx not reached	The lift has not reached the tier (*xx*) shown within the preset alarm period. Check the operation of the lift.
External alarm x	An external alarm occurred.
Wrong input type	The type of output set does not comply with the type of output which the control can drive
Wrong output type	The type of input set does not comply with the type of input which the control can use for its control operation
Wrong terminal setting	Faulty assignment. The function you have assigned to the terminal is not supported by the module.
No communication address	Missing device address PEC-9200.
No output assigned	No output terminal number entered
No input assigned	No input terminal number entered
Input already assigned	The input has been assigned to two or more controls.
Module not installed	● The module number set for the terminal does not exist ● Poor or no connection between PEC-9200 and module.
Module not responding	Module address not found, check the settings on the module
Module reset alarm	Module continues to reset due to a fault, check the module
Unknown terminal type	This type of terminal does not exist.
Not a valid input	The input number does not exist on the module.
Not a valid output	The output number does not exist on the module.
Conflicting cycles	The “Conflicting cycles” error messages is displayed if the morning scheme has not finished carrying out the current displacements although a new displacement cycle has already started. To maintain synchronicity with the history, all displacements will still be carried out. ● Change the cycle time. ● Change the distance per displacement.
Parking position not reached	The lift has failed to reach its parking position within the alarm period set. Check the limit switch. Check the operation of the lift.
Slip alarm	The current egg flow is not as high as the calculated and/or pre-set flow of eggs. ● Dead chicken on egg belt. ● The frequency converter is off. ● The minimum setting for the frequency converter is too low, the egg belt cannot start. ● Weight on egg belt is too high, day(s) skipped when collecting. ● Too much waste on the egg belt, scraper/vacuum cleaner does not work properly or is faulty.
Output already assigned	The output has been assigned to two or more controls.

SYSTEM



This screen shows the device type as well as the software version and software date.

Language: You can set the language of the screen texts here. The language in this example is set to ENG (English).

You can also change the language by pressing and holding functional key F1 while simultaneously pressing the cursor key pointing to the right.

Contrast Indicates the ratio between the "*colors*" white and black.

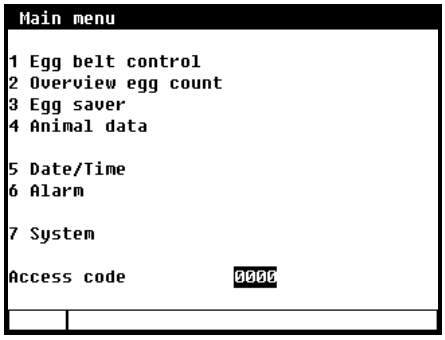
Brightness You can set the light intensity of the background lighting here.

on time Number of seconds that the background lighting stays on after the last time a key was pressed. If you set the on-time to 0 seconds the background lighting stays on forever.

Cursor left "Yes" when you are going to change a setting, the cursor is placed on the digit which is the furthest to the left.

"No" when you are going to change a setting the cursor is placed on the digit which is the furthest to the right.

ACCESS CODE

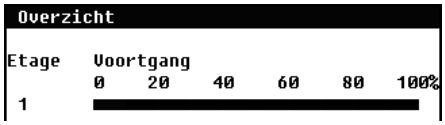


You can use an access code to protect your computer against unauthorized access. If you want to prevent non-authorized users from changing settings on your egg belt controller, you can have an access code set. An access code consists of a combination of 4 figures. You can have an maximum of 2 access codes set by your installer.

If you use access codes, it is advisable to write the code down and store it somewhere safe. If you forget the access code, you can no longer change any settings. As soon as one access code is active, you can only change the setting by entering the correct access code. The access code remains active until you select the "Overview" window. After selecting this window you will have to enter the access code again to be able to change a setting.

COLLECTION PROBLEMS

AT THE START OF COLLECTING THE PROGRESS IS 100%

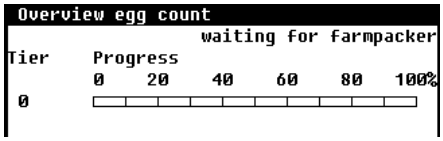


At the start of collecting, the progress is at 100%.

During the “Begin new day” time, the egg lift was NOT in its “parking” position or the farmpacker was still on. As a result the data for “yesterday” has not been processed by the PEC-9200 yet.

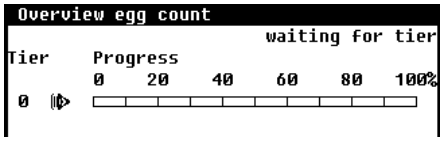
- Set the egg lift to the “parking” position and deactivate the release of the farmpacker.
- Go to “Date/Time” and set the time to 1 minute before the “Begin new day” time.
- Wait for the “Begin new day” time to pass.
- If necessary, change “Day”.
- Restart the collection process.

WAITING FOR FARMPACKER



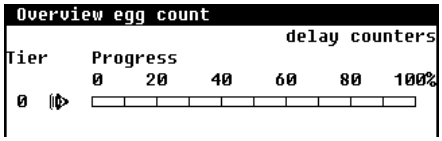
A tier has been selected but the farmpacker release signal has not been given.

WAITING FOR TIER



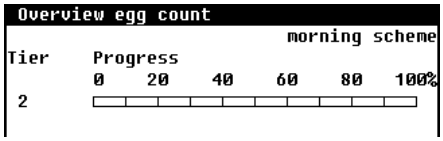
The farmpacker release signal is present, but no tier has been selected yet.

DELAY COUNTERS



A delay time has been set for the egg counters because they are not located directly at the beginning of the egg belt (but, for example, on the cross belt or after the elevator). The delay time has not elapsed yet; the message will disappear as soon as the delay time has elapsed.

MORNING SCHEME



The morning scheme is active. During the morning scheme, the egg belts of every tier are switched on briefly to obtain a better distribution of eggs on the egg belt.