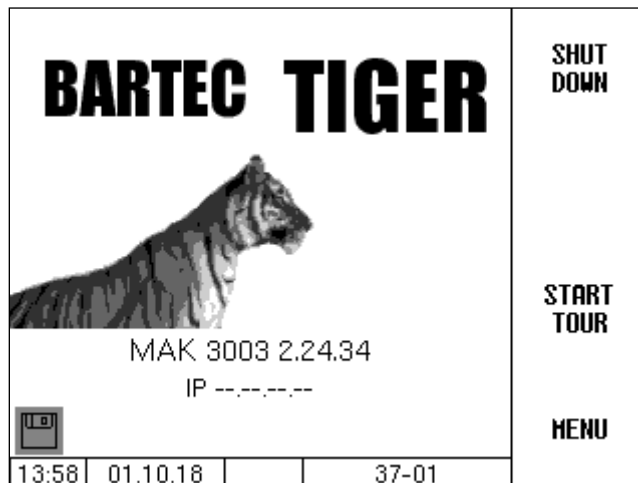


## MAK 3003 Measuring system TIGER

### Configuration



### Software MAK 3003 2.24.X

SAK 120202

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D-94239 Gotteszell

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*Exclusion of liability*

BARTEC GmbH and its vicarious agents only assume liability in the case of deliberate acts or gross negligence. The extent of liability in such a case is limited to the value of the order placed with BARTEC GmbH.

BARTEC accepts no liability for any damage resulting from non-observance of the safety regulations or from non-compliance with the operating instructions or operating conditions. Secondary damage is excluded from the liability.

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*EU-Declaration of conformity*

We, BARTEC GmbH, Schulstraße 30, D-94239 Gotteszell, hereby declare, that this product is in compliance with the essential requirements of the relevant EU-directives.

The EU-Declaration of conformity for this product can be obtained from BARTEC GmbH, Schulstraße 30, D-94239 Gotteszell, [gotteszell@bartec.com](mailto:gotteszell@bartec.com).

---

# 1 About this manual

The operating instructions are part of the product and must be kept in the immediate vicinity of the device. The personnel for assembly, operation and maintenance must have access to it at all times.

The operating instructions contain important notes, safety instructions and test certificates that are necessary for the correct functioning of the device during operation. The operating instructions are intended for all persons involved in the assembly, installation, commissioning and maintenance of the product.

The illustrations in this manual are intended to illustrate the information and descriptions. They cannot always be transferred unchanged and may differ slightly from the actual design of the device.

BARTEC GmbH reserves the right to make technical changes at any time. BARTEC GmbH is under no circumstances responsible or liable for any indirect or consequential damages resulting from the use, operation or application of this user manual.

**Please read the operating instructions carefully before using the product.**

**Please note that the instructions must be kept by the user for the entire life of the product.**

## Signs and symbols

The following characters and symbols are used in this manual to highlight passages that need special attention.



---

**Notes**

This arrow indicates special features to be observed during operation.

---



---

**Warning**

This symbol draws your attention to passages that, if not followed or followed inaccurately, may result in damage to or destruction of parts of the system or loss of data.

---



---

**Danger!**

This symbol marks passages that, if not followed, endanger the health or life of humans.

---

Special notes that appear within the text are marked with a frame.



## 2 Safety Precautions

The system operator is responsible for all complying with all regulations applicable to the storage, transport and handling of the food product "milk".

All regulations and provisions remain in full force when operating the system with MAK devices.

MAK devices are built in compliance with applicable regulations and must leave the factory in perfect condition. The devices must be installed and serviced by qualified technicians.

- Make sure that the information and operating conditions listed by the manufacturer are followed.
- Follow the instructions on operating and servicing the devices.
- If you notice any damage or deterioration on parts of the system or if safe operation is not ensured for other reasons, do not start up the system or shut it off immediately. Notify your service point.
- You should also contact our service technicians if you notify malfunctions or defects during operation or have any doubts as to whether the devices are working properly.

**The measuring system may only be operated for applications that are subject to legal metrological control in the respective EU member state if the nominal operating conditions specified in the EU-type examination certificate are met.**

## 3 Basics

With the MAK 3003 system, all processes and operating steps required for the loading and unloading of milk collection and transport vehicles can be recorded and controlled.

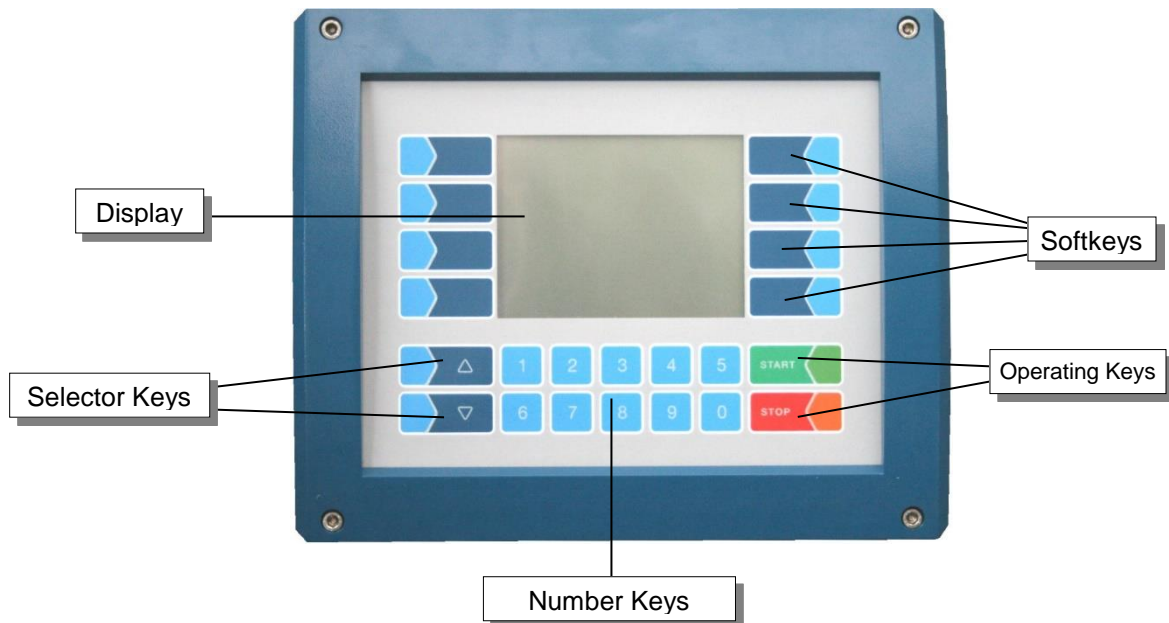
The TIGER 3003 version is used to control milk intake and record the data entered during that process.

The system is operated from the compact controller.

Switching on the system and operating the vehicle system depend on the specific vehicle type and the operating instructions applicable thereto.

### 3.1 Compact Controller

The compact controller is the main control and information unit for the whole system. Communication between the controller and other components in a system is handled via USB or, for P-NET devices, via P-NET.



#### 3.1.1 Keypad

The system is operated using the touch-sensitive keys on the control unit (touch screen) (number keys, selector keys, soft keys and operating keys) and using the key functions which appear the display depending on the situation. The functions of the soft keys are controlled by the software based on the current operating status.

#### 3.1.2 Display

A graphic display screen which is designed as a touch screen is used to show all readouts. Thanks to the backlit transreflective liquid crystal technology used, the display can be easily read even in darkness or bright sunlight.

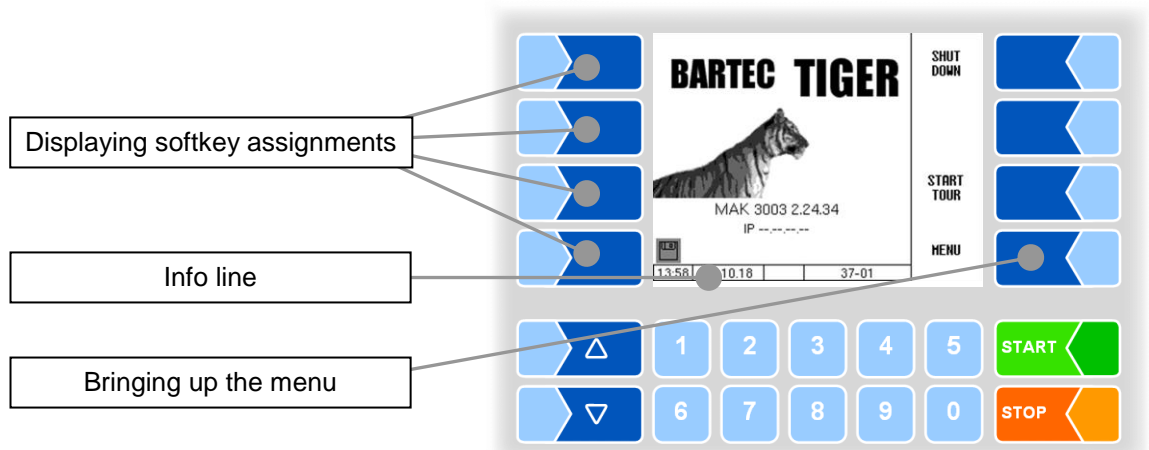
## 3.2 Operating Concept

### 3.2.1 The software user interface

*The controller software is constantly evolving. A different software version or configuration may cause the screen displays on your system to differ slightly from the illustrations in this document.*

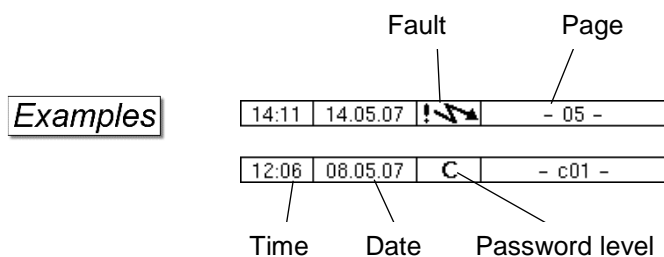
After starting the system, the main screen appears on the display. You can call up different screens or operating modes using the soft keys to the left and right of the display.

Corresponding to the installed measuring equipment type (TIGER, LYNX HLW, ABO Magyar, V3003, Optimate, ROMEX, V plus or E-TIGER) differ the start screen and the main menu (see section 3.2.6.1).



### 3.2.2 Info line

The info line shows the date and time, information about the operating status and the software page number.



### 3.2.3 Softkeys

The softkeys can be assigned various functions, the current meaning of which is indicated by symbols.

All keys are touch-sensitive, meaning that you don't need to press them but simply have to touch them.

### 3.2.4 Hidden softkeys

In various operating situations, the current assignment of soft keys is not shown on the display. In such instances, the keys to the left or right of the display will not be marked. In this case, you have to touch any soft key in this row of keys. The current assignment of the soft keys will be shown for three seconds. During this time, you can touch one of the soft keys to start the function in question.

**Examples**

**Example 1: Call up event screen**

The first example shows a transition from the 'BARTEC TIGER' screen to the 'TEC TIGER' event screen. In the 'BARTEC TIGER' screen, the 'EVENTS' and 'LAST TOUR' softkeys are not visible. In the 'TEC TIGER' screen, these softkeys are visible and highlighted. A callout box indicates that touching any softkey in the top row will call up the event screen and show data from the last tour.

MAK 3003	2.24.34	IP	37-01
8			

MAK 3003	---	IP	37-01
1.18			

**Example 2: Show data from the last tour**

The second example shows a transition from the 'Location Info Database' screen to a screen with additional options. In the 'Location Info Database' screen, the 'BAD FLOW CNT', 'DELETE RECORD', 'NEW SEARCH', and 'EXIT' softkeys are not visible. In the second screen, these softkeys are visible and highlighted.

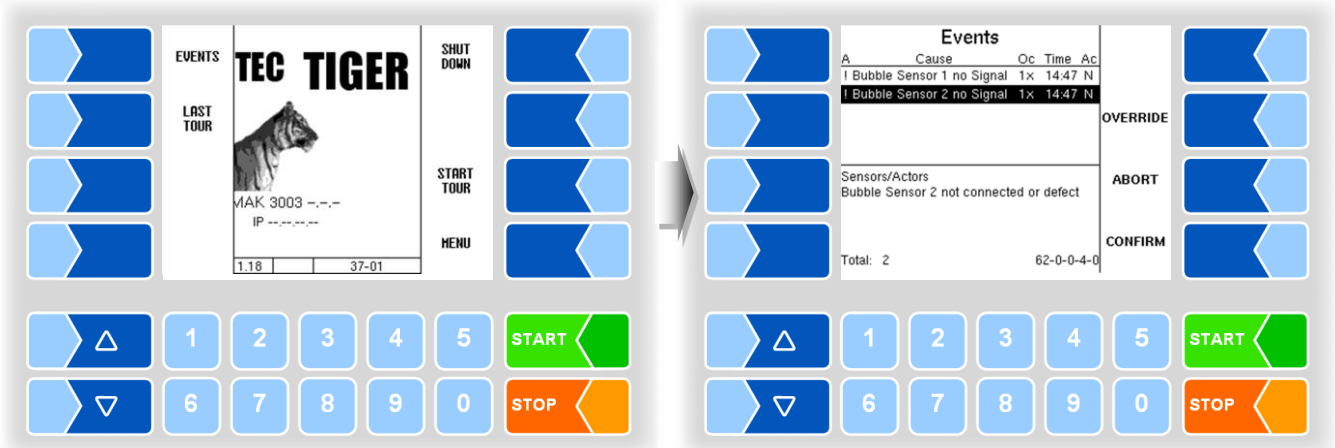
Location Info Database			
111111	intake	2040 L	
Heinrich Sola			
222222	intake	960 L	
Max Mustermann			
234561	intake	1960 L	
17.974909	38.959709		
888885	Hand Over	0 L	
12.974908	48.959709		
999995	Pump Over measured	0 L	
12.974908	48.959709		
12:47	15.11.18	C	15-05

Location Info Database			
111111	intake		
Heinrich Sola			
222222	intake		
Max Mustermann			
234561	intake		
17.974909	38.959709		
888885	Hand Over		
12.974908	48.959709		
999995	Pump Over measured		
12.974908	48.959709		
12:48	15.11.18	C	15-05

## 3.2.5 Event display

Important error or malfunction messages are shown right on the display. The event screen is called up using the hidden softkey **EVENTS**. This displays all operating statuses and malfunctions. To exit the event screen, touch the same softkey again.



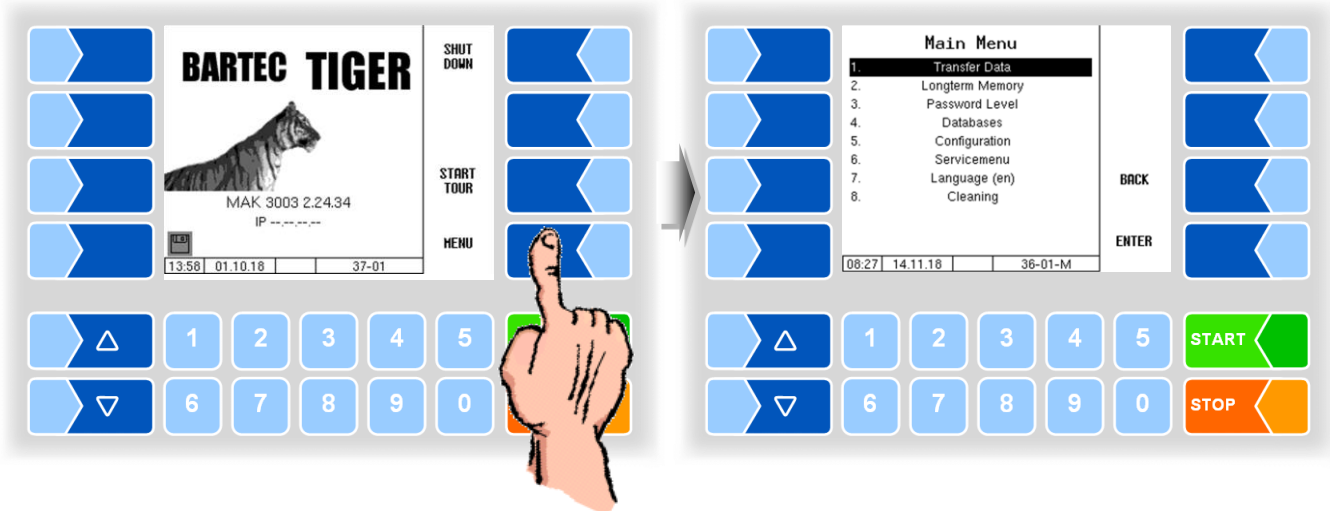
## 3.2.6 Operating the menus

Corresponding to the installed measuring equipment type differ the start screen and the main menu.

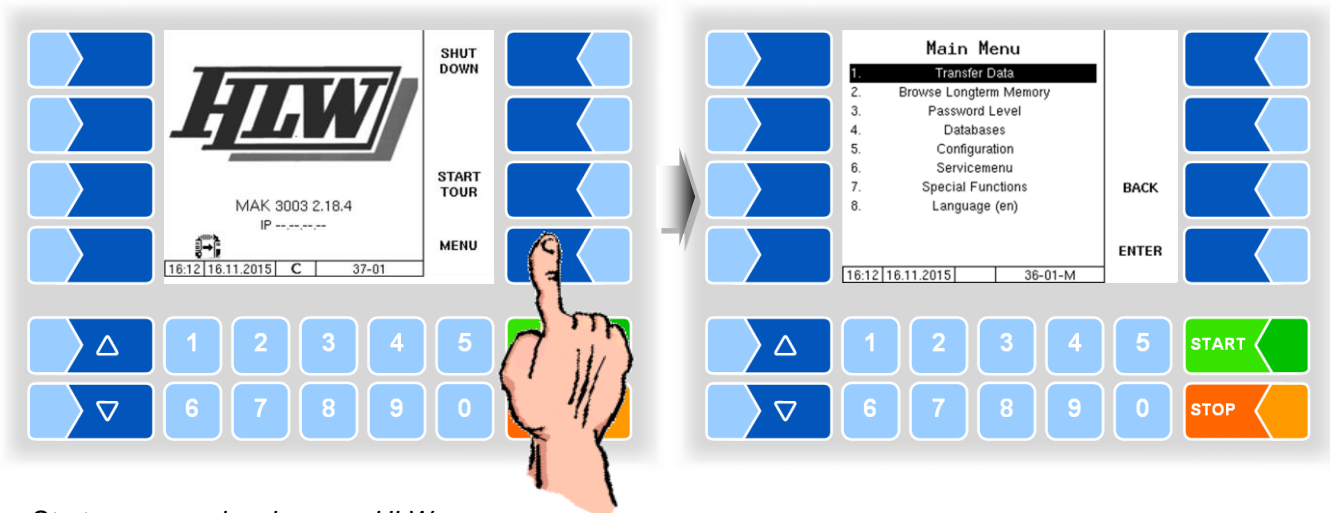
In case of a new configuration, first set the operating language in the basic settings (section 4.5.8.2) and the type of measurement system (section 4.5.8.3).

### 3.2.6.1 Opening the menu

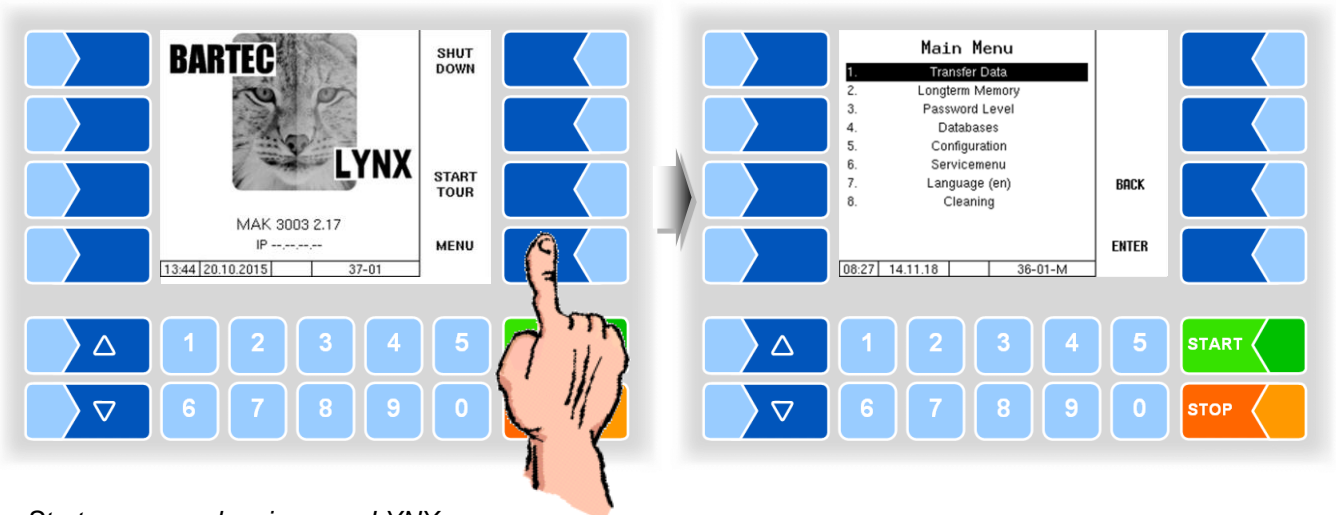
- Touch the **MENU** softkey to open the main menu.



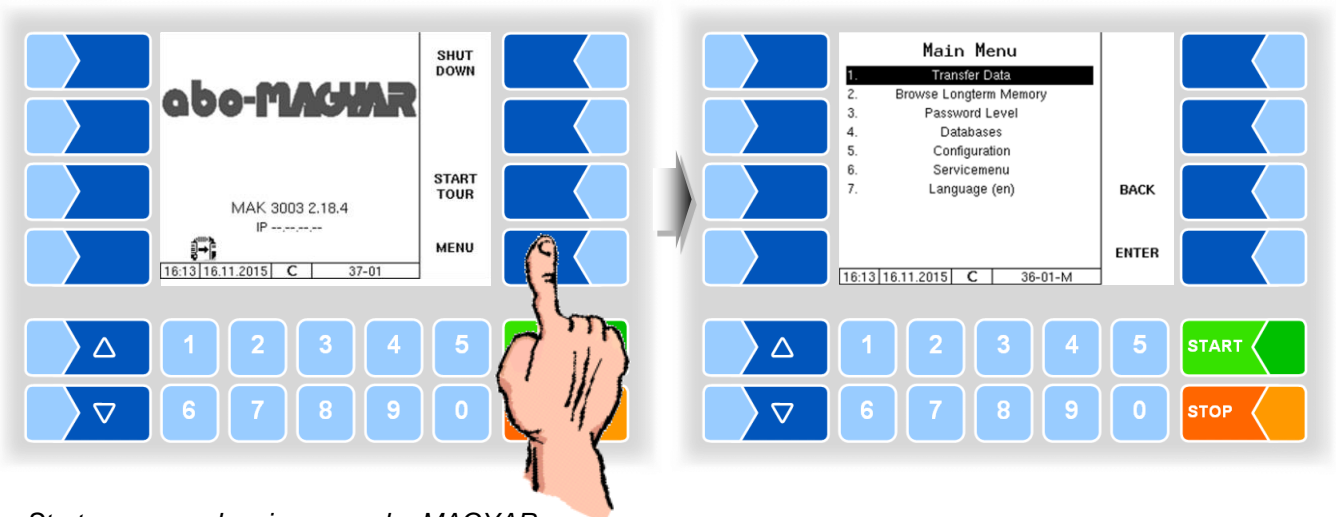
Start screen and main menu TIGER



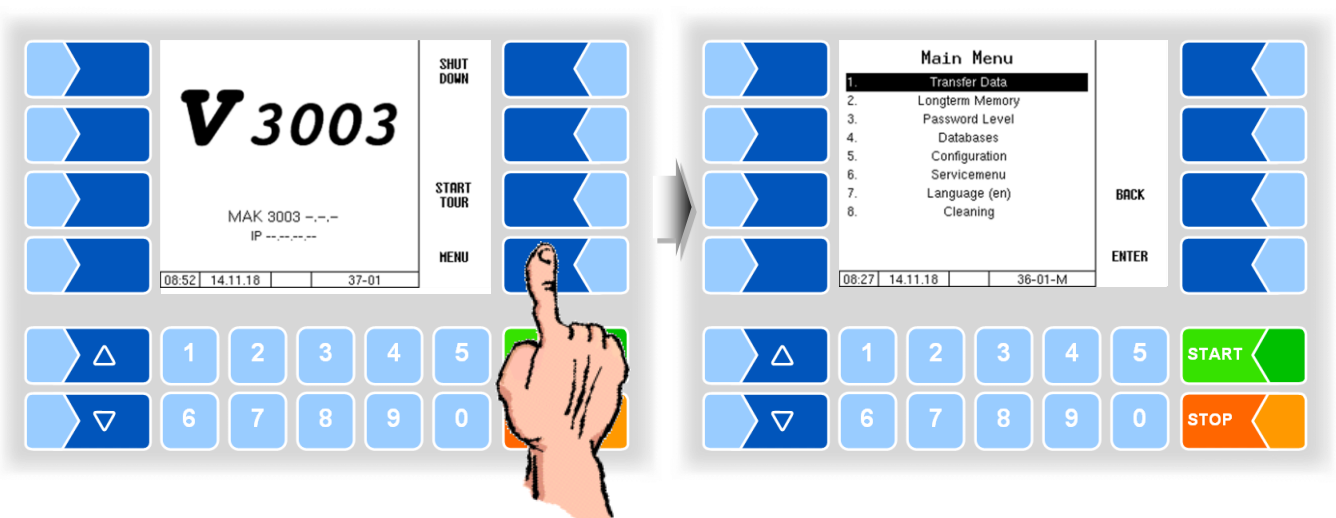
Start screen and main menu HLW



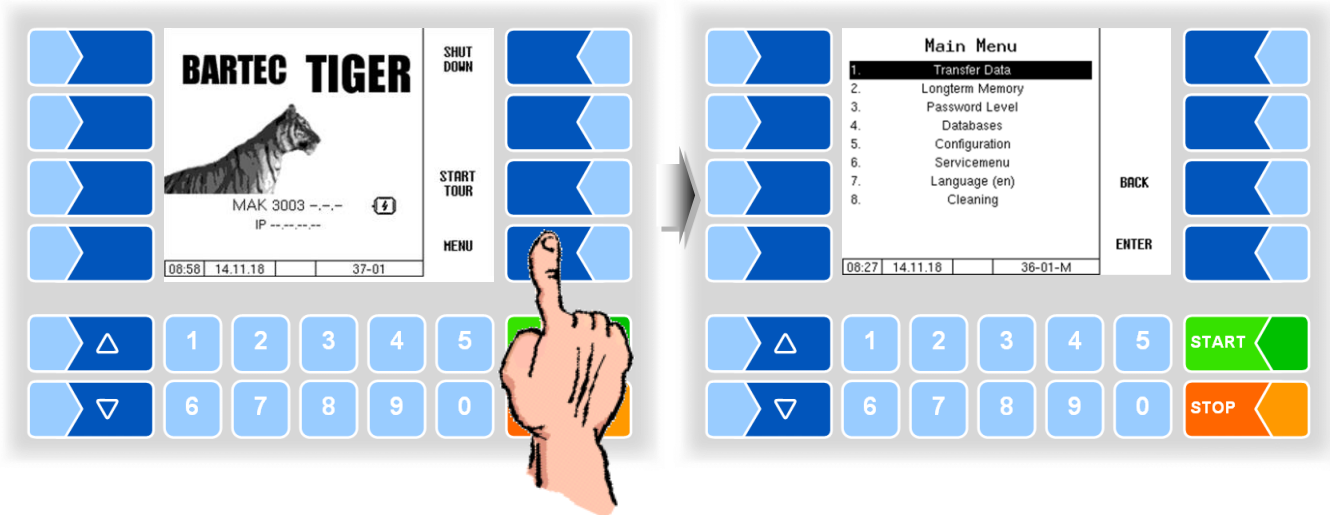
Start screen and main menu LYNX



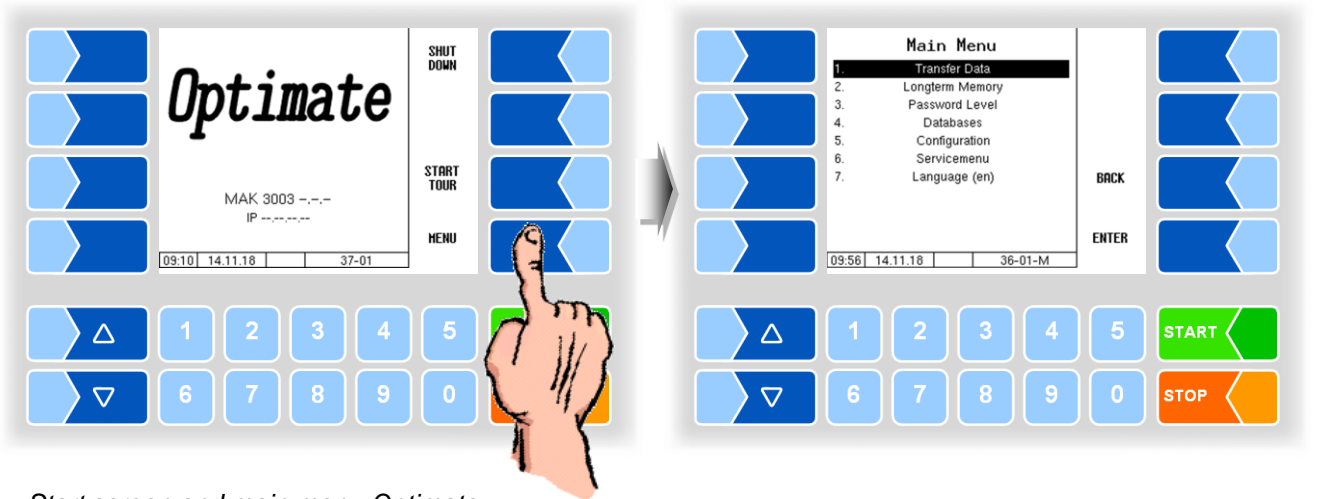
Start screen and main menu abo MAGYAR



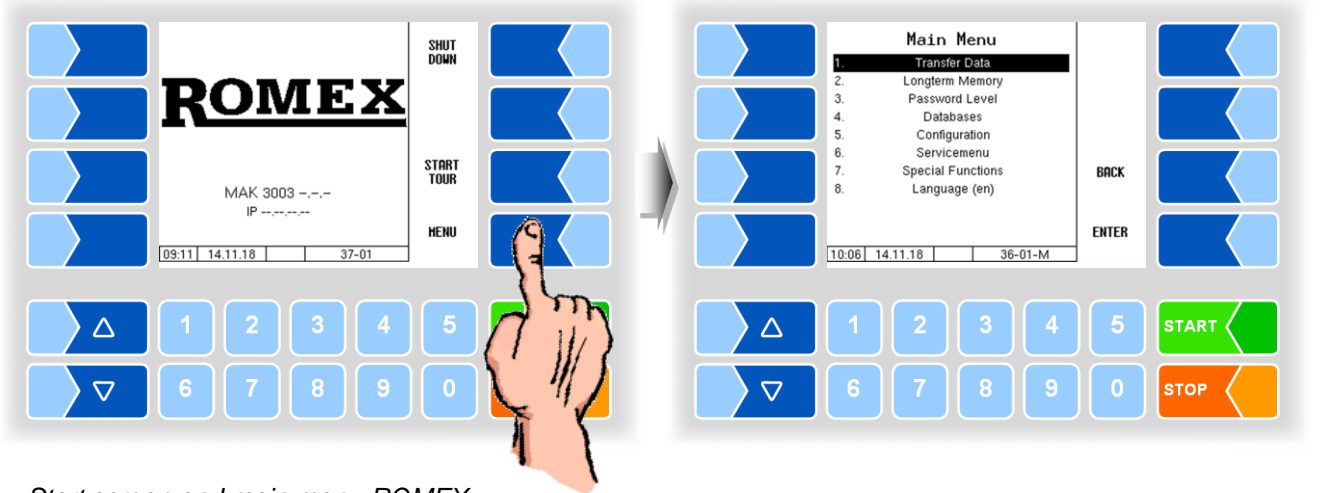
Start screen and main menu V 3003



Start screen and main menu E-TIGER

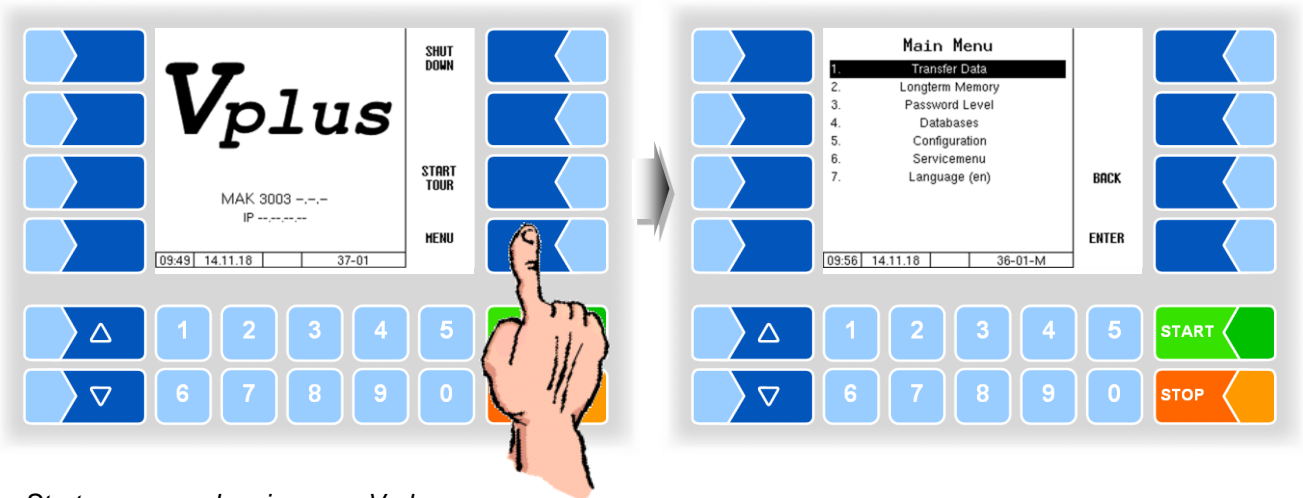


Start screen and main menu Optimate



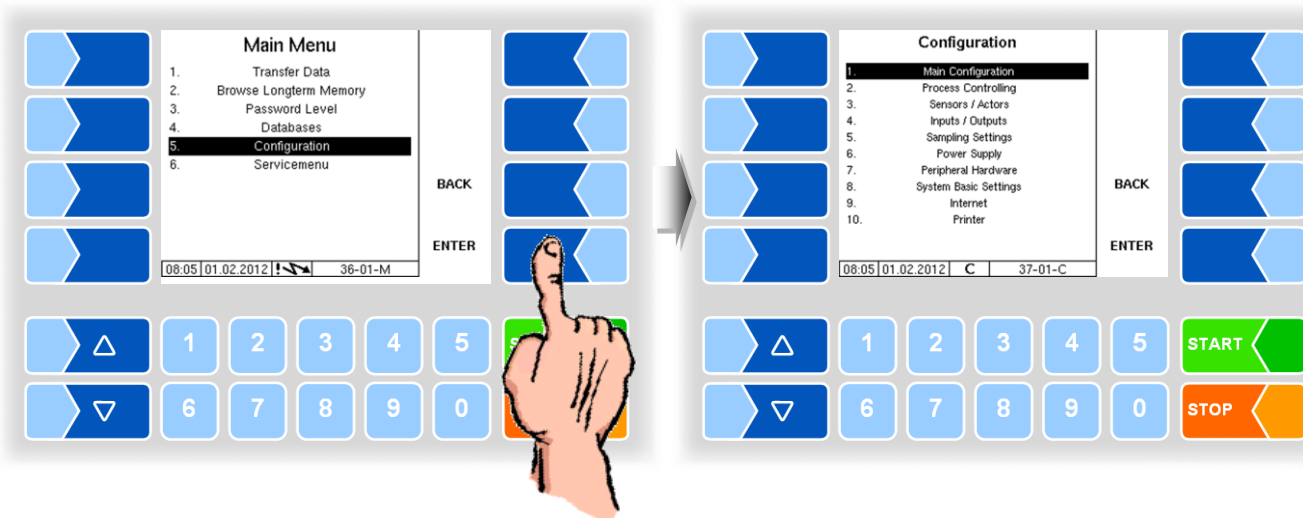
Start screen and main menu ROMEX





Start screen and main menu V plus

- Select the submenu you wish to open with the selector keys  $\nabla$  and  $\triangle$ . The selected submenu is marked with a black bar.
- Touch the **ENTER** softkey. This opens the menu selected.



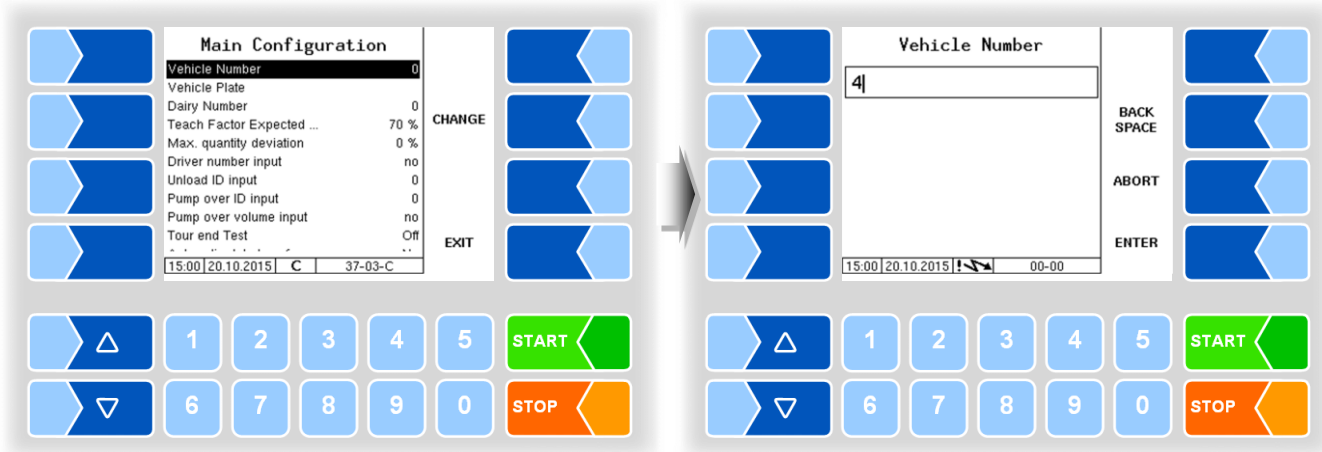
You can also open the desired menu directly by touching the number key corresponding to the particular menu number.

If the menu contains submenus, open the desired submenu in the same way.

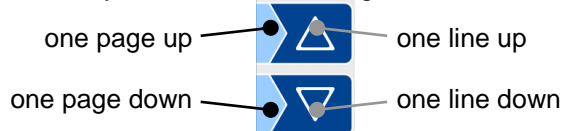
### 3.2.6.2 Editing parameters

1. Use the selection keys  $\nabla$  and  $\triangle$  to select the parameters you wish to edit. The selected parameter is highlighted with a black bar.
2. Touch the **CHANGE** softkey to open the edit window (input or selection dialog).

The **CHANGE** softkey is only available if you are authorised to edit the selected parameter in the current password-protected configuration level (see section 4.3.1).



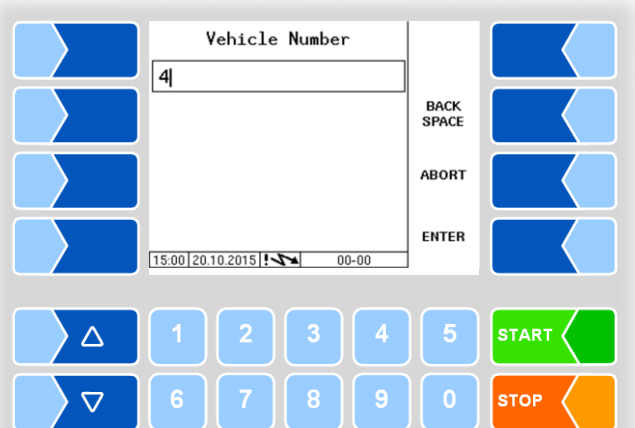
If not all entries in menus or lists can be displayed in the screen, you can use the selection keys to scroll lines or pages.



#### Numerical entries


Numerical entries are entered using the keys below the display. Corrections can be made with the **BACK SPACE** key. When you touch this soft key, the character to the left of the cursor is deleted.

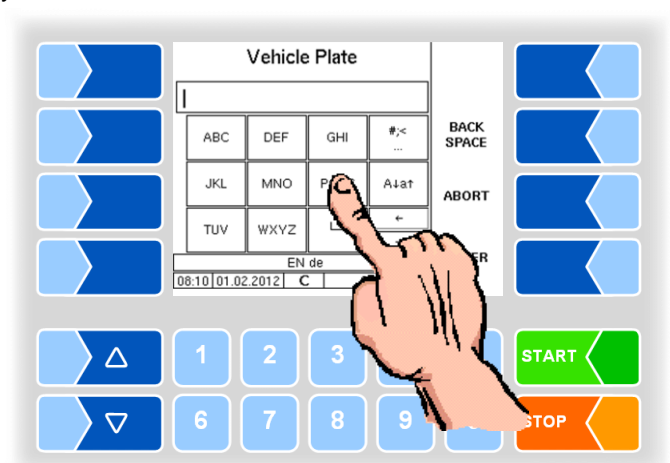
The algebraic soft keys **+** and **-** are available for parameters for which positive or negative values must be entered. Confirm your entry with the **ENTER** softkey.




## Alphanumeric entries

Letters are entered using the keys shown on the display. To enter a letter, touch the corresponding key. Up to four characters are assigned to each key.



You determine the character which appears in the input line by the number of times you press a key in quick succession. You can enter a space with the  key.




## Shift key




You can use the  key to switch from upper case to lower case letters and vice versa.

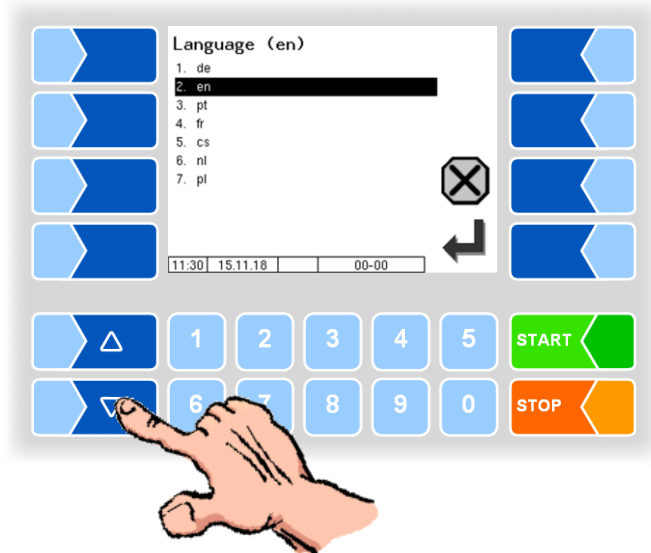
## Special characters

If special characters need to be entered, you can use the  key to switch the key assignment to the special character level. You can switch back to letters using the same key, which is now labelled .

Once you have completed your entry, touch the  key.

### Selection lists

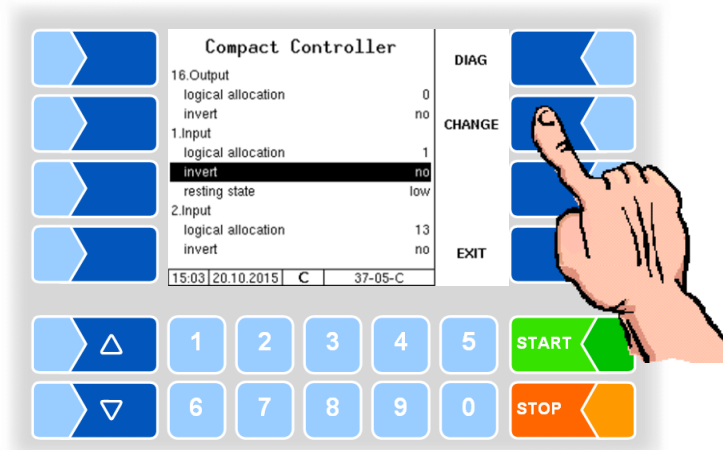
Selection lists are available for certain parameter settings. Select the required setting using the selection keys  and . The selected setting is highlighted with a black bar. Confirm your selection using the “Confirm” softkey .



You can also select the desired setting directly using the corresponding numerical key.

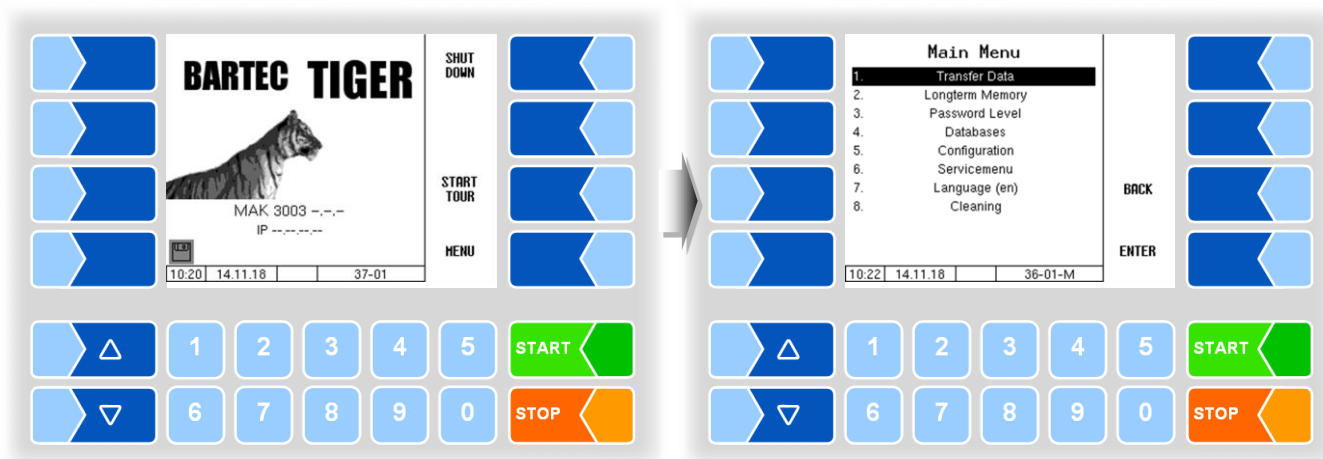
### Alternatives

In the case of parameters for which only two alternative settings are possible, e.g. yes/no or on/off, the settings are switched when you touch the **CHANGE** softkey or a numerical key.



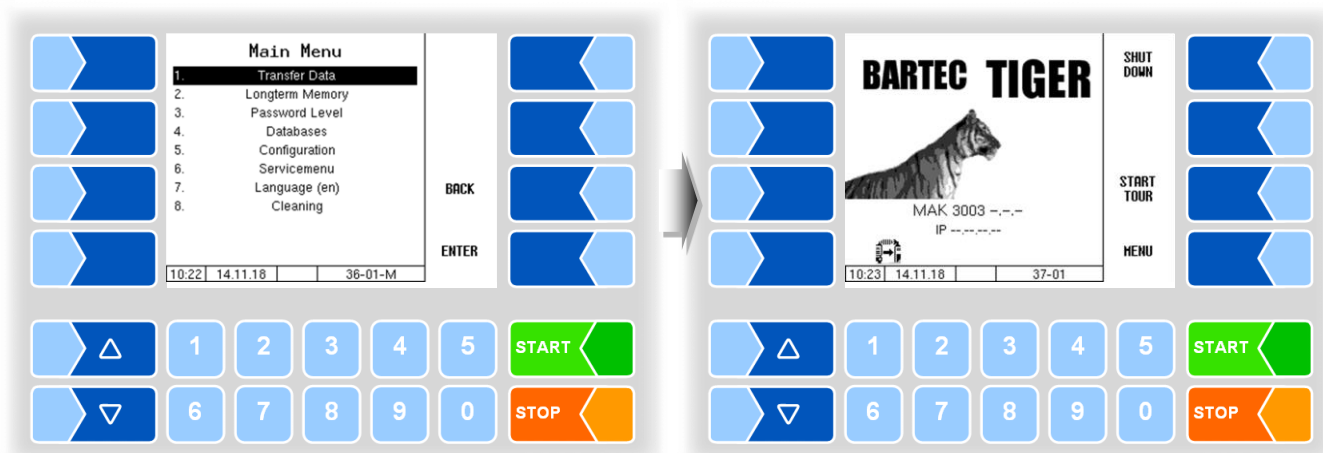
## 4 Main menu

The **MENU** softkey is used to open the main menu. It contains submenus which can be used to configure the system and access various functions.



### 4.1 Transfer data

Data transfer to the dairy is launched in this menu.

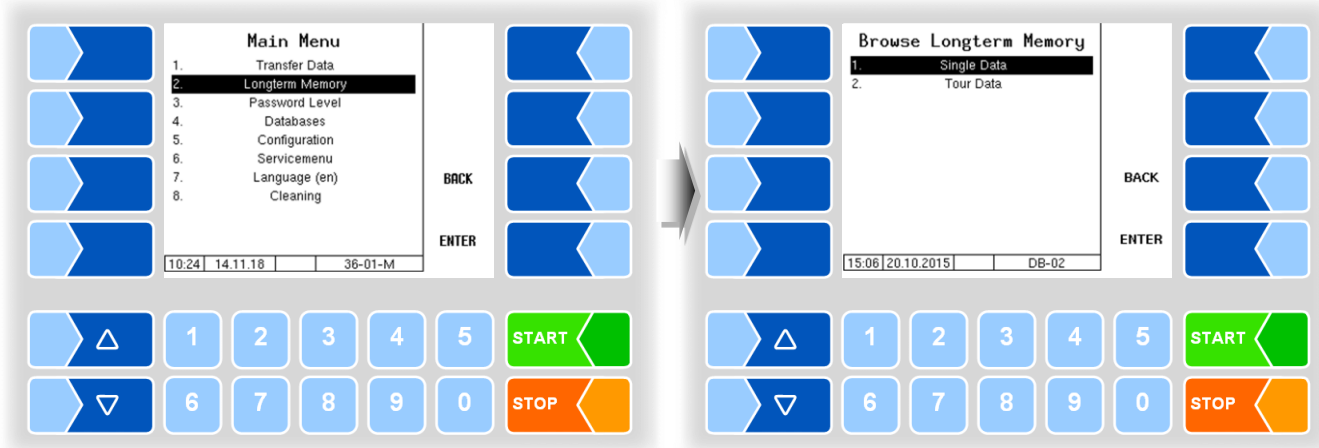


All not yet transferred tour data are transferred to the designated server. There the data are prepared in the format selected for the dairy and prepared for the dairy to pick up.

Following successful data transfer, the flashing diskette symbol on the bottom left of the display disappears.

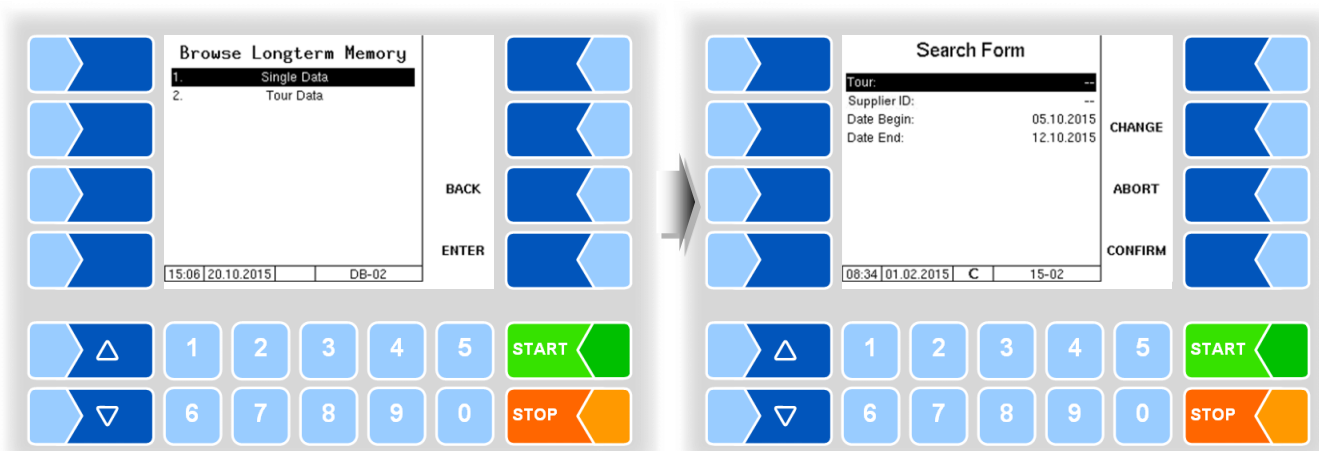
## 4.2 Browse long-term memory

Milk intake- and tour data from the past three months are stored in the long-term memory. They can contain both tour and single data.

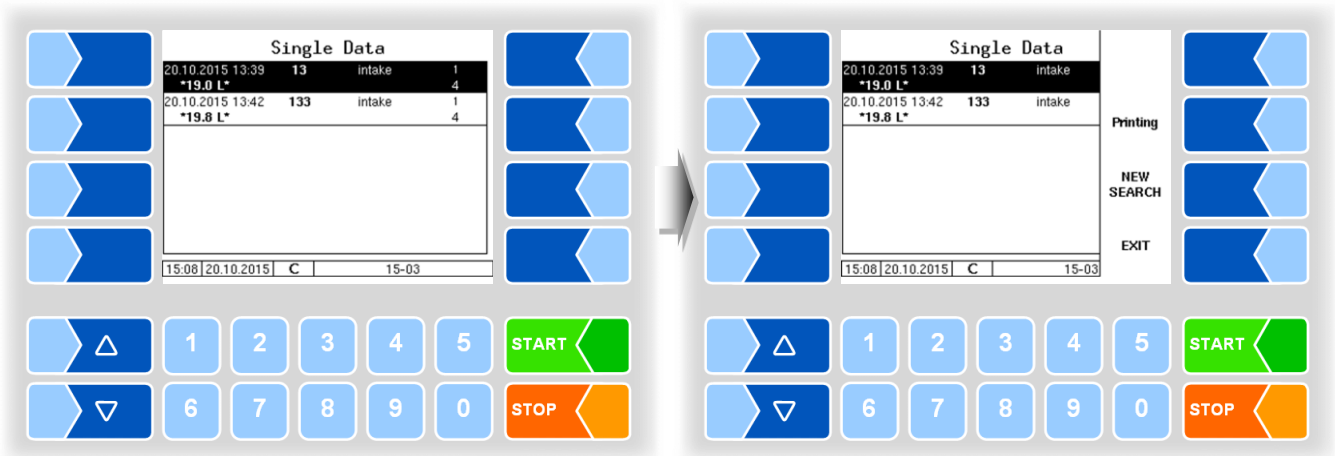


### Single data

Enter the desired search criteria in the search form. Touch **CONFIRM** to start the search.



If you touch a soft key next to the display, additional functions are displayed. You can print located data, start a new search or exit the screen.

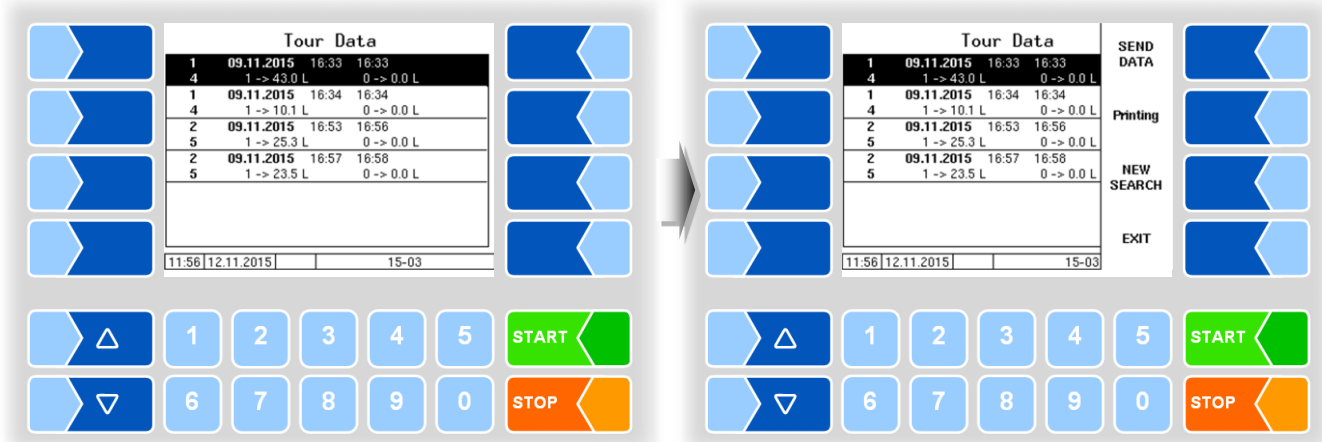


### Tour data

To display tour data, do the same as you would for single data. Only the supplier number is omitted from the search form.



If you touch a soft key next to the display, additional functions are displayed. You can send the tour data, print the located data, start a new search or exit the screen.



## 4.3 Password protection

Software configuration is protected by passwords which allow access to various configuration options.

The currently accessible password level is shown on the display in the info line by a flashing letter. Every password level includes all lower password levels.

Password	Tag	Access
no password		read only
Driver password	D	Time, language
User password	U	Operating parameter, date
Service password	S	Software parameters which do not require calibration
Calibration switch open	C	All parameters

### 4.3.1 Password level

#### No password

Without entering a password, you can bring up the configuration menus but you cannot make any changes, however.

#### Driver password

The driver password is the sum of the day, month and hour (as shown on the display).

$$\text{Driver password} = \text{day} + \text{month} + \text{hour}$$

#### Example

Date: 21. 03. 2019, 07:28 am

Driver password = 21 + 3 + 7 = 31



### **User password**

The user password is the fleet manager's password. You can set the password yourself (see page 27). After entering the user password, you can change configuration data not subject to calibration such as turning on and off various options and hardware modules.

The factory set password at the time of delivery is "BARTEC".

### **Service password**

With the service password, you have access to all parameter settings not subject to calibration.

The service password is formed according to a specific mode and changed periodically. The service password is only provided to authorised service personnel.

### **Calibration switch**

Opening the calibration switch allows access to all parameters including those subject to calibration.



---

If you wish to change data subject to calibration, you must open the calibration switch before starting the system!

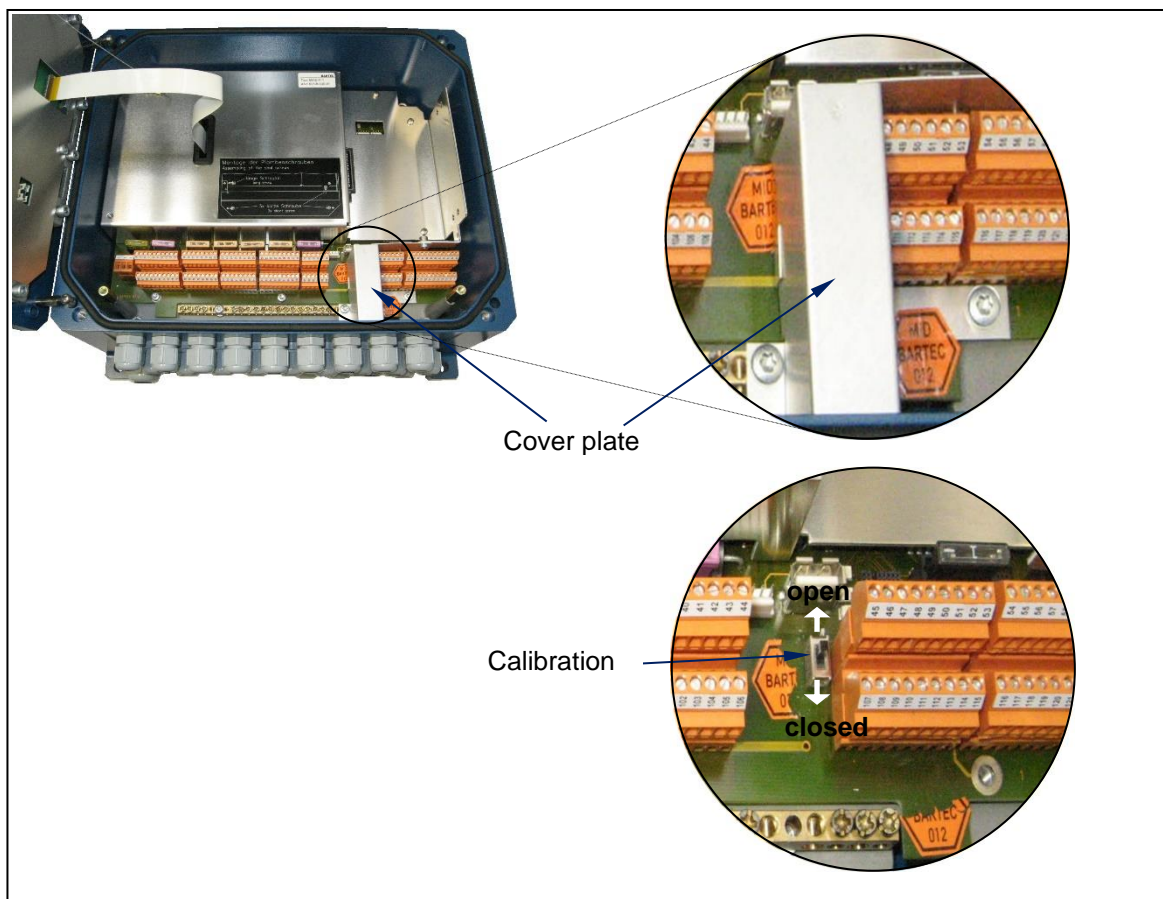
After opening the calibration switch, re-calibration at the owner's expense is required!

---

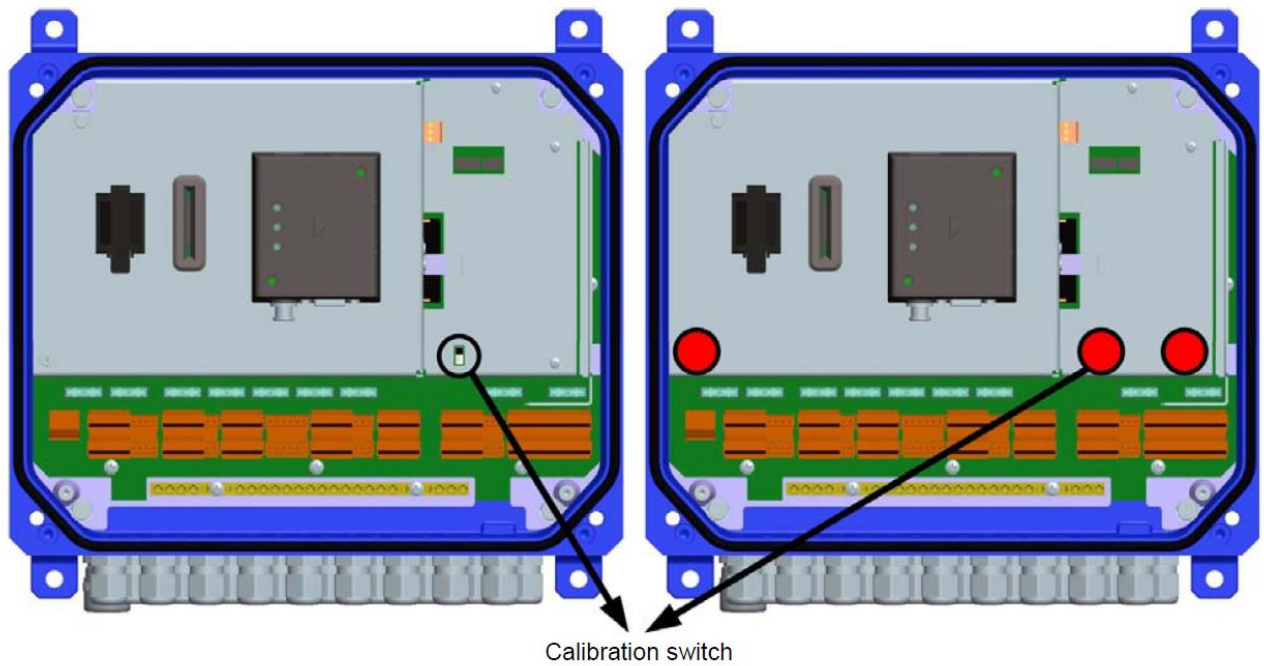
### Compact Controller Type 6942-10 to series B



The calibration switch is located on the circuit board in the compact controller.

- Remove the four screws on the top of the control unit and open up the top.
- Remove the seal, remove the screws from the cover plate and remove it.



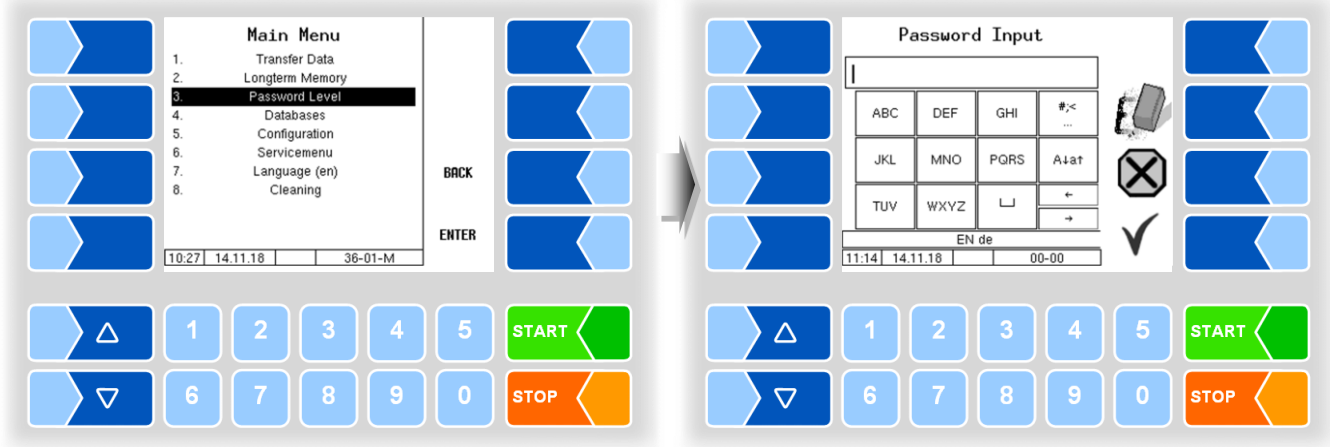
## Compact Controller Type 6942-10 from series C



Sealing of Compact Controller		
Calibration switch		
<b>Open</b> Access to measurement parameters		<b>Closed</b> No access to measurement parameters
		<b>Sealed</b> with adhesive labels - calibration switch - cover
		

### 4.3.2 Password entry

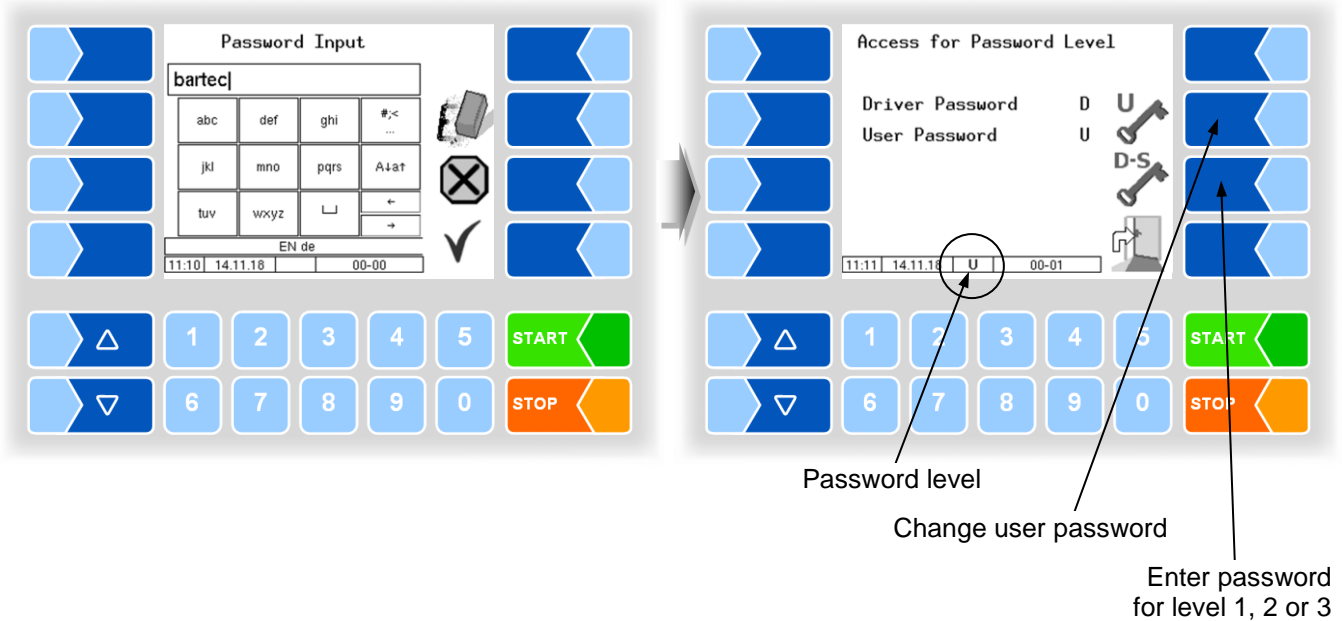
- In the Main Menu select the "Password Level" menu. You can enter the password in the following window.



- Once you have finished entering the password, touch the **ENTER** softkey.


Thereafter, the password levels to which access is possible are shown. The higher password levels include access to all lower password levels.

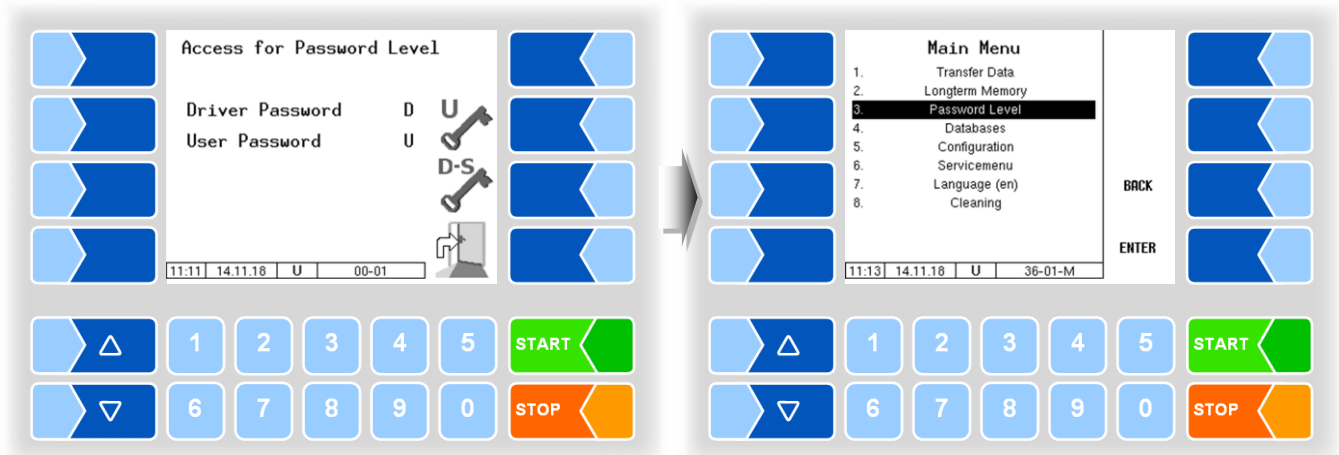
Read Only Level			
D : Driver Level	1		
U : Fleet Manager Level	2	(D)	
S : Service Level	3	(U, D)	
C : Calibration Level	4	(S, U, D)	



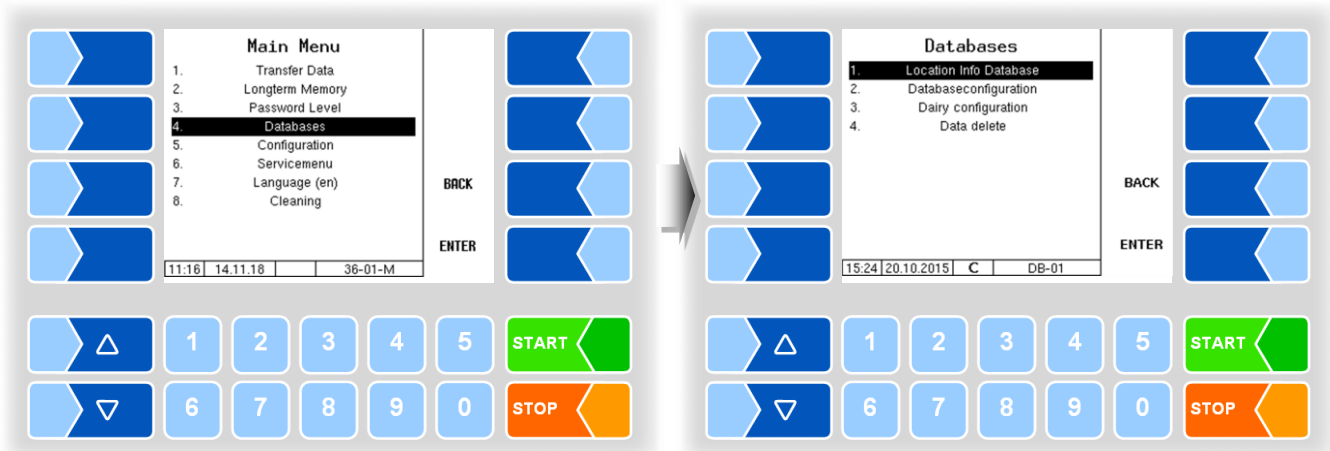
Once you have entered the password for the fleet manager level, the soft key to change the user password is displayed. You can enter a new user password after touching this softkey.

The user password can be composed of letters or numbers.

- Touch the  softkey to return to the menu selection.

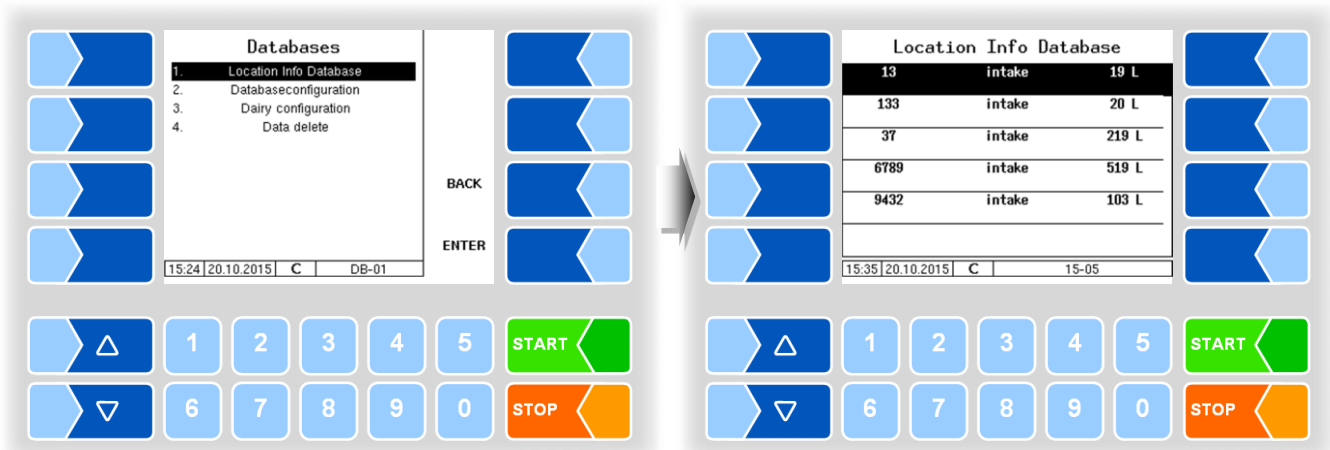


## 4.4 Databases



### 4.4.1 Location info database

The GPS positions of the various suppliers are recorded in the location info database. Here the supplier ID, type (intake, cleaning, pump over), average amount, GPS position “long” and “lat” and quality are displayed.



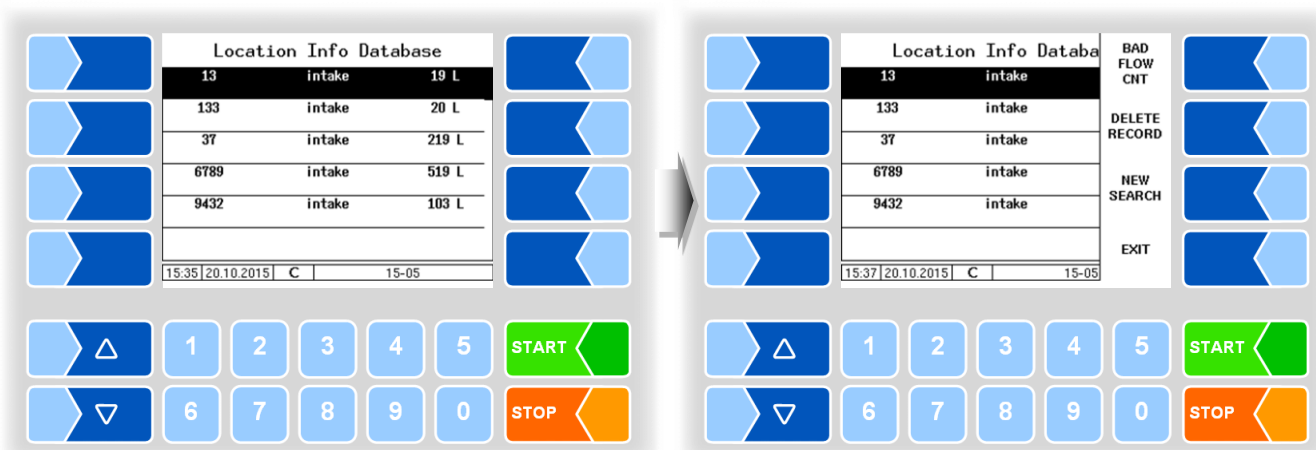
## Sucking optimization

(Available with TIGER/ E-TIGER-Measuring system at user password level and above.)

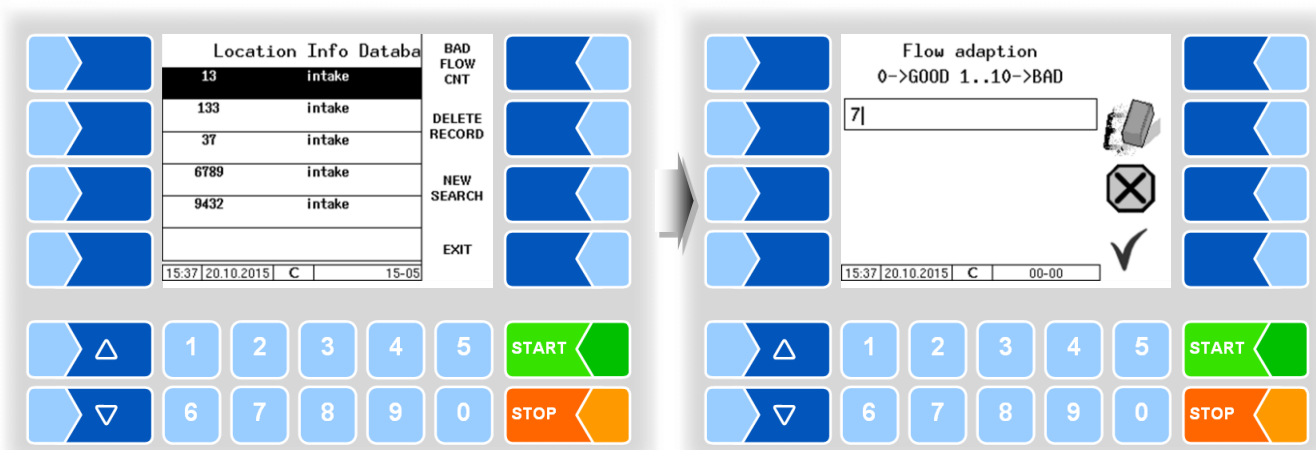
The sucking behavior can be adapted for difficult conditions. Examples: Intakes with long and fixed tubing or hose extensions with smaller diameter (e.g. DN40).

You can enter a value between 1 and 10, whereas 10 represent the most difficult conditions. The entered value will be stored in the corresponding data record.

- Select the data record that you want to edit and press one of the softkeys on the right side of the display to open the hidden menu.



- Press the **BAD FLOW CNT** softkey and enter the desired value.



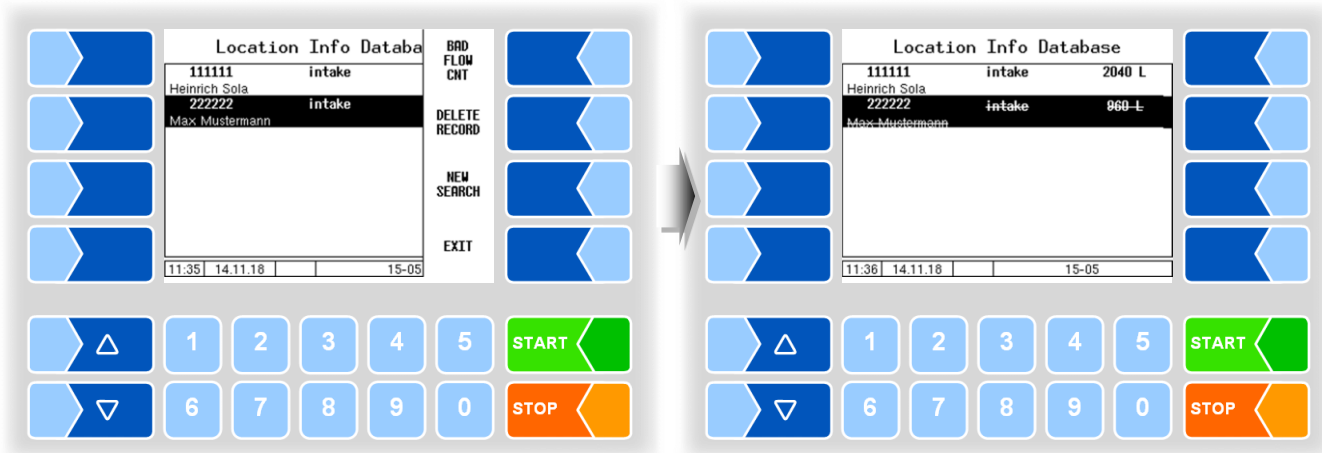
The set value for the optimization of the suction behavior is also displayed during milk intake.

## Delete records

(available at password level 2 and above)

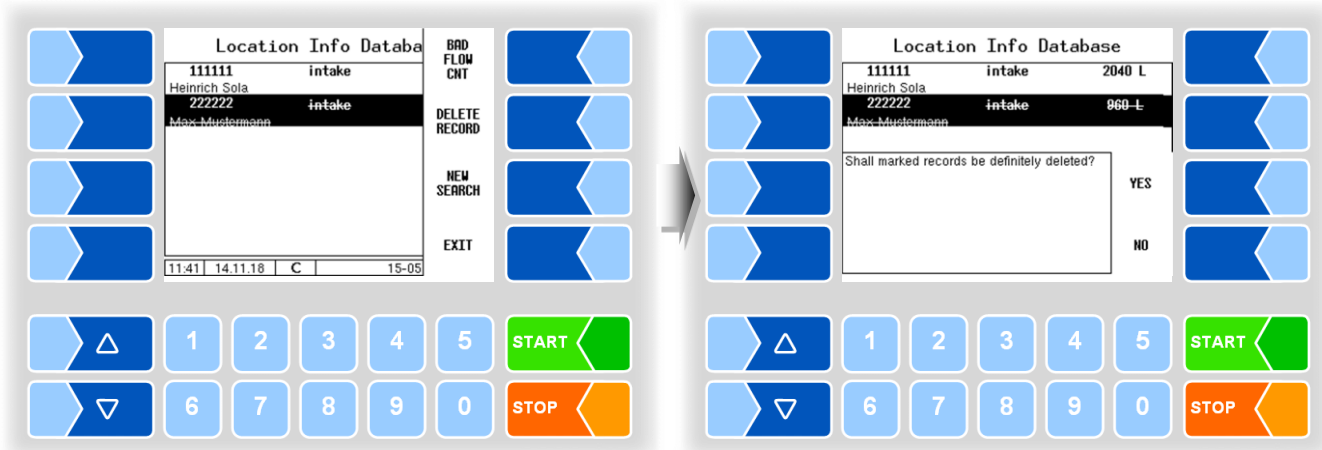
After displaying the hidden soft keys, you have the option of deleting stored records.

- Select the record you wish to delete and touch the **DELETE RECORD** key. The highlighted record is then tagged for deletion.



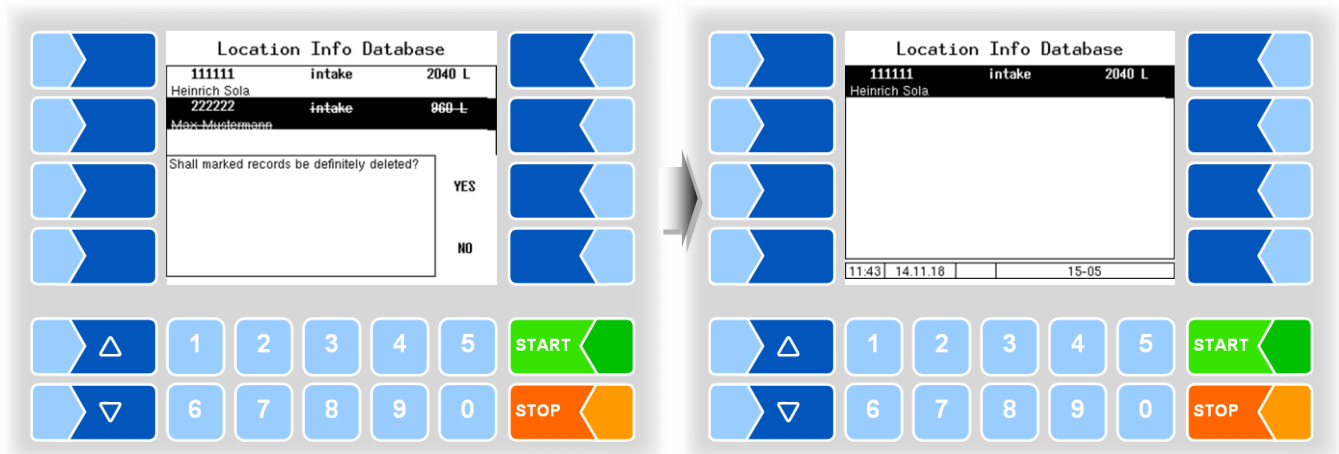
If needed, repeat the process for additional records.

When exiting the window, you'll be asked if the marked records should be permanently deleted.





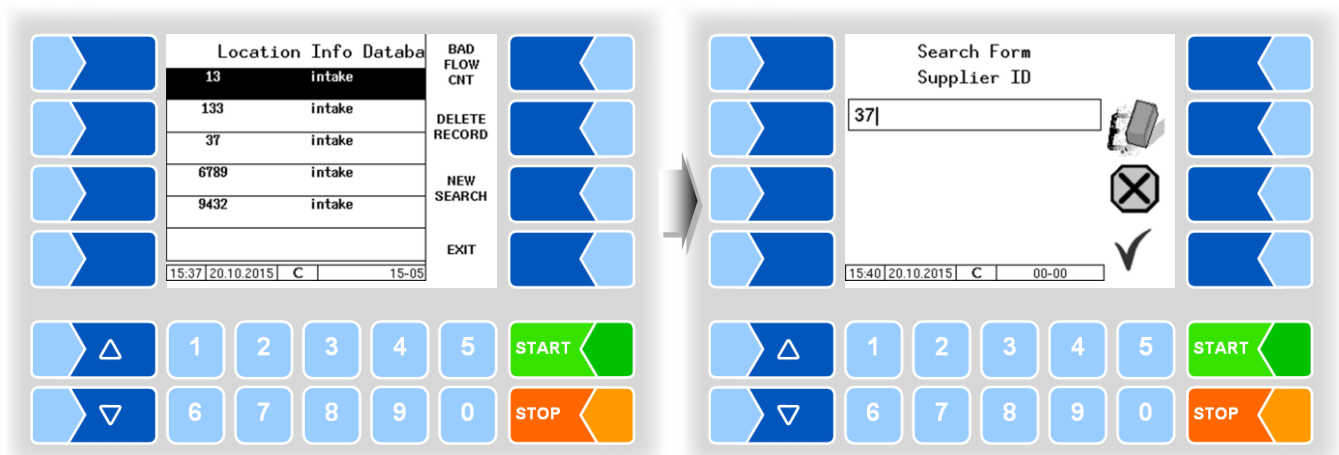
The marked records will not be deleted until you confirm with **YES**.

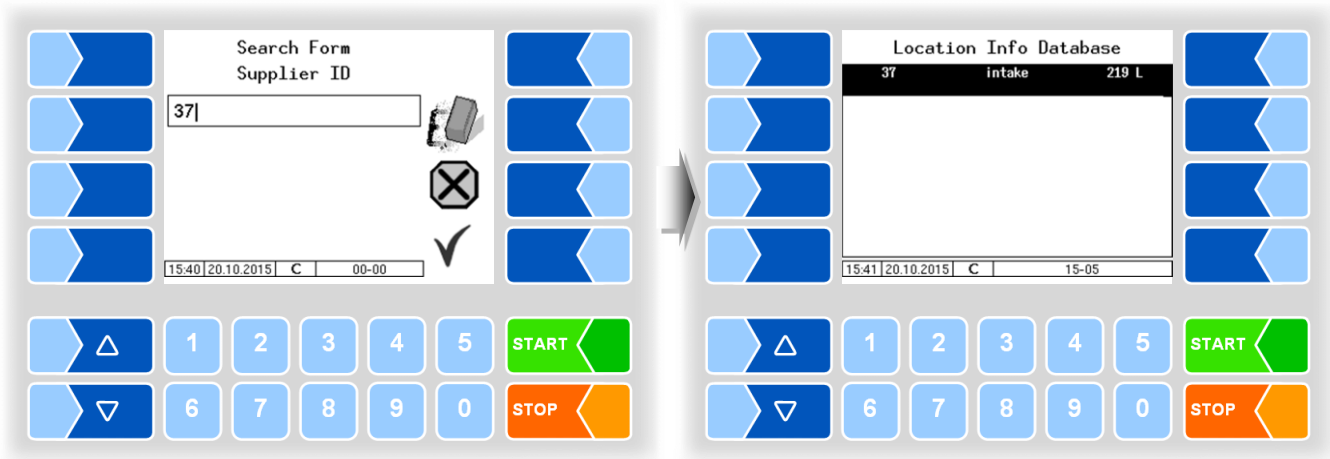


### Search records

In the location records you can search for specific supplier numbers.

- Touch the hidden softkey **NEW SEARCH** and enter the desired supplier number.

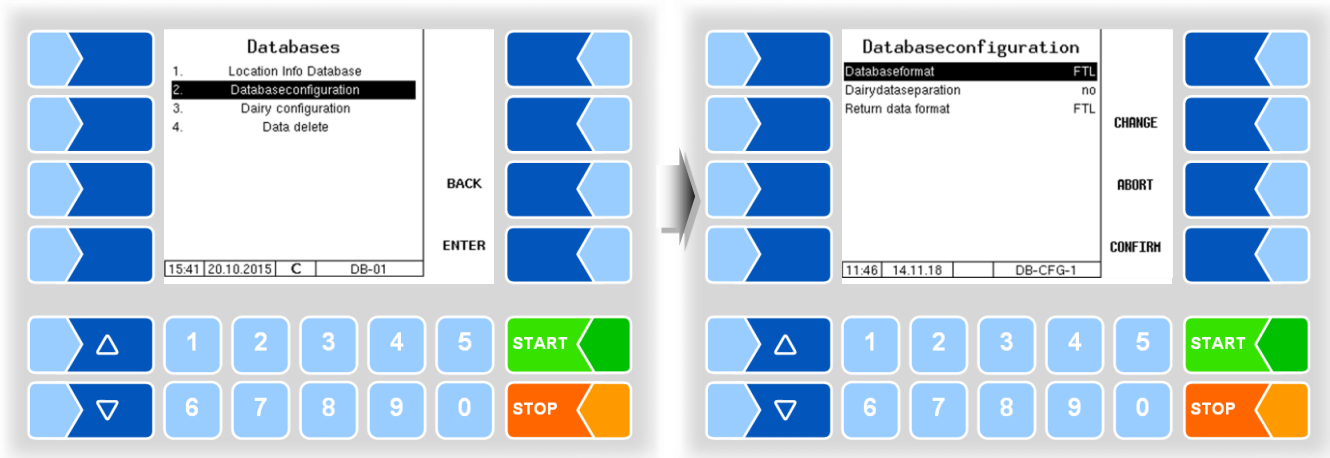




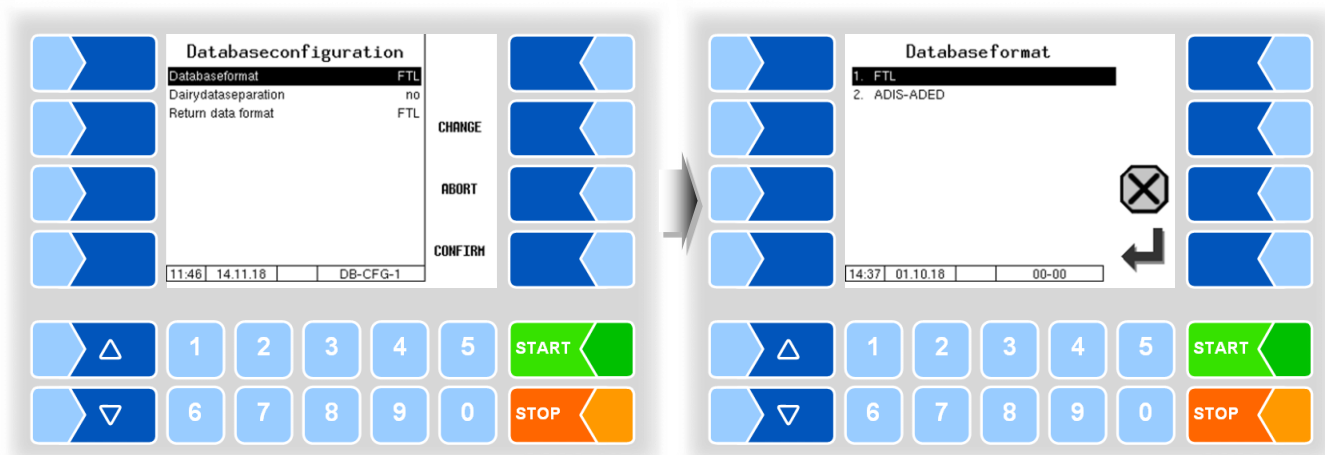
- Confirm the entered supplier number. Only the desired supplier records are then displayed in the list.

## 4.4.2 Database configuration

Under database configuration, you can set the database format and determine whether dairy data should be separated. For haulage companies which collect milk for various dairies, the data are allocated to the different dairies.



## Database format



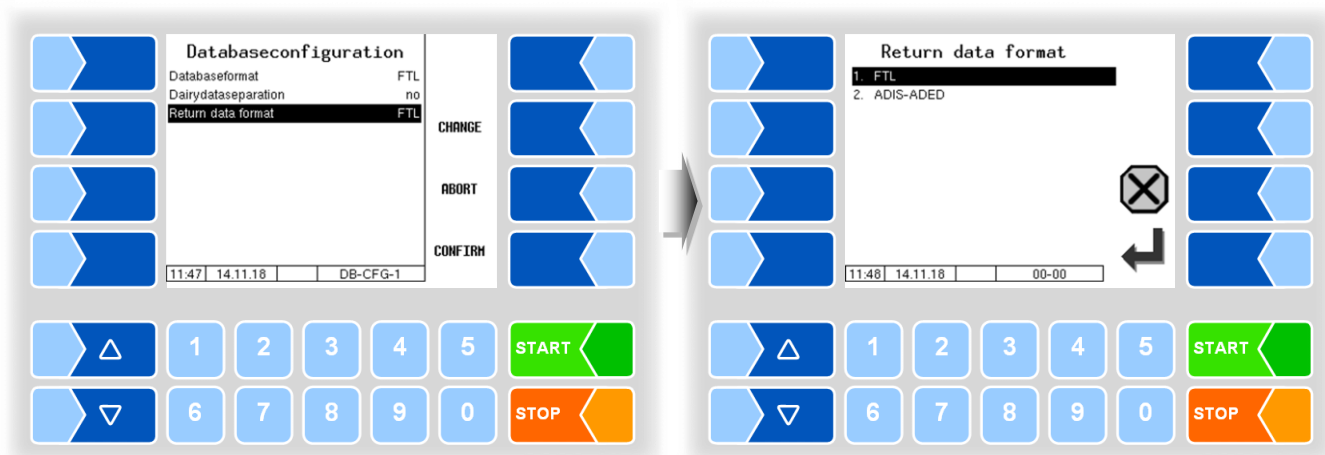
Depending on the settings in the office you can set the database formats FTL or ADIS-AEDED.

When using ADIS-AEDED can a four digits dairy number be entered in the tourstart dialog.  
The office must proceed ADIS-AEDED data. All other formats proceed only two digits.

## Dairy data separation

If dairy data separation has been activated, then at least one dairy must be configured (see section 4.4.3).

## Return data format



The response data is converted into the selected format on the vehicle.

### 4.4.3 Dairy configuration

You can configure different dairies under Dairy configuration. To do this, you must enter the dairy number and name. FTP access must then be configured for the newly created dairy (see section 4.5.9/Data Transfer).

At tour start you can choose between the different dairies. The feedback data from this tour are then made prepared for the selected dairy on the server at the next data transfer.

If a vehicle number is configured, it will be saved in the tour record.

Data for already configured dairies (dairy number and name) can be changed in this menu.



Configuration of dairy data can only be done after all tour data have been sent.

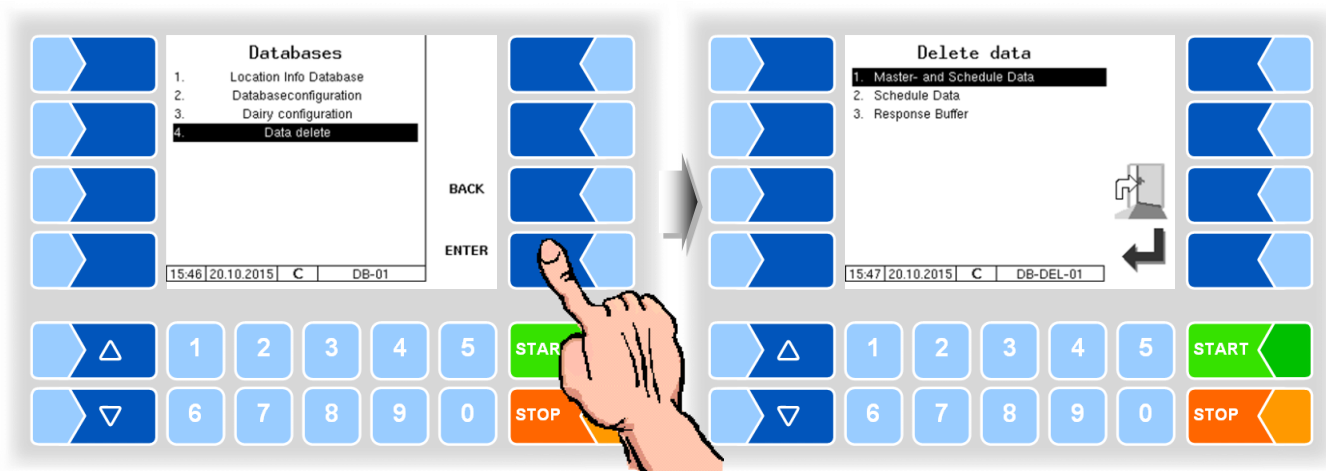
The image shows four sequential screenshots of a handheld device interface, illustrating the navigation process for dairy configuration:

- Top Left:** 'Databases' menu with options: 1. Location Info Database, 2. Databaseconfiguration, 3. Dairy configuration (highlighted), 4. Data delete. Includes 'BACK' and 'ENTER' buttons. Status bar: 15:43 | 20.10.2015 | C | DB-01.
- Top Right:** 'Dairymenu' screen showing '1. 123 DAIRY'. Includes 'Delete', 'New Dairy', 'BACK', and 'ENTER' buttons. Status bar: 15:44 | 20.10.2015 | C | DB-MOLK-1.
- Bottom Left:** 'Dairymenu' screen with a hand pointing to the 'New Dairy' button. Status bar: 15:44 | 20.10.2015 | C | DB-MOLK-1.
- Bottom Right:** 'Dairyconfiguration' screen with fields: Dairynumber (1745), Dairyname (BAUER), Return data format (FTL), Vehicle Number (217). Includes 'CHANGE', 'ABORT', and 'CONFIRM' buttons. Status bar: 11:52 | 14.11.18 | DB-MOLK-2.

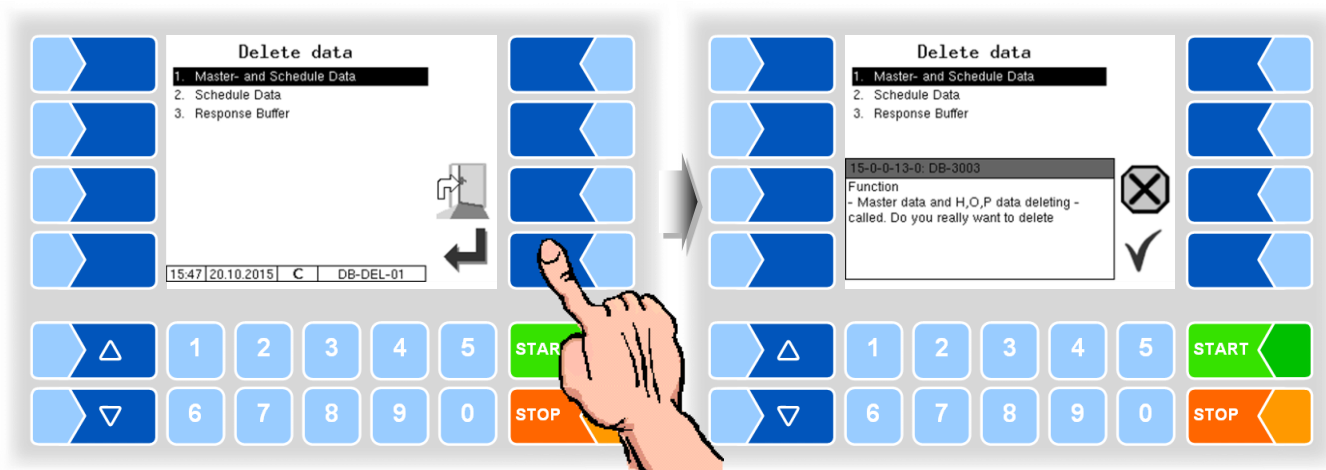
Each screen features a numeric keypad (0-9) and 'START' (green) and 'STOP' (orange) buttons.

## 4.4.4 Delete data

Information can be deleted from the database if needed.



- Select the record to be deleted and confirm the safety query:



### Master and Schedule Data

The master data transmitted from the dairy / office (e.g. Supplier, driver, dairies, etc.) and the schedule data (see next point).

### Schedule Data

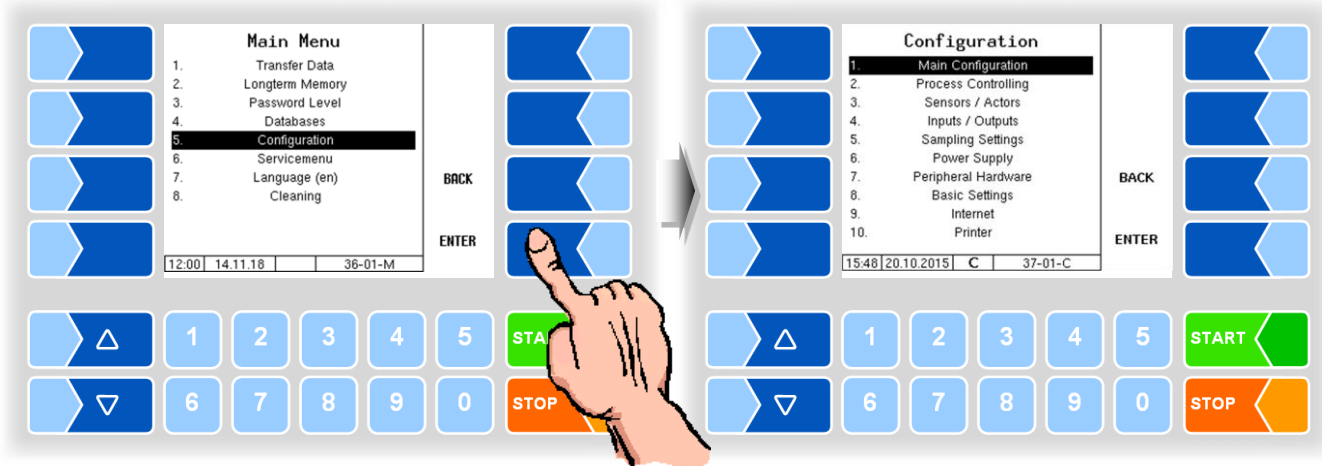
The schedule data, transmitted by the dairy / the office (e.g. tour schedule, order specification, etc.).

### Response Buffer

The response data generated by the vehicle (e.g. milk intakes, tour data, etc.). All generated response data will be deleted, regardless of whether they have already been sent or not.

## 4.5 Configuration

In the configuration menus, the system software is adapted to the specific operating conditions and installed hardware by entering various parameters.



In the Configuration menus, the software for the system is customised to the respective operating conditions and the installed hardware by entering various parameters.

Parameters that are subject to statutory calibration are marked in the display with an asterisk prefixed.

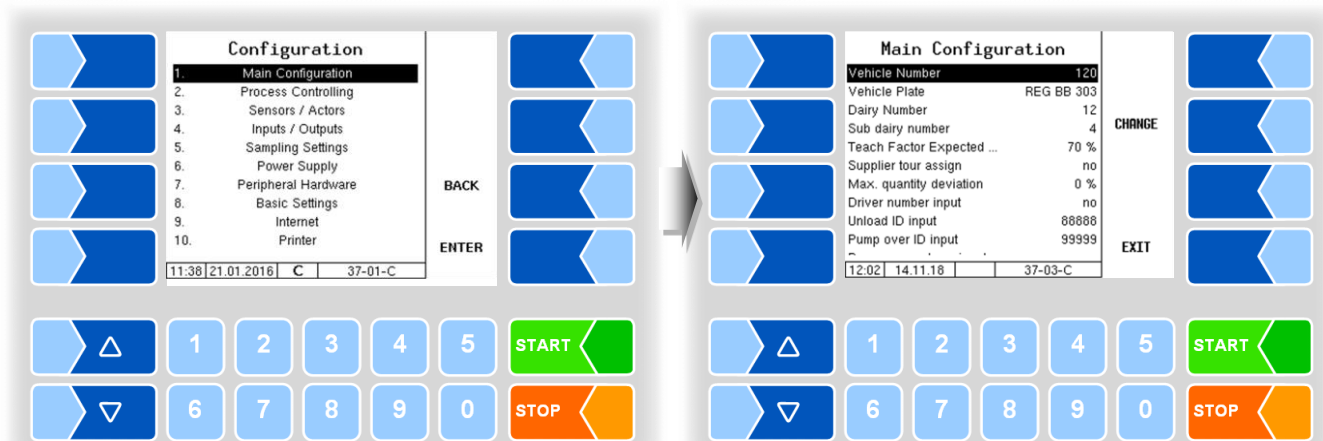
*In the following parameter tables are default values given in brackets.*

An overview of the structure of the configuration menu can be found in section 5.1 of the Appendix.

The password level, which allows access, is also noted there.

During an initial configuration you must first set the language (section 4.5.8.2) and the Type of system (section 4.5.8.3) in the Basic settings menu.

## 4.5.1 Main configuration



Main configuration																													
U	<table border="1"> <tr> <td>Vehicle Number</td> <td>Vehicle number (max. 6 digits)</td> </tr> <tr> <td>Vehicle Plate</td> <td>Collection vehicle plate</td> </tr> <tr> <td>Dairy Number</td> <td>max. 9 digits</td> </tr> <tr> <td>Sub dairy number</td> <td>max. 2 digits, ADIS-ADED: 4 digits</td> </tr> <tr> <td>Teach Factor Expected Volume</td> <td>The entered number is proposed when starting a tour. It can be changed by the driver. It can not be changed if you set a minus sign before the number. If you enter 0, there is no takeover in the tour start dialog. The last entered number will be proposed.</td> </tr> <tr> <td>Supplier tour assign</td> <td>The teach factor determines what percentage of the quantity of milk just collected will go into the default quantity to be created.</td> </tr> <tr> <td>Max. quantity deviation</td> <td>yes: Suppliers can be assigned to a tour. Allowed deviation from the expected to the actual intake volume in % An error message will be displayed if this situation occurs</td> </tr> <tr> <td>Driver number input</td> <td>no: A new driver number does not necessarily have to be entered when starting a tour. The previous number is proposed again. force: The driver number will be deleted after ending a tour. When starting a tour a new number has to be entered. (Configuration of the tag reader see page 97, 98)</td> </tr> <tr> <td>Unload ID input</td> <td>-1: No prompt is displayed, unloading is without ID, ID 0 will be recorded. 0: A prompt is displayed, an unloading ID should be entered. above 0: No prompt is displayed. There will always be recorded that ID you enter here.</td> </tr> <tr> <td>Pump over ID input</td> <td>-1: No prompt is displayed, pump over is without ID, ID 0 will be recorded. 0: A prompt is displayed, a pump over ID is to enter. above 0: A prompt is displayed, a pump over ID should be entered (different locations). There will always be recorded that ID you enter here.. below -1: (e.g -99): A prompt is displayed, a pump over ID must be entered. That ID you configure here will be prefixed the input ID. Example: configured heret: -99, input ID: 1749, Result: 991749</td> </tr> <tr> <td>Pump over volume input</td> <td>no: Entering a quantity not required force:: When pumping over a quantity must be entered.</td> </tr> <tr> <td>Tour end Test</td> <td>On: If at least one milk intake was carried out in the tour, the tour can be finished only if the following conditions are met: - Measuring system was emptied, - collection truck was unloaded - cleaning was carried out</td> </tr> <tr> <td>Automatic data transfer</td> <td>Off: The data is transferred only after selecting the data transmission. Tour end: The data is automatically transferred after ending the tour.</td> </tr> <tr> <td>Op.-Data recording</td> <td>switching on or off the operating data logging (operating data: driving dataDriving times, intake times, downtimes, breaks, pump running times, sensor response times)</td> </tr> </table>	Vehicle Number	Vehicle number (max. 6 digits)	Vehicle Plate	Collection vehicle plate	Dairy Number	max. 9 digits	Sub dairy number	max. 2 digits, ADIS-ADED: 4 digits	Teach Factor Expected Volume	The entered number is proposed when starting a tour. It can be changed by the driver. It can not be changed if you set a minus sign before the number. If you enter 0, there is no takeover in the tour start dialog. The last entered number will be proposed.	Supplier tour assign	The teach factor determines what percentage of the quantity of milk just collected will go into the default quantity to be created.	Max. quantity deviation	yes: Suppliers can be assigned to a tour. Allowed deviation from the expected to the actual intake volume in % An error message will be displayed if this situation occurs	Driver number input	no: A new driver number does not necessarily have to be entered when starting a tour. The previous number is proposed again. force: The driver number will be deleted after ending a tour. When starting a tour a new number has to be entered. (Configuration of the tag reader see page 97, 98)	Unload ID input	-1: No prompt is displayed, unloading is without ID, ID 0 will be recorded. 0: A prompt is displayed, an unloading ID should be entered. above 0: No prompt is displayed. There will always be recorded that ID you enter here.	Pump over ID input	-1: No prompt is displayed, pump over is without ID, ID 0 will be recorded. 0: A prompt is displayed, a pump over ID is to enter. above 0: A prompt is displayed, a pump over ID should be entered (different locations). There will always be recorded that ID you enter here.. below -1: (e.g -99): A prompt is displayed, a pump over ID must be entered. That ID you configure here will be prefixed the input ID. Example: configured heret: -99, input ID: 1749, Result: 991749	Pump over volume input	no: Entering a quantity not required force:: When pumping over a quantity must be entered.	Tour end Test	On: If at least one milk intake was carried out in the tour, the tour can be finished only if the following conditions are met: - Measuring system was emptied, - collection truck was unloaded - cleaning was carried out	Automatic data transfer	Off: The data is transferred only after selecting the data transmission. Tour end: The data is automatically transferred after ending the tour.	Op.-Data recording	switching on or off the operating data logging (operating data: driving dataDriving times, intake times, downtimes, breaks, pump running times, sensor response times)
Vehicle Number	Vehicle number (max. 6 digits)																												
Vehicle Plate	Collection vehicle plate																												
Dairy Number	max. 9 digits																												
Sub dairy number	max. 2 digits, ADIS-ADED: 4 digits																												
Teach Factor Expected Volume	The entered number is proposed when starting a tour. It can be changed by the driver. It can not be changed if you set a minus sign before the number. If you enter 0, there is no takeover in the tour start dialog. The last entered number will be proposed.																												
Supplier tour assign	The teach factor determines what percentage of the quantity of milk just collected will go into the default quantity to be created.																												
Max. quantity deviation	yes: Suppliers can be assigned to a tour. Allowed deviation from the expected to the actual intake volume in % An error message will be displayed if this situation occurs																												
Driver number input	no: A new driver number does not necessarily have to be entered when starting a tour. The previous number is proposed again. force: The driver number will be deleted after ending a tour. When starting a tour a new number has to be entered. (Configuration of the tag reader see page 97, 98)																												
Unload ID input	-1: No prompt is displayed, unloading is without ID, ID 0 will be recorded. 0: A prompt is displayed, an unloading ID should be entered. above 0: No prompt is displayed. There will always be recorded that ID you enter here.																												
Pump over ID input	-1: No prompt is displayed, pump over is without ID, ID 0 will be recorded. 0: A prompt is displayed, a pump over ID is to enter. above 0: A prompt is displayed, a pump over ID should be entered (different locations). There will always be recorded that ID you enter here.. below -1: (e.g -99): A prompt is displayed, a pump over ID must be entered. That ID you configure here will be prefixed the input ID. Example: configured heret: -99, input ID: 1749, Result: 991749																												
Pump over volume input	no: Entering a quantity not required force:: When pumping over a quantity must be entered.																												
Tour end Test	On: If at least one milk intake was carried out in the tour, the tour can be finished only if the following conditions are met: - Measuring system was emptied, - collection truck was unloaded - cleaning was carried out																												
Automatic data transfer	Off: The data is transferred only after selecting the data transmission. Tour end: The data is automatically transferred after ending the tour.																												
Op.-Data recording	switching on or off the operating data logging (operating data: driving dataDriving times, intake times, downtimes, breaks, pump running times, sensor response times)																												

Sped. number	N°. of the freight forwarder
Force sequence	The vehicle must be empty at the end of tour.
Pos. search time	Periode in which needs to be driven faster than set in „Pos. search speed“ in order to initiate the search of suppliers in the database.
Pos. search speed	Speed which must be exceeded for the duration, specified in "Pos. search time", in order to initiate the search of suppliers in the database.
LOG-GPS Interval	Database entries are generated in the specified time interval.
Unload sensor	Off Unload: Temperature sensor during unloading CIP: no CIP, when „sensor wetted-dialog“ appears Unload/CIP: Both, unloading and CIP

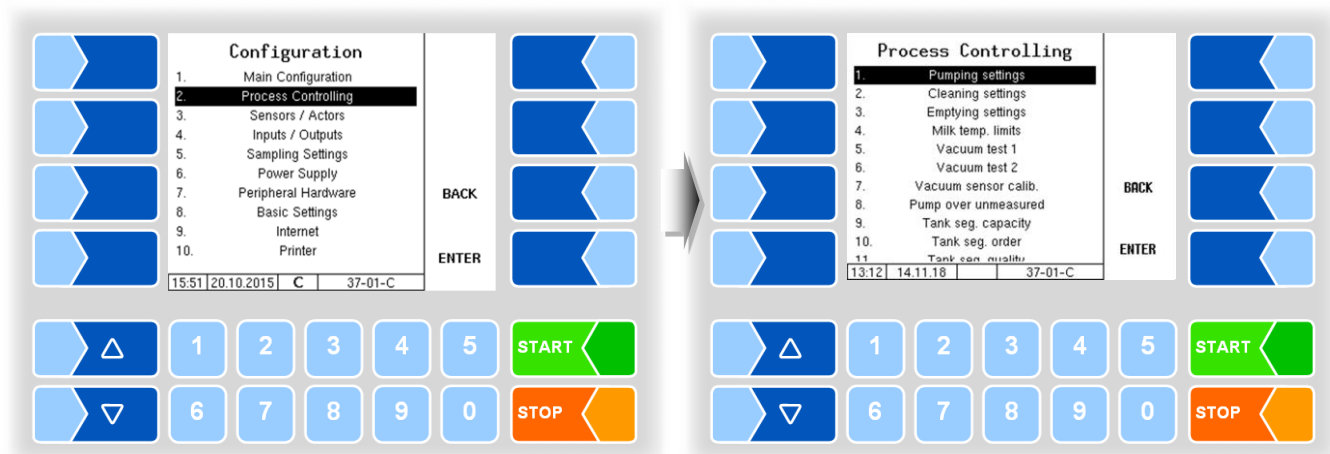


## 4.5.2 Process Controlling

Different types of measuring systems are used in different vehicle types (selection of the measuring system type see section 4.5.8.3).

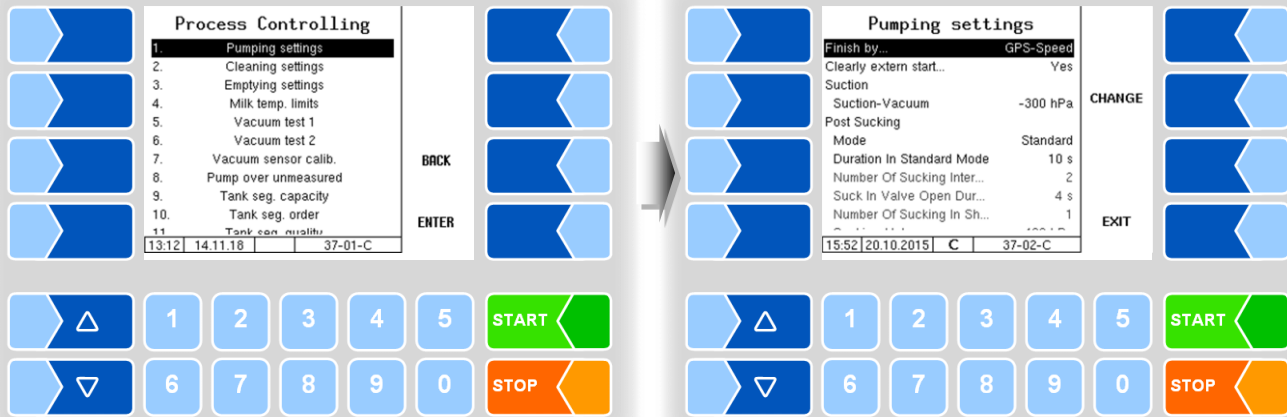
Aside of general settings, which apply to all vehicle variants, the Process Controlling menu offers system specific settings for the different measuring system types.

	General	TIGER	LYNX	HLW	abo MAGYAR	V 3003	E-TIGER	Optimate	ROMEX	V plus
Pumping settings		X	X	X	X	X	X	X	X	X
Air eliminator						X				
Cleaning settings		X	X	X	X	X	X	X	X	X
Emptying settings		X					X			
Milk temp. limits	X									
Truck air settings							X			
Vacuum test 1		X				X	X			
Vacuum test 2		X					X			
Vacuum sensor calib.		X					X			
Pump over unmeasured		X				X	X			
Tank seg. capacity		X	X	X	X	X	X	X	X	X
Tank seg. order	X									
Tank seg. quality	X									



## 4.5.2.1 Pumping settings

### Type TIGER and E-TIGER

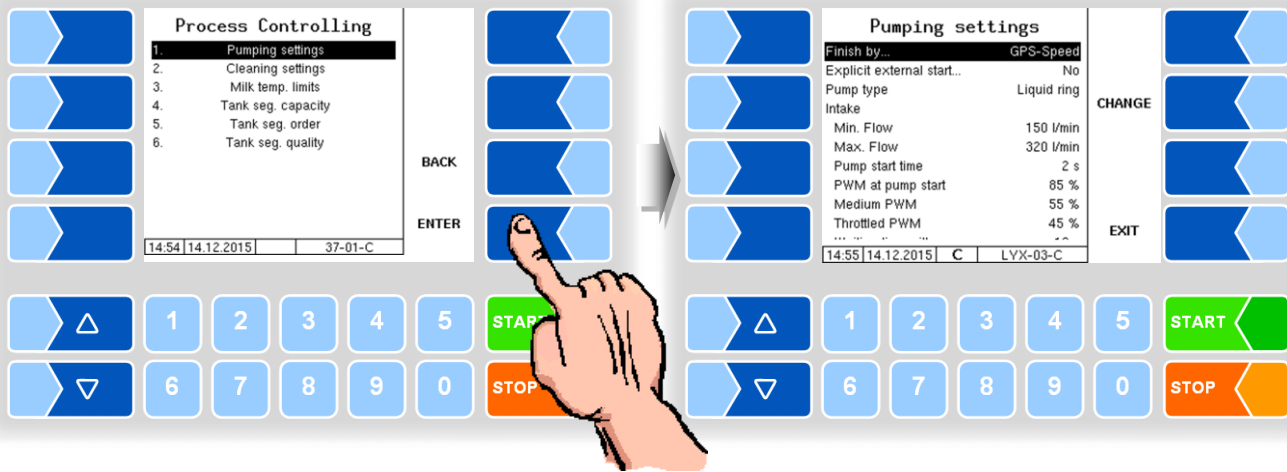


#### Pumping settings (TIGER, E-TIGER)

U	Finish by...	Manual:	The intake is manually ended by the driver (by pressing the finish button).
		GPS Speed	The intake is automatically ended via the measured speed. (Can also be ended by pressing the finish button.)
		PTO signal	The intake is ended by shutting off the auxiliary take-off. (N.B.: Only possible if signal is connected.)
	Clearly external start	Yes:	The intake can only be started on the controller. The external start, e.g. via remote control, is blocked. This function serves the purpose of clear identification when there is a choice between several suppliers.
	Suction		
	Suction-Vacuum	Vacuum at the beginning of the intake to fill the system with medium [hPa]	
	Post Sucking		
	Mode	Standard	Standard Mode
		Flat Vessel	Mode for sucking from flat vessels (N.B.: delays conclusion time.)
	Duration in Standard Mode	After the milk sensor M1 reports "empty", sucking will continue for this period [s]	
	Number of Sucking Intervals	Automatically set to 1	
	Suck in Valve Open Duration	Time for which the suck in valve is opened [s]	
	Number Of Sucking In Shots	Number of post sucking intervals	
	Sucking Vacuum	Max. vacuum during post-sucking [hPa]	
	Vacuum Tank		
Set point Vacuum	Max. vacuum in holding tank [hPa]		
Intake			
Min. Flow	Minimum standard flow rate e.g. in case of elevated air impaction during intake [l/min]		
Max. Flow	Max. regulated flow (limits intake flow) [l/min]		
Max. Vacuum	Max. vacuum during intake [hPa]		

U	Measured pump over	
	Min. Flow	Minimum normally flow eg. at elevated air entrainment during pumping [l/min]
	Max. Flow	Maximum controlled flow (limits the discharge flow) [l/min]
	PS-Regulator	On: When pumping over the centrifugal pump is also regulated at the level vessel height. If possible set to: „On“ (deactivate only when the pumping power collapses abruptly during pumping over).
	Measured Unload	
	Min. Flow	Minimum standard flow rate e.g. in case of elevated air impaction during delivery [l/min]
	Max. Flow	Max. regulated flow (limits delivery flow) [l/min]
	Prop. Gain	Standard aggressiveness of pump power
	Flow Regulator	
	Upper limit	Upper adjusting range limit of the PWM pump control valve [%] <b>Has to be configured during initial service!</b>
Prop. Gain	Standard aggressiveness of pump output	
S	Air regulator	
	Tolerated air	Air impaction tolerated before pump output is reduced [%]
	Prop. Gain	Standard aggressiveness in case of air impaction
	Dipstick regulator	
	mA for 1l Medium	Current for 1 litre medium in level sensor container [mA]
	Sensor intake end	Target level value at the end of intake [mA]
	Sensor empty value	Voltage at which the level container is empty [mA] <b>Has to be configured during initial service!</b>
	Sensor full value	Current, when level jar is full [ $\mu$ A]
	Regulator on	Switch on level gauge regulator
	Prop. Gain	Standard aggressiveness when level sensor drops
	Air calculation	
	Bubble Sensor Offset	Bubble Sensor Offset <b>Has to be configured during initial service!</b>
	Vakuum Offset	Vacuum Offset
	Max. air litre	Max. allowed quantity of air (total) during intake. When this value is reached, the pump output is reduced
Bubble Sensor...	Dimension of the suction side bubble sensor 3 inch 4 inch <b>Has to be configured during initial service!</b>	

## Type LYNX

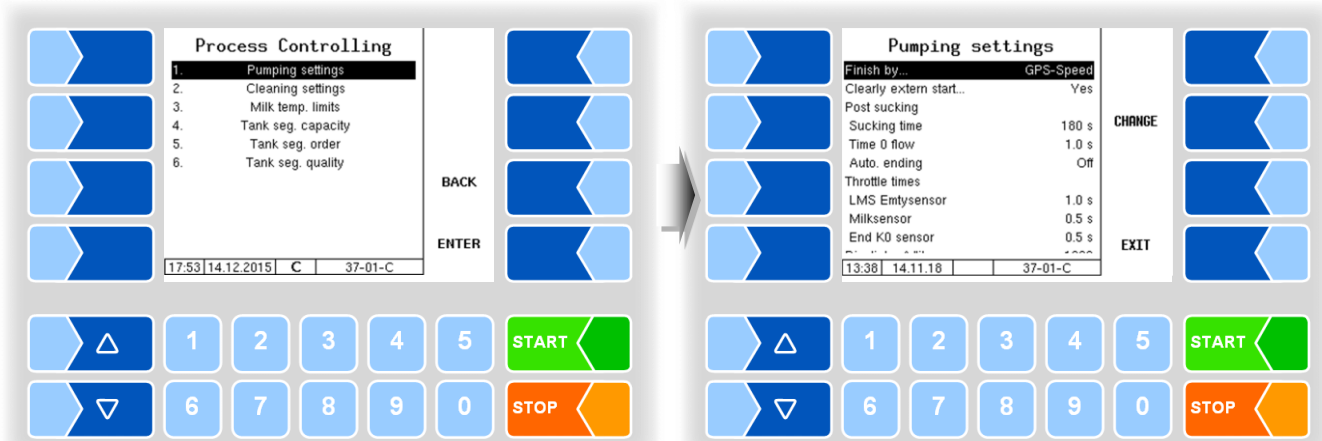


## Pumping settings (LYNX)

U	Finish by...	Manual:	The intake is manually ended by the driver (by pressing the finish button).
		GPS-Speed:	The intake is automatically ended via the measured speed. (Can also be ended by pressing the finish button.)
		PTO signal:	The intake is ended by shutting off the auxiliary take-off. (N.B.: Only possible if signal is connected.)
	Explicit external start...	Yes:	The intake can only be started on the controller. The external start, e.g. via remote control, is blocked. This function serves the purpose of clear identification when there is a choice between several suppliers.
S	Pump type	Impeller:	The current system uses an impeller pump (default). The current system uses an impeller pump (default).
		Liquid ring:	The current system uses a liquid ring pump. The pumping process will differ according to this pump type.
			<b>Has to be configured during initial service!</b>
U	Intake		
	Min. Flow	If the system registers air intake while pumping it will throttle to this minimal flow. [l/min]	
	Max. Flow	The maximal flow that the system will speed up to. [l/min]	
	Pump start time	Time to accelerate the pump (with max. PWM) at the beginning of an intake. [s]	
	PWM at pump start	The PWM drive during pump start time. [%]	
	Medium PWM	PWM drive after pump start to fill the intake hose and gas separator. [%]	
	Throttled PWM	Minimal PWM drive during the pumping process. This value has to be high enough to keep an impeller pump turning at all times during an intake. [%]	
	Waiting time milk sensor	Time until the system automatically stops if no milk has been detected at the beginning of the intake.	

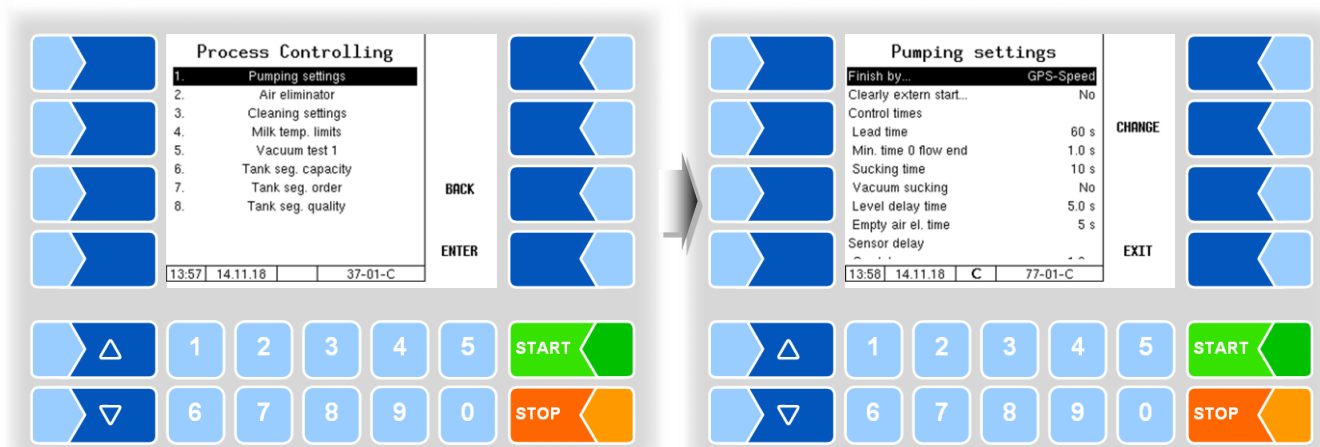
Post Sucking		
U	Post sucking time	Fixed time to suck at the end of an intake to suck in medium remains and drain the intake hose. [s]
	PWM post sucking	The PWM drive used during post sucking time [%]
	Dipstick target value	The targeted medium level in the gas separator at the end of an intake. [ $\mu$ A]
	PWM to target value	PWM drive while lowering medium level to target value. Fixed value for impeller pumps; minimum value for water ring pumps. [%]
	Lower gradually to target	<b>Impeller pump only!</b> Yes: Try to gradually lower the medium level in the gas separator at intake end. May prolong intake duration but increases accuracy. No: Lower medium level quickly to target level (may reduce accuracy).
	Max. flow to target val.	Flow to lower the medium level in the gas separator. [l/min].
	Max. lowering duration	<b>Impeller pump only!</b> Max. duration that the system will try to lower the medium level in the gas separator. [s]
	Pause between lowering	Duration to settle down after medium lowering. This time will automatically increase if the medium is moving too much.[s]
	Max. dipstick alteration	Dipstick alteration represents the movement of the medium in the gas separator. The final intake volume will be measured after the dipstick alteration stabilizes within the configured value. [ $\mu$ A]
	Max. post suck time	The maximum duration of post sucking. The system will automatically stop the post sucking process if this time passes. A warning will be displayed if a valid state for volume measurement could not be reached. [s]
Flow regulation		
U	Upper limit	Maximum PWM drive for pump regulation. [%]
	Prop. Gain	Influences regulation duration. Higher values reduce time until the desired PWM is reached.
	Purge pause	Stop the flow regulation while purging. Reduces irregularities during sudden flow drops. [s]
	Max. difference FLM	Maximum voltage tolerance of the FLM during air intake. The system will slow down to min. flow if this value is exceeded. [mV]
	lower threshold FLM	Between these volumes the reference value of the FLM will be determined. [l]
	upper threshold FLM	
Dipstick regulation		
S	$\mu$ A for 1l medium	Dipstick difference for one liter medium in the gas separator. [ $\mu$ A] <b>Has to be configured during initial service!</b>
	Sensor full value	Maximal detectable value of the dipstick in filled gas separator. [ $\mu$ A] <b>Has to be configured during initial service!</b>
	Sensor empty value	Minimal value of dipstick in empty gas separator. [ $\mu$ A] <b>Has to be configured during initial service!</b>
U	Upper dipstick threshold	Dipstick value to stop purging the gas separator. [ $\mu$ A]
	Lower dipstick threshold	Dipstick value to where the gas separator has to be purged. [ $\mu$ A]
S	Invert dipstick input	The dipstick values will be interpreted inverted. <b>Has to be configured during initial service!</b>
Clear system		
U	Duration	Duration to drain the system. If the system is empty after this period of time it will automatically stop. Otherwise the duration will be doubled. [s]

## Types HLW, abo-MAGYAR, ROMEX, Optimate, V plus

**Pumping Settings (HLW, abo-MAGYAR, ROMEX, Optimate, V plus)**

U	Finish by...	Manual:	The intake is manually ended by the driver (by pressing the finish button).
		GPS-Speed:	The intake is automatically ended via the measured speed. (Can also be ended by pressing the finish button.)
		PTO signal:	The intake is ended by shutting off the auxiliary take-off. (N.B.: Only possible if signal is connected.)
	Clearly extern start...	Yes:	The intake can only be started on the controller. The external start, e.g. via remote control, is blocked. This function serves the purpose of clear identification when there is a choice between several suppliers.
	Post Sucking		
	Sucking time	Fixed time to suck at the end of an intake to suck in medium remains and drain the intake hose. [s]	
	Time 0 flow	For the configured period, the flow must be equal to zero, so that the intake can be terminated.	
Auto. ending <b>„Optimate“ and „V plus“ only</b>		The milk intake will be ended automatically. The softkey <span style="border: 1px solid black; padding: 2px;">End of milk intake</span> or the ready button on the remote control does not need to be pressed even when closed manually.	
Throttle times			
	LMS Emptysensor	Debouncing time of the respective input	
	Milksensor		
	End K0 sensor		
S	Dipstick $\mu\text{A}/\text{liter}$	<b>„V plus“ only</b>	Current for 1 liter of medium in the level sensor container [ $\mu\text{A}$ ]
	Dipstick empty		Voltage at which the level container is empty [ $\mu\text{A}$ ] <b>Has to be configured during initial service!</b>

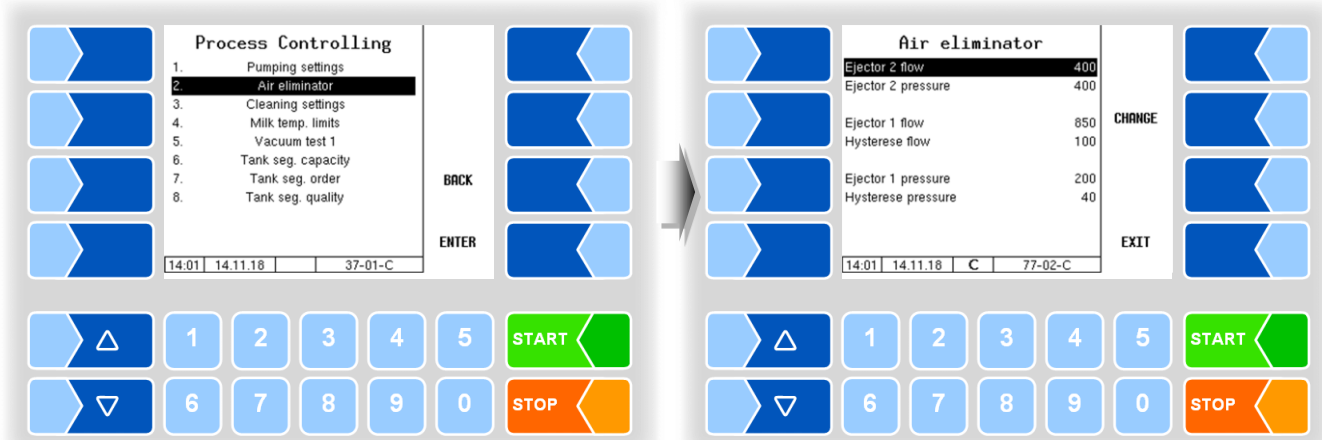
## Type V 3003



## Pumping settings (V 3003)

U	Finish by...	Manual:	The intake is manually ended by the driver (by pressing the finish button).	
		GPS-Speed:	The intake is automatically ended via the measured speed. (Can also be ended by pressing the finish button.)	
		PTO signal:	The intake is ended by shutting off the auxiliary take-off. (N.B.: Only possible if signal is connected.)	
	Clearly extern start...	Yes:	The intake can only be started on the controller. The external start, e.g. via remote control, is blocked. This function serves the purpose of clear identification when there is a choice between several suppliers.	
	Control times			
	Lead time		Time from pump start to milk must be recognized. If timeout, the pump will stop. If 0 is entered, there is no time limit	(20 s)
	Min. time 0 flow end		For the configured time duration, the flow must be zero that the milk intake can be ended.	(1,0 s)
	Sucking time		Post suction time after sensor signal "no milk"	(10 s)
	Vakuum sucking	Yes:	To build up more vacuum the suction flap is closed every 4 seconds for 2.5 seconds.	
	Level delay time		Settling time for the level in the air separator at the end of the post suction time.	(5,0 s)
	Empty air el. time		After the empty signal sensor has signaled "measuring system empty", it continues to be pressed for the configured time.	(5,0 s)
	Sensor delay			
	On delay		Delayed signal output from the milk sensor or vacuum switch after milk detection ("Debouncing" of the sensor).	(1,0 s)
	Off delay		Delayed signal output from the milk sensor or vacuum switch after the absence of milk.	(1,0 s)
Pump over				
Max. power		maximum control of the pump (High Flow)	(80%)	
Min. power		minimal control of the pump (slow flow) (35%) (During overpumping, it can be switched from high to slow flow.)		
Stop liters		During measured overpumping the pump is stopped x liter before reaching the preset quantity.		
Sample box				
FLM-Position	above:	Flowlevelmeter is located above the air separator inlet.		
	below:	Flowlevelmeter is located below the air separator inlet		

## 4.5.2.2 Air eliminator (Only with type V 3003)



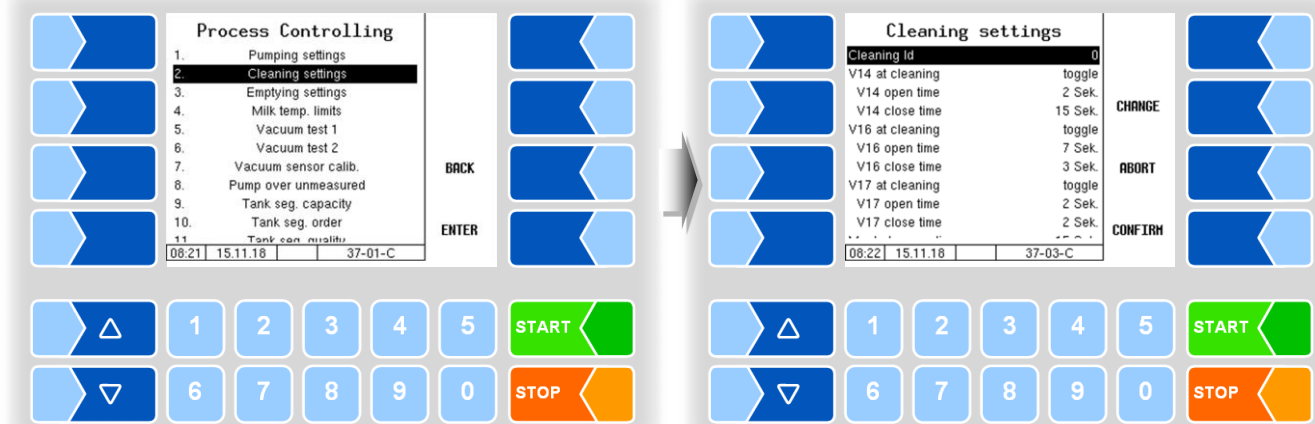
Air eliminator control (V 3003)		
U	Ejector 2 flow	Flow in l / min If the flow is above the entered value, ejector 2 switches off and ejector 1 switches on. If the flow is below the entered value, the control is pressure-dependent: if the pressure in ejector 1 is higher than the value entered there +100, ejector 2 remains active; if the pressure is lower, it switches off. If 0 is entered, the control of the ejectors is only pressure-dependent. (400)
	Ejector 2 pressure	Absolute pressure in the ejector 2 in hPa (400) If the pressure exceeds or falls below the pressure, the ejector switches flow-dependent on or off.
	Ejector 1 flow	Flow in l / min. If the flow is below the value entered here, but above the value of ejector 2, the ejector 1 sucks. If the flow exceeds the value entered here, only the centrifugal pump sucks. (850)
	Hysteresis flow	Hysteresis for restarting ejector 1. In the example, ejector 1 switches on at 750 l / min. (100)
	Ejector 1 pressure	Absolute pressure in the ejector 1 in hPa. If the pressure falls below the pressure entered here, ejector 1 switches off or exceeds the flow rate configured for ejector 1. (200)
	Hysteresis pressure	Hysteresis for restarting ejector 1. In the example, ejector 1 switches on at 240 hPa zu. (40)

The flow rate of ejector 1 must be higher than that of ejector 2!



### 4.5.2.3 Cleaning settings

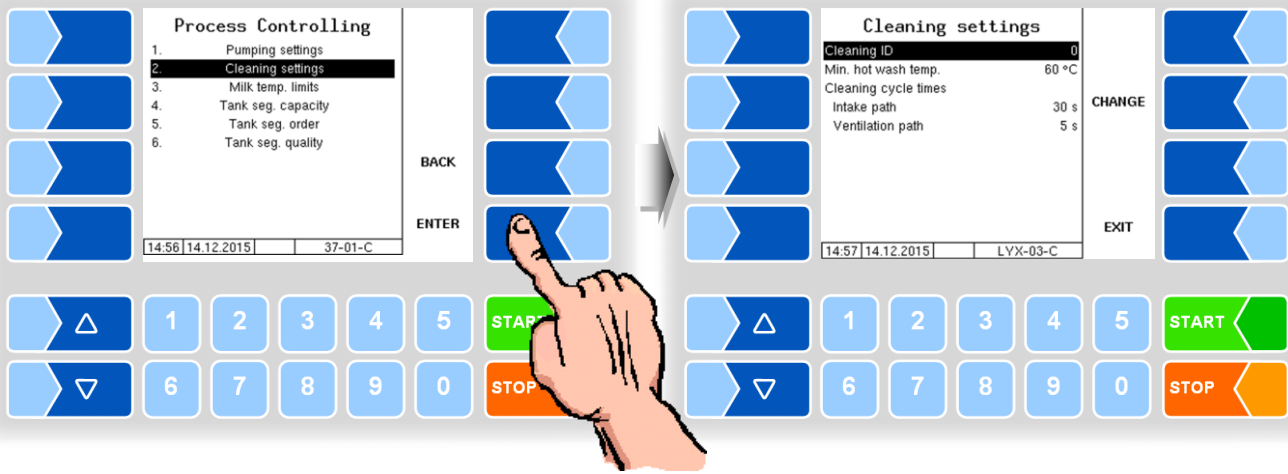
#### Types TIGER and E-TIGER



Cleaning settings (TIGER, E-TIGER)		
D	Cleaning Id	The cleaning ID will be recorded.
S	V14 (V16, V17) at cleaning	close: V14 closed while CIP open: V14 opened while CIP toggle: While cleaning the vacuum holding tank, V14 will be open for the specified time (see next parameter) <b><i>Has to be configured during initial service!</i></b>
U	V14 (V16, V17) open time	* Duration of open during cleaning the vacuum holding tank [s]
	V14 (V16, V17) close time	Closing time while cleaning the vacuum holding tank [s]
	Manhole open time	Flow duration during CIP to clean the manhole cover [s]
	Tanksegment valves	closed Position of the tank segment valves open during CIP
	Minimum Hot Wash Temp	Minimum temperature during hot wash. The total time during which this temperature is exceeded is recorded. [°C]
	Cleaning Cycle Duration	
	Vacuum Holding Tank	Cleaning duration for the vacuum holding tank [s]
	Milk Line	Cleaning duration for the milk line [s]
	MKS-Filter	Cleaning duration for the HFMD-Filter
	Transfer Pipe	Cleaning duration for the transfer pipe [s]
	Transfer Exit Pipe	Cleaning duration for the transfer exit pipe [s]
	Time after cleaning	After this time a cleaning has to be done (72 h)
	Time after first intake	This time after the first intake a cleaning has to be done (24 h)
	Time after last intake	This time after the last intake a cleaning has to be done (12 h)
	Force cleaning	Yes: Force a cleaning process if one of the configured times has expired. Starting a new intake is only possible after a cleaning. No: Cleaning is not forced.

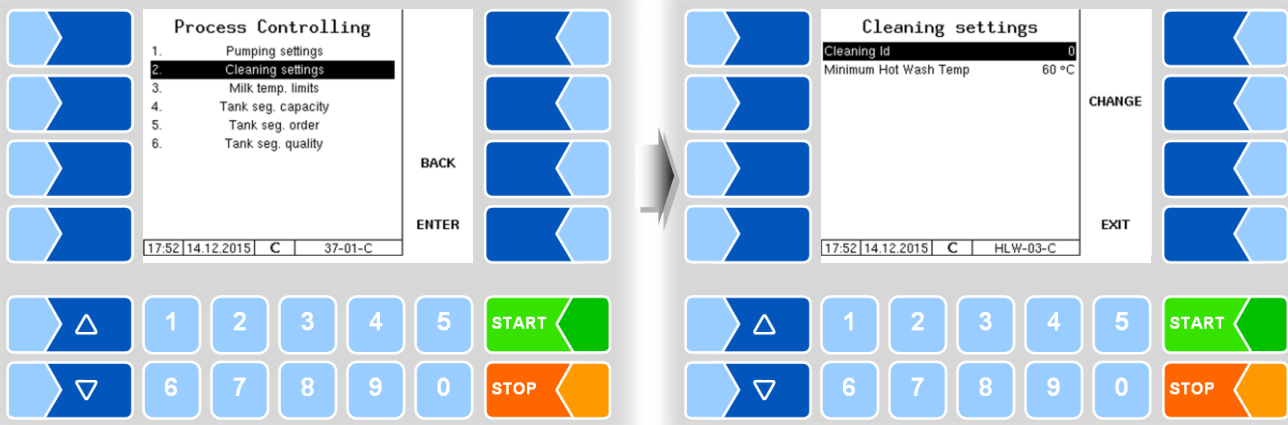
\* Only available, when V14 (V16, V17) at cleaning is set to "toggle".

### Type LYNX



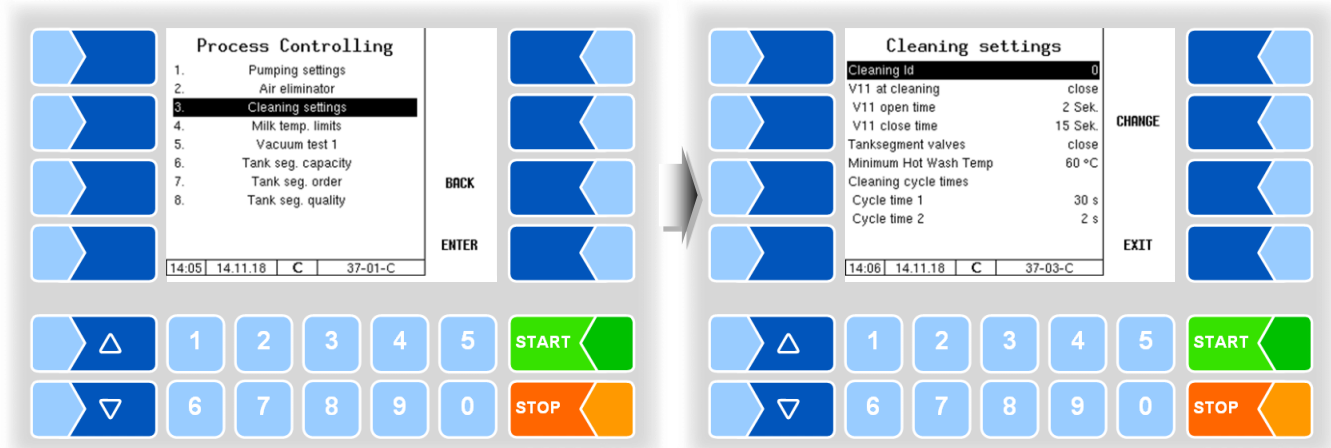
Cleaning settings (LYNX)		
D	Cleaning ID	The cleaning ID will be stored with the data record.
U	Min. hot wash temp.	Minimum temperature during hot wash. The total time during which this temperature is exceeded is recorded. [°C]
Cleaning cycle times		
U	Intake path	Cleaning duration for the intake path [s]
	Ventilation path	Cleaning duration for the ventilation path [s]

### Types HLW, abo-MAGYAR, ROMEX, Optimate and V plus



Cleaning settings (HLW, abo-MAGYAR ROMEX, Optimate, V plus)		
D	Cleaning ID	The cleaning ID will be stored with the data record.
U	Minimum Hot Wash Temp.	Minimum temperature during hot wash. The total time during which this temperature is exceeded is recorded. [°C]

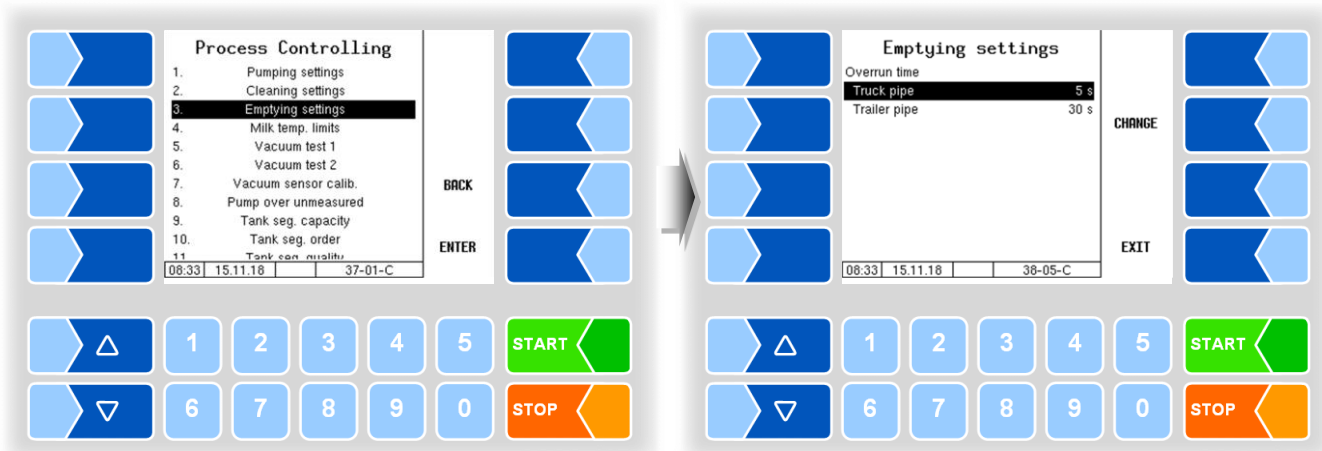
## Type V 3003



Cleaning settings (V3003)		
D	Cleaning ID	The cleaning ID is stored in the data record.
S	V11 at cleaning	close: Valve 11 is closed at CIP. open: Valve 11 is open at CIP. toggle: When cleaning the vacuum storage tank, the valve is opened for a defined time (see next parameter). <b>Must be configured during commissioning depending on the piping.</b>
	V11 open time	* Opening time while cleaning the vacuum storage tank [s]
V11 close time	Closing time while cleaning the vacuum storage tank [s]	
U	Tanksegment valves	close Position of the tank compartment valves open during cleaning
	Minimum Hot Wash Temp.	Minimum temperature during hot cleaning. The total time during which this temperature is exceeded during cleaning is recorded. [°C]
	Cleaning cycle times	
	Cycle time 1	Valve cycle times for CIP (30 s)
	Cycle time 2	(5 s)

\* only available if V11at cleaning is configured to "toggle".

## 4.5.2.4 Emptying settings (only with types TIGER and E-TIGER)



Emptying settings (TIGER, E-TIGER)		
	Overrun time	When the system is empty, emptying continues for the configured time.
U	Truck pipe	5 s
	Trailer pipe	30 s

To empty the measuring system, the driver can make the following selection:

1. Truck: only the line to the tank in the towing vehicle is emptied (follow-up time vehicle line: 5 s).
2. Truck and Trailer: the line to the tank in the towing vehicle is emptied (follow-up time vehicle line: 5 s) then it is switched (V16) on the line to the trailer (trailer follow-up time: 30 s)

The following configuration is required for the selection of emptying options:

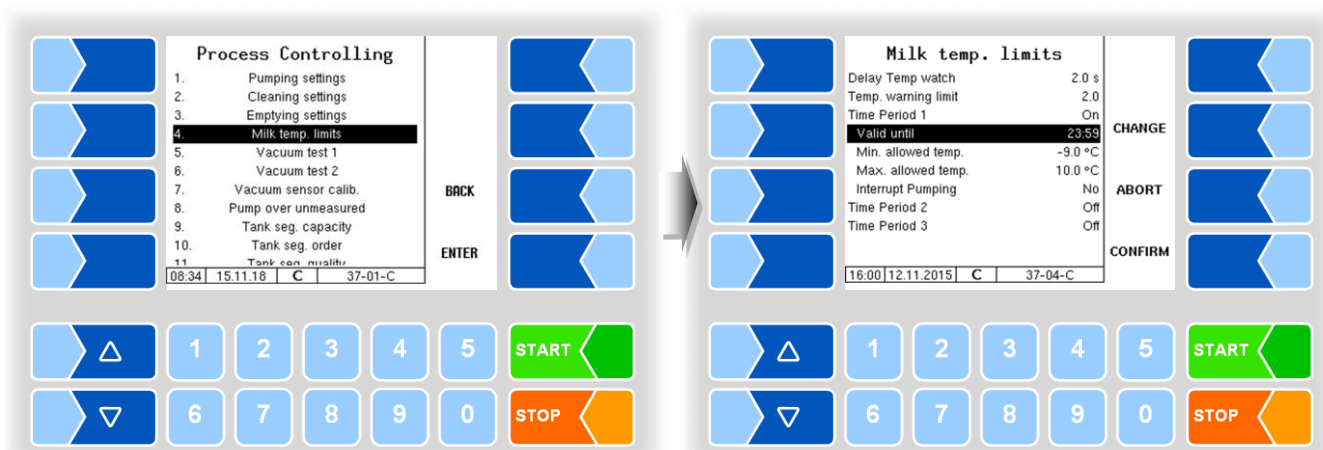
- The logical output 16 (*pump over compartment*) (not via V12 but directly to the trailer) must be configured.
- The logical input 24 (*trailer present*) is configured and the input is active *or* the logical input 24 (*trailer present*) is not configured.

If this configuration is not given, it is always the first parameter for emptying of the vehicle line (5 s) used.

### 4.5.2.5 Milk temperature limits (all vehicle types)

The milk to be collected can be monitored for compliance with a max. allowed temperature depending on time of day. To this end, you can enter three times with the corresponding temperature limits.

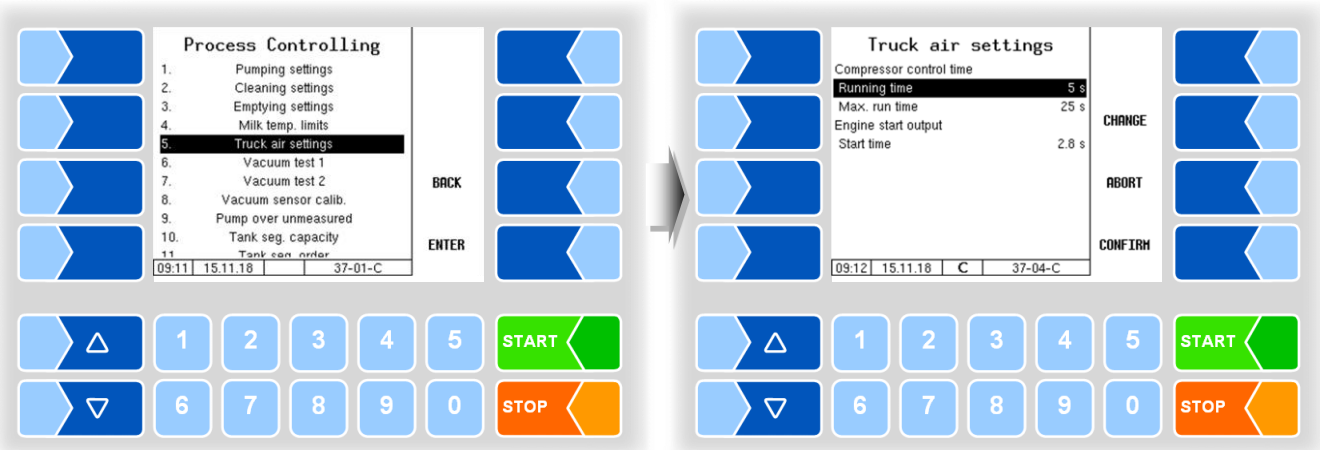
If the temperature limits are exceeded, a warning message is displayed and the pump is stopped, if this is configured (see below).



Milk temperature limits		
U	Delay Temp watch	Delay of the temperature measurement after the system detects medium. [s]
	Temp. warning limit	Temperature threshold. The value determines how many °C before reaching a temperature limit, a warning is displayed. [°C]
	Time period 1 (2, 3)	On/Off Activate or deactivate the time period for temperature monitoring
	Valid until	Time until when the milk is monitored for compliance with the maximum allowed temperature.
	Min. allowed temp.	Lower temperature limit for milk intake during this time period [°C]
	Max. allowed temp.	Upper temperature limit for milk intake during this time period [°C]
	Interrupt Pumping	Yes: Pumping is interrupted if the maximum allowed temperature is exceeded. No: Pumping is not interrupted if the maximum allowed temperature is exceeded. Only a warning message is shown.

### 4.5.2.6 Truck air settings (only type E-TIGER)

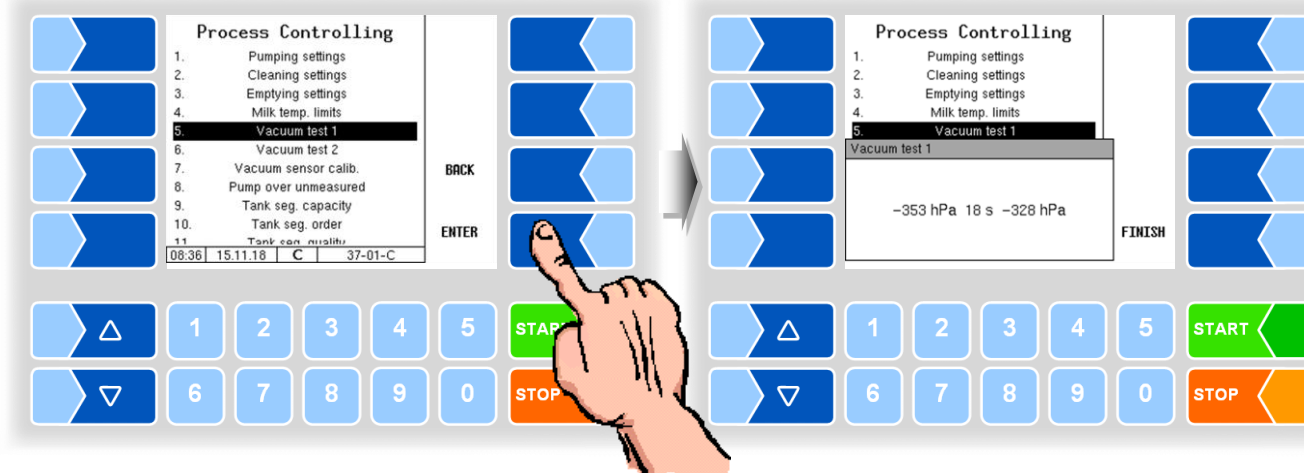
In the variant E-Tiger, the compressed air supply of the vehicle is monitored or controlled.



Truck air settings		
U	Compressor control time	
	Running time	Follow-up time of the compressor after reaching the vehicle pressure.
	Max. run time	Maximum continuous running time of the compressor
	Engine start output	
	Start time	The output is set for the configured time to start the vehicle engine, when compressed air is required.

### 4.5.2.7 Vacuum Test 1 (only types TIGER, V 3003, E-TIGER)

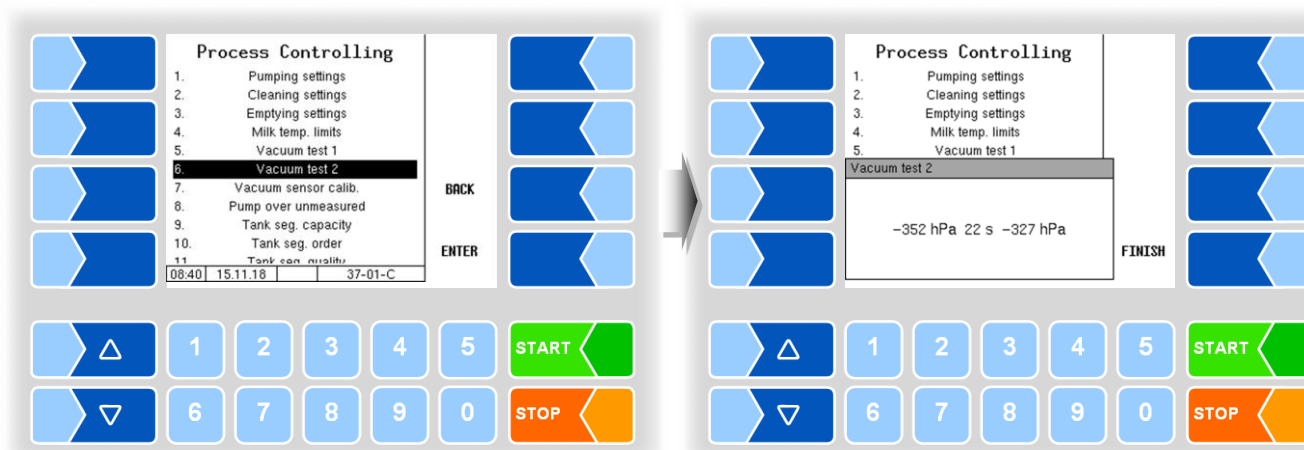
In this vacuum test, the vacuum in the system is created from valve V7 all the way to the NRV non-return valve.



The second pressure sensor value is only displayed at Fleet Manager Password Level or above.

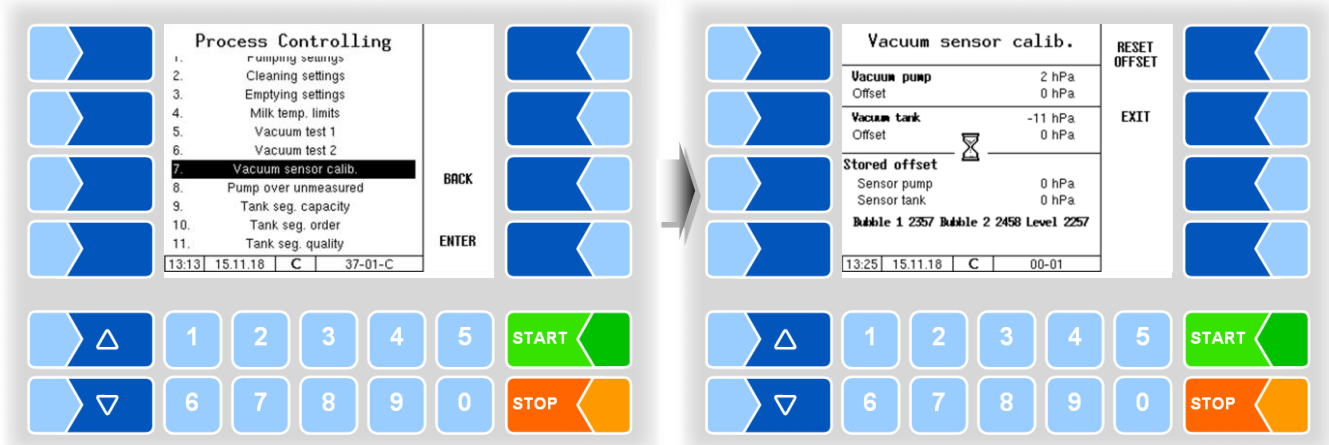
### 4.5.2.8 Vacuum Test 2 (only types TIGER, E-TIGER)

In vacuum test 2, the intake hose can also be checked. To perform this test, a dummy coupling must be connected to the intake hose.



## 4.5.2.9 Vacuum sensor calibration (only types TIGER, E-TIGER)

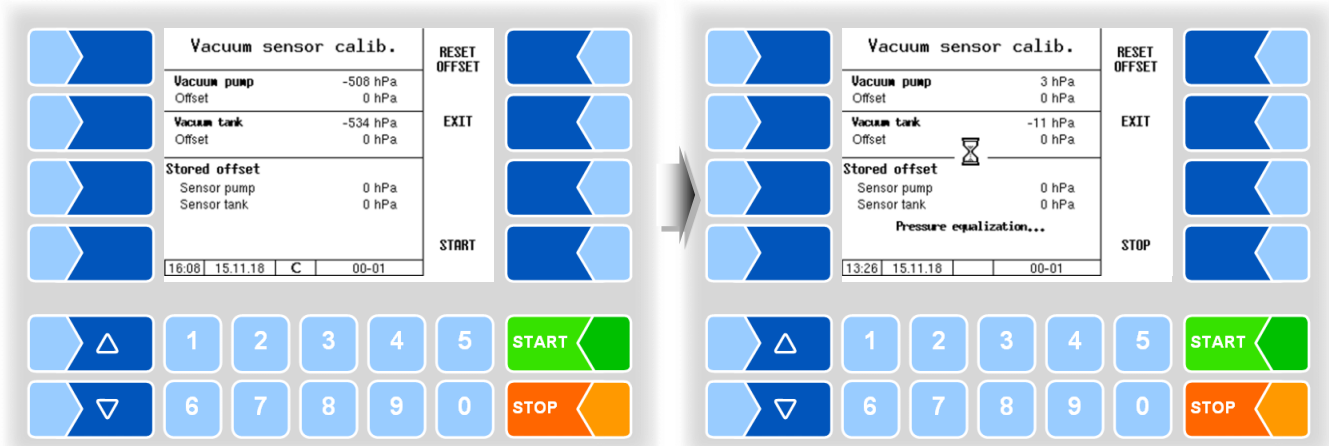
- Start the sensor calibration. First, it is checked whether the system is empty.



If the system is empty, the **START** softkey is displayed.

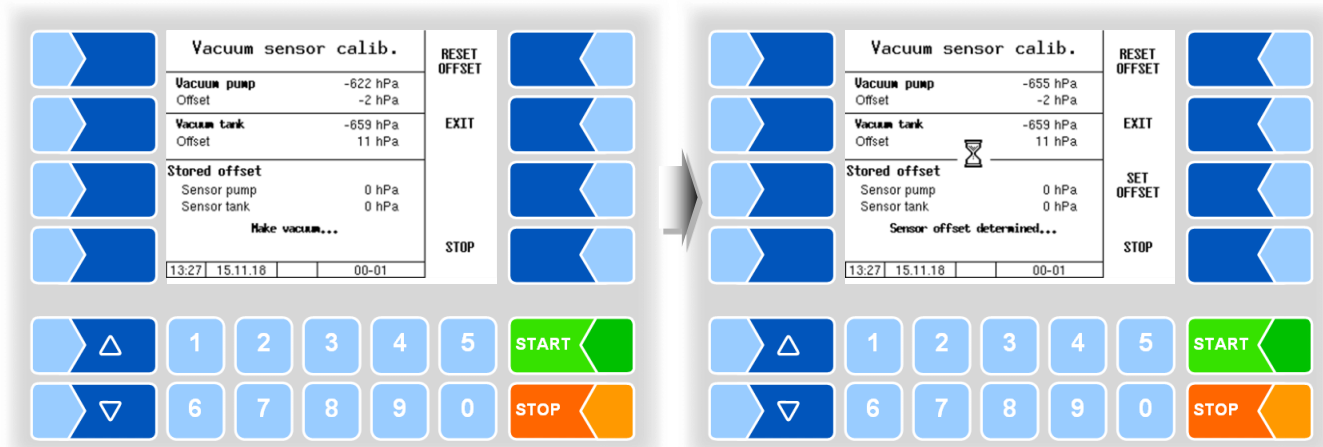
- Touch the **START** softkey.

The pressure is equalized. The measured values of the two sensors are compared at ambient air pressure.



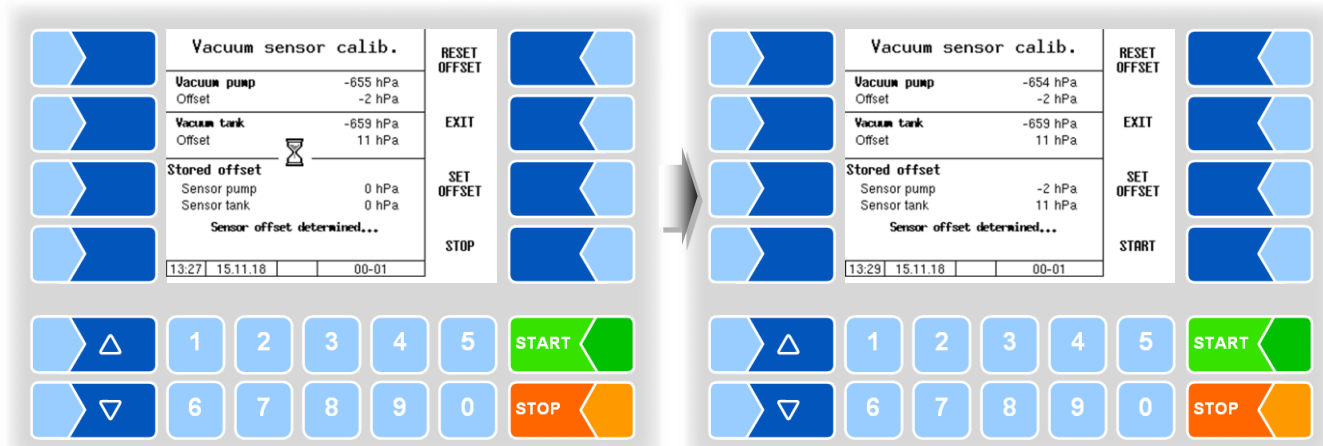


After comparison at ambient pressure, a vacuum is generated and the measured values of the two sensors are compared again.



With different measured values of the two sensors, a corresponding offset value is determined. The **SET OFFSET** softkey is displayed.

- Touch the **SET OFFSET** softkey, to save the determined offset value.

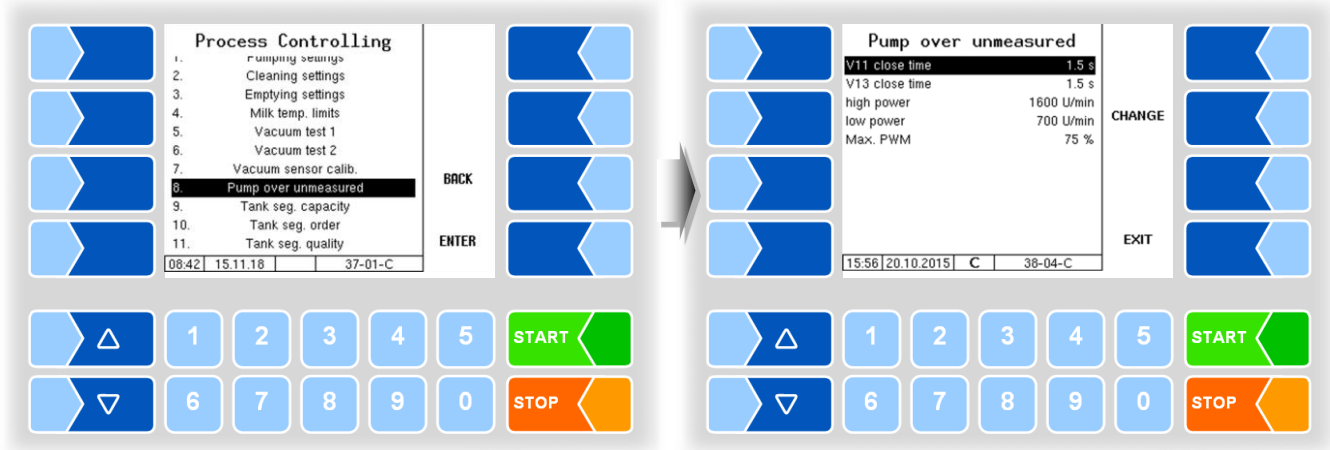


### Messages during sensor calibration

Message	Meaning
Pressure equalization...	To compare the measured values of the two sensors, the pressure in the system is brought to the ambient pressure.
Make vacuum...	To compare the measured values of the two sensors, a vacuum is generated in the system.
System is not empty no start allowed	The system is not empty; Sensor calibration can not be started. Empty the system and then start the sensor calibration.
Sensor offset out of range. Please check the sensors	The determined measured value difference indicates a defective sensor.
Sensors measure differently. Please check the sensors	Different measured values, already at ambient pressure, indicate a defective sensor.
Sensor offset determined	An offset value could be determined
Vacuum not reached	The vacuum required for the adjustment could not be generated. There may be a leak.

### 4.5.2.10 Pump over unmeasured (only types TIGER and E-TIGER)

If a connection for the unmeasured pumping over via valve 13 is present, can be configured additional parameters.

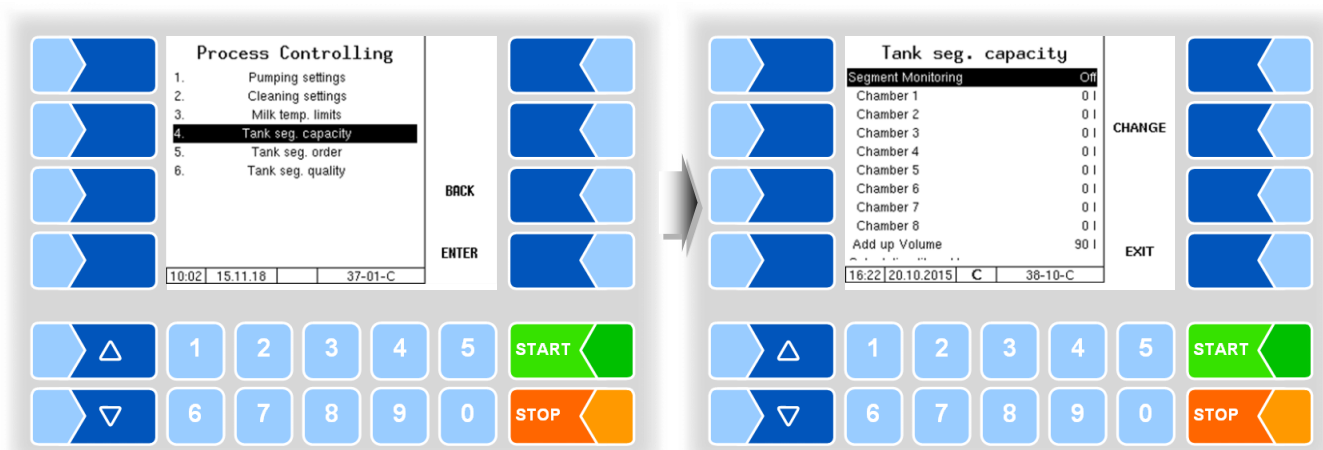


Pump over unmeasured			
U	V11 close time	When finishing the unmeasured pump over will the valve 11 be closed after expiring this time.	
	V13 close time	After closing valve 11 will be closed valve 13 after expiring this time.	
	High power	max. pump speed at high performance	During pump over can be switched between high and low performance
	Low power	max. pump speed at low performance	
	Max. PWM	Max. PWM control while unmeasured pumping	

## 4.5.2.11 Tank segment capacity

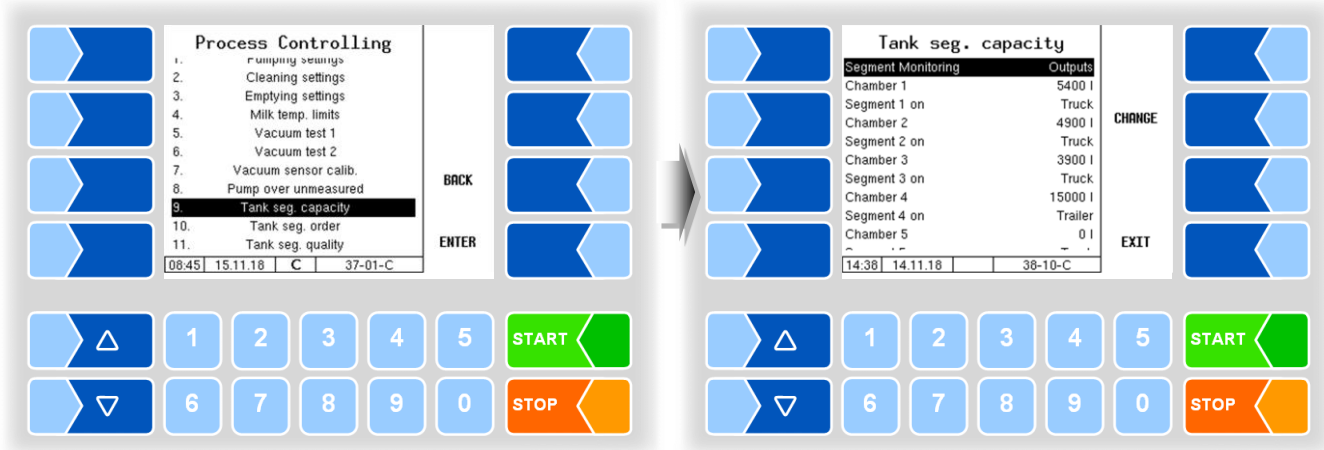
### Types LYNX, HLW, abo MAGYAR, ROMEX, Optimate and V plus

The tank segment capacity is used to monitor the levels of the individual chambers by various methods. Upon reaching the configured volume the milk sucking or pump over is interrupted.



Tank segment capacity															
U	<table border="1"> <tr> <td>Segment Monitoring</td> <td>Off: no segment monitoring Overall: The entire content of the tank can be monitored by entering the total volume. Inputs: With configured inputs the chamber volumes can be monitored. Switching between chambers is carried out manually (passive raw milk separation). Dialog: Without auxiliary devices (eg. valves, proximity switches), the chamber volume can be monitored by means of dialogues. Outputs: The chamber volumes are monitored with outputs. Switching between chambers is carried out automatically (active raw milk separation)</td> </tr> <tr> <td>Chamber 1 (...8)</td> <td>Chamber volume of the various chambers [I]</td> </tr> <tr> <td>Add up Volume</td> <td>Upon reaching the tank segment capacity, the over-supply quantity can be pumped in to the chamber after confirming the dialogue.</td> </tr> <tr> <td colspan="2">Calculation liters/kg (only in Friesland Campina mode, see section 4.5.8.4)</td> </tr> <tr> <td>Max. kg load</td> <td>Maximum load in kg</td> </tr> <tr> <td>Stop before loading</td> <td>The milk intake stops x kg before reaching the configured maximum weight. Then the intake can be continued until reaching the maximum weight.</td> </tr> <tr> <td>Milk density</td> <td>Average density of the milk in g/cm<sup>3</sup></td> </tr> </table>	Segment Monitoring	Off: no segment monitoring Overall: The entire content of the tank can be monitored by entering the total volume. Inputs: With configured inputs the chamber volumes can be monitored. Switching between chambers is carried out manually (passive raw milk separation). Dialog: Without auxiliary devices (eg. valves, proximity switches), the chamber volume can be monitored by means of dialogues. Outputs: The chamber volumes are monitored with outputs. Switching between chambers is carried out automatically (active raw milk separation)	Chamber 1 (...8)	Chamber volume of the various chambers [I]	Add up Volume	Upon reaching the tank segment capacity, the over-supply quantity can be pumped in to the chamber after confirming the dialogue.	Calculation liters/kg (only in Friesland Campina mode, see section 4.5.8.4)		Max. kg load	Maximum load in kg	Stop before loading	The milk intake stops x kg before reaching the configured maximum weight. Then the intake can be continued until reaching the maximum weight.	Milk density	Average density of the milk in g/cm <sup>3</sup>
Segment Monitoring	Off: no segment monitoring Overall: The entire content of the tank can be monitored by entering the total volume. Inputs: With configured inputs the chamber volumes can be monitored. Switching between chambers is carried out manually (passive raw milk separation). Dialog: Without auxiliary devices (eg. valves, proximity switches), the chamber volume can be monitored by means of dialogues. Outputs: The chamber volumes are monitored with outputs. Switching between chambers is carried out automatically (active raw milk separation)														
Chamber 1 (...8)	Chamber volume of the various chambers [I]														
Add up Volume	Upon reaching the tank segment capacity, the over-supply quantity can be pumped in to the chamber after confirming the dialogue.														
Calculation liters/kg (only in Friesland Campina mode, see section 4.5.8.4)															
Max. kg load	Maximum load in kg														
Stop before loading	The milk intake stops x kg before reaching the configured maximum weight. Then the intake can be continued until reaching the maximum weight.														
Milk density	Average density of the milk in g/cm <sup>3</sup>														

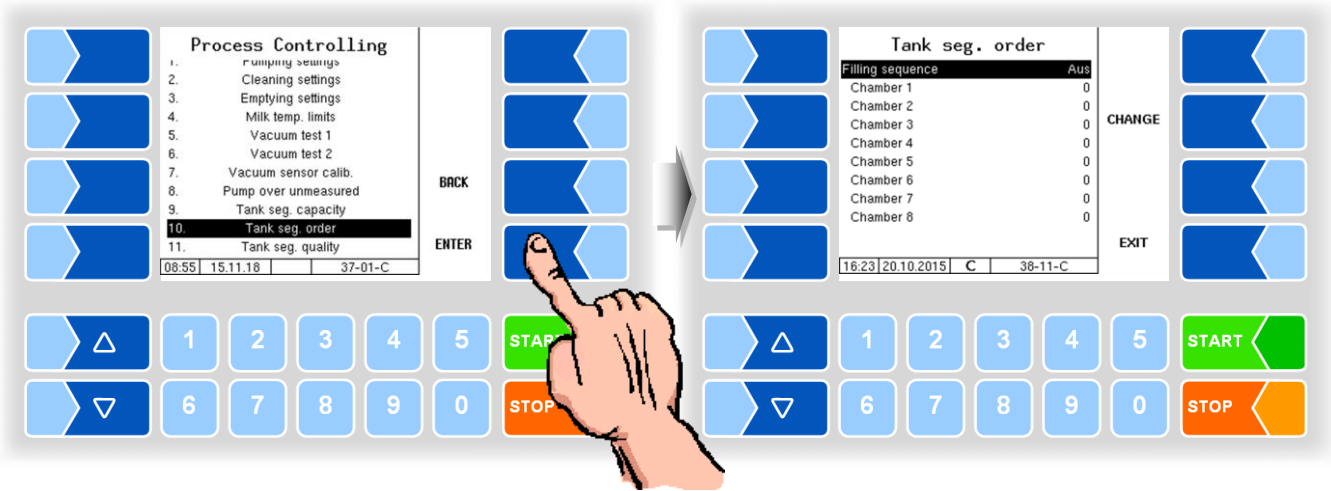
### Types TIGER, E-TIGER and V 3000



Tank segment capacity					
U	Segment Monitoring	<p>Off: no segment monitoring</p> <p>Overall: The entire content of the tank can be monitored by entering the total volume.</p> <p>Inputs: With configured inputs the chamber volumes can be monitored. Switching between chambers is carried out manually (passive raw milk separation).</p> <p>Dialog: Without auxiliary devices (eg. valves, proximity switches), the chamber volume can be monitored by means of dialogues.</p> <p>Outputs: The chamber volumes are monitored with outputs. Switching between chambers is carried out automatically (active raw milk separation)</p>			
	Chamber 1 (...8)	Volume [l] of the individual compartments			
	Segment 1 (...8) on	<table border="1"> <tr> <td>Truck</td> <td rowspan="2">Selection whether the segment with the respective number is located on the truck or on the trailer. <i>The logical output 16 must be configured!</i></td> </tr> <tr> <td>Trailer</td> </tr> </table>	Truck	Selection whether the segment with the respective number is located on the truck or on the trailer. <i>The logical output 16 must be configured!</i>	Trailer
	Truck	Selection whether the segment with the respective number is located on the truck or on the trailer. <i>The logical output 16 must be configured!</i>			
	Trailer				
	Add up Volume	When the tank compartment capacity is reached, after confirming a dialogue, you can continue pumping that overfilling quantity.			
	<i>Calculation liters/kg (in program mode Friesland Campina only, see section 4.5.8.4)</i>				
	Max. kg load	Maximum weight of the load in kg			
Stop before loading	The milk intake stops x kg before reaching the configured maximum weight, then it can be continued until reaching the maximum weight.				
Milk density	Average density of the milk in g/cm <sup>3</sup>				

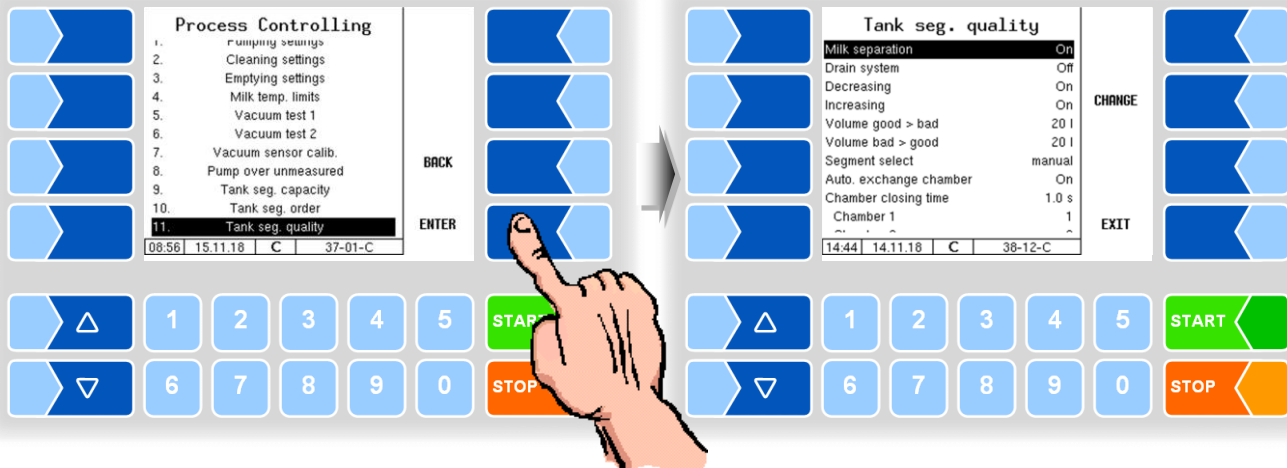
### 4.5.2.12 Tank segment order (all vehicle types)

The order of tank segments can be set by entering numbers. This makes it possible to specify the filling- and pump over sequence.



### 4.5.2.13 Tank segment quality (all vehicle types)

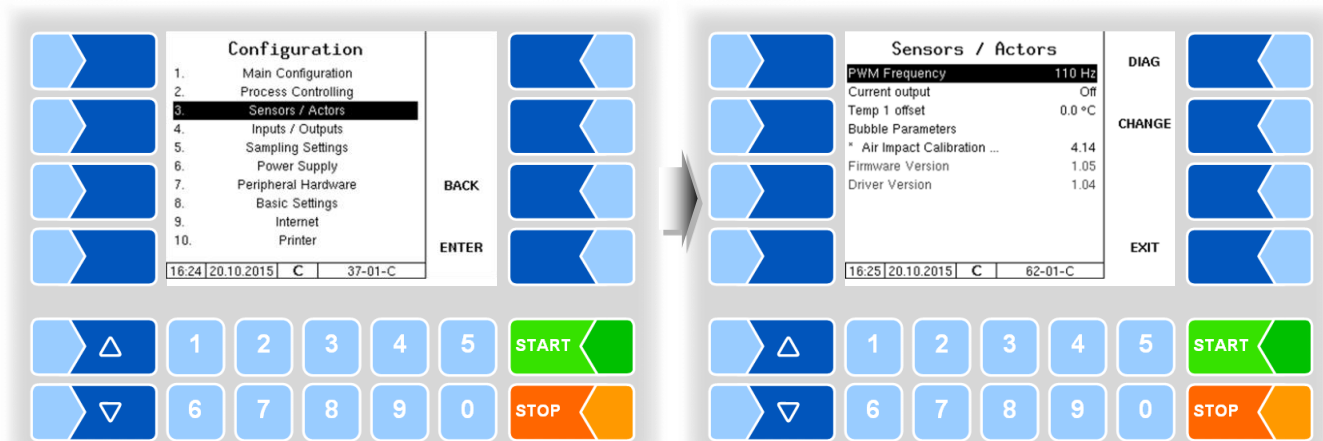
The milk quality can be assigned to the chambers here for active and passive raw milk separation.



Tank segment quality		
U	Milk separation	On: Active raw milk separation is on. The segment selection is made by the controller.
	Drain system	On: The measuring system is emptied at the beginning of the intake if the quality changes.
	Decreasing	On: The quality of the milk may be changed by the driver towards "bad". For this milk, the segment with the corresponding quality is suggested. There is also the possibility to take higher quality milk in a segment having a lower quality, without previously devaluing, e.g. if no more capacity is available in another segment.
	Increasing	On: The quality of the milk may be changed by the driver towards "good". For this milk, the segment with the corresponding quality is suggested. There is also the possibility to take lower quality milk in a segment having a higher quality e.g. if no more capacity is available in another segment. If lower quality milk is collected into a segment with higher quality, this segment is devaluated to the quality of the current intake for the remaining time of the tour.
	Volume good > bad	Volume at which the segment is switched from "good" to "bad" if the quality has changed (0...99l)*.
	Volume bad > good	Volume at which the segment is switched from "bad" to "good" if the quality has changed (0...99l)*.
	Segment select	Automatic: The compartment is automatically selected according to the milk quality. manual: The compartment must be chosen by the user.
	Auto. exchange chamber	On: When a segment is full it will be automatically be switched to the next segment with the same quality. Off: When a segment is full, switching to the next segment is proposed. The driver must confirm or can change it.
	Chamber closing time	Time for closing the valve of the previous chamber when the chamber changes [s]
Chamber 1 (...8)	Milk quality of configured chambers, adjustable from 1 (best) to 8 (worst).	

\* Enter the volume always without forerun quantity!

## 4.5.3 Sensors/Actors

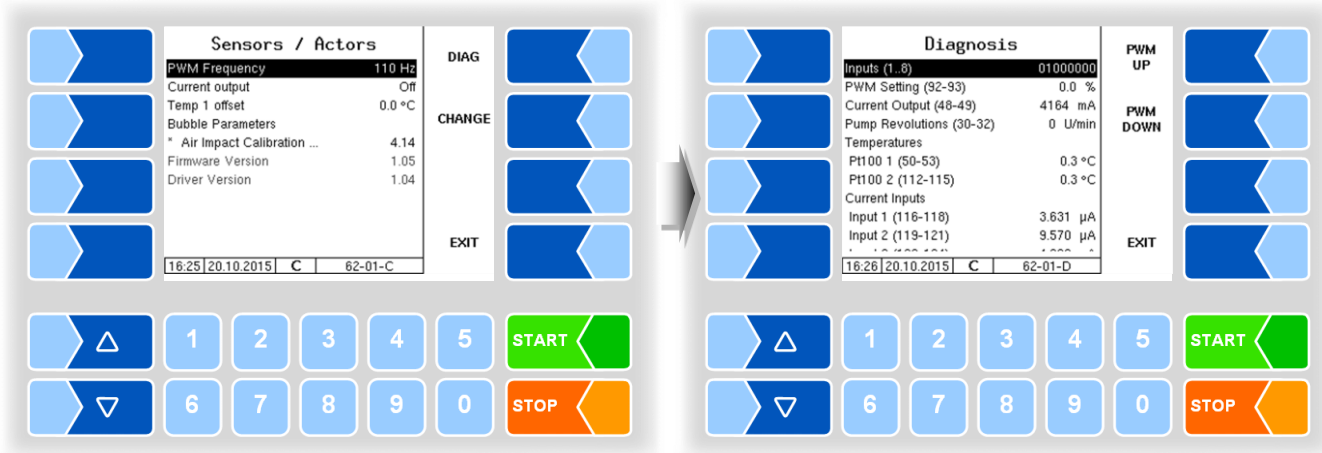


### Sensors/Actors

C	PWM Frequency	Frequency of the PWM control pulse of the pump control valve [Hz]
	Current output	On: if a control block with current output is used Off: if the PWM control signal is used
	Temp 1 Offset	Correction value for temperature sensor °C
	Bubble Parameters	
	Air Impact Calibration Factor	Calibration factor for the air calculation
	Firmware Version	Displays the k-mif firmware version
	Driver Version	Displays the k-mif driver version

## Diagnosis

All sensor values are displayed in the diagnostics window.



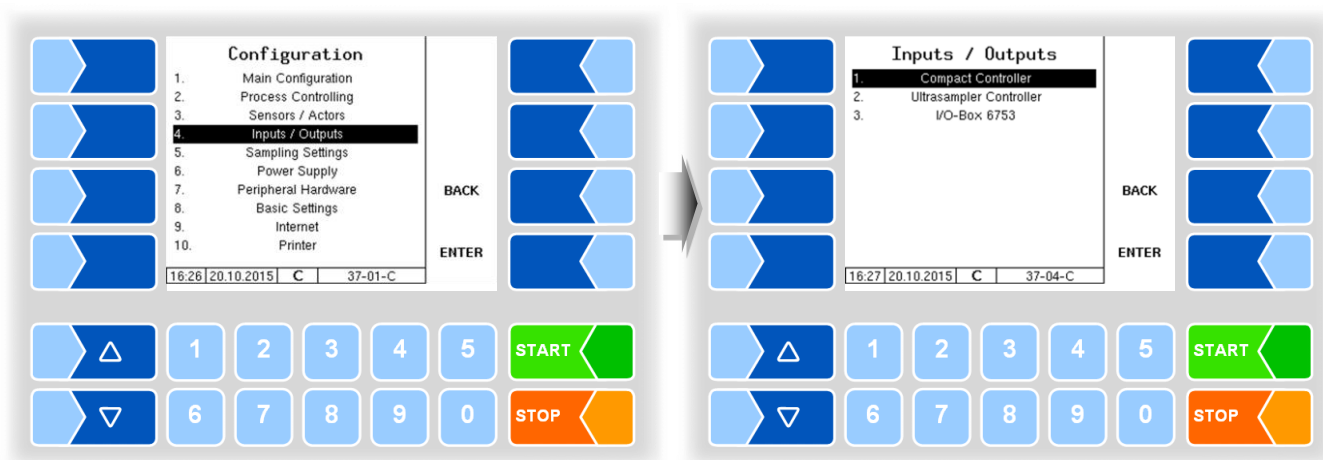
### Diagnosis

Inputs (1..8)	Status of digital inputs 1 – 8
PWM Settings (92-93*)	With the soft keys PWM UP and PWM DOWN, you can manually set the PWM output.
Current Output (48-49*)	Current output [mA]
Pump Revolutions (30-32*)	Current pump revolutions
Temperatures	
Pt100 1 (50-53*)	Value of the connected temperature sensor PT100_1 (milk temperature)
Pt100 2 (112-115*)	Value of the connected temperature sensor PT100_2 (sampling cabinet temperature)
Current Inputs	
Input 1 (116-118*)	Value of power input I_IN1 (pressure sensor 1)
Input 2 (119-121*)	Value of power input I_IN2 (level sensor)
Input 3 (122-124*)	Value of power input I_IN3 (pressure sensor 2)
Voltage Inputs	
Input 1 (45-47*)	Value of voltage input U_IN1 (bubble sensor 1)
Input 2 (107-109*)	Value of voltage input U_IN2 (bubble sensor 2)
Input 3 (125-127*)	Value of voltage input U_IN3
PIC Ticker	0 (not used)
ANA Ticker	Ticker for number of analogue input query

\* Terminal designation



## 4.5.4 Inputs/Outputs



The I/O V3003 module is only available with the measuring system type V 3003.

### Outputs in the MAK TIGER system

The assignment of the outputs can be freely configured, the following allocation is recommended:

No.	log. No.	invert.	Resting state	Designation	Function
1	1	n	L	V1	Compressed air ejector
2	2	n	L	V2	Air for emptying
3	3	n	L	V3	Shut-off valve ejector inlet
4	4	n	L	V4	Throttle valve (open in idle position)
5	5	n	L	V5	Shut-off valve ejector outlet
6	6	n	L	V6	Shut-off valve vacuum tank
7	7	n	L	V7	intake valve
8	8	n	L	V8	pump shut-off valve
9	9	n	L	V9	cleaning valve inlet vacuum vessel
10	10	n	L	V10	cleaning valve drain
11	11	n	L	V11	pump over valve inlet (optional)
12		n	L		
13		n	L		
14		n	L		
15	15	n	L	V15	throttle vacuum
16		n	L		

The output voltage is stabilized, EMC technically protected against the vehicle power supply voltage to ensure to all control tasks. Therefore, connections to other potentials (eg. chassis ground reference or reverse voltages in the plus branch) are always galvanically decoupled (eg. with additional relay, if necessary).

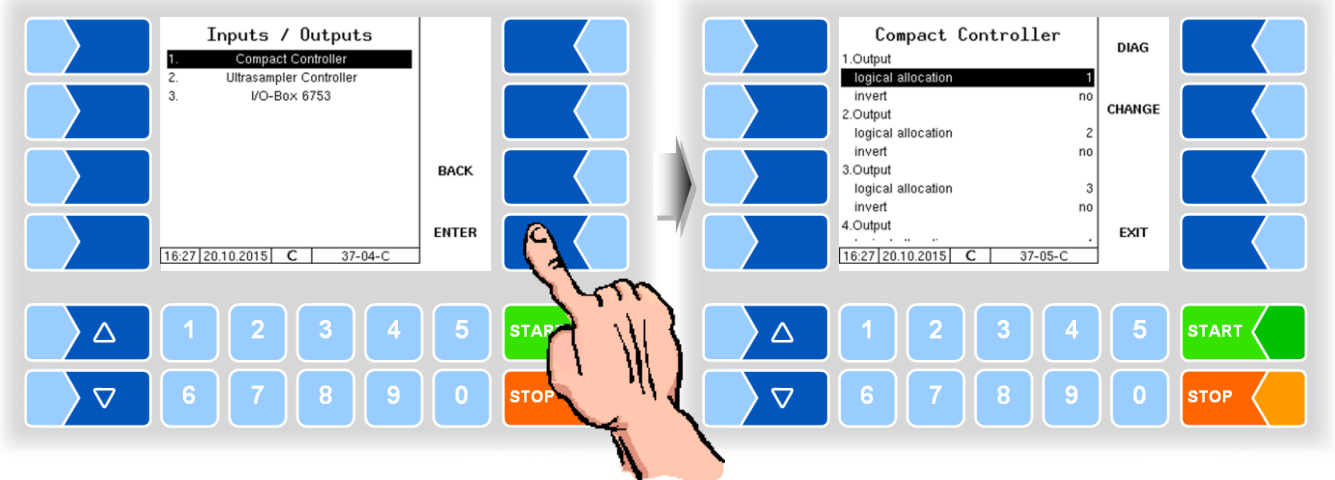
### Inputs in the MAK TIGER system

The assignment of the inputs can be freely configured, the following allocation is recommended:

<b>No.</b>	<b>log. No.</b>	<b>invert.</b>	<b>Resting state</b>	<b>Designation</b>	<b>Function</b>
1	1	n	L	MS1	Milk sensor in the intake line
2	2	n	L	MS2	Milk sensor overfilling vacuum vessel
3	3	n	L	MS3	Milk sensor inlet / outlet vacuum vessel
4	4	n	L	MS4	Milk sensor pump over
5	5	n	L		Emergency mode switched on
6		n	L		
7		n	L		
8		n	L		

For a complete overview of the inputs and outputs for MAK 3003 TIGER, HLW 3000, LYNX and abo-MAGYAR see Appendix, section 5.2.

### 4.5.4.1 Compact Controller



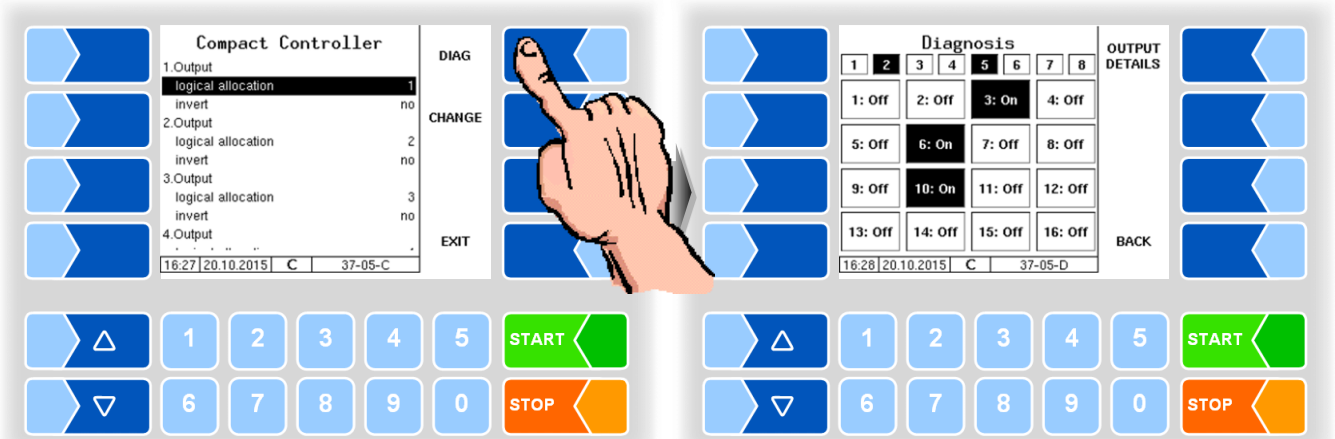
Compact Controller		
S	1. (...16.) Output	
	logical allocation	Software allocation of outputs
	invert	yes (switching mode is inverted) no (switching mode is not inverted)
	1. (...8.) Input	
	logical allocation	Software allocation of outputs
	invert	yes (switching mode is inverted) no (switching mode is not inverted)
	resting state	low: positive switching high: negative switching

### Diagnosis

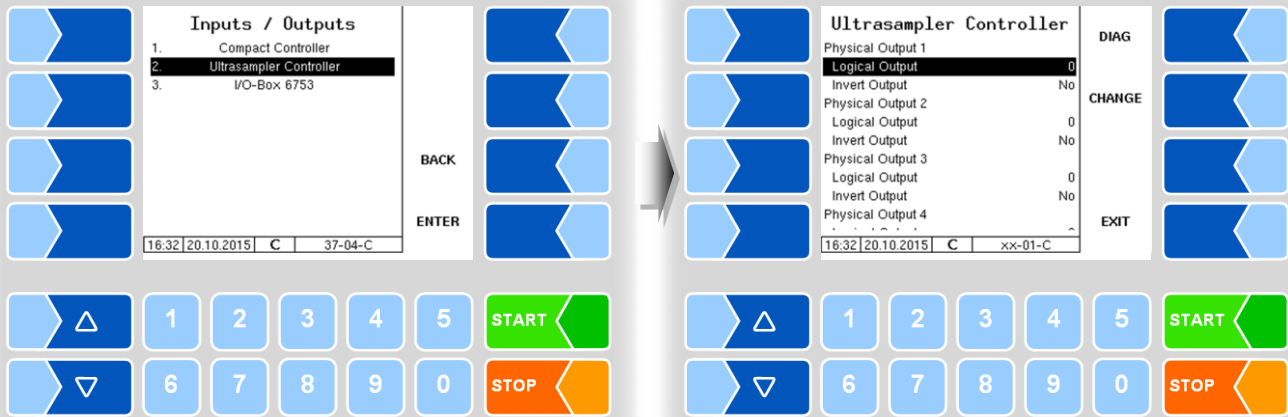
Touching the **DIAG** softkey brings up a service function to test the functioning of inputs and outputs.

Inputs 1-8 are shown as in the figure according to status. You can individually switch the 16 outputs on and off.

The outputs set in the diagnosis are not reset until the you exit the window.

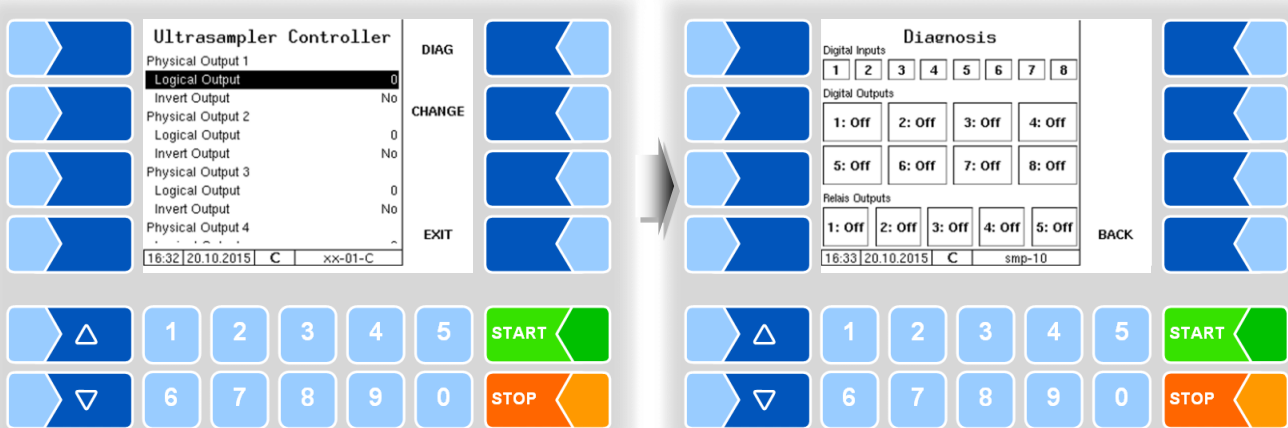


### 4.5.4.2 Ultrasampler controller



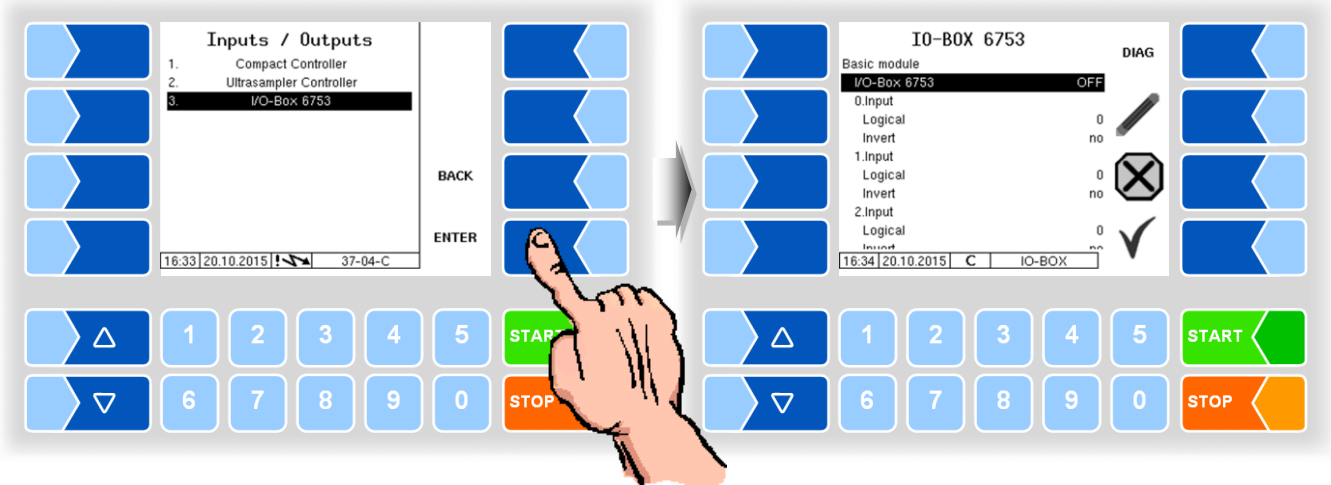
Ultrasampler controller		
U	Physical Output 1 (...8)	
	Logical Output	Software allocation of outputs
	Invert Output	Yes (switching mode is inverted)
		No (switching mode is not inverted)
	Physical Input 1 (...8)	
	Logical Input	Software allocation of inputs
	Invert Input	Yes (switching mode is inverted)
		No (switching mode is not inverted)
	resting state	low: positive switching high: negative switching

### Diagnosis



The relay outputs are specifically reserved for the bottle drive!

### 4.5.4.3 I/O-Box 6753



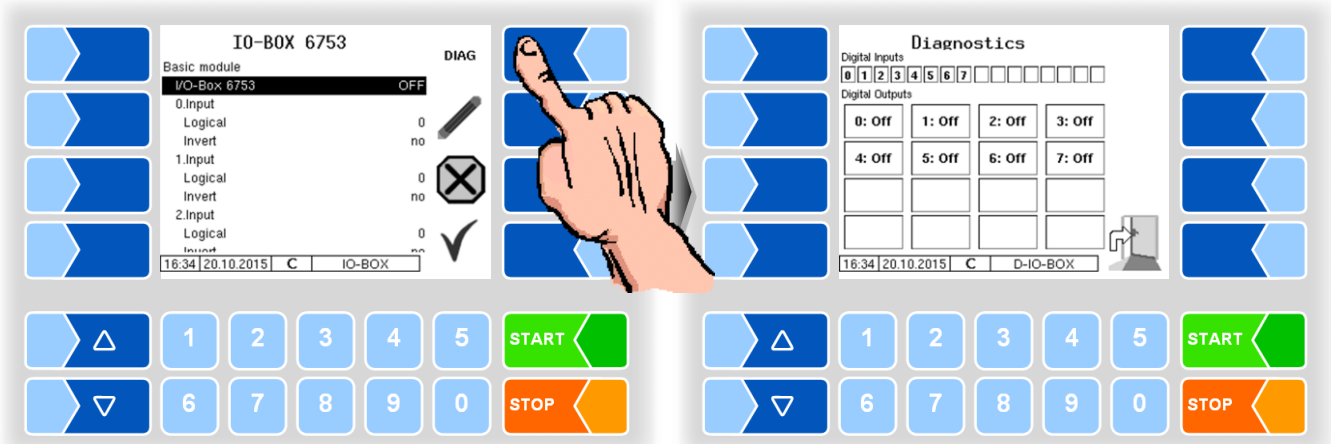
The basic module of the I/O Box 6753 has 8 inputs and 8 outputs. In addition, the I/O box can be extended with additional modules, each with 8 inputs or outputs.

I/O -Box 6753		
S	Basic module	
	I/O-Box 6753	ON/OFF
	0. (...7.) Input	
	Logical	Software allocation of inputs
	Invert	Yes (switching mode is inverted) No (switching mode is not inverted)
	0. (...7.) Output	
	Logical	Software allocation of outputs
	Invert	Yes (switching mode is inverted) No (switching mode is not inverted)



Pulse outputs can be controlled only by the 8 outputs of the basic module!

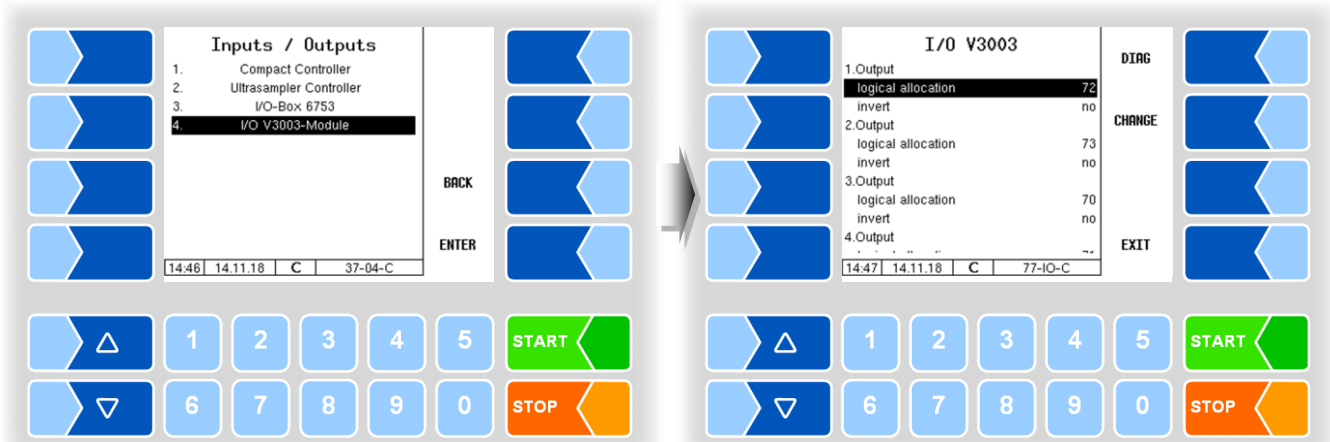
### Diagnosis



### 4.5.4.4

### I/O V3003

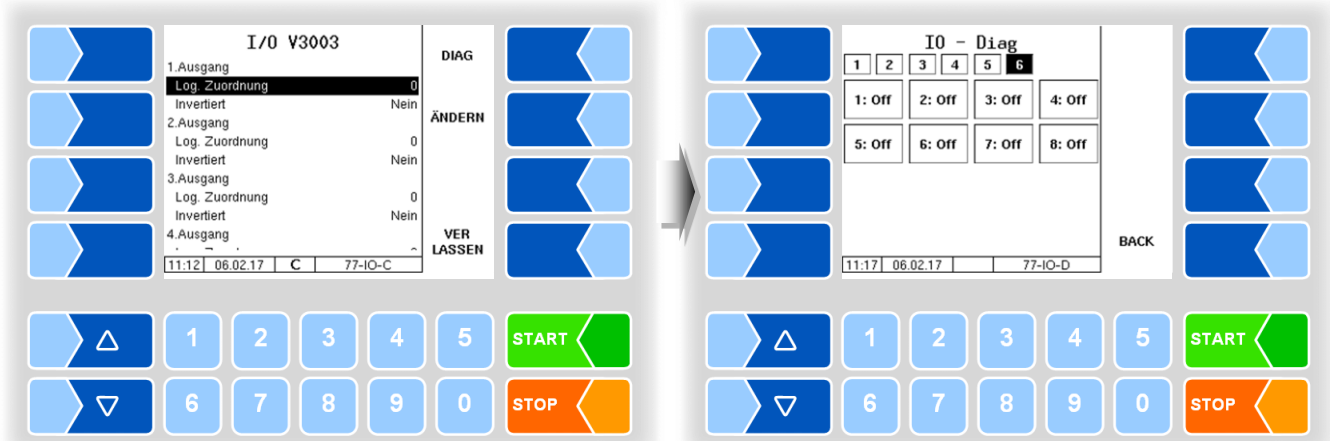
(Available with V3003 system only)



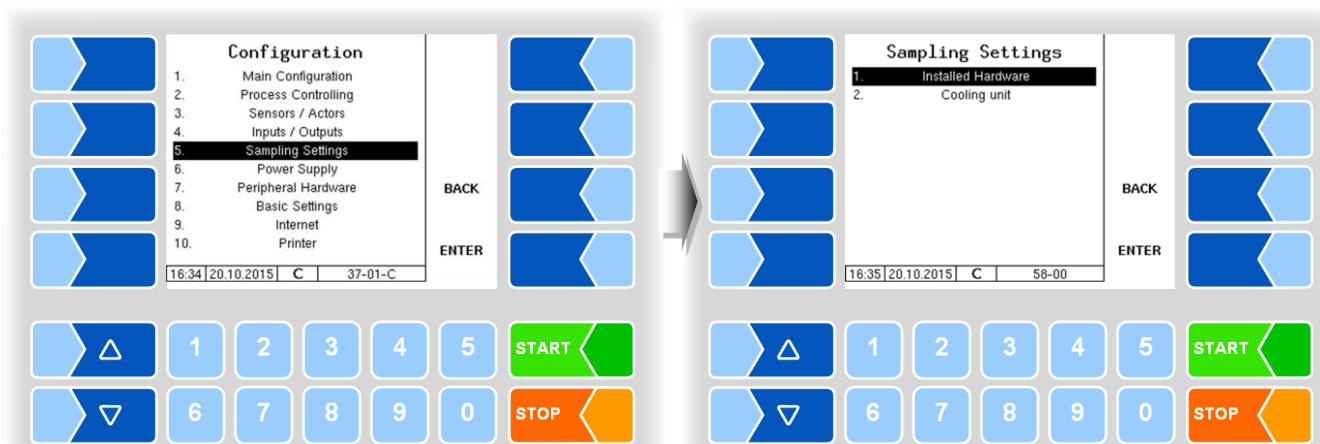
The V 3003 module 6757-14 has 8 outputs and 6 inputs.

I/O V3003	
1. (...8.) Output	
logical allocation	Assignment of outputs in the software
Invert	yes: The switching behaviour is inverted no: The switching behaviour is not inverted
1. (...6.) Input	
logical allocation	Assignment of inputs in the software
Invert	yes: The switching behaviour is inverted no: The switching behaviour is not inverted

### Diagnosis



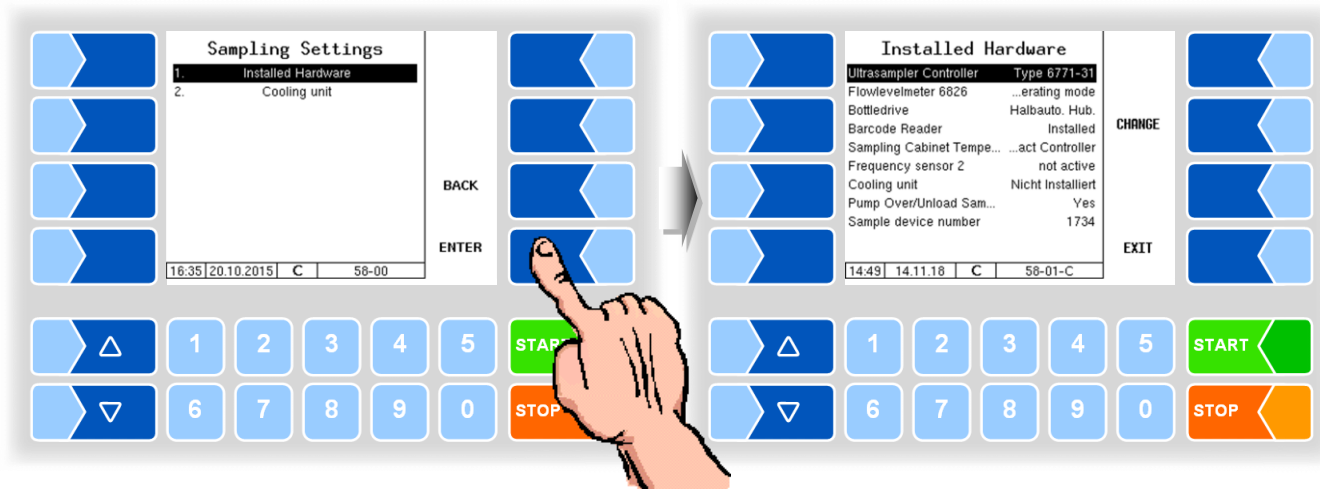
## 4.5.5 Sampling settings



In the "Sampling settings" window only the hardware already activated is displayed.

### 4.5.5.1 Installed hardware

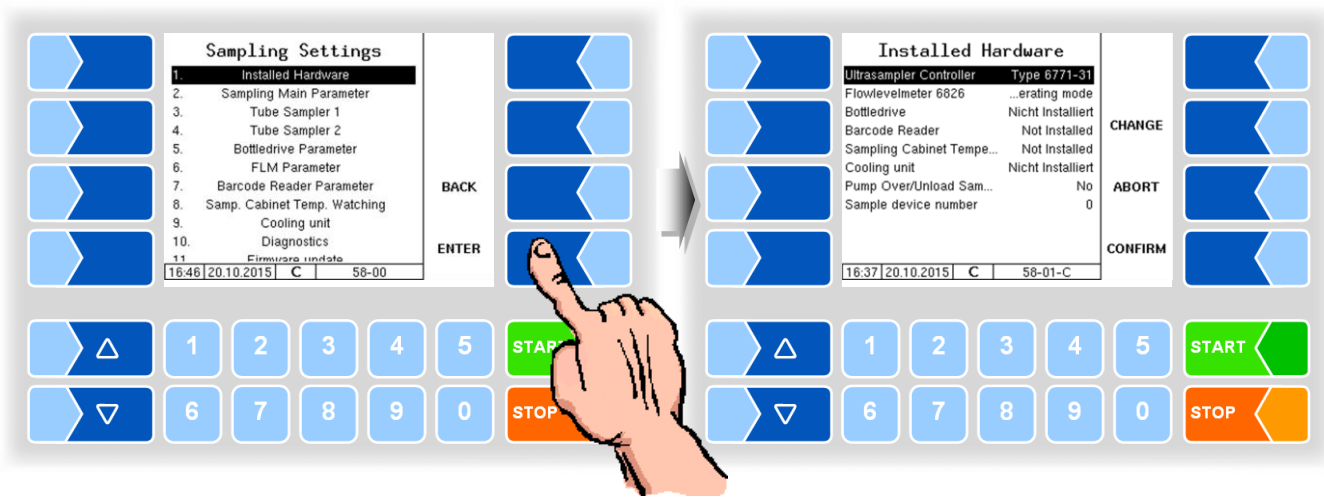
Here, the hardware components for sampling are activated.



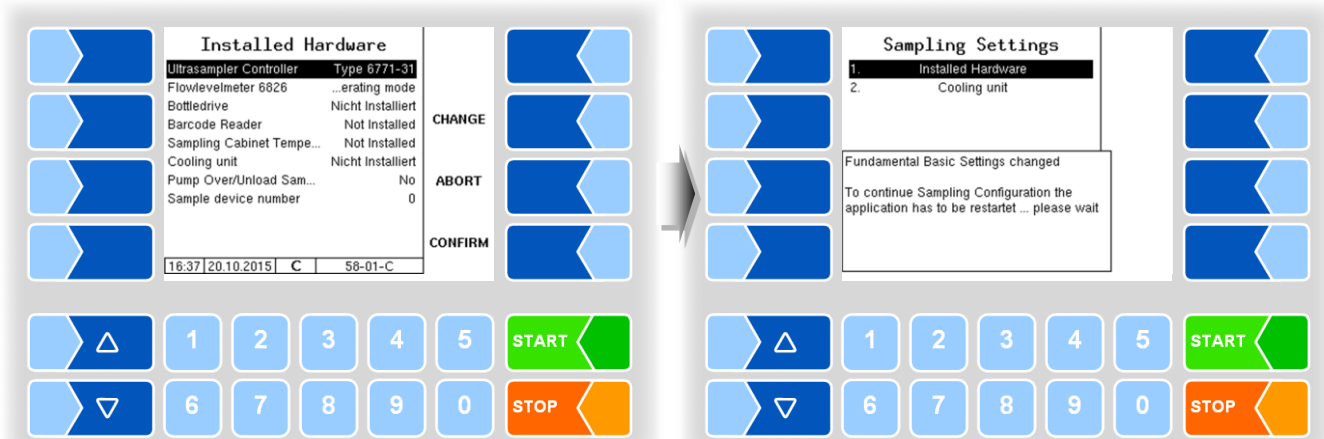
Installed Hardware		
S	Ultrasampler Controller	not installed Type 6771-31 Type Tiger
	Flowlevelmeter 6826	Operating mode Config mode: (Only for configuration purpose! For configuration the FLM has to be connected to the P-Net and the flow has to be adjusted (see 4.5.5.6).
	Bottledrive	not installed Type 6774-10 ABO 20 Monotrans Bartec Mini Semi-automatic lift CP 200 ABO-MAGYAR

S	Barcode Reader	not installed installed
	Sampling Cabinet Temp...	not installed Ultrasampler Controller (Frequency Sensor) Compact Controller (Pt100 4 wire)
	Frequency sensor 2	not active: Sensor disabled. for unload: Use as temperature sensor during unload
	Cooling unit	Not installed Vortex
	Pump Over/Unload Sample	Yes: When unloading and pumping over sampling is carried out. No: When unloading and pumping over sampling is not carried out.
	Sample device number	No. of the sampler controller

If you have hardware modules activated, they are displayed in the "Sampling Settings" window. From here you have access to the parameters of the individual modules and settings for sampling.

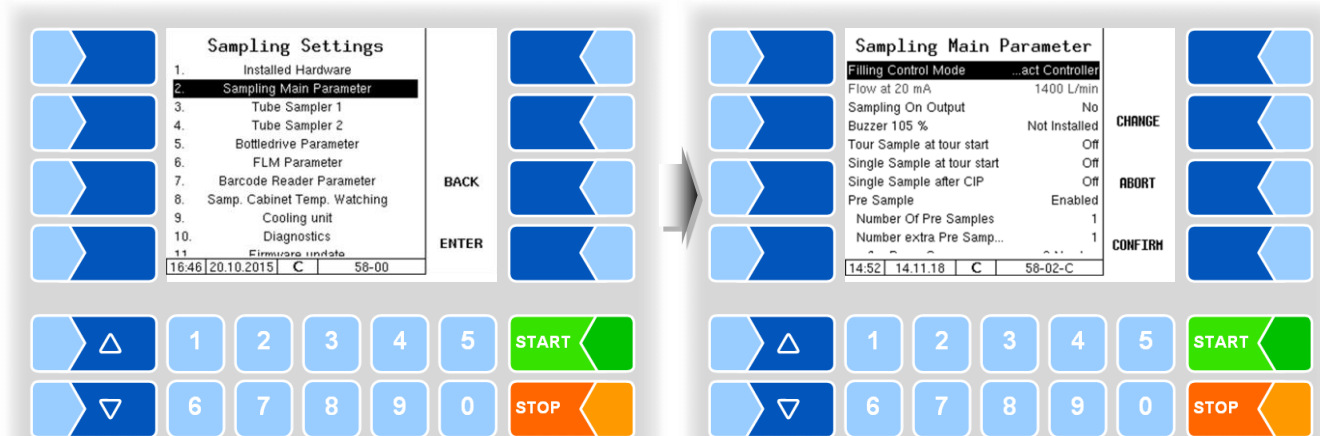


If changes are made to the hardware configuration which require a reboot, this will be pointed out to you on the display.






### 4.5.5.2 Sampling main parameters



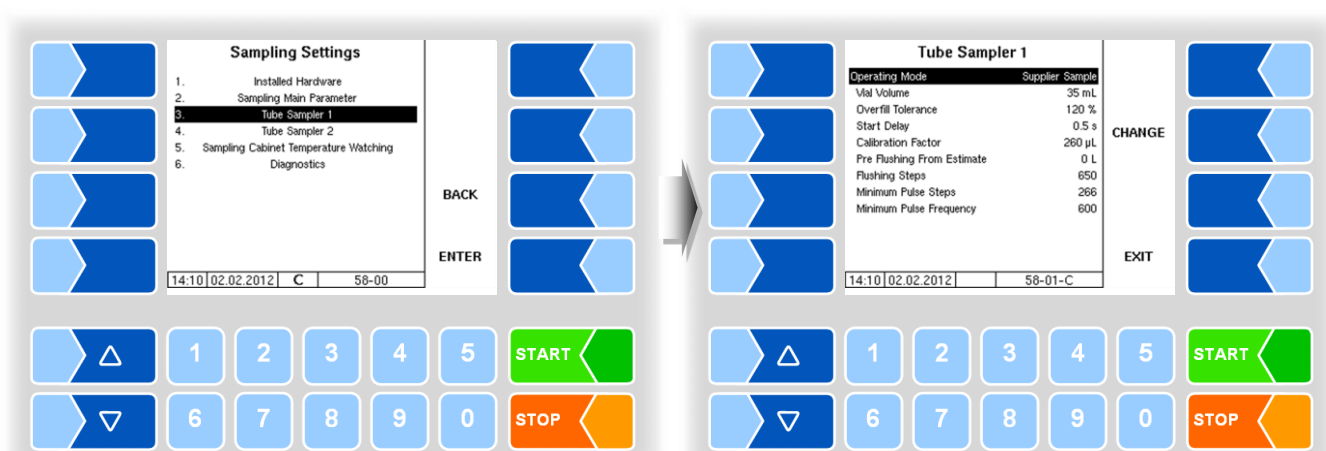
#### Sampling Main Parameter

Filling Control Mode	Current loop: Use FLM for filling control Compact Controller: Use MID for filling control
Flow at 20 mA	Flow rate expected by the ultrasampler at the power input [L/min]
Sampling On Output	Yes No
Buzzer 105%	Installed Horn for warning at 105% overfill Not installed
Tour Sample at tour start	On Off
Single Sample at tour start	On Off
Single Sample after CIP	On Off
Pre-Sample	
Number Of Pre-Samples	Number of pre-samples
Number extra pre-samples	Number of extra pre-samples, (if additional pre-sample is selected in the tour menu).
after Pump Over	Number of pre-samples after pumping over
Pre Sample Quantity	Intake quantity for the pre-sample [L]
Pump stop	The pump is stopped if the adjusted quantity is reached as a percentage of the preset presample quantity Here you can change the the pre-saple quantity. (85%)
Pre-Sample Time Lag	Max. time between intakes, after this time, a new pre-sample is taken [min].
Blow-out time	Duration to blow out sampling tube extensions [s]. (Only visible if output 93 is configured.)
Max. Expected Volume	Single samples are divided on several bottles when exeeding this preset quantity
New vial at (0=off)	To avoid overfilling, at the configured fill level (in%), the pumping process is stopped and a new bottle is fetched.
Delete BC-Code	No: Barcode is released for reuse after 200 barcodes again. CIP: Barcode is released for reuse after CIP Tour: Barcode is released for reuse after tour end.
Motor CIP-Frequency	rotation frequency of the stepping motors (single sampling and tour sampling) during cleaning (1250)

<b>Correction Factors</b>	Correction of fat quantity during intake. In case of different intake quantities, above-average fat values can be corrected.
Low Estimate Range	%(1/x) correction factor for fat quantity in %
... Operative Up To	Quantity up to which the first correction factor applies [L]
Middle Estimate Range	%(1/x) correction factor for fat quantity in %
... Operative Up To	Quantity up to which the second correction factor applies [L]
High Estimate Range	%(1/x) correction factor for fat quantity in %
Start delay high amount	When a preset quantity is greater than the quantity to which the second correction factor applies („...Operative up to“)the value entered here will be used instead of the value of the start delay for Sampler 1 [s].
Add. rinse tank sample	On: The sampler will be rinsed after unloading or pumping over According to the quantity remaining in the tank, the preset quantity for four sampling needs to be updated.
Samp. during pump over	Yes: Start sampling during pump over. (only visible if configured in “Installed Hardware”)
Samp. during unloading	Yes: Start sampling during unload process (only visible if configured in “Installed Hardware”)
Log flm values	On: The flowlevelmeter values will be recorded in the log-file for service purposes.  For the measurement type <b>Lynx</b> this parameter must be switched on!
Standard Spülen	no function
Serial Number	Displays the serial number of the ultrasampler controller.
Firmware Version	Displays the firmware version of the ultrasampler controller.

### 4.5.5.3 Sampler 1

(usually for single samples)



Sampler 1		
U	Operating Mode	Not installed Single sample Tour sample
	Vial Volume	Sampling vial volume in ml
	Overfill Tolerance	Allowed filling of the sampling vials e.g. 120% → Bottle may be filled up to 20% over the rated volume
	Start Delay	Delay from the milk sensor signal ("milk present") up to sampling start [s]. <i>If this value is reached, the fat content gets higher for all quantities.</i>
	Calibration Factor	The pumping hose calibration factor indicates how many µl are filled per sampler rotation. (Enter 270 µl. Change the value if sampling vial filling volume deviates from the set value.)
	Pre-Flushing From Estimate	In case of intake quantities (set quantities) lower than the value entered here, no pre-flushing occurs. [L]
S	Flushing Steps	Number of flushing steps when milk is detected in the pipe.
	Minimum Pulse Steps	Minimum number of motor steps.
	Minimum Pulse Frequency	Minimum rpm of the sampler. If this rpm value is not reached, this triggers intermittent mode. (Default value 600)

### 4.5.5.4 Sampler 2

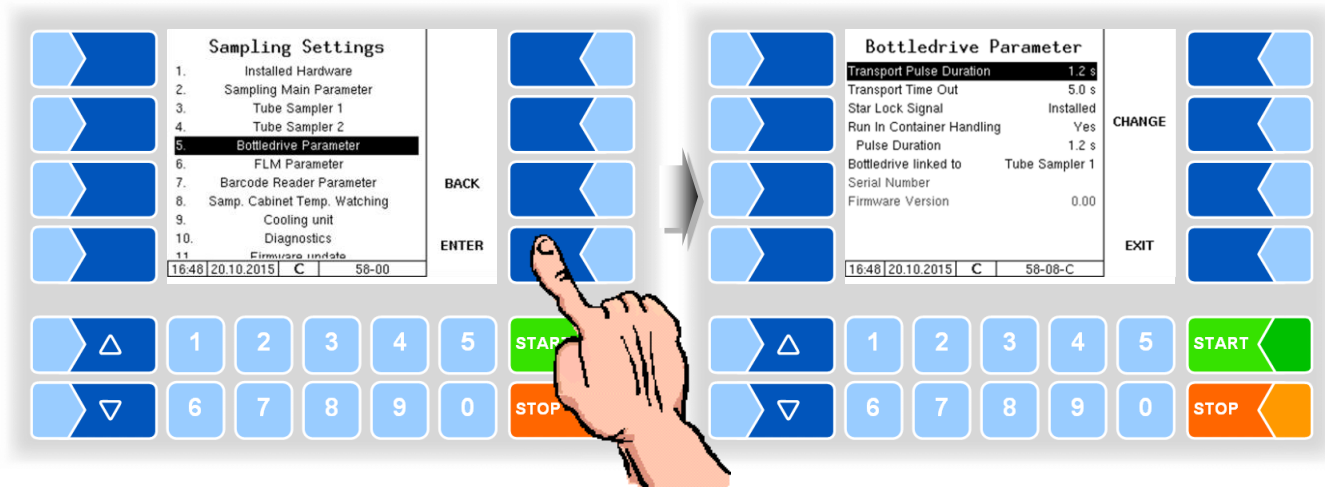
(usually for four samples)

Parameters like sampler 1

Vial Volume: 500 ml

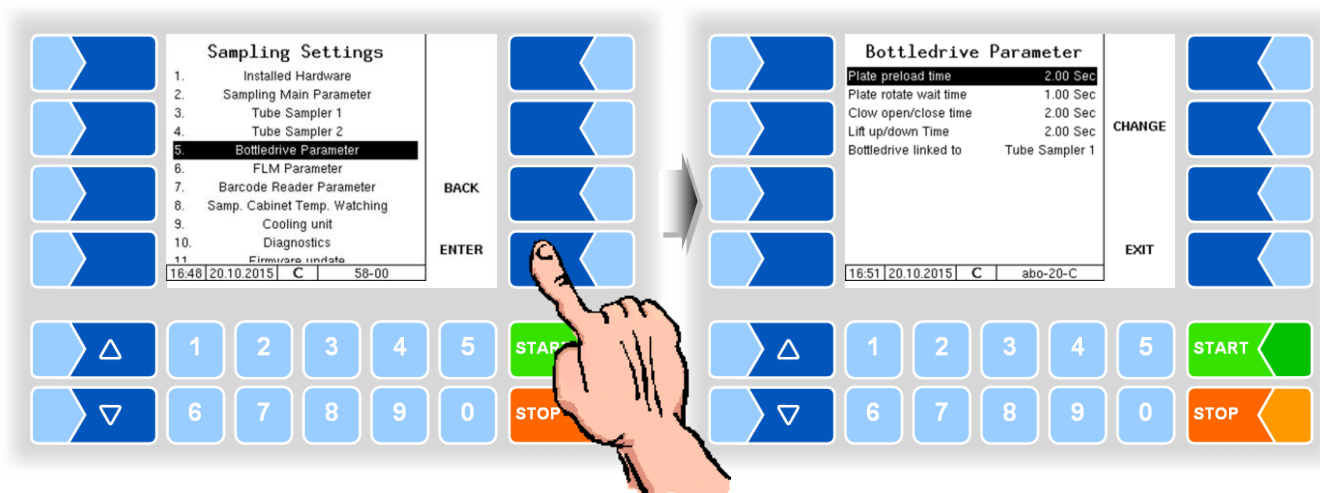
## 4.5.5.5 Bottle drive

### Bottle drive 6774-10



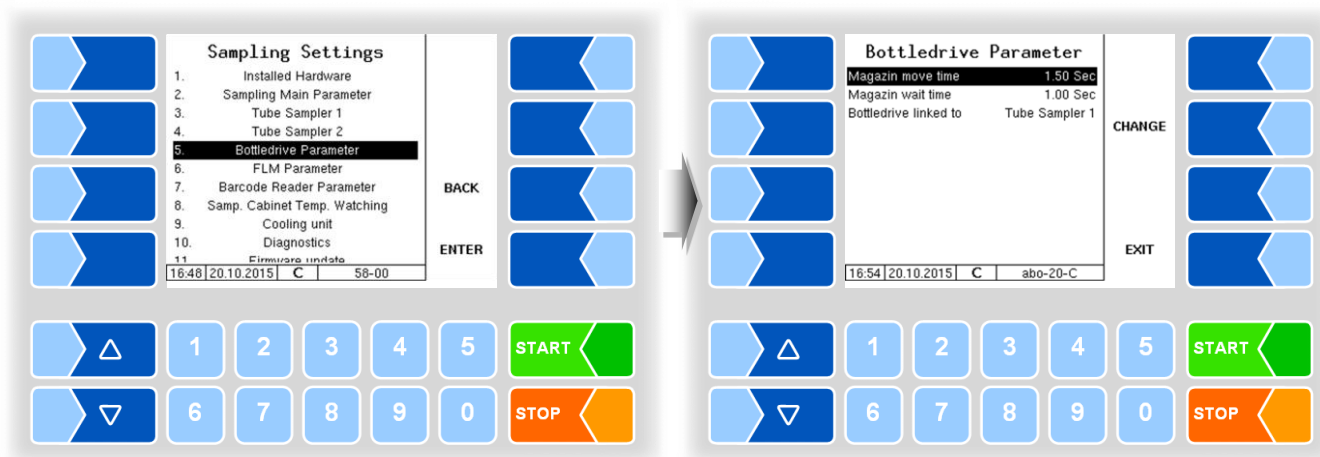
Bottledrive 6774-10		
U	Transport Pulse Duration	Time the star-wheel needs to move safely away from the proximity switch. [s]
	Transport Time Out	Time after which an error message is generated if the transport process takes too long.
	Star Lock Signal	Installed Not installed
	Run In Container Handling	yes No
	Pulse Duration	Switch on time of the inlet chamber [s]
	Bottle drive linked to	Sampler 1 Sampler 2
	Serial Number	Displays the serial number of the bottle drive control
	Firmware Version	Displays the firmware version of the bottle drive control

## Bottle drive ABO 20



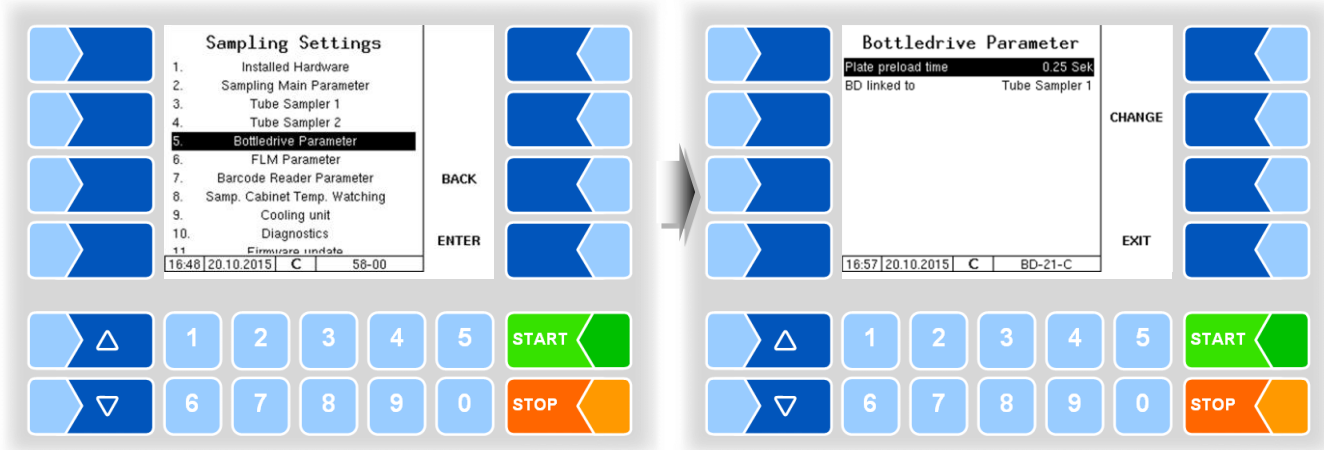
Bottle drive ABO 20		
S	Plate preload time	Plate preload time - after this time, rotation is activated. [s]
	Plate rotate wait time	Time from activation of rotation until the plate is in position.
	Clow open/close time	Wait time needed by the clow to open or close.
	Lift up/down Time	Wait time during which the lift moves up or down.
U	Bottle drive linked to	Sampler 1 Sampler 2

## Bottle drive Monotrans



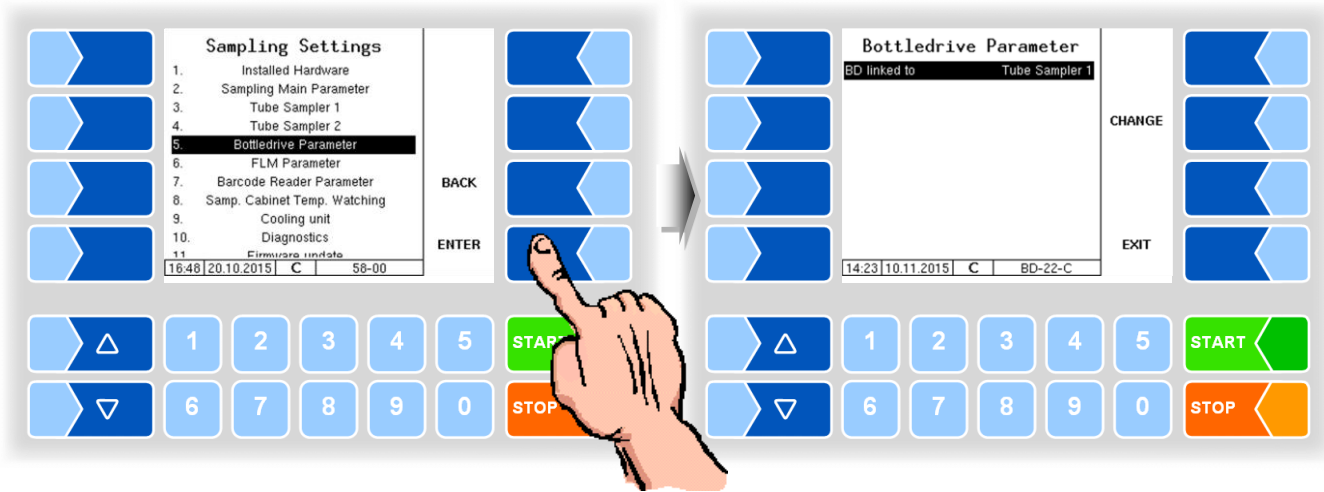
Bottle drive Monotrans		
S	Magazine move time	Plate pre-load time - after this time, rotation is activated. [s]
	Magazine wait time	Time from activation of rotation until the plate is in position.
U	Bottle drive linked to	Sampler 1 Sampler 2

### Bottle drive Bartec Mini Type 6774-12



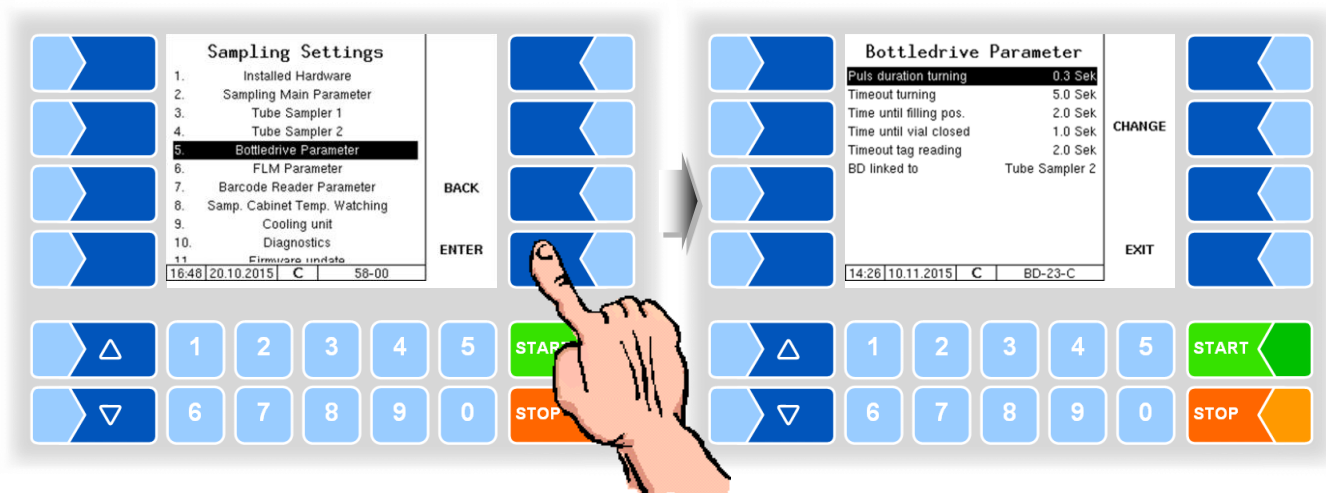
Bottle drive Bartec Mini Type 6774-12		
S	Plate preload time	Plate pre-load time - after this time, rotation is activated. [s]
U	BD linked to	Sampler 1 Sampler 2

### Semi-automatic lifting device Type 6871-3-30



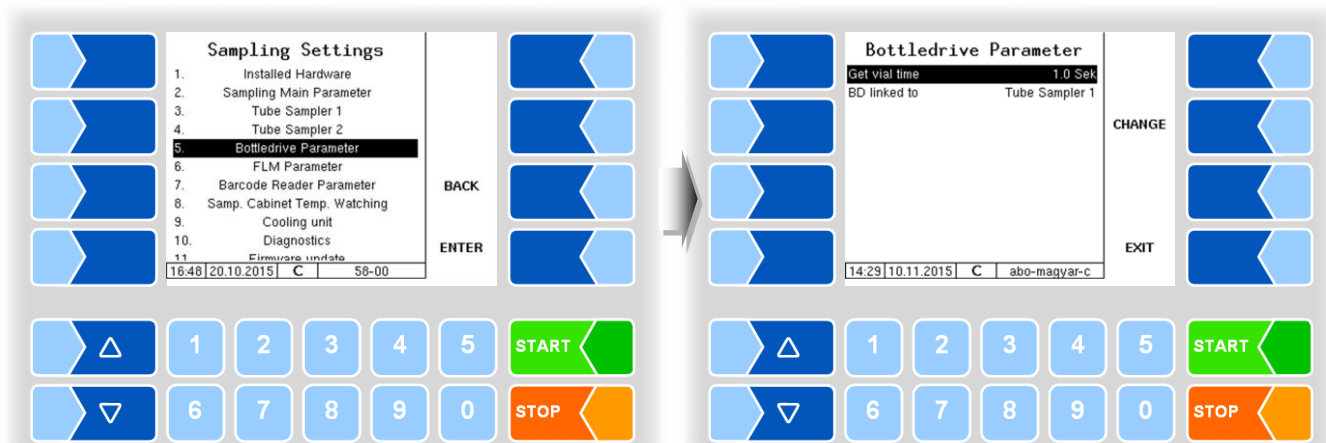
Semi-automatic lifting device		
U	BD linked to	Sampler 1 Sampler 2

## CP 200 (NL bottle supply)



CP 200 (NL bottle supply)		
S	Pulse duration turning	(Latching via Sampler Controller) <i>Note: Proximity switches in the Bottle Drive if positive switching, connect with switching module type 6756-300 on sampler controller terminal 47 and install a jumper from terminal 49 to input 7, terminal 32. Connect rotary motor (Bottle Drive) to terminal 46..</i>
	Timeout turning	maximum rotation time until error message
	Time until filling pos.	opening time bottle
	Time until vial closed	close time bottle
	Timeout tag reader	delay for TAG reading
U	BD linked to	Sampler 1 Sampler 2

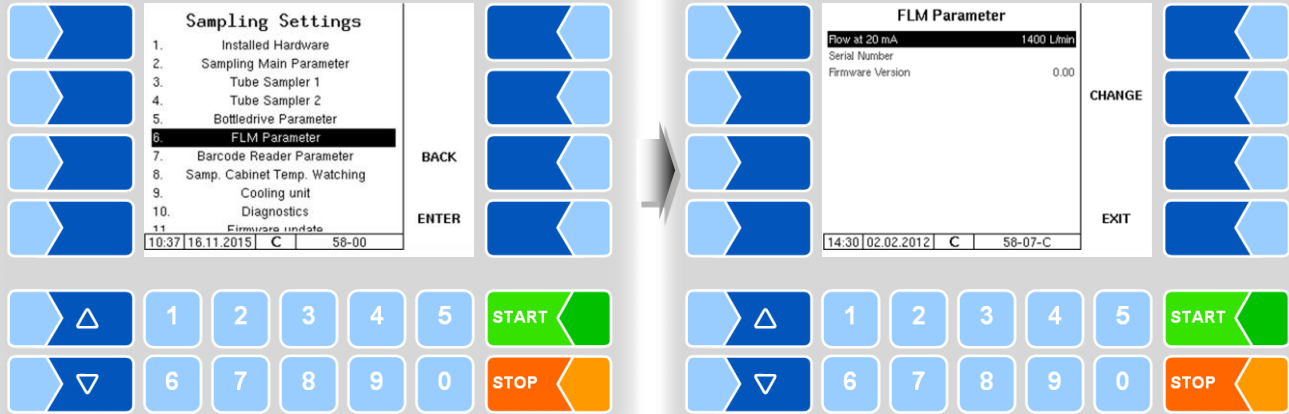
## ABO MAGYAR



ABO MAGYAR		
U	Get vial time	bottle transport pulse duration for external bottle drive After this time barcode reading starts.
	BD linked to	Sampler 1 Sampler 2

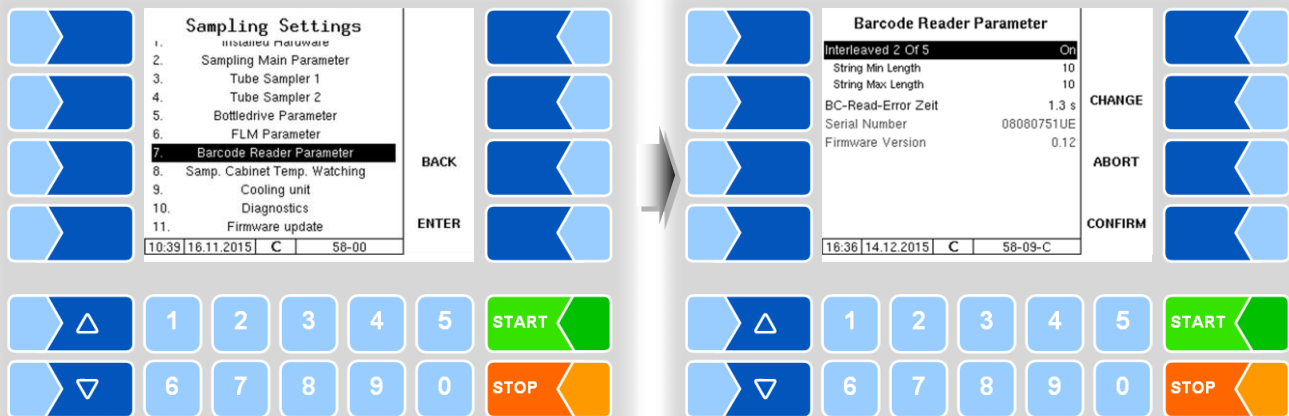
### 4.5.5.6 Flow level meter

The menu item for the configuration of the flow level meter is displayed only when the flow level meter is in configuration mode (see section 4.5.5.1).



Flow level meter		
U	Flow at 20 mA	Flow rate at which the FLM emits 20 mA (limits delivery flow) [l/min] <i>This value can only be changed, if the FLM is connected to P-Net and installed. For normal operation, the FLM may <u>not</u> be connected to the P-Net.</i>
	Serial Number	Displays the serial number of the flow level meter
	Firmware Version	Displays the firmware version of the flow level meter

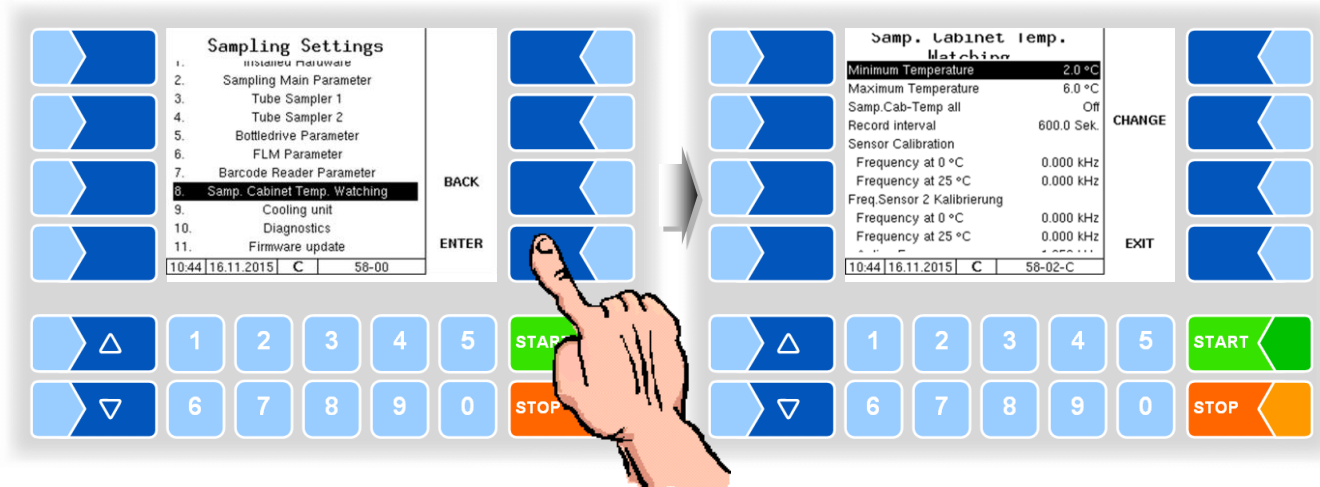
### 4.5.5.7 Barcode reader



Barcodeleser		
U	Interleaved 2 Of 5	On (standard) Off
	String Min Length	Minimum bar code length
	String Max Length	Maximum bar code length
	BC Read Error Time	In case of a read error, this amount of time is waited and then a new reading cycle is started [s]
	Serial Number	Displays the serial number of the barcode reader
	Firmware Version	Displays the firmware version of the barcode reader



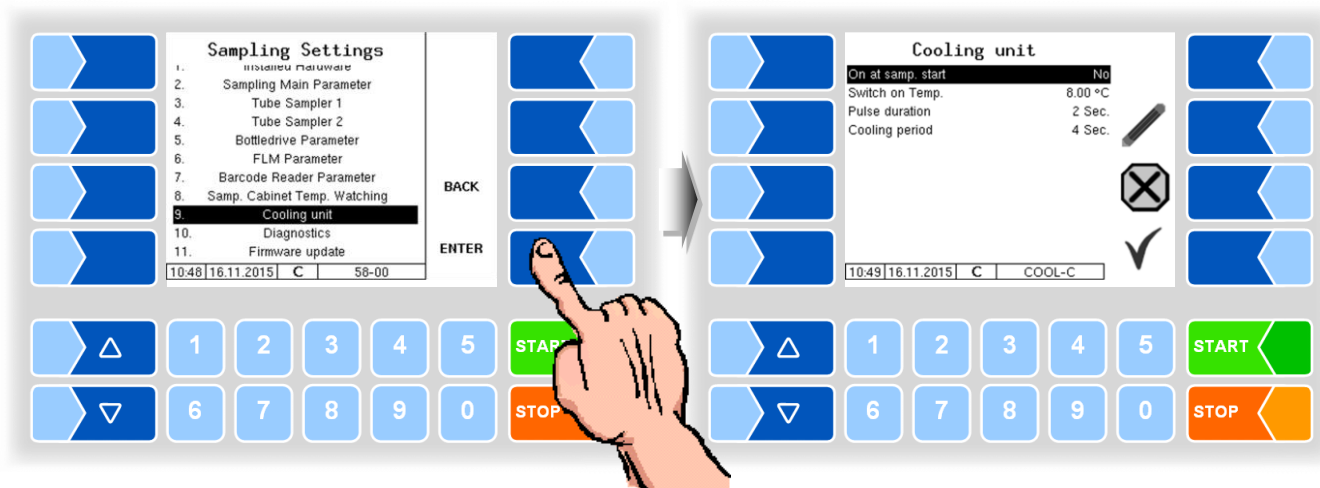
### 4.5.5.8 Sampling cabinet temperature watching



#### Sampling cabinet temperature watching

U	Minimum temperature	Lower sampling cabinet temperature limit [°C]
	Maximum Temperature	Upper sampling cabinet temperature limit [°C]
	Samp. Cab-Temp all	On: The sample box temperature is recorded at each intake / delivery, regardless of temperature limits and recording interval. In addition to the current sample box temperature, will the maximum temperature since the last recording be recorded.
	Record interval	Time interval for recording the sample box temperature when the limit exceeds standard: 600 s).
	Sensor Calibration	
	Frequency at 0°C	calibration frequency at 0 ° C according to specification on the sensor
Frequency at 25°C	calibration frequency at 25 ° C according to specification on the sensor	
Active Frequency	frequency at which the sensor reports "wetted"	

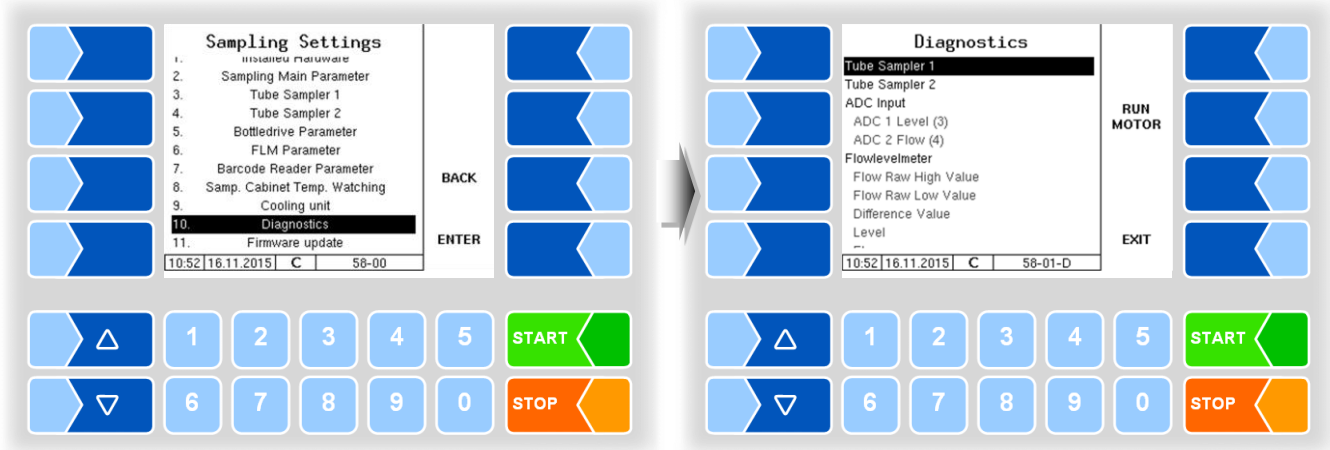
### 4.5.5.9 Cooling unit



#### Cooling unit

S	On at samp. Start	Yes: The cooling unit is switched on when the sampler starts. No: The cooling unit will not be switched on.
	Switch on Temp.	Sample box temperature at which the cooling starts (°C).
	Pulse duration	Duration of the cooling pulses (2 s)
	Cooling period	Duration of a cooling period from the start of a cooling pulse to the start of the next cooling pulse (4 s)

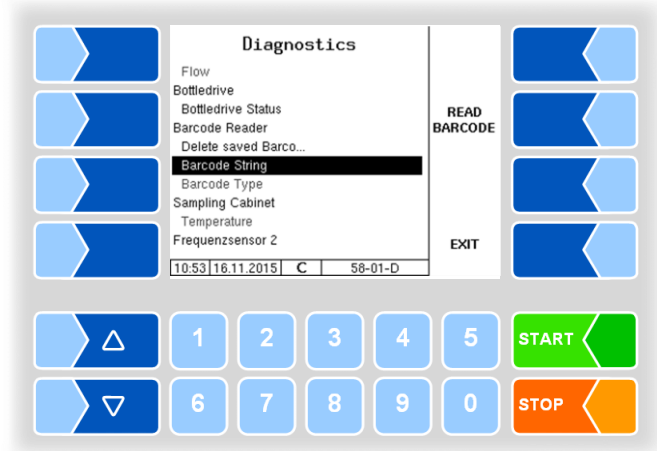
### 4.5.5.10 Diagnosis



In the diagnosis menu, the current rotational frequencies of the two sampler motors can be checked. In addition, the motors can be started for a short time to test them with the **RUN MOTOR** start key. In addition, the current values of the voltage and power inputs (for FLM) are displayed. When FLM is installed and P-Net is connected, the P-Net values of the FLM are also shown.

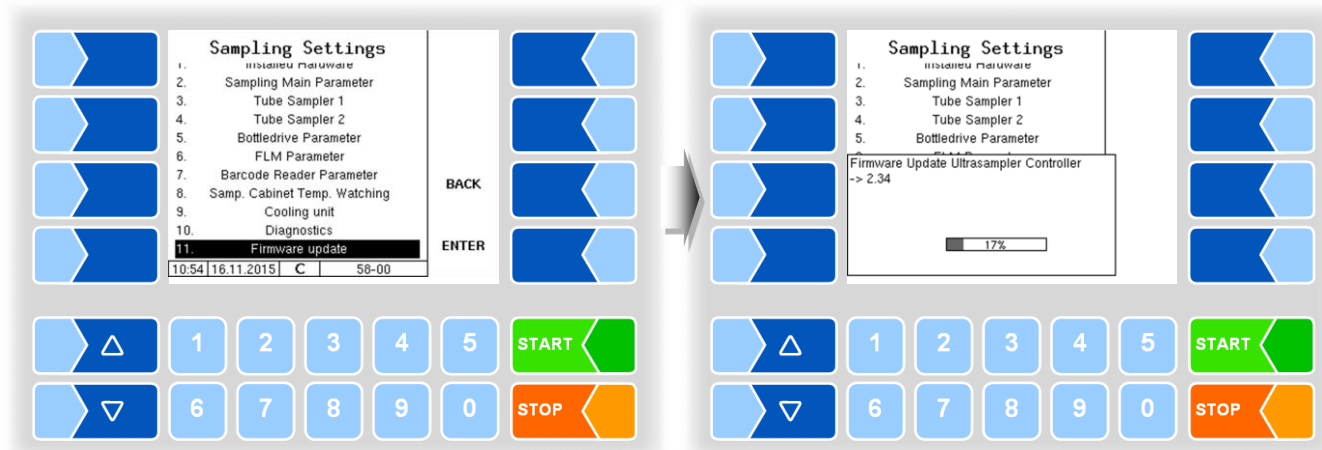
In order to test the bottle drive, a bottle drive cycle can be run with "Bottle Drive Status".

If a barcode reader is installed, barcode reading can also be activated.

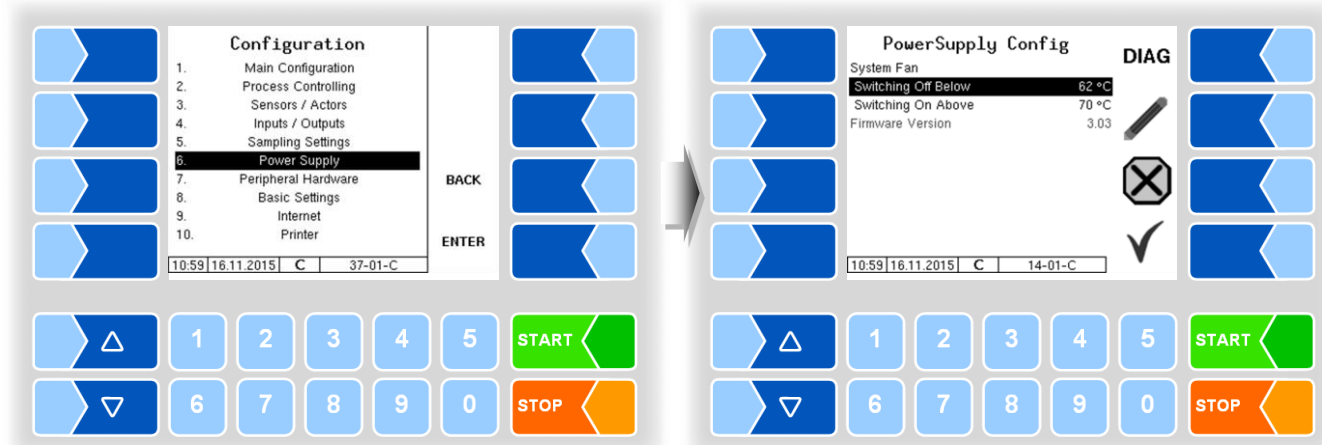


### 4.5.5.11 Firmware Update

After installing or changing the sampler controller, the current firmware version, which is stored in the software can be transferred to the sampler controller.



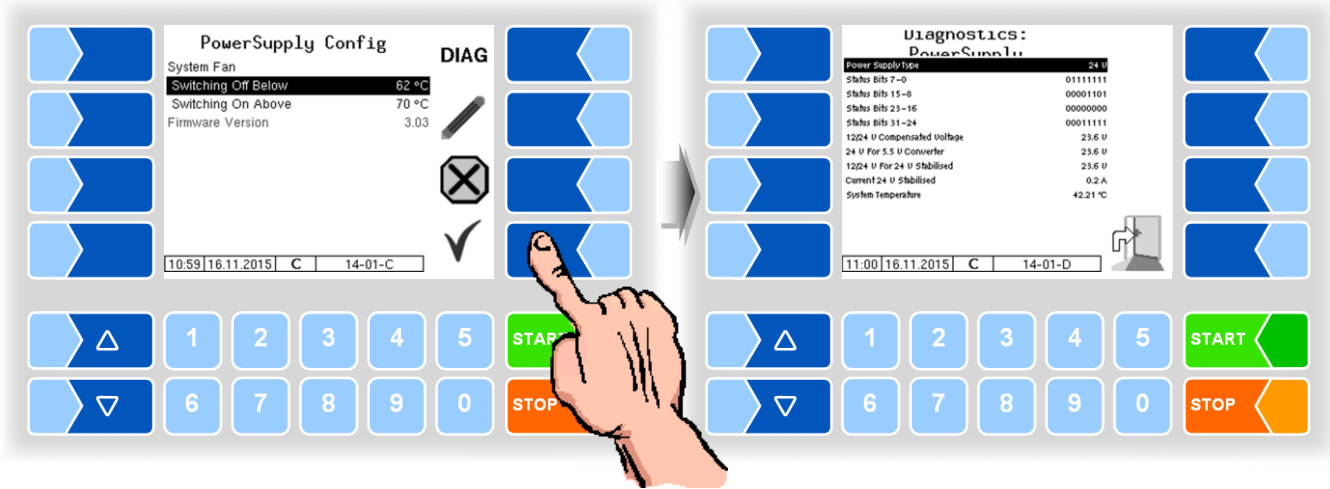
## 4.5.6 Power supply



### Power supply

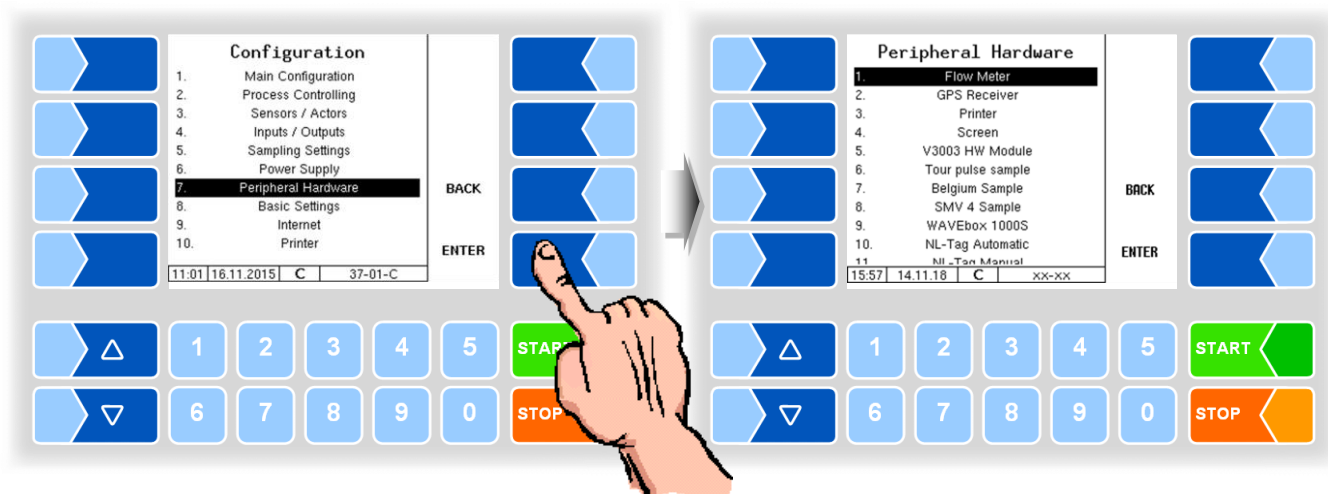
Power supply	
S	System Fan (no function for power supplies without fans)
	Switching Off Below
	Switching ON above
	Firmware Version

### Diagnosis

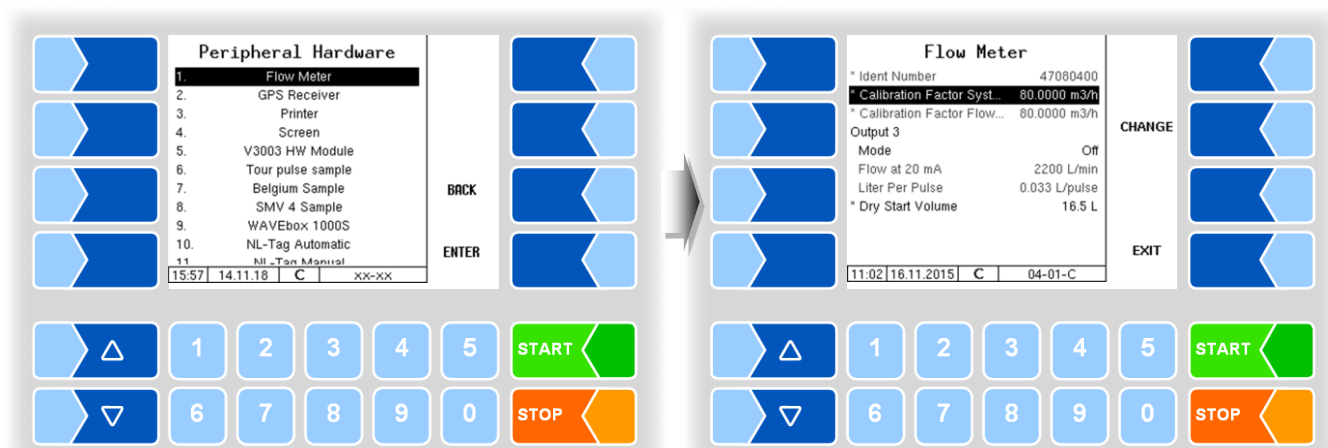


Here you can check the various voltages in the compact controller.

## 4.5.7 Peripheral Hardware

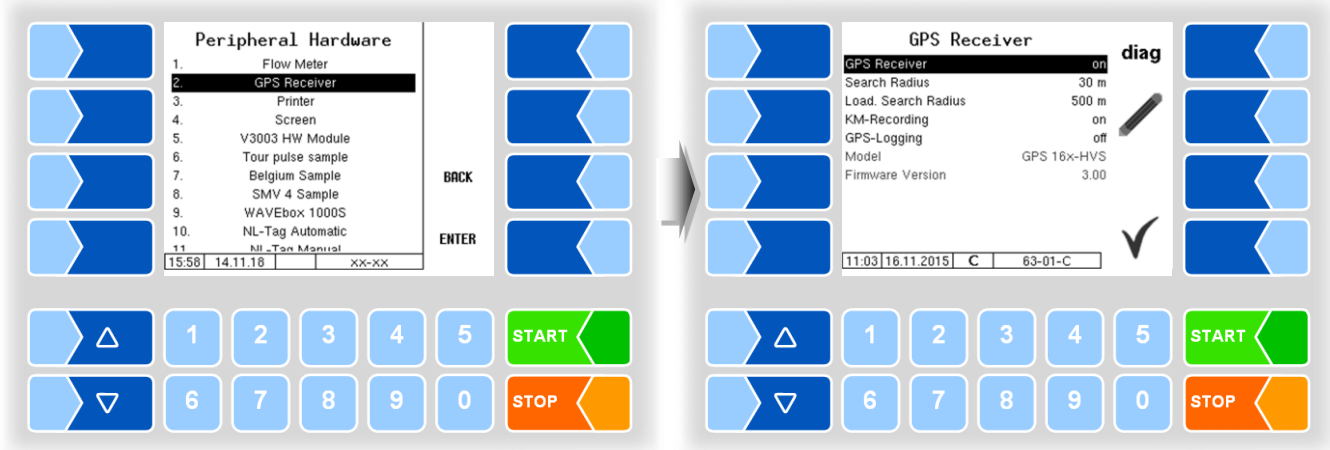


### 4.5.7.1 Flow meter



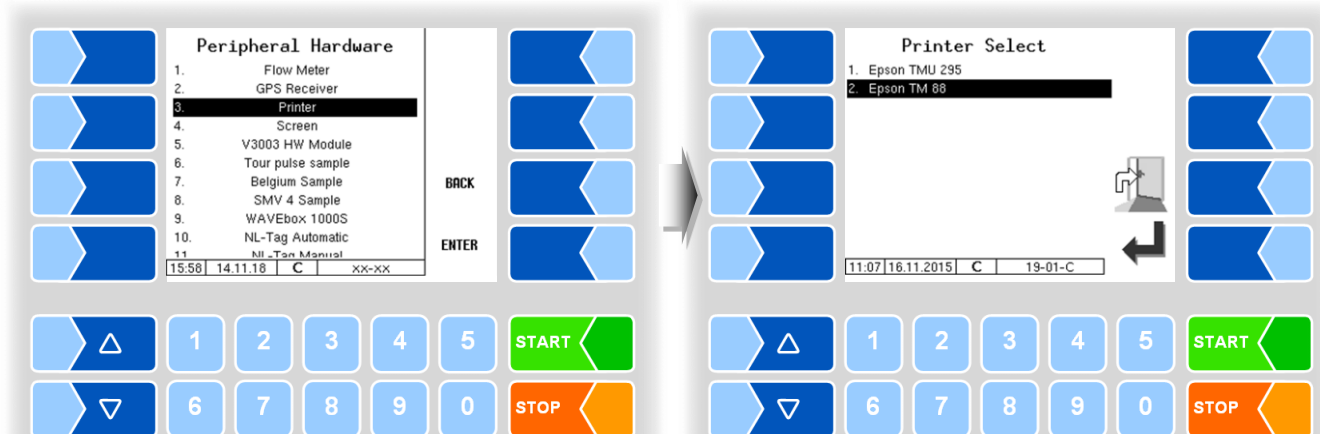
Flow Meter		
C	Ident number	MID serial number
	Calibration Factor System	Calibration factor of the MID saved in the calibration memory of the compact controller. It can only be changed if the calibration switch is on.
	Calibration Factor Flow Meter	Calibration factor saved in the MID. If the calibration switch in the MID is open, this is transferred to the MID. (upon delivery, the calibration switch in the MID is open).
S	Output 3	
	Mode	Off 4-20 mA The flow rate is measured based on power. 0-1000 Hz The flow rate is measured based on frequency.
	Flow at 20 mA Litre per pulse	Flow rate at which the FLM emits 20 mA ( <i>applies to mode 4-20 mA</i> ) Flow rate per pulse [L/pulse] ( <i>applies to mode 0-1000 Hz</i> )
C	Dry start volume	For the quantity necessary for the measuring system. This is added to the measuring results at the first measurement.

### 4.5.7.2 GPS receiver

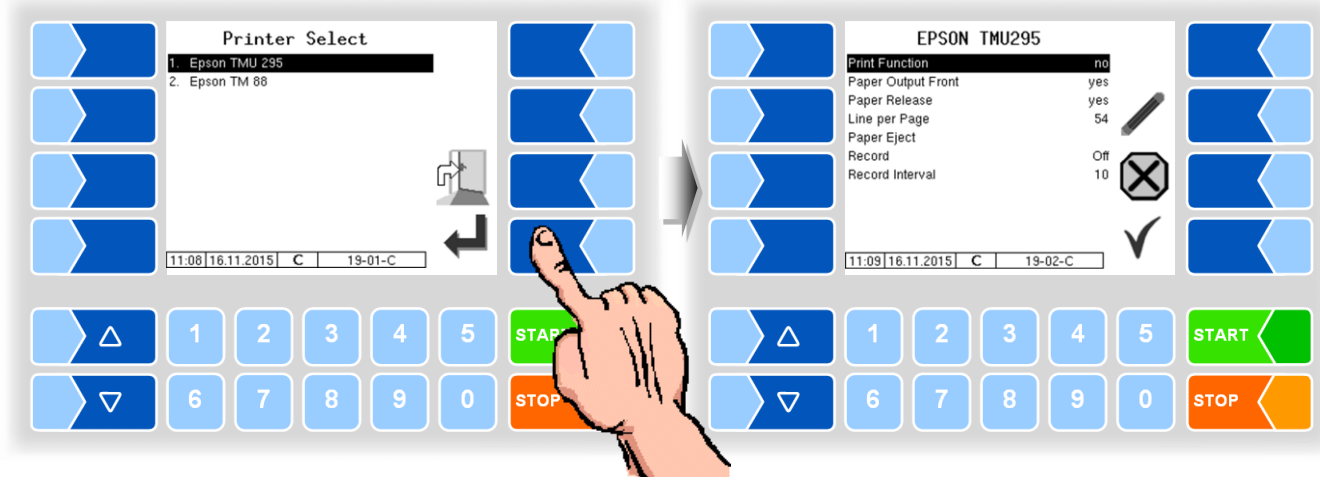


GPS receiver		
	GPS receiver	switching the GPS receiver On or Off
	Search radius	Radius around the determined geographic location in which a supplier must be found in order to identified [m]
U	Load. Search Radius	<i>not used</i>
	KM-Recording	The distance (km) according to the GPS data will be recorded.
	GPS-Logging	When polling the GPS data, it will be recorded in EMF log for diagnostic purposes.
	Model	Displays the model version
	Firmware Version	Displays the firmware version

### 4.5.7.3 Printer

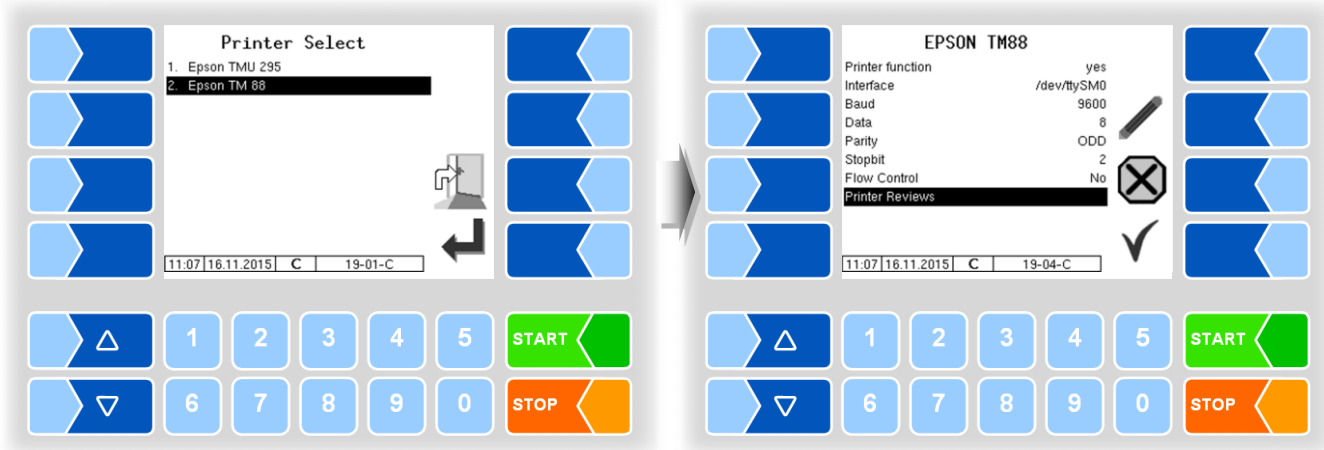


### Epson TMU295



EPSON TMU295			
U	Print Function	yes	Printer activated
		no	Printer deactivated
	Paper Output Front	yes	The paper is output at the front.
		no	The paper is output at the back.
	Paper Release	yes	The paper is released after printing.
		no	The paper is not released after printing.
	Line per Page	Number of lines (including the footer) to the end of a page when parameters are printed. If 0 is entered here, there are no page breaks (default: 54).	
Paper Eject	on	The paper is ejected	
	off	The paper remains in the printer and can be printed on	
Record	On: Copies of the print outputs will be stored digitally.		
Record Interval	Storage duration of print copies		

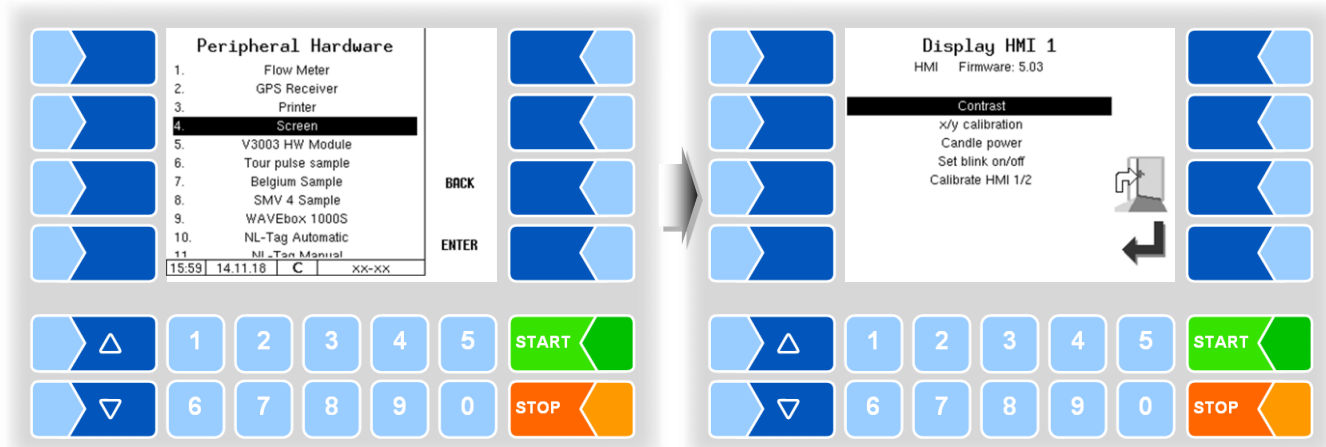
### Epson TM88



EPSON TM88		
U	Printer function	yes Printer activated no Printer deactivated
	Interface	Interface to which the printer is connected.
	Baud	Data rate
	Data	Number of data bits 7, 8
	Parity	OFF EVEN ODD
	Stop bit	1 2
	Flow Control	None Xon/Xoff Hardware
	Printer test	Printer configuration: Prints the printer configuration Hex Dump - 3xFEED to STOP: Test print Paper feed test: Paper feed test

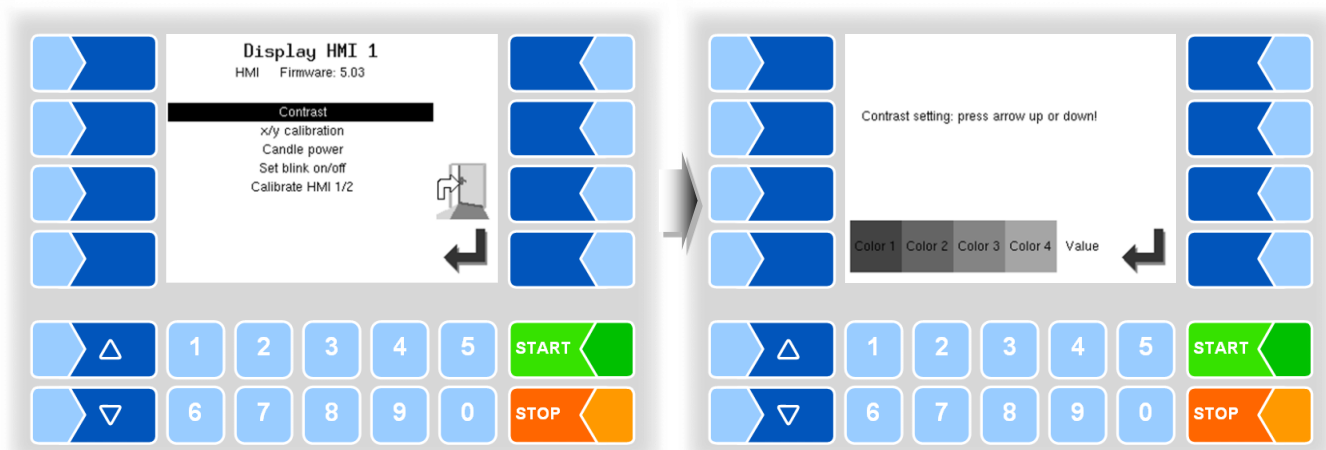




### 4.5.7.4 Screen



This menu is used to set and calibrate the touch screen display. The touch screen is already calibrated when the system is delivered. It is only necessary to calibrate the touch screen if the display is difficult to read or if the system does not respond correctly to touch.

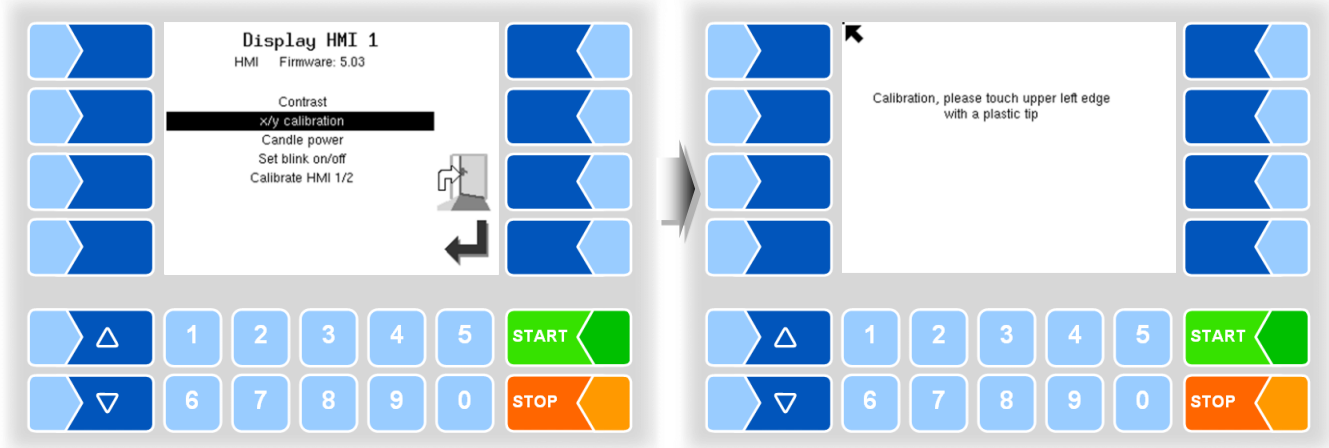
### Contrast



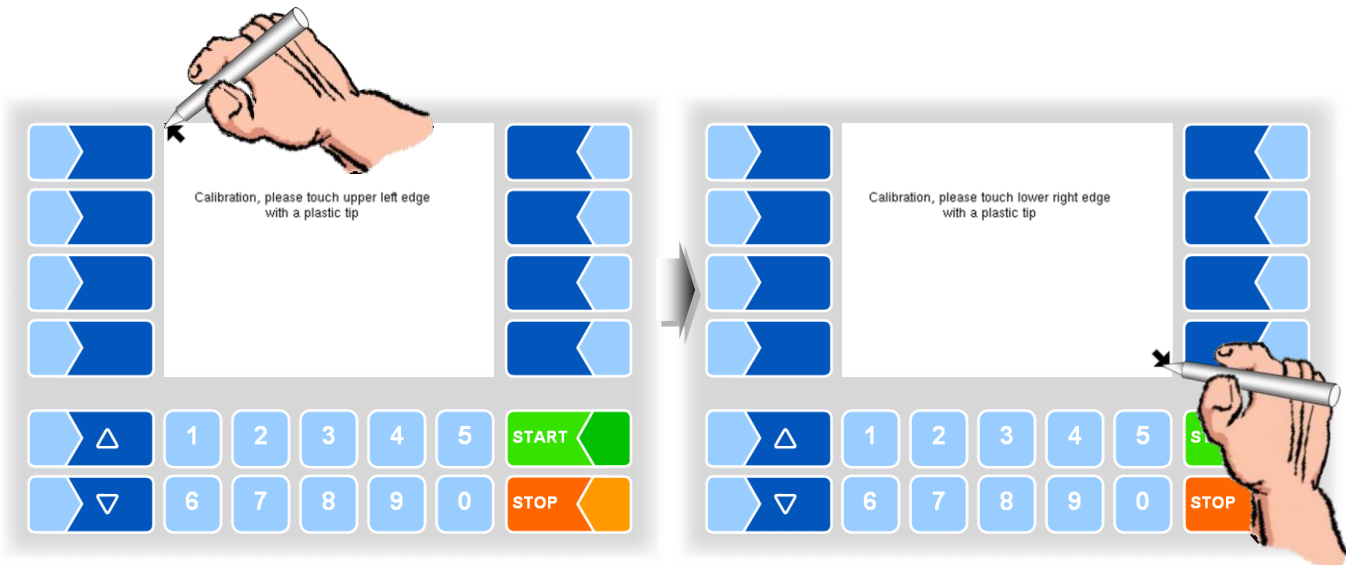
- Use the selection keys  and  to set the contrast to the required value and touch the “Confirm” softkey.

## x/y Calibration

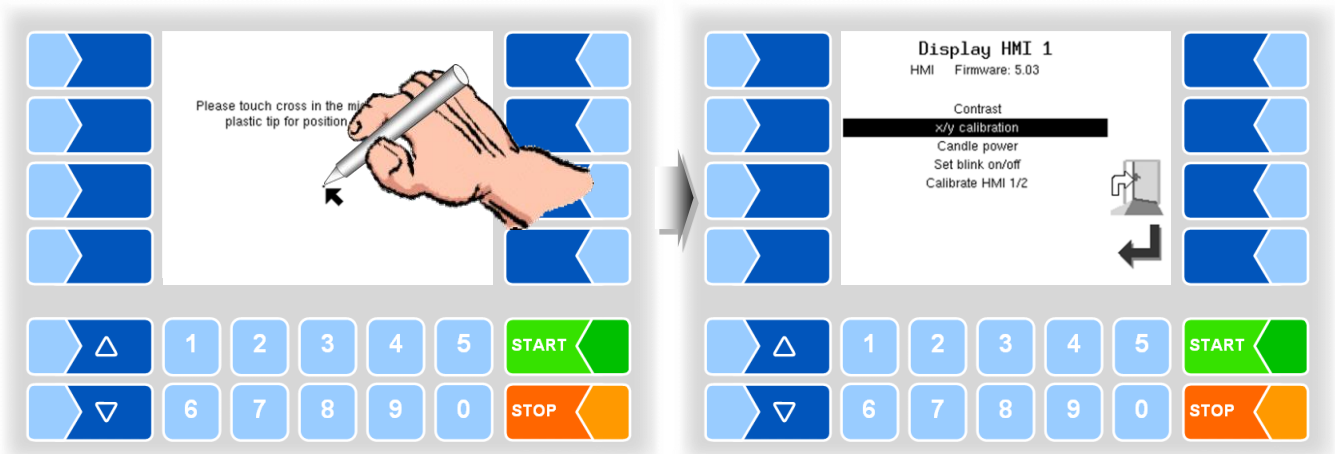
The x/y calibration function is used to redefine the display coordinates. These determine the position of the keys on the touch screen. Follow the instructions on the display.



- Touch the top left-hand corner of the display. You should preferably do this using a pointed plastic object that cannot scratch the display.
- Then touch the bottom right-hand corner of the display.



- Next, touch the point that appears on the display.



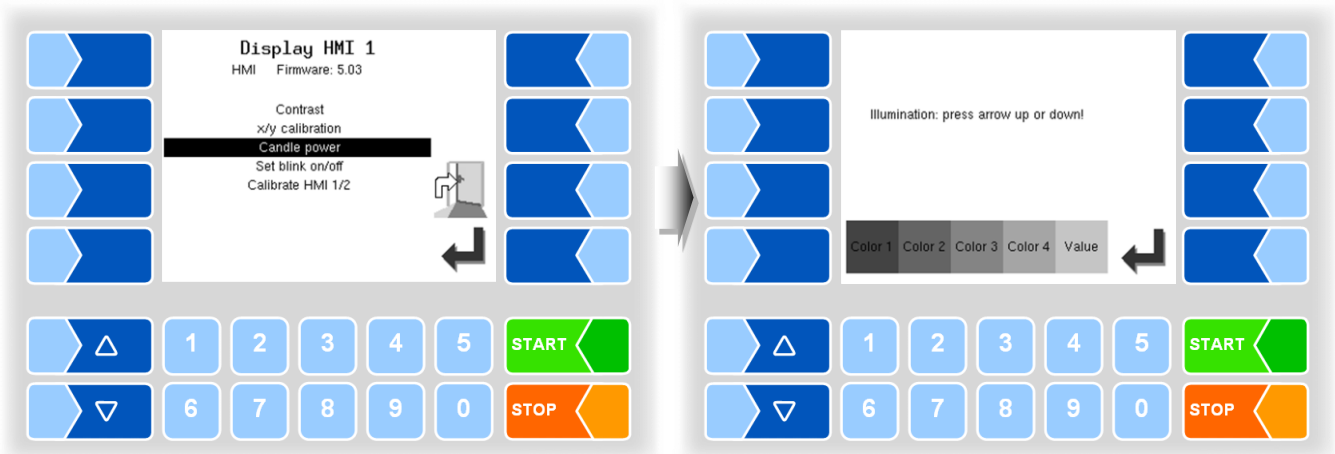
The coordinates of the touch screen have now been defined.



If the touch screen is not calibrated satisfactorily, you may have to repeat the procedure several times.



Never switch off the system during the calibration!

### Candle power

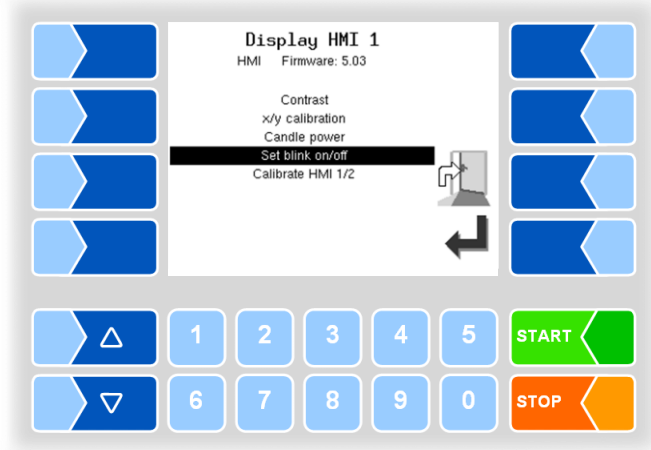


- Use the selection keys  and  to set the brightness of the display to the required value and touch the “Confirm” softkey.

### Set blink on/off

This is where you define whether the display should blink once each time you touch it or change without blinking.

The setting takes effect as soon as you confirm the menu option!



### Calibrate HMI 1/2

**(No function when using measurement system TIGER!)**

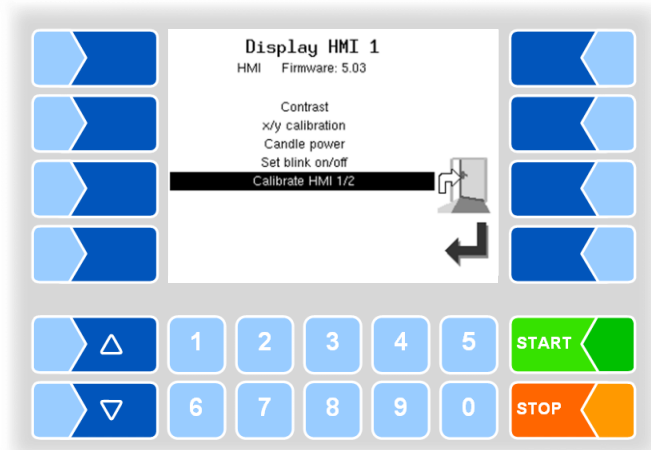
Two HMI display units can be installed for displaying information.

When you confirm this menu option, you switch from calibrating "Display HMI 1" to calibrating "Display HMI 2" or vice versa.

The following then appears in the title:

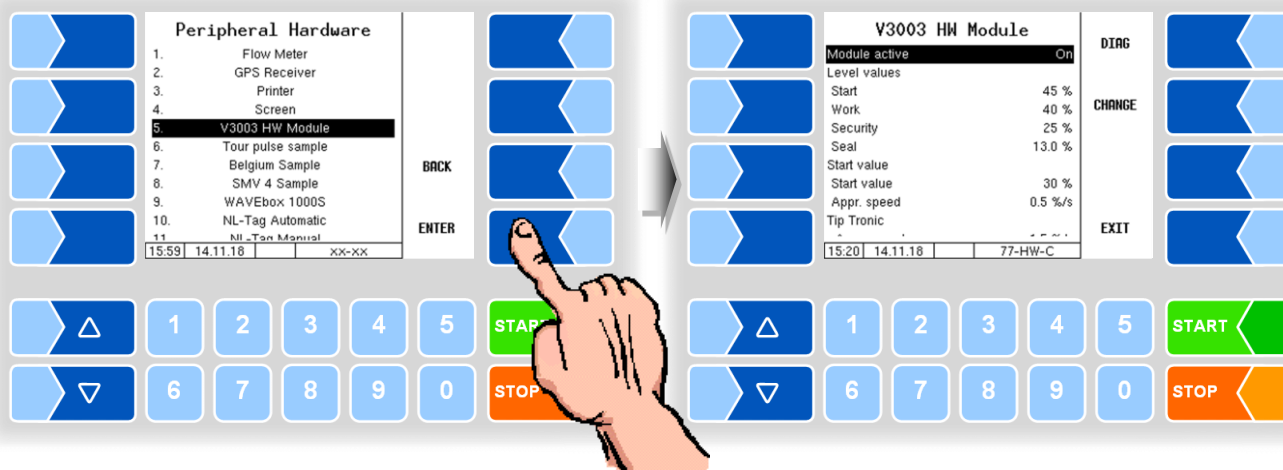
Display HMI 1 or

Display HMI 2.



### 4.5.7.5 V3003 HW Module

The menu is only available if the measurement system type V3003 is selected (see section 4.5.8.3).

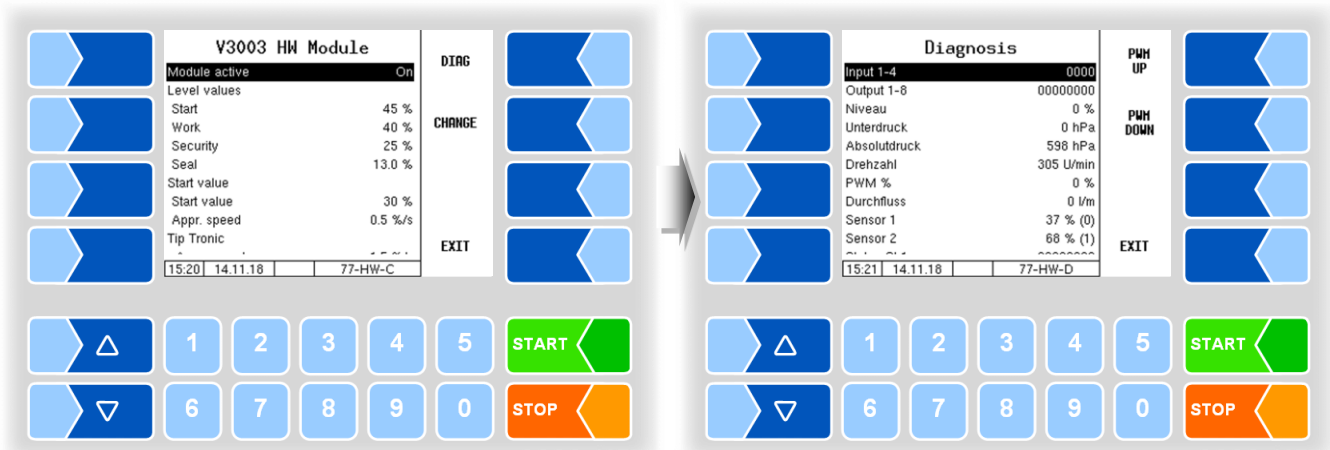


#### V3003 HW Module

S	Module active	Switching the module on or off	(On)
	Level values		
	Start	Initial level at each start of suction to increase the vacuum (in% of the maximum filling level)	(50%)
	Work	Operating point of the air separator during milk intake (in % of the maximum filling level)	(45%)
	Security	Cut-off point of the air separator (in % of the maximum filling level)	(25%)
	Seal	Level of the air separator after standstill (in % of the maximum filling level)	(12%)
	Start value		
	Start value	Pump performance at the beginning of milk intake (in% of the maximum performance)	(30%)
	Appr. speed	Speed with which the level is raised in the direction of "setpoint" at the beginning of milk intake.	(0,5%/s)
	Tip Tronic		
	Appr. speed	If the required negative pressure is not reached at the desired level, the level of the air separator is raised. The parameter determines how quick the level is lowered back to the setpoint level.	(1,5%/s)
	Start seal value		
	Start value	Performance with which the pump starts after stopping at the cut-off point and lowers the level in the direction of "calibration".	(30)
	Appr. speed	Speed with which the level is lowered in the direction of "calibration".	(1,5)
	Level fluctuations	Level fluctuation, which must not be exceeded within the measuring time to stop the pump at the switch-off point.	(0,05)
	Measuring time	Within the measuring time, the level must not fluctuate more than defined under " Level fluctuations ", so that the pump stops at the switch-off point.	(1,0)
	Measuring end		
	Level fluctuations	Level fluctuation which must not be exceeded within one second so that the end of the measurement will be reached	(0,05)
	Control parameter		
	Prop. Factor	Proportionality factor for influencing the control characteristic	(0,5)

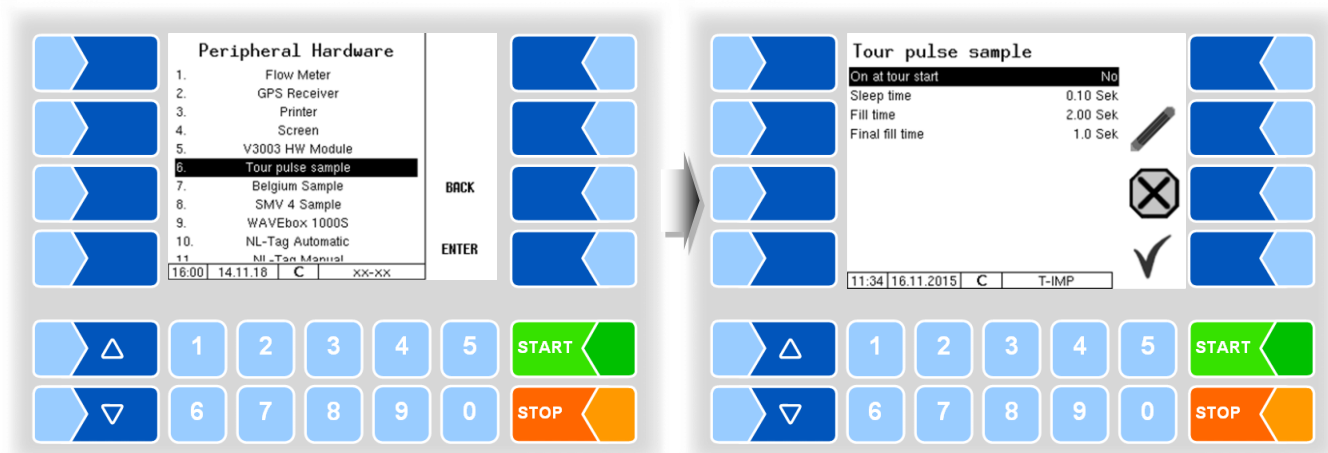
S	PWM	
	Frequency	Operating frequency of the hydraulic valve (125)
	minimum	Pulse pause ratio for controlling the hydraulic valve, which controls the hydraulic motor of the air separator. (=Valve position at 0% pump performance). The parameter must be set so, that the pump stops! (31)
	maximum	Factor determining the displacement of the pulse pause ratio when the performance is increased (width of the control range of the pump control). (68)
	Sensor thresholds	
	Foam sensor	Sensitivity of the foam sensor (60)
	Empty sensor	Sensitivity of the empty sensor (60)
	Serial number	Serial no. according to type plate
	Firmware Version	N° of the firmware version

### Diagnosis



### 4.5.7.6 Tour puls sample

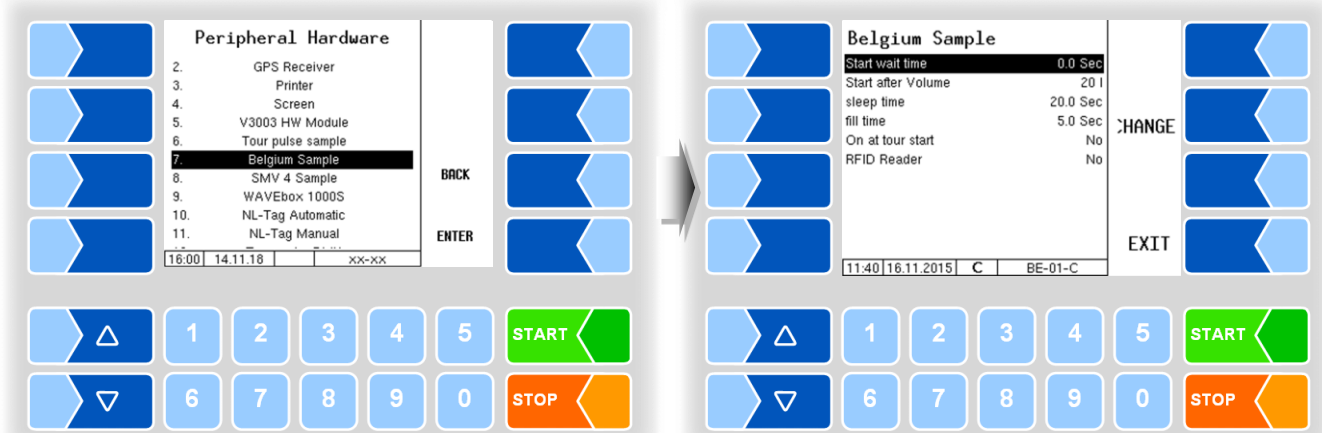
Only visible if output 86 is configured.



Tour puls sample		
S	On at tour start	Yes: tour puls sample will be switched on, when the tour starts. No: tour puls sample will not be switched on, when the tour starts.
	Sleep time	The bottle will not be filled durin this time (20 - 60 sec.)
	Fill time	During this time will the bottle be filled.
	Final fill time	Duration at the end of the sample process where the sampling vent is continuously open [s]. (no regulation of the sampling process)

### 4.5.7.7 Belgium Sample

Only visible if output 88 is configured.

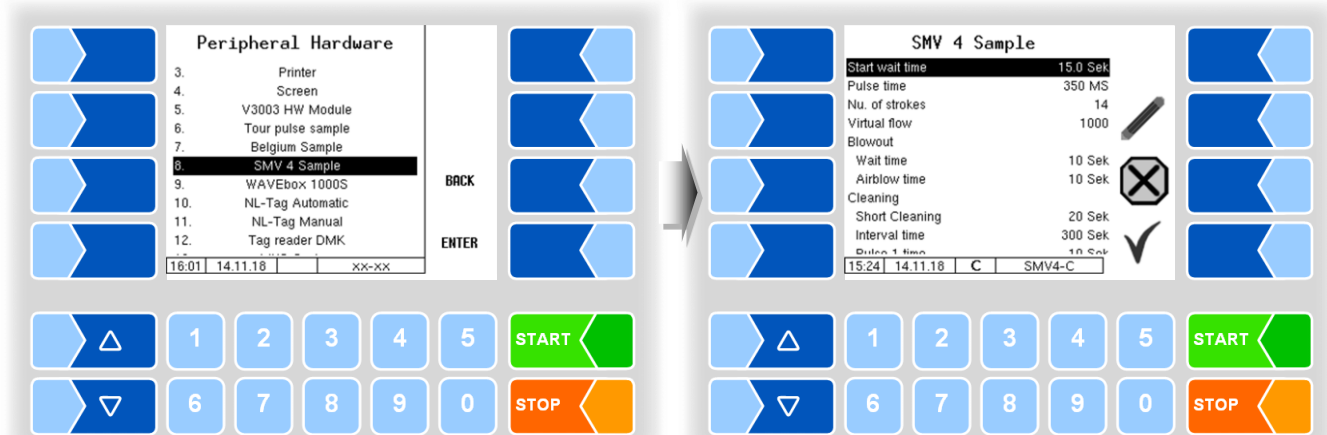


Belgium Sample		
S	Start wait time	After starting the intake is a delay (5 – 15) seconds until the needle is inserted into the bottle.
	Start after Volume	When this quantity is reached the needle is inserted into the bottle.
	sleep time	During this time, the bottle is not filled (20 - 60 seconds) (output 89 must be active.)
	fill time	During this time, is the bottle filled. output 89 must be active.)
	On at tour start	Yes: Belgium sample is switched on when the tour starts No: Belgium sample is not switched on when the tour starts Zwang: Belgium sample is always switched on and cannot be disabled during the tour
	RFID Reader	TAG reader WAVEbox 1000S on or off



### 4.5.7.8 SMV 4 Sample

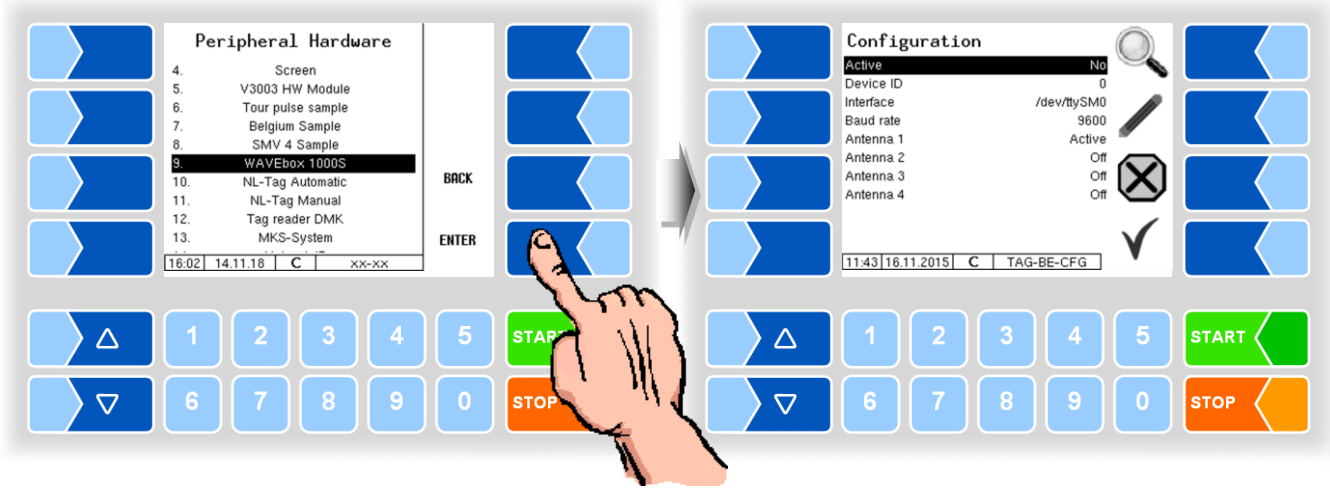
The SMV 4 sample is used in the Netherlands to fill the single sample bottle.



SMV 4 Sample		
U	Start wait time	Delay time from moistening the milk sensor until the first stroke
	Pulse time	Drive time of the pneumatic piston
	Nu. of strokes	Number of lowering strokes during milk intake
	Virtual flow	assumed flow, as long as the MID does not measure any flow (Default: 1100)
	Blow out	
	Wait time	Delay time for blowing out after removal of the bottle
	Airblow time	Drive time of the blow-off valve
	Cleaning	
	Short cleaning	Time until starting the 1 <sup>st</sup> drive interval
	Interval time	Time from one drive interval to the next
	Puls 1 time	Drive pulse time for the piston
	Puls 2 time	Drive pulse time for blowing out
	Parallel operation	SMV 4 sample and manual sample run in parallel. The driver fills in a sample manually, the bottle tag is written. The system then waits for a new TAG for the SMV 4 sample. When the new tag is read, the milk intake starts.
	TAG Dairy number	This number is written to the TAG of the SMV 4 sample. To differentiate the samples in the laboratory, the manual sample gets another number.

### 4.5.7.9 WAVEbox 1000S

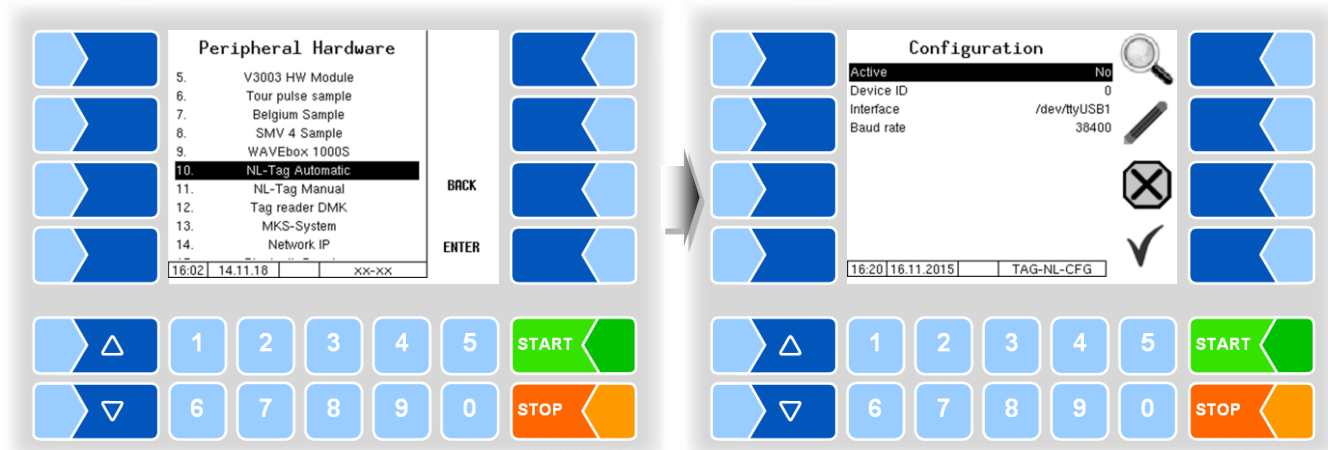
In Belgium the Wavebox 1000S is used for sample bottle identification and for reading and writing the tag information.



WAVEbox 1000S		
S	Active	activate or deactivate the WAVEbox
	Device ID	serial no.
	Interface	interface to which the WAVEbox is connected
	Baudrate	Baud rate
	Antenna 1	Off Active: antenna for writing to the sample bottle tags
	Antenna 2	Off Active: if an additional antenne for writing to the sample bottle tags is installed for additional samples
	Antenna 3 Antenna 4	not used

### 4.5.7.10 NL-Tag Automatic

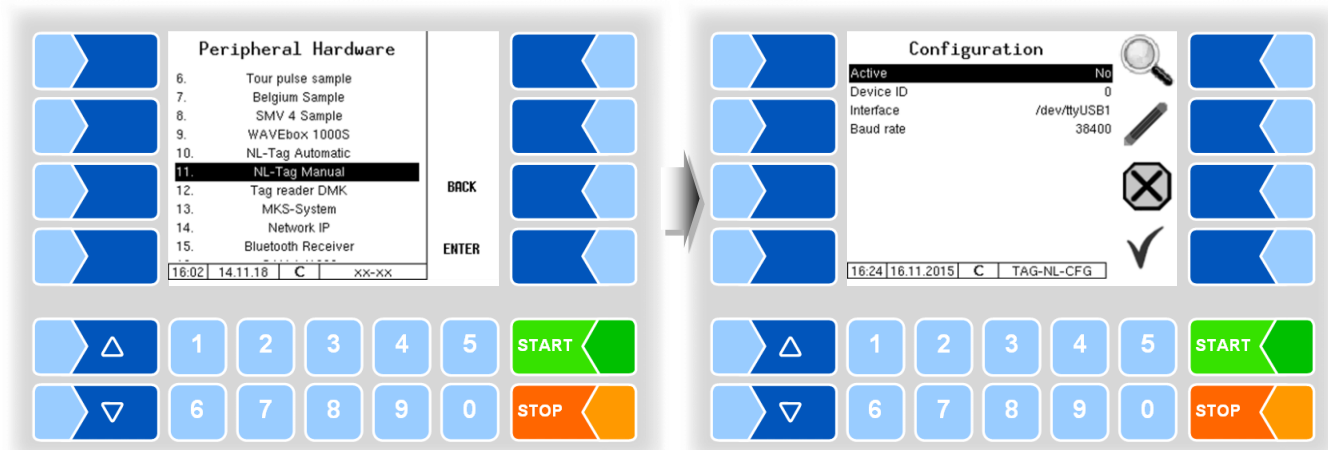
Configuration of the tag reader with automatic bottle feed (version Netherlands).



NL-Tag Automatic		
S	Active	activate or deactivate the WAVEbox
	Device ID	serial no.
	Interface	interface to which the WAVEbox is connected
	Baud rate	Baud rate

### 4.5.7.11 NL-Tag Manual

Configuration of the tag reader with manual bottle feed (version Netherlands).

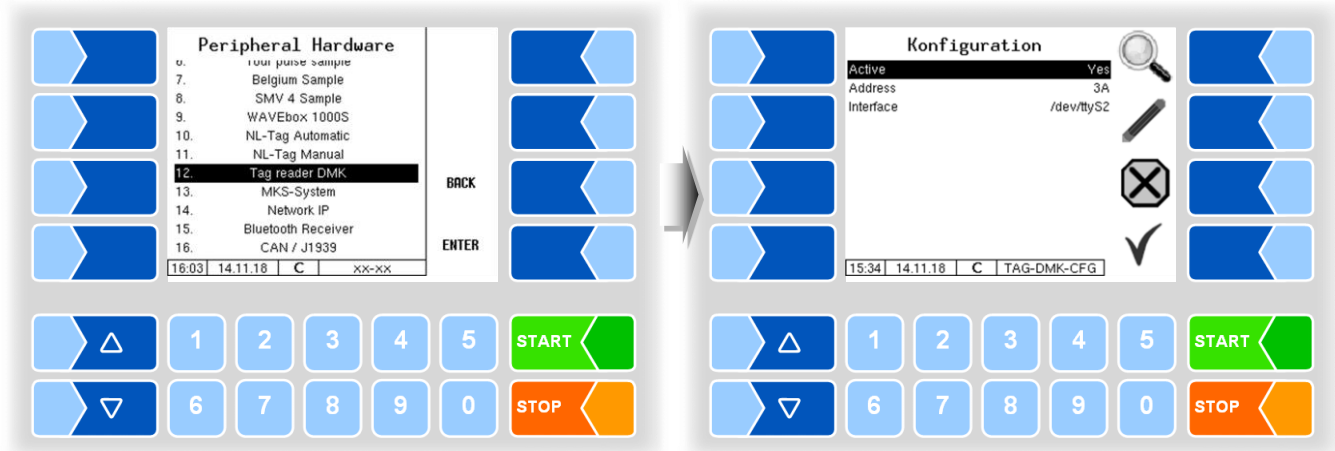


NL-Tag Manual		
S	Active	activate or deactivate the WAVEbox
	Device ID	serial no.
	Interface	interface to which the WAVEbox is connected
	Baud rate	Baud rate

The NL TAG reader (DIRAU TAG reader) can be used for driver- and sample bottle identification.

### 4.5.7.12 Tag reader DMK

Configuration of the DMK-Tag reader (for driver identification).



Tag reader DMK		
S	Active	activate or deactivate the WAVEbox
	Address	RS485 bus address of the Tag-reader
	Interface	interface to which the WAVEbox is connected



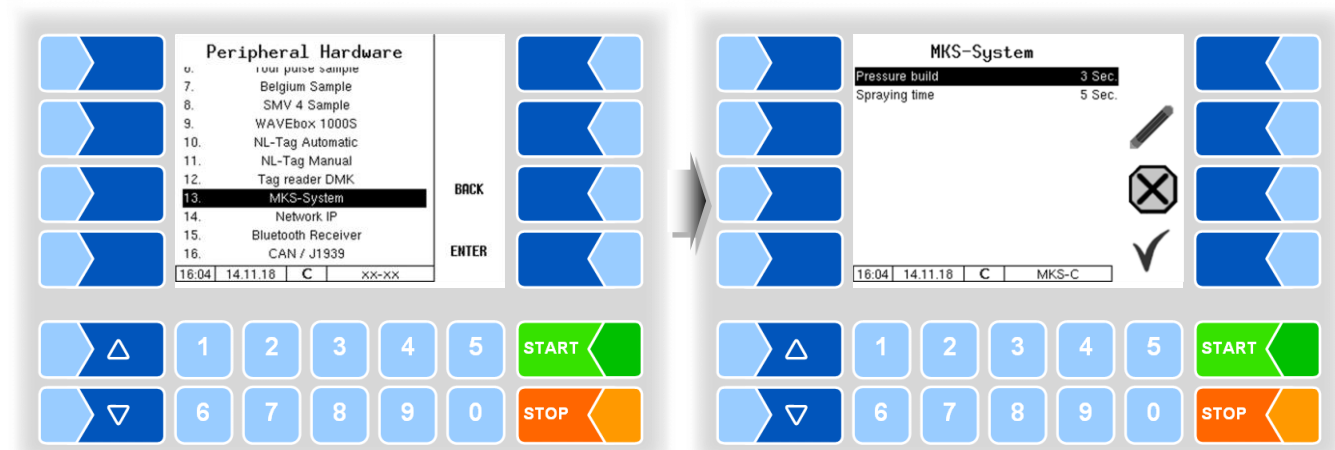
#### Diagnosis of the Tag reader

All tag readers, you can call a diagnostic tool with this softkey to verify that the tag reader function.

Selection of the TAG reader for driver identification see page. 37.

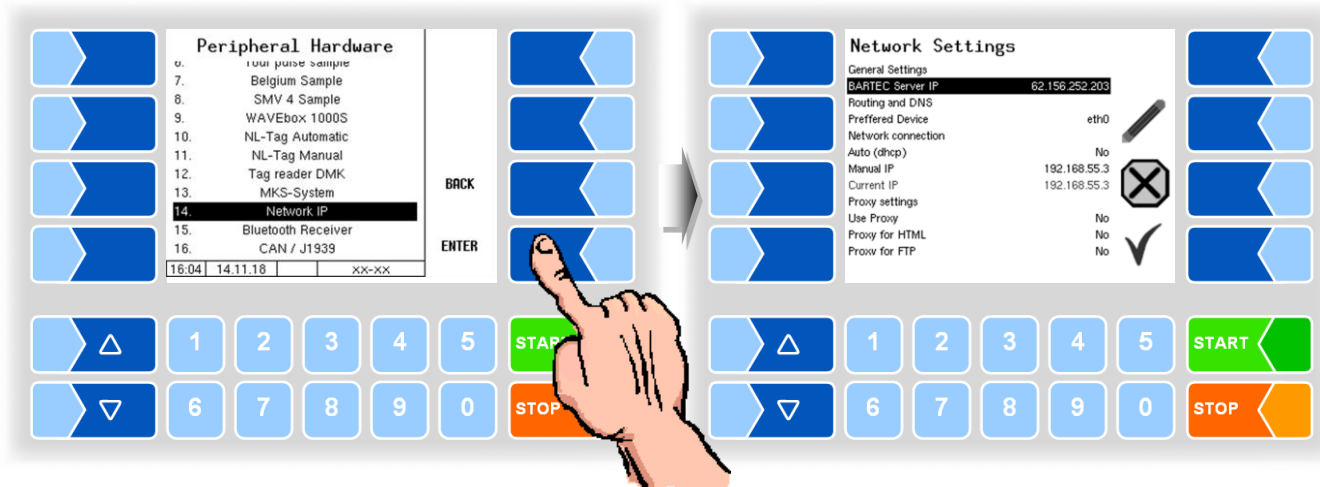
### 4.5.7.13 MKS-System

To protect against foot-and-mouth disease, a disinfectant solution can be sprayed over the tires before leaving the yard.



MKS-System		
S	Pressure build	Time for pressure build-up in the tank (3 s)
	Spraying time	spray duration (5 s)

## 4.5.7.14 Network IP

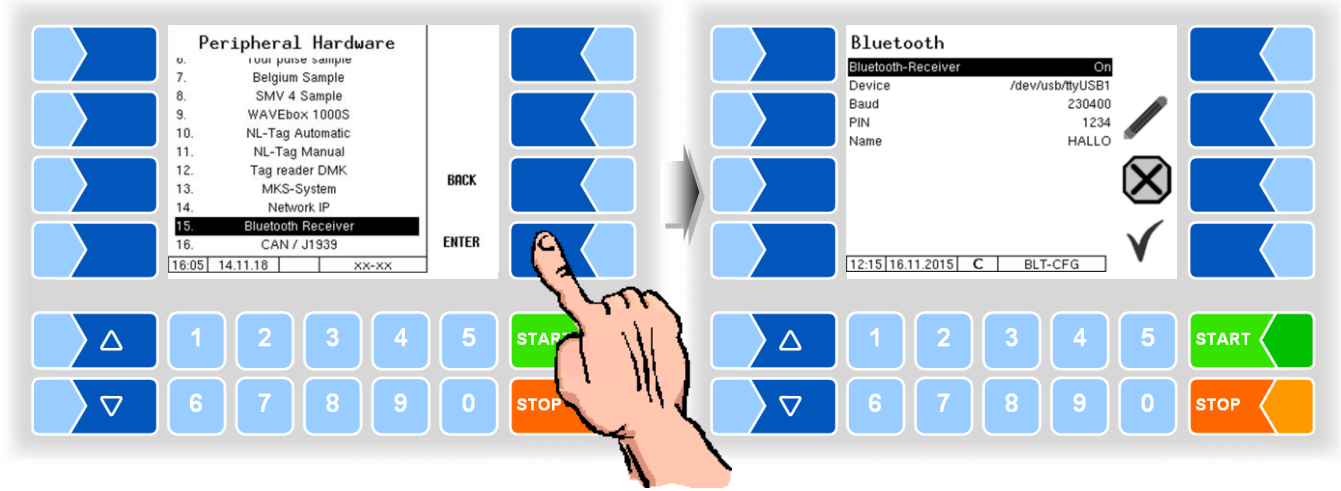


### Network Settings

U	General Settings	
	BARTEC Server IP	IP adress of the BARTEC server
	Routing and DNS	
	Preferred Device	Selected network device for data connection eth0: Ethernet port in the compact-controller GPRS: mobile radio modem
	Network connection	
	Auto (dhcp)	Yes: get IP address automatically (from router/DHCP server) No: manual IP address is used
	Manual IP	manual IP address for network card (only Ethernet)
	Current IP	displays the current IP address (only Ethernet)
	Proxy settings	
	Use Proxy	Yes: The IP connection should be established via a proxy server. No: The IP connection should be established directly (without Proxy)
	Proxy for HTML	Yes: HTML connections run via the proxy server. No: HTML connections run directly (without Proxy)
	Proxy for FTP	Yes: FTP connections run via the proxy server. No: FTP connections run directly (without Proxy)
	Proxy Server	Address of the Proxy-Server to be used
	Proxy Port	Port of the Proxy-Server to be used

### 4.5.7.15 Bluetooth Receiver

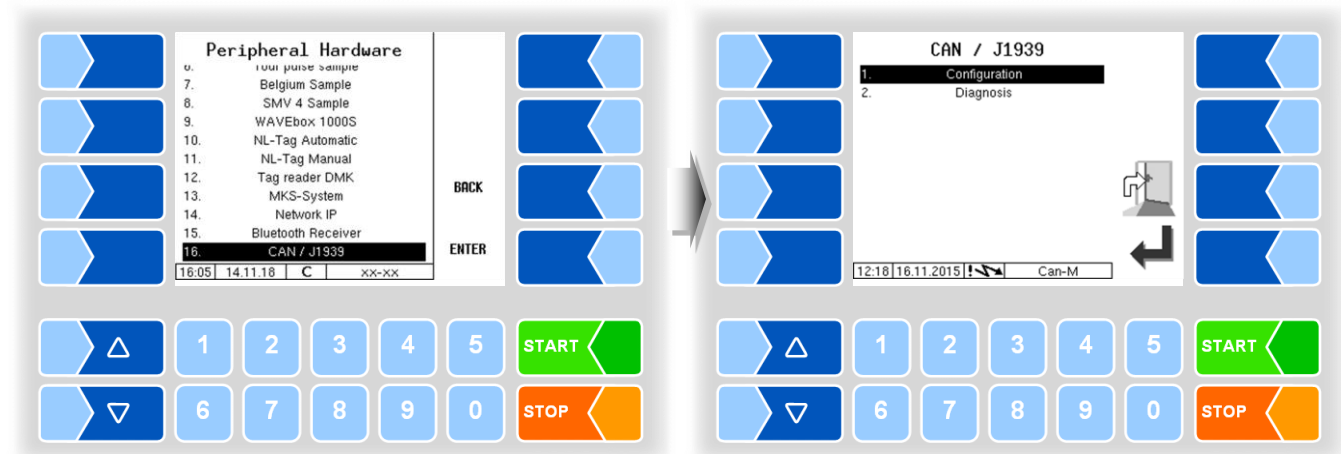
The Bluetooth interface is used to connect the 3003 service tool and for using the BARTEC Android App.



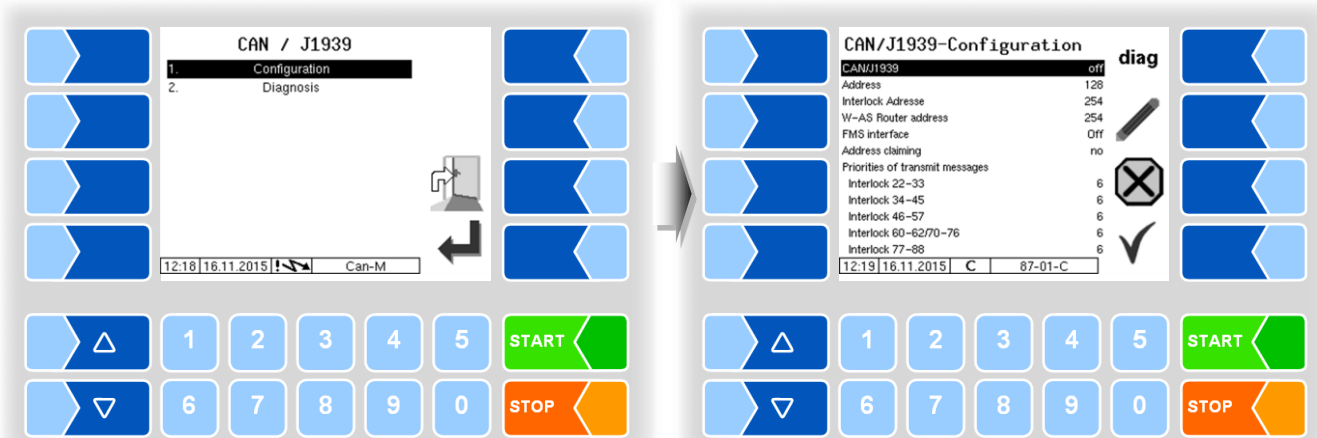
Bluetooth		
S	Bluetooth-receiver	activate/deactivate the bluetooth-receiver
	Device	Interface designation (/dev/ttyUSB0)
	Baud	Baud Rate Selectione
	Pin	access code
	Name	Name of the application (e.g. N° of the tank or vehicle)

The Bluetooth Interface has to be activated in the service menu (see section 4.6.12).

### 4.5.7.16 CAN / J1939



### Configuration

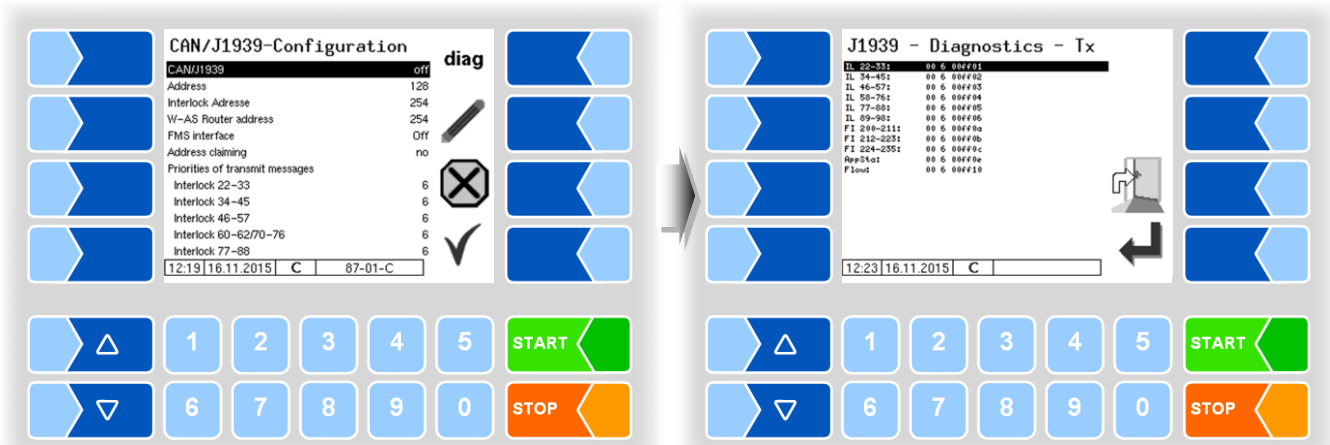


#### CAN / J1939

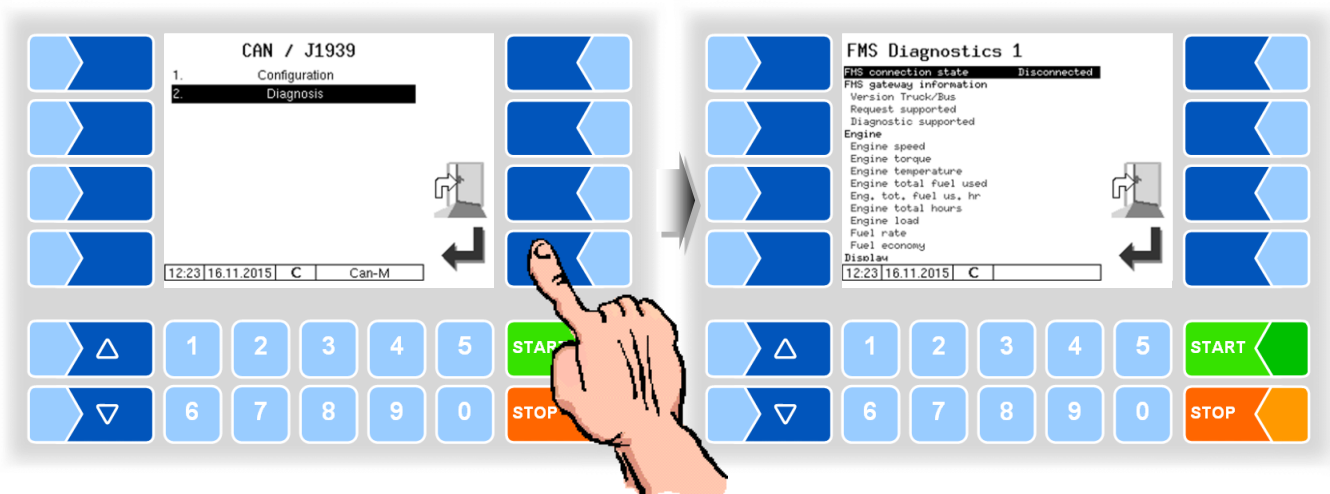
U	CAN/J1939	switching the interface on or off
	Address	Address used for J1939 communication Address range: 0-253
	Interlock Address	Address of the Interlock source (e.g. PLC) 254: Interlock data will not be evaluated by the controller.
	W-AS Router Address	Address of the W-AS router 254: W-AS router data will not be evaluated by the controller.
	FMS interface	<i>FMS: Fleet Management System</i> Off: FMS data will not be evaluated Simulation: FMS simulation software connected MAN SCANIA DAF RENAULT FMS only: FMS data regardless of the vehicle type
	Address claiming	Yes: The compact controller logs on to the bus with a fixed name and address and answers on Address Claiming Requests. No: The compact controller doesn't log on to the bus and doesn't answer Address Claiming Requests. The user must ensure that several bus participants do not use the same address.
	Priorities of transmit messages (Interlock xx – xx)	for service purposes Default: 6
	Firmware Version	displays the used firmware version
	Driver Version	displays the used driver version
	W-AS Thermal	} Displays the device- and serial numbers
	ANR	
	Version	
	W-AS Terminal	
ANR		

## Diagnosis

The **diag** softkey opens a service function for diagnostics of the CAN / J1939 interface.

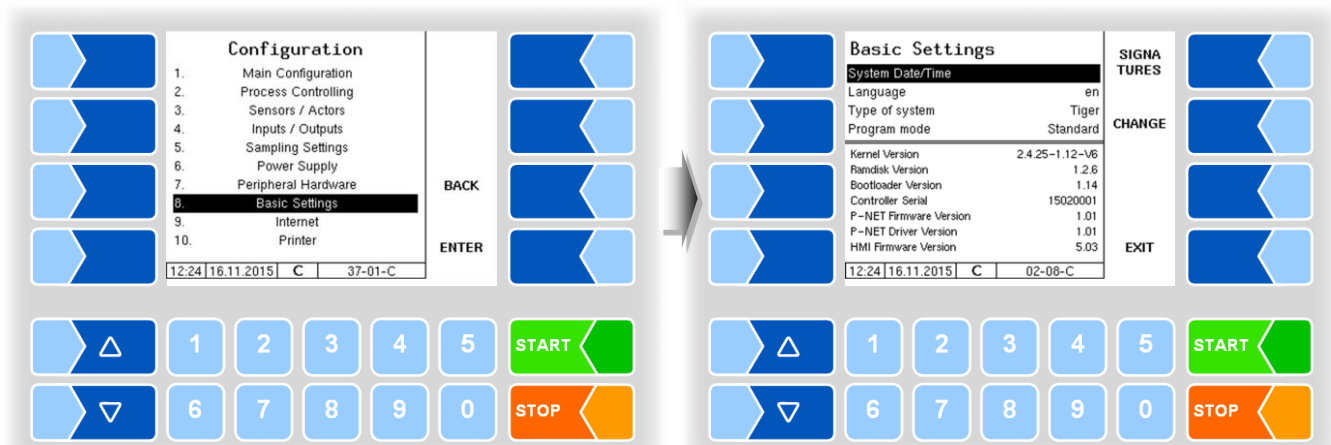


## Diagnosis (2)



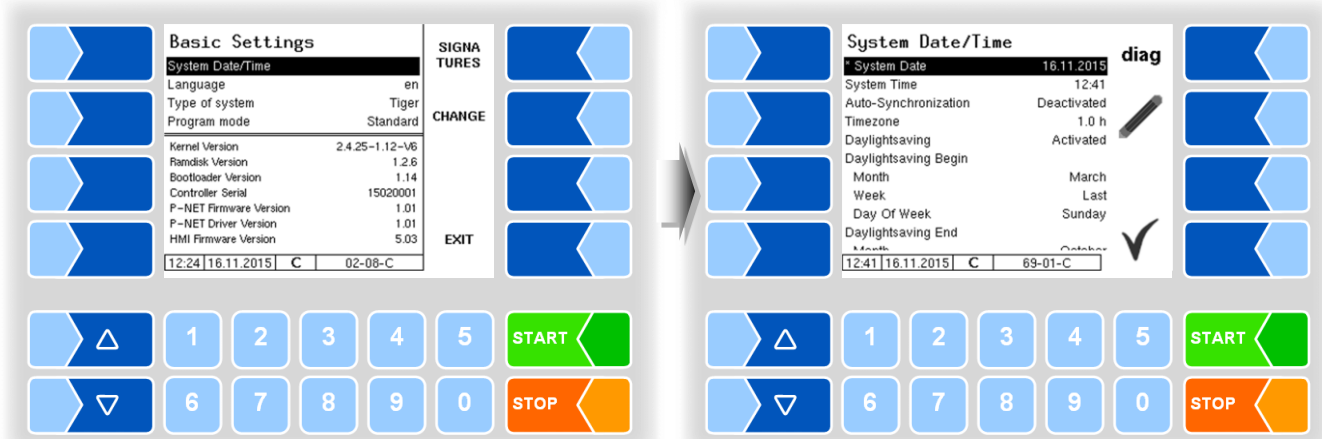


## 4.5.8 Basic settings



Basic settings			
U	System Date/Time	Changing date and time settings	(section 4.5.8.1)
	Language	Selection of the display language	(section 4.5.8.2)
S	Type of system	Selection of the measurement system type	(section 4.5.8.3)
	Program mode	Selection of the program mode	(section 4.5.8.4)
	Kernel Version	} Displays the version and serial numbers	
	Bootloader Version		
	Controller Serial		
	P-Net Firmware Version		
	P-Net Driver Version		
	HMI Firmware Version		

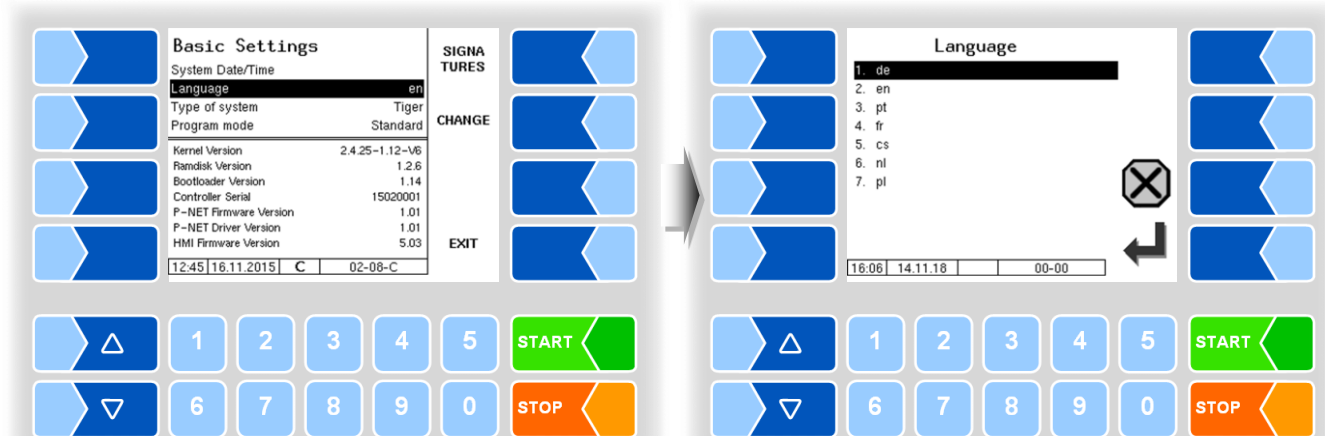
### 4.5.8.1 System Date/Time



System Date/Time		
C	System Date	Change the date setting
	System Time	Change the time setting
	Auto-Synchronization	Activate/deactivate the automatic clock synchronisation via GPS or GPRS.
	Timezone	Set the time zone by entering the deviation from UTC
	Daylightsaving	Activate/deactivate the summertime settings
	<i>Daylightsaving Begin</i>	
U	Month	Month when summertime begins
	Week	Week when summertime begins
	Day of Week	Weekday when summertime begins
	<i>Daylightsaving End</i>	
	Month	Month when summertime ends
	Week	Week when summertime ends
	Day of Week	Weekday when summertime ends

If you change the date or time setting, will the system automatic be rebooted.

### 4.5.8.2 Language



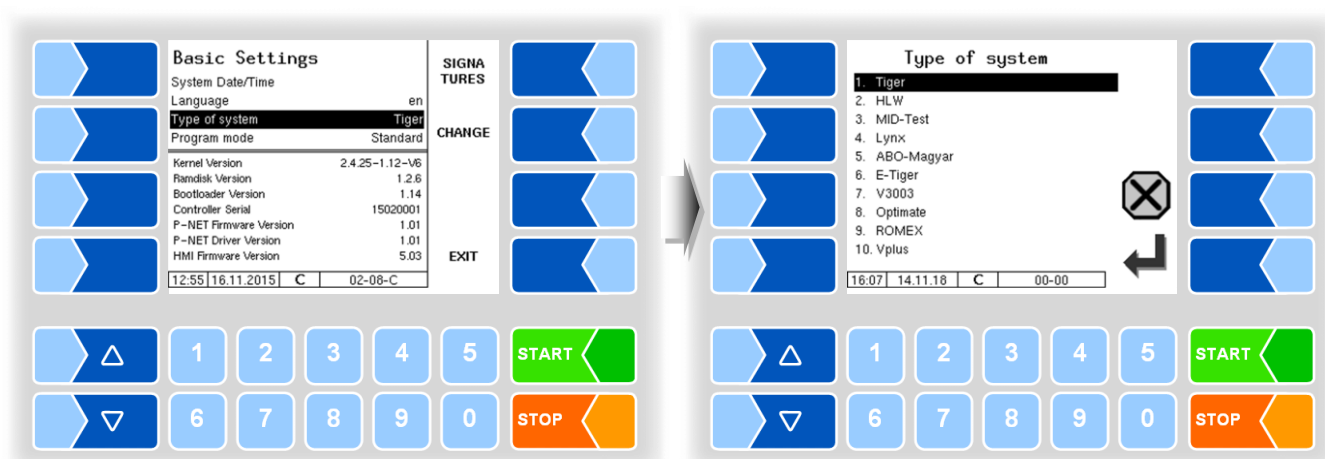
Language						
	U	Selection of the display language	de	German	cs	Czech
			en	English	nl	Dutch
			pt	Portuguese	pl	Polish
			fr	French		

You can select the language in the main menu too (*Main menu / Language*) (see section 4.7).

If you change the language setting, will the system automatic be rebooted.

### 4.5.8.3 Type of system

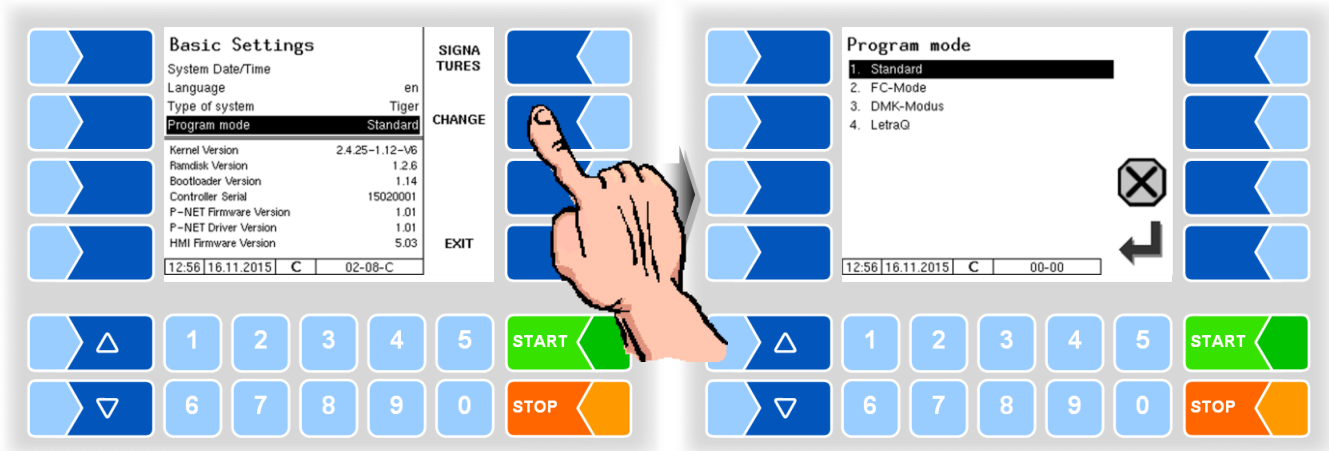
The MAK software supports multiple types of measurement systems. Peripheral settings or software parameters may change depending on the system type.



Type of system					
	S	Selection of the measurement system type	Tiger	E-Tiger	
			HLW	V3003	
			MID-Test	Optimate	
			Lynx	ROMEX	
			ABO-Magyar	V plus	

### 4.5.8.4 Program mode

Company specific program modes are supported only in system type TIGER!



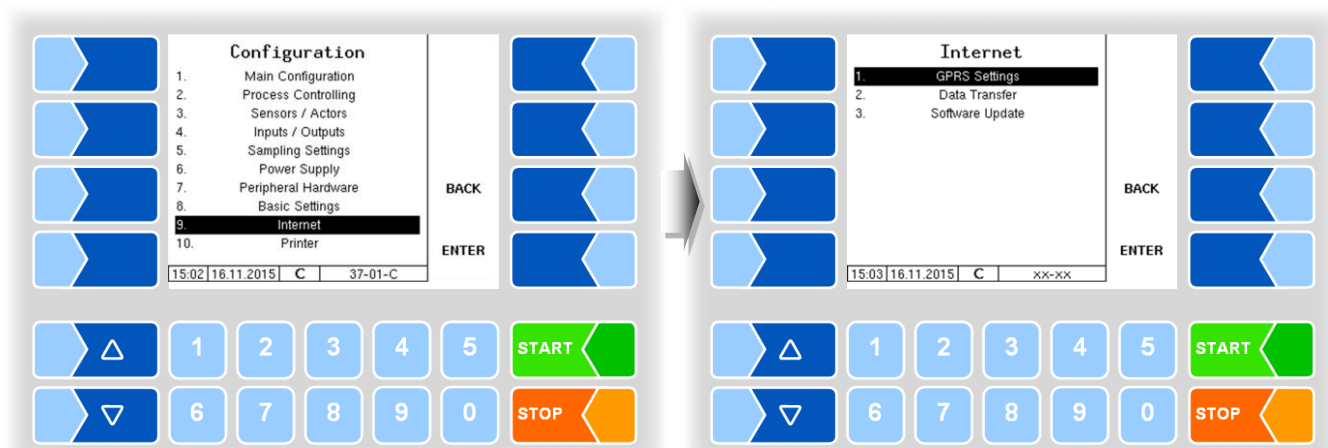
Program mode			
S	Selection of the program mode	Standard FC-Mode DMK-Modus LetraQ	(Friesland Campina) (Deutsches Milchkontor)

### Signatures

Displays module signatures.



## 4.5.9 Internet







### 4.5.9.1 GPRS Settings

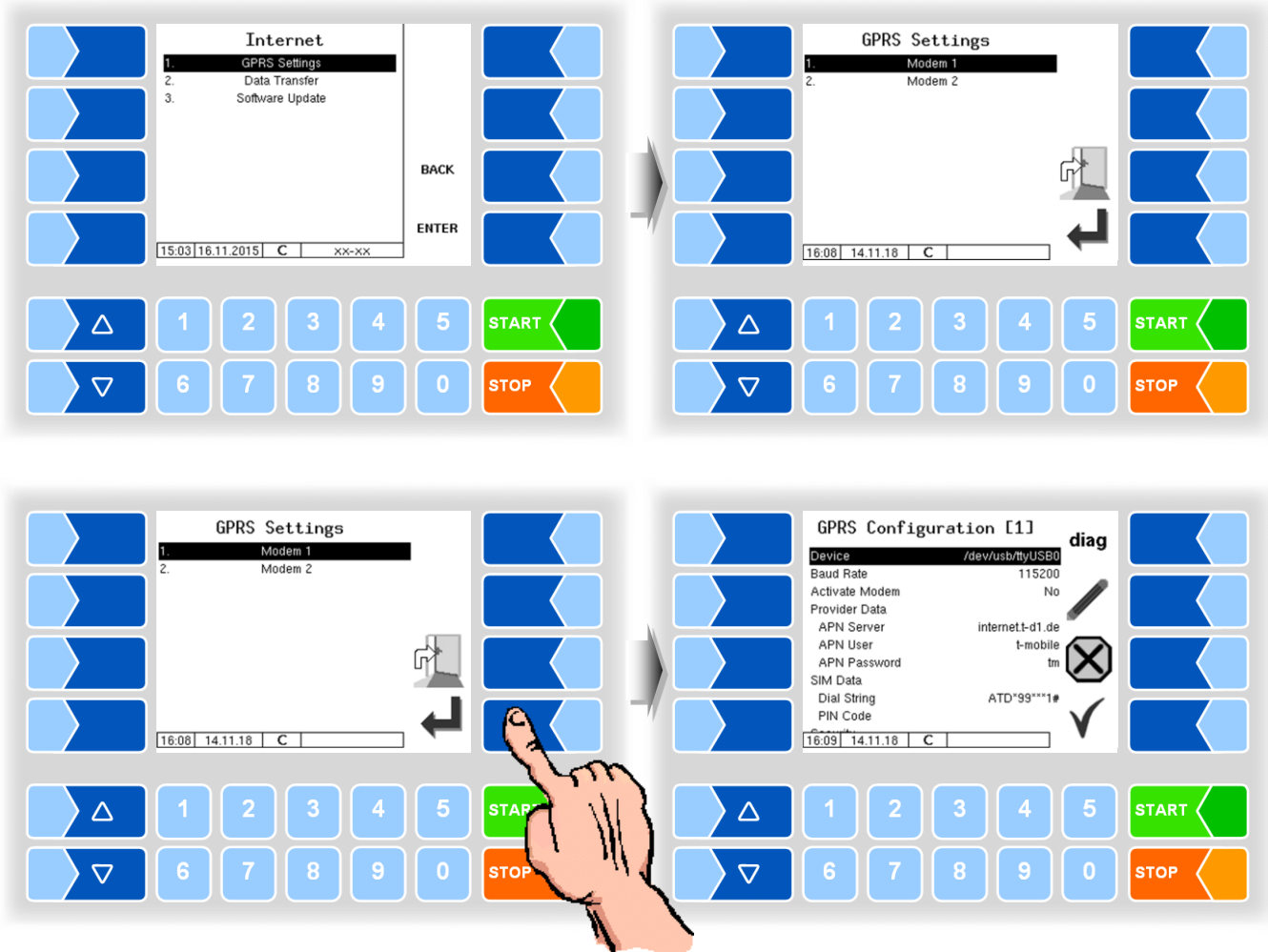
From program version 2.24.2, two data modems can be operated simultaneously on the system. The second modem allows parallel data transmission to two servers or the use of different SIM cards or providers.

Only Modem 1 allows direct access to the system in case of service. The associated IP address is displayed on the start screen. Modem 2 is intended exclusively for transmission via the FTP message boxes (see 4.5.9.2). Each message box can be assigned a modem.

Depending on which modem is currently connected, a corresponding icon appears on the start screen:

	No modem connected
	Only modem 1 connected
	Only modem 2 connected
	Modem 1 and 2 connected

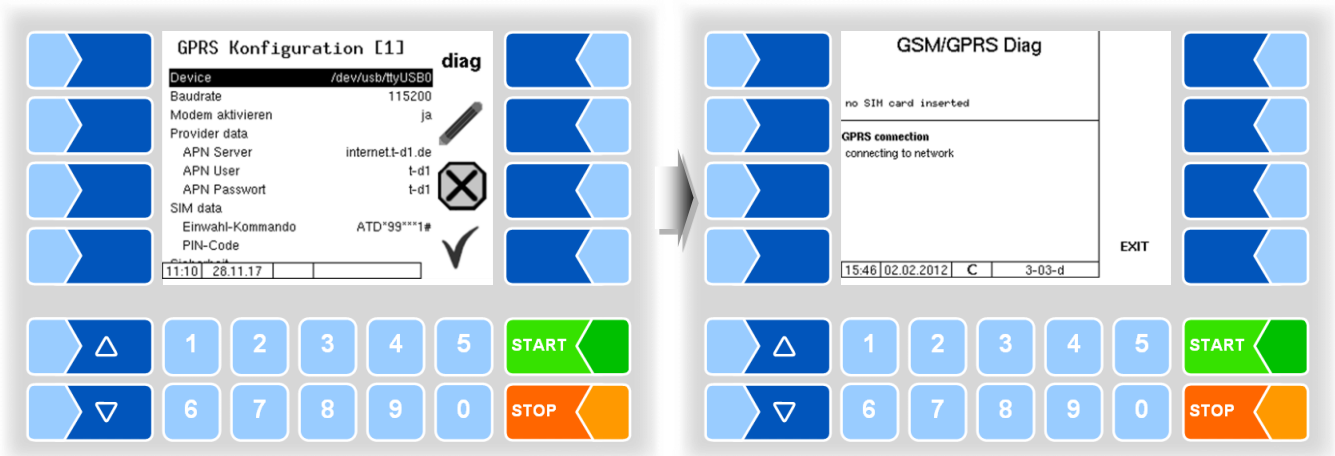
Each modem can be configured individually.



GPRS Settings		
U	Device	Modem Schnittstelle: none (keine) /dev/ttySM0 /dev/ttySM1 /dev/usb/ttyUSB0
	Baud Rate	230400      19200 115200      9600 57600       4800
D	Activate Modem	yes    Modem on no     Modem off
	Provider Data	
	APN-Server	Dial-up server of provider
	APN User	Provider
	APN Password	Access password for the selected server
U	SIM Data	
	Dial String	Entry of the call string
	PIN Code	PIN of SIM card The PIN must be entered here before the SIM card can be used.
	Security	
	Report IP to BARTEC	yes    The system IP address (Modem 1) is sent to BARTEC each time you connect to the server. no     The IP address is not sent.

## Diagnosis

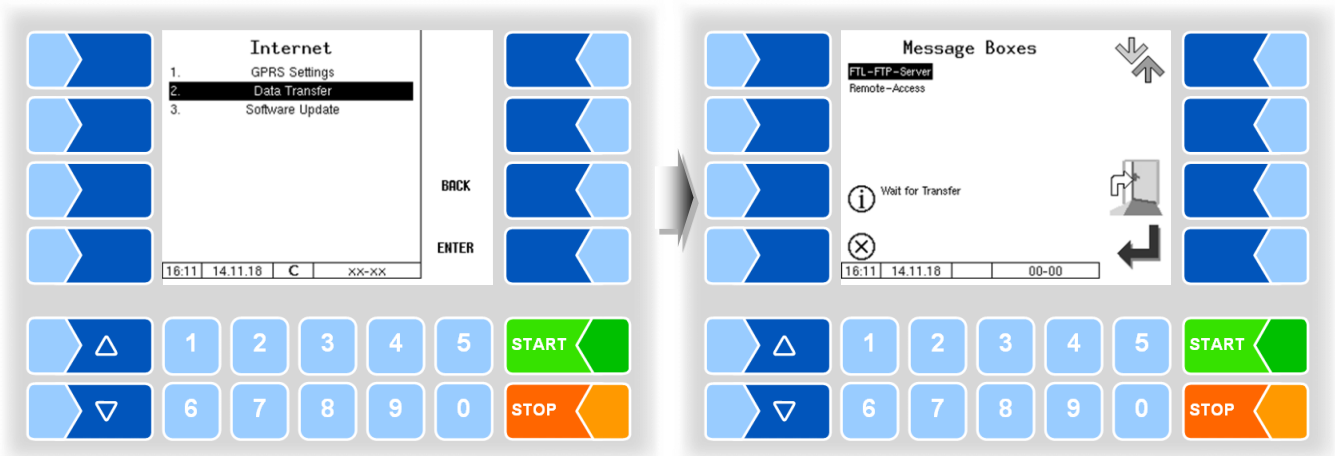
Touching the **DIAG** softkey brings up a service function to diagnose the GPRS unit.

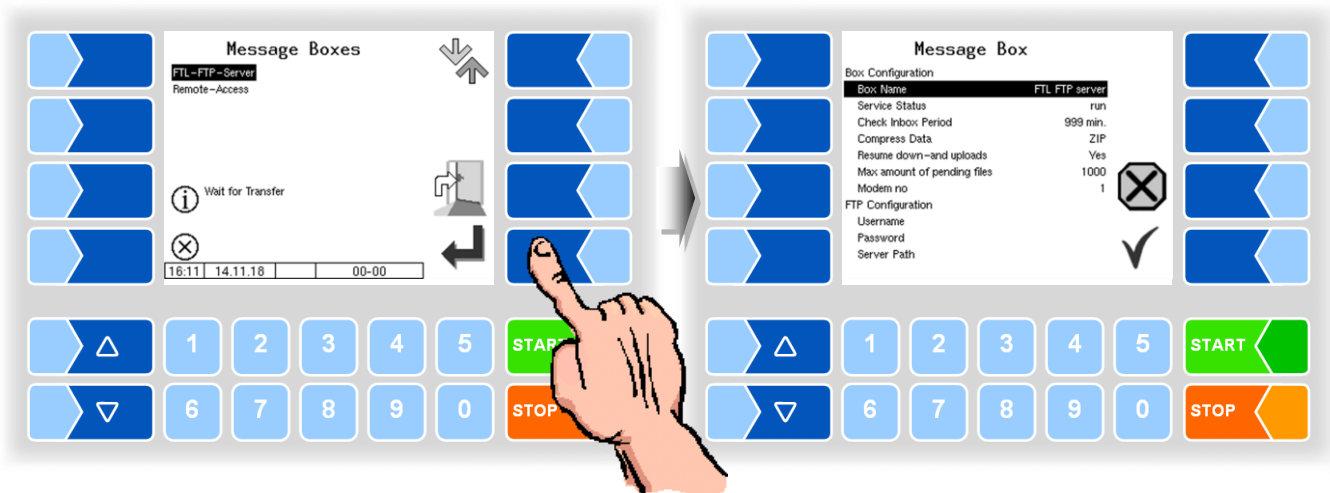


### 4.5.9.2

## Data Transfer

Transfer of FTL set and tour data is performed via FTP server.



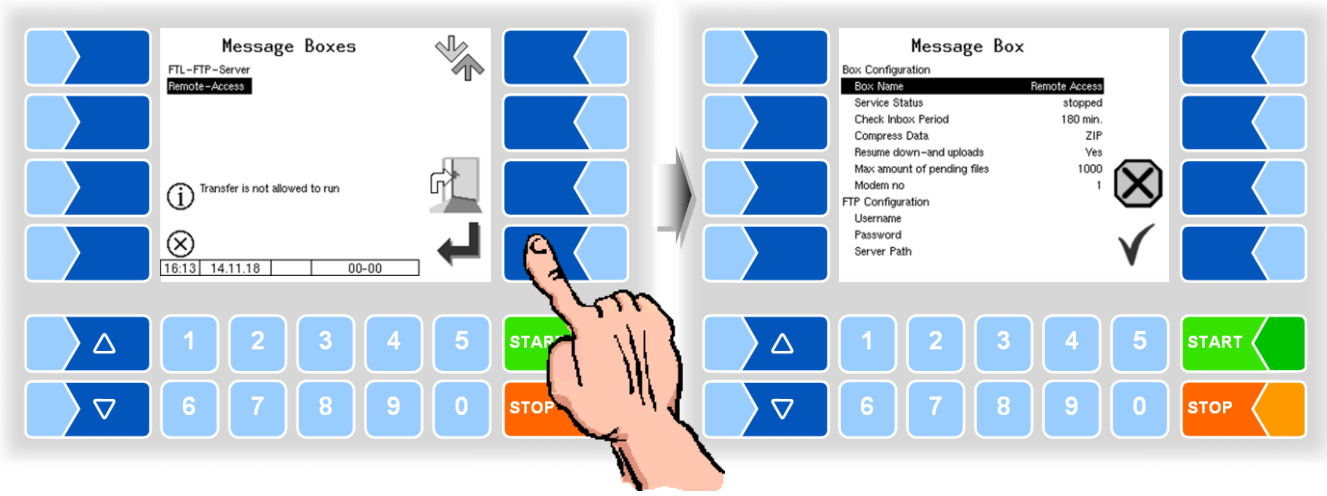
**FTL-FTP server**

Box Configuration	
Box Name	Name of the message box
Service Status	run: Data transfer option on stopped: Data transfer option off
Check Inbox Period	Time period after which a check is performed to see if there are data to transfer to the vehicle. After each transmission of data, this test is also performed.
Compress Data	ZIP: data to be sent are compressed in ZIP format GZIP: data to be sent are compressed in GZIP format No: data to be sent are not compressed ( <i>Standard</i> )
Resume down- and uploads	Yes: the server supports the resume function (resume in case of incomplete transfer) No: the server supports does not support the resume function
Max amount of pending files	Maximum number of files that have not yet been transferred.
Modem no	Number of the modem which the message box should use for transmission.
S FTP Configuration	
Username	The name provided for the vehicle
Password	The password provided for the vehicle
Server Path	Individual path on the FTP server
IP/Domain	Address of the data server
IP/Domain (fallback)	IP address of the data server
Port	Number of the port served by the server
Security	
Enable TLS/SSL	Yes data encryption No no data encryption
Accept any Certificate	Yes Every certificate is accepted No Only the certificate entered is accepted No (allow fallback) if the entered certificate is not found, another certificate will be accepted
Certificate	Certificate selection
TSL/SSL Version	Selection of the TLS/SSL version (TLSv1 or SSLv3)



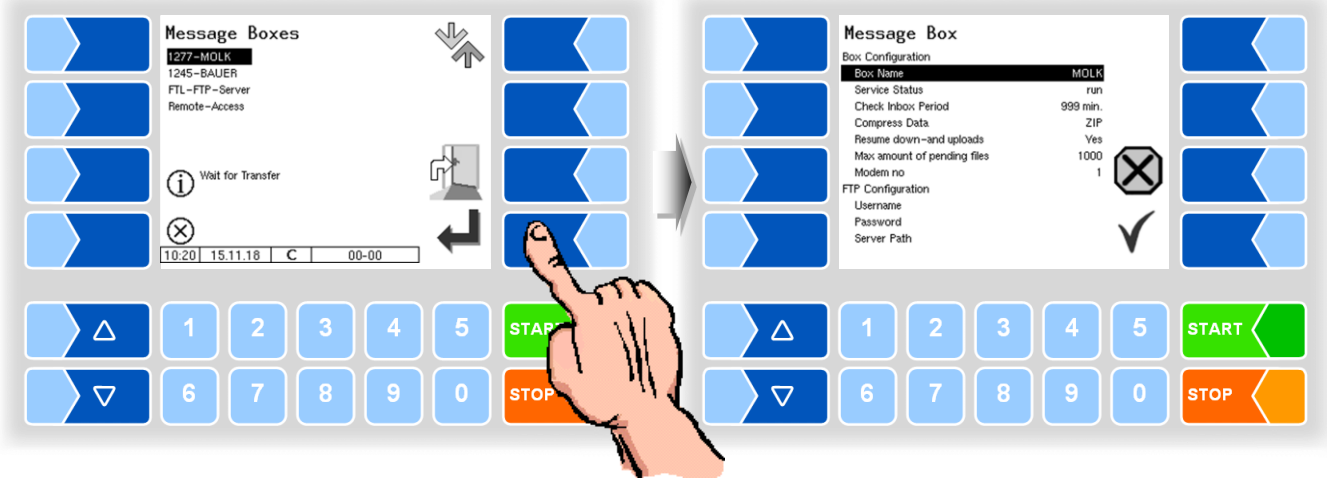
### Remote-Access

For using the online service function (see section 4.6.11) configure the access here.

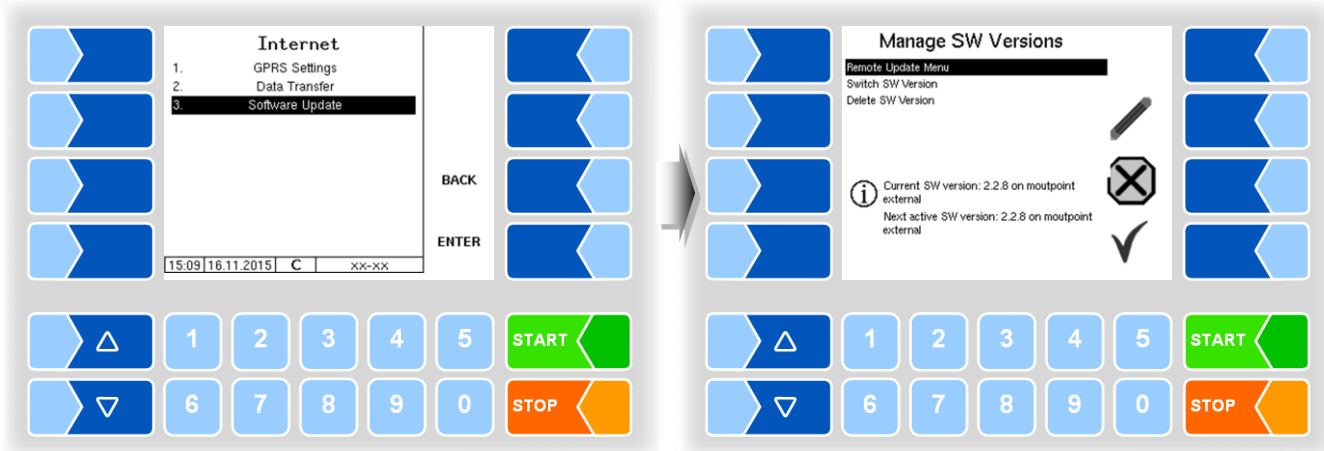


### Dairy data separation

If dairies are configured (see 4.4.3), each dairy will have its own message box. If dairy data separation is activated, the dairy data is transferred to the FTP account of the respective message box.

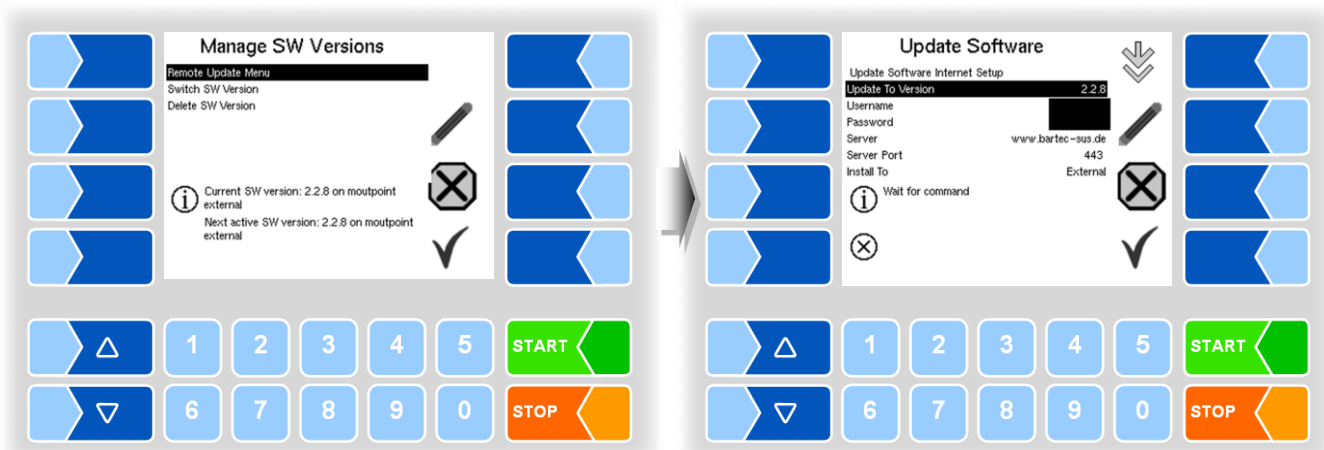


### 4.5.9.3 Software Update



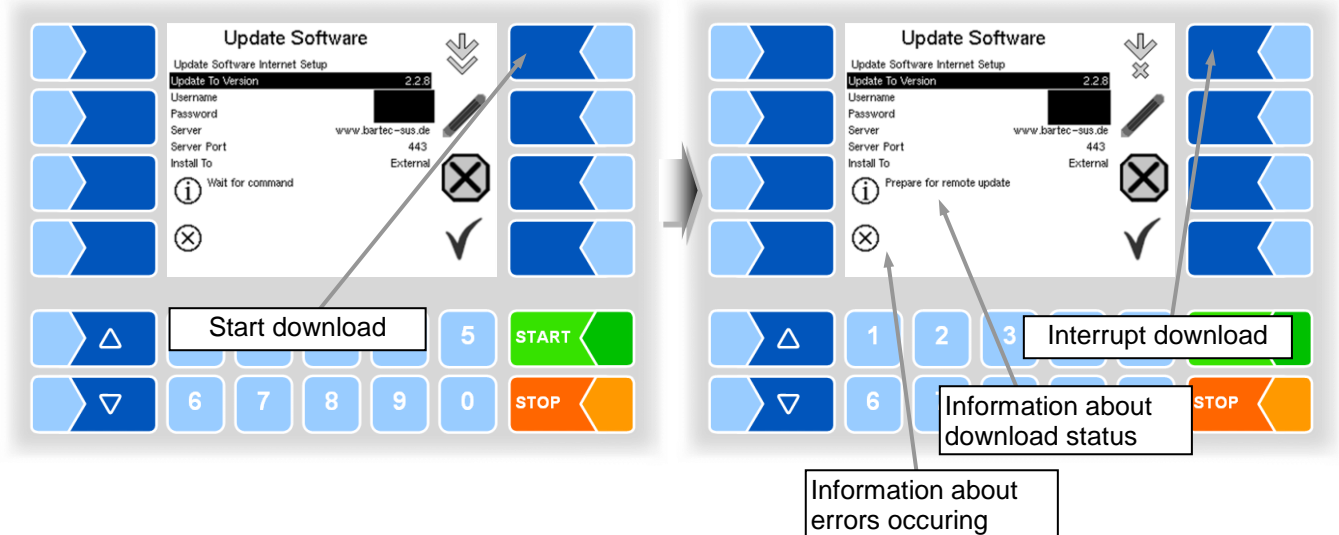
#### Remote Update Menu

This menu option allows you to download a new program version of the controller software from the BARTEC BENKE server via a GPRS connection.

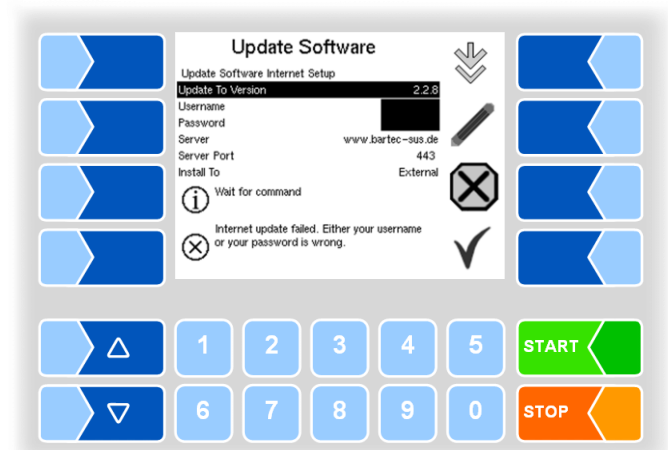


Update to version here you can enter the software version number to be downloaded from the server. If left blank, the latest version found on the server will be downloaded.

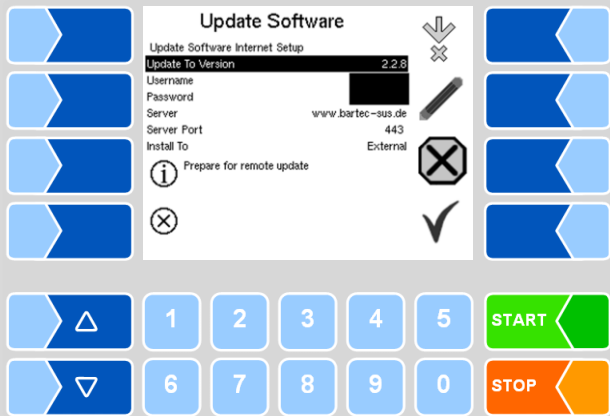
The user name and password for the download are provided by BARTEC and must be entered manually.



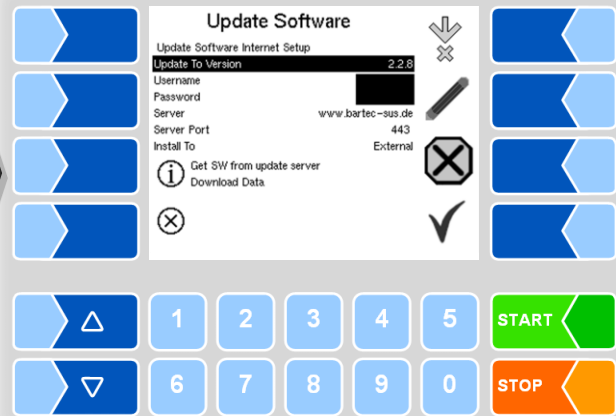
If the download is interrupted, e.g. if the connection to the server is terminated, then it will automatically be restarted after 5 minutes and resumed at the point where the interruption took place.



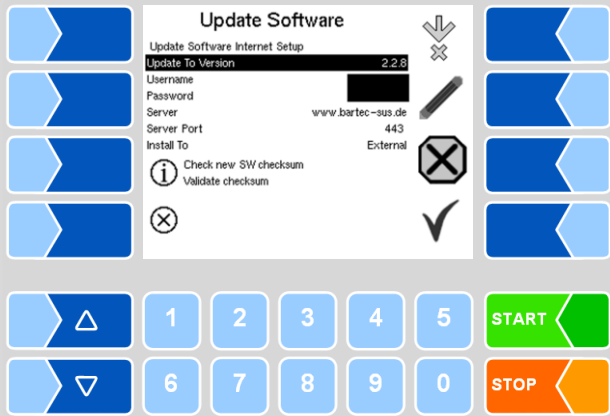
In case of manual termination of the download, the data downloaded up to that point are deleted. In certain cases, the download must be restarted.



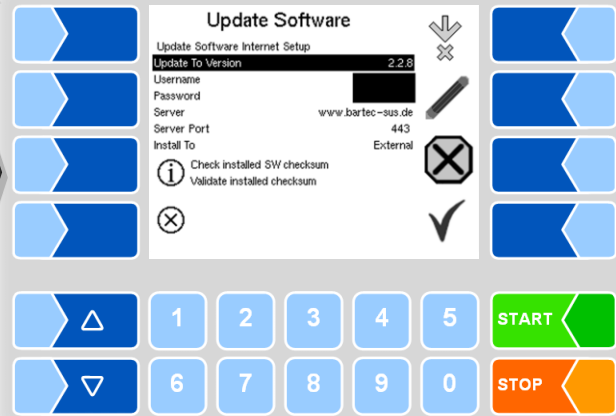
Establishing connection to server



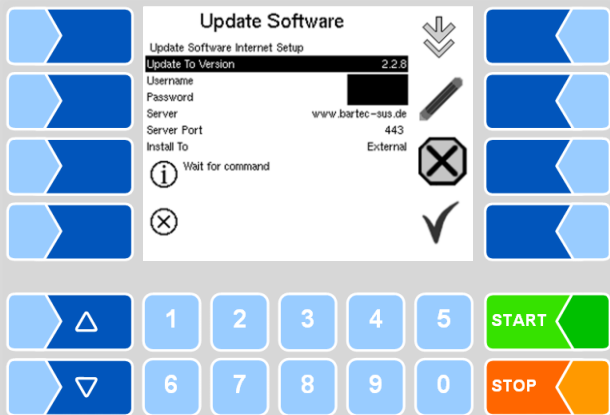
Data are being downloaded



Download of compressed data was successful  
Server-client check values being compared.



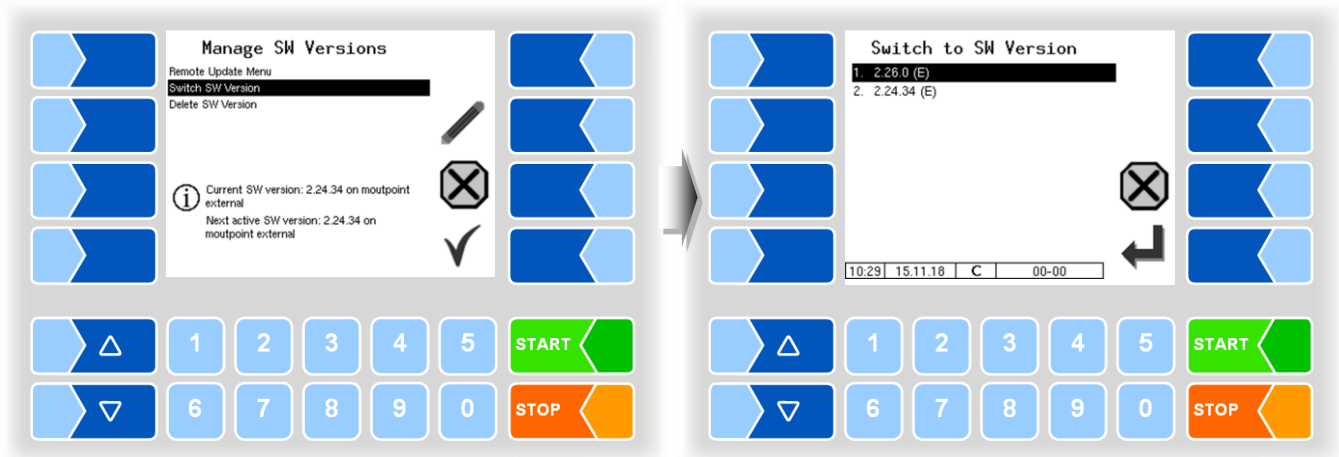
Files being unzipped



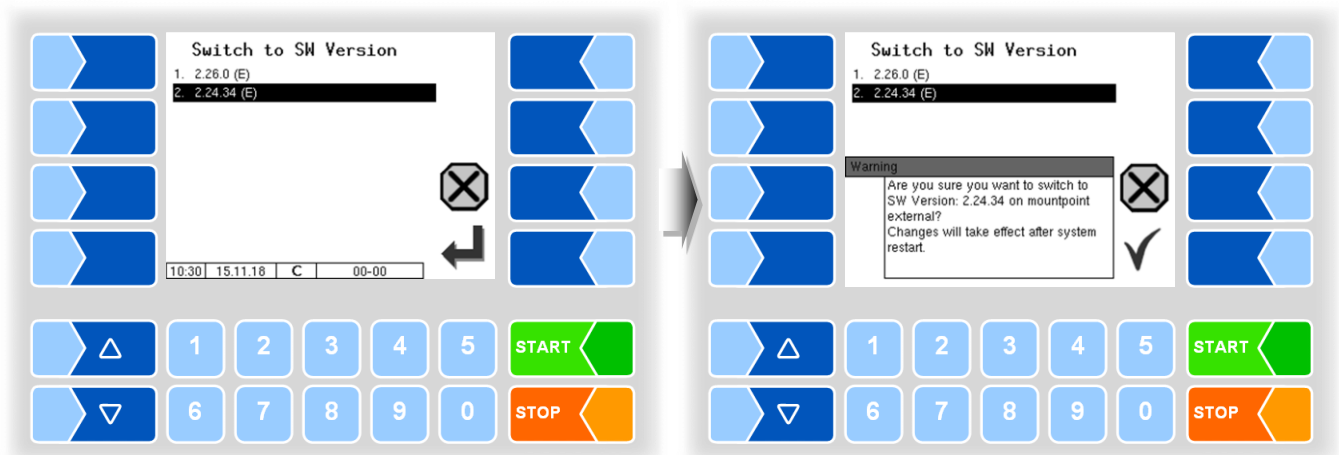
The files are unzipped, the download is complete.

## Switch SW Version

After downloading a new software version, you can switch to the new version.



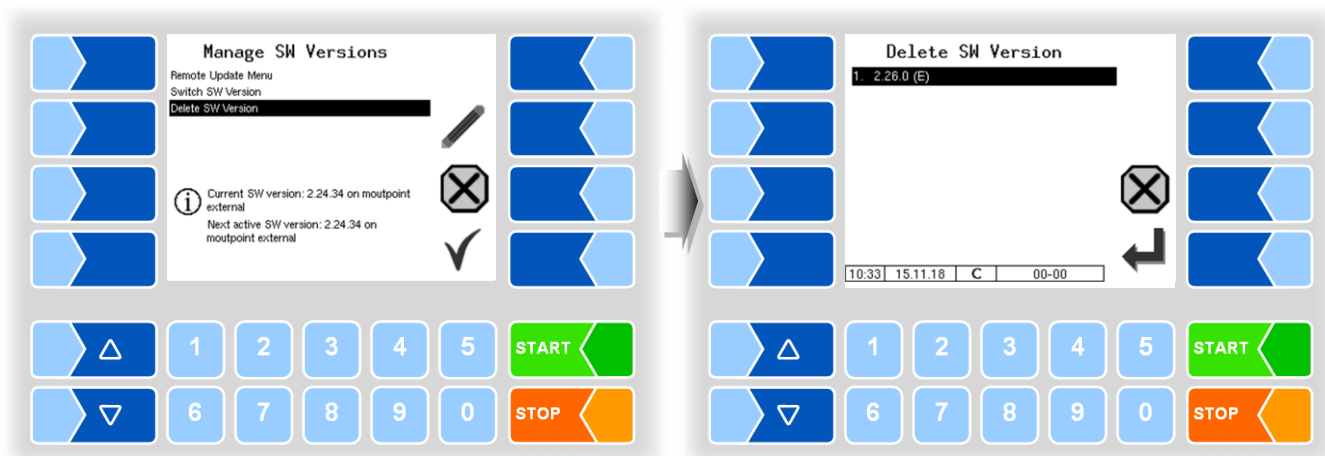
- Select the software version and touch the “confirm” softkey“.



- Confirm the security query.
- Then shut down the system and reboot it.

The new software version is available only after restarting the system.

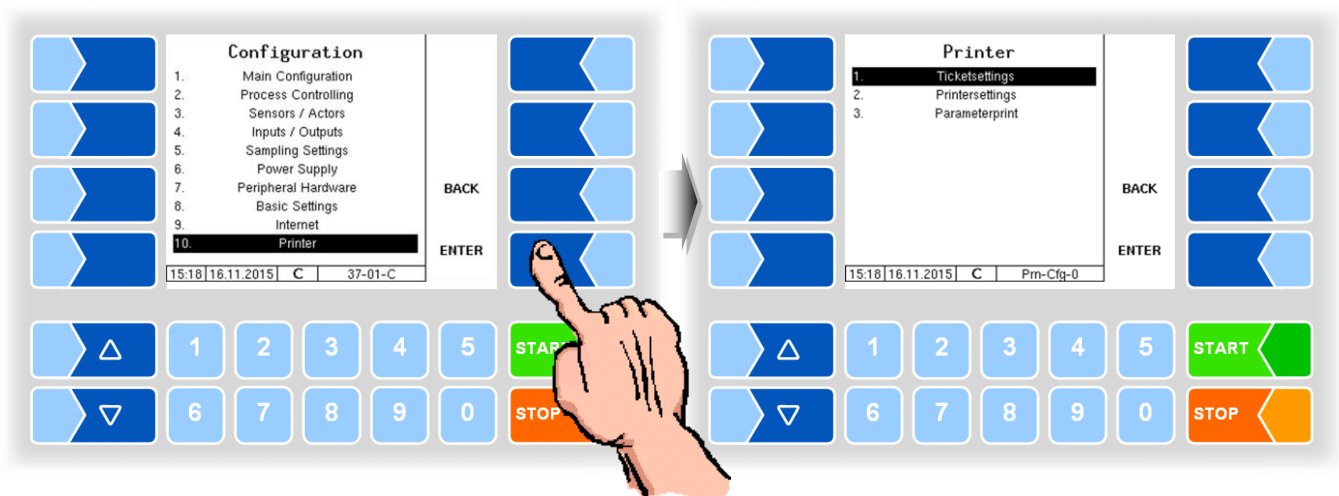
## Delete SW Version



If multiple software versions are stored, you can delete the versions which are no longer needed.

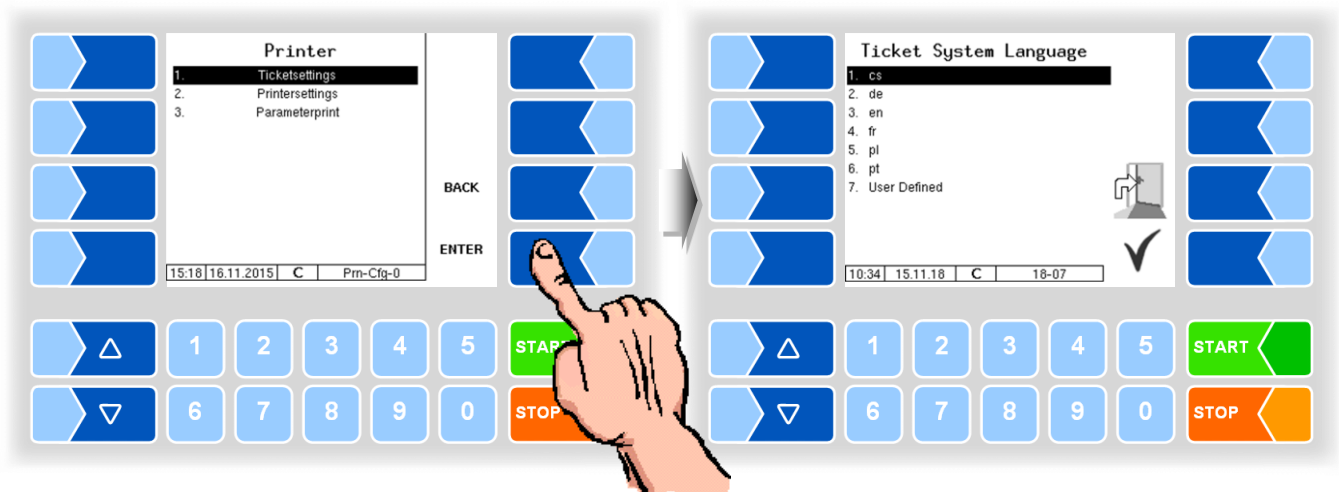
After confirming a safety query, the selected version is deleted.

## 4.5.10 Printer

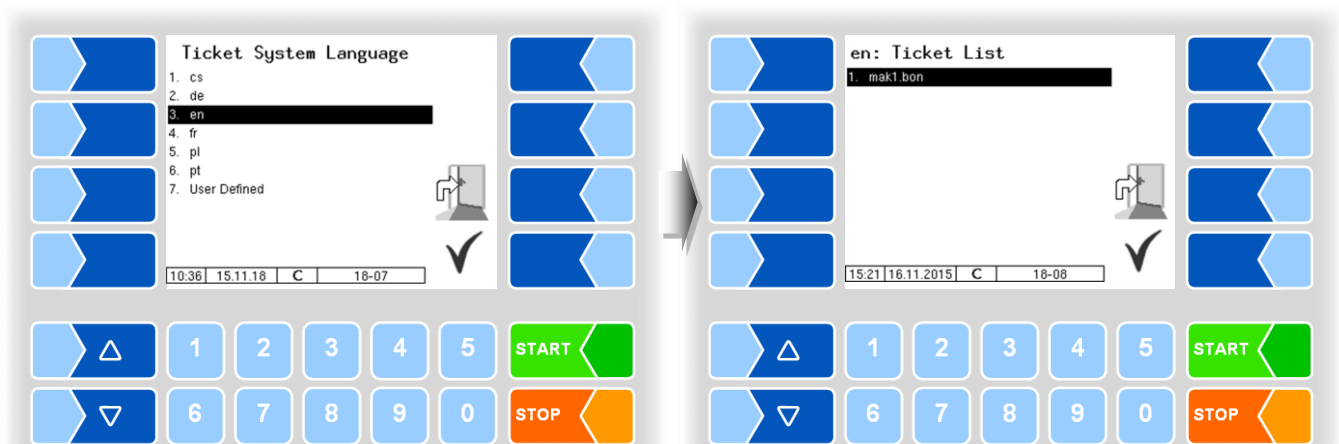


### 4.5.10.1 Ticket settings

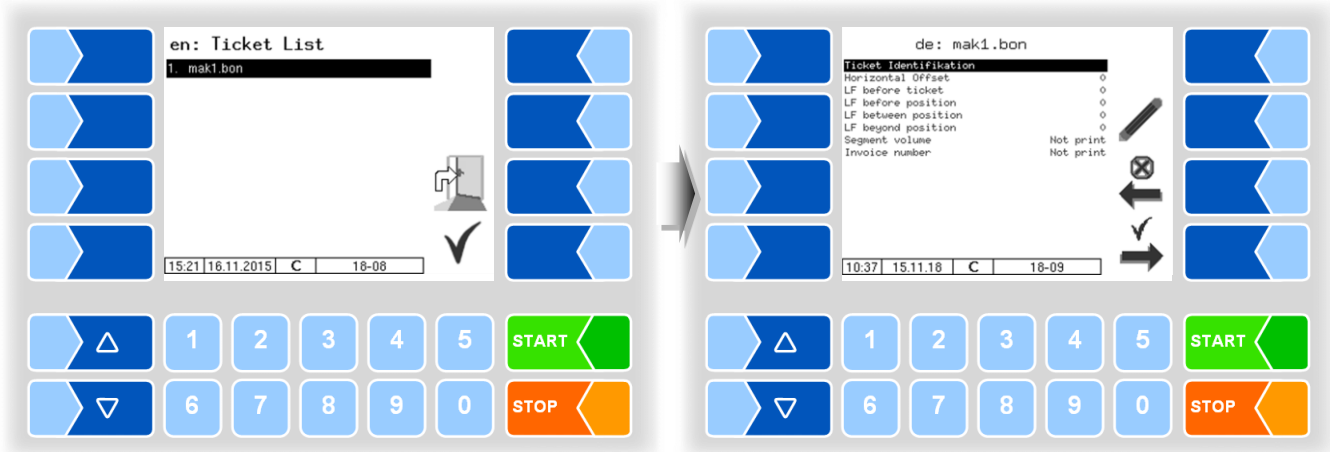
Select the language for the ticket from the available languages.




The default forms define the layout of the ticket.





You can select one of the ticket forms and save it with a custom name.





You can save different forms with the  softkey (the layout of the printout will be based on the selected default form).

Select one of the parameters and press the  softkey to change the value.

Enter a ticket identification and press the  softkey to save the settings. If no ticket identification is entered, the system will return to the form selection screen.

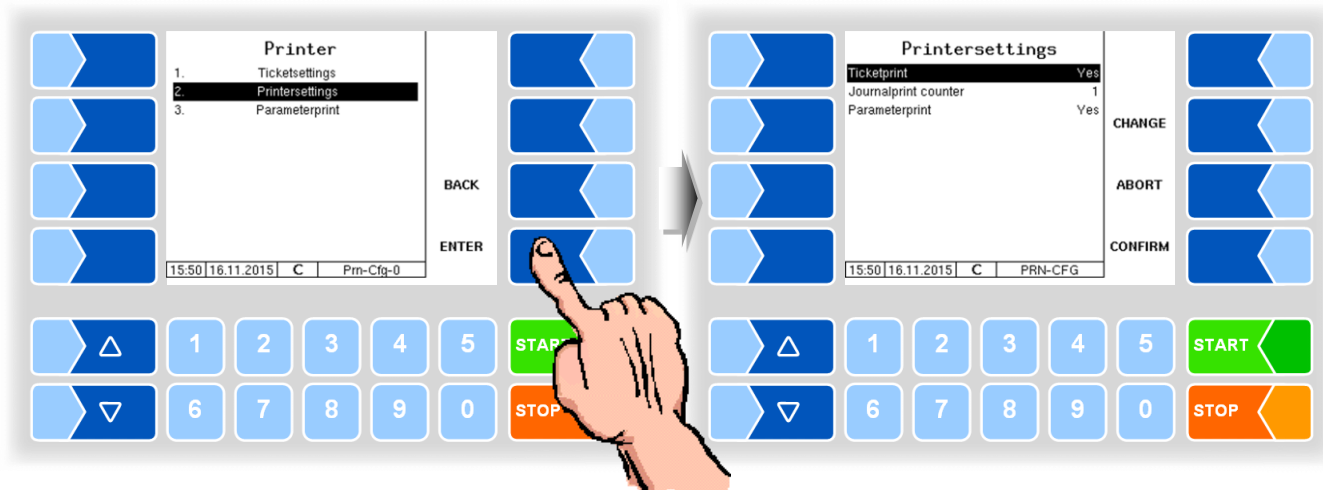
Press the  softkey to abort the ticket settings.

Use the  or  softkey to navigate through the configured ticket forms.

Ticket Configuration		
U	Ticket Identification	Name of the ticket (will be displayed if multiple ticket forms are configured)
	Horizontal Offset	Blank space between text and the left ticket border
	LF before ticket	Blank lines at the top of the ticket
	LF before position	Blank lines before positions
	LF between position	Blank lines between positions
	LF beyond position	Blank lines after positions
	Segment volume	Selection Print / Do not print
	Invoice number	Selection Print / Do not print



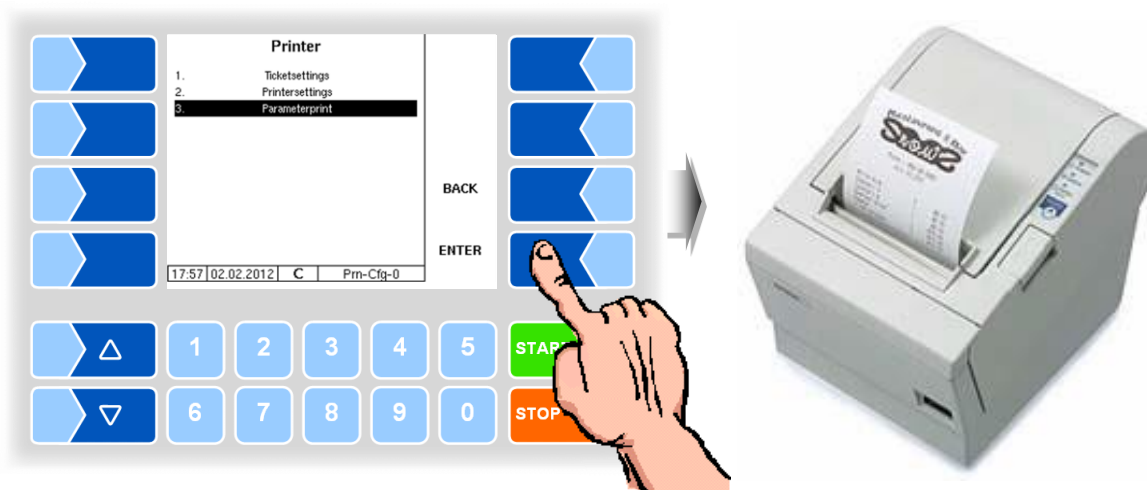
### 4.5.10.2 Printer settings



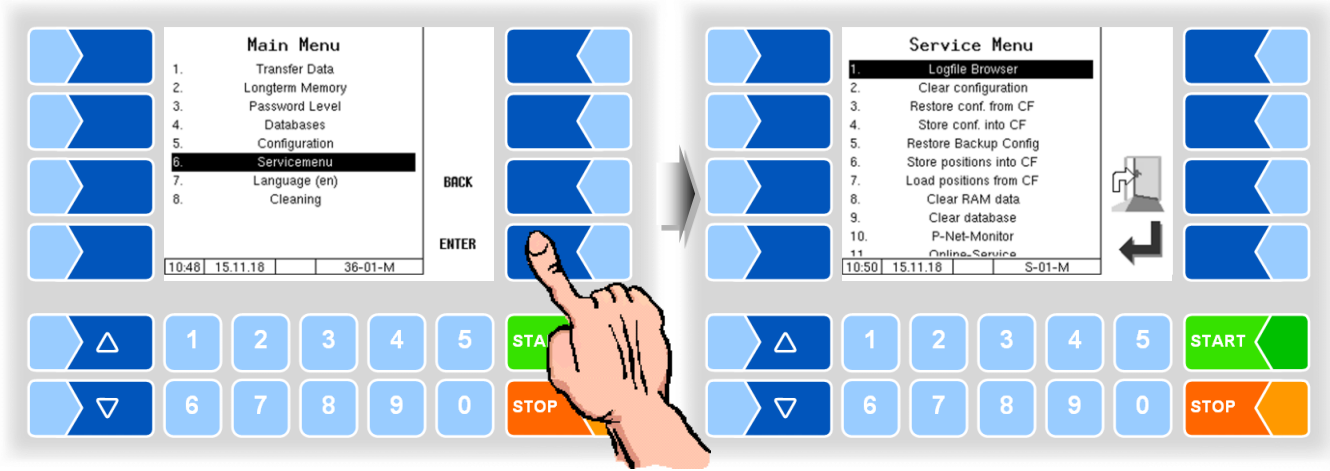
Printer settings		
	Ticketprint	Yes: Ticket print active No: Ticket print deactivated
U	Journal counter	Amount of tour journals that are being printed
	Parameterprint	Yes: Parameter printout active No: Parameter printout deactivated

### 4.5.10.3 Parameter print

The current settings of the configuration parameters are printed on the configured printer (only when "Parameterprint" is activated, see above).



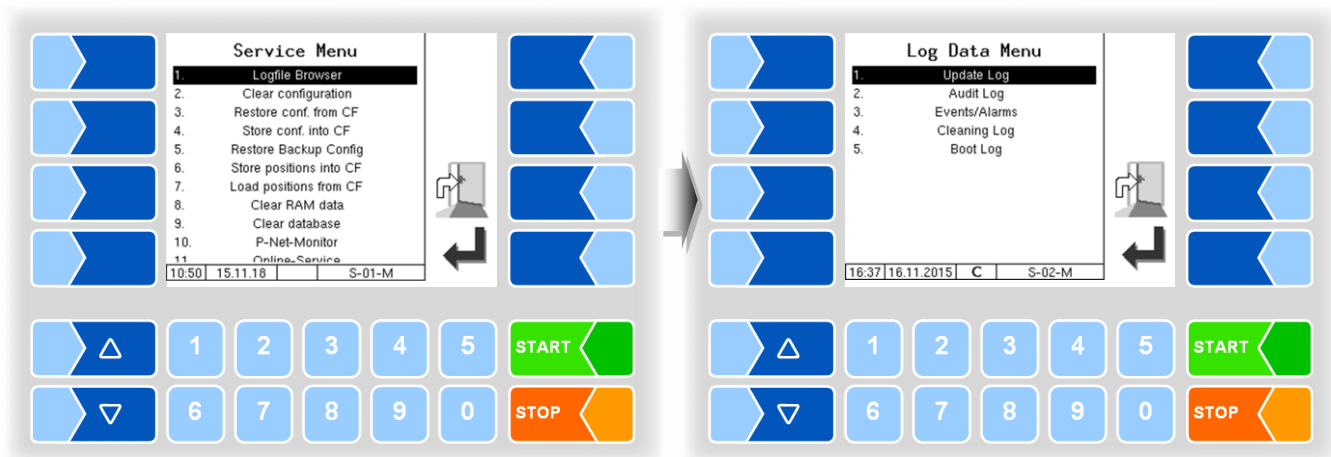
## 4.6 Service Menu



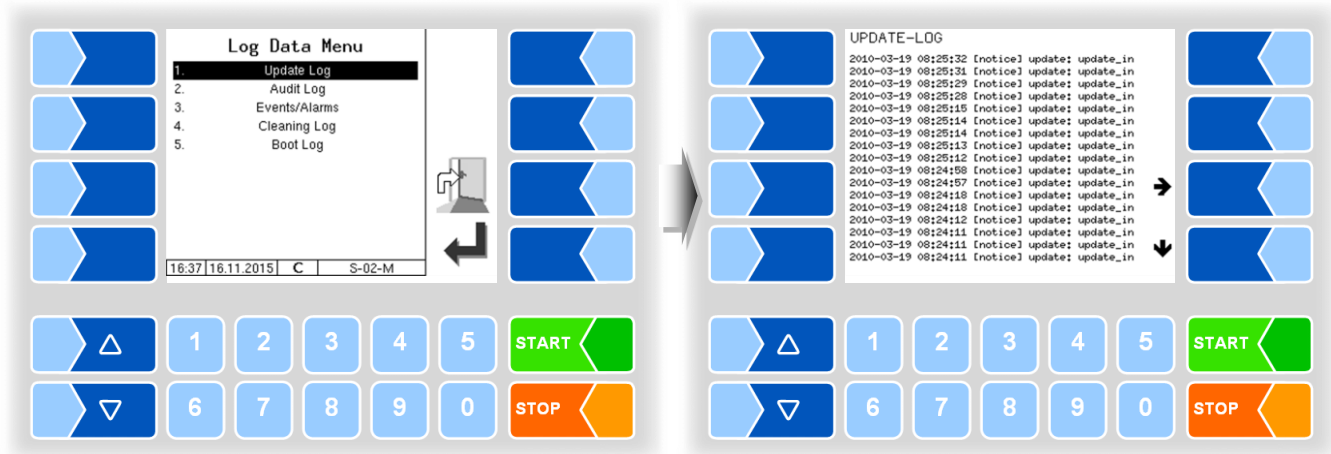
Service Menu			
D	Logfile Browser	View of all stored log entries	(4.6.1)
	Clear configuration	Delete Parameter settings	(4.6.2)
	Restore conf. from CF	Load configuration from CF into CPU	(4.6.3)
	Store conf. into CF	Safe current configuration from CPU into CF	(4.6.4)
S	Restore Backup Config	Access to restore points	(4.6.5)
	Store positions in to CF	Save positions from CPU into CF	(4.6.6)
	Load positions from CF	Load positions from CF into CPU	(4.6.7)
	Cleal RAM data	Data of the last operation is deleted	(4.6.8)
C	Clear database	Data (order-, schedule data) are deleted	(4.6.9)
S	P-Net-Monitor	P-Net monitor is opened	(4.6.10)
	Online-Service	Activate online service	(4.6.11)
D	Bluetooth ON/OFF	Activate or deactivate the Bluetooth interface	(4.6.12)

## 4.6.1 Logfile Browser

The logfile browser allows you to view all saved log entries. The information about the various operations is displayed in text format and can be read directly on the screen.



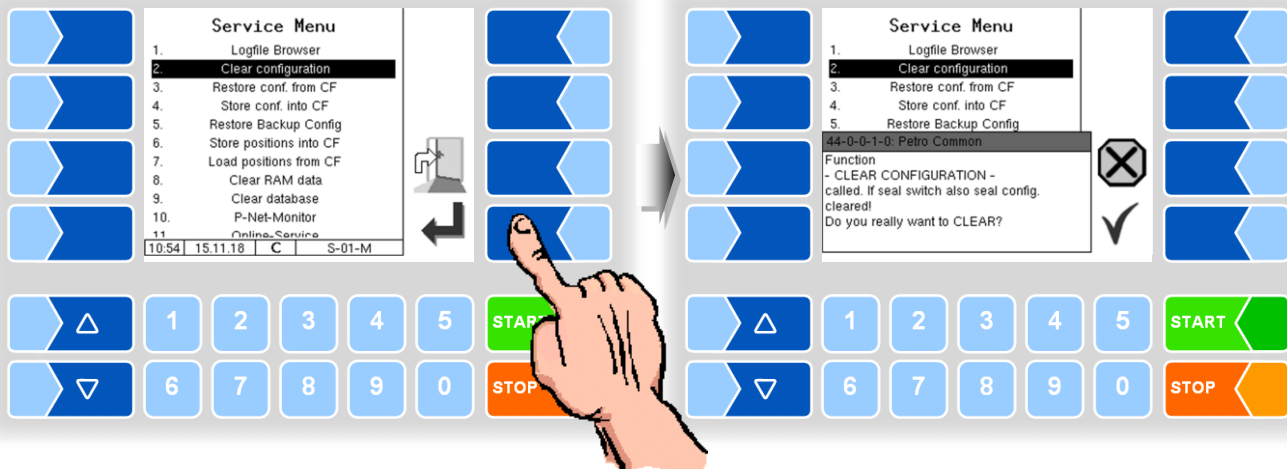
Logfile Browse		
D	Update Log	Log entries about updates and update attempts
	Audit Log	Log entries about all parameter changes
	Events/Alarms	Log entries about all faults
	Cleaning Log	Log entries about cleaning
	Boot Log	Boot reports, boot scripts



Within the log window, you can move the displayed content to the left, right, up or down using the arrow softkeys.

You close the log window with the **STOP** key.

## 4.6.2 Clear configuration

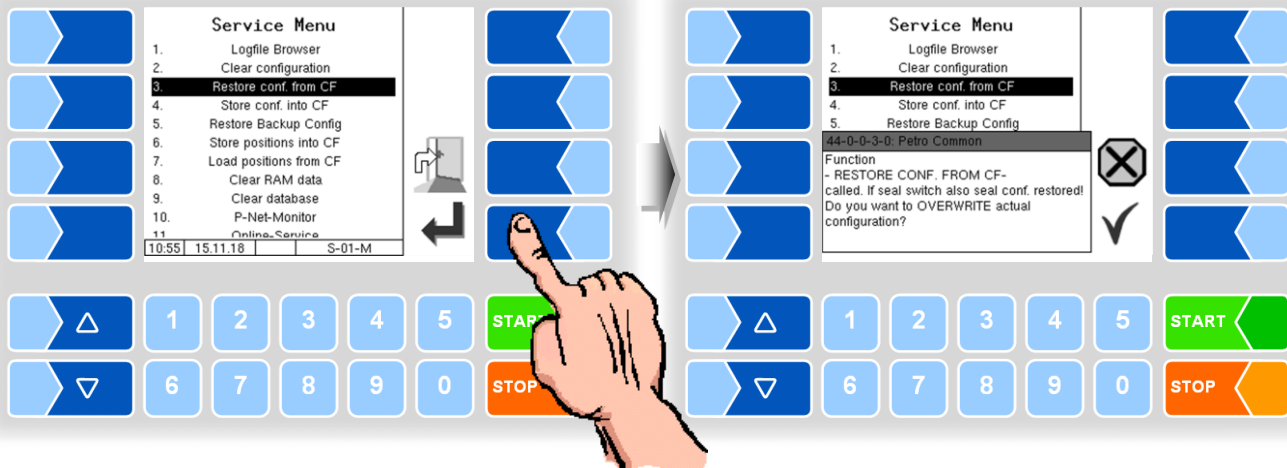


When you confirm the prompt, all parameter settings not subject to statutory calibration are cleared.



When the seal switch is opened will also the parameter settings subject to statutory be cleared!

## 4.6.3 Restore configuration from CF

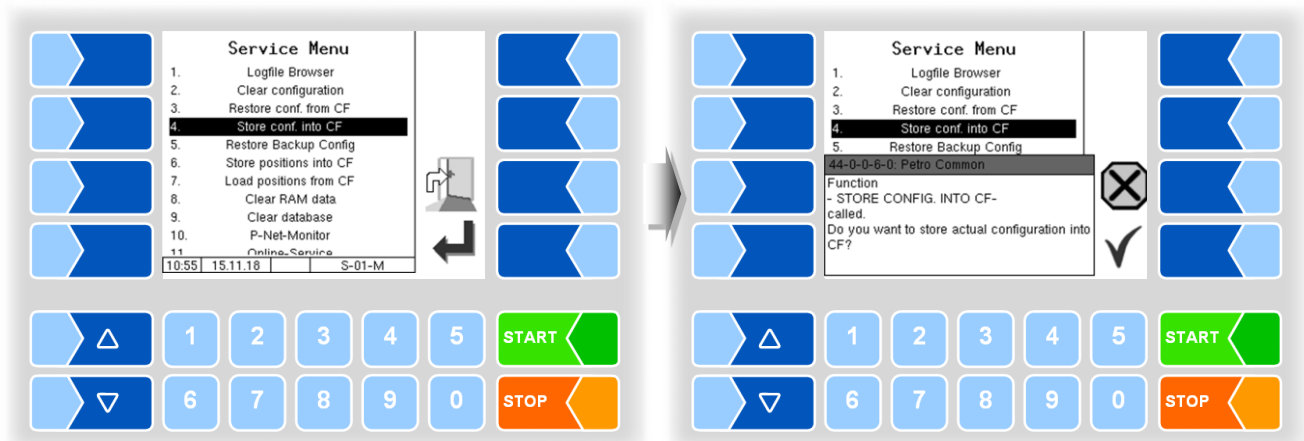


When you confirm the prompt, the configuration of parameters saved at the CF-card (see section 4.6.4) is loaded. The existing parameter settings are overwritten.



When the seal switch is opened will also the parameter settings subject to statutory be overwritten!

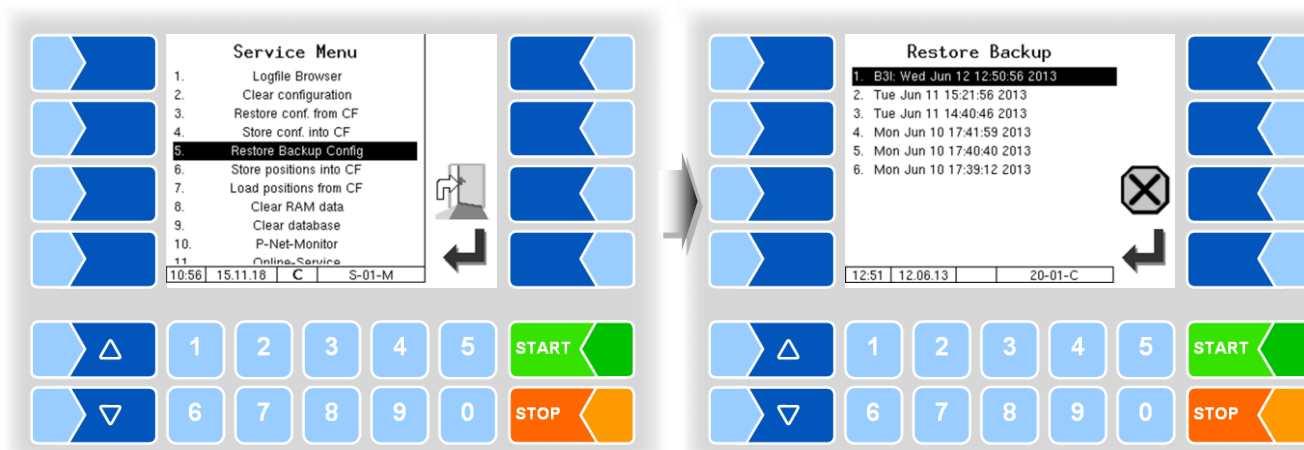
## 4.6.4 Store configuration into CF



When you confirm the prompt, the existing configuration of parameters will be saved to the CF-card. The saved configuration can be reloaded later (see section 4.6.3). This way you can e.g. easily set an identically configuration to several vehicles.

With open seal switch will also calibration relevant data be saved to the CF-card.

## 4.6.5 Restore Backup Config

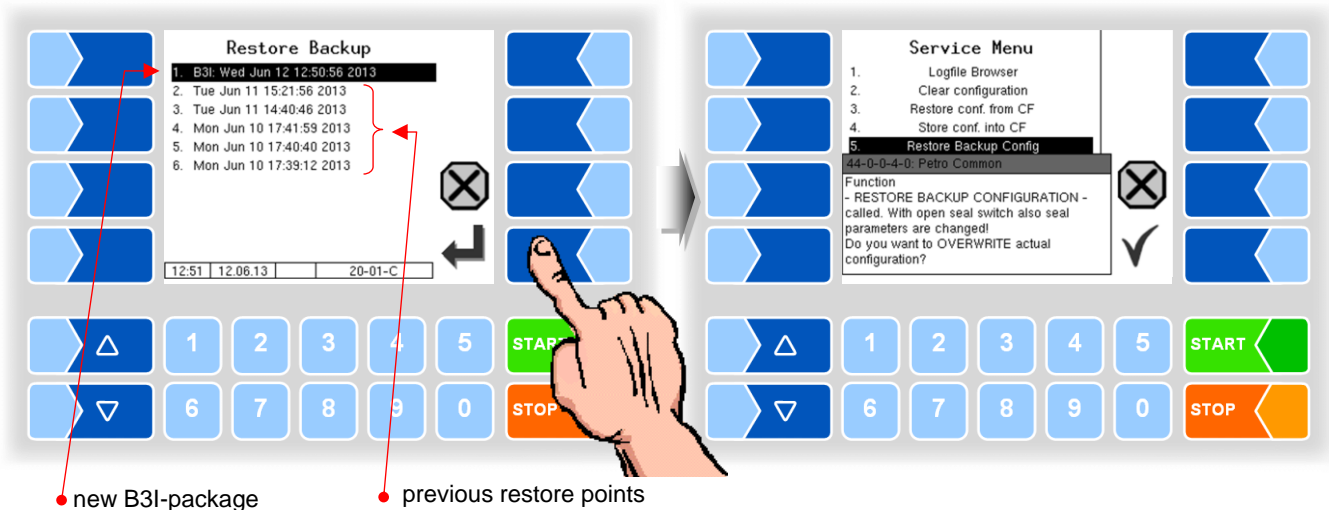


The system can store up to 5 restore points, which can be accessed again in this menu.

The external PC software "3003 Servicetool" generates a compressed file format that is supplied as "B3I package".

When loading a B3i package or before importing data of an existing restore point new restore points are created.

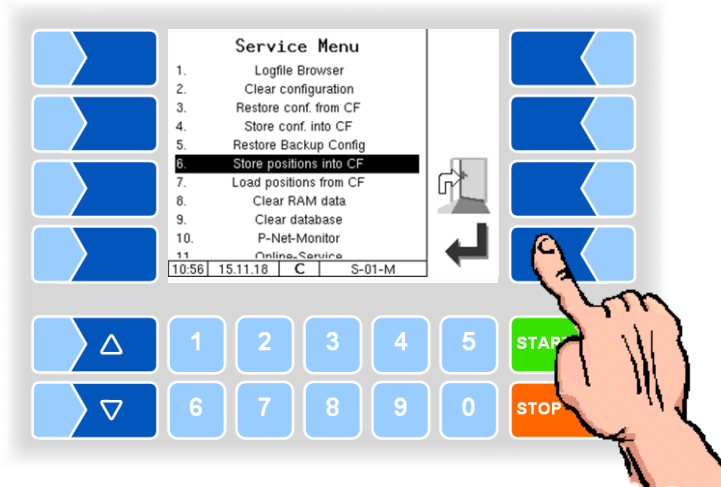
Access to the configuration file can be done via GPRS online or via a network cable.



After confirming the B3I package it is downloaded and activated. You can then select a restore point and restore the configuration state for that time.

There is a separate manual for the 3003-Servicetool.

## 4.6.6 Store position into CF



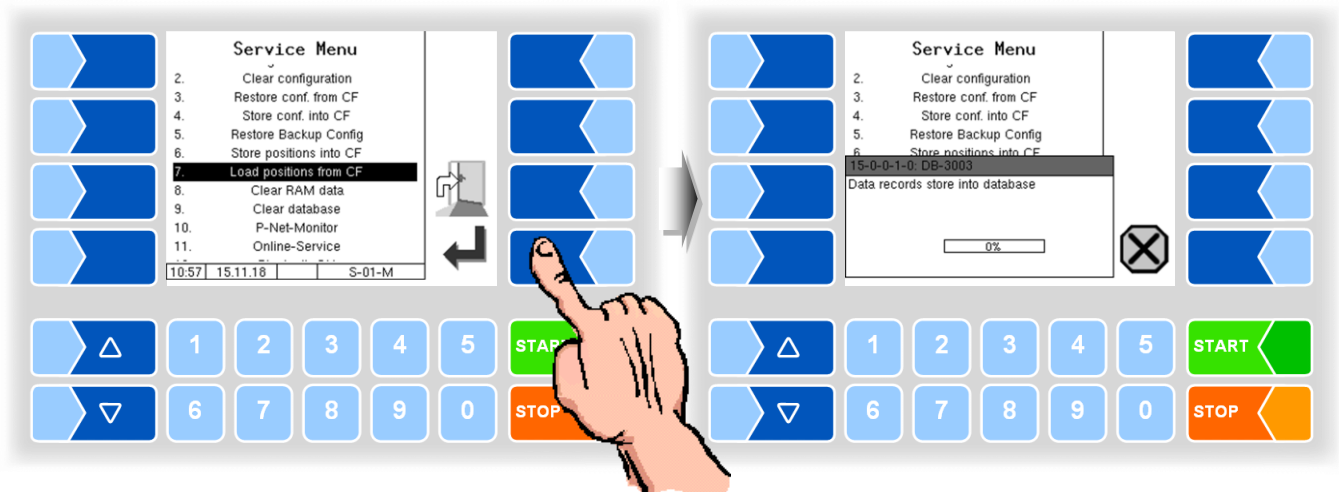
This menu item allows you to save the current GPS location database in the compact flash memory. There are saved the GPS positions of all suppliers and pump-over locations, including preset quantities.

## 4.6.7 Load position from CF

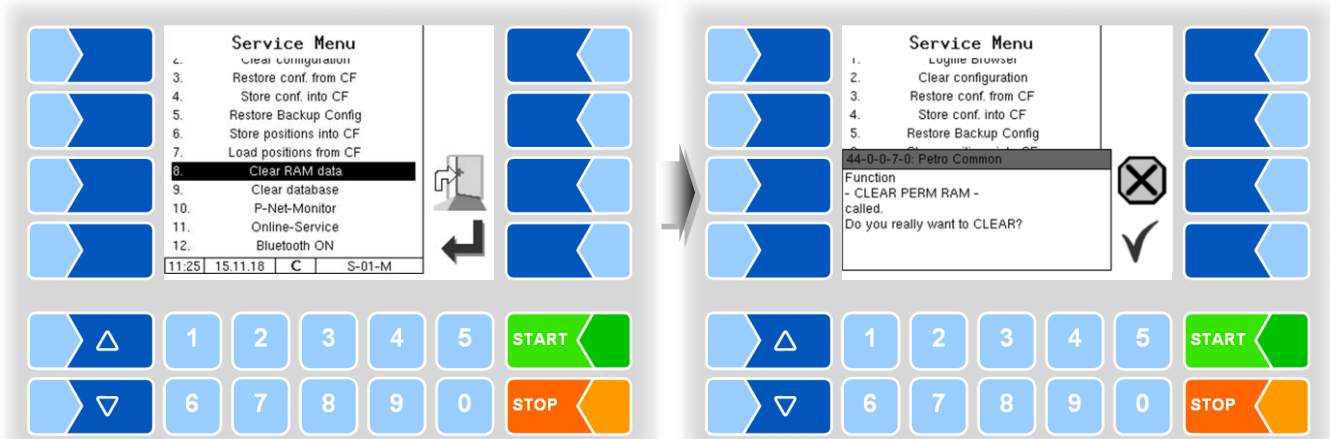
This menu item allows you to transfer the GPS location database, saved in the compact-flash memory to the compact controller.



In case of identical supplier numbers, the previous records are overwritten by the new!

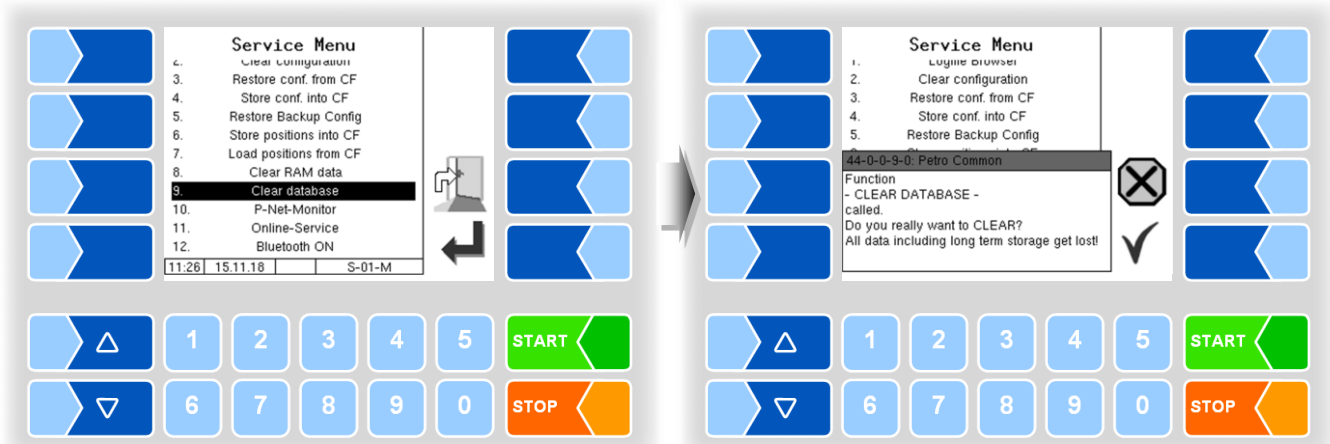


## 4.6.8 Clear RAM data



When you confirm the prompt, the contents of the RAM are cleared (data of the last intake)!

## 4.6.9 Clear database

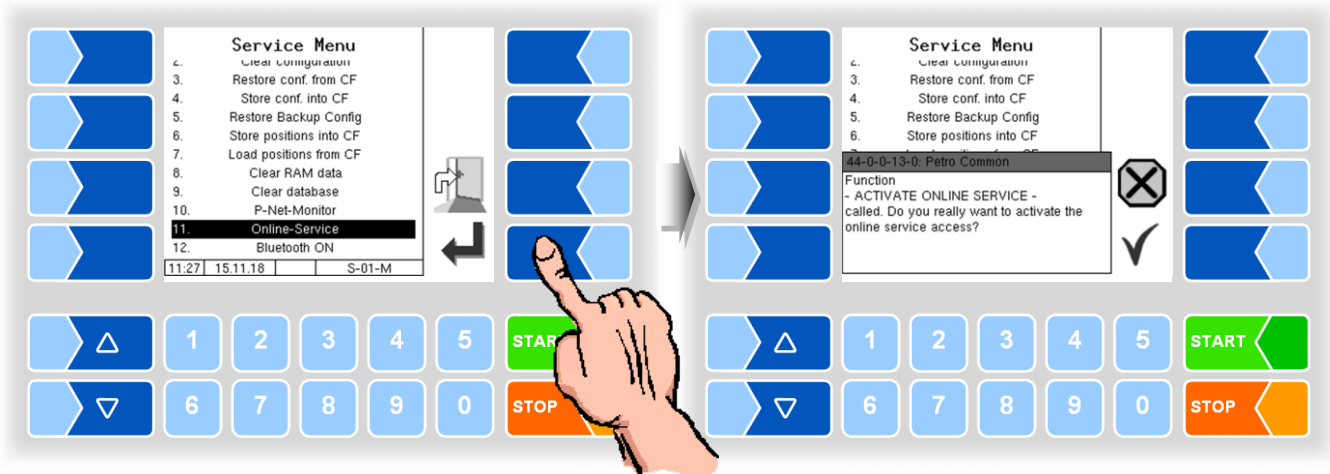


When you confirm the prompt, all data (GPS positions, supplier numbers, scheduled data, response data etc.) including the 3-months memory are deleted!





## 4.6.11 Online Service

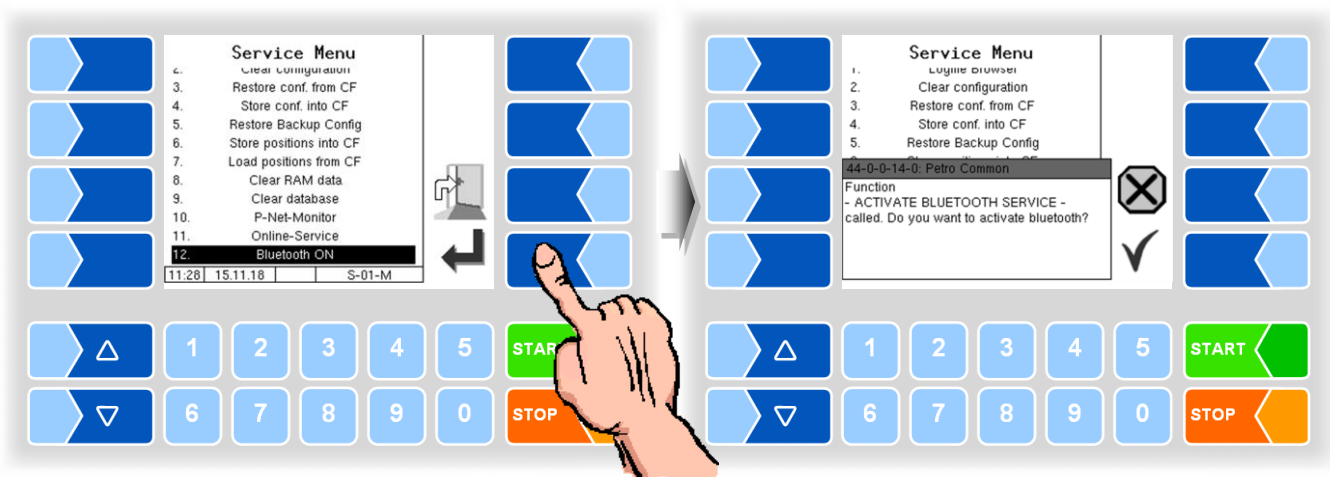


After activating the online service, you allow the BARTEC-Service access to service information of the vehicle. This allows downloading journals, log files etc. Access is via an FTP server. The connection is activated for 3 minutes, in which the access to the data needs to be started. The connection is automatically terminated when there is no access for 3 minutes

The online service can be activated only if the access is configured (see page 111, Remote-Access).

## 4.6.12 Bluetooth ON

When a Bluetooth receiver is configured (see section 4.5.7.15), you can activate the bluetooth interface here.

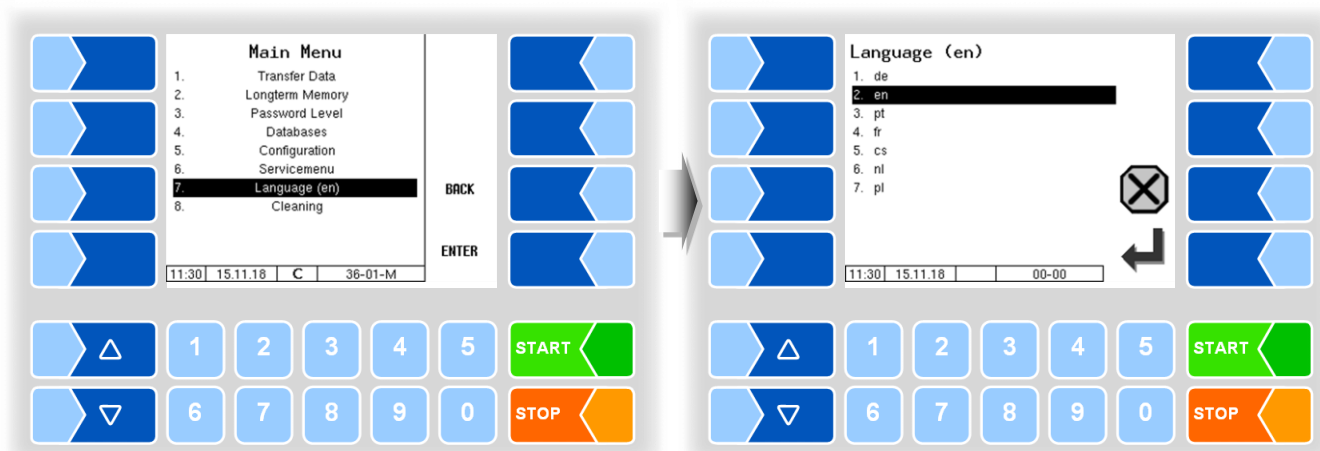


If the Bluetooth interface is enabled, it is displayed by a symbol.

With the BARTEC Service Tool can be established a connection via Bluetooth and accessed to the software.

## 4.7 Language

Selection of the display-language.



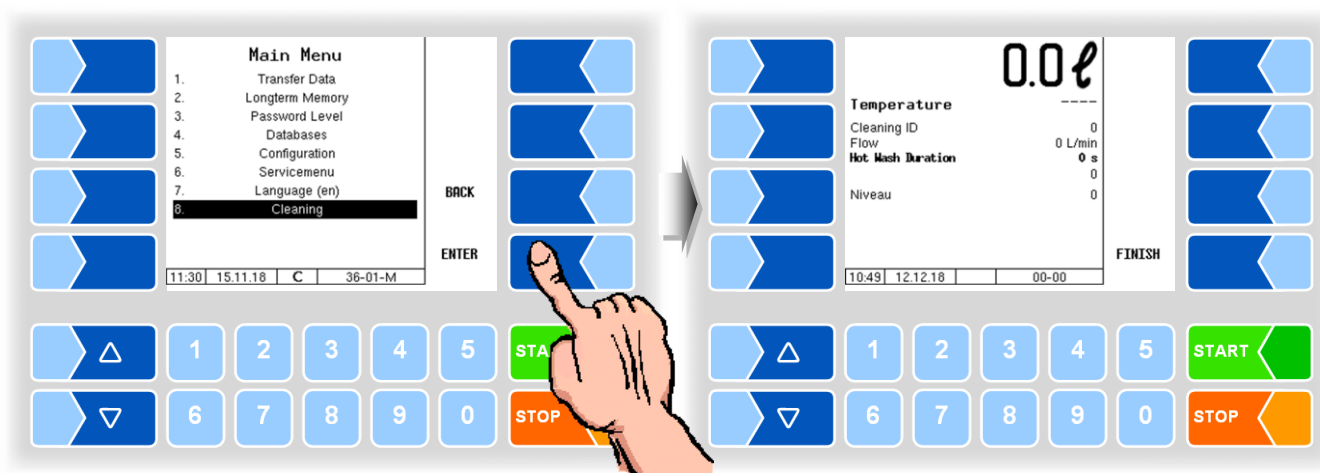
You can select the language also in the menu *Main menu / Configuration / Basic settings / Language* (see section 4.5.8.2).

If you change the language setting, will the system automatic be rebooted.

## 4.8 Cleaning

For the vehicle types "LYNX", "TIGER", "E-TIGER" and "V 3003", the cleaning functions are also available outside of a tour.

Depending on the configuration, manual cleaning ("cleaning") and / or automatic cleaning ("cleaning automatic") can be selected.

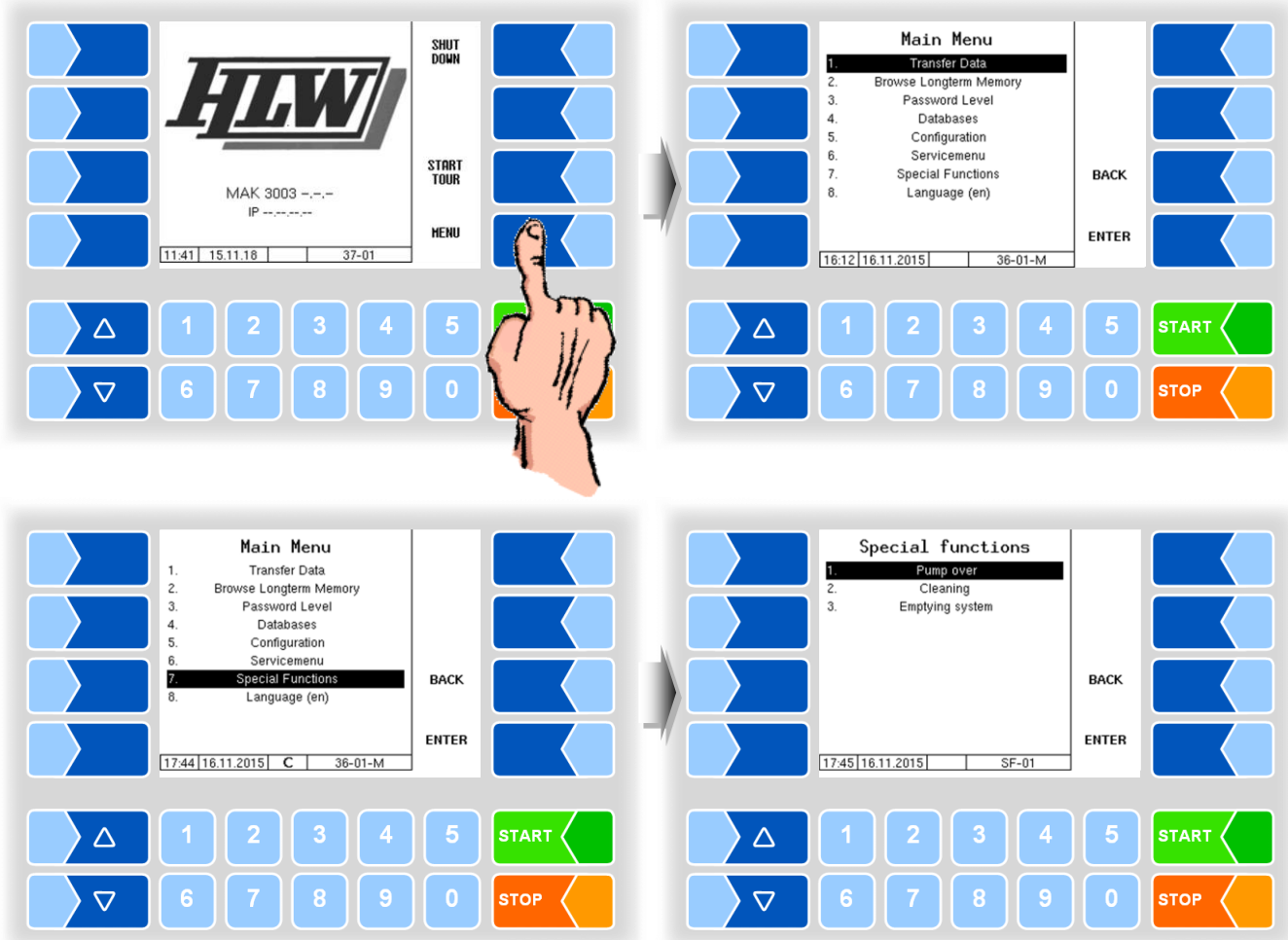


The operation of these functions is described in the operating instructions.

Note: When cleaning outside the tour, no cleaning data is recorded.

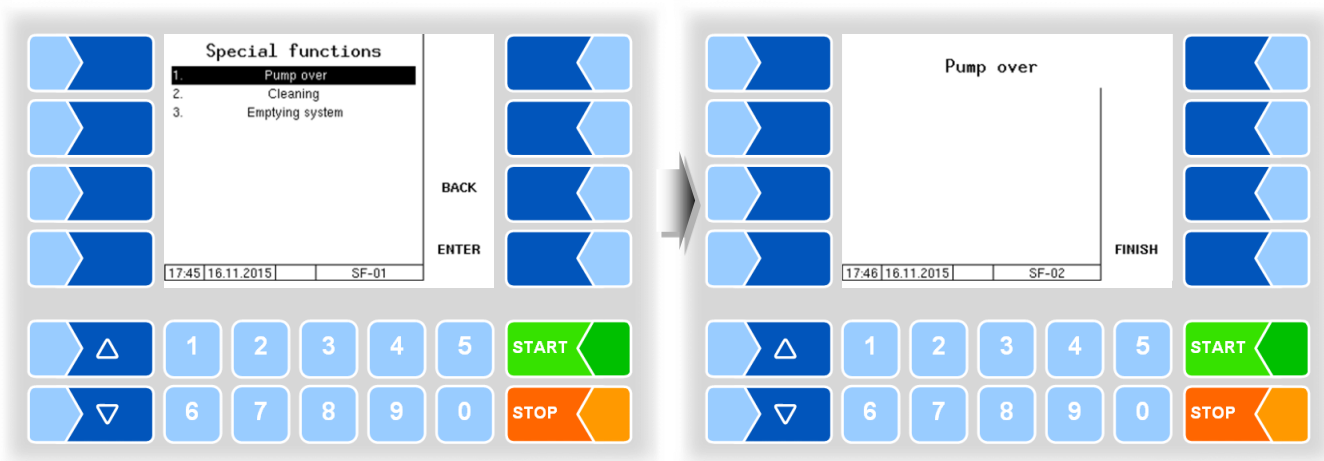
## 4.9 Special functions HLW

For the measurement system type HLW (see section 4.5.8.3) are additional functions available for activating of outputs.



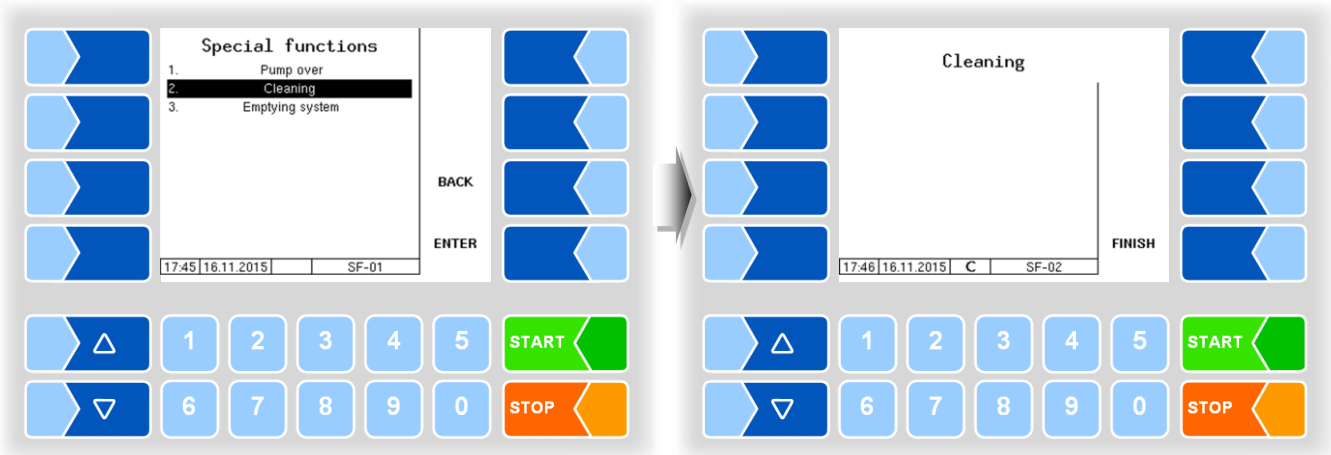
### 4.9.1 Pump over

The controller activates the pump-over output.



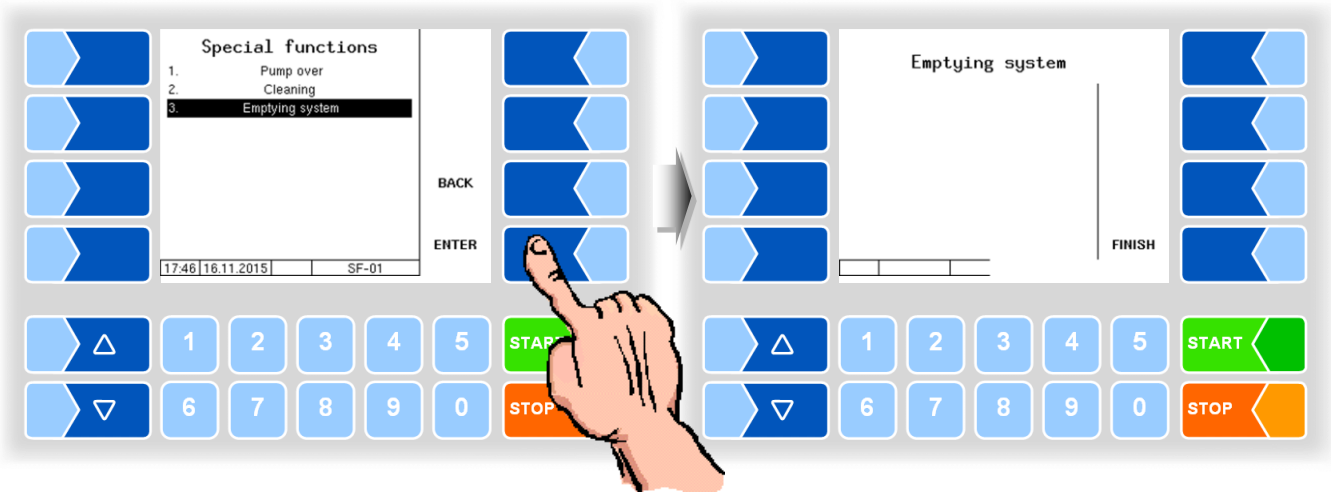
### 4.9.2 Cleaning

The controller activates the cleaning output.



### 4.9.3 Emptying system

The controller activates the output for emptying the air separator. Control is carried out by HLW.



The outputs are deactivated when closing the screens.

# 5 Appendix

## 5.1 Overview of the Configuration menu

The following overview should help you to locate individual parameters within the Configuration menus.

The software configuration is protected by passwords and the seal switch. This permits access to various configuration options.

The password level currently accessible is indicated by a letter in the info line of the display. Each password level includes all lower password levels.

Password	Indicator	Access
no password		read only
Driver password	D	Time, language
User password	U	Operating parameters, date
Service password	S	Parameters which do not require calibration
Calibration switch open	C	All parameters

In this overview, the indicator of the configuration level is shown next to the menu name. It is generally also valid for all submenus.

Exceptions are mentioned under the relevant submenus.

**1: Main configuration**

Vehicle Number  
 Vehicle Plate  
 Dairy Number  
 Sub dairy number  
 Teach Factor Expected Volume  
 Supplier tour assign  
 Max. quantity deviation

Ⓚ

Driver number input  
 Unload ID input  
 Pump over ID input  
 Pump over volume input  
 Tour end Test  
 Automatic data transfer  
 Op.-Data recording

Sped. number  
 Force sequence  
 Pos. search time  
 Pos. search speed  
 LOG-GPS Interval  
 Unload sensor

**2: Process Controlling**

Pumping settings Ⓚ

**TIGER, E-TIGER,**

Finish by...  
 Clearly external start  
*Suction*  
     Suction-Vacuum  
*Post Sucking*  
 Mode  
 Duration in Standard Mode  
 Number of Sucking Intervals  
 Suck in Valve Open Duration  
 Number Of Sucking In Shots  
 Sucking Vacuum  
*Vacuum Tank*  
     Set point Vacuum  
*Intake*  
     Min. Flow  
     Max. Flow  
     Max. Vacuum  
*Measured pump over*  
     Min. Flow  
     Max. Flow  
     PS-Regulator  
*Measured Unload*  
     Min. Flow  
     Max. Flow  
     Prop. Gain  
*Flow Regulator*  
     Upper limit  
     Prop. Gain  
*Air regulator*  
     Tolerated air  
     Prop. Gain  
*Dipstick regulator*  
     mA for 1l Medium  
     Sensor intake end  
     Sensor empty value  
     Sensor full value  
     Regulator on  
     Prop. Gain  
*Air calculation*  
     Bubble Sensor Offset  
     Vakuum Offset  
     Max. air litre  
     Bubble Sensor...

**LYNX**

Finish by...  
 Explicit external start... Ⓚ  
 Pump type Ⓚ  
*Intake*  
     Min. Flow  
     Max. Flow  
     Pump start time  
     PWM at pump start  
     Medium PWM  
     Throttled PWM  
     Waiting time milk sensor  
*Post Sucking*  
     Post sucking time  
     PWM post sucking  
     Dipstick target value  
     PWM to target value  
     Lower gradually to target  
     Max. flow to target val.  
     Max. lowering duration  
     Pause between lowering  
     Max. dipstick alteration  
     Max. post suck time  
*Flow regulation*  
     Upper limit  
     Prop. Gain  
     Purge pause  
     Max. difference FLM  
     lower threshold FLM  
     upper threshold FLM  
*Dipstick regulation*  
     µA for 1l medium  
     Sensor full value  
     Sensor empty value } Ⓚ  
     Upper dipstick threshold  
     Lower dipstick threshold  
     Invert dipstick input Ⓚ  
*Clear system*  
     Duration

**2: Process Controlling**

Pumping settings (U)

**HLW, abo-MAGYAR, ROMEX, Optimate, V plus**  
 Finish by...  
 Clearly extern start...  
*Post Sucking*  
 Sucking time  
 Time 0 flow  
 Auto. ending (*Optimate and V plus only*)  
*Throttle times*  
 LMS Emptysensor  
 Milksensor  
 End K0 sensor  
 Dipstick µA/liter (*V plus only*) (S)  
 Dipstick empty (*V plus only*) (S)

**V3003**  
 Finish by...  
 Clearly extern start...  
*Control times*  
 Lead time  
 Min. time 0 flow end  
 Sucking time  
 Vakuum sucking  
 Level delay time  
 Empty air el. time  
*Sensor delay*  
 On delay  
 Off delay  
*Pump over*  
 Max. power  
 Min. power  
 Stop liters  
*Sample box*  
 FLM-Position

Air eliminator control (U)

**V3003 only**  
 Ejector 2 flow  
 Ejector 2 pressure  
 Ejector 1 flow  
 Hysterese flow  
 Ejector 1 pressure  
 Hysterese pressure

Cleaning settings (U)

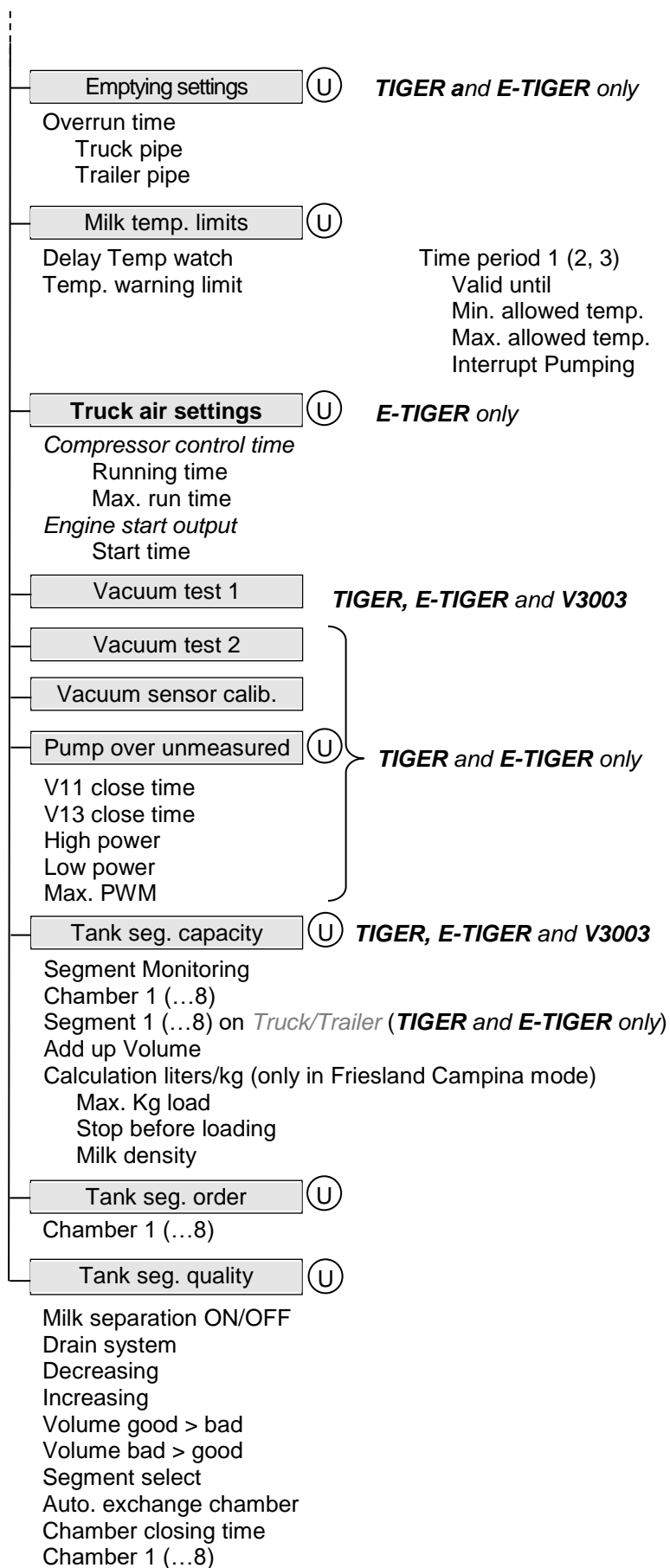
**TIGER and E-TIGER**  
 Cleaning Id (D)  
 V14 (V16, V17) at cleaning (S)  
 V14 (V16, V17) open time  
 V14 (V16, V17) close time  
 Manhole open time  
 Tanksegment valves  
 Minimum Hot Wash Temp  
*Cleaning Cycle Duration*  
 Vacuum Holding Tank  
 Milk Line  
 MKS-Filter  
 Transfer Pipe  
 Transfer Exit Pipe  
 Time after cleaning  
 Time after first intake  
 Time after last intake  
 Force cleaning

**LYNX (U) (D)**  
 Cleaning ID  
 Min. hot wash temp.  
*Cleaning cycle times*  
 Intake path  
 Ventilation path

**V3003**  
 Cleaning ID (D) (S)  
 V11 at cleaning  
 V11 open time  
 V11 close time  
 Tanksegment valves  
 Minimum Hot Wash Temp.  
*Cleaning cycle times*  
 Cycle time 1  
 Cycle time 2

**HLW, abo-MAGYAR, ROMEX, Optimate, V plus (D) (U)**  
 Cleaning ID  
 Minimum Hot Wash Temp.

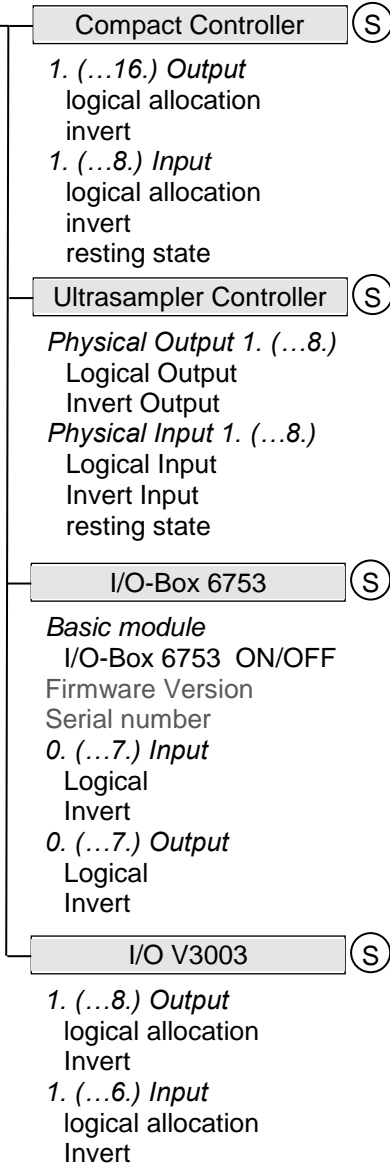




**3: Sensors/Actors** (C)

- PWM Frequency
- Current output
- Temp 1 Offset
- Bubble Parameters*
- Air Impact Calibration Factor
- Firmware Version
- Driver Version

**4: Inputs/Outputs**



**5: Sampling settings****Installed Hardware** (S)

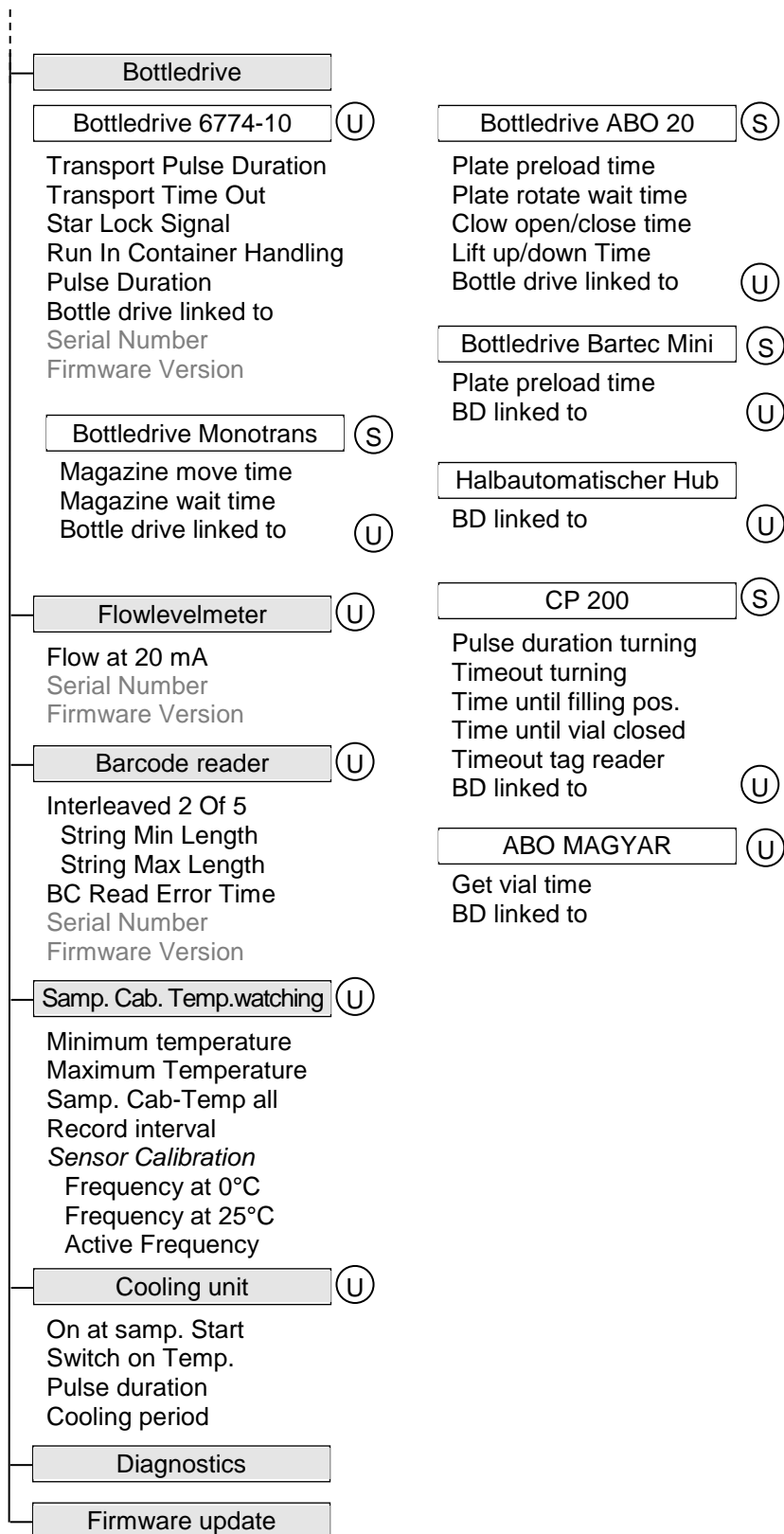
Ultrasampler-Controller  
 Flowlevelmeter 6826  
 Bottledrive  
 Barcode Reader  
 Sampling Cabinet Temp.  
 Frequency sensor 2  
 Cooling unit  
 Pump Over/Unload Sample  
 Sample device number

**Sampling Main Parameter** (U)

Filling Control Mode  
 Flow at 20 mA  
 Sampling On Output  
 Buzzer 105%  
 Tour Sample at tour start  
 Single Sample at tour start  
 Single Sample after CIP  
*Pre-Sample*  
   Number Of Pre-Samples  
   Number extra pre-samples  
   after Pump Over  
   Pre Sample Quantity  
   Pump stop  
   Pre-Sample Time Lag  
 Blow-out time  
 Max. Expected Volume  
 New vial at (0=off)  
 Delete BC-Code  
 Motor CIP-Frequency  
*Correction Factors*  
   Low Estimate Range  
   ... Operative Up To  
   Middle Estimate Range  
   ... Operative Up To  
   High Estimate Range  
   Start delay high amount  
 Add. rinse tank sample  
 Samp. during pump over  
 Samp. during unloading  
 Log flm values  
 Standard Spülen  
 Serial Number  
 Firmware Version

**Sampler 1 (2)** (U)

Operating Mode  
 Vial Volume  
 Overfill Tolerance  
 Start Delay  
 Calibration Factor  
 Pre-Flushing From Estimate  
 Flushing Steps  
 Minimum Pulse Steps  
 Minimum Pulse Frequency } (S)



**6: Power supply** (S)

- System Fan
- Switching Off Below
- Switching ON above
- Firmware Version

**7: Peripheral Hardware**

**Flow Meter** (C)

Ident number  
 Calibration Factor System  
 Calibration Factor Flow Meter  
 Output 3  
 Mode  
 Flow at 20 mA } (S)  
 Litre per pulse  
 Dry start volume

**GPS Receiver** (U)

GPS Receiver  
 Search radius  
 Load. Search Radius  
 KM-Recording  
 GPS-Logging  
 Model  
 Firmware Version

**Printer**

**Epson TMU 295** (U)

Print Function  
 Paper Output Front  
 Paper Release  
 Line per Page  
 Paper Eject  
 Record  
 Record Interval

**Epson TM88** (U)

Printer function  
 Interface  
 Baud  
 Data  
 Parity  
 Stop bit  
 Flow Control  
 Printer test

**Screen** (S)

Contrast  
 x/y calibration  
 Candle power  
 Set blink on/off

**V3003 HW Module** (S)

Modul active	<i>Tip Tronic</i>	Control parameter
<i>Level values</i>	Appr.speed	Prop. Factor
Start	<i>Start seal value</i>	<i>PWM</i>
Work	Start value	Frequency
Security	Appr. speed	minimum
Seal	Level fluctuations	maximum
<i>Start value</i>	Measuring time	<i>Sensor thresholds</i>
Start value	Measuring end	Foam sensor
Appr.speed	Level fluctuations	Empty sensor
		Serial number
		Firmware Version

**—Tour puls sample** (S)

On at tour start      Fill time  
 Sleep time            Final fill time

**Belgium Sample** (S)

Start wait time  
 Start after Volume  
 sleep time  
 fill time  
 On at tour start  
 RFID Reader

SMV 4 Sample	(S)	
Start wait time		
Pulse time		
Nu. of strokes		
Virtual flow		
<i>Blow out</i>		<i>Cleaning</i>
Wait time		Short cleaning
Airblow time		Interval time
		Puls 1 time
		Puls 2 time
		Parallel operation
		TAG Dairy number
WAVEbox 1000S	(S)	
Active		Baud rate
Device ID		Antenna 1 (...4)
Interface		
NL-Tag Automatic	(S)	
Active		
Device ID		
Interface		
Baud rate		
NL-Tag Manual	(S)	
Active		
Device ID		
Interface		
Baud rate		
Tag reader DMK	(S)	
Active		
Address		
Interface		
MKS-System	(S)	
Pressure build		
Spraying time		
Network IP	(U)	
General Settings		Proxy settings
BARTEC Server IP		Use Proxy
Routing and DNS		Proxy for HTML
Preferred Device		Proxy for FTP
Network connection		Proxy Server
Auto (dhcp)		Proxy Port
Manual IP		
Current IP		
Bluetooth Receiver	(S)	
Bluetooth Receiver (On/Off)		
Device		
Baud		
Pin		
Name		
CAN/J1939	(U)	
CAN/J1939 (On/Off)		W-AS Thermal
Address		ANR
Interlock Address		Version
W-AS Router Address		WAS-Terminal
FMS interface		ANR
Address claiming		
Priorities of transmit messages (Interlock xx – xx)		
Firmware Version		
Driver Version		

**8: Basic settings**

(U)

**System Date/Time** (C)

- System Date
- System Time
- Auto-SynchroniZation
- Timezone
- Daylightsaving
- Daylightsaving Begin*
- Month
- Week
- Day of Week
- Daylightsaving End*
- Month
- Week
- Day of Week

**Language**

- German
- English
- Portuguese
- French
- Czech
- Dutch
- Polish

**Type of system** (S)

- Tiger
- HLW
- MID-Test
- Lynx
- ABO-Magyar
- E-Tiger
- V3003
- Optimate
- Romex
- V plus

**Program mode** (S)

- Standard
- FC-Mode
- DMK-Modus
- LetraQ

- Kernel Version
- Bootloader Version
- Controller Serial
- P-Net Firmware Version
- P-Net Driver Version
- HMI Firmware Version

**9: Internet**

(U)

GPRS Settings

Modem 1 / Modem 2

- Device
- Baudrate
- Activate Modem
- Provider Data*
  - APN Server
  - APN User
  - APN Password
- SIM Data*
  - Dial String
  - PIN-Code
- Security*
  - Report IP to BARTEC

(D)

Data Transfer

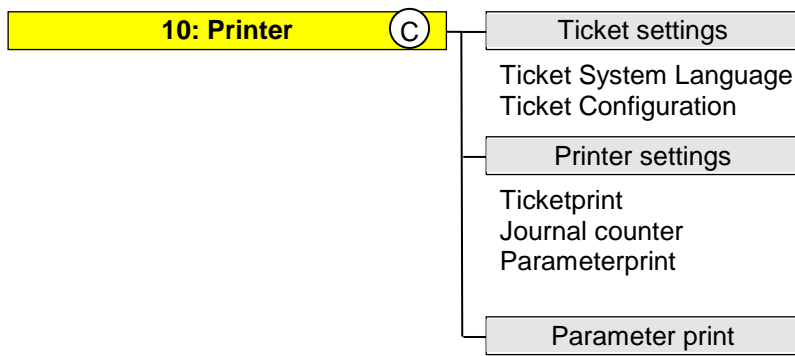
FTL-FTP-Server (S)

- Box Configuration*
  - Box Name
  - Service Status
  - Check Inbox Period
  - Compress Data
  - Resume Down-/Uploads
  - Max. amount of pending files
  - Modem no
- FTP Configuration*
  - Username
  - Password
  - Server Path
  - IP/Domain
  - IP/Domain (fallback)
  - Port
- Security*
  - Enable TLS/SSL
  - Accept Any Certificate
  - Certificate
  - TLS/SSL-Version

Box for Remote-Access

Box for Dairy data separation

Software Update





## 5.2 Logical assignment of the outputs and inputs

### Outputs

log.	inv.	Valve	Function	Tiger/ E-TIGER 3003	Lynx 3003	HLW 3003	abo- MAGYA R	V3003	Optimate	Resting state	
1	n	V1	compressed air, ejector	X						off	
1	n	V1	pump start ventilation			X	X		X	off	
1	n	V1	intake valve		X			X		closed	
2	n	V2	air for emptying	X						off	
2	n	V2	vent valve		X					closed	
2	n	V2	completing supplier						X	closed	
3	n	V3	shut-off valve ejector inlet	X						closed	
3	n	V3	pump shut-off valve		X					open	
3	n	V3	measured delivery						X	closed	
4	n	V4	throttle valve	X						closed	
5	n	V5	shut-off valve ejector outlet	X						closed	
6	n	V6	shut-off valve vacuum tank	X						closed	
7	n	V7	suction valve	X						closed	
8	n	V8	pump shut-off valve	X						closed	
8	n	V7.1/V7.3	pump shut-off valve					X		closed	
9	n	V9	cleaning valve inlet vacuum tank	X						closed	
10	n	V10	cleaning valve outlet	X						closed	
11	n	V11	pump over valve inlet (optional)	X						closed	
12	n	V12	pump over valve outlet (optional)	X						closed	
13	n	V13	Umpumpen ungemessen (optional)	X						closed	
13	n	V7.2/V7.4	pump over unmeasured (optional)					X		off	
14	n	V14	pump over, shut-off valve (optional)	X						closed	
14	n		slow, throttling active			X	X		X	closed	
15	n	V15	throttle vacuum	X						closed	
16	n	V16	overpump compartment (not via V12)	X						closed	
17	n	V17	shut-off valve trailer pipe	X						closed	
18	n		Sample ON			X	X			off	
			1. as logical output 18 freely configurable only with HLW and ABO measuring type								
			2. when activating the "Enable sample output" additionally fixed on Out 8, cl.14 in US-Controller	X	X	X	X	X	X		X
			3. when activating "Enable sample output", additionally "control feed cassetta": Out 7 US-Controller fixed " Enable sample output "; Out 8 US-Controller fixed "control feed cassetta"	X	X	X	X	X	X		
19			pressure emptying measurement system			X	X		X	off	
20	n		status signal <i>cleaning running</i> (possibly valve)	X	X	X	X	X	X	off	
21	n		status signal <i>pump over running</i>	X		X	X	X	X	off	
22	n		hydraulics is absolutely needed (LDA hose reel)	X	X	X	X	X	X	off	
23	n		write Belgium-Tag	X	X	X	X	X	X	off	
24	n		Air suction valve unloading pumping over (measured via sample)	X		X	X	X	X	off	
25	n		Vortex cooling, cooling pulse	X	X	X	X	X	X	off	
26	n		MKS: building up the pressure	X	X	X	X	X	X	off	
27	n		MKS: start spraying	X	X	X	X	X	X	off	
28	n		collection tank outlet (MTT-Tiger, unloading/CIP)	X		X	X	X	X	closed	
29	n		V20 compr. air, CIP cleaning (FLM blow out)					X		off	
30	n		V2 Flap compressed air CIP cleaning (MPR)					X		closed	

log.	inv.	Valve	Function	Tiger/ E-TIGER 3003	Lynx 3003	HLW 3003	abo- MAGYA R	V3003	Optimate	Resting state
31	n		Segment inlet 1 for segment 1	X	X	X	X	X	X	closed
32	n		Segment inlet 1 for segment 2	X	X	X	X	X	X	closed
33	n		Segment inlet 1 for segment 3	X	X	X	X	X	X	closed
34	n		Segment inlet 1 for segment 4	X	X	X	X	X	X	closed
35	n		Segment inlet 1 for segment 5	X	X	X	X	X	X	closed
36	n		Segment inlet 1 for segment 6	X	X	X	X	X	X	closed
37	n		Segment inlet 1 for segment 7	X	X	X	X	X	X	closed
38	n		Segment inlet 1 for segment 8	X	X	X	X	X	X	closed
39	n		CIP Dome lid (only clean water -> Temp. <20°C)	X						
40	n		MAK in Tour			X	X	X	X	off
41	n		Segment outlet 1							closed
42	n		Segment outlet 2							closed
43	n		Segment outlet 3							closed
44	n		Segment outlet 4							closed
45	n		Segment outlet 5							closed
46	n		Segment outlet 6							closed
47	n		Segment outlet 7							closed
48	n		Segment outlet 8							closed
51	n		Buzzer (Sample, Milk temperature, Overfill sensor)	X	X	X	X	X	X	off
61	n		Tank ventilation valve compartment 1	X		X	X	X	X	closed
62	n		Tank ventilation valve compartment 2	X		X	X	X	X	closed
70	n		Pump Start/Stop, (only E-Tiger)r	X						off
70	n	V3.1	Ejector 1 active					X		closed
71	n		Pump acknowledge fault (only E-Tiger)	X						off
71	n	V3.2	Ejector 2 active					X		closed
72	n		start truck engine (only E-Tiger)	X						off
72	n	V5.1	compressed air ejector 1 active					X		off
73	n		air compressor On/Off (only E-Tiger)	X						off
73	n	V5.2	compressed air ejector 2 active					X		off
74	n		enable cabinet heating (only E-Tiger)	X						off
74	n	V8.2	block exhaust air					X		offen
75	n	V8.1	empty foam separator					X		closed
76	n	V21	CIP-valve					X		closed
77	n	V22	CIP return					X		closed
78	n		Ejector blows in the HFMD-Filter (only Tiger)	X						
79	n		Bottle transport pulse for external bottldrive	X	X	X	X	X		off
80	n		Bottle read for external bottldrive	X	X	X	X	X		off
81	n		Bottldrive ABO, clamp open/closed	X	X	X	X	X		off, open
81	n		BD-CP200 hover position	X	X	X	X	X		hover
82	n		Bottldrive: ABO, Schwarte Monotrans, clamp or needle UP/DOWN, BARTEC: lift bottle, manual lifting device: lift bottle	X	X	X	X	X		off, above, below
82	n		BD-CP200 open bottle	X	X	X	X	X		below
83	n		Bottldrive: ABO, Schwarte Monotrans, BARTEC: bottle transport	X	X	X	X	X		off
84	n		Bottldrive: ABO, Schwarte Monotrans, BARTEC: Magnet plate motor	X	X	X	X	X		off
86	n		Tour puls sample (NL, time configurable)	X	X	X	X	X		off
87	n		Belgium sample: hold bottle	X	X	X	X	X		hold
88	n		Belgium sample: needle down	X	X	X	X	X		off
89	n		Belgium sample: filling On/Off	X	X	X	X	X		off
90	n		SMV4 Tarp Sampler fill (only in conjunction with -TAG)	X						off
91	n		changeover valve total sample for raw milk separation (1 -> 2)	X	X	X	X	X		off
92	n		SMV4 Tarp Sampler blow out (only in conjunction with -TAG)	X						off
93	n		pressure emptying single sample	X	X	X	X	X		off
94	n		SMV4 Tarp Sampler CIP Pulse (only in conjunction with -TAG)	X						
95	n		Bottldrive: Lid for round magazines		X					off, open

## Inputs

log.	inv.	Function	Tiger/ E-TIGER 3003	Lynx 3003	HLW 3003	abo- MAGYAR	V3003	Optimate
1	n	Milk sensor + Temp.sensor sucking	X	X	X	X	X	X
2	n	Milk sensor overflowing vacuum vessel	X					
3	n	Milk sensor inlet / outlet vacuum vessel	X					
3	n	Measuring end sensor (K0)			X	X		X
4	n	Milk sensor pump over	X					
5	n	Emergency mode switched on	X	X				
6	i	CIP cleaning (emptying when medium changes)	X	X	X	X	X	
7	n	Milk sensor unloading	X		X	X	X	X
13	n	Empty sensor		X	X	X	X	X
20	n	Start cleaning (only in Tour)	X	X	X	X	X	X
21	n	Auxiliary drive On/Off	X	X	X	X	X	X
22	n	collective signal overflow protection	X	X	X	X	X	X
23	n	Trailer present	X	X	X	X	X	X
24	n	Start cleaning (only in Tour)	X	X	X	X	X	X
26	n	MKS start switch in driver cabin	X	X	X	X	X	X
31	n	Segment inlet 1	X	X	X	X	X	X
32	n	Segment inlet 2	X	X	X	X	X	X
33	n	Segment inlet 3	X	X	X	X	X	X
34	n	Segment inlet 4	X	X	X	X	X	X
35	n	Segment inlet 5	X	X	X	X	X	X
36	n	Segment inlet 6	X	X	X	X	X	X
37	n	Segment inlet 7	X	X	X	X	X	X
38	n	Segment inlet 8	X	X	X	X	X	X
39	n	foam separator full					X	
41	n	Emptying flap 1						
42	n	Emptying flap 2						
43	n	Emptying flap 3						
44	n	Emptying flap 4						
45	n	Emptying flap 5						
46	n	Emptying flap 6						
47	n	Emptying flap 7						
48	n	Emptying flap 8						
49	n	Unloading 1	X	X	X	X	X	X
50	n	Unloading 2	X	X	X	X	X	X
51	n	External Start	X	X	X	X	X	X
52	n	External Stop	X	X	X	X	X	X
53	n	External ending	X	X	X	X	X	X
55	n	manual lifting device: bottle in barcode-reading position	X	X	X	X	X	X
56	n	manual lifting device: bottle in filling position	X	X	X	X	X	X
61	n	Tank ventilation monitoring chamber 1	X		X	X	X	X
62	n	Tank ventilation monitoring chamber 2	X		X	X	X	X
70	n	enable pump	X					
71	n	Current overload (pump)	X					
72	n	collective error signal pump	X					
73	n	compr. air requirement (e.g. less than 6 bar)	X					
74	n	compr. air requirement (e.g. less than 6 bar)	X					
75	n	Power AC ok	X					
76	n	truck engine is running	X					
77	n	Load request (truck engine start)	X					
150	n	monitoring sampling compartment		X				
151	n	monitoring dome lid, compartment 1		X				
152	n	monitoring dome lid, compartment 2		X				
153	n	monitoring dome lid, compartment 3		X				
154	n	monitoring dome lid, compartment 4		X				
155	n	monitoring dome lid, compartment 5		X				
156	n	monitoring dome lid, compartment 6		X				
157	n	monitoring dome lid, compartment 7		X				
158	n	monitoring dome lid, compartment 8		X				

## 5.3 Serial interfaces

### 5.3.1 Base board without CAN-Bus

Designation	Interface at the system
GPRS	dev/usb/ttyUSB0
Bluetooth	dev/usb/ttyUSB1
GPS	dev/ttyS3 (can not be changed)
Printer	dev/ttySM0
RS485/RS232	dev/ttyS4

### 5.3.2 Base board with CAN-Bus

Designation	Interface at the system
GPRS	dev/usb/ttyUSB0
Bluetooth	dev/usb/ttyUSB1
GPS	dev/ttyS3 (can not be changed)
Printer	dev/ttySM0
RS232	dev/ttyS4
RS485	dev/ttyS2
RS232_1	dev/ttySM1
RS232_2	dev/ttyS5

For more information, see the MAK TIGER 3003 Service Manual, Section "Serial interfaces".



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