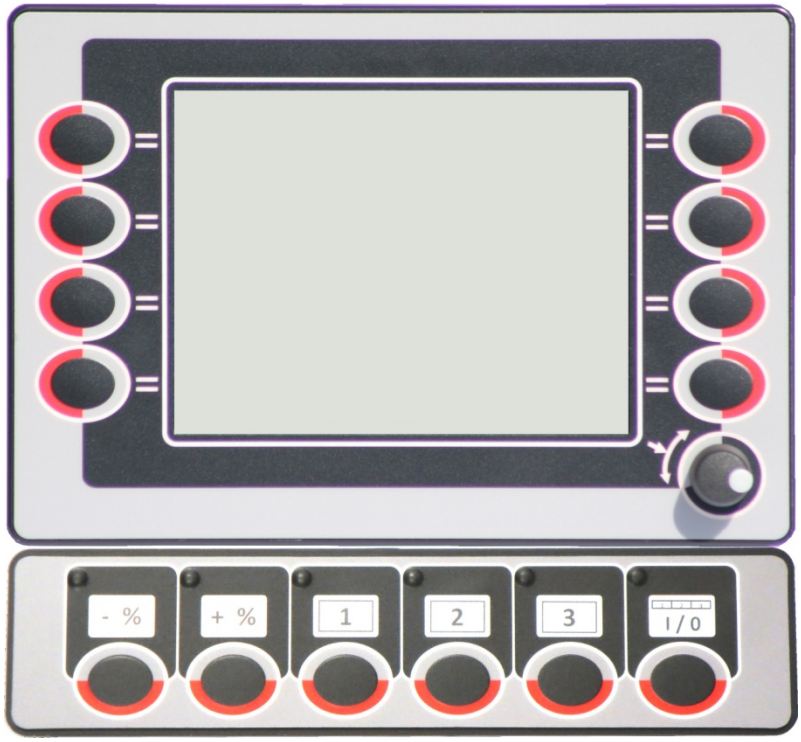
Short description for control units

type AT92/AT13

SW..MC / SW..TC / SW..SC



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1 Introduction

This manual describes the usage of the control units AT92/AT13.

The types SW..MC/SW..TC/SW..SC are since beginning of 2014 equipped as standard with this combination of control units and in addition the AT13 can be retrofitted on most of those types of binding agent spreaders.

There has been a simplification of the structure in the appropriate software. The general handling concept has been conserved, so the change would be very easy for experienced users.

2 Description

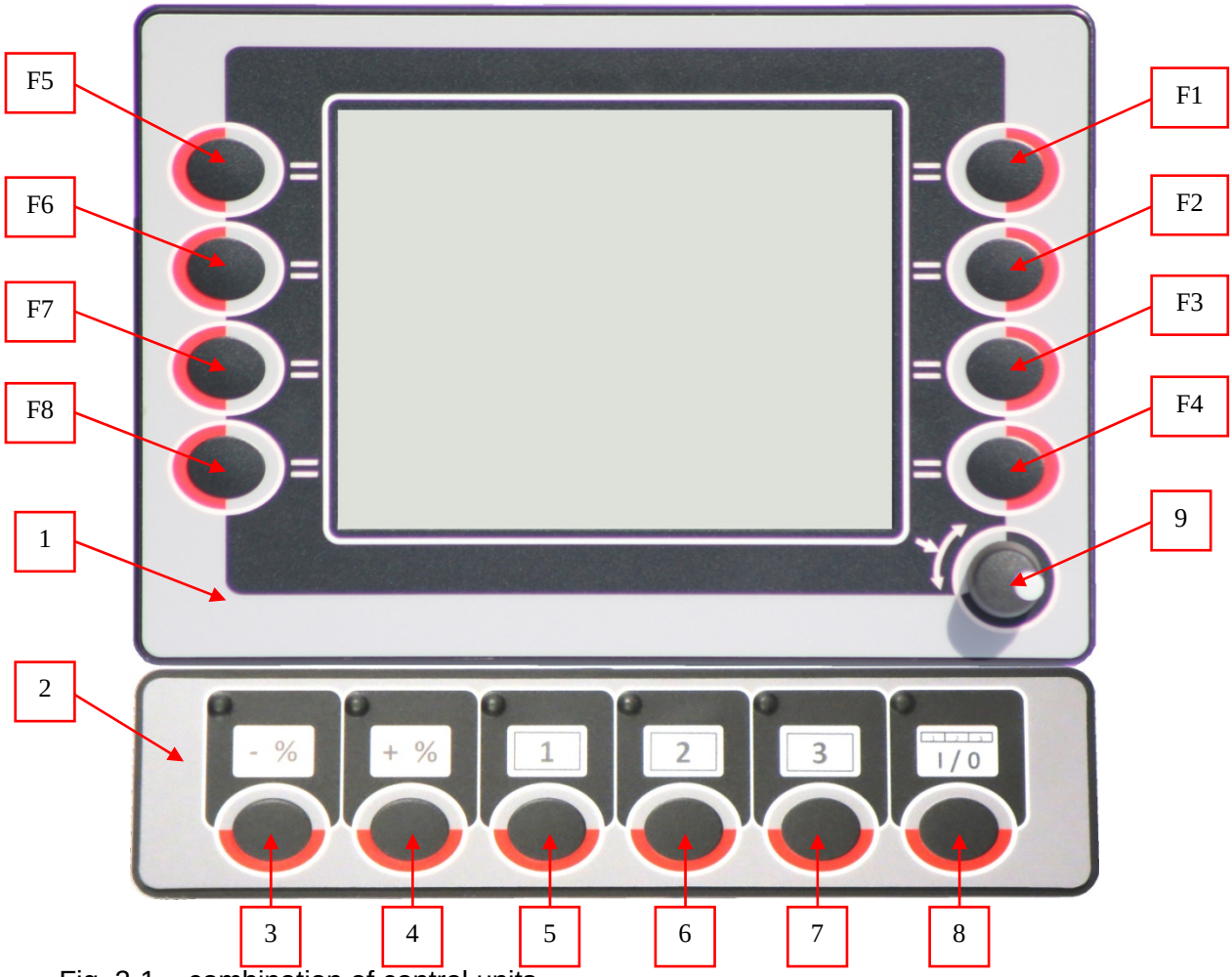

Fig. 2-1 combination of control units

1	control unit AT92	F1	softkey F1
2	control unit AT13	F2	softkey F2
3	softkey - %	F3	softkey F3
4	softkey + %	F4	softkey F4
5	softkey partial width 1	F5	softkey F5
6	softkey partial width 2	F6	softkey F6
7	softkey partial width 3	F7	softkey F7
8	softkey spreading device/conveyor	F8	softkey F8
9	turn-/push-key		

The control panel AT92 consists of a plastic housing with an 5,4" graphic display. The function keys F1 to F8 and a turn-/push-key are located on the left and right of the display.

The function selected with the respective softkey is illustrated in plain text or as graphic symbol on the display in the respective function level.

The AT13 with six additional softkeys is mounted directly beneath. The keys have always the same function independent of the shown menu. With this additional keys it was possible to simplificate the structure in the AT92-menus.

Nominal values (red font in screenshots) for a particular function (e.g. desired spreading quantity) can be selected and edited or menu items (blue font in screenshots) carried out with the turn-/push-key.

To edit a value turn the turn-key until the background behind the value to be edited darkens. After pressing the turn-key once, the value can be changed by turning the key. Pressing it again acknowledges the value and imports it into the control.

For security reasons, the operator is unable to access all data and parameters. Spreading operation is possible with the assistance of trained skilled personnel.

Two operating modes can be set via the control panel:

- automatic mode
- manual mode

2.1 Description AT13

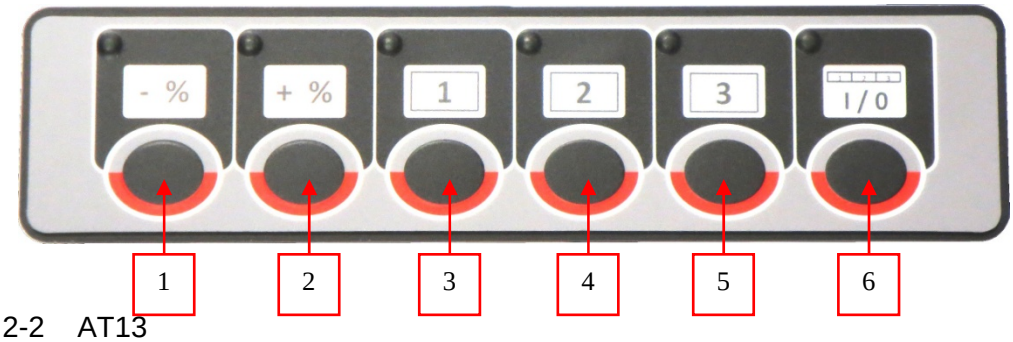

Fig. 2-2 AT13

1 softkey - %

2 softkey + %

3 softkey partial width 1

4 softkey partial width 2

5 softkey partial width 3

6 softkey spreading device/conveyor

The function of the softkeys on the AT13 control unit are always the same, independant of the graphic, that is shown on the AT92.

1. Softkey - %

   In automatic mode the nominal value is reduced by 10%, when pressing this key. In manual mode the opening width of the current regulating valve is reduced by 5%, when pressing it. If softkey "-%" and "+%" are pressed simultaneously, in automatic mode the target value will be resetted to 100% and in manual mode the opening width of the current regulating valve to 50%.

2. Softkey + %

3. In automatic mode the nominal value is raised by 10%, when pressing this key. In manual mode the opening width of the current regulating valve is raised by 5%, when pressing it. If softkey "-%" and "+%" are pressed simultaneously, in automatic mode the target value will be resetted to 100% and in manual mode the opening width of the current regulating valve to 50%.

4. Softkey partial width 1

   With this key the partial width 1 can be switched on/off. The actual state is shown at the graphics in the main menu.

5. Softkey partial width 2

   With this key the partial width 2 can be switched on/off. The actual state is shown at the graphics in the main menu.

6. Softkey partial width 3

   With this key the partial width 3 can be switched on/off. The actual state is shown at the graphics in the main menu.

7. Softkey spreading device/conveyor

   With this key the conveyor and the spreading device are switched on/off at once. If the key is kept depressed for 4 seconds, only the spreading device is switched on/off. This function can be used to empty the feeder chute and the spreading device before moving the spreader on streets. The actual state is shown at the graphics in the main menu.

2.2 Menu levels

The menu levels are shown in the following figures, but without real values. All green characters are values that are displayed by the computer and that cannot be edited in this level. Red characters are desired values and can be changed by the operator.

2.2.1 Starting picture

The Starting picture is shown for about 4 seconds after switching on the control unit. Meanwhile the language selection can be reached by pressing the softkey F4. If F4 is not pressed within the 4 seconds the main level appears in the last used language.

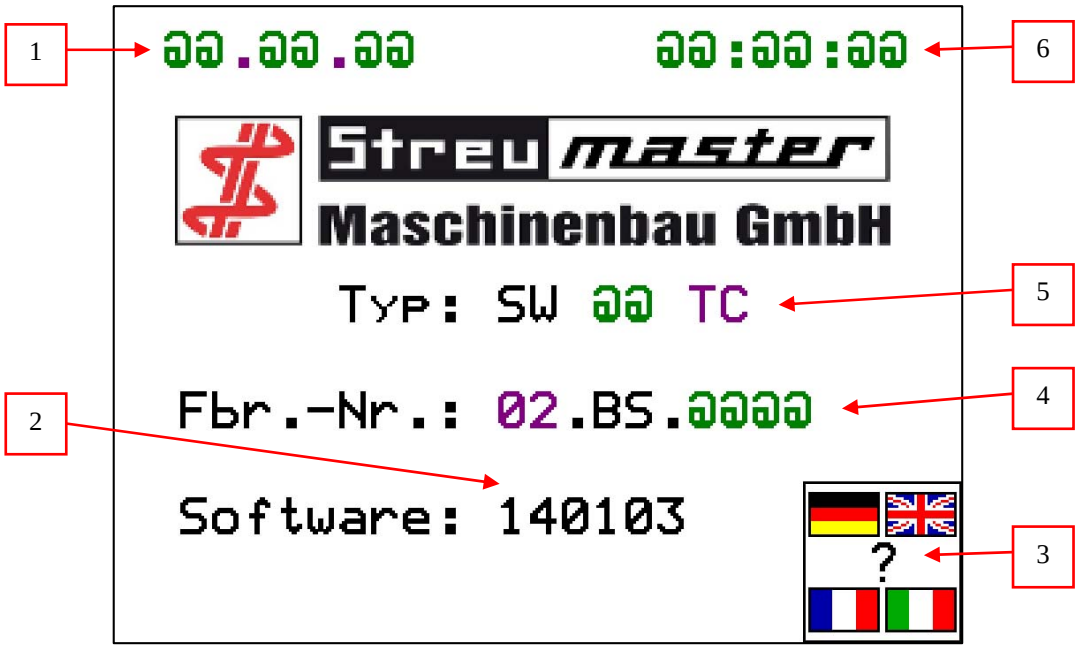

Fig. 2-3 starting picture

1	date	4	serial number of machine
2	version of software	5	type of machine
3	language selection	6	time

2.2.2 Language Selection

The language can be selected if softkey F4 is pressed while the "starting picture".

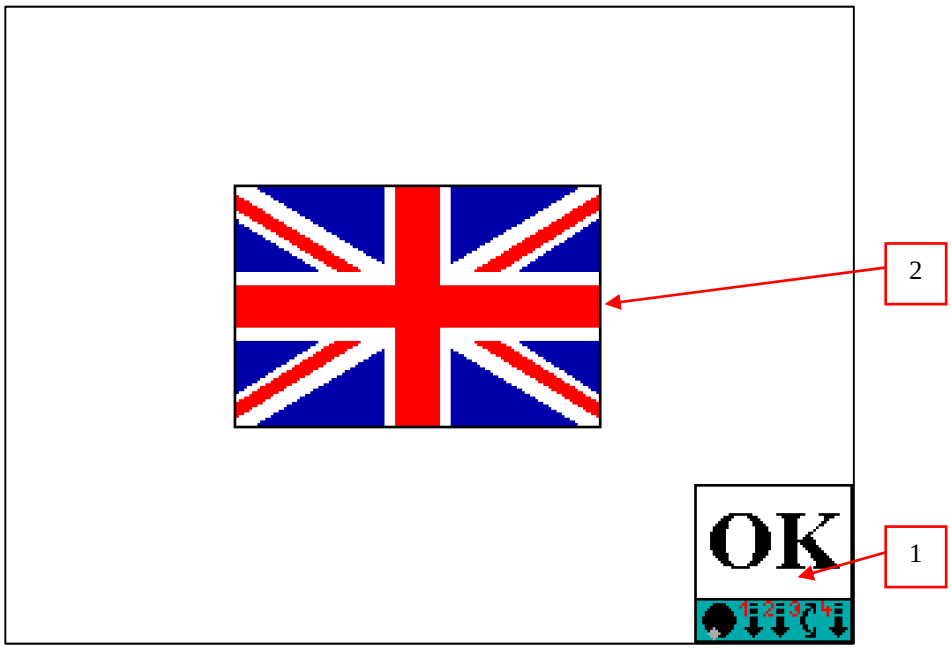

Fig. 2-4 language selection

1 confirm selection (F4) 2 flag of language

To change the language the turnkey must be pressed once, so that the frame around the flag twinkles. Now press the turnkey again and select the desired language by turning it. Confirm the selection by pressing the key once again. To leave the menu and adopt the selected language press "OK" (F4).

NOTE

The language can also be changed while running. The corresponding menu is found in "Settings 1".

2.2.3 Main level for automatic mode

Directly after the "starting picture" the control unit changes to the "main level in automatic mode".

Most of the important values and parameters are shown here. Therefore the monitoring of the spreading operation can be done in an optimal way by the operator.

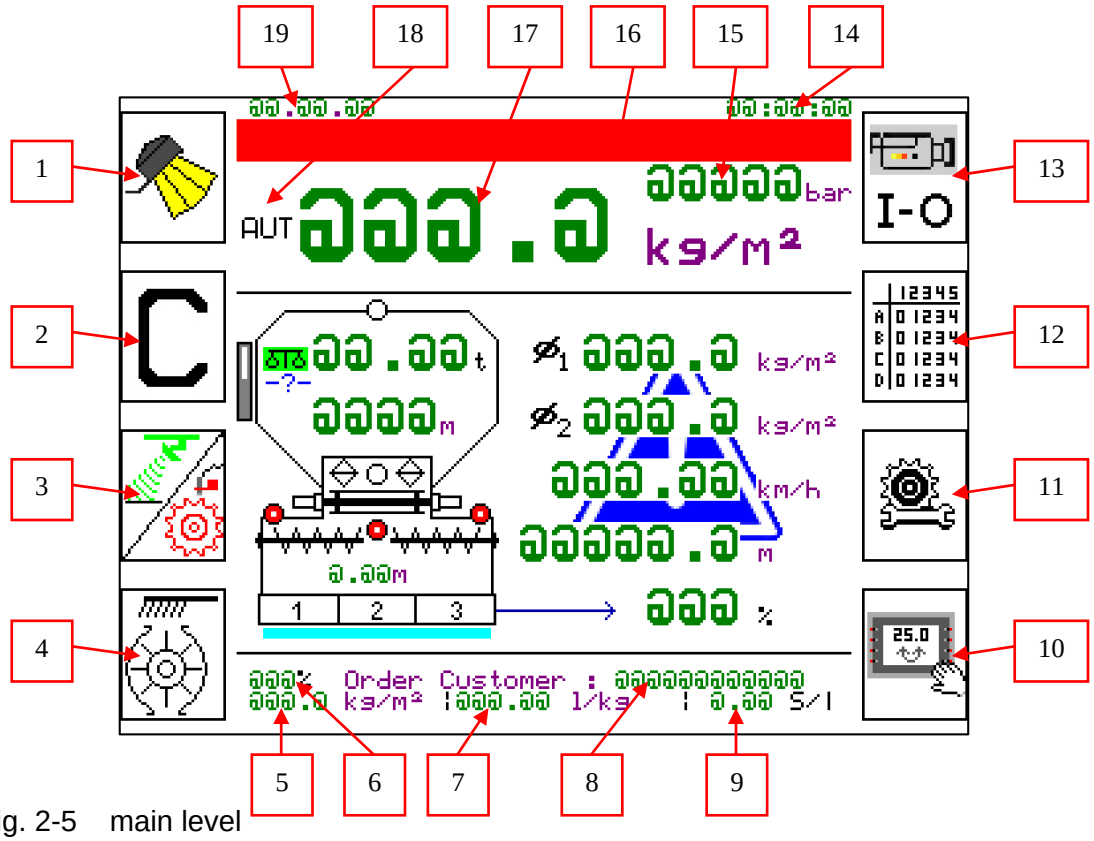

Fig. 2-5 main level

1	working lights on/off (F5)	11	change to settings (F3)
2	reset counter in main level (F6)	12	change to counters (F2)
3	switch between radar/wheel sensor (F7)	13	rear view camera on/off (F1)
4	change to self-cleaning (F8)	14	time
5	desired spreading rate (order)	15	hydraulic pressure
6	desired spreading rate in %	16	message line
7	density	17	actual spreading rate
8	name of customer (order)	18	working mode (automatic)
9	correction factor	19	date
10	change to order level (F4)		

The operator is informed via the message line about specified situations and operational states, respectively warned at danger. The message disappears automatically if the danger or situation is solved.

NOTE

The latest message is shown if a message needs to be displayed, but another message is already visible in the message line.

Were more than two messages are to be displayed, the messages are each displayed consecutively for 5 seconds in a loop.

The following messages can be displayed:

Meldung	Explanation/possible cause
! VALVE ?	A solenoid valve is not electrically actuated in a correct manner
! SENSOR ?	Sensor or cable breakage on an analogue sensor (hydraulic pressure, weighing cell)
! SCHIEBER ?	The dosing slider is not in the right position or one of the sensors is damaged
HIGHER PRESSURE	Hydraulic pressure over 260 bars, possible mechanical blockade
TEMPERATURE	Hydraulic oil temperature over 70°C
CON. CONTENT	Theoretical content of the container lower than alarm value
! SPREADING QTY !	Critical range when adhering to correct nominal value
MOUNTED MOTOR ON!	only for spreaders with mounted motor
CON. FULL !	Container full indicator actuated
CON. EMPTY !	Container empty indicator actuated
! P > 90% !	The Workload is higher than 90%
! AUTOSTOP !	The auto stop function turned off the Spreading device and conveyor system automatically
! SLIDER !	The dosing slider cannot reach the desired position

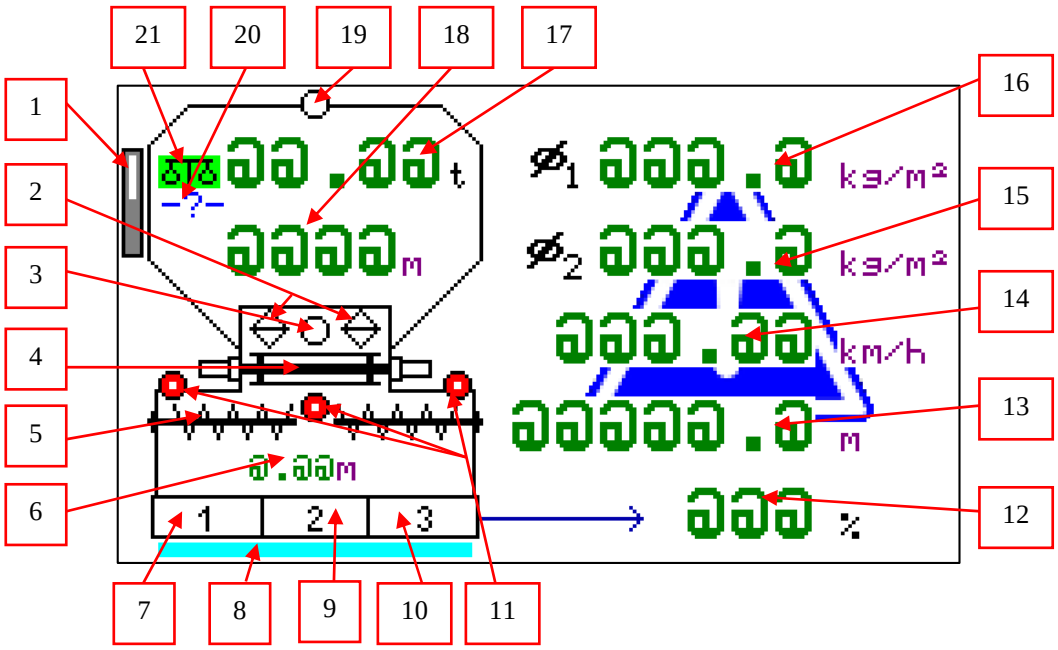

Fig. 2-6 details of main level

1	theoretical filling level of watertank	12	workload in %
2	indicator slider open/closed	13	odometer
3	indicator "container empty"	14	driving speed
4	schema conveyor chain	15	spreading average 2
5	schema transversal augers	16	spreading average 1
6	actual spreading width	17	content of container
7	schema partial width 1	18	remaining range
8	schema water spraying	19	indicator "container full"
9	schema partial width 2	20	print the content of container
10	schema partial width 3	21	Weightronic on/off
11	indicator feeding chute		

Dependant on the machinery configuration, the spreading average counters are theoretical (without weighing system) or real measured (with weighing system) values. These values can be inaccurate on machines without weighing system, if parameters (f.e. density) are not correct.

Both values show the average of the spreading rate, but the average 1 can be resetted.

The actual state at the schematically drawn dosing sluices is shown by different colors. If the dosing sluice is preselected and the spreading device is off, then the frame is red. When the spreading device is switched on, the frame of the preselected sluices changes to green.

2.2.4 Main level for manual mode

You change into manual mode by pressing softkey F3 within "Settings 1". Back to automatic mode is completely the same.

NOTE

In manual mode the spreading rate of the binding agent depends on the driving speed! Only the opening width of the current regulating valve (thus the turning speed of the dosing sluices) is adjusted.

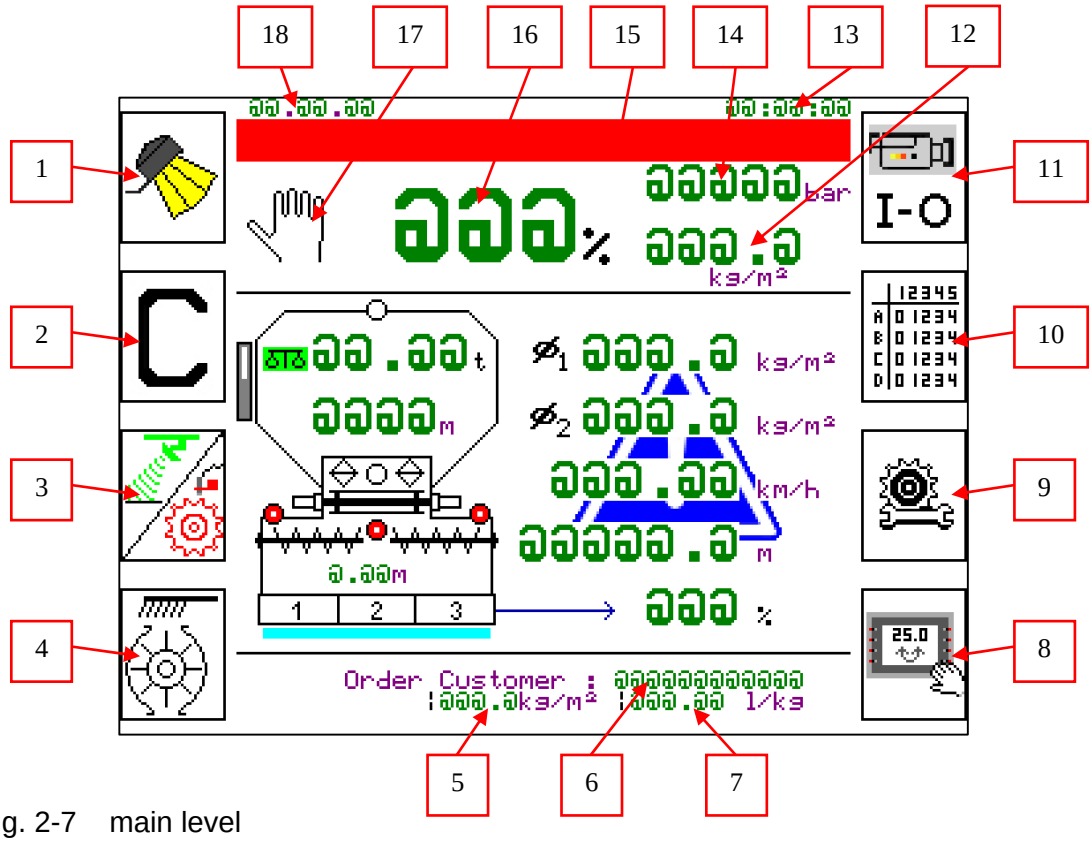

Fig. 2-7 main level

1	working lights on/off (F5)	10	change to counters (F2)
2	reset counter in main level (F6)	11	rear view camera on/off (F1)
3	switch between radar/wheel sensor (F7)	12	actual spreading rate
4	change to self-cleaning (F8)	13	time
5	desired spreading rate (order)	14	hydraulic pressure
6	name of customer (order)	15	message line
7	density	16	opening width of current regulating valve in %
8	change to order level (F4)	17	working mode (manual)
9	change to settings (F3)	18	date

2.2.5 Order

You change to order by pressing the softkey F4 within "main level".

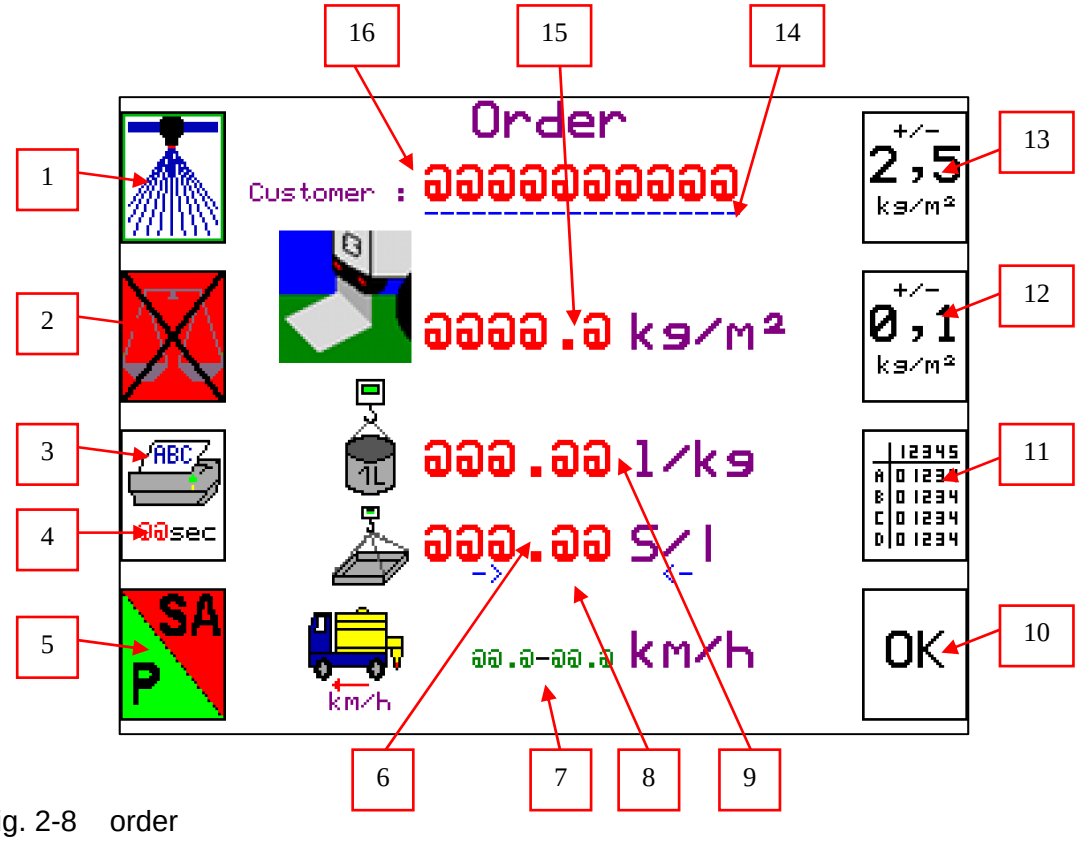

Fig. 2-8 order

1	water spraying on/off (F5)	9	input box density
2	WeighTronic on/off (F6)	10	back to main level (F4)
3	automatic print on/off (F7)	11	change to counters (F3)
4	time interval automatic print	12	input increment 0,1 (F2)
5	working mode (push/standalone)	13	input increment 2,5 (F1)
6	input box correction factor	14	change to input level customer name
7	recommended driving speed	15	input box desired spreading rate
8	change to calculation of correction factor	16	input box customer name (direct)

The desired spreading rate is entered in this level. Moreover you can assign a customer name, that is shown on the main level and on printouts.

Density and correction factor are also entered here.

At the bottom there is a range of the speed that is recommended for error-free spreading.

2.2.6 Input level customer name

You can change to "input level customer name" by selecting the dashed line under the name.

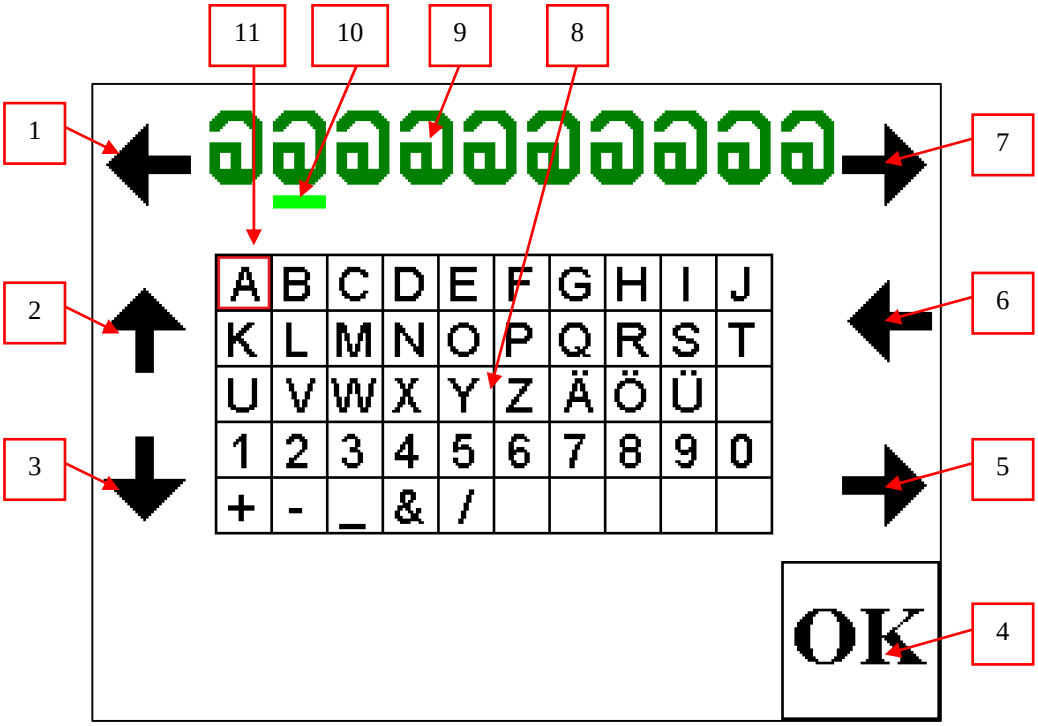

Fig. 2-9 input level customer name

1 input cursor leftwards (F5)
2 selecting cursor upwards (F6)
3 selecting cursor downwards (F7)
4 back to order level (F4)
5 selecting cursor rightwards (F3)
6 selecting cursor leftwards (F2)
7 input cursor rightwards (F1)
8 characters for selecting cursor
9 name of customer
10 input cursor
11 selecting cursor

This is a very convenient way to enter the name of the customer in this picture.

2.2.7 calculation of correction factor

You change to "calculation of correction factor" by selecting the menu within "order level".

NOTE

The correction factor is only editable if Weightronic is switched off. The correction factor is automatically calculated by the Weightronic if switched on.

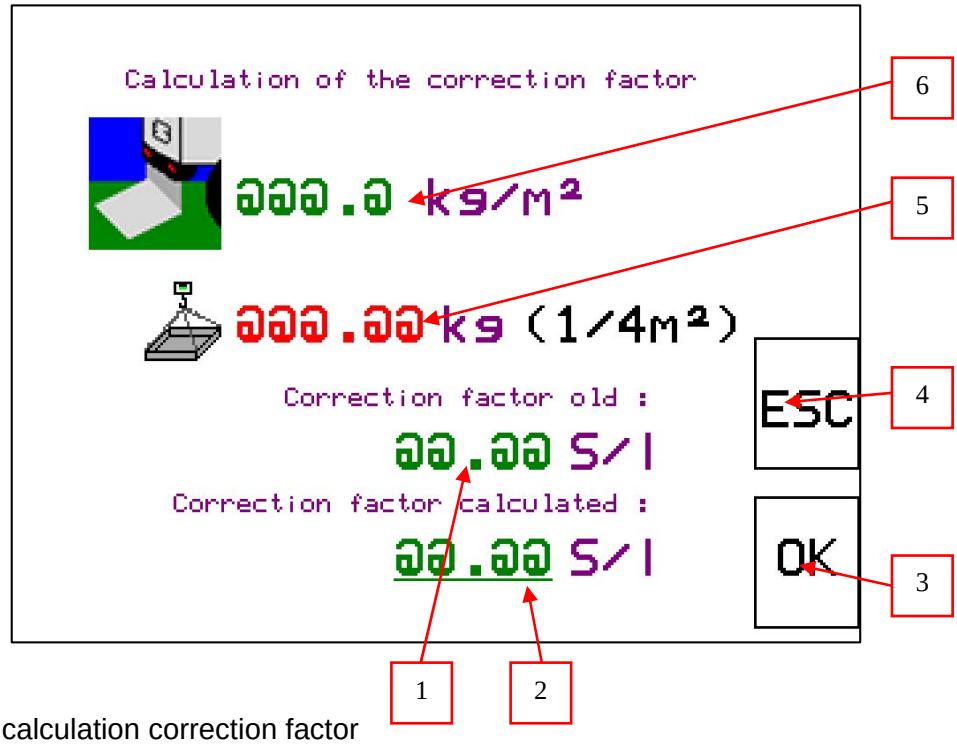

Fig. 2-10 calculation correction factor

1	previous correction factor	4	back to order level
2	calculated correction factor	5	input box for weight of weighing plate
3	adoption of the new factor (F4)	6	real spreading rate (calculated)

If the spreading rate permanently differes from the desired rate, it may be necessary to adapt the correction factor.

NOTE

Please ensure, that the density is correct and the driving speed is displayed accurate, before the correction factor is edited.

To adapt the correction factor, you must determine the weight of the weighing plate. The control unit calculates the new correction factor as soon as you have entered the value and saves it when OK (F4) is pressed to leave the menu. You can press "ESC" (F3) at any time to cancel the calculation and leave the menu without adopting the new correction factor. The machine works then with the previous factor.

2.2.8 Order/Short-time counter

You change to the counters by pressing softkey F3 within "main level" or "order level".

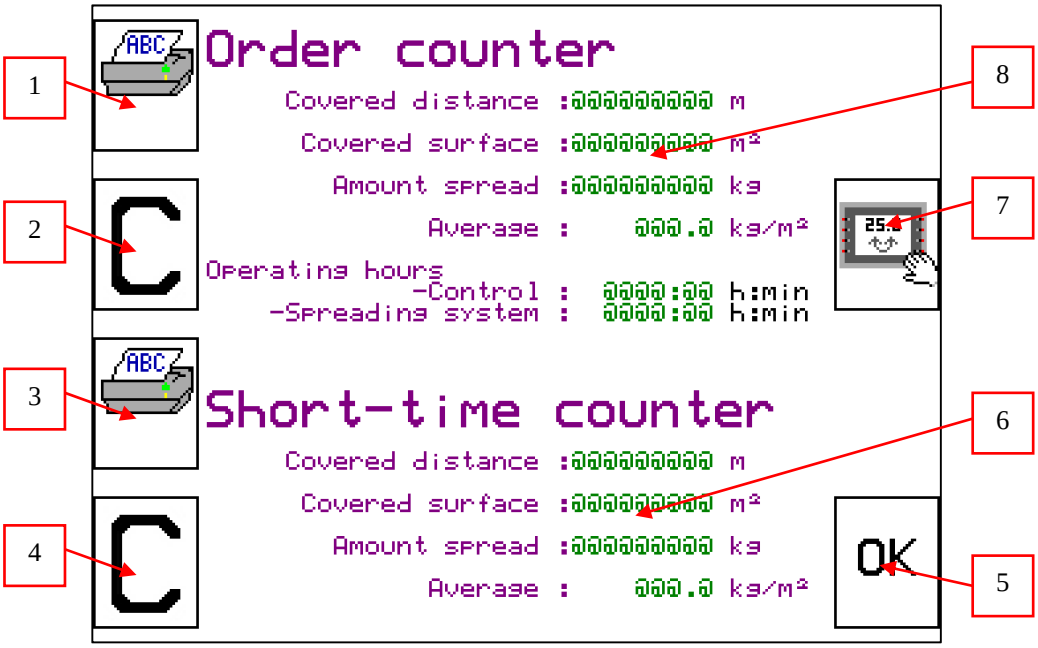

Fig. 2-11 order/short-time counter

1	print order counter (F5)	5	back to main level (F4)
2	reset order counter (F6)	6	values of the short-time counter
3	print short-time counter (F7)	7	change to order level (F2)
4	reset short-time counter (F8)	8	values of the order counter

The counters can be cleared individually, but the short-time counter is cleared automatically when clearing the order counter.

2.2.9 Total memory

You change to "total memory" by pressing softkey F6 within "Settings 1".

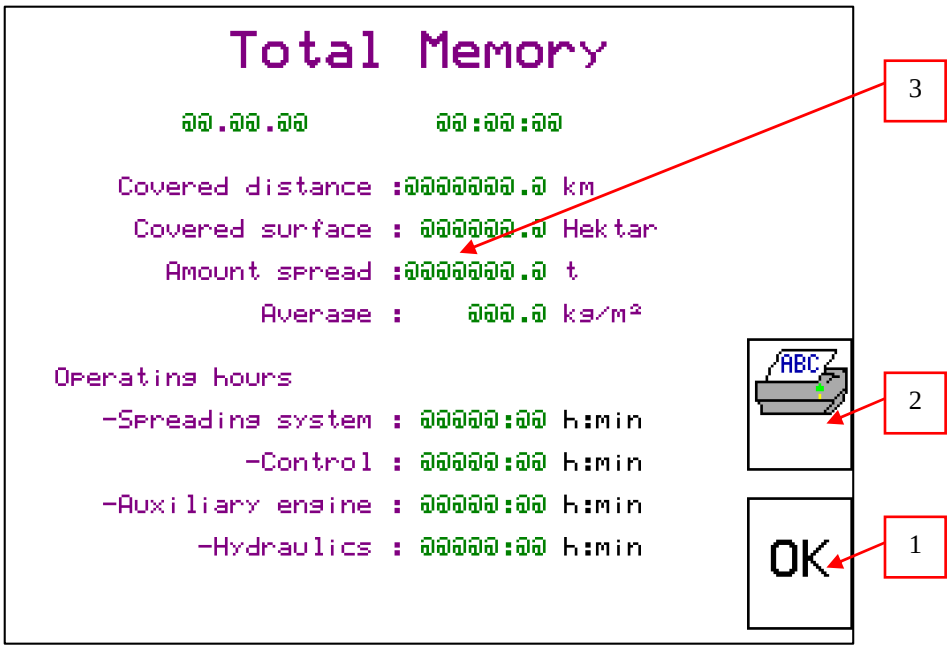

Fig. 2-12 total memory

1 back to Settings 1 (F4)

2 print total memory (F3)

3 values of the total memory

The data in total memory cannot be erased or edited!

NOTE

The data of the total memory gets lost with a software update or when the control unit gets changed. On demand the data has to be printed or written down.

2.2.10 Self-cleaning

You change to "self-cleaning" by pressing softkey F8 within "main level".

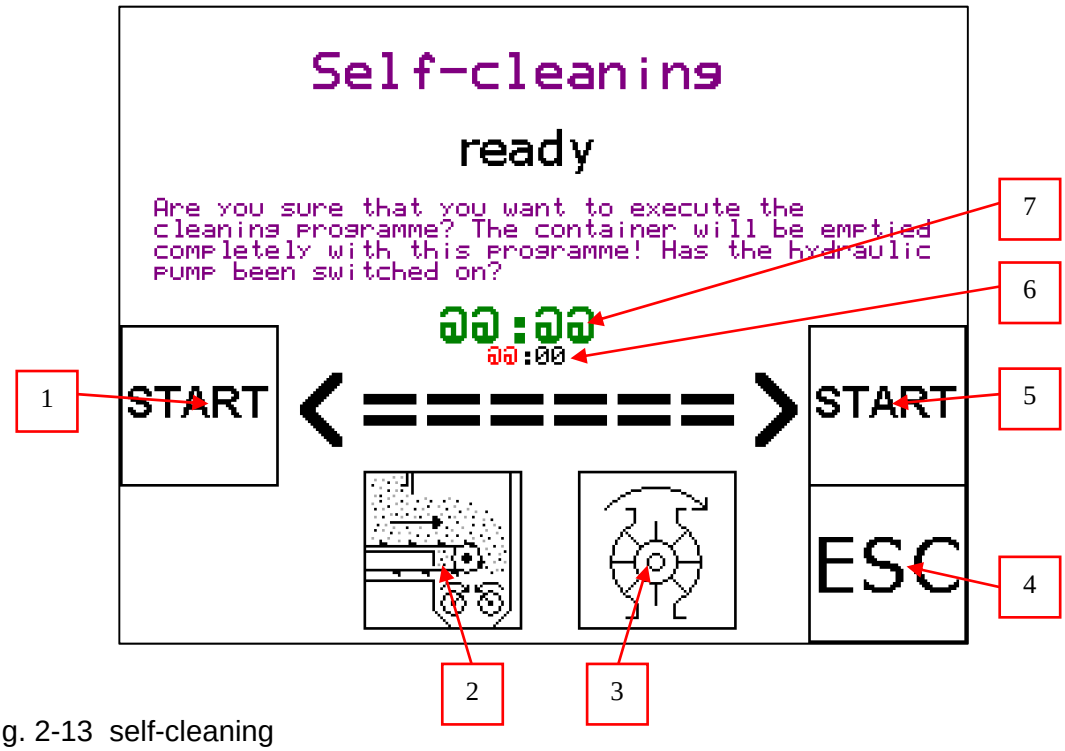

Fig. 2-13 self-cleaning

1	security key 1 for starting	5	security key 2 for starting
2	indicator "conveyor runs"	6	remaining time until finish
3	indicator "dosing sluices run"	7	adjustable runtime
4	Cancel the program		

The operator can adjust the runtime (5 to 10 minutes) of the self-cleaning corresponding to the actual content of the container. To this select the adjustable runtime by turning the turn-key and push it. Now the time can be edited to the desired value. Press the button again to confirm.

Press the softkeys F3 & F7 simultaneously to start the self-cleaning process.

You can cancel the process at any time by pressing "ESC" (F4)

NOTE

The container will be drained during the self-cleaning. Be aware of high dust formation.

Start the self-cleaning only, when no adverse effects or personal hazards are exspected.

2.2.11 Settings 1

You change to "Settings 1" by pressing softkey F3 within "main level".

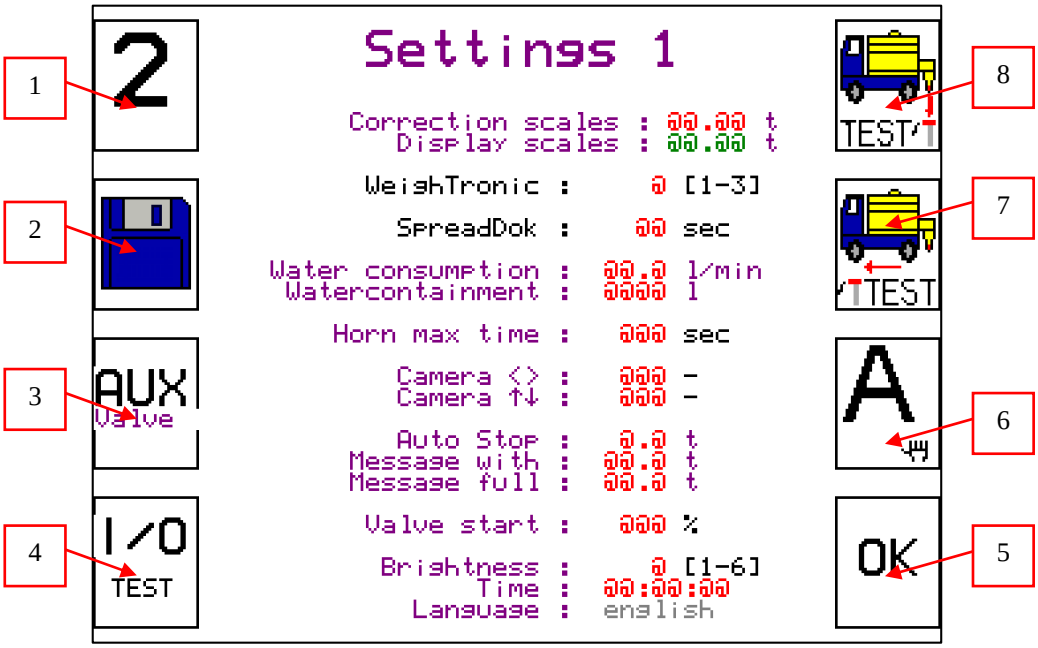

Fig. 2-14 Settings 1

1	change to Settings 2 (F5)	5	back to main level (F4)
2	change to total memory (F6)	6	change automatic/manual mode(F3)
3	auxiliary valve on/off (F7)	7	change to test wheel sensor /radar (F2)
4	change to input/output-test level (F8)	8	change to test sensor dosing (F1)

Sometimes it is necessary to edit parameters, especially after a software update or if the control unit was exchanged. Then highlight the parameter by turning the turnkey, press the turnkey and change to the desired value by turning it. To confirm the value press the turnkey once again.

2.2.12 test sensor dosing

You change to "test sensor dosing" by pressing softkey F1 within "Settings 1" or "Settings 2".

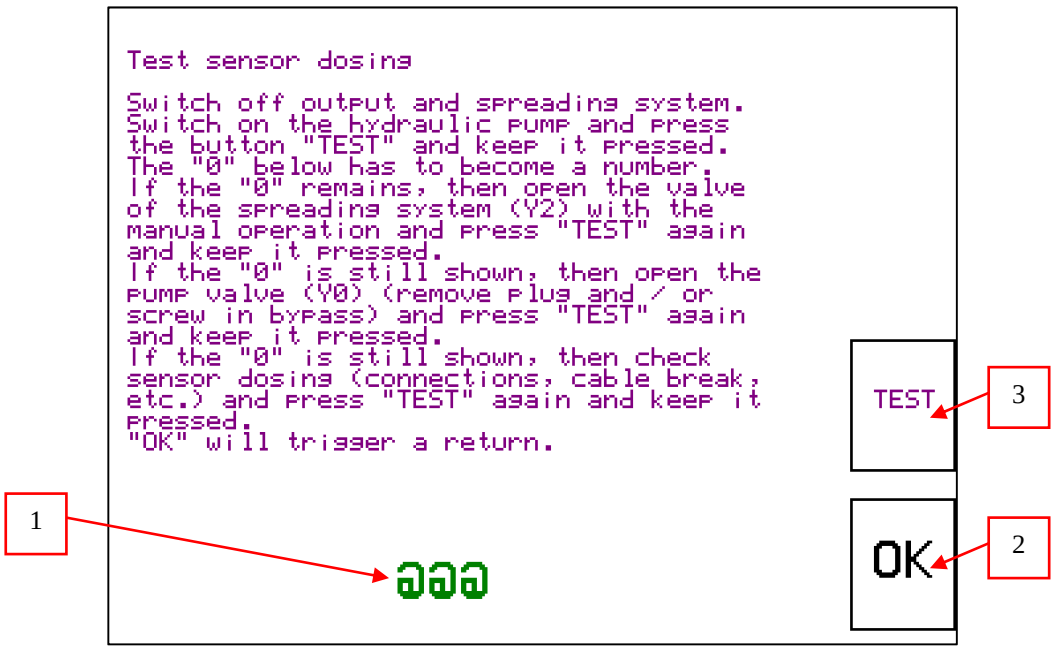

Fig. 2-15 test sensor dosing

1 submitted frequency

2 back to settings 1 (F4)

3 test sensor dosing (F3)

Test the sensor dosing, if the driving speed is shown, but no actual spreading rate and workload is displayed.

2.2.13 test wheel sensor / radar

You change to "test wheel sensor / radar" by pressing softkey F2 within "Settings 1" or "Settings 2".

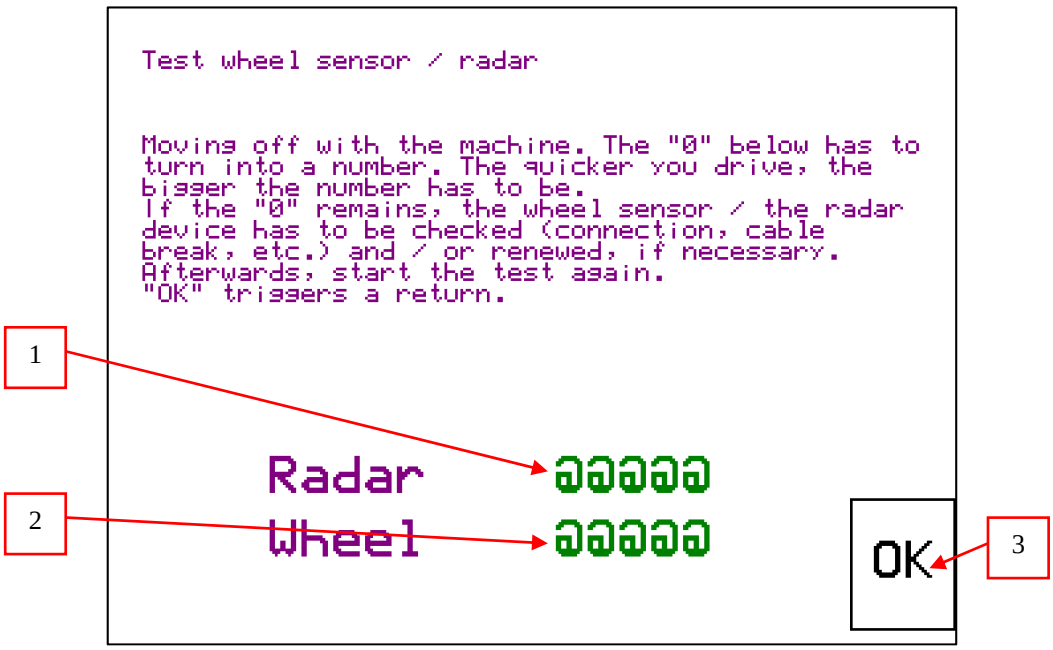

Fig. 2-16 test wheel sensor / radar

1 submitted frequency radar

2 submitted frequency wheel sensor

3 back to settings 1 (F4)

If there is no driving speed displayed, the wheel sensor and the radar unit must be checked.

2.2.14 Input/output test

You change to "input/output test" by pressing softkey F8 within "Settings 1".

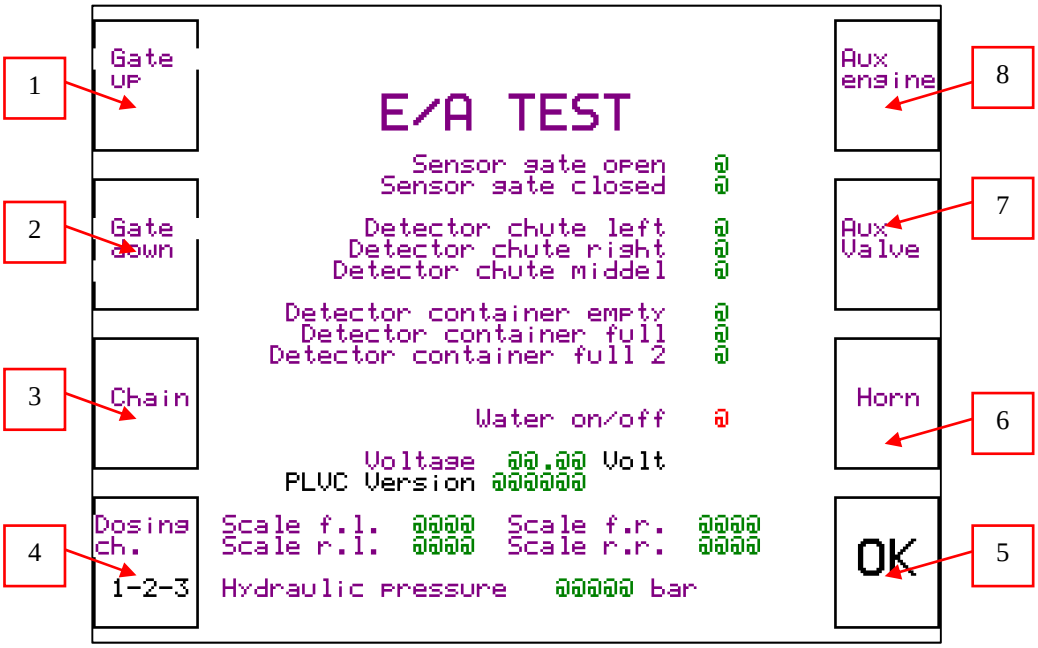

Fig. 2-17 input/output test

1	open gate (F5)	5	back to settings 1 (F4)
2	close gate (F6)	6	test horn "container full" (F3)
3	check conveyor (F7)	7	test auxiliary valve (F2)
4	check dosing sluices (F8)	8	test auxiliary motor (F1)

All hydraulic and electric functions/options can be checked here.

2.2.15 Access code

There is an access code necessary to get into "settings 2".

NOTE

The access code is active until the unit is restarted! The unit must be restarted after doing changes in settings 2 to avoid accidental access.

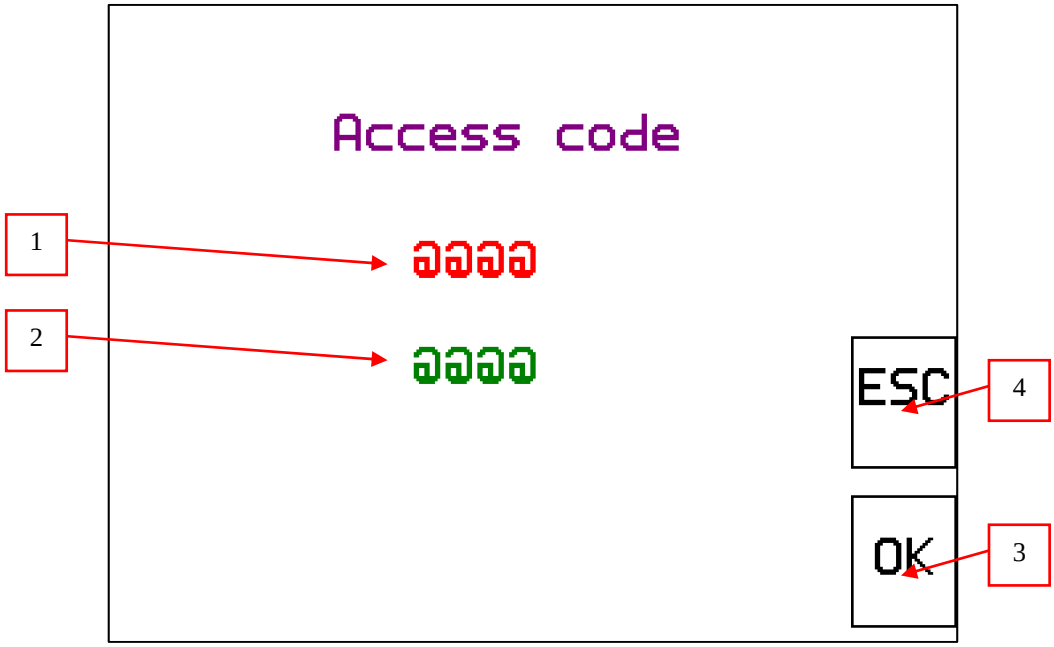

Fig. 2-18 Access code

1	input box for access code	3	confirm access code (F4)
2	request code	4	back to settings 1 (F3)

The input of the access code is done by turning the turnkey until the input box is highlighted. Then press the turnkey and change the characters by turning it. Confirm the entry of the character by pressing the turnkey. When the whole key is prompted press "OK" to confirm.

In emergency case it is possible to generate a temporary access code by using the request code, to give the operator access to the locked levels.

NOTE

Changes in the settings are only allowed with consultation of Streumaster!

2.2.16 Settings 2

You change to "Settings 2" by pressing softkey F5 within "Settings 1".

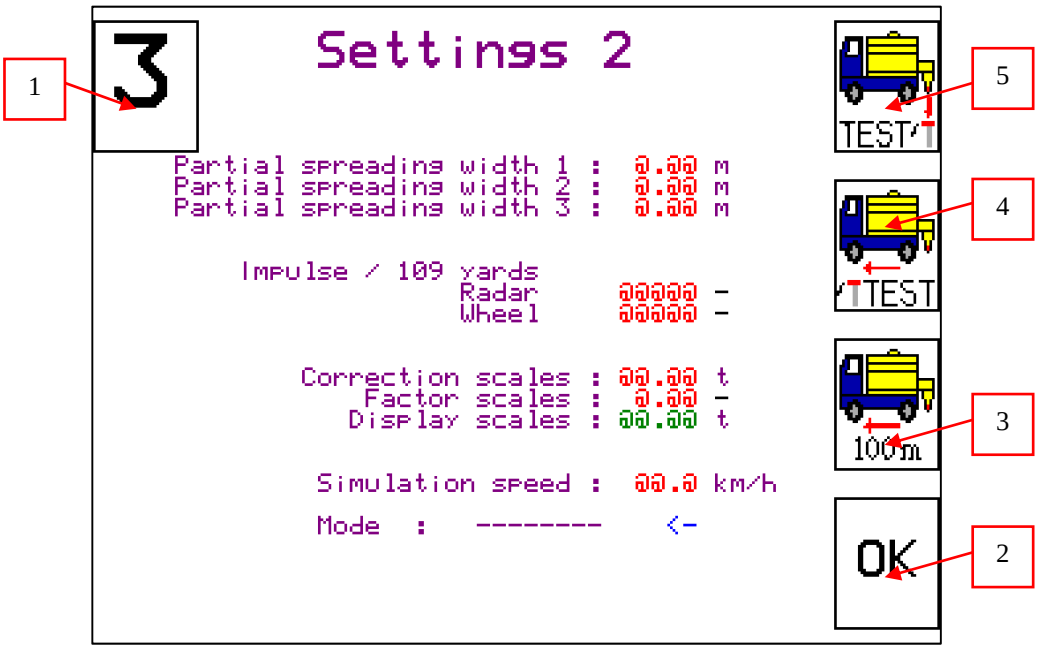

Fig. 2-19 Settings 2

1 change to settings 3.1 (F5)

2 back to settings 1 (F4)

3 change to calibration wheel sensor / radar (F3)

4 change to test wheel sensor / radar (F2)

5 change to test sensor dosing (F1)

Sometimes it is necessary to edit parameters, especially after a software update or if the control unit was exchanged. Then highlight the parameter by turning the turnkey, press the turnkey and change to the desired value by turning it. To confirm the value press the turnkey once again.

NOTE

Only Streumaster and Wirtgen service staff are allowed to change to "Settings 3"

2.2.17 Calibration wheel sensor / radar

You change to "calibration wheel sensor / radar" by pressing softkey F3 within "Settings 2".

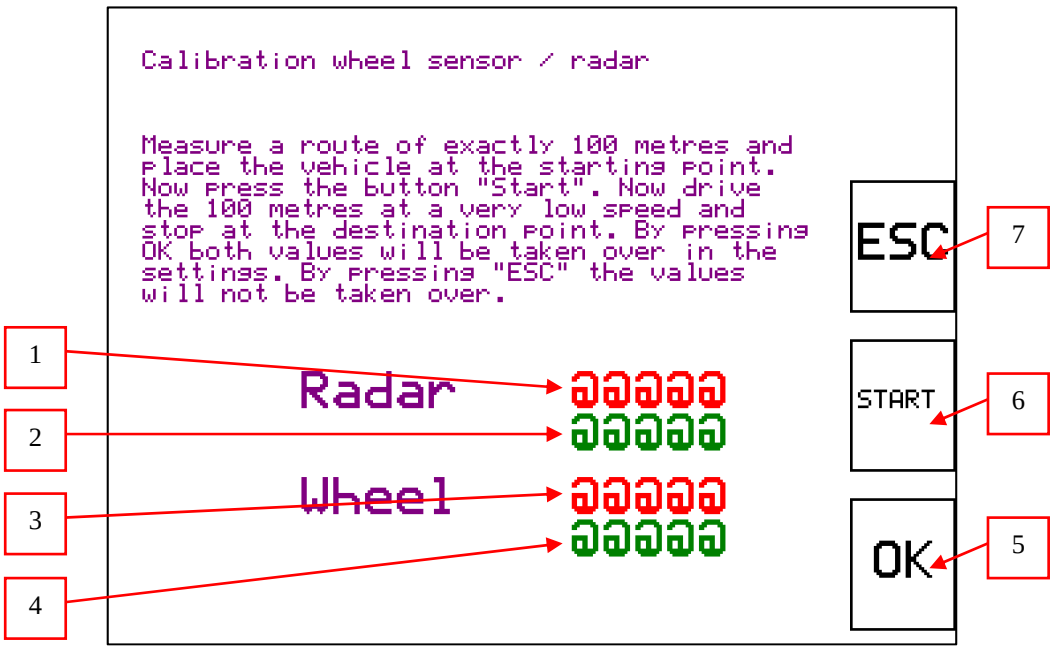

Fig. 2-20 calibration wheel sensor / radar

1	impulses radar (currently)	5	save new values and back to Settings 2 (F4)
2	submitted impulses radar	6	start the counters (F3)
3	impulses wheel sensor (currently)	7	cancel and back to settings 2 (F2)
4	submitted impulses wheel sensor		

To calibrate the wheel sensor / radar, you will need a distance of 100 meters. You have to multiply the impulses, if there is not enough space, so that you can only drive a shorter distance.

NOTE

The shorter the distance, the more inaccurate the result! Streumaster recommends to calibrate the impulses always with a distance of 100 meters!

2.2.18 Buffer battery warning

If the exchange of the buffer battery is necessary this page appears when switched on.

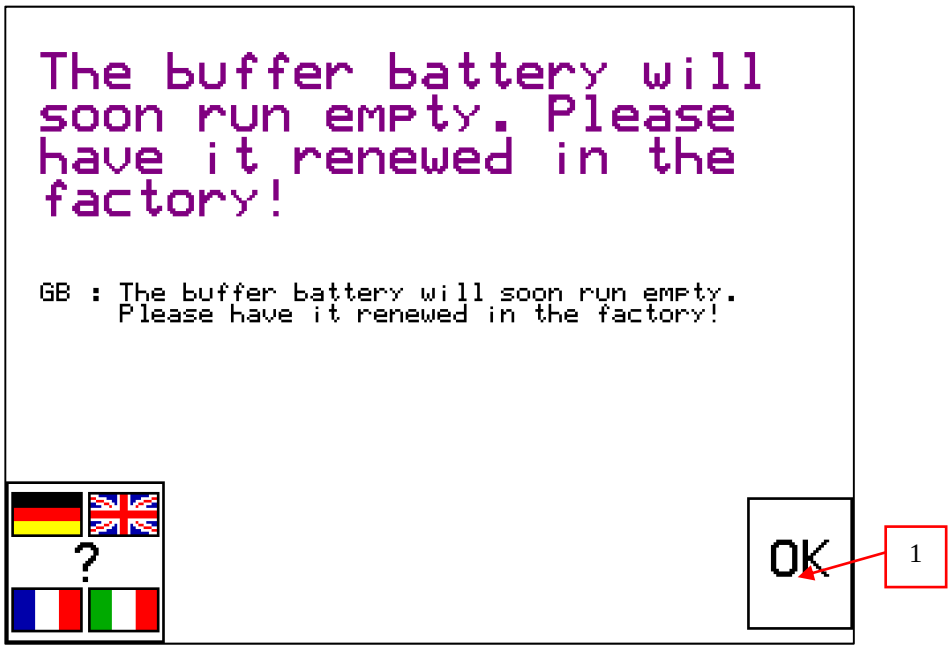

Fig. 2-21 Buffer battery warning

1 confirm warning message (F4)

There is a buffer battery inside the AT92 to save the values and parameters, which has to be exchanged after about 5 years. The exchange gets necessary within the next two month after this message appears the first time.

NOTE

There can be random failures if the battery will not be exchanged in the specified period. In the worst case, the software gets damaged irreparable.

2.2.19 Safety switches warning

This message appears if one of the safety switches at the inspection chambers is activated.

NOTE

When this message appears, the conveyor system and the spreading device are stopped immediately.

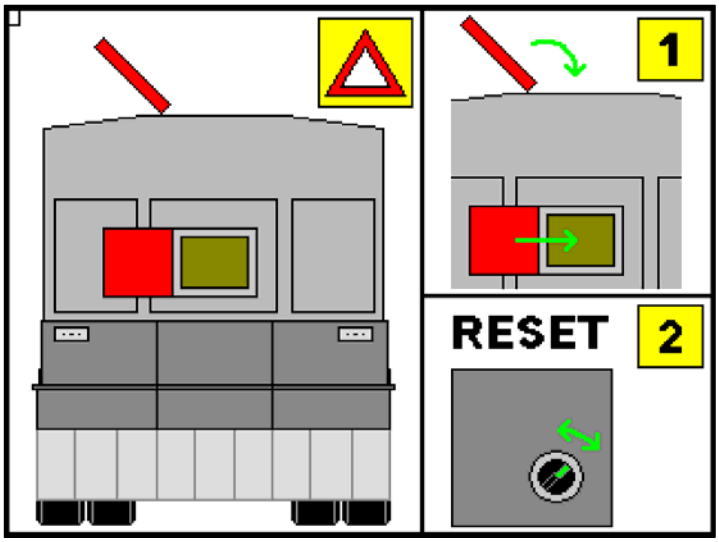

Fig. 2-22 safety switch warning

After solving the cause of the safety stop, you must do a reset (switch off/on) of the control unit.

2.2.20 Oil level low warning

This message appears if the oil level in the hydraulic tank is critical low.

ATTENTION

If this message appears, it is mandatory to stop and shut off the pump!

Fig. 2-23 oil level low warning

The hydraulic system should only be activated after the cause of the oil loss is determined and remedied and the correct oil level is attained again. The control unit should be reset (switch off/on) before recommissioning.

2.2.21 container full message

This message appears, if the content of the container reached the desired value of "message full" in "Settings 1" or if the indicator "container full" is activated.

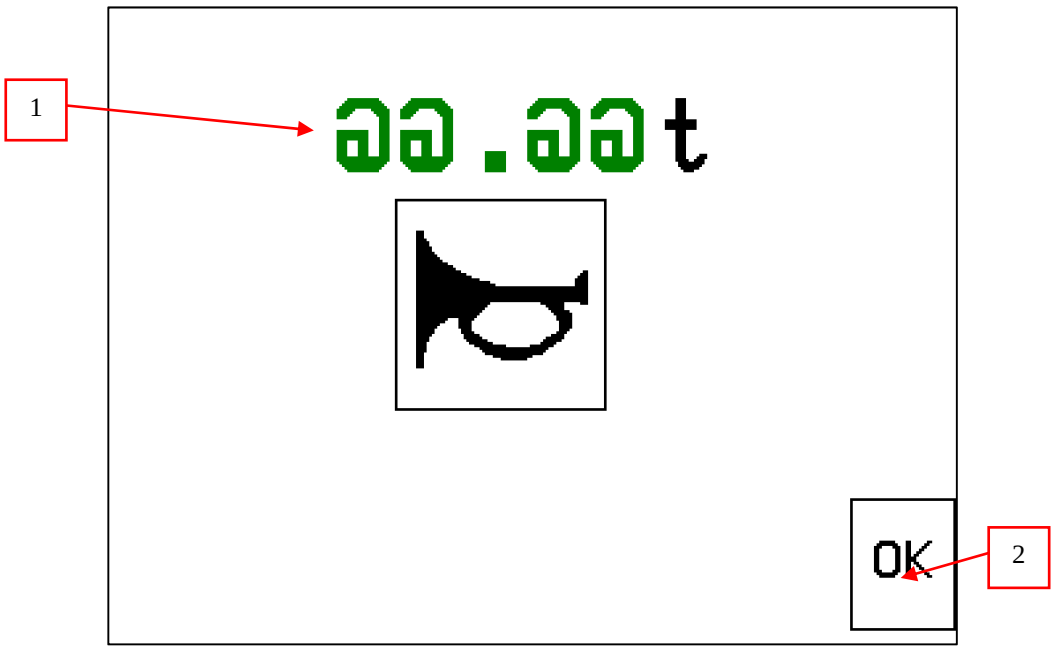

Fig. 2-24 container full message

1 content of container

2 confirm message (F4)

The horn "container full" is activated at the same time with the message and is aborted when pressing "OK".

ATTENTION

Although the horn is deactivated, the filling can be continued! To avoid overload, the filling must be stopped immidiately!