OP Fluid Control® III

KSB AG
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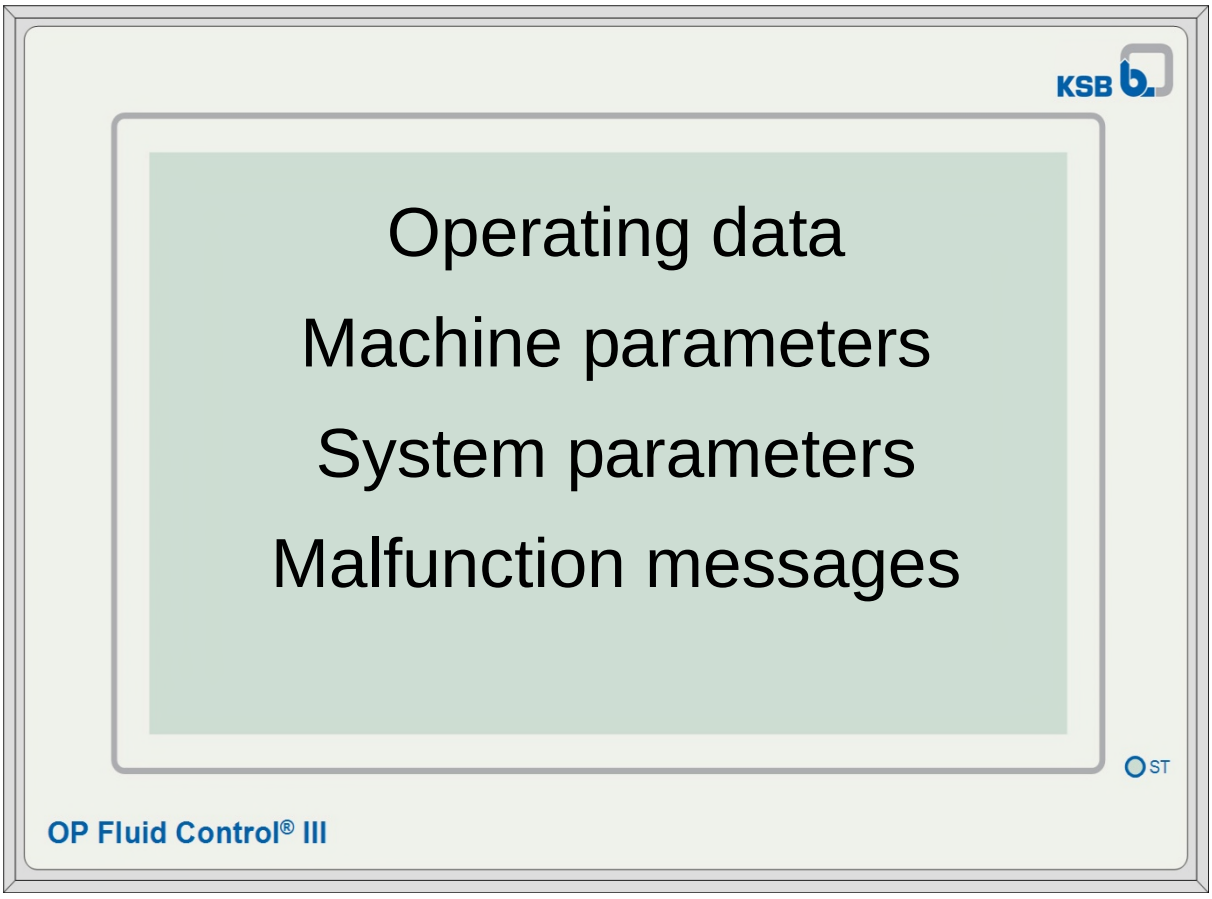
KGS.747.08
Operating Manual

As at August 2012



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No separate notification of changes.

TRADE MARK

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Warranty limitation:

No warranty is given for the complete correctness of this manual, since errors can never avoided completely despite utmost care. Comments are always welcome and will be gratefully accepted.

Contents

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1. Technical data

Basic module:

Aluminium casing for front installation
Dimensions in mm W = 203 H = 143 D = 60
Connections: Screw-type plug terminals
Power supply 24 V DC
Microprocessor with fixed program
Memory 2 M Byte Data
Memory 2 M Byte Code
Memory 512 k Byte Retain
Battery, 3V 170mAh, for data storage
Service life min. 2 years
Interface 1, RS232 and RS485
1x Ethernet TCP/IP
1x USB
2x CAN
10 Analog inputs 0-20 mA / 0-10V / Pt 1000
Non-isolated burden at 20mA = 120 Ohm
16 Digital inputs 24 V DC 10 mA
4 Outputs analog 0-10 V DC 2 mA
2 Outputs analog 0-20mA
16 Outputs digital, transistor 24 V DC 0.5 A
Master terminal with touch colour display 5.7’ ¼ VGA
320x240-dots hardware clock

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2. Keypad

The unit is equipped with a touch panel as control system, i.e. the control system executes the relevant commands upon clicking on the respective buttons in the display.

Operating data

Jump to the described window.

ESC

Return to previously opened menu.

2/7

Scroll function in individual windows

400

Input window: A numpad (numeric keypad) opens after password confirmation and clicking the relevant button. Use the numeric keypad to make the desired inputs. Acknowledge your inputs by clicking ‘OK’ in the numeric keypad.

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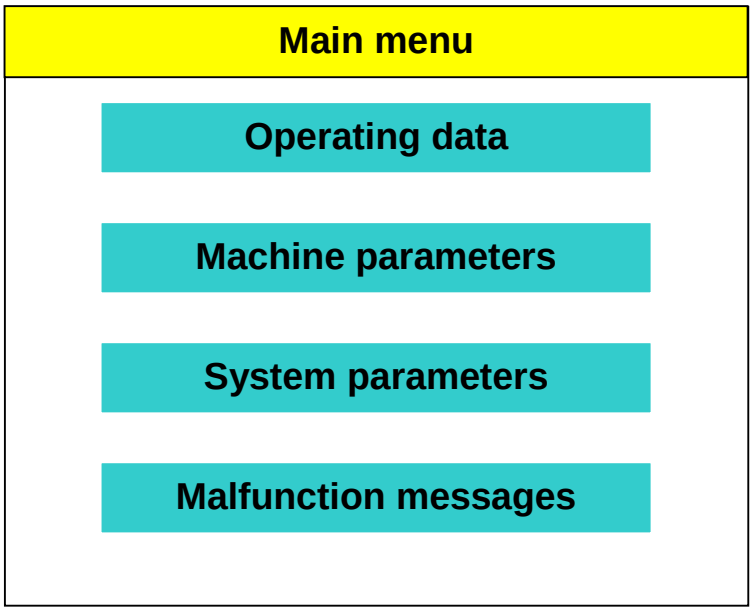
3. Start window



Operating data:

Display of current operating data, such as:

- Filling level
- Motor currents

Machine parameters:

Setting of individual parameters, such as:

- Amajet Pump
- Swivelling drive

System parameters:

Setting of system parameters, such as:

- Filling level measurement
- Tendency of properties
- Current transformer for motor currents
- Password
- Date / time
- IP address

Malfunction messages:

Display of malfunction messages with date and time

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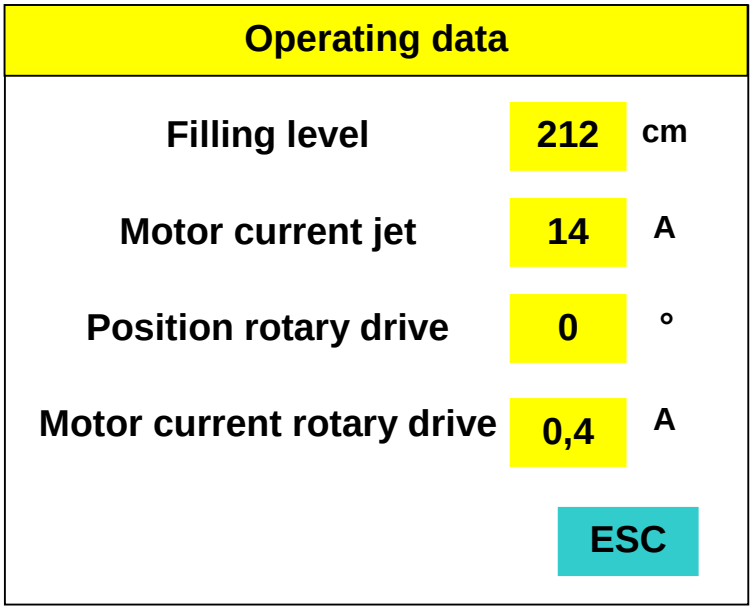
4. Operating data



Operating data:

Display current operating data, such as:

- Filling level in structure in cm
- Motor current Amajet Pump in A
- Position of rotary drive in degrees
- Motor current of rotary drive in A

'The display may deviate for the specific unit from the example shown in this manual'.

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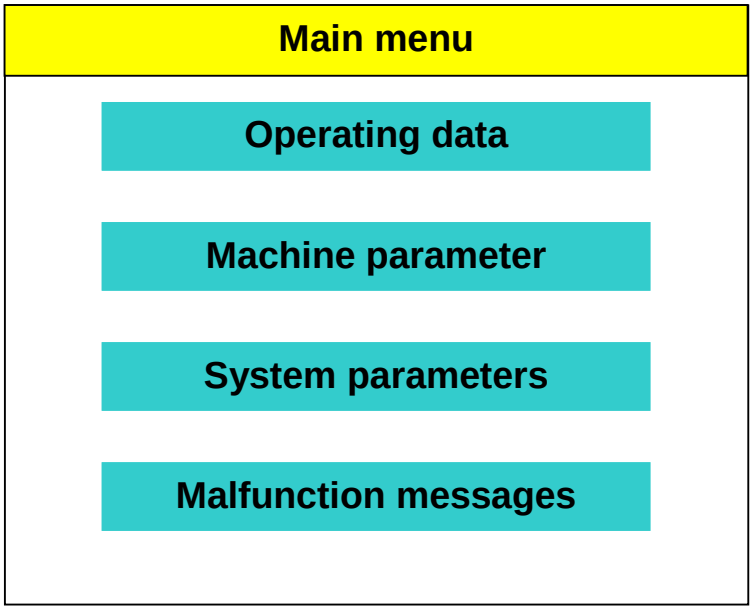
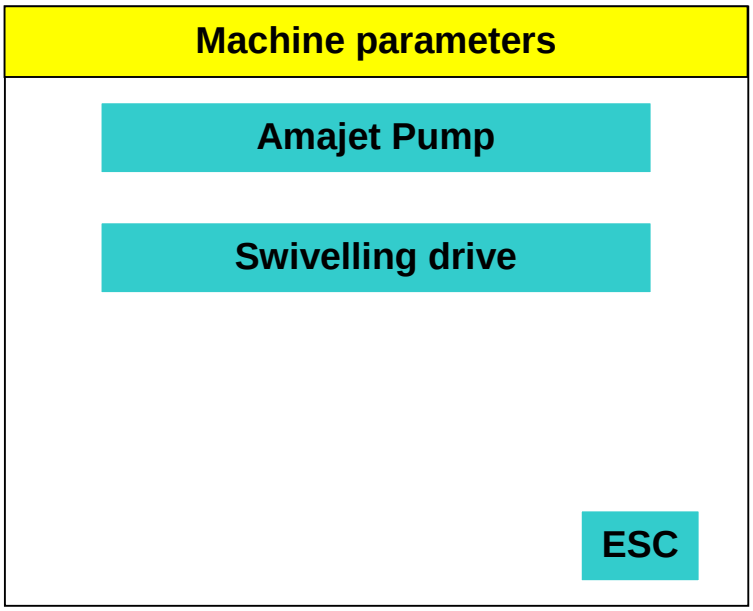
5. Main menu – Submenu Machine parameter





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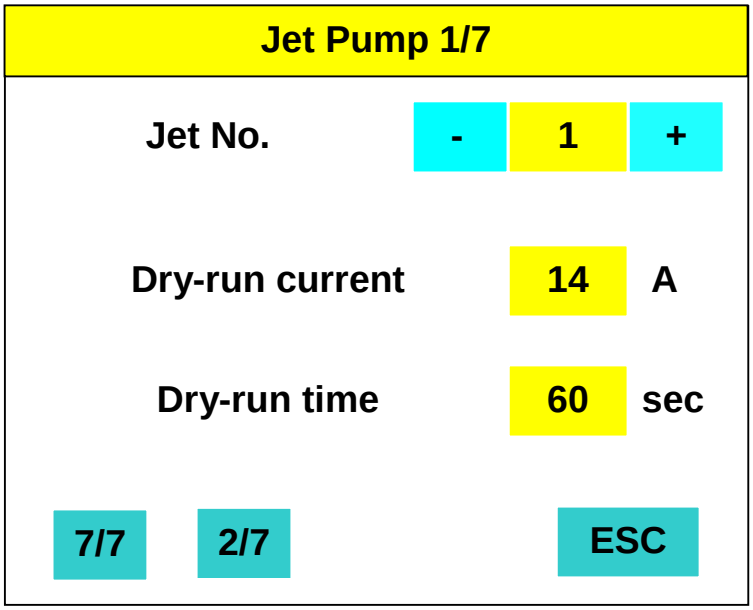
5.1 Machine parameters – Submenu Amajet Pump

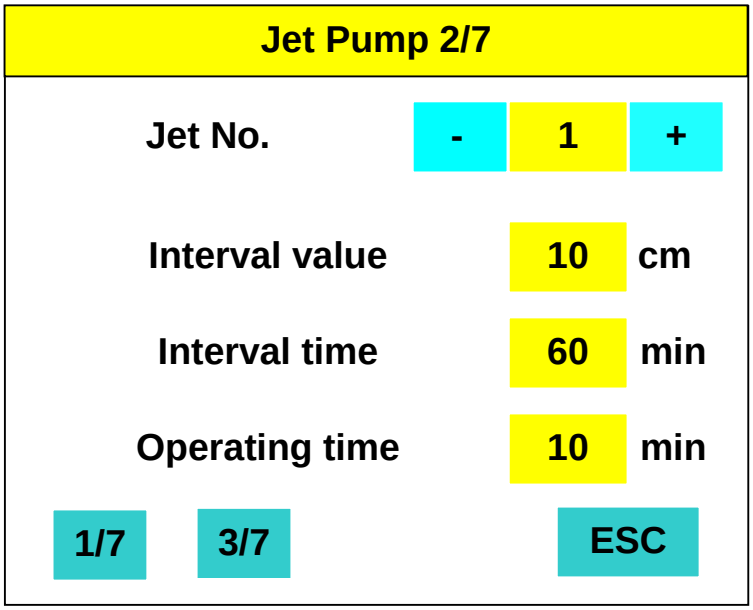


Selection of Amajet Pump for settings to be made by means of the scroll function +/-
This mask is not displayed when only one Amajet Pump is connected to Fluid-Control III.

Switching point, the jet cleaner is switched off when this current limit value is under-run because a dry-run is detected.

Delay time until switch-off of jet cleaner after dry-run detection.

Machine parameters – Submenu Amajet Pump



Selection of Amajet Pump for settings to be made by means of the scroll function +/-
This mask is not displayed when only one Amajet Pump is connected to Fluid-Control III.

The current filling level is saved after completion of the operating cycle.
If the filling level drops by the adjusted value, the interval time is aborted and the Amajet Pump reverts to the operating cycle.

After completion of the operating cycle, the interval time for the interval mode is started, after completion of the interval time the Amajet Pump re-starts and reverts to the operating cycle.

Operating time of the Amajet Pump in interval mode.

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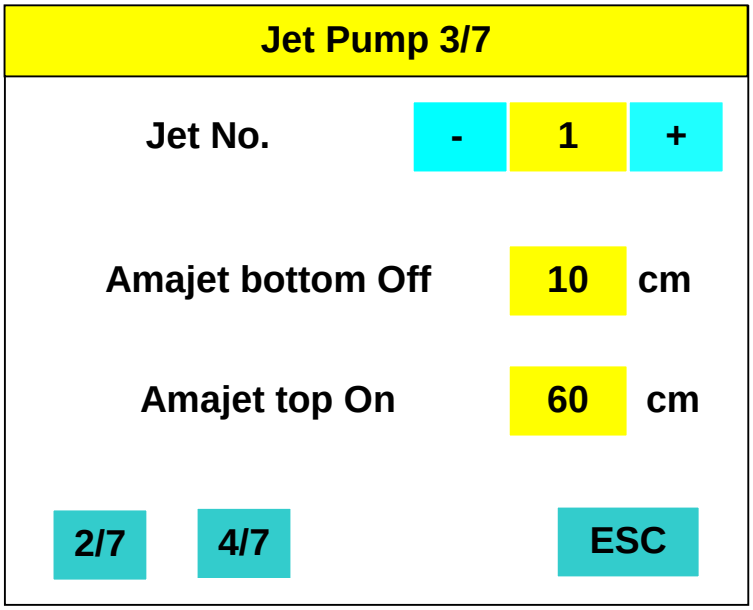
Machine parameters – Submenu Amajet Pump



Selection of Amajet Pump for settings to be made by means of the scroll function +/-
This mask is not displayed when only one Amajet Pump is connected to Fluid-Control III.

The jet pump switches off when the adjusted filling level is under-run.

The jet pump starts when the adjusted filling level is over-run, the starting operation depends on the relevant tendency setting.

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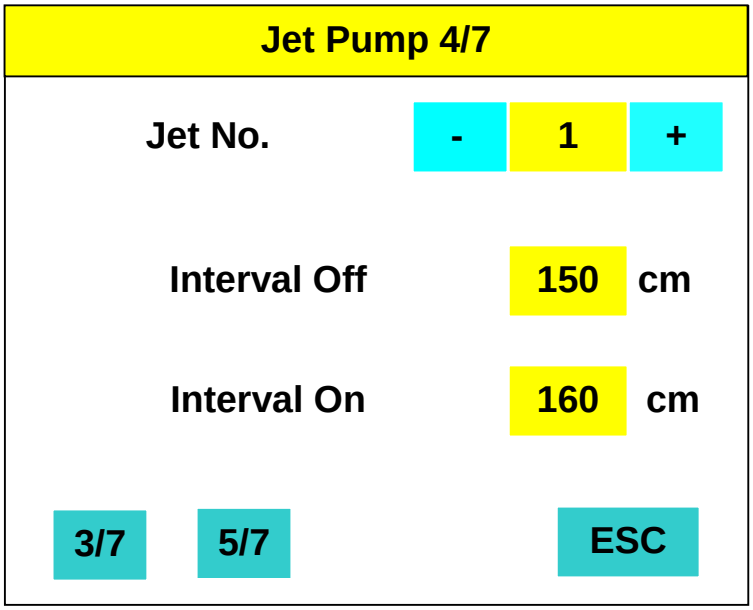
Machine parameters – Submenu Amajet Pump



Selection of Amajet Pump for settings to be made by means of the scroll function +/-
This mask is not displayed when only one Amajet Pump is connected to Fluid-Control III.

The jet pump stops the interval mode when the adjusted filling level is under-run.

The jet pump switches over into interval mode when the adjusted filling level is over-run.

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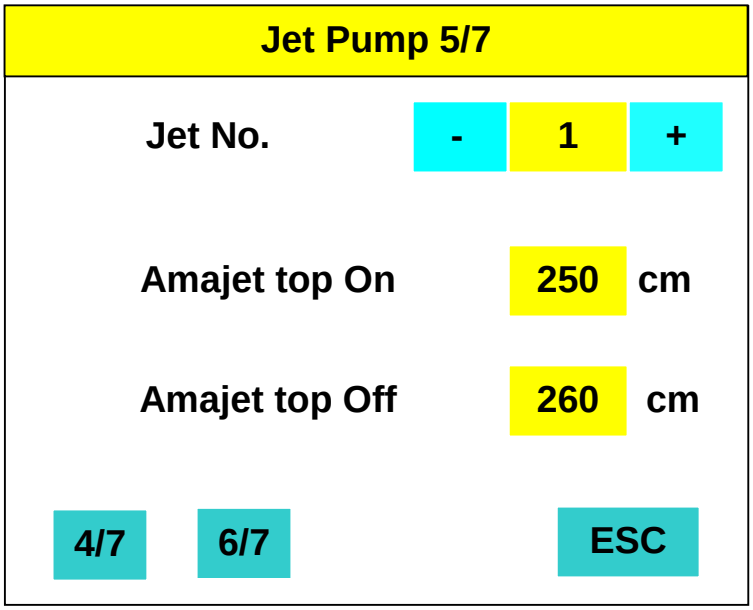
Machine parameters – Submenu Amajet Pump



Selection of Amajet Pump for settings to be made by means of the scroll function +/-
This mask is not displayed when only one Amajet Pump is connected to Fluid-Control III.

The jet pump re-starts the interval mode when the adjusted filling level is under-run, the starting operation depends on the relevant tendency setting.

The jet pump switches off when the adjusted filling level is over-run.

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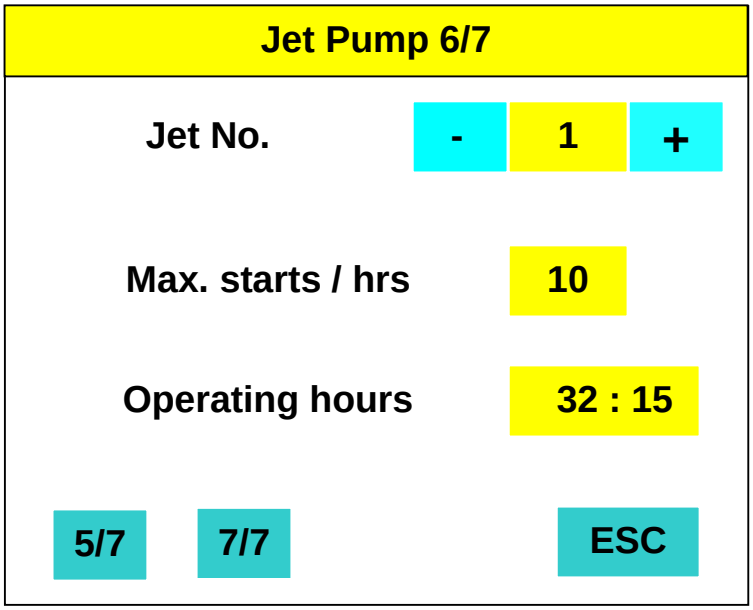
Machine parameters – Submenu Amajet Pump



Selection of Amajet Pump for settings to be made by means of the scroll function +/-
This mask is not displayed when only one Amajet Pump is connected to Fluid-Control III.

Maximum number of permissible starting operation of the jet pump per hour.

Display and parameterisation of the operating hours counter of the jet pump in Hours : Minutes.

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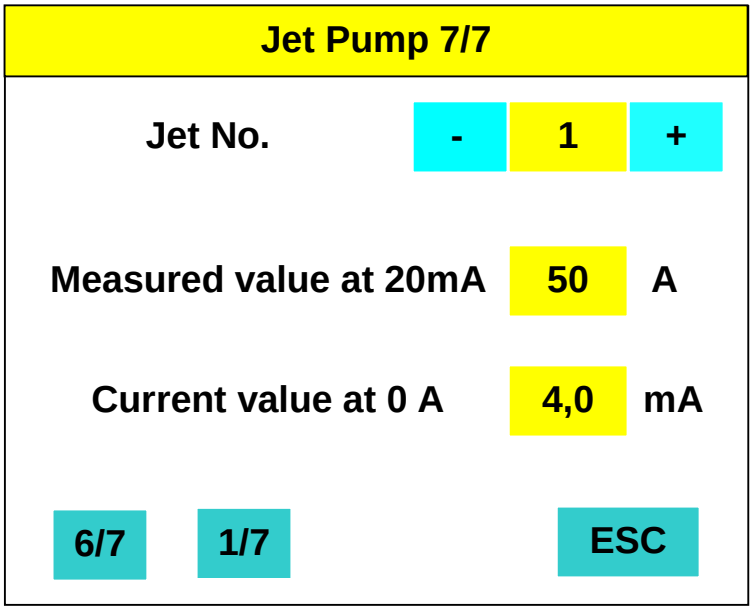
Machine parameters – Submenu Amajet Pump



Selection of Amajet Pump for settings to be made by means of the scroll function +/-
This mask is not displayed when only one Amajet Pump is connected to Fluid-Control III.

End value of measurement range of current transformer for jet pump motor current 20mA = ...A.

Current value in mA at which the current transformer supplies a motor current of 0A, i.e. 0 or 4-20mA measuring transducer.

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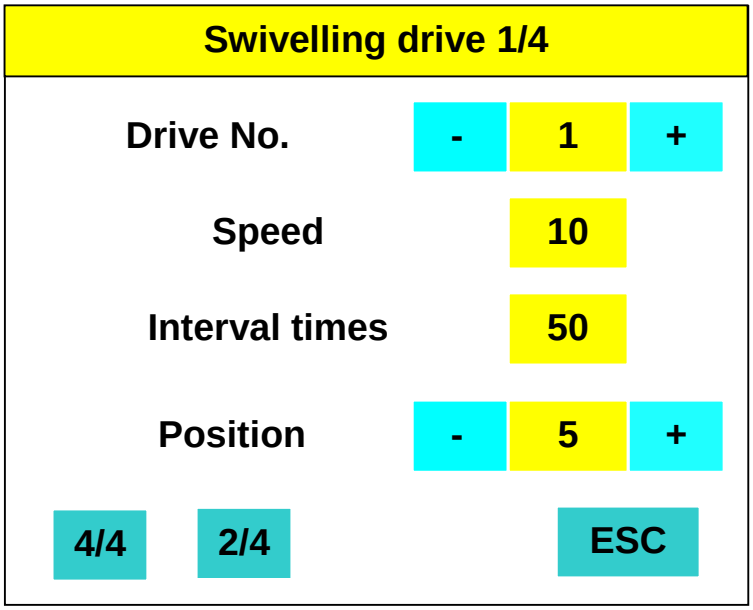
5.2 Machine parameters – Submenu Swivelling drive



Drive No. - 1 +

Selection of the swivelling drive for settings to be made by means of the scroll function +/-
This mask is not displayed when only one swivelling drive is connected to Fluid-Control III.

Speed 10

Speed stage of the swivelling drive (1=min – 10=max.) at the indicated position.

Interval time 50

Interval time of the swivelling drive in seconds at the indicated position.

Position - 5 +

Selection of the respective position of rotary drives for entering the above-mentioned parameters: by means of the scroll function +/-, between -140° and 140°, in 5°-steps

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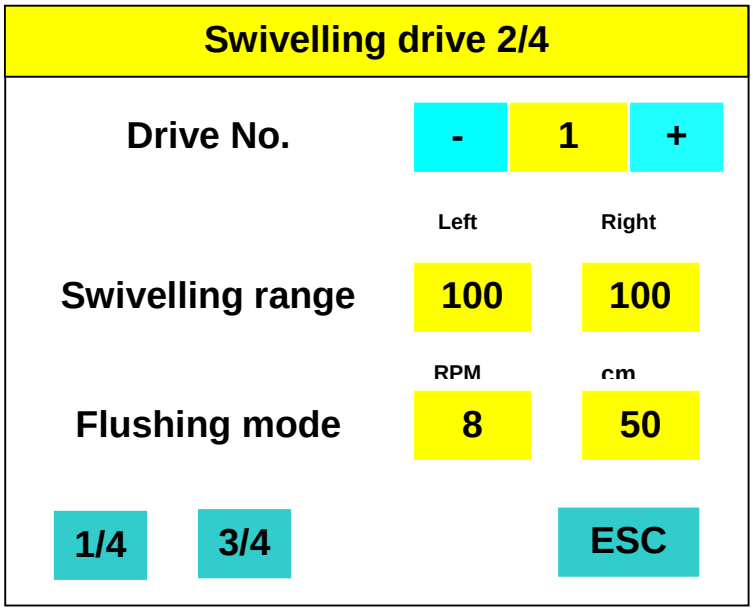
Machine parameters – Submenu Swivelling drive



Drive No. - 1 +

Selection of the swivelling drive for settings to be made by means of the scroll function +/-
This mask is not displayed when only one swivelling drive is connected to Fluid-Control III.

	Left	Right
Swivelling range	100	100

Swivelling range that shall be covered by the swivelling drive, inputs in degrees.
0°= centre position -140°= max. left +140°= max. right.

	RPM	cm
Flushing mode	8	50

The swivelling drive switches to flushing mode when the adjusted filling level is under-run and then ignores all previously adjusted speed stages and interval times.
In this mode, the swivelling drive is operating at the speed (RPM) of the flushing mode.

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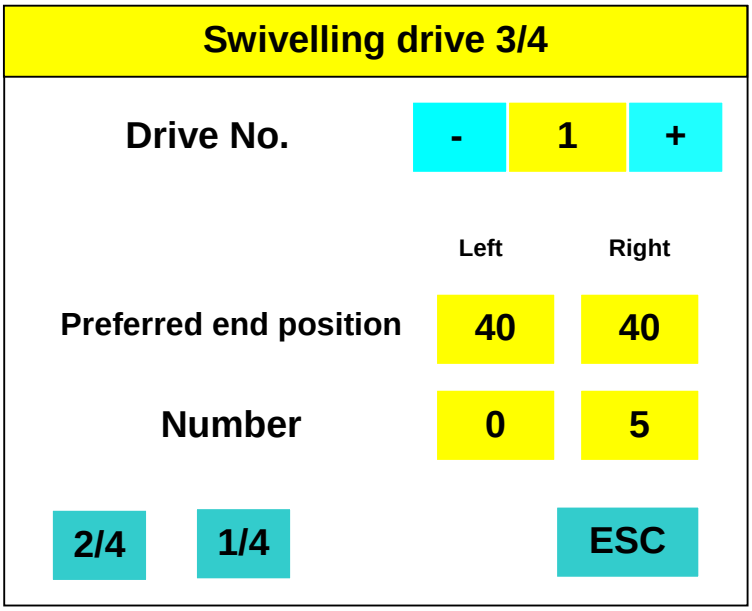
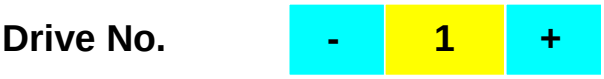
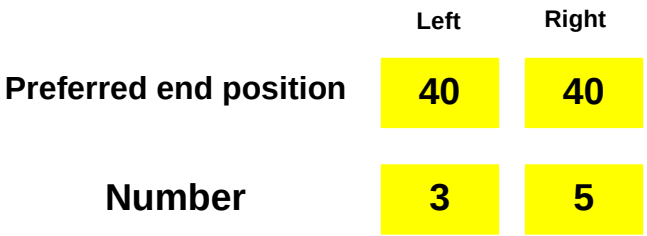
Machine parameters – Submenu Swivelling drive





Selection of the swivelling drive for settings to be made by means of the scroll function +/-
This mask is not displayed when only one swivelling drive is connected to Fluid-Control III.



Entering of a preferred end position means that this position is approached for the adjusted number of times. When the set number is reached, the adjusted maximum swivelling range is approached once and subsequently the number of preferred end positions.

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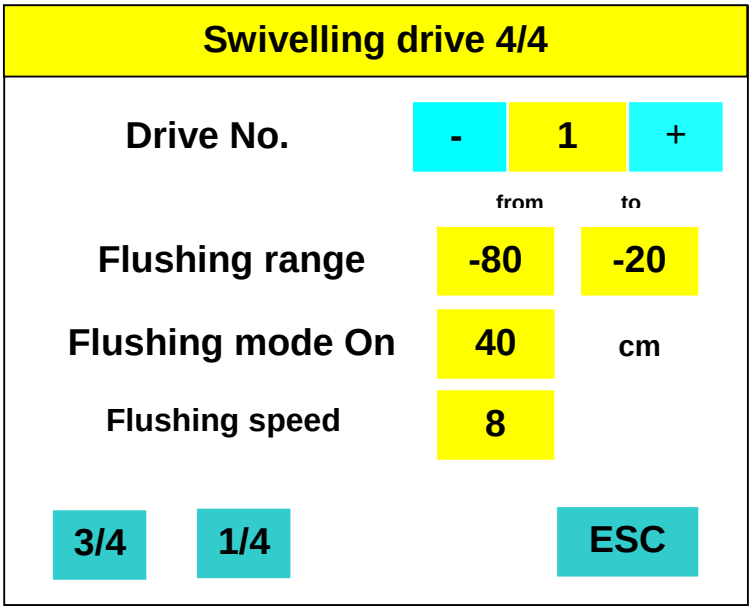
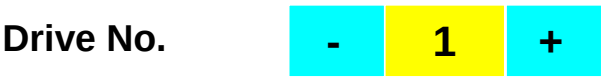
Machine parameters – Submenu Swivelling drive

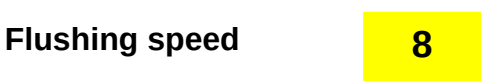




Selection of the swivelling drive for settings to be made by means of the scroll function +/-
This mask is not displayed when only one swivelling drive is connected to Fluid-Control III.

Setting of the range within which the swivelling device shall operate during flushing mode.

Setting of the filling level value in the storm water tank. The flushing mode is activated when this value is under-run.



Speed stage in which the swivelling drive operates during the flushing mode.

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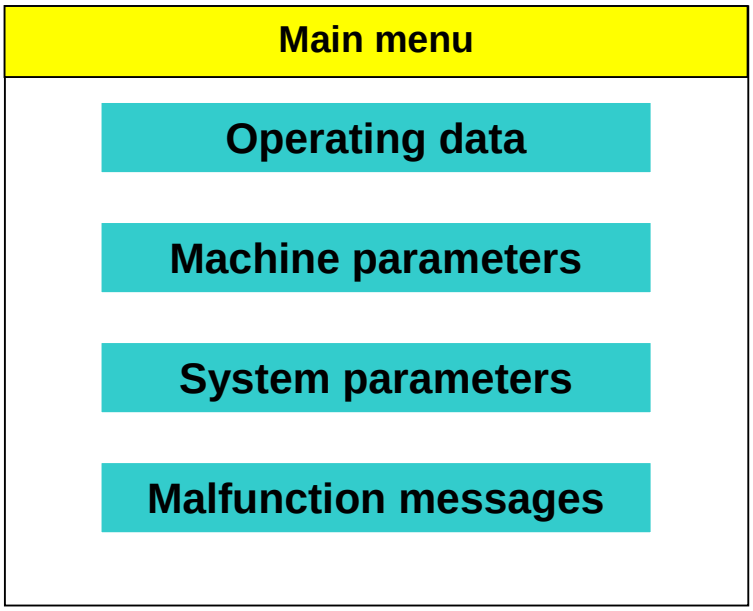
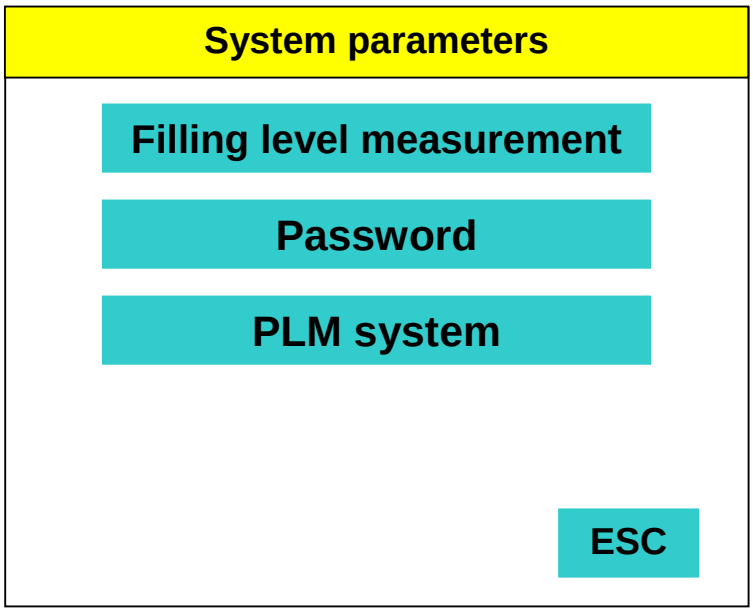
6. Main menu – Submenu System parameters





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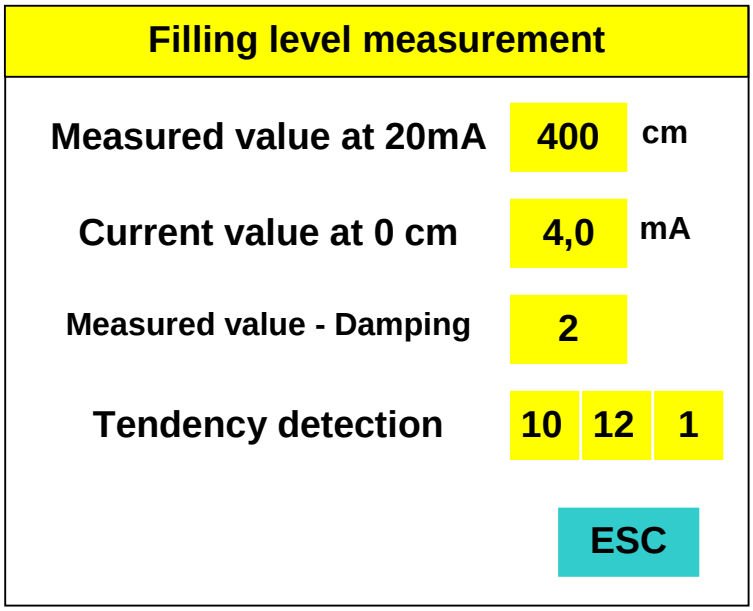
6.1 System parameters – Submenu Filling level measurement



Measured value at 20mA **400** **cm**

Setting of measuring range end value for filling level measurement, i.e. input in ‘cm’ at analog input value of 20mA

Current value at 0 cm **4.0** **mA**

Setting of current value at which measurement shall indicate a measured value of ‘0cm’

Measured value Damping **2**

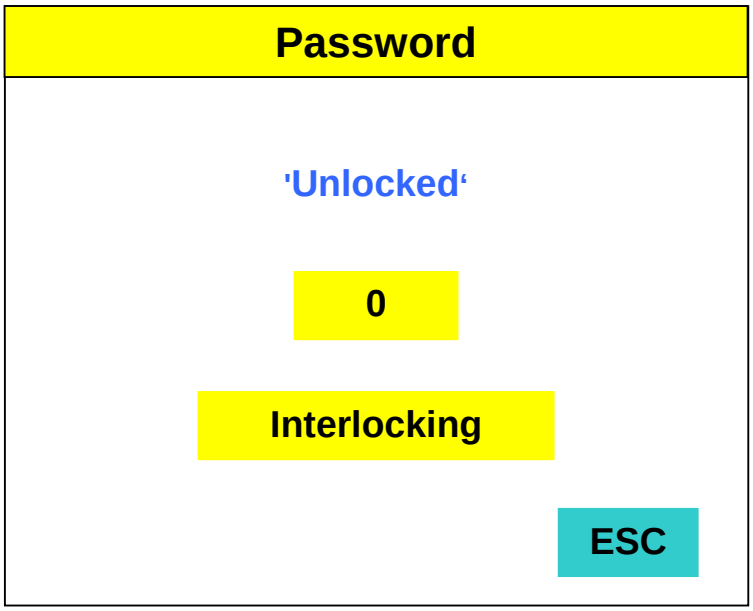
Setting of inertia of filling level measurement 1-10

Tendency detection **10** **12** **1**

Setting of tendency detection for filling level

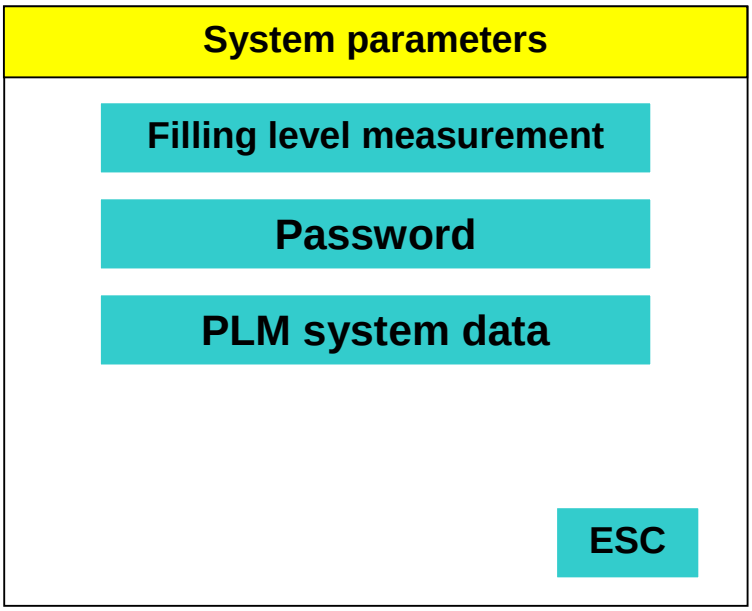
- First value: Increasing value, i.e. the Amajet is blocked when the filling level has risen by the adjusted value.
- Second value: Decreasing value, i.e. the Amajet is released when the filling level has dropped by the adjusted value.
- Third value: Tendency detection function, i.e. 0 = Off / 1 = Decreasing 2 = External via an input / 3 = Decreasing and external.

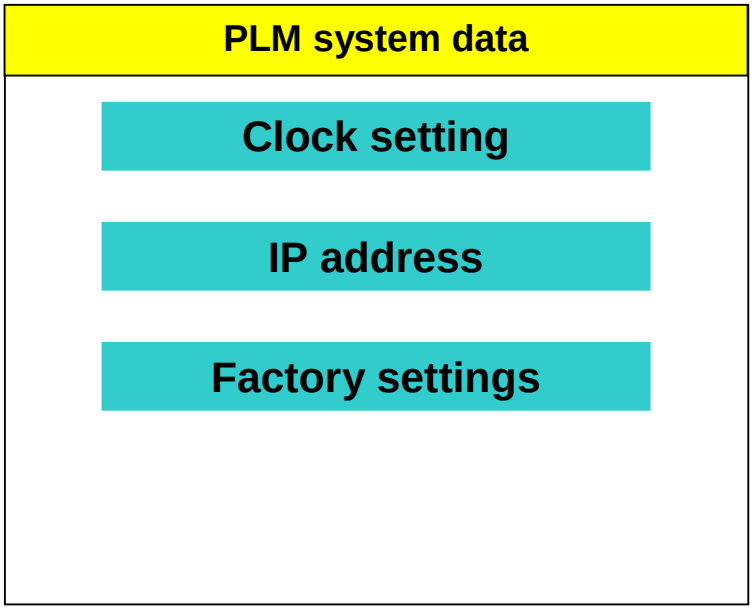
6.2 System parameters – Submenu Password



Entering the password (**33**) 'Unlocks' the control system and all machine parameters and system parameters can be modified.
The control system interlocks automatically after one hour,
or after clicking on the 'Interlocking' button.

6.3 System parameters – Submenu PLM system data





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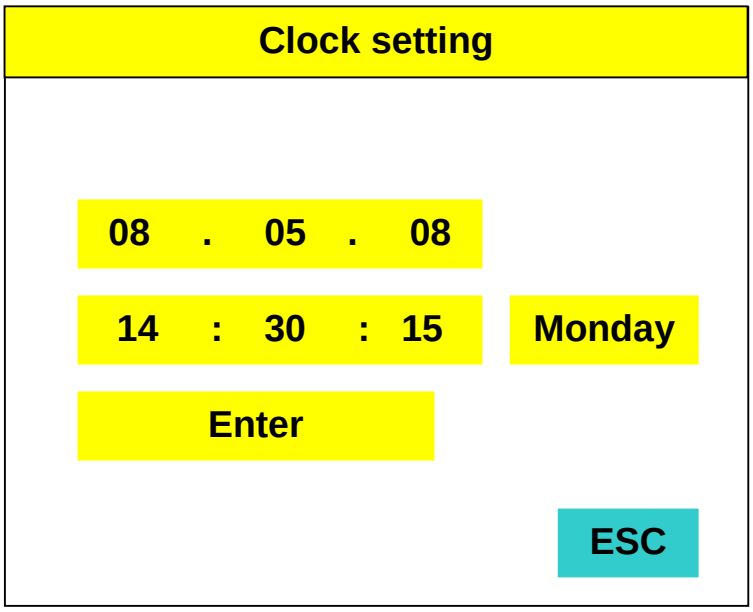
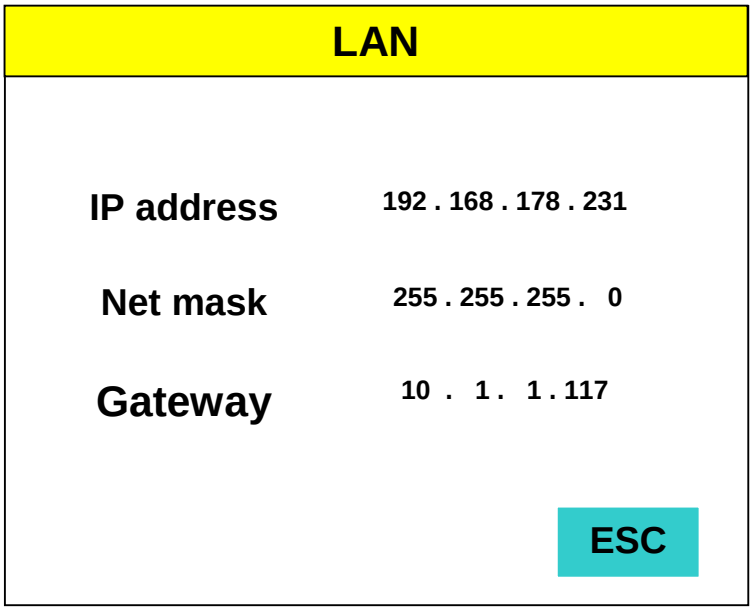
6.3.1 System data – Submenu Clock setting



Activate the setting of time and date function by clicking on ‘Enter’, then the settings can be made. Confirm the completed settings by clicking on ‘Set’.

6.3.2 System data – Submenu Network settings



Setting of parameter for network connection to enable communication with a laptop or a network link.
Restart the control system after any changes made to parameters in order to apply the changes.

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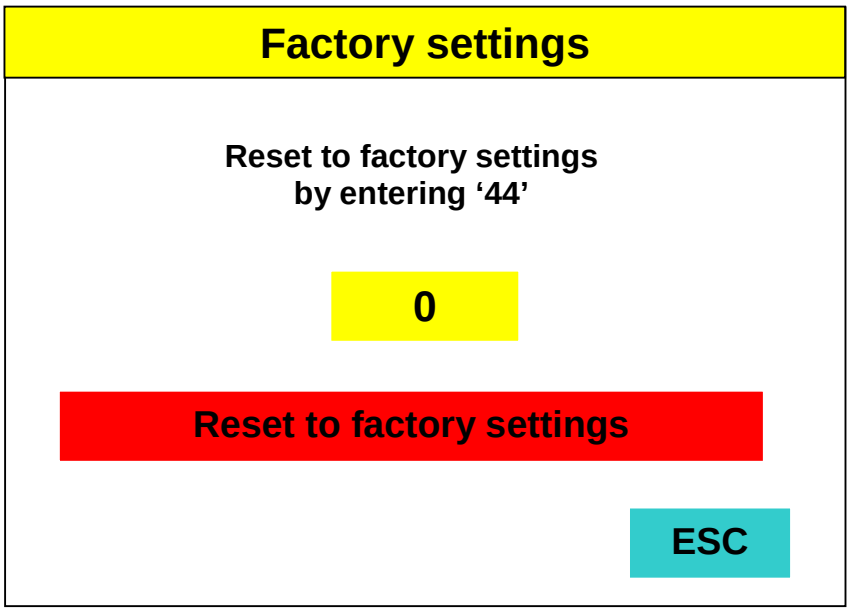
6.3.3 System data – Submenu Factory settings



Entering of the reset code (**44**) resets all adjusted machine parameters and system parameters to the factory default settings back which are deposited in the control unit.
The values of factory default settings were specified during pump start-up by a KSB technician and saved in the control system.
All changes and modifications made after pump start-up can be reset to the settings upon pump start-up by clicking on the button ‘Reset to factory settings’ and, if required, can be changed again subsequently.

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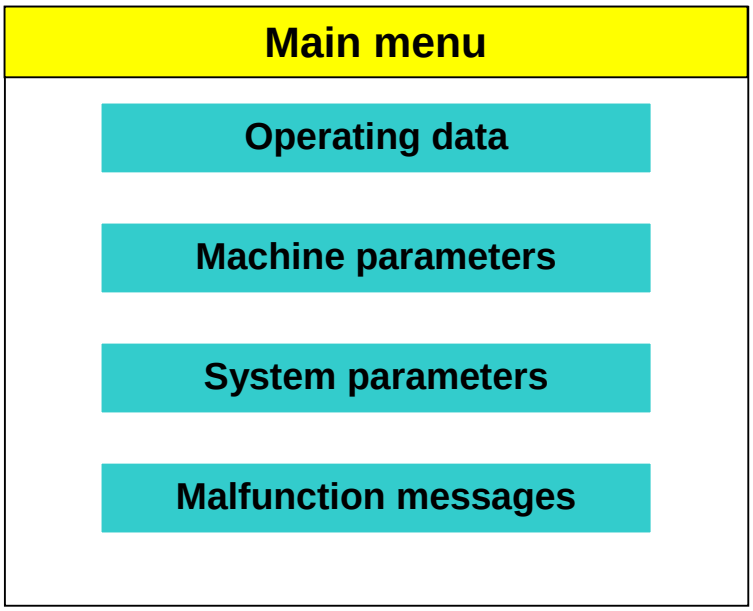
7. Main menu – Submenu Malfunction messages



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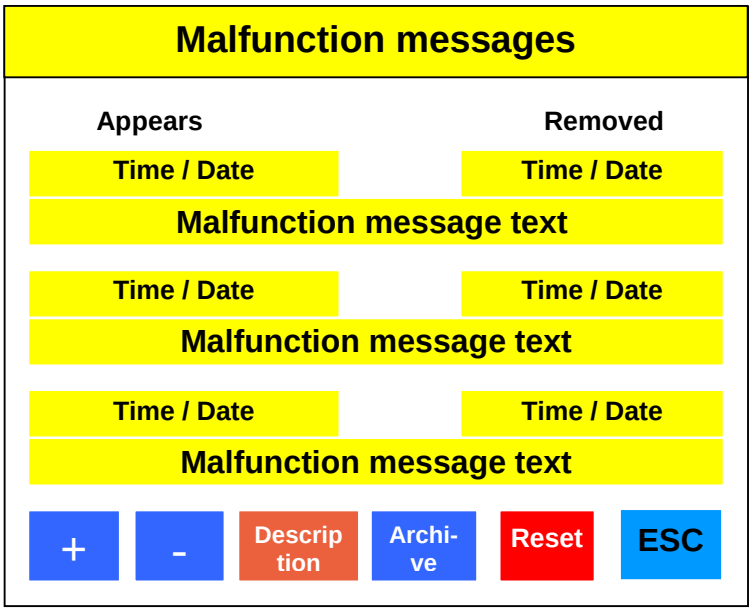
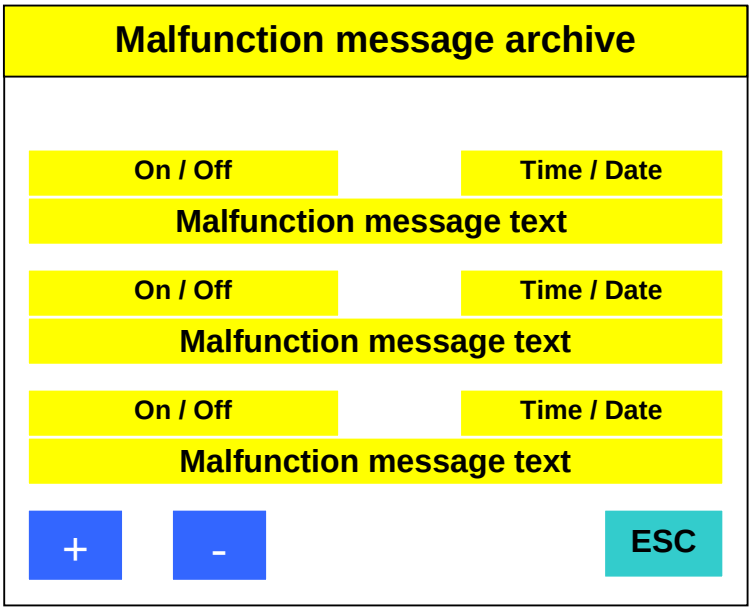
7.1 Main menu – Submenu Malfunction messages

This Submenu displays the current malfunctions with time and date when the relevant malfunction occurred as well as indication of time and date when the malfunction was remedied. Acknowledgement by clicking on the ‘Reset’ button is only possible after the malfunction was removed.
Should there be more than three malfunction messages, use the ‘+’/ ‘-’ buttons to scroll through the messages.



Click on the ‘Description’ button to retrieve possible malfunction messages and their potential causes.
Click on the ‘Archive’ button to access the Archive submenu.

7.2 Main menu – Submenu Malfunction messages



The malfunction message archive displays the last 50 messages with time and date and with the information: On = Message appears or Off = Message is displayed.
Use the buttons '+' / '-' for the scroll function.
The malfunction message archive is equipped with a ring memory, i.e. older messages are overwritten by more recent messages.
The malfunction message archive cannot be deleted.

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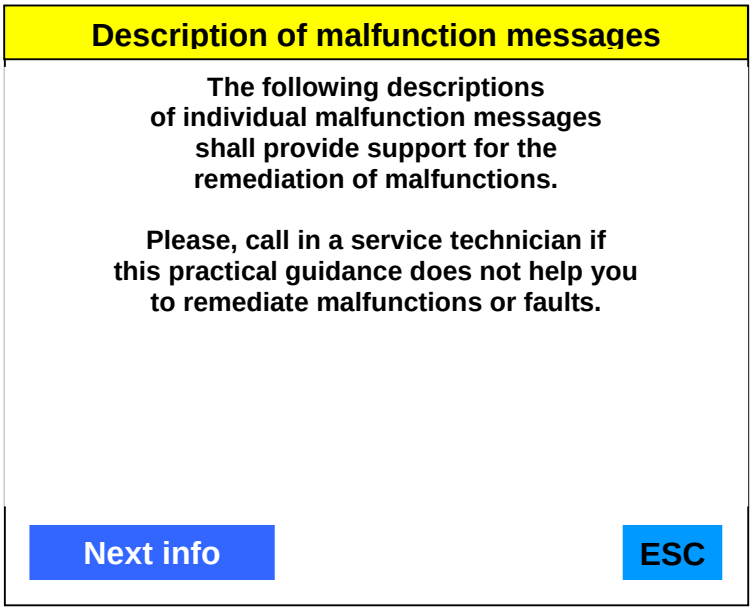
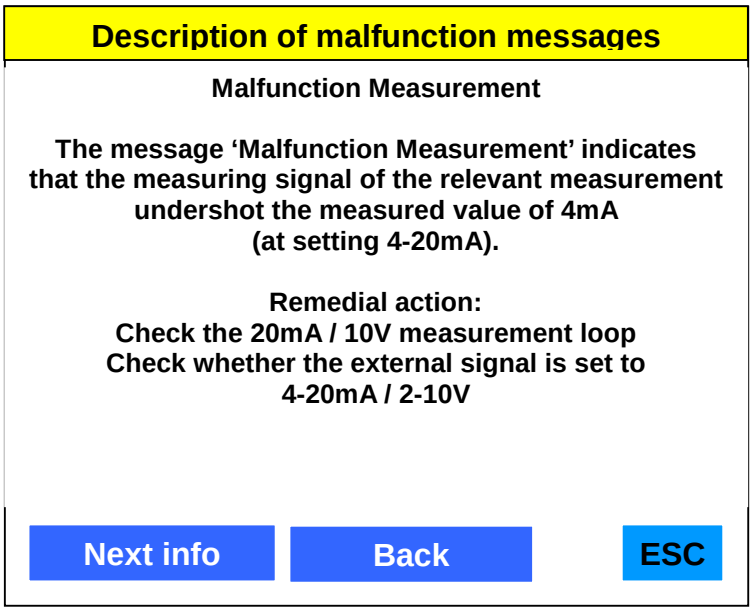
8 Description of possible malfunction messages





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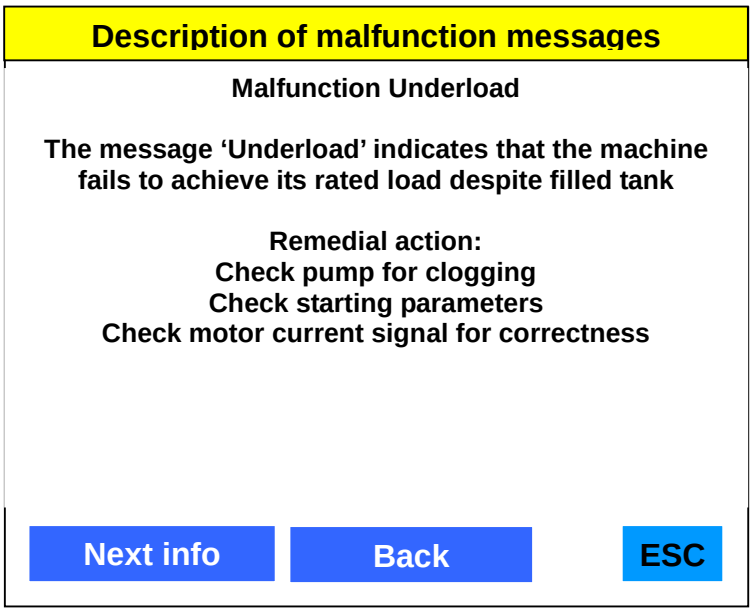
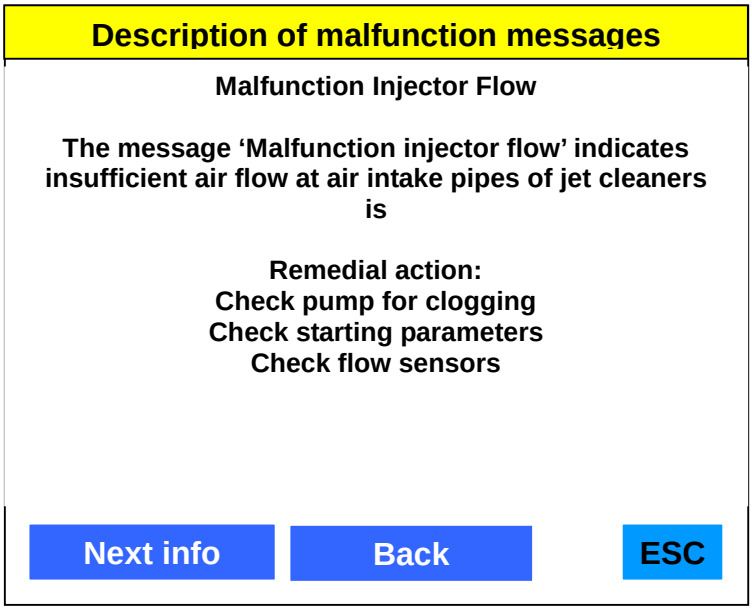
Description of possible malfunction messages





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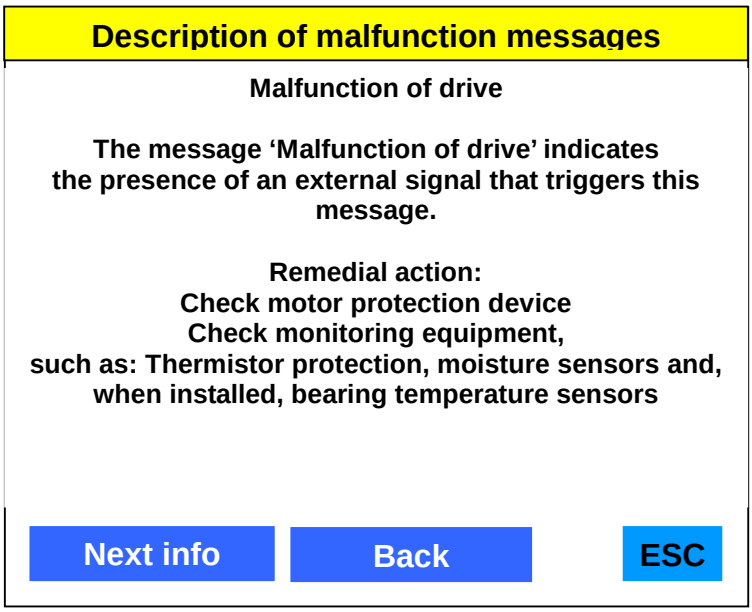
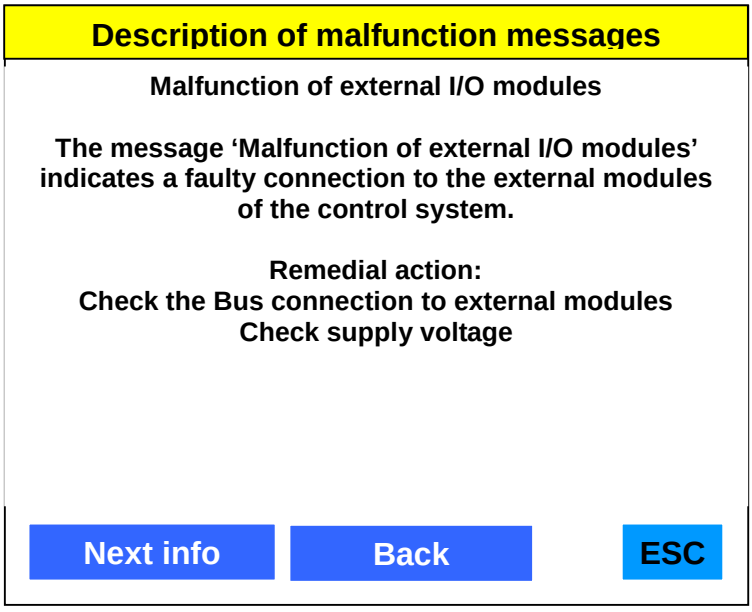
Description of possible malfunction messages





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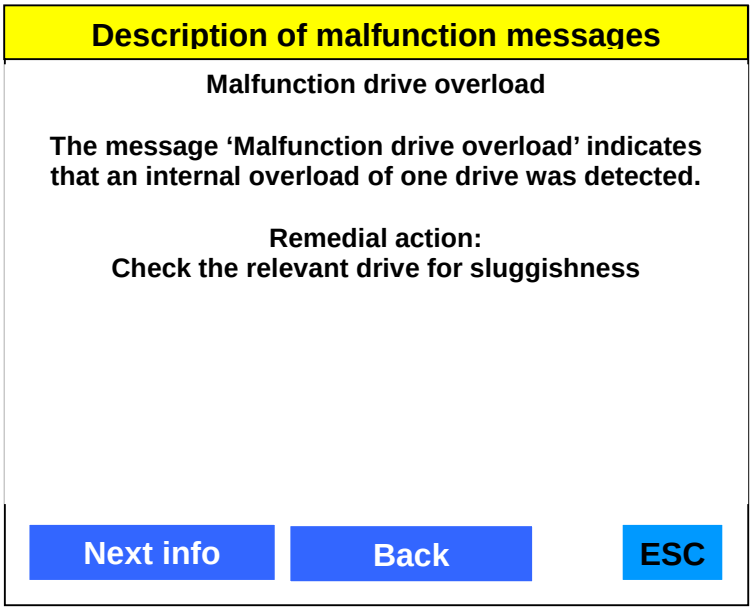
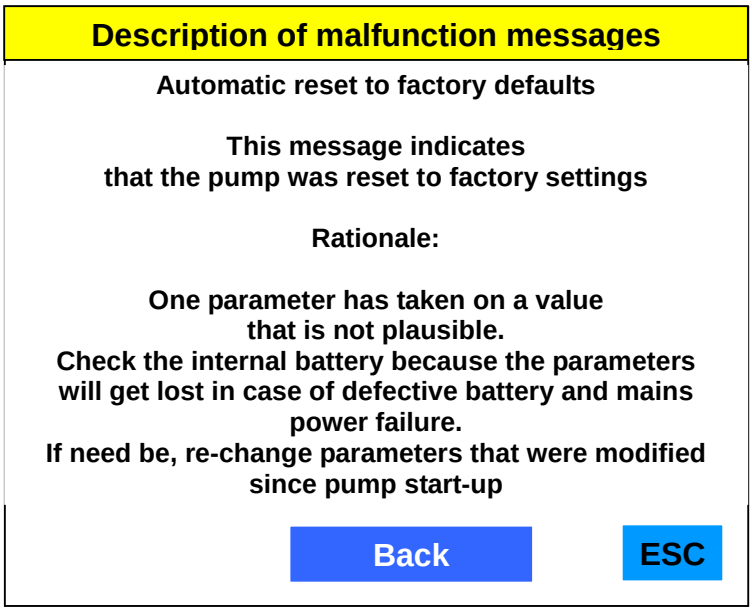
Description of possible malfunction messages





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