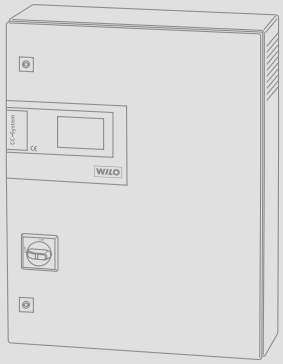


Wilo-CC-System

D Einbau- und Betriebsanleitung

GB Installation and operating instructions

F Notice de montage et de mise en service

NL Inbouw- en bedieningsvoorschriften

2 063 144 (D-GB-F-NL-PDF-2006-03-Wilo)

Fig. 1.1:

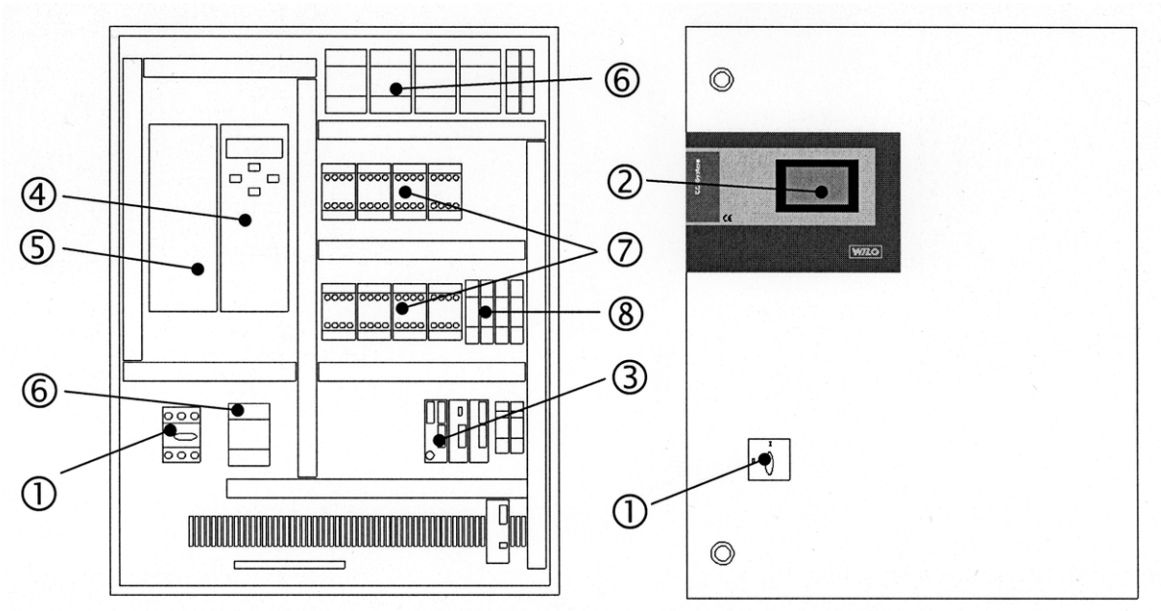


Fig. 1.2:

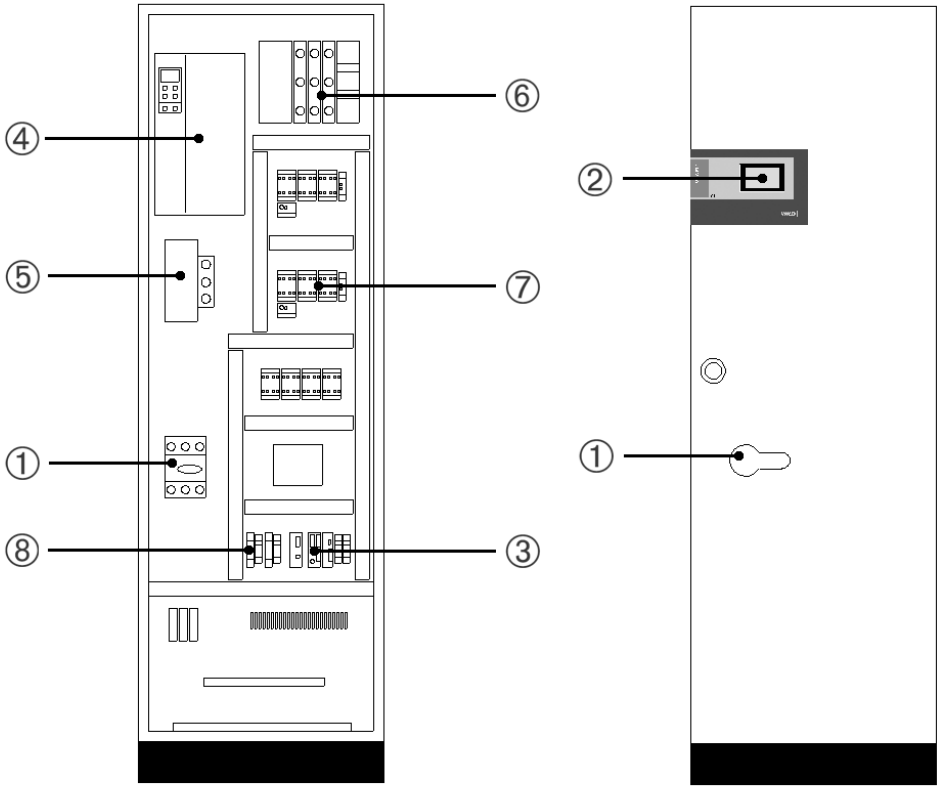


Fig. 2:

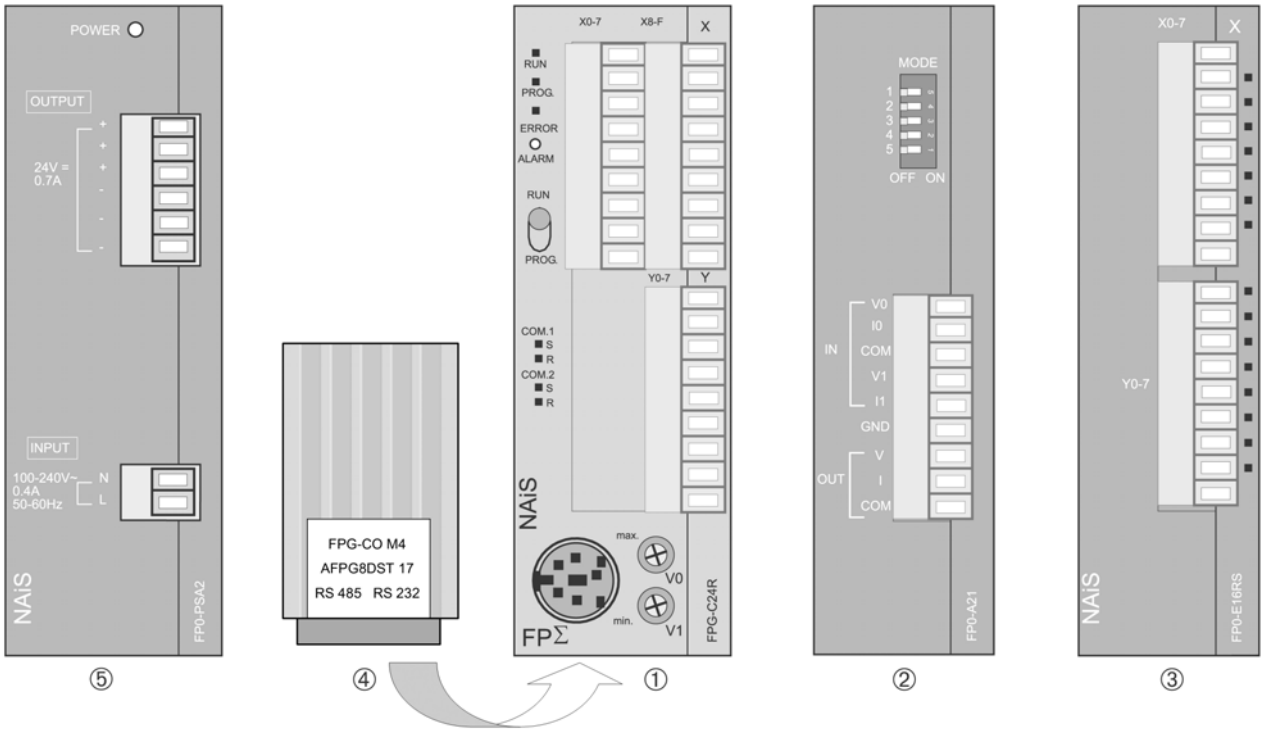


Fig. 3:

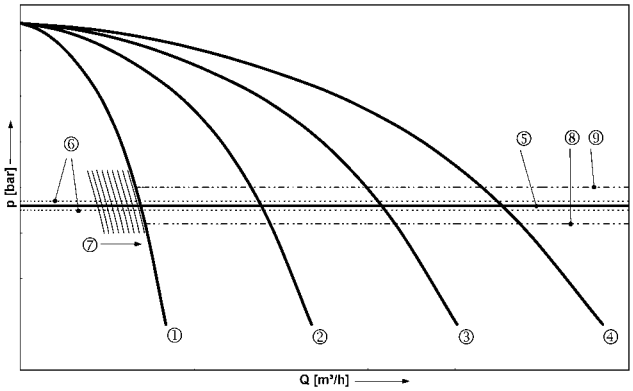
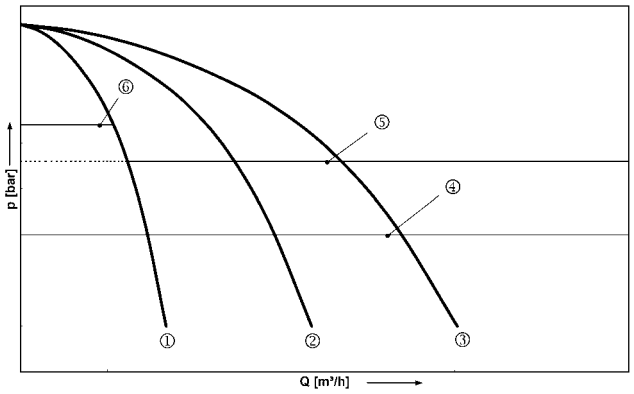


Fig. 4:



1 General

Installation and commisssioning by trained personal only!

1.1 About this document

These Installation and Operating Instructions are an integral part of the product. They must be kept readily available at the place where the product is installed. Strict adherence to these instructions is a precondition for the proper use and correct operation of the product.
These Installation and Operating Instructions correspond to the relevant version of the product and the underlying safety standards valid at the time of going to print.

2 Safety

These instructions contain important information which must be followed when installing and operating. These operating instructions must therefore be read before assembly and commissioning by the installer and the responsible operator. Both the general safety instructions in the "Safety precautions" section and those in subsequent sections indicated by danger symbols should be carefully observed.

2.1 Danger symbols used in these operating instructions

Safety precautions in these operating instructions which, if not followed, could cause personal injury are indicated by the symbol

when warning of electrical danger with

The following symbol is used to indicate that by ignoring the relevant safety instructions, damage could be caused to the pump/machinery and its functions:

ATTENTION!

2.2 Staff training

The personnel installing the pump must have the appropriate qualifications for this work.

2.3 Risks incurred by failure to comply with the safety precautions

Failure to comply with the safety precautions could result in personal injury or damage to the pump or installation. Failure to comply with the safety precautions could also invalidate any claims for damages.
In particular, lack of care may lead to problems such as:

- Failure of important pump or machinery functions,
- Personal injury due to electrical, mechanical and bacteriological causes,
- Damage to property.

2.4 Safety precautions for the operator

Existing regulations for the prevention of accidents must be followed.
Dangers caused by electrical energy are to be excluded. Directives issued by the VDE [German Association of Electrical Engineers] and the local electricity supply companies are to be observed

2.5 Safety information for inspection and assembly

The operator must ensure that all inspection and installation work is carried out by authorised and qualified specialists who have carefully studied these instructions.
Work on the pump/machinery should only be carried out when the machine has been brought to a standstill.

2.6 Unauthorized modification and manufacture of spare parts

Alterations to the pump or installation may only be carried out with the manufacturer's consent. The use of original spare parts and accessories authorised by the manufacturer will ensure safety. The use of any other parts may invalidate claims invoking the liability of the manufacturer for any consequences.

2.7 Unauthorised operating methods

The operating safety of the pump or installation supplied can only be guaranteed if it is used in accordance with paragraph 1 of the operating instructions. The limiting values given in the catalogue or data sheet must neither be exceeded nor allowed to fall below those specified.

3 Transport and intermediate storage

ATTENTION! **The switchgear is to be protected against moisture and mechanical damage caused jolts/impacts. It should not be exposed to temperatures outside the range –10 °C to +50°C.**

4 Scope of application

The CC-Switchgear is used to automatically control of pressure boosting systems (Single- and multipump units).
It is used in watersupplies of residential high rise buildings, hotels, hospitals, administrative and industrial buildings.
In conjunction with suitable sensors the pumps run on a low noise and energy savinjg level. The power of the pumps is adapted to the constantly changing requirements of the pressure boosting system.

5 Description of product

5.1 Type key

e.g.: CC 4 x 3,0 FC	
CC	Comfort-Controller
4 x	Number of pumps 1-6
3,0	Maximum motor power P_2 [kW]
FC	Including **F**requency **C**onverter

5.2 Supply and rating data	
Operating voltage [V]:	3~400 V, 50/60 Hz
Nominal current I [A]:	see type plate
Protection class:	IP 54
Max. ambient temperature:	40°C
Mains fuse:	see wiring scheme

6 Product and accessory description

6.1 Description of control units

6.1.1 Functional description

The plc-(programmable logic control) controlled Comfort Controller system is used to control and regulate pressure booster systems with up to six pumps. At the same time the pressure of a system is regulated according to a load with appropriate sensors. The controller acts on the frequency convertor, which influences the speed of a pump (base load pump). The delivery rate and therefore the output of the single pumps changes with the speed. Only the base load pump is speed controlled, according to the required load, peak load pumps are switched on and off automatically. The speed controlled base load pump then fulfills the fine regulation. In dependancy from the number of pumps and the required controler features, the systems are concipated in different ways.

6.1.2 Construction of the control unit

The construction of the control unit varies due to the power consumption of the connected pumps (Direct on line: fig. 1.1 or Star/Delta start fig. 1.2). It consists of the main components as follows:

- **Main switch:** isolates the power supply and connects to mains network (pos. 1)
- **Touch-Display:** Display of the operation data's (see menues) and operation mode by changing colour of the background lighting. Abilities for choosing menues and setting parameters via touch sensitive surface (Pos. 2).
- **PLC (programmable logic controller):** modular assembled plc with power supply. The hardware configuration depends on the system (Pos. 3).

Component (see fig. 2)	No.	with FC			without FC
		1-3 Pumps	4-5 Pumps	6 Pumps	1-6 Pumps
Central Unit (CPU)	①	✔	✔	✔	✔
Analog module 2E/1A	②	✔	✔	✔	✔
Digital module 4E/4A	③	–	✔	–	–
Digital module 8E/8A	③	–	–	✔	–
COM-Interface	④	✔	✔	✔	–
Power supply 24V	⑤	✔	✔	✔	✔

- **Frequencyconvertor:** Frequencyconvertor for speed variation of base load pump according to load - only in COR-type boosters (Pos. 4)
- **Motor filter:** The filter assures the correct sinuscurve of the motor input voltage and supresses voltage peaks - only in COR-systems (Pos. 5)
- **Protection of drives and frequencyconvertor:** Protection of pump motors and frequency convertor. Panels with $P_2 \leq 4{,}0$ kW: motor protection switch (Pos. 6)
- **Contactors/-combinations:** Contactors for switching of the pumps. Panels with $P_2 \geq 5{,}5$ kW including thermal tripping relais for overcurrent protection (Setting: 0,58 * IN) and time-relais for Star-/Delta switching (Pos. 7)
- **Hand-0-Automatic switch:** Selector switch for the selection of the pump operation modes "Hand" (Emergency-/Testrun on line; with motor-protection), "0" (Pump switched off - no switching on enabled via PLC) and "Auto" (Pump released for automatic operation with the plc) (Pos. 8)

6.1.3 System operating modes

Normal operation (see fig. 3)
An electronic pressure sensor (Adjustment of measure range in menue 3.3.2.4) provides the actual system pressure value as a 4 – 20 mA current signal. The controller then keeps the system pressure constant by comparing the desired (adjustment of setpoint ⑤: see menue 3.3.2.1) and actual values.
If there is no "External Off" message and no fault, the speed controlled base load pump will start up if required. Here the speed of the pump depends on consumption.
If the power requirements of this pump can't be met, a second (peak load) pump is switched on. With increasing requirement further peakload pumps will be switched on. The peak load pumps operates then with fixed, maximum speed on line while the speed controlled base load pump allows the fine regulation to the desired pressure setpoint value ⑦ according to the increase. If the requirement drops such that the controlling pump is operating in its lower power range and is not needed to meet requirements, one peak load pump after the other switches off. At last the base load pump switches off by the zero flow detection. With decreasing system pressure under the setpoint, the system switches on again.
The relevant parameter settings for the switching on and off of the peak load pumps can be adjusted (Switching levels ⑧/⑨; Time delays) in menue 3.3.3.2.
To avoid pressure peaks when switching pumps on or -breaks when switching pumps off, the rotation speed of the base load pump can be decreased or increased during the switching actions. The adjustments of this so called peak filters can be done in menue 3.3.5 – page 2.

Normal operation of panels without FC (see fig. 4)
Panels without or with faulty frequency converters are calculating the controlled variable by comparing the actual with the required value, too. Due to the fact that there is no speed controlled pump, they are working as two point controllers only between values ④ and ⑤ / ⑥.
The switching on and off from pumps is done in the same way as described above. To switch off the base load pump in menue 3.3.3.1 a separate switching level ⑥ can be adjusted.

Zero amount disconnection
If just one pump is operating, a check is made every 60 s to see whether the pressure is still decreasing. Firstly the desired pressure value is increased slightly for a brief time of 5 s and then returned to its previous value. If the system's actual pressure value then remains at the higher level, a zero amount is present. The pump is then switched off after a variable delay time (menue 3.3.3.1). If the pressure falls below the desired value, the system starts up again.
In operation without frequency convertor the base load pump is switched off when the second switch off level (see above) is reached and the time delay is over.
Decreases the system pressure under the switching on level, the system starts up again.

Pump change
To enable an equalized utilization and running time of the pumps, different mechanismens will take action. The adjustment can be done in menue 3.3.4.2.
For a **time dependant pump change** the system will preselect the base load pump in dependancy from the running hours counters and the diagnosis system (faults, releases)(run time optimization). The adjustable time is the maximum run time difference.
The **cyclic pump change** leads to a pump change after a fix adjusted time regardless of the actual running hours of a single pump.
Changing pumps by **impulse** every restart changes the base load pump regardless of the actual running hours of a single pump.
With **Preselection Pump** a pump can be permanently designated as base load pump.
Independent from the changing mechanism of the base load pump the peak load pumps are continuously changed run time optimisated. This means that the pump with the lowest run time is started first and switched off as last one when requirement decreases.

Reserve pump
Parameterisation of the installation via Menue 3.3.4.1 allows one of the pumps to be designated as reserve pump. In reserve mode, one of the pumps does not participate in the standard operating cycle. This pump is only activated when another pumps fails to allow the demand to be met. The run time optimization ensures that each pump will once serve as reserve pump. The reserve pump is triggered by the pumpkick function, too.

Pumpkick (Test run)
To avoid a stand still of pumps for long durations a cyclic test run is activated. In the menue 3.3.4.3 the time between two testruns and the duration of a testrun can be adjusted. A testrun will only be executed during the stand still of the system (after zero flow shut off)

Changeover upon fault in multi-pump system
- Systems with frequency converter:
  If the base load pump generates an error, it will be switched off immediately and a peak load pump is connected to the converter . If the frequency converter fails, the system is switched into the operation mode "automatic without frequency con-verter" with the adequat controller characteristic.

- Systems without frequency converter:
  If the base load pump fails, this pump is switched off and it's function is transferred to a peak load pump. This Pump is administrated by the control system then as base load pump.
  If a peak load pump fails, this pump is always switched off and a other peakload pump is switched on (if theres no other pump available, the reservepump is beeing activated).

Lack of water
Supervised from a NC contact of a pre-pressure switch, reserve tank float switch or an optional niveau relay the pumps can be switched off with an adjustable time delay (menue 3.3.2.1). If the contact closes again during the delay time, no action takes place.
Otherwise the automatic re-start of the system after a shut down caused by a lack of water signal is then following 10 s after closing the signal contact.

Supervision of minimal and maximal pressure
In menue 3.3.2.3 the limits for a safe and properly system operation can be adjusted. An overrun of the maximal pressure limit leads to a immediately shut down of all pumps. If then pressure decreases to the switch on level again, normal operation is released. If there 3 shutdowns due to maximum pressure occuring within 24 hours, collective failure signal " SSM" will be activated.
An undershooting of the minimal pressure limit generates immediately a collective failure signal "SSM". The pumps will not be switched off.
For the supervision of maximal- and minimal pressures in the above mentioned menue a hysteresis for the pressure value and a time delay for the triggering of the failure mode processing can be adjusted. For this short time pressure peaks and breaks can be blinded out.

External off
The control system can be deactivated by an external NC contact. This function has priority befor all others! In this mode the pump kick is activated, too.

Operation with failured sensor
In menue 3.3.2.3 the limits for a safe and properly system operation can be adjusted. An overrun of the maximal pressure limit leads to a immediately shut down of all pumps. If then pressure decreases to the switch on level again, normal operation is released. If there 3 shutdowns due to maximum pressure occuring within 24 hours, collective failure signal " SSM" will be activated.
An undershooting of the minimal pressure limit generates immediately a collective failure signal "SSM". The pumps will not be switched off.
For the supervision of maximal- and minimal pressures in the above mentioned menue a hysteresis for the pressure value and a time delay for the triggering of the failure mode processing can be adjusted. For this short time pressure peaks and breaks can be blinded out.

Emergency run
In the case that the controller itself fails, every single pump can be switched via the Hand-0-Automatic switch (fig. 1.1/1.2; Pos. 8). This function has priority before the automatic pump switching by the controller.

6.1.4 Motor protection

Overtemperature protection
Motors with winding protection contact signals the controller an excessive winding temperature by opening a thermal contact. The electrical connection of this contact is to execute referring to the wiring scheme.
For motors with a temperature depending resistor (PTC) for the overtemperature protection, a optional relay is requested for the signal processing.

Overcurrent protection
Motors connected to switchboxes up to 4,0 kW are protected by motor protection switches with thermal and electromagnetic tripping. The trip current must be adjusted dircetly on this switches.
Motors connected to switchboxes from 5,5 kW on are protected by thermal overload relays. These relays are directly mounted on the motor contactors. The trip current must be adjusted directly on this relays and is in star/delta start 0,58 * I_N.
All motor protection functions protect the motor in operation on frequency converter and on line.
Pump failures leads directly to the switching off command for the pump and generates a collective fault signal. After rectification of the fault's causal a acknowledgement is requested befor restarting the pump.
All motorprotection functions are active in the emergency mode, too.

6.2 Operation of control system

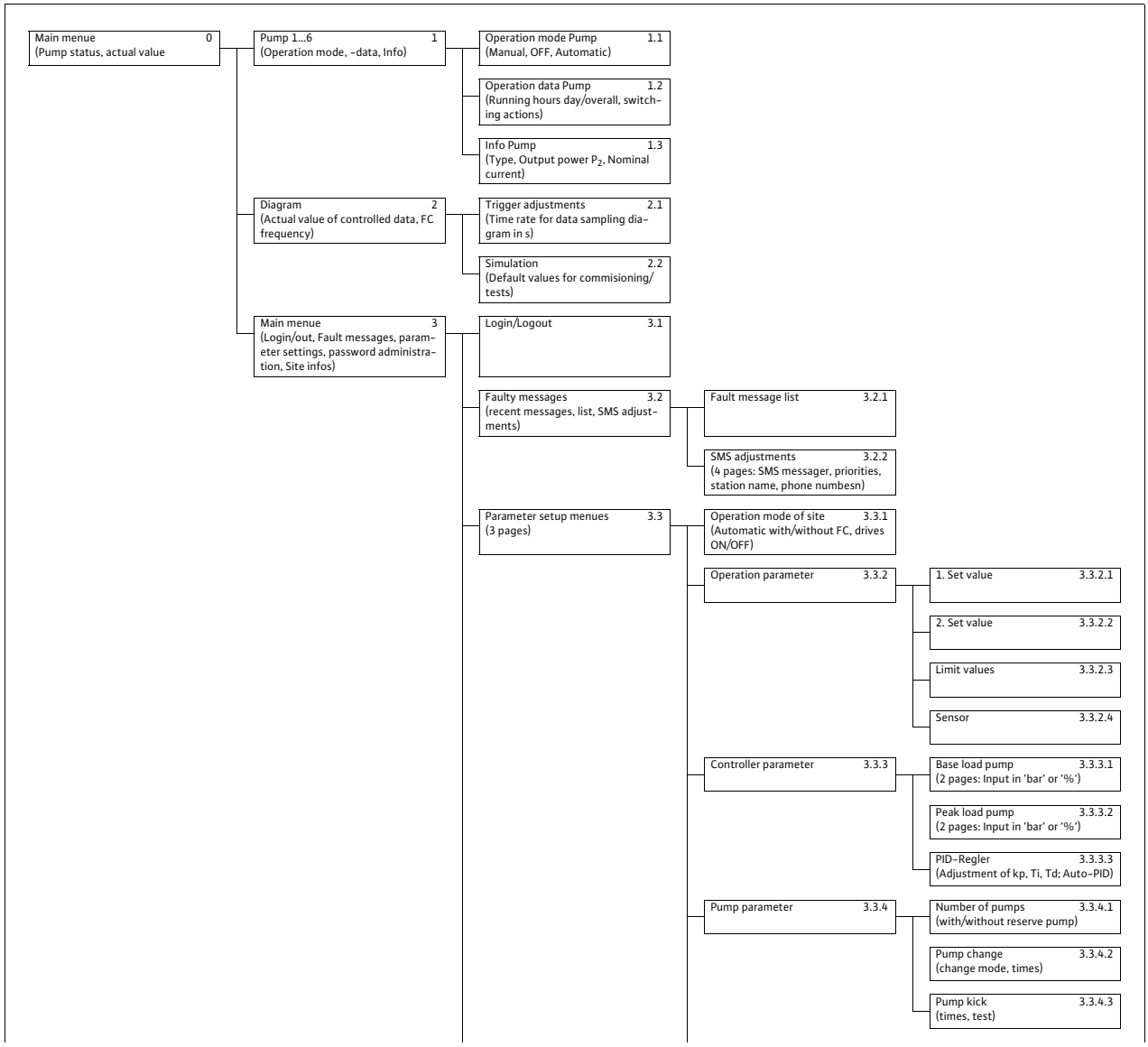
6.2.1 Operating panel functions

- **Main switch** On/Off
- The Touchdisplay (graphic operation, 128x64 Pixel) displays the operation modes of pumps, controller and frequency converter. Furthermore all parameters are adjusted directly on the display.
  The panel's backlight chnages ist colour according to the operating state: GREEN – System o.k.; RED – Fault; ORANGE – Fault acknowledged but not rectified.
  The operating panel functions are displayed referring to context on the touchpanel. Beside this cleartexts graphic symbols as shown below being applied:

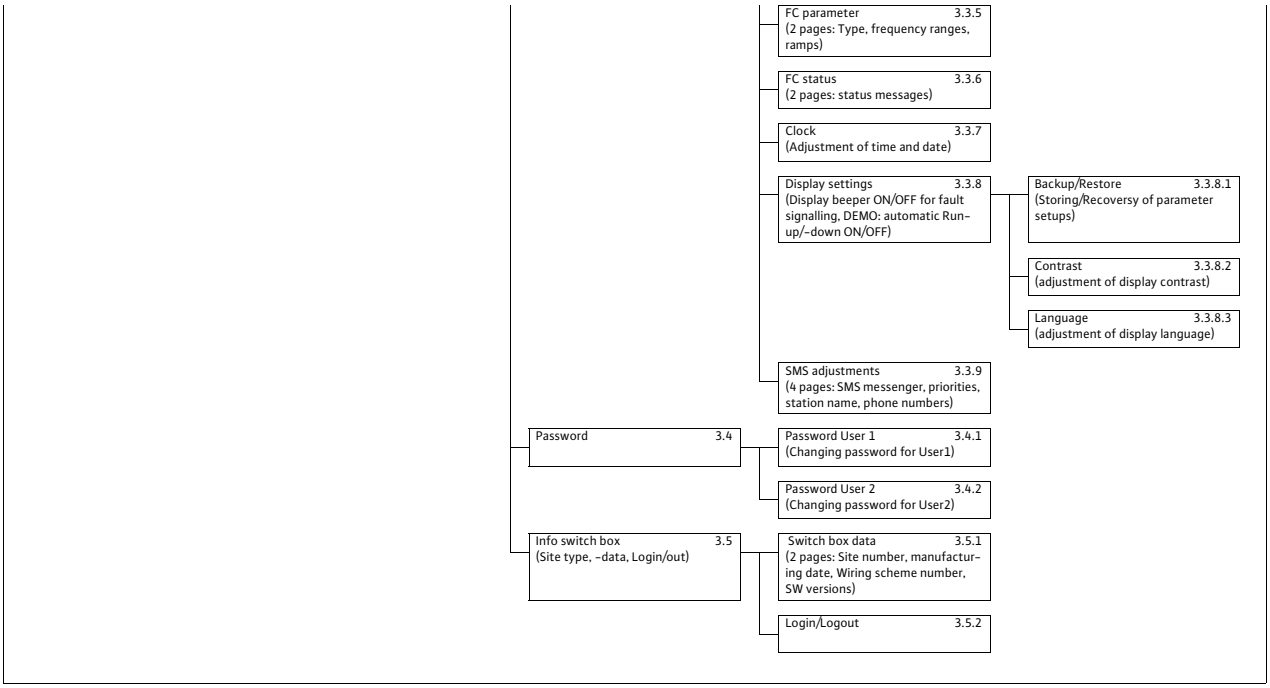
Symbol	Function/Application
	Browsing forward to next page
	Browsing backwards to previous page
	Leaving of a page (Escape) – return is referring to context
	Call of main menue
	Call of Login/Logout-window
	Login
	Logout
	Pump is switched off
	Pump operating online
	Pump preselected for operation on FC but switched off
	Pump operating on FC
	System deactivated by "External off"

6.2.2 Menue structure

The system's menue is structured as follows:



A description of the menue functions is shown in table 2.



A description of the menue functions is shown in table 2.

The operation and parametrisation is protected by a 3 step safety system. After entering the password (Menue 3.1 and 3.5.2) the system is released for the user on the specific level (Displayed by the indicators shown beneath the level names). Pushing of the Login-Button leads the user then into the system.

User 1:
On this level (typical : local user, e.g. janitor) the display of all menues is enabled. Inputs of parameters are only in limited scale enabled.
The password (4 digits; numerical) for this level can be defined in menue 3.4.1 (factory setting: **1111**).

User 2:
On this level (typical : operator) the display of all menues, except of the simulation mode, is enabled. Inputs of parameters are nearly unlimited enabled.
The password (4 digits; numerical) for this level can be defined in menue 3.4.2 (factory setting : **2222**).

The user level **Service** is reserved for the WILO-service only.

6.3 Scope of supply

- Switch box WILO CC
- Wiring scheme
- Installation and operation manual

6.4 Optionals / acessories

The CC-System can optionally be equipped with the units as shown in the table. Please take notice that this modules must be ordered separately.

Option	Description
Uninteruptable Power Supply	PLC -Powersupply remains in case of mains fault
PTC-relays	Overtemperature protection of pumps with PTC-Resistors
Remote setpoint adjusting or actuator operation	Setpoint can be adjusted via external analog signal or panel works in actuator operation via external analog signal
Single run and fault signals	Potentialfree contacts for signalling of the pump states
Lack of water signalisation	Potentialfree contact for signalling dry run
Setpoint switching	Switching between setpoints 1 and 2 by external signal
Bus-connection	Modules for the connection to a variety of bus systems (e.g. CAN-Bus, Profibus, Modbus RTU, Ethernet, LON)
Communication module	Modules for remote diagnosis/-maintenance (Analogmodem, ISDN-Terminal, GSM-Modem, Web-Server)

7 Installation /Fitting

7.1 Installation

- **Wall mounting, WM:** The panels for booster systems are mounted directly as WM-version on the compact booster station. For an external mounting besides the booster station, four screws ∅ 8 mm are required.
- **Base mounting, BM:** The BM-version is to be erected on a plane area. In the standard version a installation pedestal of a height from 100 mm is supplied. Others on request.

7.2 Electrical connections

Electrical connection must be carried out by an electrical installer authorised by the local power supply company in accordance with the applicable local regulations (e.g. VDE regulations).

Power supply lines:
Installation and operation manuals of the complete booster system have to be observed!

Pump power supply lines:

ATTENTION! **Installation and operation manuals of pumps has to be observed!**

The pumps are connected to the terminal blocks in accordance with the wiring diagram. PE must be connected to the earth bus. Shielded motor cables are demanded.

Pressure sensor:
Properly connect the sensor to the terminals in accordance with the installation and operating instructions.
Use a shielded cable, connect one side of the shield in the switchbox.

ATTENTION! **Do not apply external voltages to the terminals!**

External on/off:
Via the terminals a remote switch off/on device can be connected via a potential-free break contact, after removing the bridge (factory mounted). The system can then be switched on or off.

External On-/Off	
Contact closed	Automatic ON
Contact opened	Automatic OFF, Signalling via symbol in the display
Contact load	24 V DC / 10 mA

ATTENTION! **Do not apply external voltages to the terminals!**

Dry run protection:
A low-water protection function can be connected via the terminals designated in the wiring scheme once the bridge has been removed (pre-

installed in the factory) using the floating contact (closed contact). It is therefore possible to switch the system on and off.

Dry run protection	
Contact closed	No water shortage
Contact opened	Water shortage (dry run)
Contact load	24 V DC / 10 mA

ATTENTION! **Do not apply external voltages to the terminals!**

Collective run/ failure signalling "SBM / SSM":
The terminals for collective failure signal and collective run signal (see wiring scheme) provide potential-free changeover contacts for external signals.
Potential-free contacts, max. contact load 250 V ~ / 2 A

Optional signalling of single run , single failure of pumps and dry run:
The terminals for single failure signal, single run signal and dry run signal (see wiring scheme) provide potential-free changeover contacts for external signals.
Potential-free contacts, max. contact load 250 V ~ / 2 A

Actual pressure display:
A 0...10 V voltage signal is available via the designated terminals (see wiring scheme), making it possible to measure/display the current actual pressure. Here 0 ... 10 V correspond to the pressure sensor signal 0 ... pressure sensor final value. For example:

Sensor	Display range	Voltage/Pressure
16 bar	0 ... 16 bar	1 V = 1,6 bar

ATTENTION! **Do not apply external voltages to the terminals!**

Actual frequency display:
Panels including a frequency converter provides via the designated terminals (see wiring scheme) a 0...10 V - signal for external measurement / displaying of the actual output frequency. 0...10 V correspond a frequency range of 0...50 Hz.

ATTENTION! **Do not apply external voltages to the terminals!**

8 Commissioning

We recommend having the unit put into operation by the Wilo customer service. The customer's wiring is to be checked to make sure it is correct, especially the earthing, before switching the unit on for the first time.
The pumps and pipework must be fully rinsed, filled and if necessary bled before being put into operation for the first time.
All steps for Installation, commissioning and operation are described in the booster-system's (DEA) manual.

ATTENTION! **Re-tighten all supply terminals before putting the unit into operation !**

8.1 Factory setting

The controller is presetted factory side. This factory presetting can be restored again by the WILO-Service.

8.2 Supervision of motor rotation sense

Check whether the direction of rotation of the pump in mains operation corresponds with the arrow on the pump housing by briefly switching on each pump in the "Manual" operating mode (menue 1.1). In the case of the wet-runner pumps the incorrect or correct direction of rotation is indicated by a control light on the terminal box (see Fitting and Operating Instructions for pump).

- If **all** pumps show the incorrect direction of rotation in mains operation reverse 2 random phases of the main power cable.

Systems without FC (frequency converter):

- If only **one** pump shows an incorrect direction of rotation in mains operation 2 random phases are to be reversed in the motor terminal box for motors where $P_2 \leq 4$ kW (direct starting).
- If only **one** pump shows an incorrect direction of rotation in mains operation 4 connections are to be reversed in the motor terminal box for motors where $P_2 \geq 5{,}5$ kW (star-delta starting). The winding lead and winding end of 2 phases are to be reversed (e.g. V_1 for V_2 and W_1 for W_2).

Systems with FC (frequency converter):

- Mains operation: set each pump individually to >mains< in menu 1.1. Then proceed as for installations without frequency convertor.
- Frequency convertor operation: Set each pump individually in the operation mode >>Automatic with FC<< in menue 1.1 to "Automatic". The direction of rotation in frequency convertor operation is then to be checked by briefly switching each pump on. If **all** pumps show an incorrect direction of rotation 2 random phases at the frequency convertor output are to be reversed.

8.3 Adjustment of motorprotection

- **WSK(wiring protection contact) / PTC:** No adjustment requested.
- **Overcurrent:** see chapter 6.1.4

8.4 Sensors and optional modules

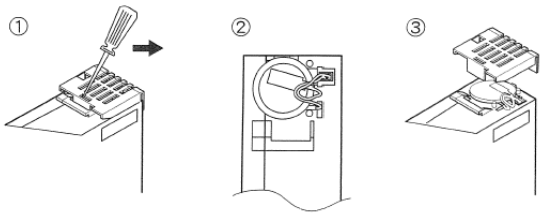
For any sensor installation please take notice of the sensor's installation and operation manuals
The installation of optional modules is carried out factory side.

9 Maintenance

Prior to maintenance or repair work switch off the installation and secure against unauthorised switching.

The control cubicle must be kept clean. Control cubicle and fan are to be cleaned if dirty. The filter mats of the fans must be inspected, cleaned or replaced if dirty or clogged.
From motorpowers of 5,5 kW on, the contactors should be inspected regularly on the loss of contact material. If there is to much material lost, the contactors/contacts must be replaced.

The state of charge of the real time clock buffer battery is supervised by the system and, if necessary, signalled. A replacing cyclus from 12 months is recommended. Replace the battery in the CPU as shown below.



10 Faults, causes and rectification

10.1 Fault displaying and acknowledgement

If any fault occurs, the background light of the display changes it's colour into red, the collective failure signal is activated and in the menue 3.2 the fault is displayed with codenumber and alarmtext. Systems with optional remote diagnosis send a message to the designated receiver(s).
The acknowlegement can be done in menue 3.2 with the softkey "RESET" or remote.
If the fault causal was rectified, the backlight of the display changes into green. If the fault causal was not rectified, the backlight of the display changes into orange.
A faulty pump is displayed on the screen with a flashing pump symbol.

10.2 Error memory for faults

The panel provides a fault memory working with the FIFO-principle (First In First OUT). Each fault is stored with a timestamp (Date / Time).In maximum 35 faults can be stored.
The alramlist can be called in menue 3.2 via the softkey »List«. With the softkeys »+« and »-« browsing is enabled.
Table 1 shows a list of all fault signals.

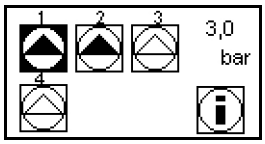
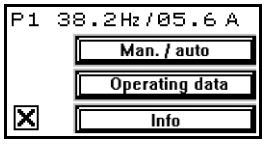
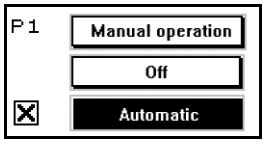
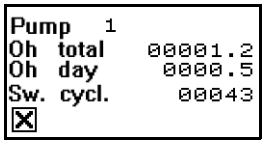
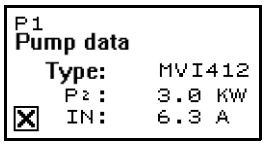
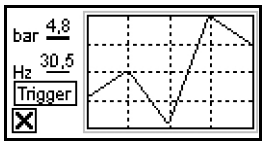
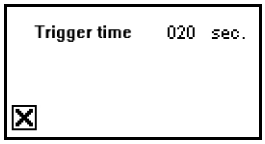
Table 1, Fault signals

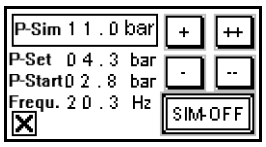
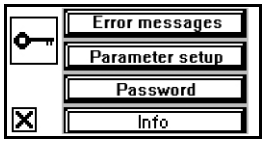
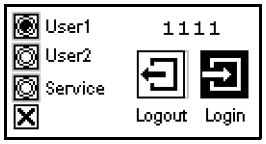
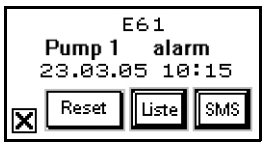
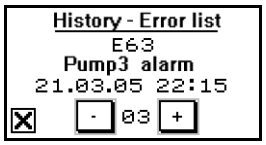
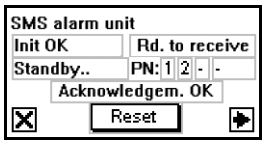
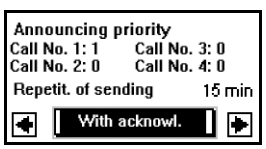
Code	Alarmtext	Causes	Remedies
E20	FC Error	Frequency converter signals failure	Check failure display in menue 3.3.6 or on the FC-display, rectification according to installation and operation manual of FC
		Elektrical connection defective	Check and, if required, maintain electrical connections of FC
		Motor protection of FC tripped (e.g. short circuit of FC-mains; Overload of pump)	Check and, if required, maintain electrical supply line of FC (see installation and operation manual of pump)
E40	Sensor fault	Pressure sensor defective	Replace sensor
		No electrical connection to sensor	Maintain electrical connections
E42	Pre-pressure min	Dry run protection tripped	Check inlet and storage tank; System restarts automatically
E43	Output pressure Min	The output pressure of the system has fallen below the value set in menu 3.3.2.3 (e.g. because of burst pipe)	Check whether set value complies with local conditions
			Check and, if required, repair pipework
E44	Output pressure min	Output pressure of system below value adjusted (e.g. caused by pipe breakage) in menue 3.3.2.3	Check if adjustments meet requirements of local installation
			Check and, if requested, maintain pipework
E61	Pump1 Alarm	Winding overtemperature (WSK/ PTC)	Clean cooling fins; Motors are designed for ambient temperatures up to +40°C (see installation and operation manual of pump)
E62	Pump2 Alarm		
E63	Pump3 Alarm		
E64	Pump4 Alarm	Motorprotection tripped (Overcurrent or short circuit in supply line)	Checking pump (see installation and operation manual of pump) and supply line connection
E65	Pump5 Alarm		
E66	Pump6 Alarm		
E88	E88Battery discharged	The battery is discharged down to minimal niveau, the further buffering of real time clock is any longer assured	Replace battery (see chapter 9)

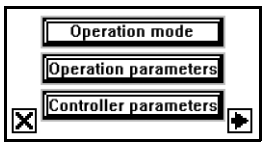
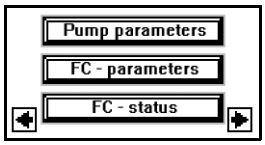
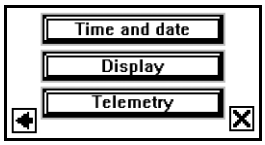
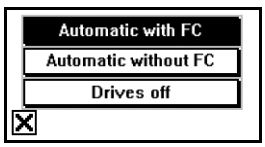
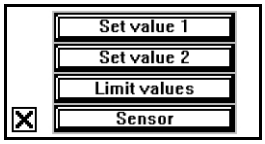
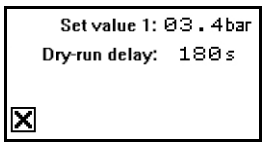
If the problem cannot be rectified, contact your sanitation and heating dealer or Wilo Customer Service.

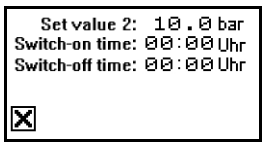
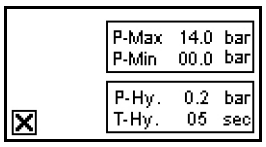
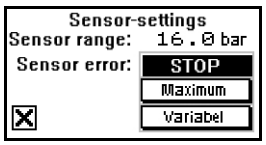
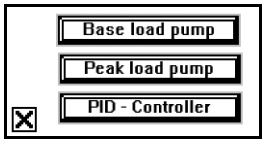
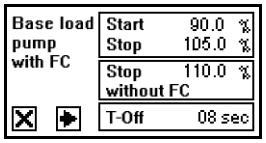
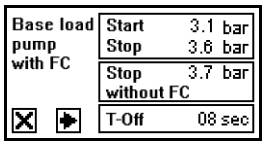
Subject to technical alterations

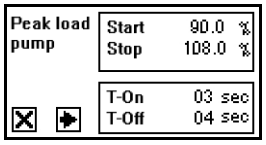
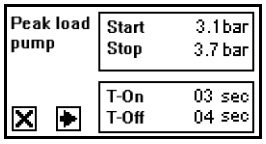
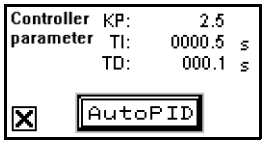
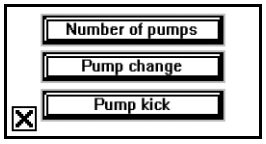
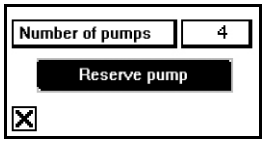
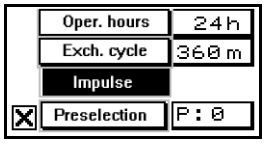
Table 2, Menue description

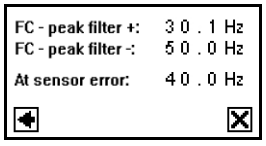
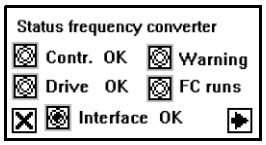
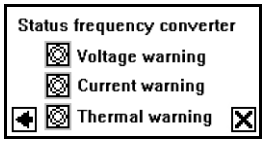
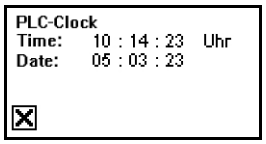
Menue -No. Call by:	Display visible for User 1 and higher: * User 2 and higher: ** Service: ***	Description	Parameter settings/ Functions changeable by User 1 and higher: * User 2 and higher: ** Service: ***	Factory-settings
0	Main menue 	Display of operationmodes of pumps and actual systempressure valueCall of pumpsettings, diagram and main menue	none	–
1 	Pump 1...6 	Call of operation mode setting, operationdata and information about pump 1...6 (number: installation specific)In case of the FC-operated pump actual values of current and frequency are being displayed	none	–
1.1	Operation mode Pump 	Adjustment of opeartionmode of pumps: Hand (on line), Automatic (on line or FC-driven - depends on controller) or OFF (no starting of pump via control)	Operation mode **	Automatic
1.2	Operation data Pump 	Display of overall running hours (since commissioning) and running hours at the day, switching actions (Number of "On"-switchings)	none	–
1.3	Info Pump 	Display of pump information: Type, output power P_2 and nominal current I_N. Input of pump data when commissioning, Data will be copied from pump 1 to pump 2...6	Pump type ** Output power P_2 [kW] ** Nominal current I_N [A] **	Installation specific
2 0,00 bar	Diagram 	Diagramm for displaying of systempressure and FC-frequency values over time axis-Call of triggersettings and simulationmode	keine	–
2.1	Triggerein settings 	Setting of time base (trigger-time) of diagram	Trigger time [s] *	0 s

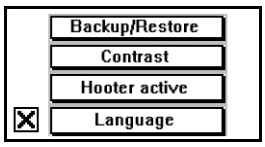
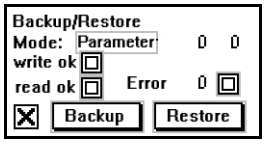
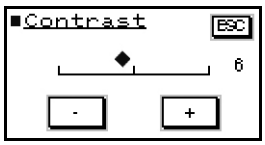
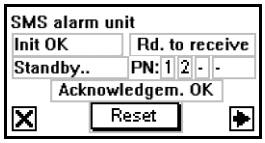
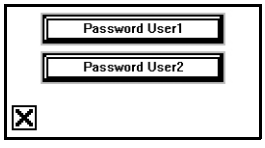
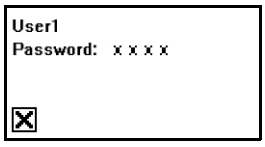
Menue-No. Call by:	Display visible for User 1 and higher: User 2 and higher: Service:	 * ** ***	Description	Parameter settings/ Functions changeable by User 1 and higher: User 2 and higher: Service:	 * ** ***	Factory-settings
2.2	Simulation  	***	Switching on/off of simulationsmode (Testrun of panel without sensor). Variation of simulated pressure value by the softkeys + ++ - --	Simulation ON/OFF Simulation pressure	*** ***	OFF –
3	Main menue  	*	Call of Login/Logout, fault-messages, parametersettings, passwordsettings and site information	none		–
3.1	Login/Logout  		Input of passwords for Login (User1, User2, Service), Display of Login-Status, ability to Log-out (Auto-Logout after 60 Minutes)	Passwort input		–
3.2	Fault messages 	*	Display of recent fault messages (if there are more than one, messages are shown cyclic one by one), local reset of faults, Call of list of fault messages and SMS-settings	Reset	*	–
3.2.1	Fault messages  	*	Display of fault history (35 messages) with timestamp; Browsing via softkeys +/-	Browsing of failure messages	*	–
3.2.2	SMS-adjustments  	*	(page 1 – SMS-Messager) Display of SMS-Status	Reset	**	–
	 	*	(page 2 – Messagepriority) Fixing of priorities (0...4) for maximum 4 phonenumbers and the time for the send repeat. Fixing of acknowledgement obligation	Priority of phone number 1 Priority of phone number 2 Priority of phone number 3 Priority of phone number 4 Time between repeats [min]	** ** ** ** **	1 0 0 0 15 min

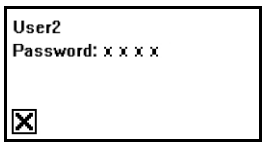
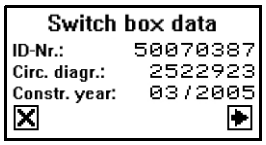
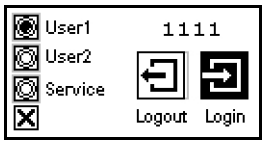
Menue -No. Call by:	Display visible for User 1 and higher: User 2 and higher: Service:	 * ** ***	Description	Parameter settings/ Functions changeable by User 1 and higher: User 2 and higher: Service:	 * ** ***	Factory-settings
		*	(page 3 – Station name) Input of station name and PIN-number of SIM-card for telemetry	Station name [txt, 16 chars] PIN [num., 4 digits]	** **	„WILO CC System“ Installation specific
		*	(Page 4 – SMS-target phone numbers) Input of maximum 4 phone-numbers (1–4) and the provider's number (SMS-Centers) (phonenumber 5); Choosing by the softkeys +/–	Phone number 1–5 [num., 16 digits]	**	Installation specific
3.3	Parameter setup menues 	*	(Page 1) Call of the menues operation-mode site, operation parameters and controllerparameters	none		–
		*	(Page 2) Call of menues for pumpparameters, FC–Parameters and FC–Status	none		–
		*	(Page 3) Call of menues for clock, displaysettings and SMS–adjustments	none		–
3.3.1	Operation mode site 	*	Fixing of the operationmode of the site (Automatic with/without FC), Switching on and off of all drives	Operation mode site	**	Drives off
3.3.2	Operationparameter 	*	Call of menues for setpoint and limit values, sensorsettings	none		–
3.3.2.1	1. Set point 	*	Setting of 1. setpoint (base setpoint)	p_{Set1} [bar] t_{TLS} [s]	** **	Installation specific 180

Menue -No.	Display visible for User 1 and higher: User 2 and higher: Service:	 * ** ***	Description	Parameter settings/ Functions changeable by User 1 and higher: User 2 and higher: Service:	 * ** ***	Factory-settings
3.3.2.2	2. Set point 	*	Setting of 2. setpoint and switching times between set-points 1 and 2	p_{Set2} [bar] t_{p2on} [Std:Min] t_{p2off} [Std:Min]	** ** **	0,0 00:00 00:00
3.3.2.3	Limit values 	*	Input of maximalpressure (overpressurecontrol) and minimalpressure (pipe-break control). For this limits a hys-teresis and a time delay for the alarm can be fixed	p_{max} [bar] p_{min} [bar] p_{Hyst} [bar] t_{Hyst} [s]	** ** ** **	Installation specific
3.3.2.4	Sensor 	*	Selection of pressure sen-sortype (measuring range) and reaction of panel in case of sensorfailure (Switching "off" all drives, operation of all drives with maximum speed, opera-tion of one pump with prese-lected speed - please see Menue 3.3.5 page 2)	Sensor Operation in case of sensorfault	** **	16 Stop
3.3.3	Controller parameter 	*	Call of menues for adjustment of parameters for baseload and peakload switching, adjust-ment of PID-controller	none		-
3.3.3.1	Base load pump 	*	(Page 1) Base load pump ⇒ Display/ Setting of: • On and off pressure for base load pump in nornal opera-tion • Switching off pressure • Delay for base load pump when operating without FC. (All settings in % of 1. set-point)	p_{GLon} [%] p_{GLoff} [%] p_{GLoff2} [%] t_{GLoff} [s]	** ** ** **	90 105 110 10
		*	(Page 2) Base load pump ⇒ Display/ Setting of: • On and off pressure for base load pump in nornal opera-tion • Switching off pressure • Delay for base load pump when operating without FC.	keine		-

Menue -No.	Display visible for User 1 and higher: * User 2 and higher: ** Call by: Service: ***		Description	Parameter settings/ Functions changeable by User 1 and higher: * User 2 and higher: ** Service: ***		Factory-settings
3.3.3.2	Peak load pump 	*	(Page 1) Display/setting of switching on and off pressure, time delays for switching on and off for the peak load pumps (All settings in % of 1. setpoint)	p_{SLon} [%] p_{SLoff} [%] t_{SLon} [s] t_{SLoff} [s]	** ** ** **	75 110 3 3
		*	(Page 2) Display/Adjustment of switching on and off-pressures and time delays for peakload pumps (All settings in bar)	none		–
3.3.3.3	PID-Controller 	*	Adjustment of proportional action coefficient, integral action time and derivative action time of PID-controller Ability of automatic adaption to installation with the softkey: AutoPID	Proportional action coefficient k_P Integral action time t_I [s] Derivative action time t_D [s] AutoPID	** ** ** ***	2,5 0,5 0,1 –
3.3.4	Pump parameter 	*	Call of menues for the setting of number of pumps and the parameters for pumpchange and pumpkick	none		–
3.3.4.1	Number of pumps 	*	Setting of the number of pumps (1...6)	Number of pumps with/without reserve pump	** **	Installation specific Installation specific
3.3.4.2	Pump change 	*	Fixing of the changing mode for pumpchange (running hours, when switching on, cyclic) and the times for changings. Ability to pre-select the baseload pump	Operating hours [h] Cycle time for pump change [min] No. of preselected pump	** ** **	24 360 0

Menue -No. Call by:	Display visible for User 1 and higher: User 2 and higher: Service:	 * ** ***	Description	Parameter settings/ Functions changeable by User 1 and higher: User 2 and higher: Service:	 * ** ***	Factory-settings
3.3.4.3	Pump kick 	*	Adjustment of the pumpkick intervall and the duration of testrun. Pumpkick can be forced by the softkey: Test Each stroke of the key will start the pump for the adjusted testrun duration. Pumps will be count up.	Test run intervall [h] Test run duration [s] Test	** ** *	6 10 –
3.3.5	FC parameter 	*	(Page 1) Adjustment of the maximal and minimal output frequencies and ramp times of the frequen-cyconvertors.	f_{max} [Hz] f_{min} [Hz] t_{Ramp+} [s] t_{Ramp-} [s] FC type	** ** ** ** ***	50 20 5 5 Installation specific
▶		*	(Page 2) Adjustment of FC-frequencies for overpressure and pressure break avoidance in the moment of peakloadswitching on and off. Setting of fixed output fre-quency for controlled pump in case of sensorfault.	f_{Peak+} [Hz] f_{Peak-} [Hz] f_{Not} [Hz]	** ** **	20 50 40
3.3.6	FC status 	*	(Page 1 – status messages) Display of statusmessages for busconnection and frequency-convertor.	none		–
▶		*	(Page 2 – FC faults) Display of alarm messages of FC (Voltage, current, tempera-ture)	none		–
3.3.7	Time 	*	Adjustment of real time clock (time, date)	Time [hh:mm:ss] Date: [jj.mm.tt]		– –

Menue -No.	Display visible for User 1 and higher: User 2 and higher: Service:	 * ** ***	Description	Parameter settings/ Functions changeable by User 1 and higher: User 2 and higher: Service:	 * ** ***	Factory-settings
3.3.8	Display adjustments 	*	Switching on /off of hooter (fault cases) and demo mode (automatic running up and down of drives) Call of Submenues for the adjustment of contrast of the display and for Backup/Restore of receipts (programs)	hooter on/off Demomode on/off	**	OFF
3.3.8.1	Backup/Restore 	**	Ability to store (Backup) or re-store of receipts (Parameter-sets of displays) into / out of datastorage of plc. Ther are 2 receipts defined. Receipt 1 "Parameter" contents all adjustable variables. Receipt 2 "Type" contents all site and pump data's.	Backup Restore	** ***	– –
3.3.8.2	Contrast 	*	Adjustment of diplay contrats via pressing of softkeys 	Contrast	*	6
3.3.8.3	Language 	*	Setting of the active display language	Language	*	Installation specific
3.3.9	SMS adjustments 	*	Equivalent to 3.2.2			
3.4	Password 	*	Call of submenues for the determination of passwords 1–2	none		–
3.4.1	Password 1 	*	Input of password for USER1	Password User1 [num., 4 digits]	*	–

Menue -No. Call by:	Display visible for User 1 and higher: User 2 and higher: Service:	 * ** ***	Description	Parameter settings/ Functions changeable by User 1 and higher: User 2 and higher: Service:	 * ** ***	Factory-settings
3.4.2	Password 2 	**	Input of password for USER2	Password User2 [num., 4 digits]	**	–
3.5	Info panel 	*	Input/Display of paneldesignation Call of switch box data, softwareversions and Login/Logout	none		–
3.5.1 Info	Panel data 	*	(Page 1 – Data) Input/Display of ID-number, Wiring-scheme number and manufacturing date	ID-No. [txt, 10 Stellen] Wiring scheme no. [txt, 10 chars] Manufacturing date [mm:jjjj]	*** *** ***	Installation specific
			(Page 2 – Software versions) Display of softwareversions of plc- and touchpanel-program	none		–
3.5.2	Login/Logout 		equivalent to 3.1			

D EG – Konformitätserklärung
GB EC – Declaration of conformity
F Déclaration de conformité CEE

Hiermit erklären wir, dass die Bauarten der Baureihe : **CC**
Herewith, we declare that this product:
Par le présent, nous déclarons que cet agrégat :

in der gelieferten Ausführung folgenden einschlägigen Bestimmungen entspricht:
in its delivered state complies with the following relevant provisions:
est conforme aux dispositions suivants dont il relève:

Elektromagnetische Verträglichkeit – Richtlinie **Electromagnetic compatibility – directive** **Compatibilité électromagnétique– directive**	**89/336/EWG** i.d.F/ as amended/ avec les amendements suivants: 91/263/EWG 92/31/EWG 93/68/EWG
Niederspannungsrichtlinie **Low voltage directive** **Direction basse–tension**	**73/23/EWG** i.d.F/ as amended/ avec les amendements suivants : 93/68/EWG
Angewendete harmonisierte Normen, insbesondere: *Applied harmonized standards, in particular:* *Normes harmonisées, notamment:*	**EN 61000–6–2** **EN 61000–6–3** **EN 60204–1** **EN 60730–1** **EN 50178**

Dortmund, 12.08.2005

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Oliver Breuing
Manager Corporate Quality

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Document: 2063256.1

NL **EG-verklaring van overeenstemming**

Hiermede verklaren wij dat dit aggregaat in de geleverde uitvoering voldoet aan de volgende bepalingen:

Elektromagnetische compatibiliteit 89/336/EEG als vervolg op 91/263/EEG, 92/31/EEG, 93/68/EEG

EG-laagspanningsrichtlijn 73/23/EEG als vervolg op 93/68/EEG

Gebruikte geharmoniseerde normen, in het bijzonder: **1)**

I **Dichiarazione di conformità CE**

Con la presente si dichiara che i presenti prodotti sono conformi alle seguenti disposizioni e direttive rilevanti:

Compatibilità elettromagnetica 89/336/CEE e seguenti modifiche 91/263/CEE, 92/31/CEE, 93/68/CEE

Direttiva bassa tensione 73/23/CEE e seguenti modifiche 93/68/CEE

Norme armonizzate applicate, in particolare: **1)**

E **Declaración de conformidad CE**

Por la presente declaramos la conformidad del producto en su estado de suministro con las disposiciones pertinentes siguientes:

Directiva sobre compatibilidad electromagnética 89/336/CEE modificada por 91/263/CEE, 92/31/CEE, 93/68/CEE

Directiva sobre equipos de baja tensión 73/23/CEE modificada por 93/68/CEE

Normas armonizadas adoptadas, especialmente: **1)**

P **Declaração de Conformidade CE**

Pela presente, declaramos que esta unidade no seu estado original, está conforme os seguintes requisitos:

Compatibilidade electromagnética 89/336/CEE com os aditamentos seguintes 91/263/CEE, 92/31/CEE, 93/68/CEE

Directiva de baixa voltagem 73/23/CEE com os aditamentos seguintes 93/68/CEE

Normas harmonizadas aplicadas, especialmente: **1)**

S **CE- försäkran**

Härmed förklarar vi att denna maskin i levererat utförande motsvarar följande tillämpliga bestämmelser:

EG–Elektromagnetisk kompatibilitet – riktlinje 89/336/EWG med följande ändringar 91/263/EWG, 92/31/EWG, 93/68/EWG

EG–Lågspänningsdirektiv 73/23/EWG med följande ändringar 93/68/EWG

Tillämpade harmoniserade normer, i synnerhet: **1)**

N **EU-Overensstemmelseserklæring**

Vi erklærer hermed at denne enheten i utførelse som levert er i overensstemmelse med følgende relevante bestemmelser:

EG–EMV–Elektromagnetisk kompatibilitet 89/336/EWG med senere tilføyelser: 91/263/EWG, 92/31/EWG, 93/68/EWG

EG–Lavspenningsdirektiv 73/23/EWG med senere tilføyelser: 93/68/EWG

Anvendte harmoniserte standarder, særlig: **1)**

FIN **CE-standardinmukaisuusseloste**

Ilmoitamme täten, että tämä laite vastaa seuraavia asiaankuuluvia määräyksiä:

Sähkömagneettinen soveltuvuus 89/336/EWG seuraavin täsmennyksin 91/263/EWG 92/31/EWG, 93/68/EWG

Matalajännite direktiivit: 73/23/EWG seuraavin täsmennyksin 93/68/EWG

Käytetyt yhteensovitetut standardit, erityisesti: **1)**

DK **EF-overensstemmelseserklæring**

Vi erklærer hermed, at denne enhed ved levering overholder følgende relevante bestemmelser:

Elektromagnetisk kompatibilitet: 89/336/EWG, følgende 91/263/EWG, 92/31/EWG, 93/68/EWG

Lavvolts-direktiv 73/23/EWG følgende 93/68/EWG

Anvendte harmoniserede standarder, særligt: **1)**

H **EK. Azonossági nyilatkozat**

Ezennel kijelentjük,hogy az berendezés az alábbiaknak megfelel:

Elektromágneses zavarás/türés: 89/336/EWG és az azt kiváltó 91/263/EWG, 92/31/EWG, 93/68/EWG

Kisfeszültségü berendezések irány-Elve: 73/23/EWG és az azt kiváltó 93/68/EWG

Felhasznált harmonizált szabványok, különösen: **1)**

CZ **Prohlášení o shodě EU**

Prohlašujeme tímto, že tento agregát v dodaném provedení odpovídá následujícím příslušným ustanovením:

Směrnicím EU–EMV 89/336/EWG ve sledu 91/263/EWG, 92/31/EWG, 93/68/EWG

Směrnicím EU–nízké napětí 73/23/EWG ve sledu 93/68/EWG

Použité harmonizační normy, zejména: **1)**

PL **Deklaracja Zgodności CE**

Niniejszym deklarujemy z pełną odpowiedzialnoscią że dostarczony wyrób jest zgdony z następującymi dokumentami:

Odpowiedniość elektromagnetyczna 89/336/EWG ze zmianą 91/263/EWG, 92/31/EWG, 93/68/EWG

Normie niskich napięć 73/23/EWG ze zmianą 93/68/EWG

Wyroby są zgodne ze szczegółowymi normami zharmonizowanymi: **1)**

RUS **Деклация о соответствии Европейским нормам**

Настоящим документом заявляем, что данный агрегат в его объеме поставки соответствует следующим нормативным документам:

Электромагнитная устойчивость 89/336/EWG с поправками 91/263/EWG, 92/31/EWG, 93/68/EWG

Директивы по низковольтному напряжению 73/23/EWG с поправками 93/68/EWG

Используемые согласованные стандарты и нормы, в частности : **1)**

GR **Δήλωση προσαρμογής της Ε.Ε.**

Δηλώνουμε ότι το προϊόν αυτό σ' αυτή την κατάσταση παράδοσης ικανοποιεί τις ακόλουθες διατάξεις :

Ηλεκτρομαγνητική συμβατότητα EG-89/336/EWG όπως τροποποιήθηκε 91/263/EWG 92/31/EWG, 93/68/EWG

Οδηγία χαμηλής τάσης EG–73/23/EWG όπως τροποποιήθηκε 93/68/EWG

Εναρμονισμένα χρησιμοποιούμενα πρότυπα, ιδιαίτερα: **1)**

TR **CE Uygunluk Teyid Belgesi**

Bu cihazın teslim edildiği şekliyle aşağıdaki standartlara uygun olduğunu teyid ederiz:

Elektromanyetik Uyumluluk 89/336/EWG ve takip eden, 91/263/EWG, 92/31/EWG, 93/68/EWG

Alçak gerilim direktifi 73/23/EWG ve takip eden, 93/68/EWG

Kısmen kullanılan standartlar: **1)**

1) **EN 61000-6-3**

EN 61000-6-2

EN 60204-1

EN 60730-1

EN 50178

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March 2006

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