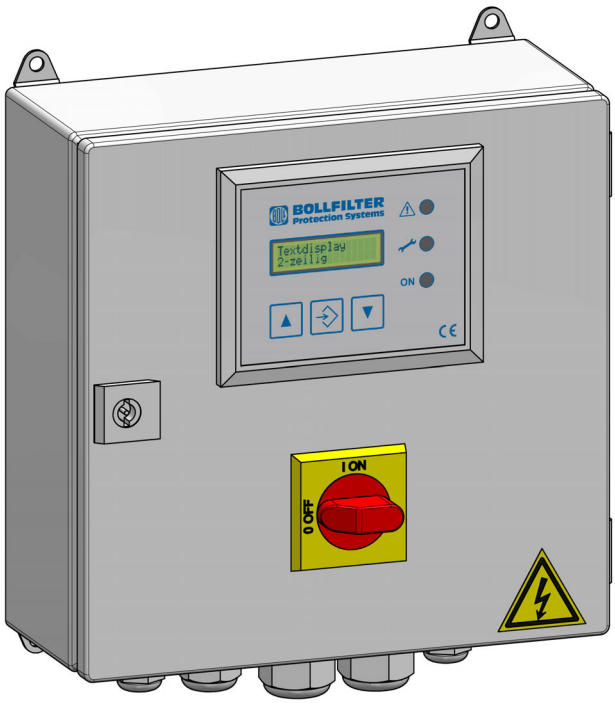
Operating and installation instructions

Electronic controller
Type: 2300 Plus



NOTE:
Print document on both sides

Translation of the original operating instructions

BOLLFILTER
Protection Systems

Siemensstraße 10 - 14
50170 Kerpen
Germany
www.bollfilter.com

Date	Version	Language	Order no.	Item no.
12.2022	001	en	-	-

Table of contents

1 Basic safety instructions

1.1 Warning signs and symbols

The following designations and symbols are used in the operating instructions to denote particularly important information:

DANGER!

Danger to life / Serious harm to health!

Indicates an imminently hazardous situation involving a high risk which, if not avoided, will result in death or severe (irreversible) injury.

ATTENTION

Material damage!

Denotes a situation that could lead to damage to the product itself or to objects in its vicinity.

NOTE

Denotes special user tips and other particularly useful or important information.

DISPOSAL

Denotes special measures for environmental protection.

1.2 Proper use

The control box has been constructed in accordance with the state-of-the-art in technology and generally recognized rules of safety. However, danger to the life and limb of the user or third parties and/or damage to the control box and other property can arise during use.

The control box may only be used for its intended purpose and if it is in perfect working order, and it must be used with regard to safety and dangers as stated in the operating instructions. Faults, especially those that could adversely affect safety, must be rectified immediately.

The control box is designed to be used for the control of the filter described in these operating instructions only. Any other use or use going beyond this shall be regarded as improper use. The manufacturer/supplier shall not be liable for damage resulting from improper use; the user shall bear the risk alone.

Usage for the intended purpose, i.e. proper use, also includes complying with the operating instructions for the control box and corresponding filter.

Safe and reliable operation can only be guaranteed if all the instructions, settings and performance limits for the control box (see control cabinet diagrams) and corresponding filter are complied with.

DANGER!

Risk of accidents due to improper installation

A failure of the device resulting from improper installation of the electronic control box or the connected equipment could cause severe personal injury or even fatal injury. Therefore, in addition to the general safety rules for equipment in industrial power installations, comply with the following points in particular:

- The installation of the control box should only be performed by qualified specialist staff in accordance with the conditions of IEC 364 and DIN VDE 0105 for electrical equipment.
- All applicable laws, conditions, regulations and instructions relating to the installation of electrical equipment must be observed in relation to the installation location.
- Settings for IP00 protection class devices (in the case of an opened control cabinet or where there are no covers) must only be made by authorized specialist staff, with the devices switched off and in compliance with the local safety and accident prevention regulations.
- The control box may only be operated in the permitted area of use.

1.3 Target group

The operating instructions apply for use by qualified specialist staff only.

1.4 Obligations of the user/operator

- Keep the operating instructions at hand at the place of use of the control box at all times.
- In addition to the operating instructions, observe and draw attention to generally applicable legal and other mandatory regulations relating to the prevention of accidents and environmental protection. Such obligations can include, for example, the provision/wearing of personal safety clothing and equipment.
- Provide supplements to the operating instructions in the form of instructions including supervision and reporting responsibilities to account for special operational considerations, e.g. with regard to the organization of work, work sequences and personnel employed.
- Only trained personnel who are familiar with the essential occupational health and safety regulations and have been provided with instruction in the handling of the control box are permitted to be deployed.
- Only personnel who have been specifically appointed by the user for the purpose are permitted to operate the control box or carry out any work of maintenance or repair on it.
- Observe all safety and hazard alerts on the control box (where provided).
- Make sure that all safety and hazard alerts on the control box are complete and legible at all times (where provided).
- Never make any modifications, additions or conversions to the control box which might adversely affect safety, without the manufacturer’s approval.
- The spare parts used must conform with the technical requirements specified by the manufacturer. This can be guaranteed by using original spare parts.

1.5 Selection and qualifications of staff

- All tasks on the control box must be carried out only by reliable personnel. Personnel must not be under the influence of drugs or medication. Statutory minimum age limits must be observed.
- Employ only trained and instructed personnel and set out clearly the individual responsibilities of the personnel for installation, operation and maintenance.

In these operating instructions the following qualifications are stipulated for the different areas of activity:

- Instructed persons means persons who have been instructed during instruction provided by the user with regard to the work assigned to them and possible hazards arising from improper conduct and about required safety devices and precautions.
- Specialist staff means persons who have the training, knowledge and experience, as well as familiarity with applicable regulations, to be able to carry out the work delegated to them and to recognize and avoid potential dangers themselves.
- An electrician means a person who has the training, knowledge and experience, as well as familiarity with applicable standards and regulations, to be able to carry out work on electrical equipment and to recognize and avoid potential dangers themselves. The electrician is qualified to work at the specific place of use at which they work and is familiar with the relevant standards and regulations.

In-house instruction must be provided, having regard to the technical qualifications of the specific individual concerned.

In addition to the safety instructions set out in these operating instructions, the following rules and regulations must also be complied with:

- the applicable accident prevention regulations
- occupational medicine-related regulations
- generally recognized rules of safety
- country-specific regulations
- proper use

In addition, these rules and regulations can also be supplemented by in-house regulations specified by the plant or company itself.

1.6 Organisational measures

1.6.1 General

- Follow the respective valid national and international accident prevention regulations.

1.7 Safety instructions for operating personnel

Refrain from any working practices which could

– pose a risk of danger to life and limb of the user or third parties,
– adversely affect the control box or other property,
– adversely affect the safety and operation of the control box,
– infringe the specified safety instructions.

1.7.1 Personal protective equipment

The safety clothing and equipment stipulated by the company for all work on the control box must be worn.

2 Technical data of controller and control cabinet components

2.1 Power components

2.1.1 Supply

Supply L1-L2-L3 direct to 4-pole master switch – Q1 (T1-T2-T3)

2.1.2 Motor control

Motor connection U-V-W direct to motor contactor – K1 (2-4-6)

2.1.3 Power supply

Primary voltages	0 - 220 V, 380 V, 400 V, 440 V, 500 V, 550 V
Secondary voltages	
0 V AC - 230 V AC	Valve voltage 230 V AC
0 V AC - 115 V AC	Valve voltage 115 V AC
0 V DC - 24 V DC	Valve voltage 24 V DC
0 V AC - 20 V AC	Control circuit board supply voltage

2.1.4 Fuse protection

Fuses in the control cabinet	
F1 to F3	Each 1 A
Fuses on the control circuit board	
Fuse F1	0.8 A slow-blow
Fuse F2	2.0 A slow-blow

2.2 Online communication

The following URLs must be accessible via the controller:

- *https://bollfilter.com*
- *https://updatehelper.bollfilter.com*
- *mqtts://mqtt.bollfilter.io:8883*

Port 8883 must be enabled. This is used for TLS data transfer via MQTT.

Please note the firewall settings and adjust them accordingly. The RJ45 bushing must be used for the online connection.

2.3 Control circuit board inputs / outputs

2.3.1 Optocoupler inputs (E1 - E5), terminals 31 - 40

2.3.2 Analogue input 4-20 mA, terminals 41 - 42

2.3.3 Live relay outputs

Outputs VE1 - VN1 to VE3 - VN3	Terminals 8 - 13

NOTE

The connections and designations are to be taken from the respective control cabinet diagrams, according to filter type.

2.3.4 Potential-free relay outputs

Outputs A1 - A15	Messages 1 - 5 (change-over contact)	Terminals 16 - 30

NOTE

The connections and designations are to be taken from the respective control cabinet diagrams, according to filter type.

2.4 Expansion board

2.4.1 Analogue inputs AI1 - AI3, 4-20 mA, two-wire, terminals 43-48

2.4.2 Digital inputs DI1 - DI4 terminals 53-57

2.4.3 Analogue output AQ1 - AQ2 terminals 49-52

2.4.4 Digital output DQ1 - DQ3 terminals 58-61

2.4.5 RJ45 network bushing

3 Operation

3.1 Device functions and control sequence

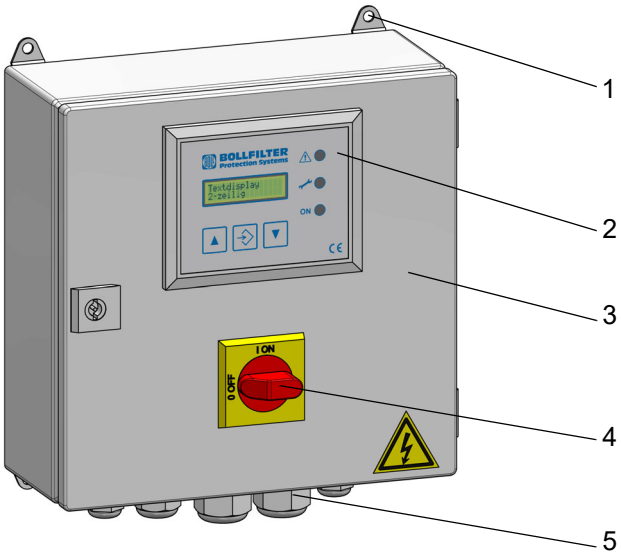


Fig. 3-1 Electronic controller type 2300

1 Fastening
2 Display and operating elements
3 Housing
4 Master switch
5 Connection

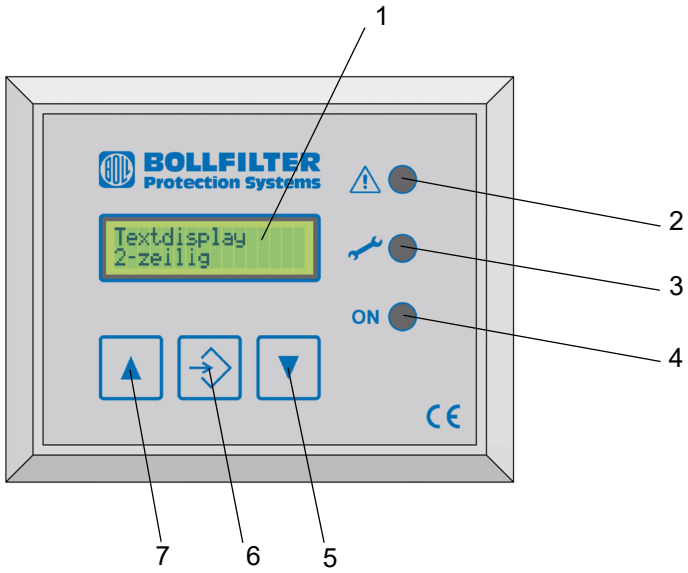


Fig. 3-2 Display and operating elements

1 Display screen for text display, 2 lines of 16 characters
2 "Alarm" LED (red)
3 "Service" LED (yellow)
4 "Operation" LED (green)
5 The Q key - When pressed, acknowledges the alarm messages
6 The F key - When pressed, triggers manual flushing
7 The C key - When pressed, shows the number of flushes

3.1.1 Master switch operation feedback contact

When the master switch is in the "On" position, a contact is made.

3.1.2 Control voltage monitoring

As soon as the master switch is actuated, the power supply is activated and the controller is working properly, the green "Operation" LED lights up and the "Control voltage monitoring" relay is activated. In the event of operating voltage failure or a fuse fault on the control circuit board, no LED lights up and the "Control voltage monitoring" relay is no longer activated.

3.1.3 Motor fault

If the measured motor current exceeds the set setpoint value for parameter P9, a message appears in the display and a potential-free signal is sent to the relay outputs. The motor and the backflushing function switch off immediately. Once the fault has been remedied, the user has to acknowledge the alarm message by pressing the Q key.

3.1.4 Differential pressure too high, flushing oil treatment cartridge alarm

Signal encoder is a pressure switch contact that is connected to the optocoupler input "Differential pressure indicator DP too high flushing oil treatment". If the message exists for longer that set via parameter P7, an alarm message is output to the display. After clearing of the fault, the operator must acknowledge the alarm message by pressing the Q key.

3.1.5 DP too high backflushing filter (ΔP100 %)

The signal transmitter is a pressure switch contact which is connected to the "Differential pressure indicator DP too high, backflushing filter" optocoupler input. If the message is active for longer than 2 seconds, an alarm message appears in the display screen and the red "Alarm" LED lights up. Once the fault has been remedied, the user has to acknowledge the alarm message by pressing the Q key.

3.1.6 Operating hours counter

The operating hours counter records the operating hours when the control box is switched on. The operating hours are displayed by multiple pressing of the C-key (explanation - see section "C key").

3.1.7 Error memory

The internal error memory records all errors and events including specification of the operating hours. Reading out of the error memory is only allowed for authorised persons.

3.1.8 Differential pressure transmitter 4-20 mA

If a differential pressure transmitter (three-wire) is operated with 4-20 mA, the control box can be changed from a digital differential pressure measurement device (DPS = differential pressure switch) to an analogue differential pressure measurement device (DPT = differential pressure transmitter) (for a detailed setting explanation, see the section "P15 DP-Select").

3.1.9 DPT-Alarm

The alarm message "DPT-Alarm" is output to the display if a differential pressure transmitter (three-wire) is used with 4-20 mA, the parameter P15 "DPT" has been selected and the minimum current of 4 mA cannot be measured. In addition the "Alarm" LED (red) comes on and the alarm output A4, A5 and A6 "General Fault" is activated. After clearing of the fault, the operator must acknowledge the alarm message by pressing the Q key.

3.1.10 C key (additional functions display)

When key C (additional function display) is pressed once, the number of flushing cycles which have been performed is shown on the screen for 3 seconds.

NOTE

When key C is pressed multiple times, the following additional information is shown each time it is pressed in the indicated order:

- Current differential pressure, provided a differential pressure transmitter is installed and parameter P15 selection “DPT” has been set in the controller.
- Operating hours when controller is switched on.
- Current motor current, provided a filter type with a gear motor is installed and has been set in the controller.
- DP alarm (flushing frequency monitoring) ON or OFF
- Current remaining time “DP1 time delay”, provided a time delay has been set in the controller using parameter “P16 time delay for differential pressure” and the contact from input E1 (terminals 39 + 40, see circuit diagram) has been closed for the flushing differential pressure ΔP75%.
- Current remaining time “DP2 time delay”, provided a time delay has been set in the controller using parameter “P16 time delay for differential pressure” and the contact from input E2 (terminals 37 + 38, see circuit diagram) has been opened for the flushing differential pressure ΔP100%.
- Current remaining time “P7 cartridge alarm”, provided a filter type with flushing oil treatment is installed, filter type P0 = 4, 8, 14 has been set on the controller and the contact from input E3 (terminals 35 + 36, see circuit diagrams) has been opened for “Differential pressure too high for flushing oil treatment cartridge alarm”.
- Controller WLAN MAC address
- Controller LAN MAC address
- Controller name
- WLAN IP address
- LAN IP address

3.1.11 Multiple flushing

The number of parameterised chambers is worked off with each flushing command.

3.1.12 DP alarm (flushing frequency monitoring)

If a "DP flushing" has been activated before the "Time-dependent backflush trigger" period elapses, the message "DP-Alarm" appears on the display and the "Service" LED (yellow) lights up.

3.1.13 Message A4 "Flushing Active"

Output A4 "Flushing active" (terminals 25, 26 and 27, see control cabinet wiring diagrams) is activated as soon as a flushing has been triggered at the filter.

3.1.14 Time delay differential pressure ΔP75% and ΔP100%

The differential pressure signals "DP flushing [75%]" and "DP too high [100%] of the connected differential pressure measuring device (differential pressure switch [DPS] or differential pressure transmitter [DPT]) can be delayed dependent on the application (for a detailed setting explanation see the section "P16 DP delayed").

3.1.15 Function Remote On/Off (remote switching)

If the contact of input E4 ("Filter Blockage" (terminals 33 and 34, see control cabinet wiring diagrams) has been closed, outputs A13, A14, A15 (terminals 28, 29 and 30, see control cabinet diagrams) are activated and the control box switches to off condition. All outputs and control time meters (e.g. forced flushing time) are reset.

The remote function can only be activated once the message "Flushing active" is no longer present.

Typical representation on the display if remote control is activated:

"6.18/6.19/6.44"	Text display line 1
"Off"	Text display line 2

3.1.16 Initialisation with filter type 6.18/6.19/6.44

Software initialisation is a tool for avoiding errors during commissioning at the customer's site, which is started with the pre-set control box type "6.18/6.19/6.44", in that the gear motor is actuated for 20 seconds with the solenoid valve not activated. During this time a check is performed as to whether a limit switch signal (terminals 31 + 32, see control cabinet diagrams) can be detected.

An error message "P0 filter type" is only output if a limit switch signal is detected because the filter type 6.18/6.19/6.44 is actuated without a limit switch. Then the necessary filter type (with limit switch) must be set (see section "Setting and operation").

NOTE

Initialisation is not started if an operator has previously set the necessary control box type according to the operating instructions.

3.1.17 Limit switch alarm

The alarm message "Limit switch alarm" is output to the display after a so-called position flushing, if the limit switch signal could not be measured at input E5 after 20 seconds. In addition the "Alarm" LED (red) comes on and the alarm output A4, A5 and A6 "General Fault" is activated. After clearing of the fault, the operator must acknowledge the alarm message by pressing the Q key.

3.2 Display for "Operation" mode

The green "Operation" LED lights up once the power supply has been switched on and the controller is at operation level ("Operation" mode).

3.3 Text messages

3.3.1 Text display after switching on

BOLL & KIRCH	Company name
xxxxxxxxxx	Program number

After a short time, the configured control box type is output to the second line of the display.

6.18/6.19/6.44	Control box type 0
6.21/6.22/6.23/6.24	Control box type 1
6.60	Control box type 2
6.60.07/6.72.07	Control box type 4
6.61	Control box type 6
6.61.07	Control box type 8
6.62	Control box type 10
6.64	Control box type 12
6.64.07	Control box type 14
6.72	Control box type 16
aquaBoll®6.18.3	Control box type 18 (*)

(*) Control box type 18 has the same function as control box type 0.

NOTE

To simplify operation, control box types 3, 5, 7, 9, 11, 13, 15 and 17 of the preceding control box type 2200 have been removed to simplify operation.

The function "DP-Alarm" (flushing frequency monitoring) is still available and can still be set (see section "P8 DP Alarm").

3.3.2 Text display in "Operation" mode

forced fl. 00:01	Remaining time till forced flushing is triggered 00 h 01 min
C - F - Q	Reference to keys

When flushing has been triggered, the following messages appear in the first line (depending on the source):

Mains flushing	For flushing triggering via "Mains voltage on"
Manual flushing	For flushing triggering via key F
Forced flushing	For flushing triggering via time-dependent backflush triggering
DP flushing	For flushing triggering via backflushing filter differential pressure
Position flushing	Flushing triggering if the limit switch signal is lost

When flushing has been triggered, the following messages may in the second line (depending on the source):

Flush. time 3S	Remaining flushing time
After bl. t. 3S	Remaining after-blowing time

NOTE

3S indicates that the remaining flushing/after-blowing time is 3 seconds.

If the C key is pressed, the following message appears on the display screen:

No.of flushes	
xxxxxx cycles	Number of flushing cycles

The number of flushing cycles is saved and backed up in the event of a mains failure.

3.3.3 Alarm messages

NOTE

- The "Alarm" LED (red) comes on for each alarm message.
- All alarm messages are saved an backed up to protect against mains failure.
- In alternation with the operating messages, the alarm message is output every 2 seconds to the second line of the display.
- Once the Q key is pressed, the alarm messages are deleted, however, only once the source of the alarm has been cleared. If the source of the alarm has not been cleared, the alarm message reappears.

Alarm messages in the display:

Motor fault	In the event of a "Motor fault" alarm
DP too high	If "High differential pressure Filter 100 %" exists
Cartridge alarm	If "Differential pressure too high flushing oil treatment 100 %" exists
Limit switch alarm	In the event of loss of the limit switch signal

If flushing frequency monitoring is switched on:

DP-Alarm	DP-Alarm triggering of backflushing due to differential pressure 75 % (flushing frequency monitoring)

During differential pressure measurement using the differential pressure transmitter (DPT):

DPT-Alarm	In the event of an incorrect 4 mA input signal

3.4 Setting and operation

3.4.1 Setting level - Viewing and selecting parameters

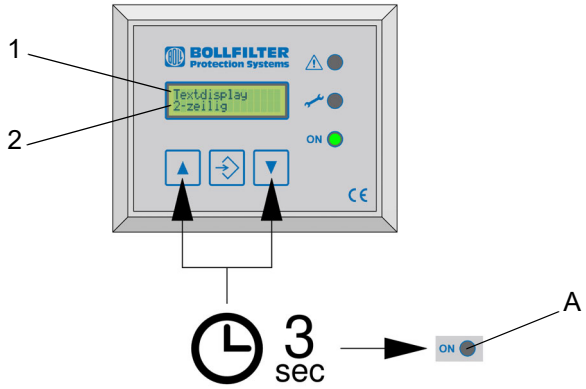


Fig. 3-3 Setting level parameter selection and view

A	Green LED goes off	2	Parameter value
1	Parameter		

To access the setting level "Parameter selection and view", the keys ▲ and ▼ are pressed simultaneously until the "Operation" LED (green) goes out (approximately 3 seconds). The first line of the display shows the parameter, the second line the parameter value. Now all parameters can be displayed by repeated pressing of the ▲ or ▼ key.

3.4.2 Setting level - Changing and saving parameters

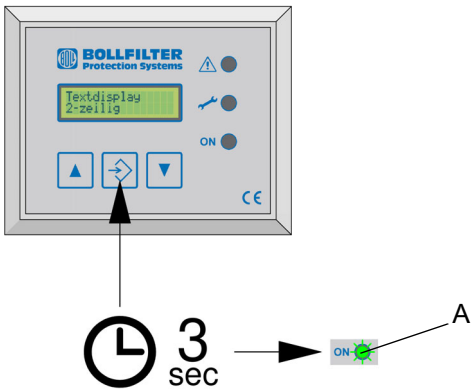


Fig. 3-4 Setting level parameter selection and view

		A	Green LED flashes

To access the setting level "Parameter change and storage", the middle key is pressed until the "Operation" LED (green) flashes (approximately 3 seconds). Now the parameter can be changed by repeated pressing of the ▲ or ▼ key. To save the set value and return to the "Parameter selection and view" setting level, the middle key is pressed until the "Operation" LED (green) goes out (approximately 3 seconds).

3.4.3 Return to operation level

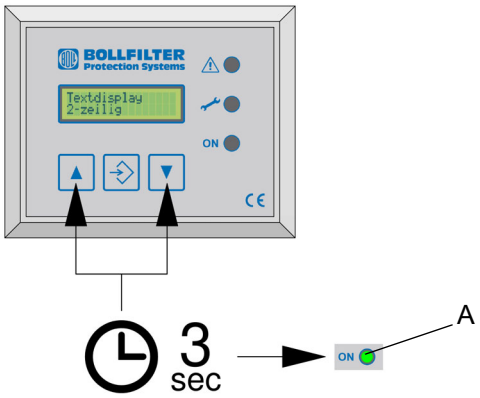


Fig. 3-5 Back to the operating level

A Green LED comes on

To access the operating level, the keys ▲ and ▼ are pressed simultaneously until the "Operation" LED (green) comes on (approximately 3 seconds).

3.5 List and description of parameters

3.5.1 P0 Filter type

Adjustable in single steps	Range 0 - 18
Factory setting	Basic value 0
Text display, line 1	**P0 Filter type**
Text display, line 2	**6.18/6.19/6.44**

3.5.2 P1 Multiple flushing

NOTE

This parameter is **only** visible for filter type P0 = 6, 8, 10, 12, 14.

Adjustable in steps of one	Range 1 - 99 x
Factory setting	Initial value 1
Text display, line 1	**P1 multiple fl.**
Text display, line 2	**XXX chambers**

3.5.3 P2 Time-controlled backflushing

Adjustable in steps of one hour	Range 0 - 59 h
Factory setting	Initial setting 2 h
Text display, line 1	**P2 forced flush.**
Text display, line 2	**XXX hours**

3.5.4 P3 Time-controlled backflushing

Adjustable in steps of one minute	Range 0 - 59 min
Factory setting	Initial value 0 min
Text display, line 1	**P3 forced flush.**
Text display, line 2	**XXX minutes**

3.5.5 P4 Back-flushing time

NOTE
This parameter is **not** visible with filter type P0 = 1.

Adjustable in steps of one second	Range 5 - 100 s
Factory setting	Initial value 20 s
Text display, line 1	**P4 flushing time**
Text display, line 2	**XXX seconds**

3.5.6 P5 Filling time

NOTE
This parameter is **not** visible with filter type P0 = 0 and P0 = 1.

Adjustable in steps of 10 seconds	Range 10 - 600 s
Factory setting	Initial value 180 s
Text display, line 1	**P5 Filling time**
Text display, line 2	**XXX seconds**

3.5.7 P6 After-blowing time

NOTE
This parameter is **only** visible for filter type P0 = 4, 8, 14.

Adjustable in second steps	Range 5 - 100 s
Factory setting	Basic value 30 s
Text display, line 1	**P6 After-blowing time**
Text display, line 2	**XXX seconds**

3.5.8 P7 Cartridge alarm delay time

NOTE
This parameter is **only** visible for filter type P0 = 4, 8, 14.

Adjustable in 10 second steps	Range 10 - 600 s
Factory setting	Basic value 180 s
Text display, line 1	**P7 Cartridge alarm**
Text display, line 2	**XXX seconds**

3.5.9 P8 DP alarm (flushing frequency monitoring)

NOTE

This parameter can be set for all filter types. For the alarm DP filter types P0 = 3 (6.60 Alarm DP), 5 (6.60.07/6.72.07 Alarm DP), 7 (6.61 Alarm DP), 9 (6.61.07 Alarm DP), 11 (6.62 Alarm DP), 13 (6.64 Alarm DP), 15 (6.64.07 Alarm DP) and 17 (6.72 Alarm DP) of the preceding controlbox type Type 2200 "P8 DP Alarm" must be activated.

Adjustable	Off/on
Factory setting	Basic value
	Off
Text display, line 1	**P8 DP-Alarm**
Text display, line 2	**Off**
or	
Text display, line 2	**On**

3.5.10 P9 Motor fault

Adjustable in 0.01 A steps	Range 0.10 to 0.99 A
Factory setting	Basic value 0.4 A
Text display, line 1	**P9 Motor fault**
Text display, line 2	**0000 mA**

NOTE

The motor fault setting is dependent on the installed and approved standard gear motors 0.09 kW, 0.12 kW or 0.18 kW.

Star connection settings:

0.09 kW - Standard - Gear motor = 0.4 amp

0.12 kW - Standard - Gear motor = 0.65 amp

0.18 kW - Standard - Gear motor = 0.8 amp

3.5.11 P10 Back flushing time

NOTE

This parameter is **only** visible for filter type P0 = 1, type 6.21/6.22/6.23/6.24.

Setting: With ND 32 = 1 / ND 40 = 2 / ND 50 = 3 (ND = nominal diameter)

A particular control time is assigned from a table dependent on the nominal diameter.

For the setting P0.... 1 the parameter is not required.

NOTE

For filter type 6.21/6.22, the backflushing time must generally be set to ND 50=3.

Adjustable in single steps	Range 0 to 2
Factory setting	Basic value ND 32 = 1 s
Text display, line 1	**P10 ND flushing time**
Text display, line 2	**ND=XX =XX sec**

3.5.12 P11 Language

German, English, French and Spanish are available as operating languages.

Adjustable	D German
	ES Spanish
	F French
	EN English
Factory setting	Basic value EN
	English
Text display, line 1	**P11 Language**
Text display, line 2	**EN English**

3.5.13 P12 Testcode

NOTE

This parameter is visible for all P0 filter types.

The testcode is divided into two areas:

- Advanced settings:
  In the first area, entry of a testcode grants access to an advanced setting level, in which additional parameters (such as P15, P16 and P17) can be set. (Detailed description see "P15 DP-Select", P16 DP Differential pressure delay time" and "P17 Alarm relay A2, A3, A4")
- Test mode:
  In the second area, entry of the testcode provides access to a test mode, which is only intended for authorised persons. Additionally, the internal error memory can be read out to a USB stick.

Adjustable in single steps	Range 0 to 9999
Factory setting	Basic value 0
Text display, line 1	**P12 Testcode**
Text display, line 2	**XXXX**

3.5.14 P14 Pressure compensation time

NOTE

This parameter is **only** visible for filter type P0 = 12 and 14.

Adjustable in second steps	Range 0 to 99 s
Factory setting	Basic value 10 s
Text display, line 1	**P14 PET**
Text display, line 2	**XXX seconds**

3.5.15 P15 DP-Select "Differential pressure switch or differential pressure transmitter"

NOTE

Entry of **Testcode 44** opens an advanced setting, which allows selection of the differential pressure evaluation between differential pressure switch (DPS = standard) and differential pressure transmitter (DPT = optional).
The advanced setting "P15 DP-Select" is only required if a differential pressure transmitter (output signal: 4-20mA and electrical connection type: three-wire) is used to control the filter.
(Detailed explanation of setting and operation, see Fig. 3.6)

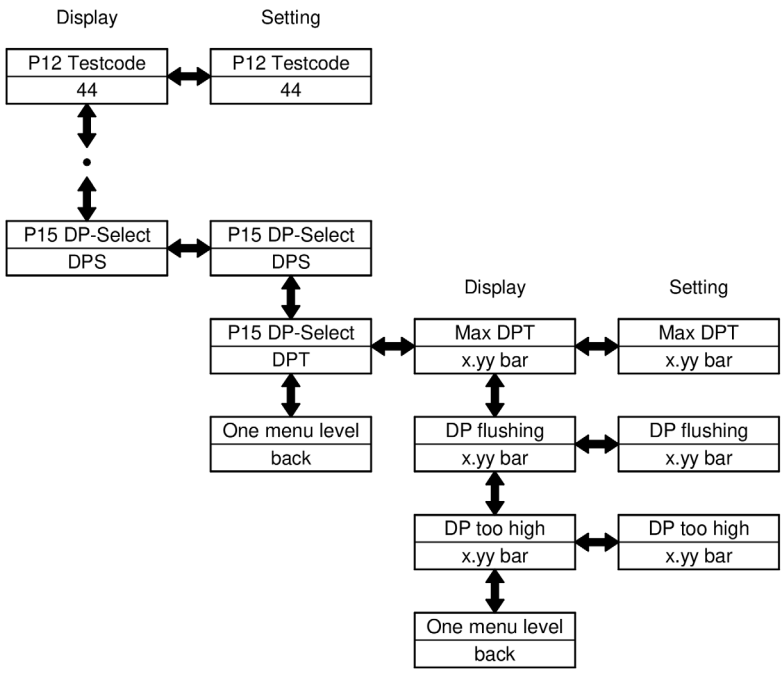


Fig. 3-6 Adjustment and operation

Adjustable	DPS / DPT
Factory setting	Basic value DPS
Text display, line 1	**P15 DP-Select**
Text display, line 2	DPS
or	
Text display, line 2	DPT

3.5.15.1 "MAX DPT" setting

NOTE

The maximum measurable differential pressure of the installed differential pressure transmitter must be set prior to commissioning.

Adjustable	Range 0.00 - 9.99 bar
Factory setting	Basic value 1.00 bar
Text display, line 1	MAX DPT
Text display, line 2	X.YY bar

3.5.15.2 Setting "DP flushing"

NOTE

The differential pressure signal "Differential pressure flushing ΔP 75%" must be set prior to commissioning.

Adjustable	Range 0.00 - 9.99 bar
Factory setting	Basic value 0.60 bar
Text display, line 1	DP flushing
Text display, line 2	X.YY bar

3.5.15.3 Setting "DP too high"

NOTE

The differential pressure signal "Differential pressure too high ΔP 100%" must be set prior to commissioning.

Adjustable	Range 0.00 - 9.99 bar
Factory setting	Basic value 0.80 bar
Text display, line 1	DP too high
Text display, line 2	X.YY bar

3.5.16 P16 Differential pressure delay time

NOTE

Entry of **Testcode 10** opens an advanced setting, which enables selection of a time delay for the differential pressure signals ΔP 75% and ΔP 100%.
(Detailed explanation on setting and operation see Fig. 3.7)

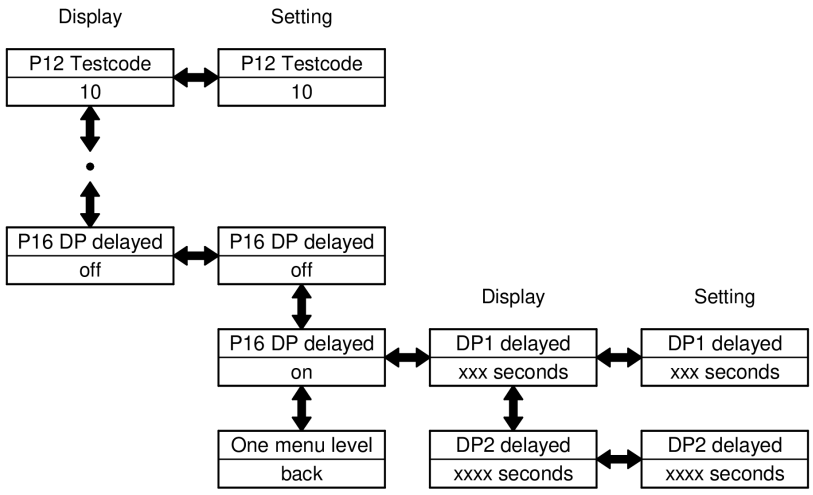


Fig. 3-7 Delay time differential pressure

3.5.16.1 Time delay setting "Differential pressure flushing ΔP75%"

Adjustable in second steps	Range 1 - 600 sec
Factory setting	Basic value 20 sec
Text display, line 1	DP1 delayed
Text display, line 2	XXX seconds

3.5.16.2 Time delay setting "Differential pressure too high ΔP100%"

Adjustable in second steps	Range 1 - 1800 sec
Factory setting	Basic value 1200 sec
Text display, line 1	DP2 delayed
Text display, line 2	XXX seconds

3.5.17 P17 Alarm relay A2, A3, A4 (configurable alarm outputs)

NOTE

Entry of **Testcode 75** opens an advanced setting that enables configuration of the alarm outputs A2, A3 and A4.
The advanced setting "P17 Alarm Relay A2, A3, A4" is necessary if the customer requires alarm outputs that differ from the standard at the system level (see standard control cabinet diagrams).
(See Fig. 3-8 for detailed explanation of Adjustment and operation)

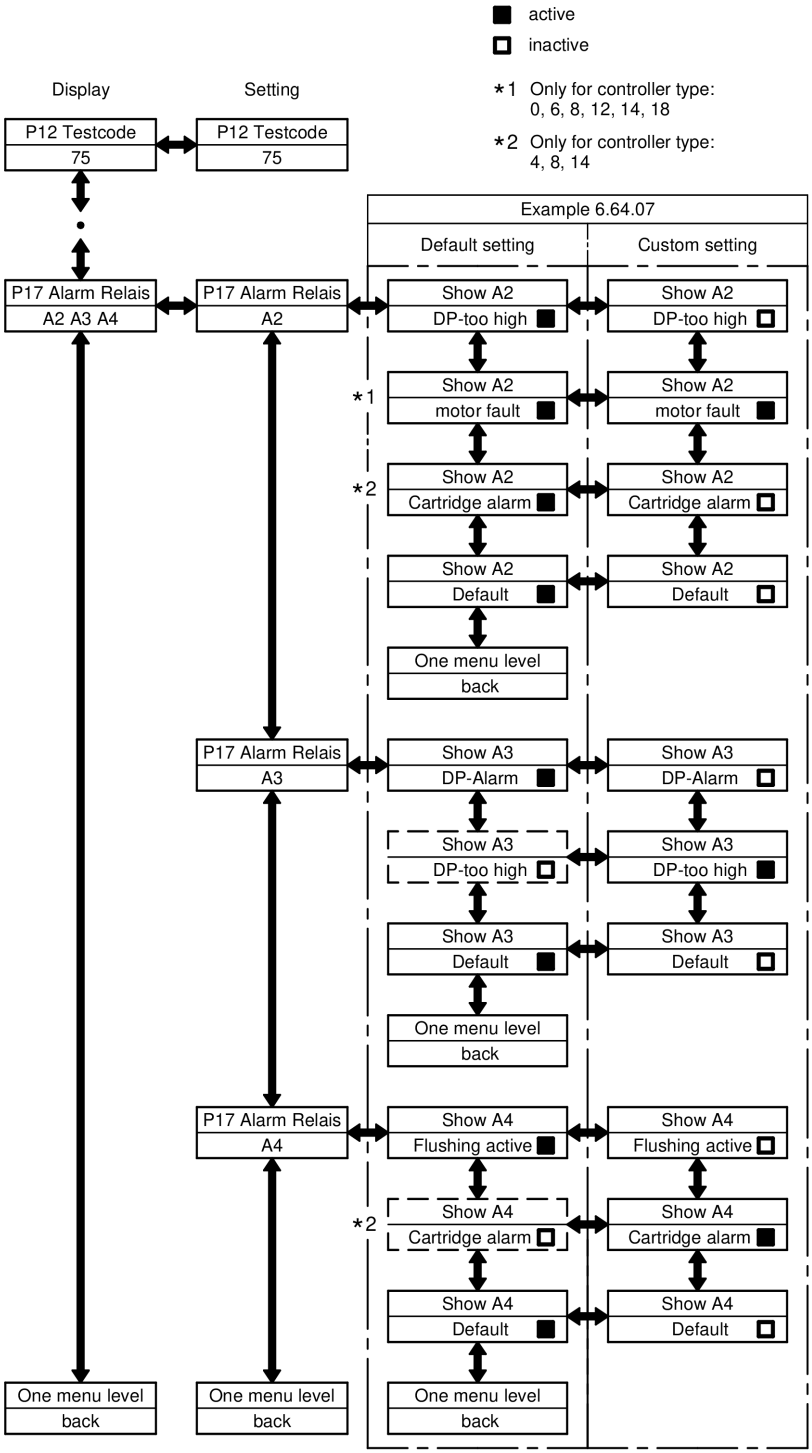


Fig. 3-8 P17 Alarm relay A2, A3, A4

3.5.18 P19 IoT module

Switching the IoT module on and off after entering test code 0088

Setting	WLAN, unavailable, Profinet, Profibus
Factory setting	WLAN
Text display, line 1	P19 IoT module
Text display, line 2	X

3.5.19 P20 power flush

Extension of the backflushing time by the Pxx factor
Only visible for P0 = 0 or 18

Can be set as a factor	Range 1 - 5
Factory setting	Initial value 1
Text display, line 1	Factor
Text display, line 2	X

3.5.20 P21 delay

Delay of the valve opening after flushing arm motor start-up
Only visible for P0 = 0 or 18

Adjustable in steps of one second	Range 0 - 5 sec
Factory setting	Initial value 0 sec
Text display, line 1	xxxxxxxxxxx.
Text display, line 2	XXX seconds

4 Control box description, function and setting values

4.1 Control box of type 6.18 / 6.19 / 6.44 and aquaBoll®6.18.3

Inputs

Pressure switch "DP reached backflushing filter" → 75 %

Pressure switch "DP too high backflushing filter" → 100 %

Customer input → Filter blockage (Remote On/Off)

Outputs

Motor

Flushing valve

Floating contacts

1)	Alarm, "Control voltage monitoring"	Output A1, A2, A3
2)	General fault, comprising: - Alarm "Maximum differential pressure reached" and - Alarm "Motor fault"	Output A4, A5, A6
3)	Alarm "Motor fault"	Output A7, A8, A9
4)	Message "Flushing Active"	Output A10, A11, A12
5)	Message "Filter blockage (Remote On/Off)"	Output A13, A14, A15

Functional description 6.18, 6.19, 6.44 and aquaBoll®6.18.3

See the operating instructions for details on filter functioning.

Flushing is triggered by:

1) Key F
2) The forced flushing time elapsing
3) Pressure switch "DP reached, backflushing filter"

Additional functions in the DP-Alarm is switched on (flushing frequency monitoring)

If, before the forced flushing time elapses, flushing is triggered via the "DP reached backflushing filter", a DP-Alarm is signalled (flushing frequency alarm) (setting See Section "P8 DP-Alarm").

Parametrisation of the alarm outputs is performed in section "P17 Alarm Relay A2, A3, A4".

Special attributes

- All alarms are displayed and signalled and saved via potential-free contacts.
- If the controller is in parameterisation mode, flushing cannot be triggered manually.
- If the "Controller type" parameter is changed, the functions are re-started.

4.1.1 Setting values filter type 6.18/6.19/6.44 and aquaBoll®6.18.3

Terminal plan (Standard) Z46600		6.18 / 6.19 / 6.44	aquaBoll®6.18.3
P0	Filter type	0	18
P1	Multiple flushing	/	/
P2	Forced flushing	2h	2h
P3	Forced flushing	0min	0min
P4	Flushing time	20s	20s
P5	Filling time	/	/
P6	After-blowing time	/	/
P7	Delay time Cartridge alarm	/	/
P8	DP-Alarm	Off	Off
P9	Motor fault	0.4A	0.4A
P10	Backflushing time	/	/
P11	Language	D	D
P12	Testcode	/	/
P14	Pressure equalisation time	/	/

NOTE

The configured values can be adjusted to suit the respective requirements accordingly.

4.2 Control boxes of type 6.21/6.22/6.23 / 6.24

Inputs 6.21/6.22/6.23 and 6.24

Pressure switch "DP reached backflushing filter" → 75 %

Pressure switch "DP too high backflushing filter" → 100 %

Customer input → Filter blockage (Remote On/Off)

Outputs 6.21/6.22/6.23 and 6.24

Flushing valve

Floating contacts and messages 6.21/6.22/6.23 and 6.24

1)	Alarm, "Control voltage monitoring"	Output A1, A2, A3
2)	Alarm "Maximum DP reached"	Output A4, A5, A6
3)	Message "Flushing Active"	Output A10, A11, A12
4)	Message "Filter blockage (Remote On/Off)"	Output A13, A14, A15

Functional description 6.21/6.22/6.23 and 6.24

See the operating instructions for details on filter functioning.

Flushing is triggered by:

1) Key F
2) The forced flushing time elapsing
3) Pressure switch "DP reached, backflushing filter"

Additional functions in the DP-Alarm is switched on (flushing frequency monitoring)

If, before the forced flushing time elapses, flushing is triggered via the "DP reached backflushing filter", a DP-Alarm is signalled (flushing frequency alarm) (setting See Section "P8 DP-Alarm").

Parametrisation of the alarm outputs is performed in section "P17 Alarm Relay A2, A3, A4".

Special attributes

- All alarms are displayed and signalled and saved via potential-free contacts.
- If the controller is in parameterisation mode, flushing cannot be triggered manually.
- If the "Controller type" parameter is changed, the functions are re-started.

4.2.1 Filter type setting values 6.21/6.22

Terminal plan (Standard) Z46611		6.21 / 6.22
P0	Filter type	1
P1	Multiple flushing	/
P2	Forced flushing	Filter unit: < 10 µm = 0.5 h = 10 µm = 1 h > 10 µm = 2 h
P3	Forced flushing	0min
P4	Flushing time	/
P5	Filling time	/
P6	After-blowing time	/
P7	Delay time Cartridge alarm	/
P8	DP-Alarm	Off
P9	Motor fault	/
P10	Backflushing time	3
P11	Language	D
P12	Testcode	/
P14	Pressure equalisation time	/

NOTE

The configured values can be adjusted to suit the respective requirements accordingly.

Terminal plan (Standard) Z46601		6.23 / 6.24
P0	Filter type	1
P1	Multiple flushing	/
P2	Forced flushing	2h
P3	Forced flushing	0min
P4	Flushing time	/
P5	Filling time	/
P6	After-blowing time	/
P7	Delay time Cartridge alarm	/
P8	DP-Alarm	Off
P9	Motor fault	/
P10	Backflushing time	1
P11	Language	D
P12	Testcode	/
P14	Pressure equalisation time	/

NOTE

The configured values can be adjusted to suit the respective requirements accordingly.

4.3 Control boxes of type 6.60

Inputs 6.60 and 6.60 Alarm DP (flushing frequency monitoring)

Limit switch "Position reached"

Pressure switch "DP reached backflushing filter" → 75 %

Pressure switch "DP too high backflushing filter" → 100 %

Customer input → Filter blockage (Remote On/Off)

Inputs additional with 6.60.07 (flushing oil treatment)

Pressure switch "DP too high Flushing oil treatment" → 100 %

Outputs 6.60 and 6.60 Alarm DP

Flushing valve

Chamber valve

Outputs additional with 6.60.07 and 6.60.07 Alarm DP

After blowing valve

Floating contacts and messages 6.60

1)	Alarm, "Control voltage monitoring"	Output A1, A2, A3
2)	General fault: - Alarm "Maximum differential pressure reached" - Limit switch alarm	Output A4, A5, A6
3)	Message "Flushing Active"	Output A10, A11, A12
4)	Message "Filter blockage (Remote On/Off)"	Output A13, A14, A15

Floating contacts and messages 6.60 Alarm DP

1)	Alarm, "Control voltage monitoring"	Output A1, A2, A3
2)	General fault: - Alarm "Maximum differential pressure reached" - Limit switch alarm	Output A4, A5, A6
3)	Alarm "Backflush triggering by DP"	Output A7, A8, A9
4)	Message "Flushing Active"	Output A10, A11, A12
5)	Message "Filter blockage (Remote On/Off)"	Output A13, A14, A15

Floating contacts and messages 6.60.07

1)	Alarm, "Control voltage monitoring"	Output A1, A2, A3
2)	General fault, comprising: - Alarm "Maximum differential pressure reached" and - Alarm "Cartridge" (DP-Alarm flushing oil treatment) - Limit switch alarm	Output A4, A5, A6
3)	Message "Flushing Active"	Output A10, A11, A12

4)	Message "Filter blockage (Remote On/Off)"	Output A13, A14, A15

Floating contacts and messages 6.60.07 Alarm DP

1)	Alarm, "Control voltage monitoring"	Output A1, A2, A3
2)	General fault, comprising: - Alarm "Maximum differential pressure reached" and - Alarm "Cartridge" (DP-Alarm flushing oil treatment) - Limit switch alarm	Output A4, A5, A6
3)	Alarm "Backflush triggering by DP"	Output A7, A8, A9
4)	Message "Flushing Active"	Output A10, A11, A12
5)	Message "Filter blockage (Remote On/Off)"	Output A13, A14, A15

Functional description 6.60

See the operating instructions for details on filter functioning.

Flushing is triggered via:

1) Application of the mains voltage
2) Key F
3) The elapsed forced flushing time
4) Pressure switch "DP reached backflushing filter"

Additional functions for 6.60 Alarm DP (flushing frequency monitoring)

If, before the forced flushing time elapses, flushing is triggered via the "DP reached backflushing filter", a DP-Alarm is signalled (flushing frequency alarm).

Special attributes

- All alarms are displayed and signalled and saved via potential-free contacts.
- If the controller is in parameterisation mode, flushing cannot be triggered manually.
- If the "Controller type" parameter is changed, the functions are re-started.

Terminal plan (Standard) Z46602 Z46603		6.60	6.60.07
P0	Filter type	2	4
P1	Multiple flushing	/	/
P2	Forced flushing	Filter unit: < 10 µm = 0.5h = 10 µm = 1h > 10 µm = 2h	
P3	Forced flushing	0min	0min
P4	Flushing time	8s	8s
P5	Filling time	> 5 bar = 240s < 5 bar = 300s	
P6	After-blowing time	/	18s
P7	Delay time Cartridge alarm	/	180s
P8	DP-Alarm	Off	Off
P9	Motor fault	/	/
P10	Backflushing time	/	/
P11	Language	D	D
P12	Testcode	/	/
P14	Pressure equalisation time	/	/

NOTE

The configured values can be adjusted to suit the respective requirements accordingly.

4.4 Control boxes of type 6.61

Inputs 6.61 and 6.61 Alarm DP (flushing frequency monitoring)

Limit switch "Position reached"

Pressure switch "DP reached backflushing filter" → 75 %

Pressure switch "DP too high backflushing filter" → 100 %

Customer input → Filter blockage (Remote On/Off)

Inputs additional 6.61.07 and 6.61.07 Alarm DP (flushing oil treatment)

Pressure switch "DP too high Flushing oil treatment" → 100 %

Outputs 6.61 and 6.61 Alarm DP

Flushing valve

Motor

Outputs additional with 6.61.07 and 6.61.07 Alarm DP

After blowing valve

Floating contacts and messages 6.61

1)	Alarm, "Control voltage monitoring"	Output A1, A2, A3
2)	General fault, comprising: - Alarm "Maximum differential pressure reached" and - Alarm "Motor fault" - Limit switch alarm	Output A4, A5, A6
3)	Message "Flushing Active"	Output A10, A11, A12
4)	Message "Filter blockage (Remote On/Off)"	Output A12, A14, A15

Floating contacts and messages 6.61 Alarm DP

1)	Alarm, "Control voltage monitoring"	Output A1, A2, A3
2)	General fault, comprising: Alarm "Maximum differential pressure reached" and Alarm "Motor fault" - Limit switch alarm	Output A4, A5, A6
3)	Alarm "Backflush triggering by DP"	Output A7, A8, A9
4)	Message "Flushing Active"	Output A10, A11, A12
5)	Message "Filter blockage (Remote On/Off)"	Output A13, A14, A15

Floating contacts and messages 6.61.07

1)	Alarm, "Control voltage monitoring"	Output A1, A2, A3
2)	General fault, comprising: - Alarm "Maximum differential pressure reached", - Alarm "Motor fault" and	Output A4, A5, A6

	- Alarm "Cartridge" (DP-Alarm flushing oil treatment) - Limit switch alarm	
3)	Message "Flushing Active"	Output A10, A11, A12
4)	Message "Filter blockage (Remote On/Off)"	Output A12, A14, A15

Floating contacts and messages 6.61.07 Alarm DP

1)	Alarm, "Control voltage monitoring"	Output A1, A2, A3
2)	General fault, comprising: - Alarm "Maximum differential pressure reached", - Alarm "Motor fault" and - Alarm "Cartridge" (DP-Alarm flushing oil treatment) - Limit switch alarm	Output A4, A5, A6
3)	Alarm "Backflush triggering by DP"	Output A7, A8, A9
4)	Message "Flushing Active"	Output A10, A11, A12
5)	Message "Filter blockage (Remote On/Off)"	Output A12, A14, A15

Functional description 6.61

See the operating instructions for details on filter functioning.

Flushing is triggered via:

1) Application of the mains voltage
2) Key F
3) The elapsed forced flushing time
4) Pressure switch "DP reached backflushing filter"

Peculiarities

- In the event of flushing triggered by application of the mains voltage and with the limit switch open, flushing starts directly with the flushing valve.
- If the control box is in configuration mode, manual triggering of flushing is not possible.
- If the "Control box type" parameter is changed, the functions are restarted.

Terminal plan (Standard) Z46604 Z46605		6.61	6.61.07
P0	Filter type	6	8
P1	Multiple flushing	1	1
P2	Forced flushing	Filter unit: < 10 µm = 0.5h = 10 µm = 1h > 10 µm = 2h	
P3	Forced flushing	0min	0min
P4	Flushing time	8s	8s
P5	Filling time	Up to DN150 - 120s From DN200 - 150s	
P6	After-blowing time	/	18s
P7	Delay time Cartridge alarm	/	180s
P8	DP-Alarm	Off	Off
P9	Motor fault	0.4A	0.4A
P10	Backflushing time	/	/
P11	Language	D	D
P12	Testcode	/	/
P14	Pressure equalisation time	/	/

NOTE

The configured values can be adjusted to suit the respective requirements accordingly.

4.5 Control boxes of type 6.62

Inputs 6.62

Limit switch "Position reached"

Pressure switch "DP reached backflushing filter" → 75 %

Pressure switch "DP too high backflushing filter" → 100 %

Customer input → Filter blockage (Remote On/Off)

Outputs 6.62

Flushing valve

Chamber valve clocked

Floating contacts and messages 6.62

1)	Alarm, "Control voltage monitoring"	Output A1, A2, A3
2)	General fault: - Alarm "Maximum differential pressure reached" - Limit switch alarm	Output A4, A5, A6
3)	Message "Flushing Active"	Output A10, A11, A12
4)	Message "Filter blockage (Remote On/Off)"	Output A12, A14, A15

Floating contacts and messages 6.62 Alarm DP (flushing frequency monitoring)

1)	Alarm, "Control voltage monitoring"	Output A1, A2, A3
2)	General fault: - Alarm "Maximum differential pressure reached" - Limit switch alarm	Output A4, A5, A6
3)	Alarm "Backflush triggering by DP"	Output A7, A8, A9
4)	Message "Flushing Active"	Output A10, A11, A12
5)	Message "Filter blockage (Remote On/Off)"	Output A12, A14, A15

Functional description 6.62

See the operating instructions for details on filter functioning.

Flushing is triggered via:

1) Application of the mains voltage
2) Key F
3) The elapsed forced flushing time
4) Pressure switch "DP reached backflushing filter"

Peculiarities

- In the event of flushing triggered by application of the mains voltage and with the limit switch open, flushing starts directly with the flushing valve.
- If the control box is in configuration mode, manual triggering of flushing is not possible.
- If the "Control box type" parameter is changed, the functions are restarted.

Terminal plan (Standard) Z46606		6.62
P0	Filter type	10
P1	Multiple flushing	1
P2	Forced flushing	Filter unit: < 10 µm = 0.5 h = 10 µm = 1 h > 10 µm = 2 h
P3	Forced flushing	0min
P4	Flushing time	8s
P5	Filling time	> 5 bar = 240s < 5 bar = 300s
P6	After-blowing time	/
P7	Delay time Cartridge alarm	/
P8	DP-Alarm	Off
P9	Motor fault	/ /
P10	Backflushing time	/
P11	Language	D
P12	Testcode	/
P14	Pressure equalisation time	/

NOTE

The configured values can be adjusted to suit the respective requirements accordingly.

4.6 Control boxes of type 6.64

Inputs 6.64 and 6.64 Alarm DP (flushing frequency monitoring)

Limit switch "Position reached"

Pressure switch "DP reached backflushing filter" → 75 %

Pressure switch "DP too high backflushing filter" → 100 %

Customer input → Filter blockage (Remote On/Off)

Inputs additional 6.64.07 and 6.64.07 Alarm DP (flushing oil treatment)

Pressure switch "DP too high Flushing oil treatment" → 100 %

Outputs 6.64 and 6.64 Alarm DP

Flushing valve

Motor

Relief valve

Outputs additional with 6.64.07 and 6.64.07 Alarm DP

After blowing valve

Floating contacts and messages 6.64

1)	Alarm, "Control voltage monitoring"	Output A1, A2, A3
2)	General fault, comprising: - Alarm "Maximum differential pressure reached" and - Alarm "Motor fault" - Limit switch alarm	Output A4, A5, A6
3)	Message "Flushing Active"	Output A10, A11, A12
4)	Message "Filter blockage (Remote On/Off)"	Output A12, A14, A15

Floating contacts and messages 6.64 Alarm DP

1)	Alarm, "Control voltage monitoring"	Output A1, A2, A3
2)	General fault, comprising: - Alarm "Maximum differential pressure reached" and - Alarm "Motor fault" - Limit switch alarm	Output A4, A5, A6
3)	Alarm "Backflush triggering by DP"	Output A7, A8, A9
4)	Message "Flushing Active"	Output A10, A11, A12
5)	Message "Filter blockage (Remote On/Off)"	Output A12, A14, A15

Floating contacts and messages 6.64.07

1)	Alarm, "Control voltage monitoring"	Output A1, A2, A3
2)	General fault, comprising: - Alarm "Maximum differential pressure reached",	Output A4, A5, A6

- Alarm "Motor fault" and
- Alarm "Cartridge" (DP-Alarm flushing oil treatment)
- Limit switch alarm

3) Message "Flushing Active" Output A10, A11, A12
4) Message "Filter blockage (Remote On/Off)" Output A12, A14, A15

Floating contacts and messages 6.64.07 Alarm DP

1) Alarm, "Control voltage monitoring" Output A1, A2, A3
2) General fault, comprising: Output A4, A5, A6
   - Alarm "Maximum differential pressure reached",
   - Alarm "Motor fault" and
   - Alarm "Cartridge" (DP-Alarm flushing oil treatment)
   - Limit switch alarm
3) Alarm "Backflush triggering by DP" Output A7, A8, A9
4) Message "Flushing Active" Output A10, A11, A12
5) Message "Filter blockage (Remote On/Off)" Output A12, A14, A15

Functional description 6.64

See the operating instructions for details on filter functioning.

Flushing is triggered via:

1) Application of the mains voltage
2) Key F
3) The elapsed forced flushing time
4) Pressure switch "DP reached backflushing filter"

Peculiarities

- In the event of flushing triggered by application of the mains voltage and with the limit switch open, a flushing process starts with the flushing valve after the pressure equalisation time has elapsed.
- If the control box is in configuration mode, manual triggering of flushing is not possible.
- If the "Control box type" parameter is changed, the functions are restarted.

Terminal plan (Standard) Z46607 Z46608		6.64	6.64.07
P0	Filter type	12	14
P1	Multiple flushing	1	1
P2	Forced flushing	Filter unit: < 10 µm = 0.5h = 10 µm = 1h > 10 µm = 2h	
P3	Forced flushing	0min	0min
P4	Flushing time	8s	8s
P5	Filling time	Up to DN150 - 180s From DN200 - 360s	
P6	After-blowing time	/	18s
P7	Delay time Cartridge alarm	/	180s
P8	DP-Alarm	Off	Off
P9	Motor fault	0.4A	0.4A
P10	Backflushing time	/	/
P11	Language	D	D
P12	Testcode	/	/
P14	Pressure equalisation time	Up to DN150 - 1s From DN200 - 10s	

NOTE

The configured values can be adjusted to suit the respective requirements accordingly.

4.7 Control boxes of type 6.72

Inputs 6.72 and 6.72 Alarm DP (flushing frequency monitoring)

Limit switch "Position reached"

Pressure switch "DP reached backflushing filter" → 75 %

Pressure switch "DP too high backflushing filter" → 100 %

Customer input → Filter blockage (Remote On/Off)

Inputs additional with 6.72.07 (flushing oil treatment)

Pressure switch "DP too high Flushing oil treatment" → 100 %

Outputs 6.72 and 6.72 Alarm DP

Flushing valve

Chamber valve

Outputs additional with 6.72.07 and 6.72.07 Alarm DP

After blowing valve

Floating contacts and messages 6.72

1)	Alarm, "Control voltage monitoring"	Output A1, A2, A3
2)	General fault: - Alarm "Maximum differential pressure reached" - Limit switch alarm	Output A4, A5, A6
3)	Message "Flushing Active"	Output A10, A11, A12
4)	Message "Filter blockage (Remote On/Off)"	Output A12, A14, A15

Floating contacts and messages 6.72 Alarm DP

1)	Alarm, "Control voltage monitoring"	Output A1, A2, A3
2)	General fault: - Alarm "Maximum differential pressure reached" - Limit switch alarm	Output A4, A5, A6
3)	Alarm "Backflush triggering by DP"	Output A7, A8, A9
4)	Message "Flushing Active"	Output A10, A11, A12
5)	Message "Filter blockage (Remote On/Off)"	Output A12, A14, A15

Floating contacts and messages 6.72.07

1)	Alarm, "Control voltage monitoring"	Output A1, A2, A3
2)	General fault, comprising: - Alarm "Maximum differential pressure reached" and - Alarm "Cartridge" (DP-Alarm flushing oil treatment) - Limit switch alarm	Output A4, A5, A6
3)	Message "Flushing Active"	Output A10, A11, A12

4)	Message "Filter blockage (Remote On/Off)"	Output A12, A14, A15

Floating contacts and messages 6.72.07 Alarm DP

1)	Alarm, "Control voltage monitoring"	Output A1, A2, A3
2)	General fault, comprising: - Alarm "Maximum differential pressure reached" and - Alarm "Cartridge" (DP-Alarm flushing oil treatment) - Limit switch alarm	Output A4, A5, A6
3)	Alarm "Backflush triggering by DP"	Output A7, A8, A9
4)	Message "Flushing Active"	Output A10, A11, A12
5)	Message "Filter blockage (Remote On/Off)"	Output A12, A14, A15

Functional description 6.72

See the operating instructions for details on filter functioning.

Flushing is triggered via:

1) Application of the mains voltage
2) Key F
3) The elapsed forced flushing time
4) Pressure switch "DP reached backflushing filter"

Additional functions for 6.72 Alarm DP (flushing frequency monitoring)

If, before the forced flushing time elapses, flushing is triggered via the "DP reached backflushing filter", a DP-Alarm is signalled (flushing frequency alarm).

Special attributes

- All alarms are displayed and signalled and saved via potential-free contacts.
- If the controller is in parameterisation mode, flushing cannot be triggered manually.
- If the "Controller type" parameter is changed, the functions are re-started.

Terminal plan (Standard) Z46609 Z46610		6.72	6.72.07
P0	Filter type	16	4
P1	Multiple flushing	/	/
P2	Forced flushing	Filter unit: < 10 µm = 0.5h = 10 µm = 1h > 10 µm = 2h	
P3	Forced flushing	0min	0min
P4	Flushing time	8s	8s
P5	Filling time	DN40: > 5 bar = 120s < 5 bar = 200s DN65: > 5 bar = 200s < 5 bar = 320s DN80: > 5 bar = 240s < 5 bar = 400s	
P6	After-blowing time	/	18s
P7	Delay time Cartridge alarm	/	180s
P8	DP-Alarm	Off	Off
P9	Motor fault	0.4A	0.4A
P10	Backflushing time	/	/
P11	Language	D	D
P12	Testcode	/	/
P14	Pressure equalisation time	/	/

NOTE

The configured values can be adjusted to suit the respective requirements accordingly.

5 Remedying faults

NOTE

In case of any faults or repairs which are not listed here, contact the BOLL & KIRCH customer services department.

5.1 Trouble shooting

Fault	Possible cause	Remedy
Automatic filter not activated	Defective wiring	Check wiring, supply and transformer settings according to circuit diagram
	Incorrect controller type set	Set controller type according to operating instructions
Display keys not working	Keypad damaged	Replace display A1
	Connection cable between circuit board and display loose	Plug cable back in
	Connection cable between circuit board and display defective	Replace connection cable
Display screen not working	Faulty power supply	Check supply and make sure primary voltage is set correctly on transformer T1
	Connection cable between circuit board and display loose	Plug cable back in
	Connection cable between circuit board and display defective	Replace connection cable
	Display A1 defective	Replace display A1
	Transformer T1 defective	Replace transformer T1
	Circuit board A2 defective	Replace circuit board A2
	Fuse(s) F1 and/or F3 (1 amp) defective	Replace fuse(s)
Gear motor not rotating + “motor fault” alarm message	Incorrect controller type set	Please set controller type according to operating instructions
	Fuse F2 (1 amp) defective	Replace fuse
	Malfunction on filter (gear motor, etc.)	See operating instructions for automatic filter
	Defective wiring	Check wiring on gear motor

Fault	Possible cause	Remedy
“Limit switch alarm” alarm message	Limit switch signal missing	Check limit switch setting and wiring
	Limit switch defective	See operating instructions for automatic filter
“P0 filter type” alarm message after initialisation of filter type 6.18/ 6.19/6.44	During initialisation of “filter type 6.18/6.19/6.44”, a limit switch signal (terminals 31+32, see circuit diagrams) was detected and, as a result, the wrong filter type had been set. (Background: controller type 0 operation without limit switch)	Set controller type according to operating instructions
Differential pressure not being processed	Differential pressure indicator faulty	Check/Replace differential pressure indicator
	Parameter P16 time delay for differential pressure set	See descriptions of time delay for differential pressure, settings for parameter P16, and additional function display (key C) in the operating instructions
Solenoid valve incl. coil not working	Incorrect controller type set	Set controller type according to operating instructions
	Incorrect control/valve voltage set	Compare coil voltage with configured secondary voltage on transformer and correct if necessary
	Fuse F2 (2 amps) on circuit board A2 defective	Replace fuse
	Solenoid valve and/or coil defective	Replace solenoid valve and/or coil
Display “Off”	The Remote On/Off function was activated by closing input E4 (terminals 33+34, see circuit diagrams)	This function can be deactivated by opening the contact from input E4
No online data	No network connection	Check the wired network supply line Check the releases/ authorisations of the controllers in the network
No online data	No WLAN connection	Check the wireless network coverage Check the releases/ authorisations of the controllers in the network