



## Translation of the original instructions

### Filter controller MFS-05

Material No. of Instruction Manual  
79743030



## 1 Contents

1	Contents.....	2
2	General safety instructions.....	2
2.1	Safety instructions for installation and operating personnel.....	2
2.2	Warning structure.....	2
2.3	Warning symbols used.....	2
2.4	Other symbols used:.....	3
3	Glossary.....	3
4	General information.....	3
4.1	Manufacturer.....	3
4.2	Information about the Instruction Manual.....	3
4.3	ATEX type key.....	3
5	Intended application.....	3
6	Main components.....	4
6.1	Overview of types.....	4
6.2	Controls, LEDs and displays.....	4
7	Technical data.....	5
8	Transport and storage.....	6
9	Functions.....	6
9.1	Operating modes.....	6
9.1.1	Interval time control.....	6
9.1.2	Switching threshold.....	7
9.1.3	Time control.....	7
9.2	Secondary functions.....	7
9.2.1	Enable/stop (post-cleaning).....	7
9.2.2	Rapid cleaning.....	8
9.2.3	Fault acknowledgement.....	8
9.2.4	Pressure switch.....	8
9.2.5	Cleaning signal.....	8
10	Installation.....	8
10.1	Unpacking.....	8
10.2	Installation procedure.....	9
10.3	Electrical connection.....	9
10.4	Start-up.....	9
11	Shut-down.....	9
12	Normal operation.....	9
13	Troubleshooting.....	9
13.1	Test.....	9
13.2	Troubleshooting table.....	9
14	Maintenance, repair and retrofitting.....	10
15	Appendix: Connection variants.....	11
16	Appendix: Terminal assignment.....	13
17	Appendix: RS 485 serial port.....	14
18	Appendix: Set of instrument lines and protective filter (ID No. 78341984).....	15
19	Appendix: Dimension drawing MFS-05.....	16
20	Appendix: Default settings.....	17
20.1	Main parameters of the MFS-05 in "interval time control" mode.....	17
20.2	Other operating modes.....	17
20.2.1	"Switching threshold" mode.....	17
20.2.2	"Time control" mode.....	17
21	Declaration of incorporation.....	18
22	Declaration of conformity.....	19
23	Index.....	23

## 2 General safety instructions

### 2.1 Safety instructions for installation and operating personnel

This Instruction Manual contains important safety instructions which must be heeded at all times during installation, operation and maintenance. Non-observance can result in risks to persons and the environment as well as in damage to the machine or system, e.g.:

- ⇒ Failure of critical functions of the system or its component parts.
- ⇒ Danger to persons from electrical or mechanical effects as well as from chemical reactions.
- ⇒ Danger to the environment owing to the leakage of hazardous substances.

#### Before installation/start-up:

- Read the Instruction Manual carefully.
- Make sure that installation and operating personnel are adequately trained.
- Make sure that the contents of the Instruction Manual are fully understood by the responsible persons.
- Define areas of responsibility and competence.

#### During operation of the system:

- Keep the Instruction Manual handy at the place where the system is used.
- Heed the safety instructions.
- Always operate the system/machine in accordance with its ratings.

#### If in doubt:

- Consult the manufacturer.

### 2.2 Warning structure






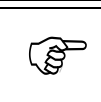


Where possible, warnings are structured according to the following system:

Signal word	
Possibly with symbol	<b>Nature and source of the danger</b> ⇒ Potential consequences of non-observance. • Action to avert the danger.

### 2.3 Warning symbols used

<b>⚠ DANGER!</b>
<b>Immediate danger!</b> ⇒ Non-observance will result in serious or fatal injury.
<b>⚠ WARNING!</b>
<b>Potentially dangerous situation!</b> ⇒ Non-observance can result in serious or fatal injury.
<b>⚠ CAUTION!</b>
<b>Potentially dangerous situation!</b> ⇒ Non-observance can result in minor or moderate injuries.
<b>CAUTION!</b>
<b>Potentially dangerous situation!</b> ⇒ Non-observance can result in property damage.

## 2.4 Other symbols used:

	Danger from high voltage
	Danger information about explosion protection
	Information about environmental protection
	Wear protective clothing!
	Wear goggles!
	Hand symbol: Indicates general information and recommendations
	Bullet: Indicates the order in which actions are to be carried out
	Arrow: Indicates responses to actions

## 3 Glossary

### Pulsing:

Pressure cleaning of the filter elements with air or gas.

### “Switching threshold” pulsing:

Pulsing is activated when a switching threshold is exceeded.

### “Time-controlled” pulsing:

Pulsing is activated at fixed time intervals.

### Switching threshold:

Preset differential pressure that must not be exceeded or at which a defined action, such as activation of a valve, must take place.

### Temperature hysteresis:

Response inertia to a change in temperature.

### Temperature drift:

Temperature sensitivity of the transistor characteristics.

## 4 General information

### 4.1 Manufacturer

Filtration Group GmbH  
Schleifbachweg 45  
D-74613 Öhringen  
Phone +49 7941 6466-0  
Fax +49 7941 6466-429  
fm.de.sales@filtrationgroup.com  
www.filtrationgroup.com

### 4.2 Information about the Instruction Manual



FG Mat. No.: .....79743030  
Date: .....12.01.18  
Version: .....08

### 4.3 ATEX type key



II	3	D	T60°C	IP65
1.	2.	3.	4.	5.
1.	II	Valid for use above ground		
2.	Category	3		
	Use in	Zone 22		
3.	Atmosphere	D		
	G = Gas D = Dust			
4.	Maximum surface temperature 60°C			
5.	Degree of protection IP65			

## 5 Intended application

 <b>DANGER!</b>
<b>PROHIBITED:</b> <ul style="list-style-type: none"><li>Use for other purposes without prior consultation with the manufacturer.</li><li>Use in potentially explosive atmospheres, unless explicitly mentioned in the contract documentation.</li></ul>
 <b>DANGER!</b>
This filter controller is only allowed to be used in accordance with the operating conditions specified in the contract documentation and in the Instruction Manual. All forms of use which deviate from or exceed the limits of use described above are considered to be contrary to the intended purpose. The manufacturer shall not be liable for any damage resulting from such use.

The MFS-05 filter controller is used for demand based control of cleaning systems of the kind encountered in industrial dust removing applications. Up to 24 automatically actuated diaphragm valves pulse the dust elements.

Numerous control and monitoring functions are implemented in the controller.

The MFS-05 filter controller normally operates according to the “interval time control” principle. The variable interval time between valve actuations is calculated from a characteristic curve according to the differential pressure. Alternatively, the controller can be operated in “switching threshold” or “time-controlled” mode.

### Valve monitoring:

All valves are monitored for overcurrent (short-circuits) and interruptions. The controller has three relays for operating/fault signals, cleaning signals and "alarm threshold exceeded".

## 6 Main components

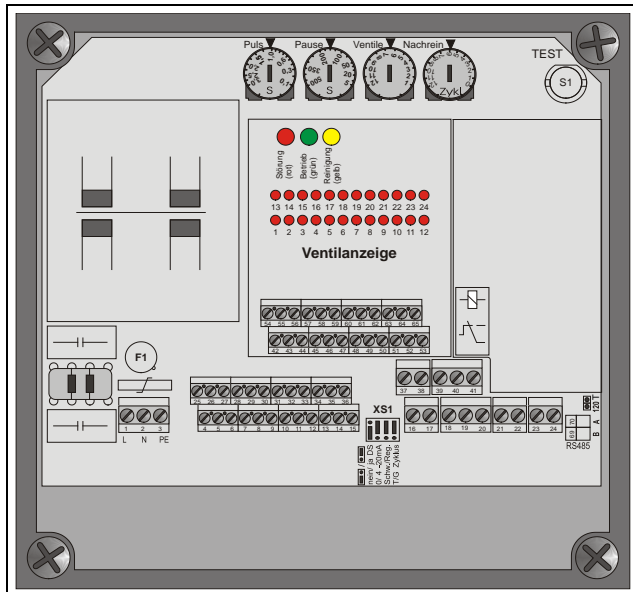


Fig. 1: Controls, LEDs and displays

### 6.1 Overview of types



The order numbers in parentheses apply to units that are packed and ready for shipping.

#### Standard:

MFS-05 AC 230 V	79742966 (79743055)
MFS-05 DC 24 V	79742990 (79743071)

#### 2 relay outputs:

MFS-05 AC 230 V	79742974 (79743063)
MFS-05 DC 24 V	79743477 (76109458)
MFS-05 AC 115 V	76110381 (76186027)

#### Accessories:

Valve extension 13 to 24 valves	79742982 (76109664)
Replacement fuses (pack of 5)	76186597 (76186605)
Set of instrument lines with protective filter	78341984 (79759846)

## 6.2 Controls, LEDs and displays

### Potentiometers:

The time settings have a logarithmic scale with a control range of 240°.

### On the motherboard:

Pulse time	0.1 s ... 3.0 s
Interval time	5 s ... 500 s
No. of valves	1 ... 12 valves  13 ... 24 valves if a valve extension board is installed  If the number of valves is set to an intermediate value, two adjacent valve LEDs blink
Post-cleaning cycles	0 ... 12  If the number of cycles is set to an intermediate value, the complete LED row blinks

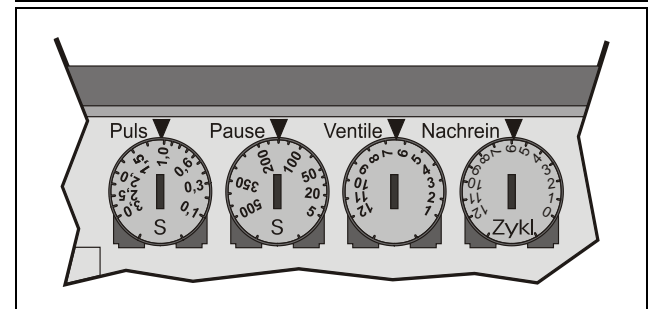


Fig. 2: Controls on the motherboard:

### Jumper XS1:

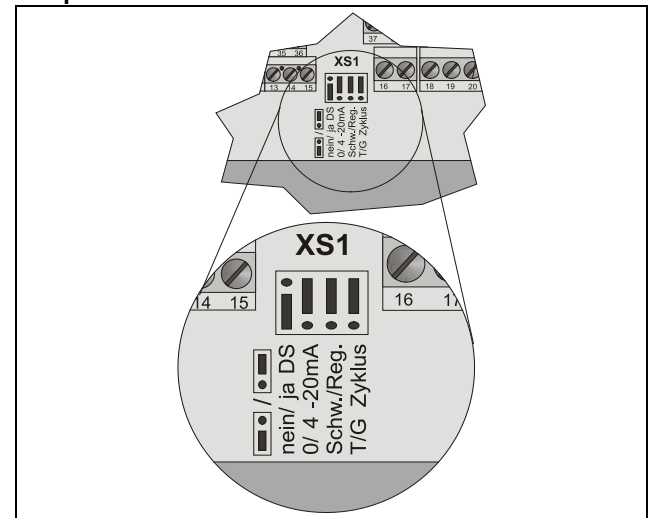




Fig. 3: Factory setting for interval time control

	Pressure switch*	Analogue input	Cleaning mode	Cleaning cycle
Designation	no/yes DS (pressure switch yes/no)	0/4 - 20 mA	Schw./Reg (threshold/control)	T/G Zyklus (partial/full cycle)
	Yes	4 – 20 mA	Interval time control	Full cycle
	No	0 – 20 mA	High threshold	Partial cycle

\* Function not supported

#### TEST button S1:

Press this button to start cleaning the next valve for the duration of the set pulse time.

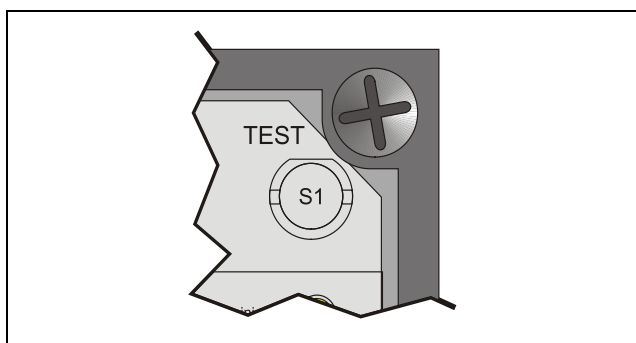


Fig. 4: TEST button S1

#### LEDs:

- Fault (red)
- Operation (green)
- Cleaning (2 x yellow)
- Pulsing (red, 1x per valve)

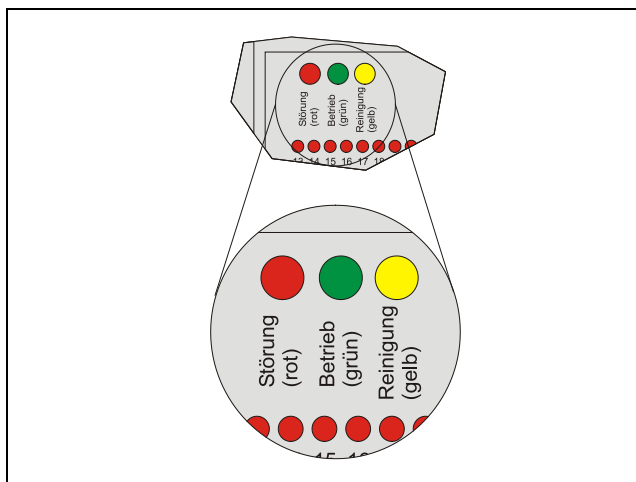


Fig. 5: LEDs

#### Valve alarm LED:

- ⇒ Valve LED blinks.
- ⇒ Cause: Overcurrent or interruption

## 7 Technical data


	<b>The inputs are not isolated!</b> <ul style="list-style-type: none"> <li>• Provide external isolation if necessary.</li> </ul>
---	--



Fig. 6: Nameplate

<b>Analogue inputs (not isolated)</b>	<ul style="list-style-type: none"> <li>• Start input not assigned (time control: 16-17 jumpered)</li> </ul>
<b>Digital inputs</b>	<ul style="list-style-type: none"> <li>• Enable (contact closed, terminal 18-19) / stop (contact open)</li> <li>• Post-cleaning</li> <li>• Rapid cleaning</li> <li>• Fault acknowledgement (momentary contact signal)</li> </ul>
<b>Pressure measuring lines</b>	<ul style="list-style-type: none"> <li>• P1 = pressure on dirty side = [+] (upstream of filter element)</li> <li>• P1 = pressure on clean side = [-] (downstream of filter element)</li> <li>• Measuring hose diameter: 4 mm</li> </ul>
<b>Valve outputs</b>	12, extendable to 24
<b>Valve voltage</b>	24 V DC ± 10%
<b>Valve current</b>	1 A for pulse time ≤ 1 s, otherwise 0.5 A
<b>Relay outputs</b>	<ul style="list-style-type: none"> <li>• Contact load 250 V AC / 5 A</li> <li>• 1 changeover contact for operating/fault signals (FAIL-SAFE circuit)</li> <li>• 1 NO contact for cleaning signal</li> </ul>
<b>Analogue output</b>	• 0 (4) ... 20 mA
<b>Time settings</b>	<ul style="list-style-type: none"> <li>• Pulse time: 0.1 ... 3.0 s</li> <li>• Interval time: 5 ... 500 s</li> <li>• Post-cleaning: 0 ... 12 cycles</li> </ul>
<b>LEDs</b>	<ul style="list-style-type: none"> <li>• Operation: Green</li> <li>• Cleaning: Yellow</li> <li>• Fault: Red</li> <li>• Valve alarm: Red</li> <li>• Alarm threshold: Red</li> </ul>
<b>Electrical connection</b>	<ul style="list-style-type: none"> <li>• Screw-type terminal strips 2.5 mm<sup>2</sup></li> <li>• Valve connections 1.0 mm<sup>2</sup></li> </ul>
<b>Ambient temperature</b>	0 ... 50°C
<b>Climatic category</b>	KWF acc. to DIN 40040 (≤ 75% relative humidity, no condensation allowed)
<b>Design</b>	<ul style="list-style-type: none"> <li>• Dust-tight Makrolon casing (Ex II 3D T60°C IP65)</li> <li>• 175 x 175 x 100 mm (W x H x D)</li> </ul>

<b>Mains power supply</b>	230 V AC, 50-60 Hz	24 V DC
<b>Tolerance</b>	± 10%	± 10%
<b>Mains fuse</b>	0.315 A time-lag	3.15 A time-lag
<b>Power consumption</b>	30 W	42 W

## 8 Transport and storage

### Transport

- Always transport in the original packaging
- Avoid vibrations

### Storage

- Always store in the original packaging
- The unit must be stored in a dry room at 0 ... 70°C
- Avoid vibrations
- Avoid direct UV radiation (sunlight)



## 9 Functions

### 9.1 Operating modes

The controller can operate in three different modes. The mode is selected by altering the assignment of terminal 16-18 and the setting of the "XS1" jumper.

#### 9.1.1 Interval time control

If "interval time control" mode is selected, the controller is permanently active. The interval time varies as a function of  $\Delta p$ .

#### Factory settings:

- Terminal 16-17 not assigned
- Terminal 18-19 jumpered
- XS1 jumper Schw./Reg. switch up
- XS1 jumper T/G Zyklus switch up

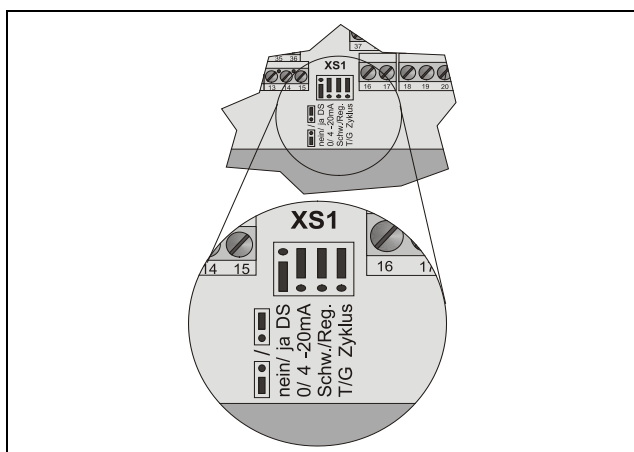


Fig. 7: Jumper settings for interval time control

- ⇒ Valve activation is controlled by a  $\Delta p$ -dependent interval time.
- ⇒ The interval duration is determined by  $\Delta p$  and the selected controller characteristic.

### Possible controller characteristics:

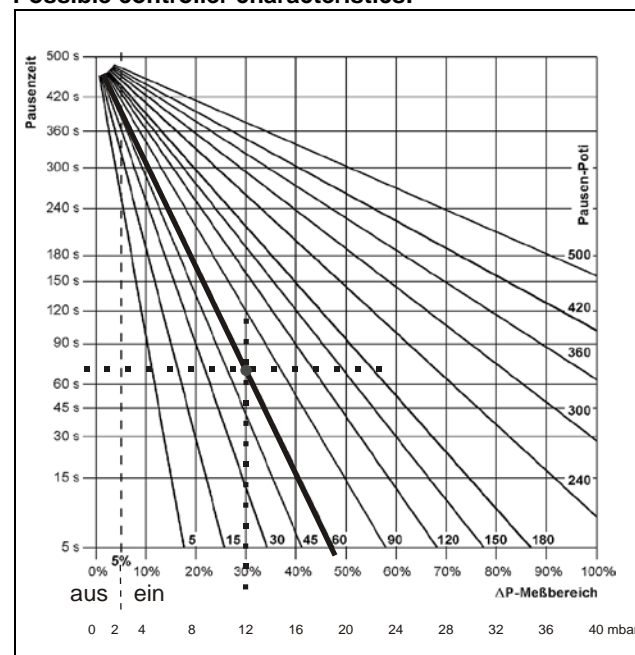


Fig. 8: Controller characteristics

#### Example:

The filter must be cleaned at a differential pressure equivalent to 30% of the differential pressure measuring range (= 12 mbar) with an interval time of approximately 70 s.

To select the characteristic:

- Find and plot the 30% line.
- Find and plot the 70 s line.
- ⇒ The point of intersection is located on characteristic 60.
- Set the "interval" potentiometer to 60 s.

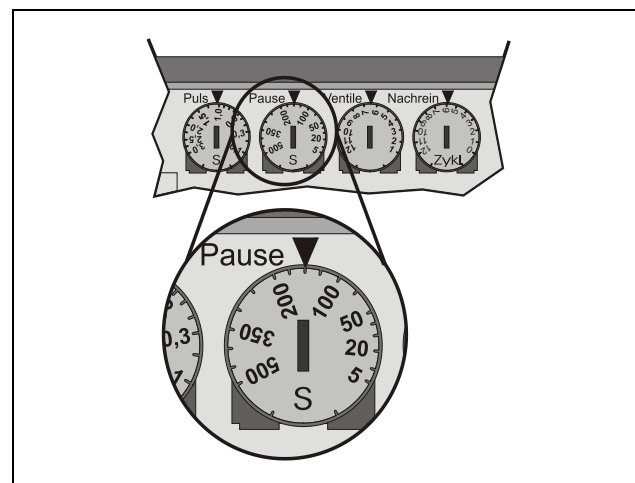


Fig. 9: "Interval" potentiometer

- ⇒ The controller determines the required interval time from the current differential pressure and the selected characteristic.
- ⇒ The interval time is shorter if the differential pressure increases and longer if it is reduced.



The change in the interval time is non-linear. The cleaning process ends if the differential pressure falls below approximately 5% of the measuring range.



### 9.1.2 Switching threshold

If "switching threshold" mode is selected, the controller is activated when the set threshold is exceeded.

#### Factory settings:

- Terminal 16-17 not assigned
- Terminal 18-19 jumpered
- Jumper 3 down

#### Full cycle (optional)

- XS1 jumper T/G Zyklus switch up
- ⇒ A full cycle is executed if the switching threshold is exceeded.

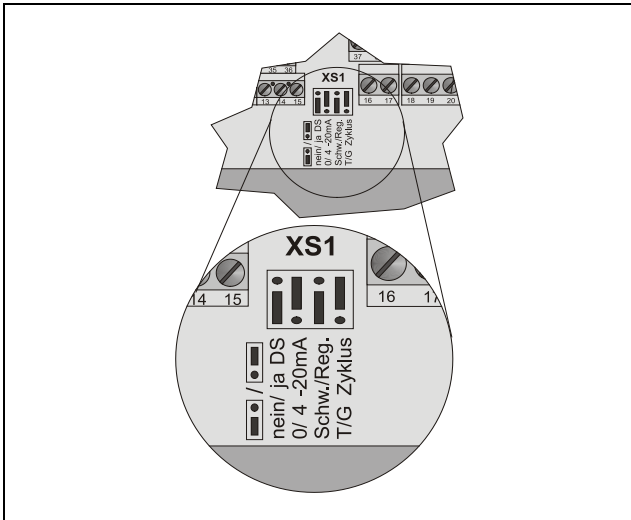


Fig. 10: Jumper settings for full cycle

#### Partial cycle (optional):

- XS1 jumper T/G Zyklus switch down
- ⇒ A cleaning process is executed if the switching threshold is exceeded.
- ⇒ The cleaning process ends if the differential pressure falls below the switching threshold.
- ⇒ The next valve is activated when the controller is activated again.

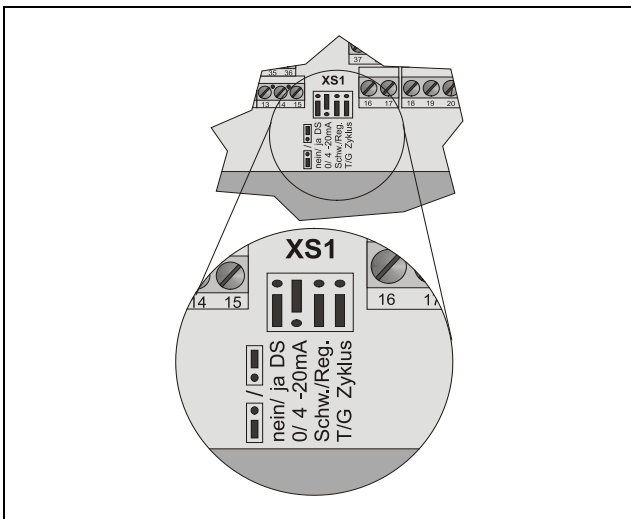


Fig. 11: Jumper settings for partial cycle

### 9.1.3 Time control

#### Factory settings:

- Terminals 16-17 and 18-19 jumpered
- Both pressure measuring lines disconnected
- XS1 jumper Schw./Reg. switch down

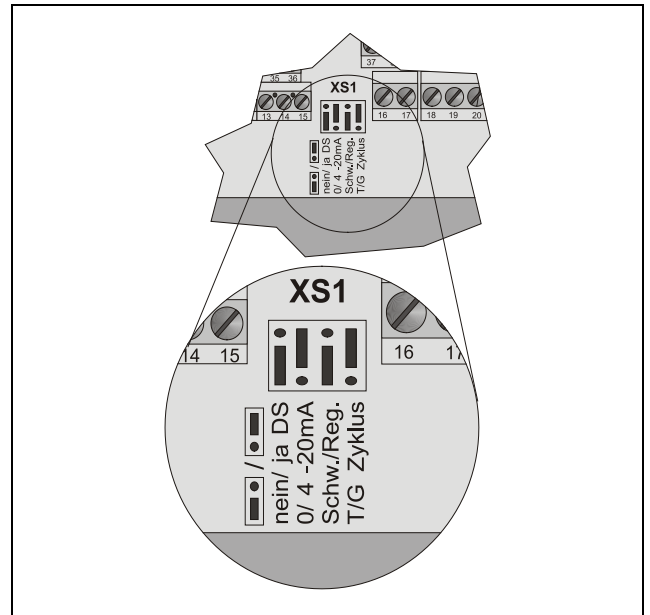


Fig. 12: Jumper settings for time control

A time-controlled cleaning process starts if contacts 16-17 and 18-19 are closed.

## 9.2 Secondary functions

### 9.2.1 Enable/stop (post-cleaning)

The input (terminal 19) enables valve activation (terminals 18 + 19 are jumpered).

- Set the number of post-cleaning cycles with the post-cleaning potentiometer.
- ⇒ The closed contact opens.
- ⇒ An automatic post-cleaning process starts with an interval time of 30 s.

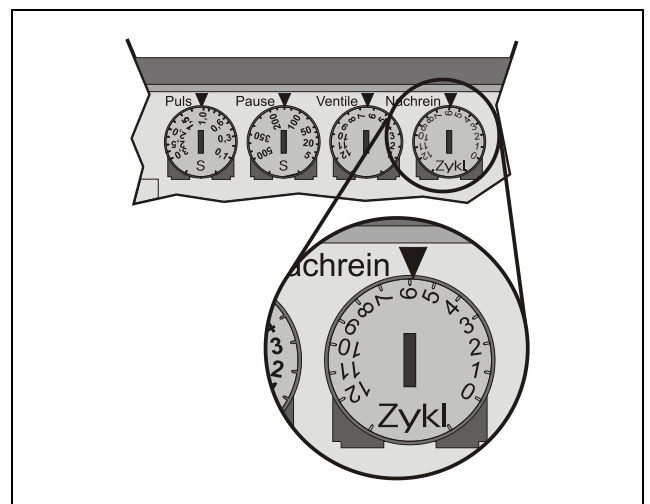


Fig. 13: Post-cleaning potentiometer

### 9.2.2 Rapid cleaning

- Close the switching contact (terminals 18 and 20).
- ⇒ A cleaning process starts with an interval time of 8 s.

### 9.2.3 Fault acknowledgement

- ⇒ If a fault occurs, the red fault LED lights up.
- Find the fault.
- Rectify the fault.
- Acknowledge the fault by applying a momentary contact signal at terminals 18 and 21.
- ⇒ The fault signal is reset.

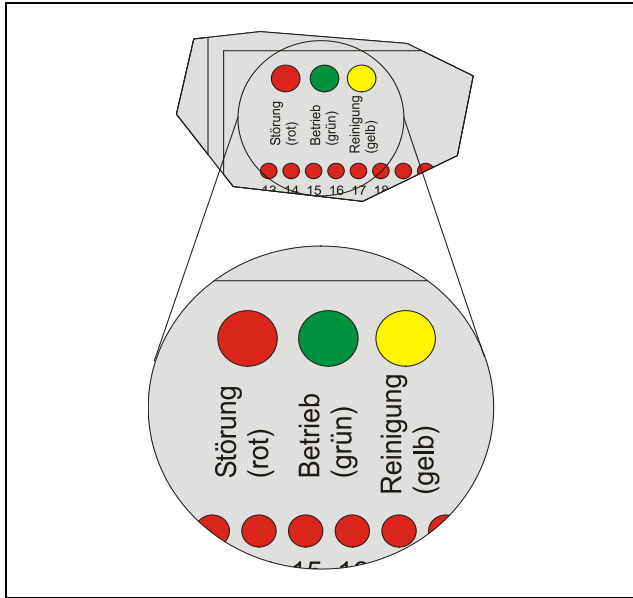


Fig. 14: Fault

### 9.2.4 Pressure switch



The pressure switch settings are not supported. The pressure switch jumper on the XS1 switch should always be down.

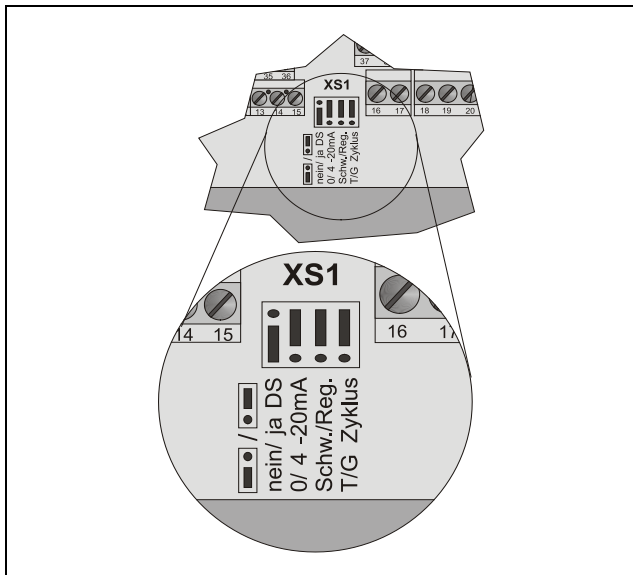


Fig. 15: Jumper settings for pressure switch

### 9.2.5 Cleaning signal

- ⇒ The yellow cleaning LED lights up during a cleaning process.
- ⇒ The yellow cleaning LED lights up if the test button S1 is pressed.
- ⇒ The yellow cleaning LED goes out again at the end of the cleaning process.

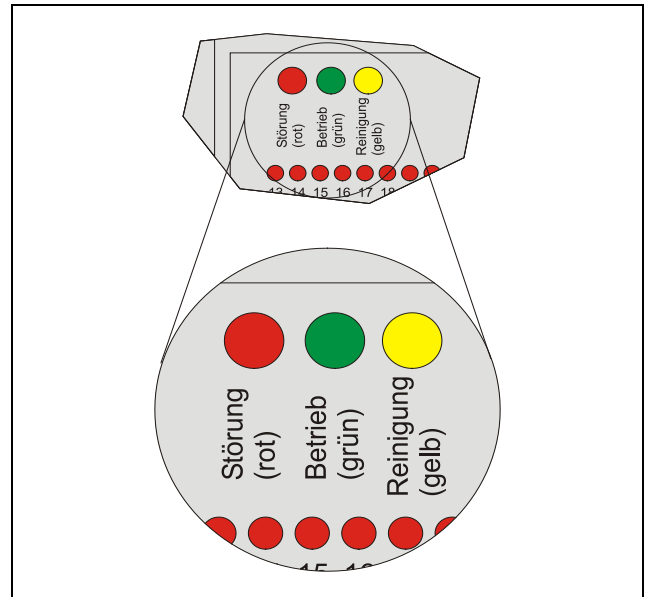


Fig. 16: Cleaning

## 10 Installation

<b>⚠ DANGER!</b>	
	<b>Explosion hazard!</b> ⇒ Risk of injury to persons or damage to property. • The system is only allowed to be installed, accepted and tested by a suitably qualified person (99/98/EC).

<b>⚠ WARNING!</b>	
<b>If the system is installed by unauthorised persons</b> ⇒ Risk of injury ⇒ All warranty claims are rendered invalid • The system must be installed by a suitably trained person!	

### 10.1 Unpacking

<b>⚠ WARNING!</b>	
<b>Risk of damage to the unit!</b> ⇒ Safe operation can be impaired. • Inspect the MFS-05 for damage. Return to FG for maintenance if necessary.	

- Remove the MFS-05 filter controller from the packaging.
- Check the separately enclosed accessories (Instruction Manual, fastening elements) for completeness.



## 10.2 Installation procedure

The controller must be installed in a dry, low-dust room.

The ambient temperature at the place of installation must not exceed the maximum value specified in the data sheet for the nominal range of use.

- Ensure adequate heat dissipation (especially if several units are installed together with a high packing density).
- Provide the necessary sealing components (e.g. seals) for the specified degree of protection.

## 10.3 Electrical connection



- The electrical connection should correspond to the connection/terminal diagrams for the unit concerned.
- All electrical wiring should be laid in accordance with the relevant EMC specifications as well as any nationally valid regulations (VDE 0100 in Germany).
- Instrument lines should be laid separately from signal and power leads.
- The protective conductor terminal (inside the instrument rack) must be connected to a protective earth conductor.
- Install a suitable main switch.

## 10.4 Start-up

Check the following points before switching on the unit:

- The supply voltage must be identical the voltage indicated on the nameplate.
- The contact protection covers must be fitted.
- The unit is only allowed to be operated when installed.

### Class I units:

- The protective conductor terminal inside the instrument rack must be conductively connected to the protective earth conductor.

If the unit is interconnected with other units and/or equipment, the possible consequences should be considered before it is switched on and appropriate precautions taken.

## 11 Shut-down

- Switch off the auxiliary power.
- Protect the unit against inadvertent operation.

If the unit is interconnected with other units and/or equipment, the possible consequences should be considered before it is switched on and appropriate precautions taken.

- Either switch off the system with the motor circuit-breaker or shut it down on the machine controller.



- All parts must be disposed of in a manner which does not pollute the environment.

### Emergency shut-down

- Switch OFF the main switch.
- ⇒ The power supply is interrupted.

## 12 Normal operation

- ⇒ The green 'operation' LED lights up when the unit is switched on.
- ⇒ The unit is now ready.

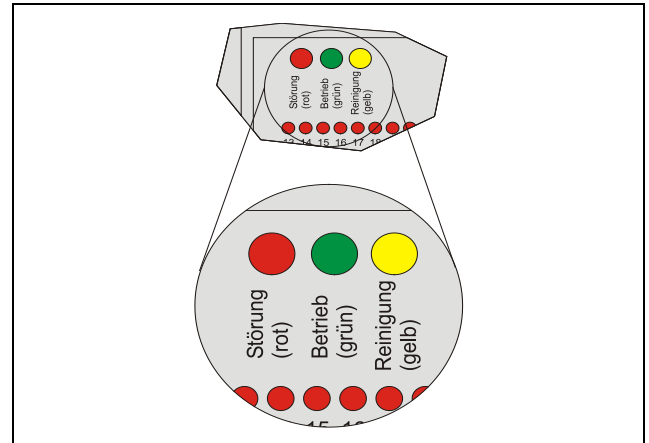


Fig. 17: Operation LED

- The yellow LED lights up if the differential pressure is  $> 5\%$  ( $> \text{approx. } 2 \text{ mbar}$ ) and the valves are activated.
- ⇒ The controller is active.

## 13 Troubleshooting

### 13.1 Test

- Press the S1 test button in the top right-hand corner of the controller to switch the valves.
- A settable differential pressure must be supplied for the duration of the test.

Alternatively:

- Test the controller in "time control" mode (terminals 16-17 and 18-19 jumpered).

### 13.2 Troubleshooting table

Fault	Possible cause	Remedy
Green 'operation' LED not lit	Power supply faulty	Test the voltage
	Fuse F1 defective	Replace the fuse
Yellow LED not lit	No start signal	Check the differential pressure
	No signal enable	18-19 jumpered
	Jumper XS1 set incorrectly	Check the jumper settings
Both red valve LEDs blink	Valve potentiometer inadvertently altered	Set the potentiometer correctly
One red LED blinks	Valve not switched	Test the valve cable
	Potentiometer set incorrectly	Potentiometer setting = no. of valves
Red LED lit	Valve not activated	Test the valve connection Acknowledge the fault Terminal 18 + 21
Red LED row blinks	Post-cleaning potentiometer inadvertently altered	Set the post-cleaning potentiometer correctly

## 14 Maintenance, repair and retrofitting

### CAUTION!

**Danger if work is carried out on the system by unauthorised persons!**

⇒ Risk of injury.

- All maintenance work must be carried out by SUITABLY QUALIFIED PERSONNEL.

The filter controller does not require any special maintenance.

### CAUTION!



**Electrostatic discharge**

- ⇒ Components which are sensitive to electrostatic discharge (ESD) may be exposed when the units are opened.
- In this case, all subsequent work is only allowed to be carried out at workplaces that are protected against electrostatic discharge.

### During retrofitting:



**If the unit is tampered with during the warranty period, all warranty claims are rendered invalid.**

- Switch off the filter controller.
- Take steps to prevent the system from being switched on again by unauthorised persons.

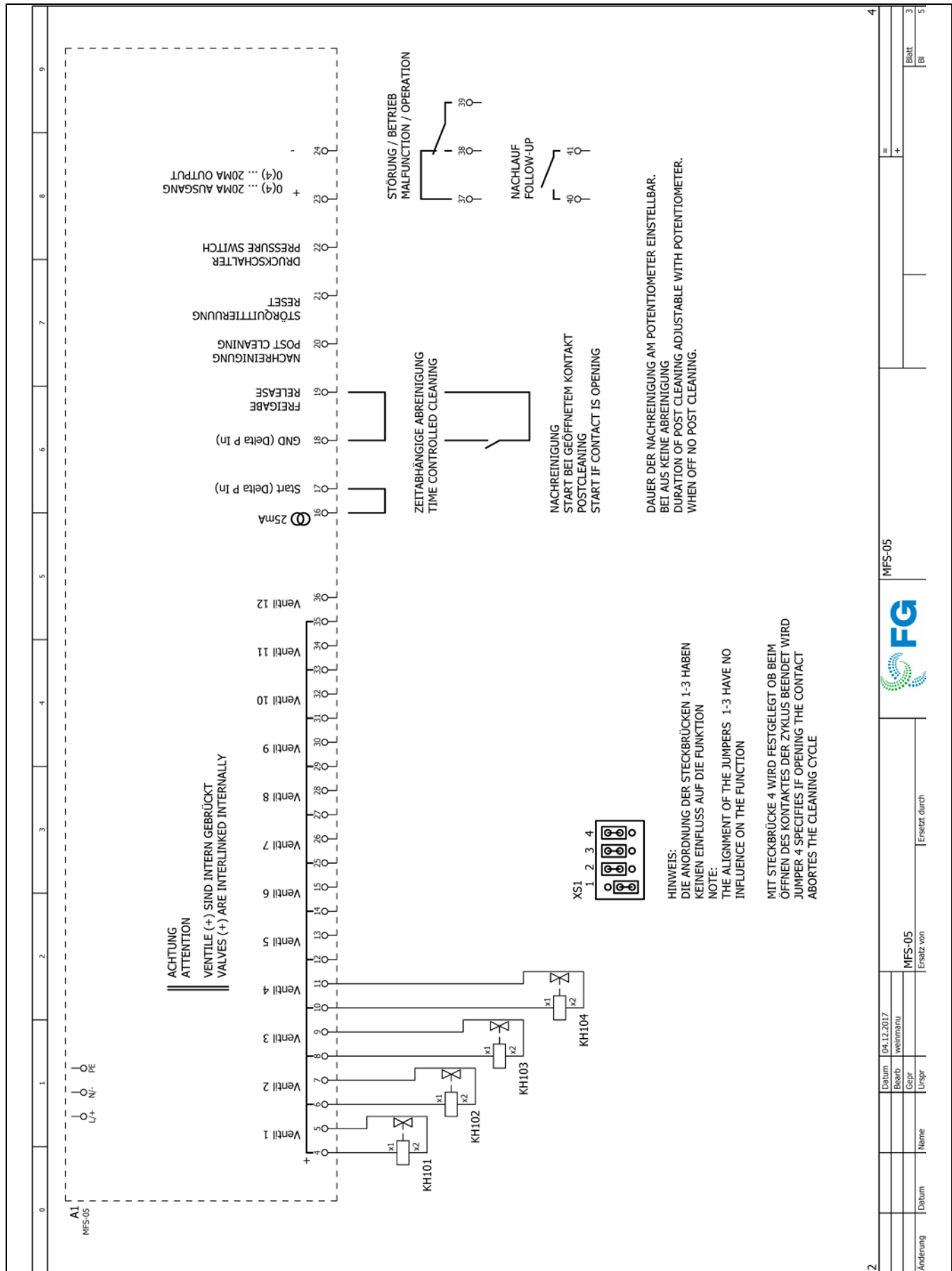


- Take any necessary safety precautions
- Carry out the maintenance work.
- Start up the filter controller again.
- Observe the filter controller.  
Does it operate normally?

- Check whether any of the values indicated on the nameplate need to be altered/corrected.
- Correct this data if necessary.

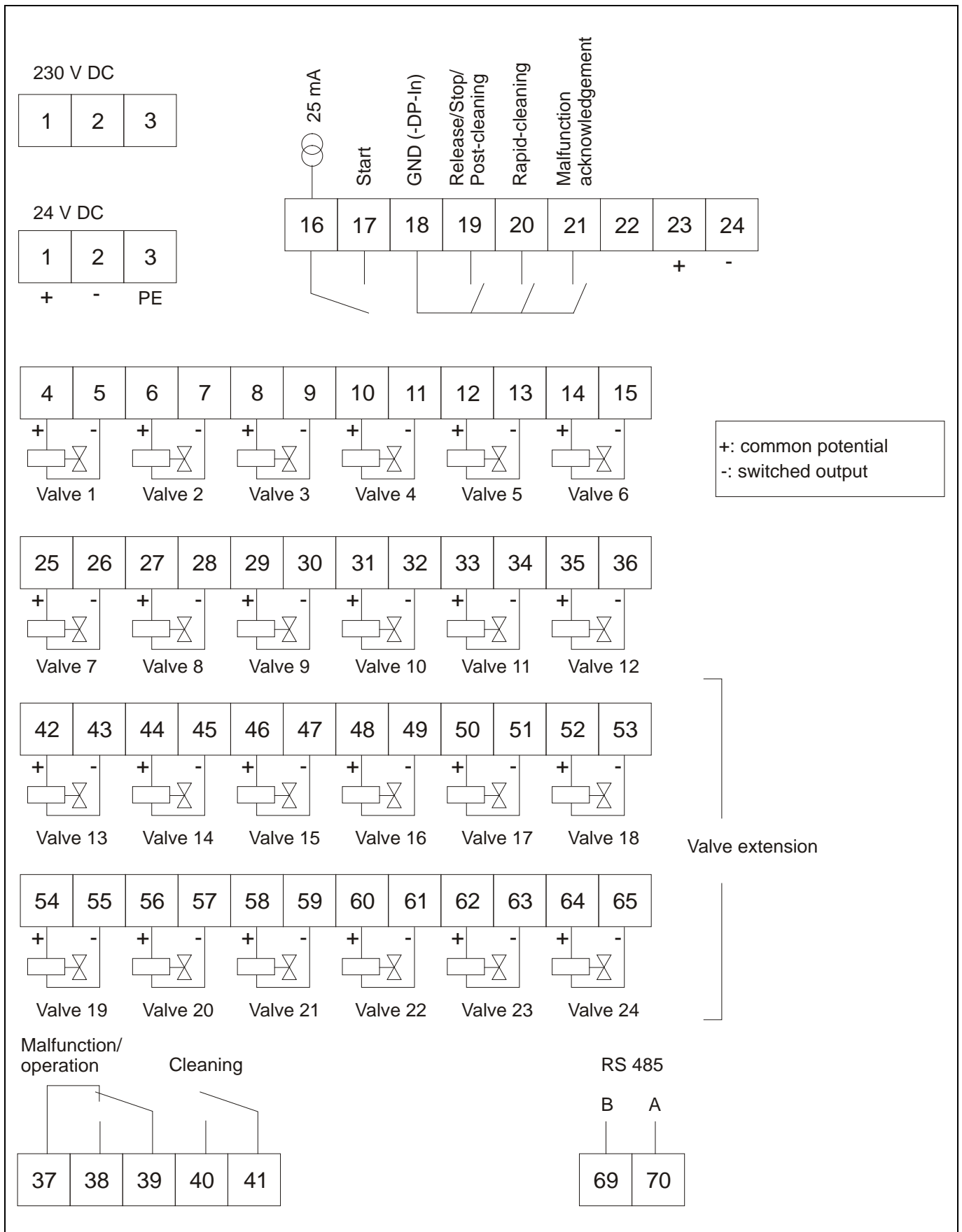
### If a fuse blows:

- Determine and rectify the cause.
- Install a replacement fuse with the same ratings as the original fuse.
- The use of rewired fuses is prohibited, as is short-circuiting the fuse holder.





## 16 Appendix: Terminal assignment




## 17 Appendix: RS 485 serial port

The controller has an RS 485 serial port that can be used to query the current unit settings on a PC, for example.

**Data format:** 1 start bit, 8 data bits, no parity, 1 stop bit  
**Baud rate:** 19200 baud  
**Protocol:** The data is queried by sending one byte ('A', 'B', etc.) to the controller. The controller responds with one word (16 bits). This response must be converted to the appropriate measurement unit by the PC.  
**Connection:** Terminal 69: RS 485 B  
Terminal 70: RS 485 A

	Query	Response	Calculation	Unit	Comments
20 mA input	"A" 65 hex	0-1020	$x / 45$	mA	Start input
Configuration	"B" 66 hex	0-1020	Not possible, see program version		
Configuration 2	"C" 67 hex	0-1020	Not possible, see program version		
Pulse	"D" 68 hex	0-1020	$((x \text{ div } 4)^2 \text{ div } 44) * 2 + 100) / 1000$	s	
Interval (potentiometer)	"E" 69 hex	0-1020	$((x \text{ div } 4)^2 \text{ div } 64) + 10) / 2$	s	
Valves	"F" 70 hex	0-1020	$(x+46) / 92 + 0.5$		
Post-cleaning	"G" 71 hex	0-1020	$((x \text{ div } 4)^2 \text{ div } 53) / 10$	min.	<1 minute = off
Lag time	"H" 72 hex	0-1020			
$\Delta p$	"I" 73 hex	0-1020	$X/204$	V	0 ... 5 V = measuring range
Inputs	"J" 74 hex	0-31	2 <sup>0</sup> = Enable 2 <sup>1</sup> = Rapid cleaning 2 <sup>2</sup> = Fault acknowledgement 2 <sup>3</sup> = Pressure switch 2 <sup>4</sup> = Test button		
Program version	"K" 75 hex	16000	$(x \text{ div } 32) / 100 + 45$ 2 <sup>0</sup> = 4 mA 2 <sup>1</sup> = Pressure switch 2 <sup>2</sup> = Pressure switch version 2 <sup>3</sup> = Full cycle 2 <sup>4</sup> = Controller		
Current interval time	"L" 76 hex	20-2052	$x / 4$	s	
Valve alarm	"M" 77 hex	0-248	2 <sup>0</sup> -2 <sup>4</sup> = Valve 2 <sup>5</sup> = Interruption 2 <sup>6</sup> = Overcurrent 2 <sup>7</sup> = Pressure monitoring		
Alarm threshold	"N" 78 hex				
High threshold	"O" 79 hex				
Low threshold	"P" 80 hex				
Display selection	"Q" 81 hex				
$\Delta p$ measuring range	"R" 82 hex				
$\Delta p$ reference	"S" 83 hex				
$\Delta p$ da	"T" 84 hex				
	Other characters	32000			Unknown query



div = Integer division with no remainder



## 18 Appendix: Set of instrument lines and protective filter (ID No. 78341984)

### To measure the differential pressure:

- Connect the sensor to the measuring points upstream and downstream of the filter plate using the instrument lines.
- The instrument lines should be protected and laid without any kinks.
- No condensate must be allowed to accumulate on the instrument lines. Provide a condensate trap if necessary.
- No dust protection is necessary for the cleaned gas line.



Leaking or dirty lines can lead to measurement errors and malfunctions.

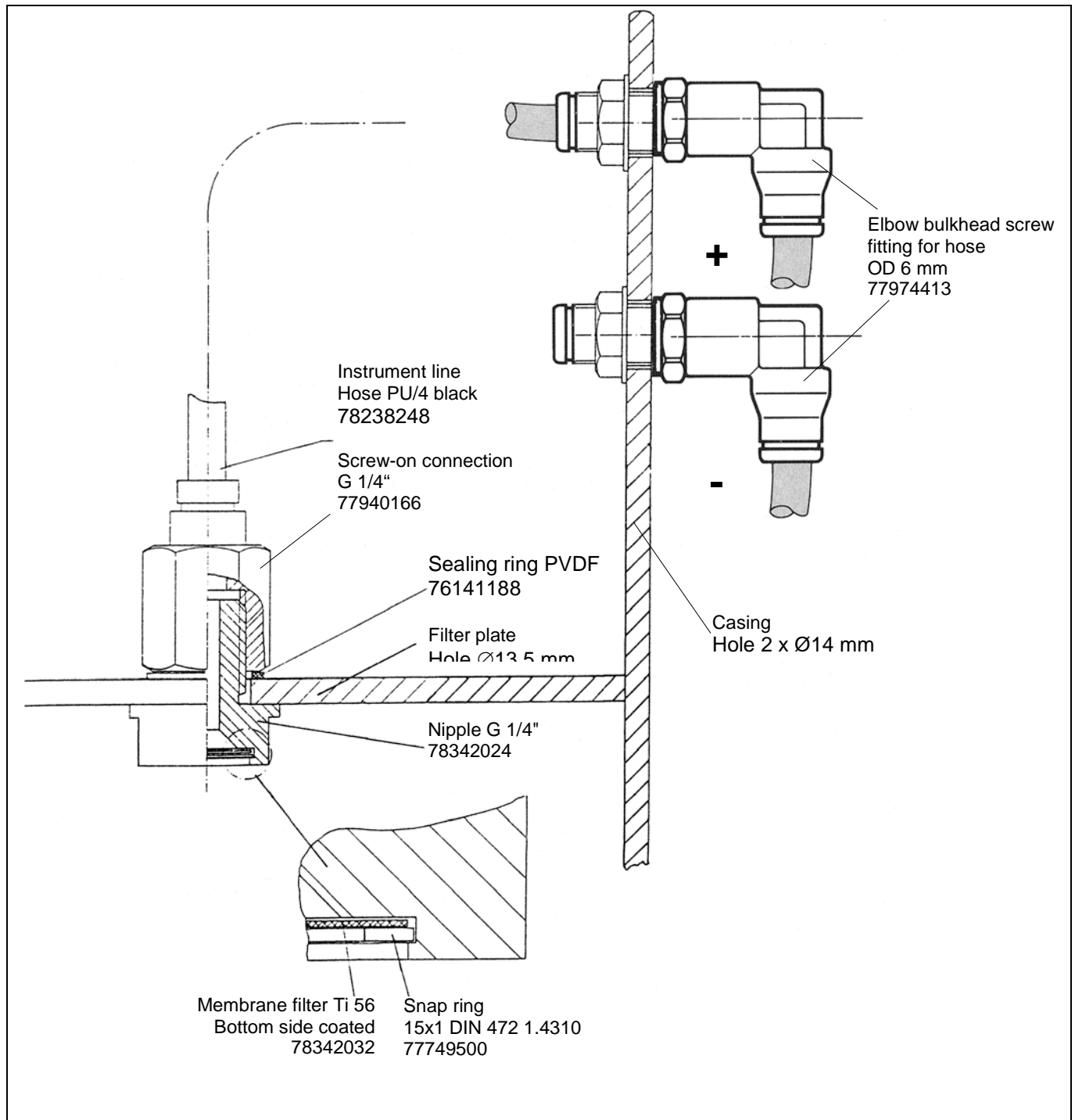
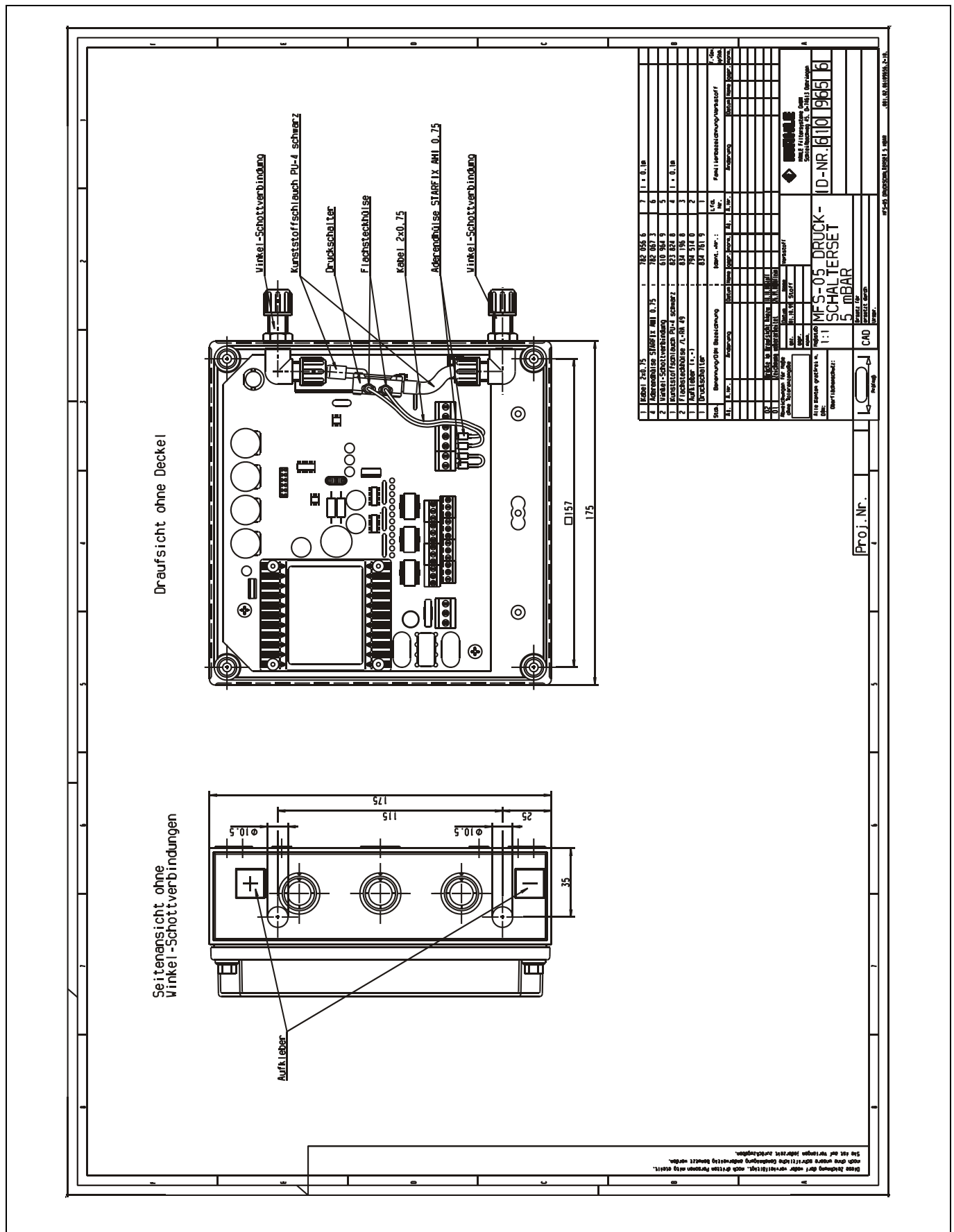


Fig. 18: Installation drawing and spare parts

## 19 Appendix: Dimension drawing MFS-05



*Fig. 19: Dimension drawing*

## 20 Appendix: Default settings

### 20.1 Main parameters of the MFS-05 in “interval time control” mode

Parameter	Comments	Factory setting	Operation
No. of valves	Refer to section 6 for information about settings	N	
Interval potentiometer	Controller characteristic, section 10.9	60	
Pulse time	Pressure cleaning Rotating wing	0.1 s 1.5 s	
Post-cleaning cycles		0	
Alarm threshold		18 mbar	
Terminal assignment	See circuit diagram	Jumper 18-19	
Jumper settings	Schw./Reg. jumper	Up	
	T/G Zyklus jumper	Up	

### 20.2 Other operating modes

#### 20.2.1 “Switching threshold” mode

Parameter	Comments	Factory setting	Operation
Jumper settings	Schw./Reg. jumper	Down	
	T/G Zyklus jumper	Up	
High threshold		14 mbar	
Cleaning cycles		1	
Terminal assignment	See circuit diagram	Jumper 18-19	
Jumper settings	Schw./Reg. jumper	Down	
	T/G Zyklus jumper	Up	

#### 20.2.2 “Time control” mode

Parameter	Comments	Factory setting	Operation
Terminal assignment	Terminals 16-17 and 18-19 jumpered		
Interval time	600 divided by the number of valves n	xx	
Jumper settings	Schw./Reg. jumper	Down	
	T/G Zyklus jumper	Up	

## 21 Declaration of incorporation

As defined by the EC Machinery Directive.

EU – Einbauerklärung  
EU Declaration of incorporation  
Déclaration relative au montage UE



Der Hersteller  
The manufacturer  
Le producteur

Filtration Group GmbH  
Schleifbachweg 45  
74613 Öhringen  
Telefon 07941 6466-0  
Telefax 07941 6466-429

erklärt hiermit, dass das folgende Produkt  
hereby declares that the following product  
déclare par la présente que le produit suivant

Typenbezeichnung:  
Type designation:  
Désignation du type :

MFS-05

Funktionsbeschreibung:  
Machine description:  
Description du fonctionnement :

Magnetventilsteuerung  
Valve control unit  
Électrovanne commande

den in der Anlage dargestellten grundlegenden Anforderungen der Richtlinie 2006/42/EU entspricht.  
conforms to the essential requirements of the Machinery Directive 2006/42/EU pursuant to the Annex.  
répond aux exigences fondamentales de la directive 2006/42/UE, décrites en annexe.

Die unvollständige Maschine darf erst dann in Betrieb genommen werden, wenn festgestellt wurde, dass die Maschine, in die die unvollständige Maschine eingebaut werden soll, den Bestimmungen der Richtlinie 2006/42/EU über Maschinen entspricht.  
The partly completed machinery must not be put into service until the relevant machinery into which this partly completed machinery is to be incorporated has been declared in conformity with the Machinery Directive 2006/42/EU.  
La machine incomplète ne doit être mise en service qu'après avoir déterminé que la machine, dans laquelle la machine incomplète doit être montée, correspond aux dispositions de la directive machines 2006/42/UE.

Folgende harmonisierten Normen wurden angewandt:  
The following harmonised standards have been used:  
Les normes harmonisées ci-dessous ont été appliquées :

DIN EN 12100:2011-03, DIN EN ISO 4414:2011-04

Der Hersteller verpflichtet sich, die speziellen Unterlagen zur unvollständigen Maschine, einzelstaatlichen Stellen auf Verlangen schriftlich zu übermitteln. Die zur Maschine gehörenden speziellen technischen Unterlagen nach Anhang VII Teil B wurden erstellt.  
The manufacturer undertakes to transmit any specific documentation on the partly completed machinery to the appropriate national authorities in writing on request. All specific technical documentation belonging to the machinery has been compiled pursuant to Annex VII Section B.  
Le fabricant s'engage à transmettre les documents spécifiques à la machine incomplète par écrit aux administrations nationales respectives sur leur demande. Les documents techniques spécifiques selon Annexe VII partie B faisant partie de la machine ont été établis.

Dokumentationsverantwortlicher/Abteilung:  
Responsible for documentation/department:  
Responsable de la documentation/Service :

Filtration Group GmbH  
Schleifbachweg 45  
74613 Öhringen

Unterzeichner:  
Signatory:  
Signataire :

Wolfram Zuck  
Dipl.-Ing. (FH) Industrial Engineering  
Managing Director, Plant Manager Öhringen

Öhringen,

Datum/Date/Date

Unterschrift/Signature/Signature

Anlage/Annex/Annexe

3 Seiten/pages/pages

## 22 Declaration of conformity

EU – Konformitätserklärung  
EU declaration of conformity  
Déclaration de conformité UE



Der Hersteller  
The manufacturer  
Le producteur

Filtration Group GmbH  
Schleifbachweg 45  
74613 Öhringen  
Telefon 07941 6466-0  
Telefax 07941 6466-429

erklärt hiermit, dass das folgende Produkt  
hereby declares that the following product  
déclare par la présente que le produit suivant

Typenbezeichnung:  
Type designation:  
Désignation du type :

MFS-05

Funktionsbeschreibung:  
Machine description:  
Description du fonctionnement :

Magnetventilsteuerung  
Valve control unit  
Électrovanne commande

Die Maschine entspricht allen Bestimmungen der Richtlinie 2014/35/EU über elektrische Betriebsmittel und der Richtlinie 2014/30/EU über elektromagnetische Verträglichkeit.

The machinery conforms to all provisions of the Low Voltage Directive 2014/35/EU and of the Electromagnetic Compatibility Directive 2014/30/EU.

La machine répond à toutes les dispositions de la directive 2014/35/UE relative au matériel électrique et de la directive 2014/30/UE relative à la compatibilité électromagnétique.

Folgende harmonisierten Normen wurden angewandt:

The following harmonised standards have been used:

EN 61010-1, EN 61000-6-2, EN 61000-6-4, EN 61326-1

Les normes harmonisées ci-dessous ont été appliquées :

Unterzeichner:

Signatory:

Signataire :

Wolfram Zuck

Dipl.-Ing. (FH) Industrial Engineering

Managing Director, Plant Manager Öhringen

Öhringen,

09.08.2017

Datum/Date/Date

Unterschrift/Signature/Signataire

Anlage zur Einbauerklärung gemäß Richtlinie

2006/42/EU für Entstaubungsgeräte

Annex to the Declaration of Incorporation pursuant to the Machinery Directive 2006/42/EU for dust collectors

Annexe à la déclaration de montage selon la directive

2006/42/UE pour les dépoussiéreurs

Beschreibung der grundlegenden Sicherheits- und Gesundheitsschutzanforderungen (soweit zutreffend) gemäß 2006/42/EU, Anhang 1, die zur Anwendung kommen und eingehalten wurden.

List of the essential health and safety requirements (where applicable) pursuant to 2006/42/EU, Annex 1, applied and fulfilled.

Description des exigences fondamentales relatives à la sécurité et à la protection de la santé (si applicables) selon 2006/42/UE, annexe 1, appliquées et respectées.



Grundlegende Anforderung Essential requirements Exigence fondamentale	Erfüllt Fulfilled Remplie
Grundsätze für die Integration der Sicherheit Principles of safety integration Principes d'intégration de la sécurité	ja yes oui
Materialien und Produkte Materials and products Matériaux et produits	ja yes oui
Konstruktion der Maschine im Hinblick auf die Handhabung Design of machinery to facilitate its handling Construction de la machine au regard de sa manipulation	ja yes oui
Steuerungen und Befehlseinrichtungen Control systems Commandes et dispositifs de commande	nein no non
Risiko des Verlusts der Standsicherheit Risk of loss of stability Risque de perte de la stabilité statique	ja yes oui
Bruchrisiko beim Betrieb Risk of break-up during operation Risque de rupture en fonctionnement	ja yes oui
Risiken durch herabfallende oder herausgeschleuderte Gegenstände Risks due to falling or ejected objects Risques dus à la chute ou à l'éjection d'objets	ja yes oui
Risiken durch Oberflächen, Kanten und Ecken Risks due to surfaces, edges or angles Risques dus aux surfaces, arêtes et angles	ja yes oui
Risiken durch Änderung der Verwendungsbedingungen Risks related to variations in operating conditions Risques dus à la modification des conditions d'utilisation	ja yes oui
Risiken durch bewegliche Teile Risks related to moving parts Risques dus à des parties mobiles	ja yes oui
Wahl der Schutzeinrichtung gegen Risiken durch bewegliche Teile Choice of protection against risks arising from moving parts Choix du dispositif de protection contre les risques dus à des parties mobiles	ja yes oui
Risiko unkontrollierter Bewegungen Risks of uncontrolled movements Risque de mouvements incontrôlés	ja yes oui
Anforderungen an Schutzeinrichtungen Required characteristics of guards and protective devices Exigences relatives aux dispositifs de protection	nein no non
Elektrische Energieversorgung Electricity supply Alimentation électrique	ja yes oui
Statische Elektrizität Static electricity Electricité statique	ja yes oui



Nemelektromos energiaellátás Ei-sähköisen energian syöttö Nieelekttryczne zasilanie w energię	igen kyllä tak
Szerelési hiba Asennusvirhe Błąd montażowy	igen kyllä tak
Külső hőmérsékletek Ulkolämpötilat Ekstremalne temperatury	igen kyllä tak
Égés Tulipalo Pożar	igen kyllä tak
Robbanás Räjähdys Eksplozja	igen kyllä tak
Zaj Melu Hałas	igen kyllä tak
Rezgések Tárinat Wibracje	igen kyllä tak
Sugárzás Säteily Promieniowanie	igen kyllä tak
Külső sugárzás Ulkoa tuleva säteily Promieniowanie z zewnątrz	igen kyllä tak
Veszélyes anyagok és nyersanyagok kibocsátása Vaarallisten tarvikkeiden ja aineiden säteily Emisja niebezpiecznych materiałów i substancji	igen kyllä tak
A gépbe záródás kockázata Riski koneen lukituksi tulemisesta Ryzyko zamknięcia w maszynie	nem ei nie
Csúszás, bottlás és zuhanás kockázata Liukastumis-, kompastumis- ja kaatumisriski Ryzyko poślizgnięcia, potknięcia i przewrócenia się	nem ei nie
Villámcsapás Salamanisku Uderzenie pioruna	nem ei nie
A gép karbantartása Koneen huolto Konserwacja maszyny	nem ei nie
Hozzáférés a kezelési állásokhoz és a karbantartás beavatkozási pontjaihoz Pääsy ohjauskorokkeille ja kosketuspisteisiin kunnossapittoa varten Dostęp do stanowisk obsługi i do punktów naprawczych	nem ei nie
Az energiaforrásokról való leválasztás Energiälähteiden erotus Rozdzielenie źródeł energii	nem ei nie
A kezelőszemélyzet beavatkozásai Käyttöhenkilöstön kosketukset Ingerencja personelu obsługi	igen kyllä tak
A gép belsejében található alkatrészek tisztítása Sisällä sijaitsevien koneenosien puhdistus Czyszczenie części znajdujących się wewnątrz maszyny	nem ei nie
A gépen található információk és figyelmeztető utasítások Koneella olevat tiedot ja varoitushjeet Informacje i wskazówki ostrzegawcze na maszynie	igen kyllä tak
Figyelmeztetés maradék kockázatokra Jaännörskien varoitus Ostrzeżenie przed ryzykiem resztkowym	igen kyllä tak
A gép jelölése Koneiden tunnusmerkintä Oznaczenia maszyn	nem ei nie

Üzemeltetési utasítás Käyttöohje Instrukcja obsługi	igen kyllä tak
Élelmiszeripari és kozmetikai vagy gyógyszeripari gépek Elintärviketeollisuuden koneet sekä koneet kosmeettisille tai farmaseuttisille valmisteille Maszyny do produkcji środków spożywczych i maszyny do produkcji wyrobów kosmetycznych lub farmaceutycznych	nem ei nie
Kézi és/vagy kézzel irányított hordozható gépek Kädessäpidettävät ja/tai käsiohjatut kannettavat koneet Trzymane ręczne i/lub prowadzone ręcznie przenośne maszyny	igen kyllä tak

## 23 Index

<b>A</b>		
Application .....	3	
ATEX type key .....	3	
<b>C</b>		
Characteristic selection .....	6	
Cleaning cycles .....	19	
Connection variants .....	11	
Cyclic switching of valve outputs .....	3	
<b>D</b>		
Differential pressure .....	3, 6, 9	
<b>E</b>		
Emergency shut-down .....	9	
Environmental protection .....	3	
<b>F</b>		
Full cycle .....	7, 16	
<b>I</b>		
Installation .....	8	
Interval time .....	3, 4, 5, 6, 7, 8, 16, 19	
<b>J</b>		
Jumper .....	4, 6, 7, 9, 19	
<b>L</b>		
Leakage .....	2	
<b>M</b>		
Main components .....	4	
Manufacturer .....	3	
<b>N</b>		
Number of valves .....	4, 9, 19	
<b>P</b>		
Partial cycle .....	5, 7	
Post-cleaning .....	5, 7, 16	
Pulse time .....	4, 5	
<b>R</b>		
Risks .....	2	
<b>S</b>		
Safety instructions .....	2	
Safety precautions .....	10	
Shut-down .....	9	
Start-up .....	9	
<b>T</b>		
Technical data .....	5	
Test button .....	9	
Test switch .....	8	
Transport and storage .....	6	
<b>W</b>		
Warning symbols .....	2	
Warnings .....	2	



Filtration Group GmbH  
Schleifbachweg 45  
D-74613 Öhringen  
Phone +49 7941 6466-0  
Fax +49 7941 6466-429  
[fm.de.sales@filtrationgroup.com](mailto:fm.de.sales@filtrationgroup.com)  
[www.filtrationgroup.com](http://www.filtrationgroup.com)  
79743030.I08.01/18