

Attention



Please read carefully before installation and start up and observe all safety measures at all times.

INSTALLATION AND OPERATING INSTRUCTIONS

JUDO AUTOMATIC BACKWASH FILTER

JRSF-A/T DN 65 - 100

JRSF-A/TP DN 65 - 100

VALID FOR EU-COUNTRIES AND SWITZERLAND
LANGUAGE: ENGLISH

Ordering

JUDO Wasseraufbereitung GmbH
Postfach 380
D-71351 Winnenden

Phone: +49 (0)7195/6 92-0
Fax: +49 (0)7195/6 92-188
Internet: www.judo.eu
e-mail: info@judo.eu

Street address

JUDO Wasseraufbereitung GmbH
Hohreuschstraße 39-41
D-71364 Winnenden

Dear Client,

Thank you for making JUDO your brand of choice. In order to ensure a long working life for your unit, please follow all instructions in this manual carefully. This manual contains all necessary instructions for installation, operation and maintenance of your unit.

Trade mark

Trade marks used herein are protected and registered to

© JUDO Wasseraufbereitung GmbH
D-71351 Winnenden

All rights reserved. Replication allowed only subject
To prior, written permission.



EU Declaration of Conformity

Document-Nr. 166/06.06

Manufacturer: JUDO Wasseraufbereitung GmbH

Adress: Hohreuschstr. 39-41
D-71364 Winnenden

We declare that this product:

Decription of product:
JUDO Automatic Backwash Protective Filter
JRSF-A 1" - DN 200

Conforms to EU guidelines:	Electro-magnetic compatibility (EMV)	89/336/EWG
	Low Voltage Guidelines	73/23/EWG

and the norm requirements stipulated therein.

Harmonised Norms:	EMV Guidelines	
	Electro-magnetic compatibility, min. tech. req. for:	
	Interference emmission	EN 61000-6-2
	Interference resistance	EN 61000-6-3
	Low Voltage Guidelines	
	Security of transformers, power supplies etc.	EN 61558-1
	Security of electrical household appliances and Similar applications	EN 60335-1

Issued by: JUDO Wasseraufbereitung GmbH

City, Date: Winnenden, den 20. Juni 2006

Authorised signature:



 JUDO Wasseraufbereitung GmbH

This declaration is proof of conformity with the above noted norms, does not, however, guarantee any individual properties.

Contents

	Page
1.) Introduction	
1.1 Warranty	5
1.2 Use of product	5
1.3 Operator's duties	5
2.) Product details	
2.1 Manufacturer and Model	5
2.2 Version	5
2.3 Scope of delivery	5
2.4 Operational data	6
2.5 Place of use	6
2.6 Function	6
3.) Safety	
3.1 Safety notes and tips	7
3.2 Correct application	7
3.3 Sources of danger	7
4.) Installation	
4.1 Requirements on site	7
4.2 Installation tips	8
4.3 Installations example	9
4.4 Pressure differential unit	10
5.) Commissioning	
5.1 Control types	10
5.2 Manometer	10
5.3 Setting differential pressure	11
5.4 Electro-magnetic valve	11
6.) Setting the controls	
6.1 Teh controls	12
6.2 Opening and closing the housing	12
6.3 Explanations	12
6.4 Manual backwash	12
6.5 Settings	12
6.6 Backwash cycles	12
6.7 Setting the magnetic valve opening times	13
6.8 Setting the weekly timer	13
6.9 Setting the backwash interval	14
6.10 Time and date settings	14
7.) Operation	
7.1 Spare parts list	14
7.2 Controls	15
7.3 Maintenance	15
7.4 Tips for error reports	15
8.) Wiring diagram	15
9.) After-Sales	16

About this manual

Attention



This manual must be kept at the point of unit operation. The manual is aimed at giving a better understanding of your unit and its correct use and application.

This manual contains important information regarding the economical, safe and correct operation of your unit. It contains information fundamental for the installation, operation and maintenance of this unit. Compliance with these instructions helps avoid dangers, lowers running costs and prolongs the active working life of your unit. These instructions are to be read by all persons working in direct contact with the unit, e.g.:

- Installation
- Operation
- Maintenance (Inspection)

In addition to the instructions given in this manual, all rules, regulations and laws regarding work, health & safety valid in the country of use are to be strictly adhered to. This manual must, therefore, be read by staff carrying out and all work prior to doing so.

Please note the safety symbols!

Symbols used



Indicates possible dangers



Attention electrical current



Additional tips and information

Safety information and the danger of non-compliance

All work should be carried out under strict observance of safety regulations. Failure to comply with these regulations may result in harm or damage to yourself and/or others as well as to the environment and the unit concerned.

1.) Introduction

1.1 Warranty

Warranty can only be accepted under the terms of our general conditions of sale where:

- The unit is used in accordance with the conditions specified in this manual.
- The unit has not been opened or used in for purposes other than those specified in the manual.
- Repairs were made by qualified persons.

1.2 Use of Product

The Automatic Backwash Protective Filter described here is for use in the protection of pipe systems and appliances in mains fed drinking water applications.

Attention



Other applications may be deemed as „non suitable“ and are not allowed. JUDO Wasseraufbereitung GmbH can accept no liability for damage which may result from such applications.

1.3 Operator's duties

The operator is responsible for the following in connection with this unit:

- Training of operational staff
- Compliance with maintenance requirements

2.) Product Details

2.1 Manufacturer and model:

Manufacturer:
JUDO Wasseraufbereitung GmbH
P.O. Box 380
D-71351 Winnenden

Phone: +49 (0)7195/6 92-0
Fax: +49 (0)7195/6 92-177
Internet: www.judo.eu
e-mail: info@judo.eu

Model:

JUDO Automatic Backwash Protective Filter
JRSF-A/T DN 65 - 100
JRSF-A/TP DN 65 - 100

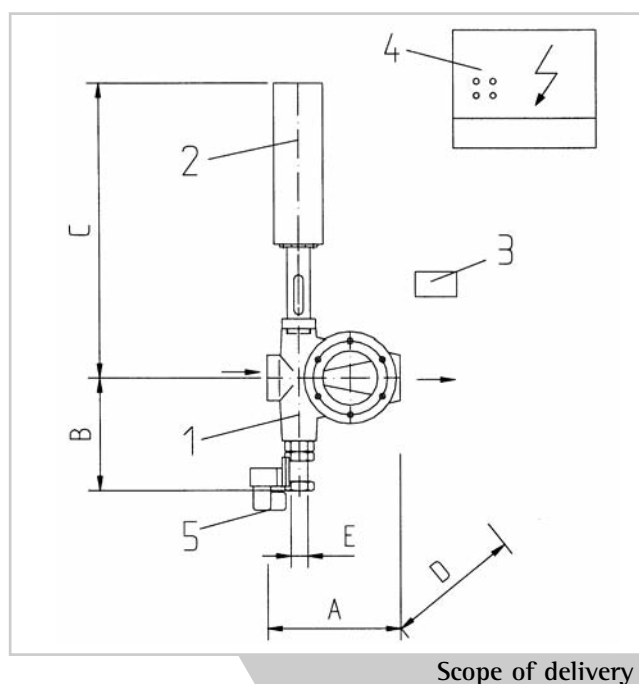
2.2 Version

With time control (T) or time prioritised differential pressure control (TP); Sieve size 0,1 mm.

Model	Order Number
JRSF-A/T DN 65	8302021
JRSF-A/T DN 80	8302022
JRSF-A/T DN 100	8302023
JRSF-A/TP DN 65	8502021
JRSF-A/TP DN 80	8502022
JRSF-A/TP DN 100	8502023

Also available in a hot water version on request.

2.3 Scope of delivery



1. Casing with multiway valve, viewing glasses and 2 filter chambers each with filter sieve.
2. Servomotor
3. Differential pressure manometer (TP control) with mini taps (2 pcs.) 1/2" connections and pressured tubing (ca. 1.5.m)
4. Electronic control board type JSK V (T+TP versions)
5. Membrane valve with electromagnetic valves (no electrical connection). Compressed air to be provided on site
6. Installation and operations manual

Accessoires:

- JUDO filter sieve replacements (various sizes) on request

Model	Dimensions									
	A	mm	B	mm	C	mm	D	mm	E	Zoll
JRSF-A/T(TP) DN 65	370		245		540		225		G 1	
JRSF-A/T(TP) DN 80	370		245		540		225		G 1	
JRSF-A/T(TP) DN 100	414		300		580		255		G 1 1/4"	

Control unit H x B x T
245 x 290 x 150 mm

2.4 Operational data				
Max. flow rate *	m ³ /h *	33	38	58
Pressure loss at backwash	bar	0,2	0,2	0,16
Operating pressure min./max.	bar	1,5 / 10	1,5 / 10	1,5 / 10
Backwash volumes	ca. l/s	4,5	5,3	8,1
Volumes per total backwash cycle	ca. l	90	100	160
Max. water temperature	°C	30	30	30
Sieve size **	mm	0,1	0,1	0,1
Flange connection DIN 2633	DN	65	80	100
Electrical connections for control unit	V/Hz	230/50	230/50	230/50
Control medium		Steuerluft	Steuerluft	Steuerluft
Control pressure	ca. bar	4 - 6	4 - 6	4 - 6
Max consumption	W	60	60	60
Protection category for control unit (cover closed)	IP	54	54	54
Weight	kg	45	45	60
Model JRSF-A/T(TP)		DN 65	DN 80	DN 100

* Approx. half flow rate during backwash

** Also available in the following sieve sizes 0,03/0,05/0,32/0,5/1,00/2,00 mm

2.5 Place of use

The JUDO Automatic Backwash Protective Filter removes all particulate mater in the cold and warm water supply which can lead to pitting in the system. These can lead to mal-functions in taps, control unit, regulators and other equipment.

2.6 Function

The multiway valve used in to regulate operation and backwashing on a JUDO Automatic Backwash Filter DN 65 –100 is servomotor operated. The run-off is opened using a combination of electromagnetic valve and a membrane vale (compressed air). Backwash is controlled electronically.

The JRSF-A/T(TP) is operated using:

Zeit- und differenzdruckabhängig durch Zeitschaltuhr und Differenzdruckmanometer bis max. 1 bar Differenzdruck.

Time and differential pressure controls using time switch and differential pressure manometers allowing max. 1 bar pressure differential.

Particles filtered out of the incoming water are retained on the sieve surface. This results in a rise in pressure difference between the filter entry and exit points. The manometer monitors the actual difference in pressure here. Once the pressure differential has reached pre-set levels, a backwash is started automatically.

During times of low consumption, backwashing is started using a timer function in order to stop dirt build-up on the sieves.

As running water is a pre-requisite fort he build-up of differential pressure, the TP function will only be active during operation. The TP-function is of spezial interest for us in applications with varying water consumption and dirt inflow levels.

3.) Safety

3.1 Safety notes and tips

For the meanings of the symbols used, please see the „table of contents“ page.

3.2 Correct application

JUDO Automatic Backwash Protective Filters JRSF-A/T (TP) have been designed and engineered to meet with the requirements for mechanical filters in drinking water applications.

Information



Particles retained on the filter surface are removed using abrasion. All materials used on this unit conform to German standards pertaining to expected levels of physical, chemical & corrosive loads as stipulated in DIN 19632. Materials used conform to physiological and hygiene requirements. PVC-based and metallic parts conform to the requirements of the German Ministry of Health.

Attention



Water containing substances with high polarisation properties such as alcohols, concentrated mineral acids, formic acids, carbolic acids, cresylic acids, tetrahydrofuran, pyridines, dimethyl-formamid & mixes containing chloroform & methanol may not be used in connection with this unit. These will cause damage to PVC-based materials and may lead to breakages. The tests marks printed on the unit are valid only in connection with original JUDO parts! Instructions regarding operation, maintenance & repairs contained in this manual must be strictly adhered to! For safety reasons, unauthorized changes or alterations to this unit are under no circumstances to be taken!

Warning



All electrical work is to be affected only when the unit is disconnected from the power supply!

3.3 Sources of danger

Attention



Before opening the control unit covers, please ensure that no splash water can enter the unit. Water, which may already be on the cover must be removed before opening. The locking system must be closed after the cover is replaced (see chapter 6.2). The cover of the servo-motor must be correctly in place before the unit is put into operation (see chapter 2.3)! As the unit is under voltage when operational, all electrical work, e.g., maintenance, installation, part replacement, replacement of fuses, connection to potential-free input & output contacts, is to be performed by persons suitably qualified to do such tasks under local regulations!

The following border values are valid for the connection of the potential-free contact on a JUDO Automatic Backwash Protective Filter JRSF-A/T (TP):

- max. load current 1 A
- max. switching voltage 24 V

Attention



Potential-free contacts only are to be used on the optional in- and output contacts (see chapter Potential-free contacts).

Under no circumstances are these contacts to be connected to external power sources!

The potential-free contacts are to be connected using a 2-core cable, max. diameter 4,5 – 10 mm. The sheathing may be removed to max. 3 cm.

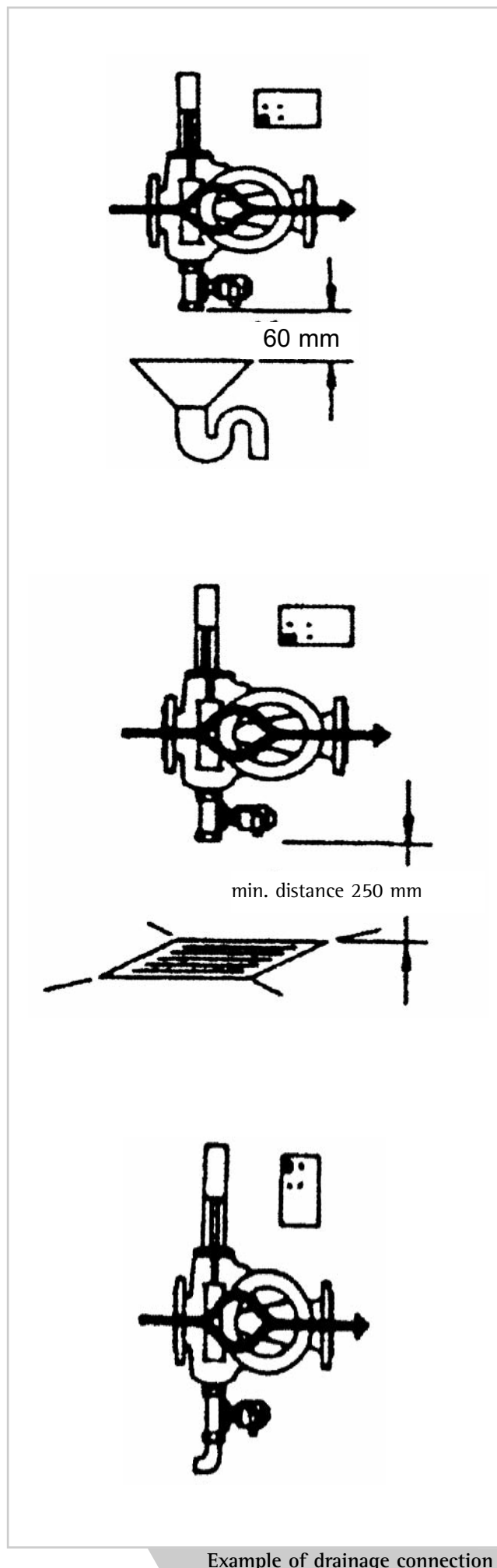
4.) Installation

4.1 Requirements on site

This JUDO Automatic Backwash Protective filter is to be installed in a dry and frost-protected location. A drainage connection (e.g. floor drain) in accordance with local plumbing requirements is required to feed off backwash water. Connections for compressed air, are also required on site. The filter should be installed close to a power supply (230V/50Hz). The power supply should be installed by qualified personnel and in conformity with the requirements of the local electrical code. Please take note of the example installation herein. Access to the plug must be available at all times.

4.2 Installation tips

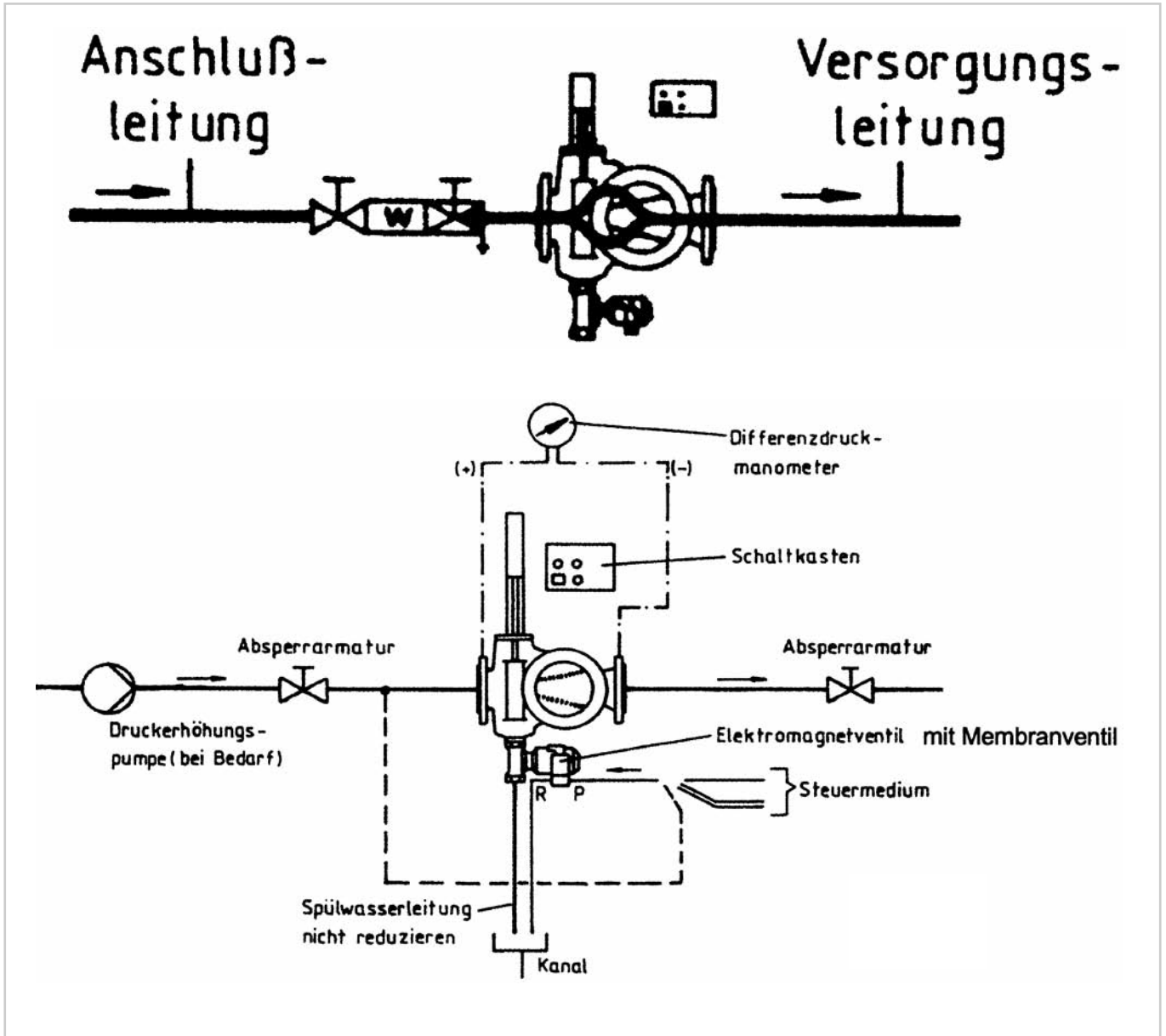
- The filter may be installed in horizontally or vertically running steel or PVC-based pipes. It may not be installed in a suction line.
- It may be connected to the water supply using standard fittings.
- Water pressure at point of installation should not exceed the nominal 10 bar for which this unit is approved.
- In order to facilitate operation and maintenance, the unit should be installed at a point with easy access.
- For ease of sieve changing, a min. distance of 250 mm should be left between the filter cover and the wall.
- **The drain available must be one size larger than the pipe work and allow backwash water to flow without backing up.**
- When installed in vertical pipes, the installation on U-turn at the backwash water outlet will facilitate the downward flow of backwash water.
- Where installation directly above a drain is not possible, the addition of tubing of the same dimension and with a steady downward grade to the next drain is possible.
- In order to ensure good cleaning levels on the sieve screens, a volume of backwash water corresponding to approx. 50% of the max flow rate is required. At the same time a minimum pressure of 1.5 bar must be retained. Should these values not be reached, e.g. due to a free flow out after the filter or in close circuit systems, then an adequate backwash will not be obtained.
- The shut-off valves installed in front of and after the unit are to be installed in such a way, that they remain operative even when the unit is being installed or dismantled.
- Filter should be installed free from distortion
- Pressure differential max. 2 bar
- Installation in front of a water meter only where this is legally permitted.
- Where backwash water is to be collected in a pump well, then the pump must be able to cope with volumes of several backwashes and offer an overflow alarm feature.
- Always consult and observe the general regulations on plumbing, electrical work and health and safety valid in your country or region!
- The distance between the electronic control unit and the filter may not exceed 2 m. The control unit is hung vertically on a wall using a round or cylinder headed screw (5 mm diameter) and leaving a distance of 5mm to the wall itself. The control unit is then hung onto the screw using the hole fixture on the reverse side of the unit. The control unit must be additionally secured using 2 further screws (right and left under the cover cap).
- A cable duct or similar should be used to ensure wiring is fitted free of tension.
- Connections for the servo-motor, differential pressure manometer and magnetic valve can be found in the wiring diagram (see chapter 8).
- **Compressed air must be provided on site.**



4.3 Installation example

Installation example for a JUDO Automatic Backwash Protective Filter based on German installation standards. Please consult local regulations before installing as these may vary. Installation follows after the water meter and back-flow protection unit. The differential pressure

manometer with mini-tap is fixed using the fitting provided to the inflow side of the unit and the remaining mini-tap with fixture is fitted to



Installation example

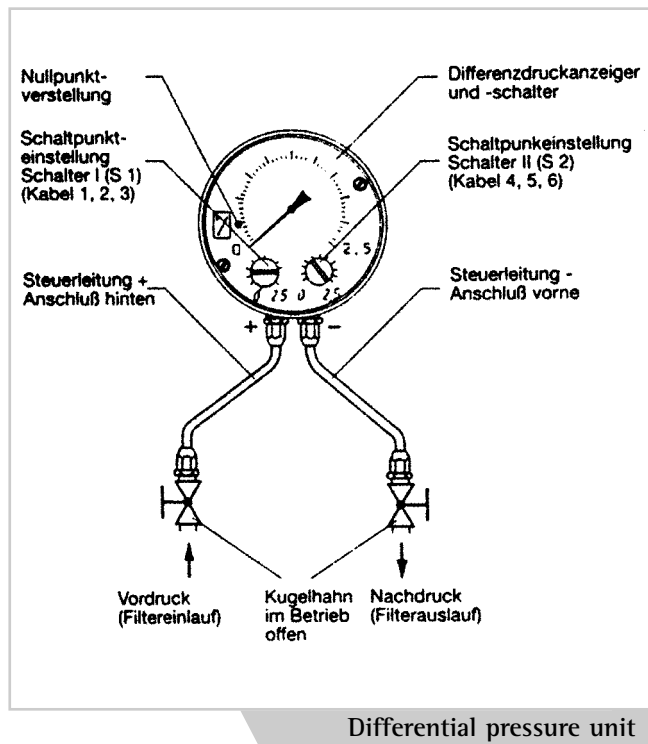
4.4 Installation of differential pressure unit

A differential pressure control is part of the scope of delivery on TP controlled filters. T controlled filters may be retrofitted accordingly.

The pressure resistant control lines on a JRSF-A/TP are installed directly into the filter casing; line (+) at the filter inlet and line (-) in the outlet. The build-up of particles on the sieve surface leads to a gradual drop in pressure within the unit. This pressure loss is registered by the pressure manometer. Once a preset level has been reached, a backwash is automatically initiated. The differential pressure unit has priority over the timer control and has a factory setting of approx. 1 bar.

Venting the control lines (-):

1. Close ball valve.
2. Loosen nut on manometer.
3. Remove tube.
4. Carefully partially open ball valve to vent.
5. Replace tube and tighten in place.
6. Open ball valve fully.



5.) Commissioning

Information



Commissioning should be carried out by a person trained to do so.

5.1 Control types

Time control "T":

Backwash is controlled on a timer base only and needs to be set to local requirements.

Differential pressure control "TP":

Particles filtered from the incoming water supply are retained on the sieve surface. This results in a growth in pressure loss between filter inlet & outlet. The manometer registers the ongoing difference in pressure within the unit. Once a preset pressure differential is reached and held for more than 20 seconds, a backwash is automatically started. If the differential pressure after backwash has not been reduced, further backwashes automatically follow. Where the pre-set pressure differential has not been undercut after 5 mins. or 10 backwashes, the unit runs a final backwash, goes into alarm and shuts down. The filter becomes operative again once the error report has been cancelled and normal pressure differential achieved. Where normal differential is not achieved, the control should be temporarily shut off whilst the problem is solved. In order to prevent the sieves from blocking during longer periods of non-use, backwash is run on a timer basis. AS pressure differential only occurs in flowing water, this function is only active when the filter is in operation. TP control is advisable for applications involving varying water consumption and fluctuation in the rates of incoming impurities.

5.2 Manometer

Particle build-up on the filter sieve leads to a loss in pressure within the filter. This drop is monitored by the differential pressure manometer on the filter unit. A backwash is automatically started when a pre-set differential is reached. This function operates independently from the time control feature. The differential pressure manometer is to be installed directly onto the filter unit. All parts required are delivered together with the filter unit. Installation and connection: follow Steps given in the installation instructions. Connect control lines manometer (+) to filter inlet and line (-) to filter outlet. Electrical connection: see wiring diagram.

5.3 Setting differential pressure

Setting Zero point:

When no water is flowing through the unit and the ball valves on each control line are open, the needle on the manometer's display should be showing zero. If this is not the case, the needle can be re-positioned by unscrewing the manometer and adjusting the needle position by means of the zero-point adjuster screw.

Setting backwash, switch 1:

Values at which backwashing is automatically started can be set here. Remove the closing plug in the clear cover cap and turn the switch point button to the setting required, starting at zero (0.1 to 2.5 bar possible).

Settings should be set between approx. 1 to max. 2 bar (do not set under 0,5). Setting accuracy +/- 5%, Close cover cap (factory setting = 1 bar).

The setting required depends on the levels and intensity of impurities. Setting the differential pressure too high, can result in sieve blockage, too low a setting may result in increased water consumption.

Setting backwash, switch 2:

Switch 2 can be used to connect to an external alarm unit monitoring the differential pressure within the unit. If the values set at switch 2 are reached, an external alarm can be set off. As this is an additional safety feature, please ensure that the values set at switch 2 are approx. 0.5 bar higher than for switch 1.

5.4 Electro-magnetic valve

The electro-magnetic valve (Pilot valve) is delivered pre-installed in the unit. It serves as a pilot valve for the main membrane valve. The power system is to be connected at „P“. When using air, connection "R" remains open. When using water, this is where the drainage hose is connected. All connections are supplied with pipe threading type R 1/4". See electronic diagram for electrical connections.

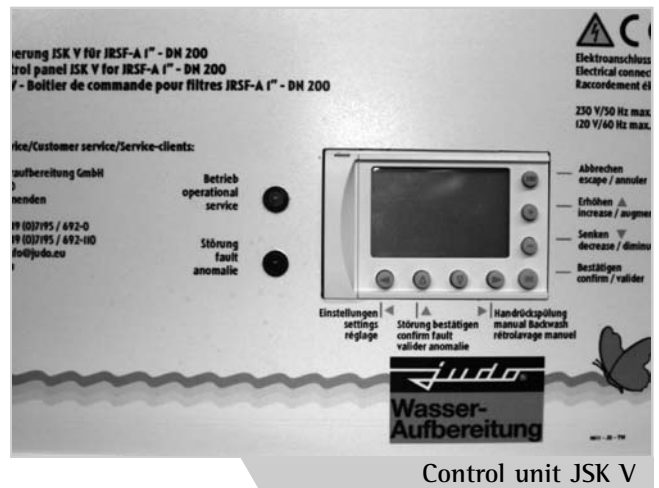
The electro-magnetic valve may also be activated manually. Push in and turn clockwise to stop.

Warning



Do not carry out electrical work until unit is disconnected from power supply!

6.) Setting the controls



Control unit JSK V

Information



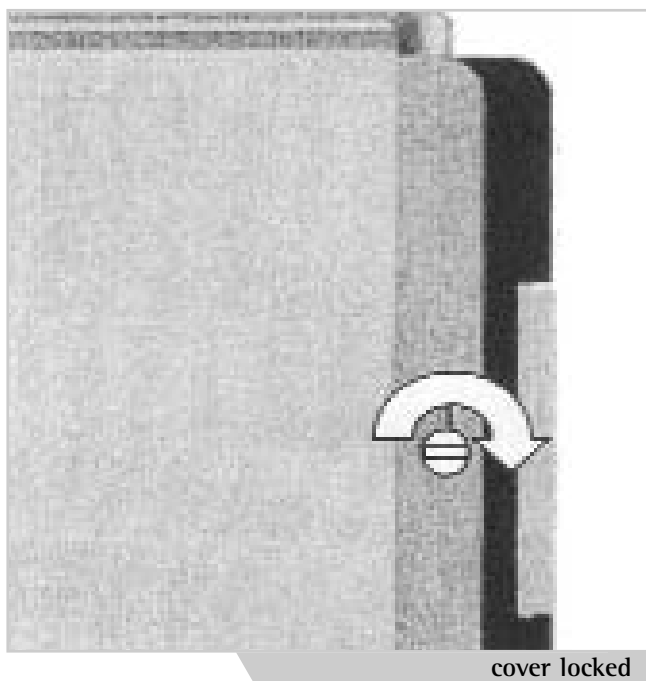
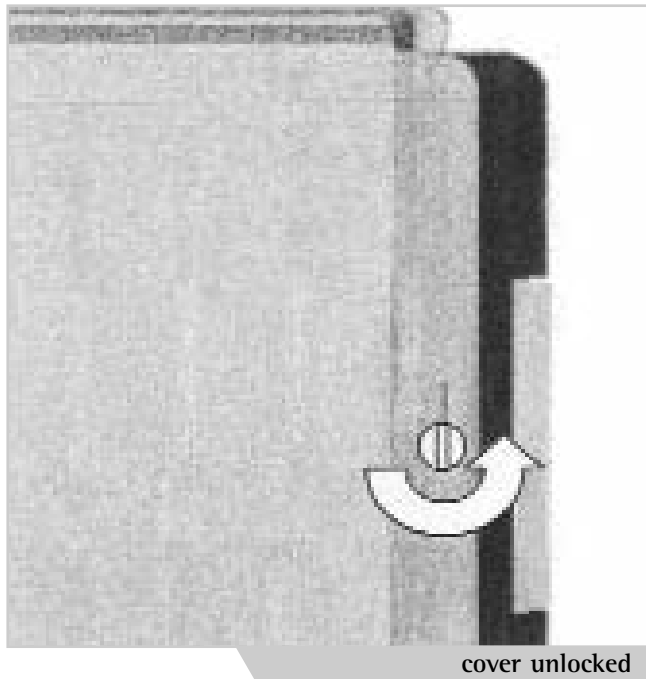
Settings to this unit must be carried out in accordance with the instructions herein only. Any variations will lead to damage of the unit. Dip switches contained within the unit are for maintenance purposes only. Altering these can result in total damage to the unit and a complete loss of warranty coverage.

6.1 Control unit

The JSK V unit is a programmable SPC control which can be adapted for individual requirements.

6.2 Opening and closing the control unit cover

The control unit cover is opened and closed using a screw driver.



6.3 For your information

Information



Menus and values can be selected using the arrow keys ◀ ▶ ▲ ▼ (lower line).

The +/- keys are then used to activate values set (selection blinks).

The +/- Tasten can also be used to alter values up or down.

Value are stored using the OK key.

An action can be broken off using the ESC key.

In the following text, signs shown in the display are marked in „cursive“ and key indicators in „bold“.

Time limits

Each new entry must be completed within a 1 min. time frame and confirmed by pressing the OK button. If this is not the case, the display return automatically to operational mode and original parameters remain unchanged.

6.4 Manual backwash

A manual backwash can be started by holding the arrow key ▶ pressed (approx. 5 secs.). The unit then performs the preset number of backwashes and returns to operational mode. During this process the word „backwash“ appears on the display.

6.5 Settings

Menus are opened using the arrow key ◀ (settings). A new menu point each opened with each push. Menus can be closed by a further push once the end of the menu has been reached. Menus cannot be interrupted and must be run through completely.

6.6 Backwash cycles

The number of backwashes per cycle can be adjusted to meet with actual requirements on site. Normally 3 backwashes should be adequate. Should the sieves still not be fully clean, however, this number can be altered. Between 1 and 10 backwashes per cycle can be programmed.

- Press arrow key ◀ once to display 'backwash' menu.
- Activate using +/- keys (display blinks)
- Select number of backwashes required using +/- keys. Confirm with the OK key.

The values set are now stored.

6.7 Setting the opening times for the magnetic valves

Use the **arrow key** ◀ to reach the menu „magnetic valve opening times“. Use the +/- keys to set the hour and then move using the **arrow key** to set the minutes (display blinks). Press key again to display upper value.

- pushing the **arrow key** ◀ will move you to the next menu point.
- The lower value is set here: e.g. display shows “MV 10s down”
- Set seconds required using +/- keys and confirm with OK.

6.8 Setting the weekly timer

Weekly timer settings are fixed in the next menu point. The display shows the current timer status (TS#01) in the upper right hand corner followed by the weeks as in numbers (12345) below that and then the days activated (SMDMDFSa). The lowest line contains the On and off times (HH:MM). Day and weeks appear in bold script when activated.

- Pressing the **arrow key** ◀ activates a menu displaying „select switch T1 –T3“
- Press **arrow key** ◀ Display shows ‘T1 on’
- Set using +/- keys (time display blinks) The on-time for weekly timer 1 is now set.
- Confirm with OK
The display now shows the following series (example):

	B049:TS	#01	
Weeks	12345	1.	
Day	SMDMDFSa		Sunday, ...
Time	10:00	→ EIN	

- The cursor can be moved in the lower 3 lines using the **arrow keys** ◀ ▲ ▼ ▶
- The week line is used to select the week in which backwash should take place (1 = each first week in the month, 2 = each second, etc. 12345 = every week).
- Use the +/- keys to activate or deactivate the week required. If a week is deactivated, it will be replaced in the display with a (-).
- The same method is used to select weekdays. Again if a day is deactivated the display shows (-).
- The bottom line is for time settings. Use the +/- keys to set hours and minutes individually.
- Once all data has been entered, press OK to store. The word „write“ appears in the display. The menu is then moved on using the **arrow key** ◀ . „T1 off“ appears on the display.

The display now shows the following series (example):

	B049:TS	#02	
Weeks	12345	1.	
Day	SMDMDFSa		Sunday, ...
Time	10:01	→ AUS	

Programing in #02 runs analog to timer on function. Please note that values for Week and day must be identical in #01 and #02.

The values shown in time time line for #02 must be 1 minute after values in #01. in this example a backwash is run every week (weeks 1-5 are active), every weekday (all days are active) and at 10:00 hrs.

- Confirm using OK. Values are now stored
- Move to next menu point using **arrow key** ◀

The next menu point offers two further timer options and can be used for additional backwashing. If this feature is not required, then it must be switched off by cancelling either every week or every day on the display.

Information

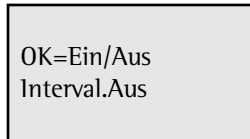


The SPC control requires two sets of input per backwash:
Backwash on and, 1 minute later, backwash off.
These are, for example Timer #01 (on) and #02 (off).

6.9 Interval backwashing

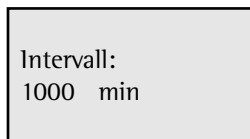
Use the Arrow key ◀ to move on to the next menu point. The display shows „Interval.Aus“ or „Interval.Ein“ depending on current state of activation.

- Confirm with the OK key
The following appears in the display (standard setting is „Intervall Aus“):



OK=Ein/Aus
Interval.Aus

- The interval status can be changed using the OK key.
- Move on to the next menu point using the Arrow key ◀.



Intervall:
1000 min

Interval time settings adjustable from 30 minutes to 10,080 minutes (7 days).

- Adjust interval time settings using the +/- keys.
- Use the OK key to confirm.
- Return to main screen with a double click on the Arrow key ◀.

6.10 Time & date settings

Current time & date settings are programmed as follows:

- Press ESC & OK simultaneously.
- Hold down Arrow key ▼ or ▲ until „UhrStellen“ appears on display.
- Double click on OK key.
- Enter date and time using number keys ◀▲▼▶.
- Entries may be altered using +/- keys.
- Exit menu using OK key.
- Double click on ESC key and continue until display reaches operational mode.

7.) Operation

7.2 Control

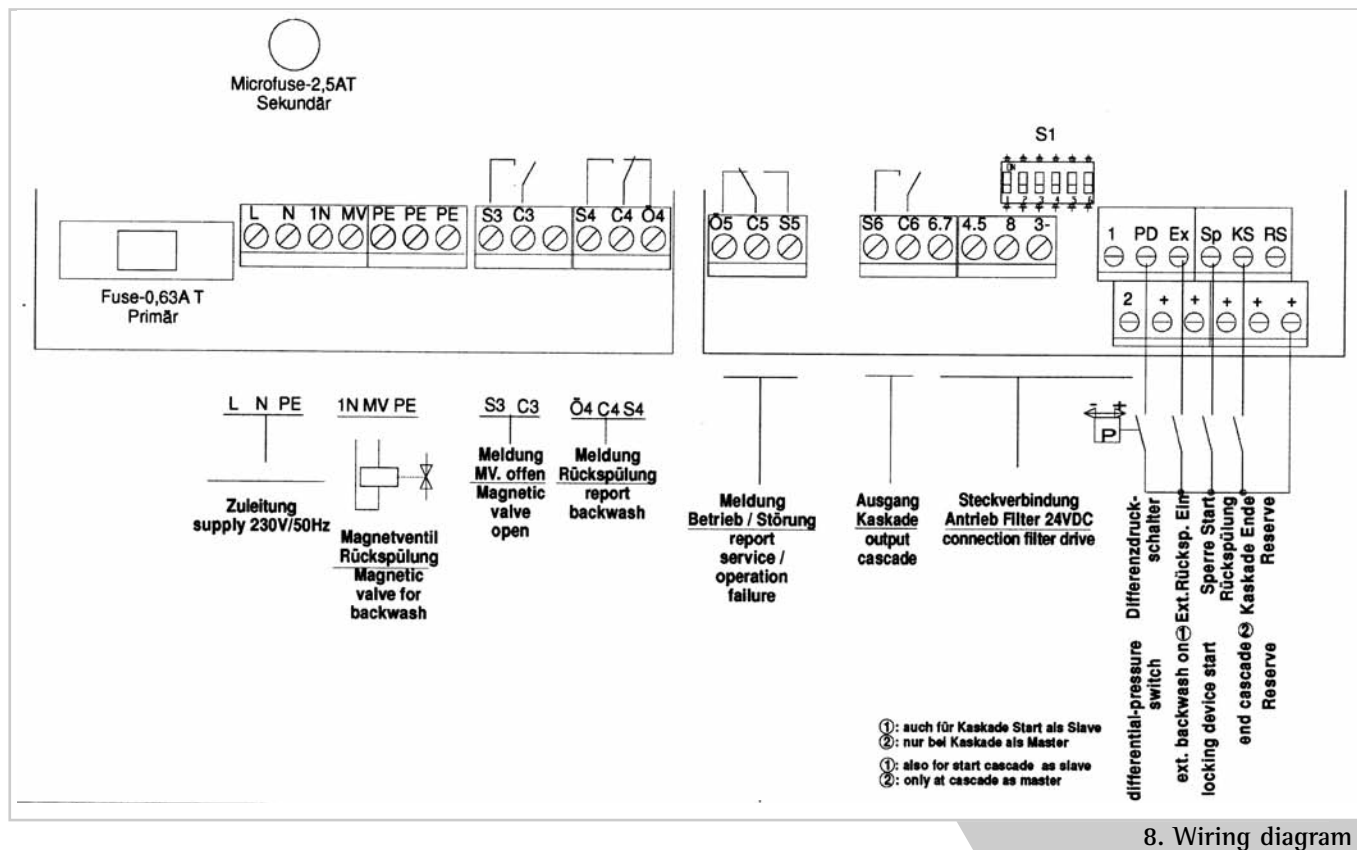
A thorough optical examination of the unit should be made at regular intervals depending on the application used. Use the viewing glass to inspect the level of build-up on the filter sieve and start a backwash manually where required.

7.3 Maintenance

Your JUDO Backwash Protective filter represents a major investment in the quality of your installation. In order to ensure maximum operating efficiency of this unit, JUDO strongly recommend regular maintenance to be carried out by trained personell or by a maintenance company qualified to do so.

7.4 Tips for error reports

Error	Alert in Display:	Cause:	Solution:
Automatic backwash does not start		no power	Check power supply Check fuses
Automatic backwash stops unexpectedly	„Störung Hall“	Hall sensor connection is interrupted	Check connections to control and call customer service
Heavily load build-up on sieves		High dirt inflow level	Start manual backwash and check differential pressure settings.
Differential pressure ramins high Backwash Signal is on for too long	„Störung- - Diff.druck/Extern- -“	Water pressure to low resulting in blocked sieves.	Increase flow pressure
Etternal start up signal active for too long	„Störung- - Diff.druck/Extern- -“	Should not run without interruption for more than 5 mins. Or the time required for 10 backwashes.	Terminate signal



8. Wiring diagram



JUDO Wasseraufbereitung GmbH

Postfach 380 · D-71351 Winnenden
Phone +49 (0)7195/6 92-0 · Fax +49 (0)7195/6 92-188
e-mail: info@judo.eu · www.judo.eu



JUDO Wasseraufbereitung GmbH – Niederlassung Österreich

Zur Schleuse 5 · A-2000 Stockerau
Phone +43 (0)2266/6 40 78 · Fax +43 (0)2266/6 40 79
e-mail: info@judo-online.at · www.judo-online.at



JUDO Wasseraufbereitung GmbH – Filiaal / Filiale BeNeLux

Avenue du Laerbeek - laan, 72 A1 · B-1090 Brussel / Bruxelles
Phone +32 (0)24 60 12 88 · Fax +32 (0)24 61 18 85
e-mail: info@judo-online.be · www.judo.eu



JUDO France S.à.r.L

76 Rue de la Plaine des Bouchers · Technosud · F-67100 Strasbourg
Phone +33 (0)3 88 65 93 94 · Fax +33 (0)3 88 65 98 49
e-mail: info@judo.fr · www.judo.fr

Installed by: