

Installation and Operating Instructions

Filter-Control.*plus*

Extension of a **POOLcontrol[®]-45** *exclusiv* for controlling additional filter systems

Art. No.: 310.010.0001



Compatible pumps

230V single-phase pump
(rated current up to 8A)

400V three-phase pump
(rated current up to 8A)

Speck ECO-Touch-Pro pump

Speck Badu-90-ECO-VS pump

Speck Badu-90-ECO-Motion pump

Pentair IntelliFlo pump

Pentair SuperFlo pump

Zodiac FloPro VS pump

UWE PMM pump



Technical data:

Dimensions:	220 x 219 x 100mm
Operating voltage:	3/N/PE 400/230V 50Hz
Power consumption of control unit:	approx. 5VA (depends on operating mode)
Switching capacity Pump:	max. 8A / 3,0 kW (AC3)
Degree of protection:	IP 40
Ambient temperature:	0-40°C
Air humidity:	0-95% non-condensing
Memory card:	Micro SD
Internet port:	LAN

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Function:

The Filter-Control plus is an extension of a Pool-Control-45 exclusiv and not an independent control. It should only be used in conjunction with a Pool-Control-45 exclusiv filter control.

With the Filter-Control plus you can control an additional filter. The device has the necessary functions to be able to connect almost any filtration pump. It is suitable for controlling filter pumps with variable speed as well as for non-regulated 230V and 400V pumps. The built-in motor protection is continuously adjustable in a range of 0-8A and protects the uncontrolled pump from overload.

Backwashing can be performed using a 6-way multiport valve and installed EUROTRONIK-10 controller or using slide valves, and launched either manually or at a specific time or pressure.

The connecting terminals for the winding protection switch (terminals 1 and 2) are designed for connecting a thermal winding protection switch built into the filter-pump motor winding. If this switch opens, e.g. as a result of the motor winding getting too hot, the filtration pump is switched off automatically along with the heating and dosing equipment. Once the winding protection switch closes again after the motor winding has cooled down, the units automatically switch back on. There is no need for a manual reset. The connecting terminals for the winding protection switch carry 230V.

Installation

The swimming pool must be designed and built to prevent consequential damage resulting from a potential technical fault, power failure or a faulty unit.

Electrical connection

The control unit must be mounted such that it is protected from moisture in accordance with its degree of protection. The ambient temperature must lie between 0° C and + 40° C and should vary as little as possible. The relative humidity at the installation position must not exceed 95% and there must not be any condensation. Avoid exposing the unit to direct heat or sunlight.

The power supply for the unit must be provided via an all-pole disconnection switch with a minimum contact gap of 3mm and via a residual-current circuit breaker with a fault current I_{FN} of $\leq 30\text{mA}$. When using variable-frequency drives and variable speed pumps, the residual-current circuit breakers stipulated for these devices must be used and the relevant regulations observed. **Always disconnect the unit from the power supply before opening the case. All electrical wiring and calibration and servicing work must be performed solely by an approved electrician. The attached wiring diagrams and all applicable safety regulations must be observed.**

The switching outputs of the Filter-Control plus are not intended as a voltage supply for variable frequency drives. Please refer to the relevant wiring diagrams in these operating instructions.

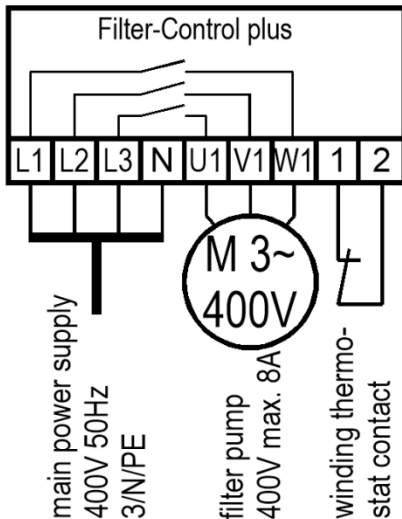
Low-voltage lines

Low-voltage lines must not be laid along with three-phase or AC power cables in the same cable conduit. In general, always avoid routing low-voltage lines close to three-phase or AC power cables.

Connection of the filter pump

When connecting the filter pump, please note that only one pump may be connected. The following connection plans must be observed.

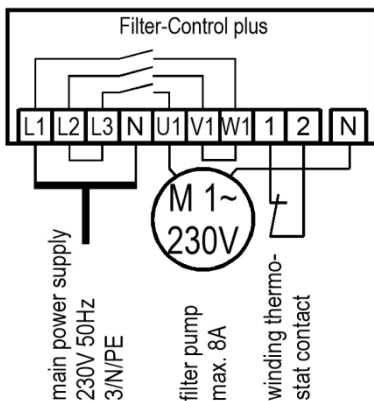
Connection of a 400V three-phase filter pump without speed control



The factory-inserted link between the two terminals 1 and 2 must be removed when connecting a pump fitted with a winding protection switch. If the pump does not have a winding protection switch, the link must remain screwed in place. These terminals are live and carry a mains voltage!

The 3-phase pump option must be selected for the filtration pump in the configuration menu.

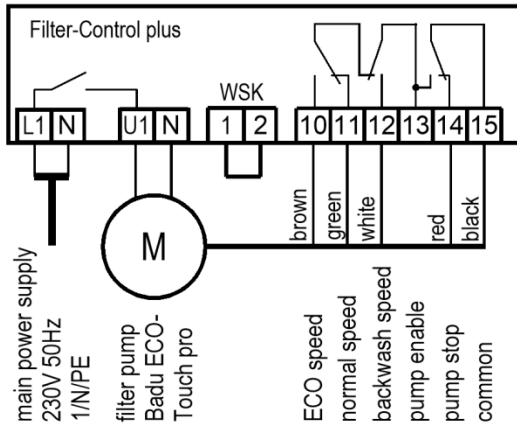
Connection of a 230V AC filter pump without speed control



The factory-inserted link between the two terminals 1 and 2 must be removed when connecting a pump fitted with a winding protection switch. If the pump does not have a winding protection switch, the link must remain screwed in place. These terminals are live and carry a mains voltage!

The single-phase pump option must be selected for the filtration pump in the configuration menu.

Connecting a Speck ECO-Touch-Pro pump



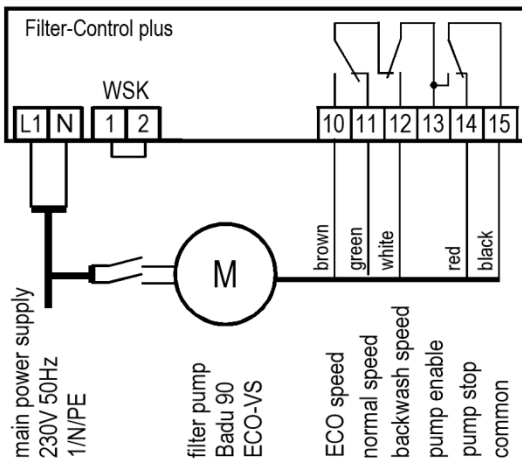
A Speck ECO-Touch-Pro pump can be connected directly to the Filter-control plus unit. Connect the speed controller to terminals 10-15.

The mains power supply to the pump must be provided separately, not via the Filter-control plus.

There must be a link inserted between the two terminals 1 and 2 (winding protection switch).

Always refer to the operating instructions for the pump.

Connecting a Speck ECO-VS pump



A Speck ECO-VS pump can be connected directly to the Filter-control plus unit. Connect the speed controller to terminals 10-15.

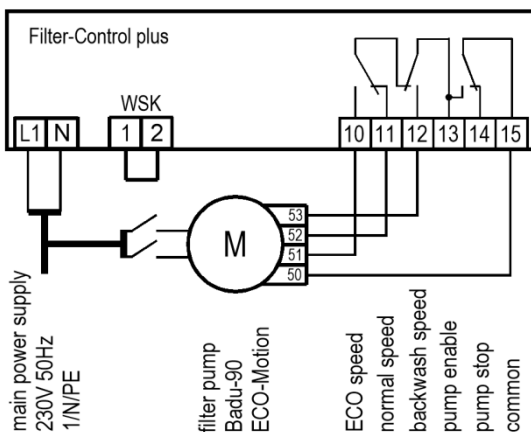
The mains power supply to the pump must be provided separately, not via the Filter-control plus.

There must be a link inserted between the two terminals 1 and 2 (winding protection switch).

Always refer to the operating instructions for the pump.

The digital inputs must be set at the pump to "dl" in the pump setup menu.

Connecting a Speck Badu-90-ECO-Motion pump



A Speck Badu-90-ECO-Motion pump can be connected directly to the Filter-control plus unit. Connect the speed controller to terminals 10-15.

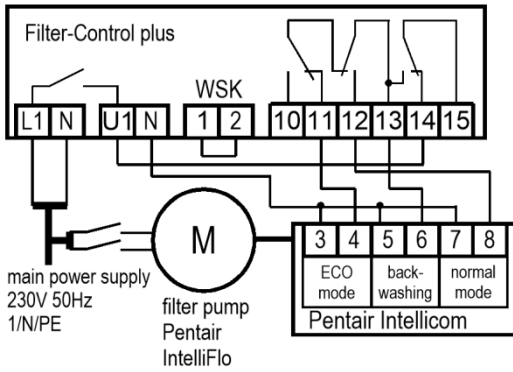
The mains power supply to the pump must be provided separately, not via the Filter-control plus.

There must be a link inserted between the two terminals 1 and 2 (winding protection switch).

Always refer to the operating instructions for the pump.

In the Setup menu on the pump, the external control must be enabled for "digital fixed speeds" with the signal type "continuous signal". The speeds required for ECO mode, normal mode and backwash mode must be set for the speeds N1, N2 and N3.

Connecting a Pentair IntelliFlo pump



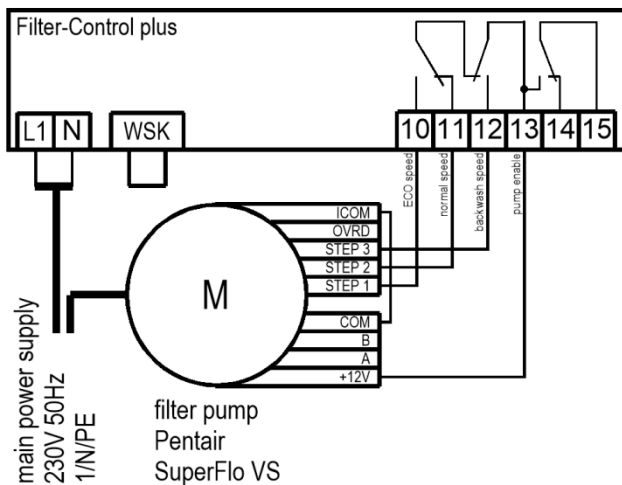
An IntelliFlo pump can be controlled by the PC-45 exclusively using the Pentair Intellicom controller. Connect the speed controller to terminals 11-14.

The mains power supply to the pump must be provided separately, not via the Filter-control plus.

There must be a link inserted between the two terminals 1 and 2 (winding protection switch).

Always refer to the operating instructions for the pump.

Connecting the power supply for a Pentair SuperFlo VS pump



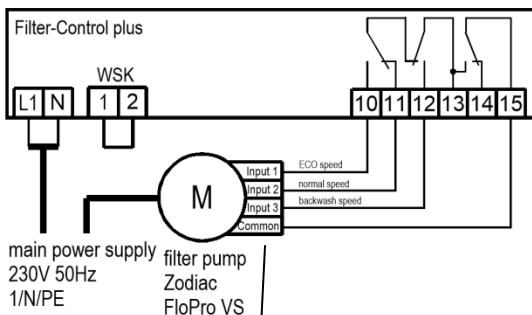
A SuperFlo VS pump can be controlled by the Filter-control plus. Connect the speed controller to terminals 10-13.

The mains power supply to the pump must be provided separately, not via the Filter-control plus.

There must be a link inserted between the two terminals 1 and 2 (winding protection switch).

Always refer to the operating instructions for the pump.

Connecting a Zodiac FloPro VS pump



A Zodiac FloPro VS pump can be connected directly to the Filter-control plus unit. Connect the speed controller to terminals 10-15.

The mains power supply to the pump must be provided separately, not via the Filter-control plus.

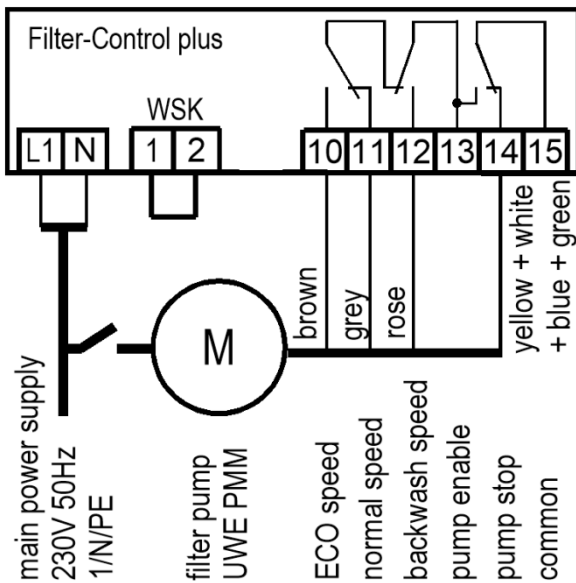
There must be a link inserted between the two terminals 1 and 2 (winding protection switch).

Always refer to the operating instructions for the pump.



On the pump, the speed controller must be connected to the designated terminals on the back of the user interface. The speeds required for ECO mode (level 1), normal mode (level 2) and backwash mode (level 3) must be assigned to speed levels 1 to 3.

Connecting a UWE PMM pump



A UWE PMM pump can be controlled by the Filter-control plus. Connect the speed controller to terminals 10-14.

The mains power supply to the pump must be provided separately, not via the Filter-control plus.

There must be a link inserted between the two terminals 1 and 2 (winding protection switch).

Always refer to the operating instructions for the pump.

Connecting the EUROTRONIK-10 for backwashing using a 6-way multiport valve

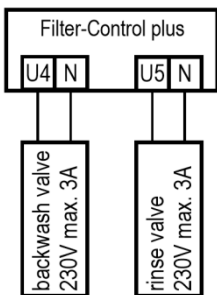


A 4-wire connection (12V Safety Extra Low Voltage) is required for connecting the EUROTRONIK-10. Ensure that the wires are connected to the correct terminal at each end. The EUROTRONIK-10 additionally requires a separate power supply. The backwash times are programmed on the EUROTRONIK-10.

Operating the Filter-control plus without a EUROTRONIK-10 unit

If the Filter-control plus is intended to be operated without a EUROTRONIK-10 unit, terminals 3 and 4 must be connected together (with a link).

Connecting the slide valves for backwashing



A 230V slide valve for the backwash function can be connected to terminals U4 and N.

A 230V slide valve for the rinsing function can be connected to terminals U5 and N.

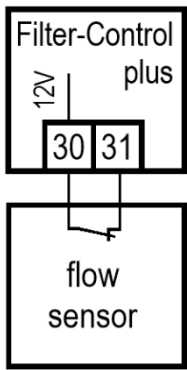
The contacts can be loaded with a maximum of 230V 3A.

Both valves are controlled by the Pool-control-45 exclusiv.

Speed control pumps run at high speed during backwashing.

The heating and dosing systems are disabled during the backwash and rinsing operation.

Flow sensor

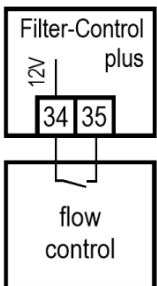


A flow sensor or a pressure sensor can be connected between terminals 30 and 31 instead of the factory-fitted link, in order to provide additional protection for the pump against dry-running. During filtration, a certain maximum time (factory set to 10 seconds, adjustment range 5-60 sec) is allowed after the filtration pump starts running before this contact must close. If the contacts do not close in this time, the filtration pump is switched off.

This contact is not polled during backwashing.

The terminals carry a safety extra low voltage.

Drain sensor



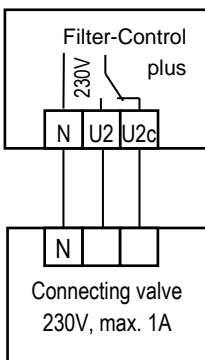
A drain sensor can be connected to terminals 34 and 35, which triggers an alarm in the event of a fault. Alarm delay 10 seconds.

In the alarm setup menu you can choose between 2 variants:

- Alarm if water flows in the drain while the filter is in operation.
- Alarm if no water flows in the drain during backwashing.

Terminals 34-35 carry safety extra-low voltage.

Connecting valve



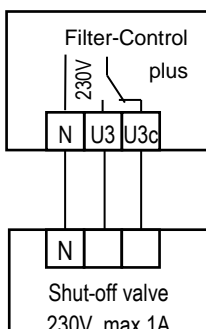
In swimming pools with two filter systems, two filter circuits may have to be connected to one another. The valve function depends on the configuration. The connecting valve is a "normally closed" valve.

A connecting valve between the filter circuits can be connected to terminals U2, U2c and N.

U2 corresponds to "open", U2c corresponds to "closed"

The terminals carry mains voltage and can be loaded with 1A.

Shut-off valve

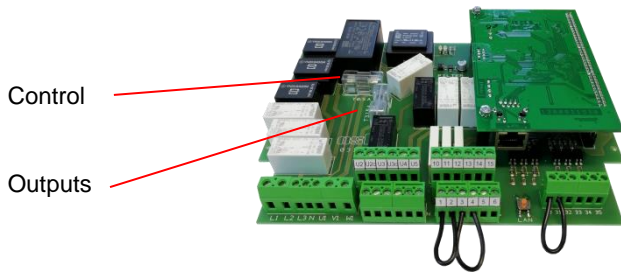


In swimming pools with two filtration systems, one filter may need to be blocked while the other is backwashed. The valve function depends on the configuration. The shut-off valve is a "normally open" valve.

The shut-off valve can be connected to terminals U3, U3c and N.

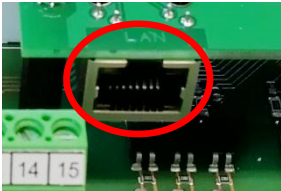
The terminals carry mains voltage and can be loaded with 1A.

Fuses



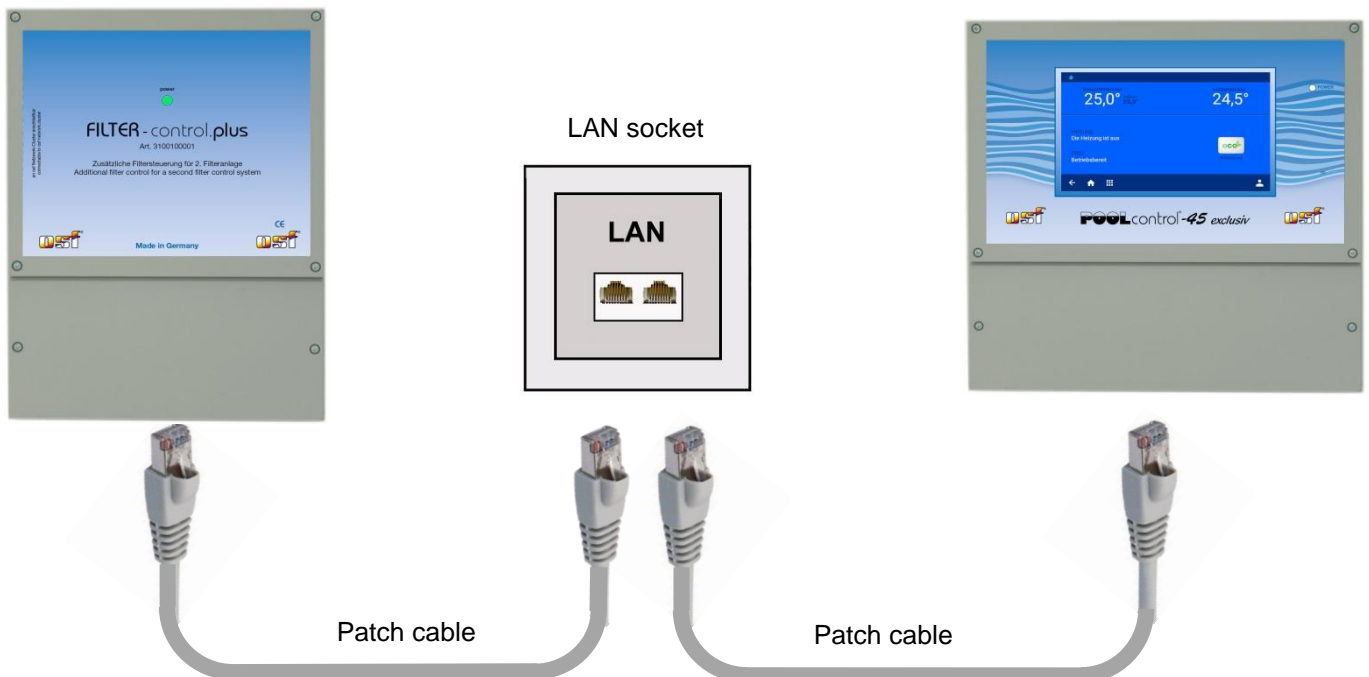
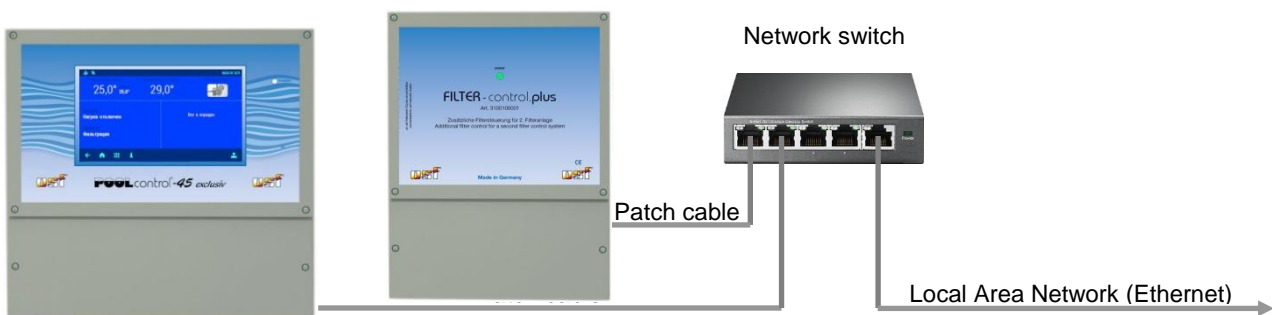
The electronic control is protected by a 0.5A fine fuse on the circuit board inside the device. A 3.15A fine fuse is available for the switching outputs. The short-circuit protection for the filter pump must be ensured by on-site fuses of max. 16A.

Connection of the Filter-Control plus to the PC-45 exclusiv



Communication between the two controllers takes place via a local Ethernet network. For correct cooperation it is necessary that both controllers are connected to the same local network.

Patch cables are used for the connection. One end of the patch cable is connected to the LAN connection of the controller and the other end to the network switch of the local network.



After connecting the cables and switching on the controls, a logical connection must be established between the devices. Further details can be found below in the "Configuration" sections of both devices. The two devices then exchange data via a local network.

Adding a second filter control panel

Since this work step is carried out on live control systems, it may only be carried out by a qualified electrician!

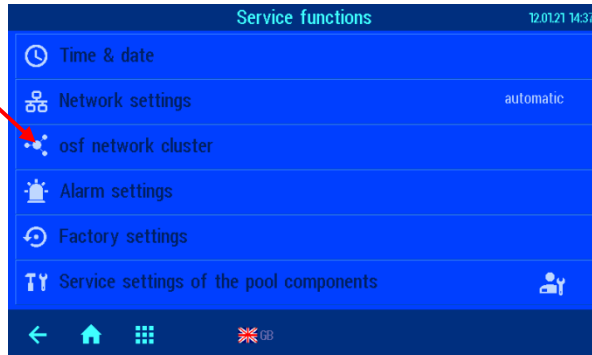
1. Press the "Service settings of the pool components" button in the main menu.



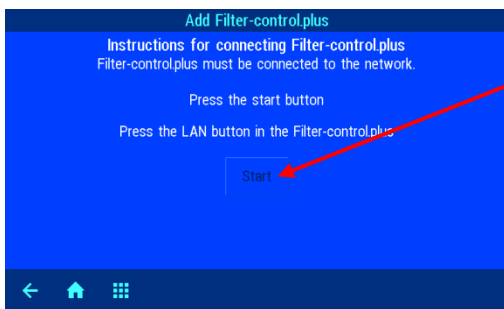
In the Service menu, press the "osf network cluster" button.



By clicking on this symbol you get to a menu in which you can establish communication between the central unit PC-45 exclusiv and the extension unit Filter-Control plus.



Make sure that both devices are connected to the LAN.



By pressing the start button, the PC-45 exclusiv searches for a few minutes in the local network for a Filter-Control plus.

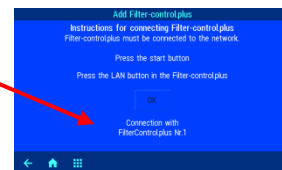


During this time you have to press the LAN button in the Filter-Control Plus to establish the connection between the two controls. It is located in the terminal box area on the circuit board, on the right between the connection terminals.

If you press the LAN button briefly, the control lamp on the front of the Filter-Control Plus starts to flash green, indicating that the "Establishing communication between two controllers" mode is activated. The green indicator flashes until the connection between the controllers is established, but for a maximum of 2 minutes. After the connection has been established, the green control lamp lights up statically.

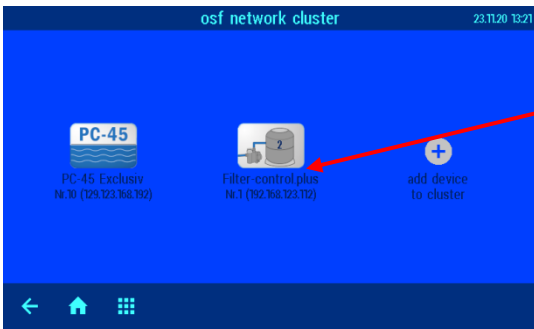
After a successful connection, the PC-45 exclusiv shows the serial number of the Filter-Control plus with which the connection was established. The connection between the two controls is now established.

The configuration of the second filter circuit corresponds to the procedure for the first filter circuit.

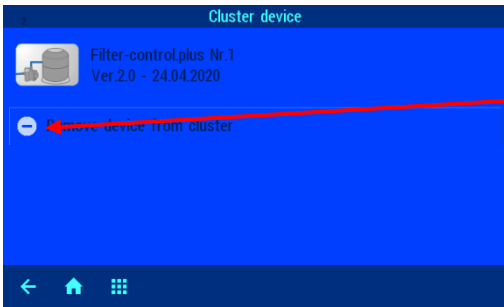


Disconnecting the *Filter-Control plus* from the *PC-45 exclusiv*

1. In the Service menu, press the “*osf network cluster*” button.



Tap the “Filter Control Plus” button



Tapping the button “Remove Filter-Control plus” in the configuration screen for the second filter removes the connection between the PC-45 exclusiv and Filter-Control plus control unit.

Operation

The *Filter-Control plus* is operated, configured and adjusted solely via the display for the *PC-45 exclusiv* pool control unit.

Once a connection has been established between the *Filter-Control plus* and *PC-45 exclusiv*, additional menu screens are shown on the display of the *PC-45 exclusiv* pool control unit. This is where the units are configured and their settings altered. The *PC-45 exclusiv* is the central control unit for the entire system and is used for programming the timers for the filtration pumps and for setting the backwash times (slide valves) for both filters.

Main screen

Connection to osf communication server

The status of the second filter is also displayed on the main screen (Home) of the PC-45 exclusive.

- Status of the heating
- Status of filter number 2 (Filter-Control plus)
- Status of filter number 1 (PC-45 exclusiv)

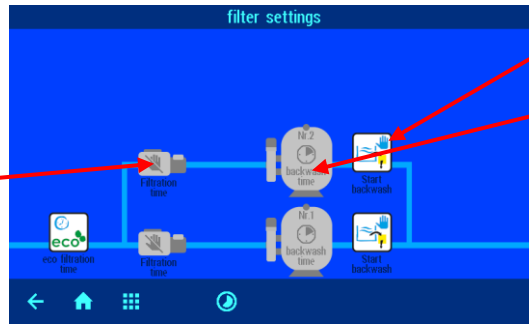


Backwashing with slide valves

The “*Filter settings*” menu additionally shows the second filtration circuit and the buttons for filtration and backwashing.

Set the filter times for the second filtration circuit.

Eco mode settings apply to the entire system.



Start backwashing for filter no. 2.

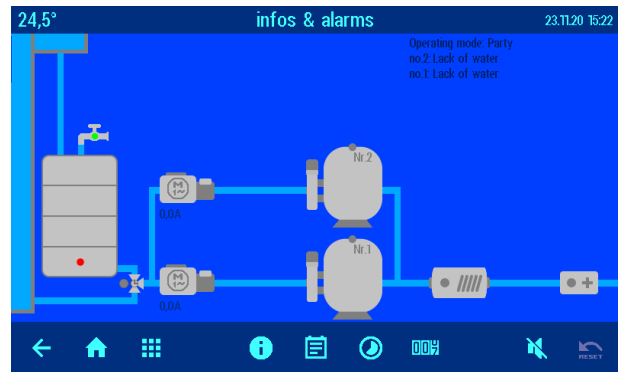
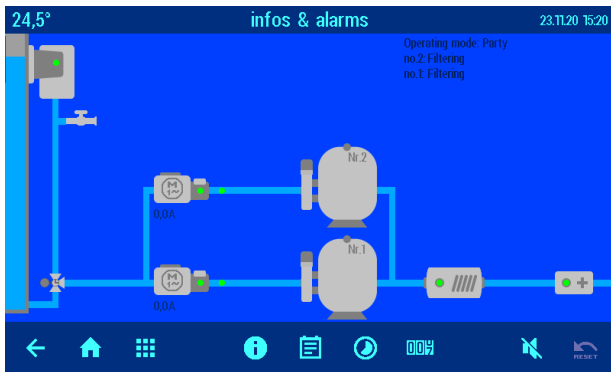
Program the backwash start time.

The length of time that backwashing lasts is programmed in the Service settings.

Program the filtration times and backwash start-times for filter no. 2 in the same way as described for the first filter. The time lengths for backwashing and rinsing are programmed in the Service menu in the area for Settings for pool components.

Information page (2 filters)

The screen contains the shared system information and displays the current status of the pool according to the configuration.



Service functions (2 filters)

A few Setup menus for service functions have been added to the Home screen.

Alarm settings for the 2nd filter

Two screens have been added to the “Alarm settings” menu. In this menu, you choose which fault indicators are issued as an acoustic alarm, via email or using the floating relay contact.

Service settings

Only a qualified professional is allowed to make settings in the Service menu.

In this menu, the settings for all the pool components are customized to suit the selected configuration.

The service settings for the second filtration system are configured in the same way as for the first filtration system. You can find further details in the “Pro mode” section of the instructions for the *PC-45 exclusiv* filter control unit.

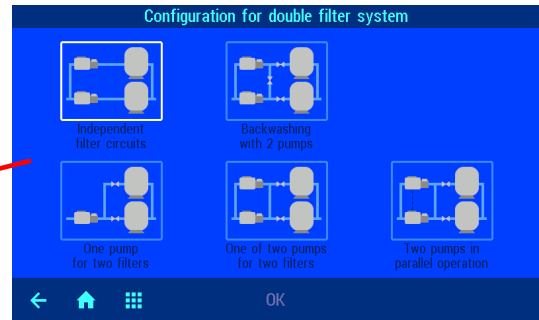
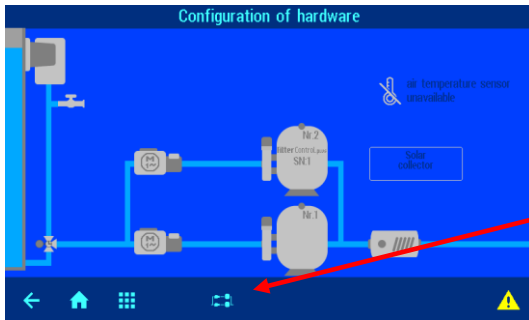
Configuring two filtration systems



Tapping this button opens the configuration menu.

The configuration menu is the core area for making settings for the *PC-45 exclusiv* together with the connected *Filter-Control plus* add-on unit. **The system must be configured correctly for the pool installation to work properly.**

Pressing the button below the two filtration circuits opens the menu for selecting how the two filtration systems are organized.

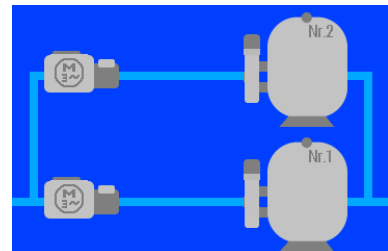


Independent filtration circuits

Two-filter system with independent filtration circuits.

Characteristics:

Each filter is operated with its own dedicated pump. While one filter is being backwashed, the other filtration circuit is stopped.



Backwashing using two pumps

Two-filter system in which one filter is backwashed by both pumps simultaneously.

Characteristics:

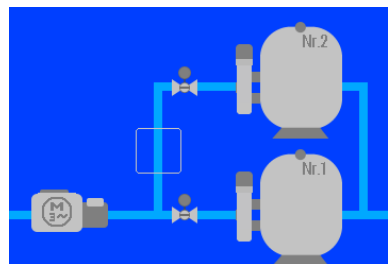
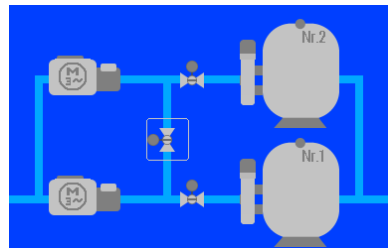
When backwashing takes place, the connecting valve opens and the shut-off valve for the other filter closes.

One pump for two filters

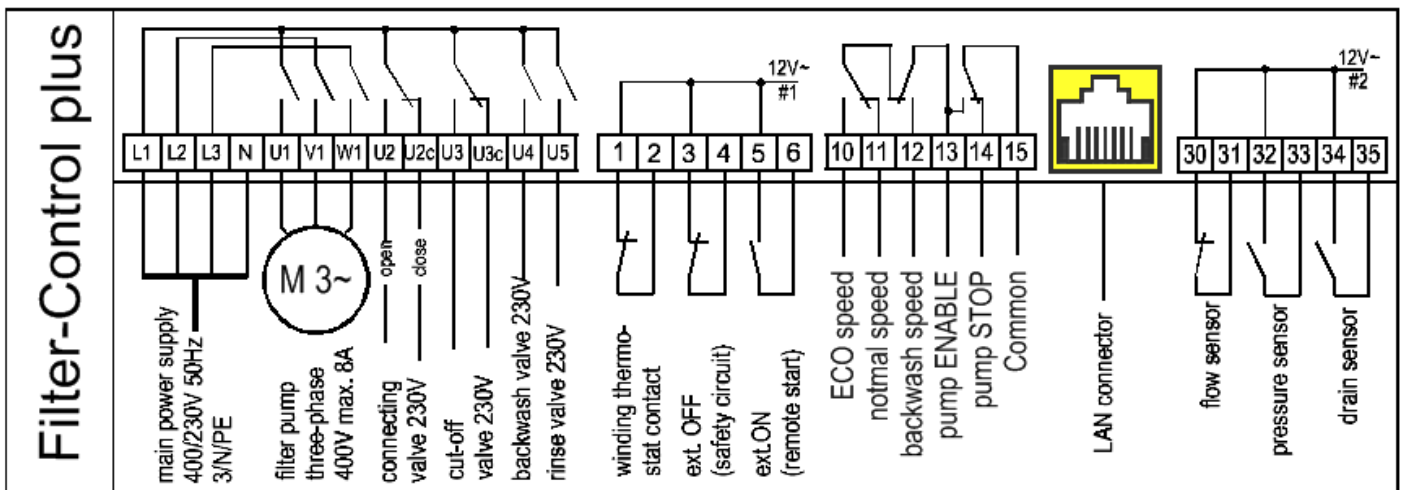
Two-filter system containing one pump.

Characteristics:

When backwashing takes place, a valve shuts off the other filter.



Wiring diagram



Relax and enjoy your swimming pool!

Further information can be found on the Internet at the following address:

<https://osf.de/download/documents/documents.php?device=Filter-Control-plus>



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