Installation and Operating Instructions

PC-400-smart

with Internet facility

Part no. 310.000.1400

Not suitable for filter pumps with speed control

Technical data:

Dimensions:		220mm x 285mm x 80mm
Operating voltage:		230/400V 50Hz
Power consumption of control unit:		1.5VA approx.
Not suitable for filter pumps with speed control		
Switching capacity:	Pump:	max. 3.0 kW (AC3)
	Heating:	max. 0.4 kW (AC3)
Degree of protection:		IP 40
Air humidity:		0-95% non-condensing
Ambient temperature:		0-40°C

CE

Contents

Function

The OSF PC-400-smart filter control unit can be used to control the on/off times of a 230V AC single-phase filtration pump and a 400V three-phase filtration pump. The PC-400-smart features the latest touchscreen technology, which can be used to configure the following functions:

a) **Switching the system on and off.** *Caution: this does* not *perform* all-pole *isolation of the control unit from the mains supply!*

b) **Switching filter operation between continuous running and automatic mode (timed).**

   A green indicator light in the touchscreen identifies that the filtration pump is running.

c) **Switching the heating between continuous running and automatic mode.**

   While the filter is running, the swimming pool heating is additionally controlled by the electronic temperature control system. During a break in filter operation, the heating is automatically switched off by the internal interlock. It is possible to connect a safety thermal cutout or flow sensor for additional protection against the heater overheating. The touchscreen can be used to select the required pool temperature or to switch off the heating.

d) **Adjusting the system time via the touchscreen.**

The terminals for connecting an OSF NR-12-TRS-2 electronic water level control unit (part no. 3030000020) can be used for convenient automatic control of the water level in the swimming pool. This also protects the filtration pump from any damage which might arise from running the filter installation without water.

The terminals for connecting an OSF-EUROTRONIK-10 can be used to upgrade the filter control unit to an automatic filter and backwash controller.

A spare set of terminals are available for connecting additional devices such as chemical dosing equipment. The terminals D/D are floating contacts for custom use. The relay contact between the terminals D/D is closed during the filter operating times and open outside the filter operating times. This contact is rated for a maximum voltage of 230V and a maximum power of 400W (cos φ1).

The terminals for connecting the winding protection switch (WSK terminals) can be used to connect a winding thermal cutout 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 after the motor winding has cooled down, the units are automatically switched back on. There is no need for a manual reset. The “WSK” connecting terminals carry 230V.

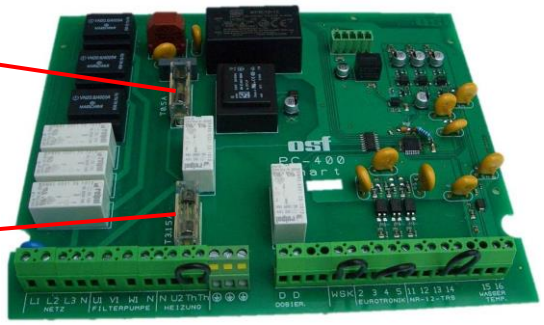
Indicator lights in the touchscreen show when the filtration pump and heating are running, allowing easy checking of the status.

Electronic motor protection protects the filtration pump from overload (current can be set in range 0A to 8A).

Fuses

Control fuse

Heating fuse



The electronic controller is protected by a **0.5A (slow-blow)** miniature fuse located on the printed circuit board inside the control unit. A **3.15A (slow-blow)** miniature fuse is provided for the heating. The customer must fit mains fuses of maximum rating 16A to provide short-circuit protection for the filtration pump.

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 $I_{FN} \leq 30mA$.

This control is not suitable for connecting a filter pump with speed control. We have other controls in our range for this type of pump.

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.

Extra 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.

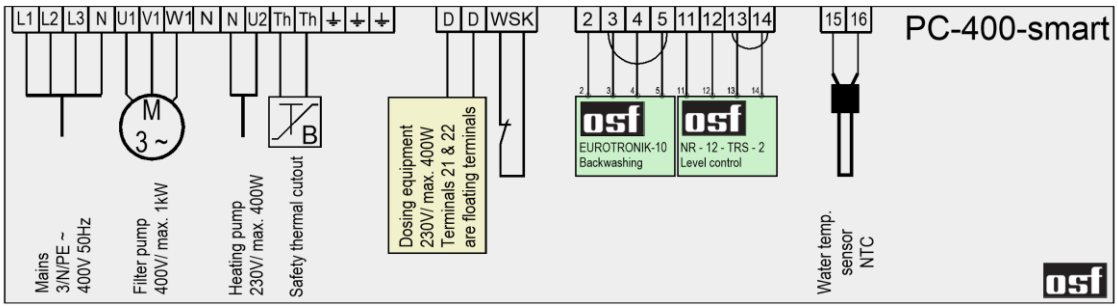
Internet connection

Information about the network connection, the connection to the Internet and the operation of the integrated web server can be found on the Internet at the following address:

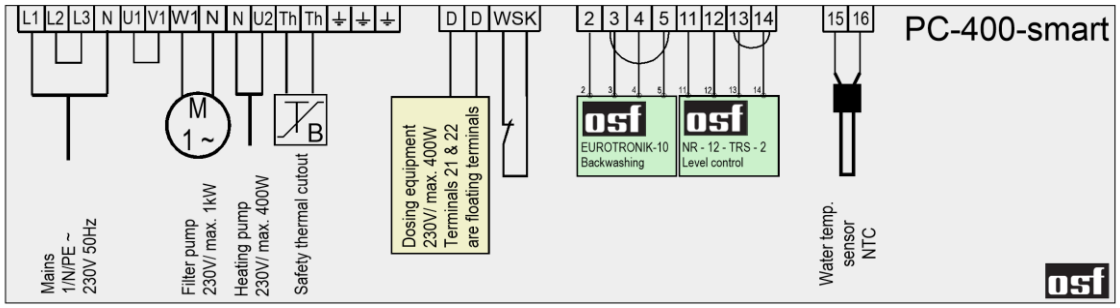
https://osf.de/download/documents/documents.php?device=PC-400-smart

Wiring diagram

When using a 400V three-phase pump:



When using a 230V single-phase AC pump:



This control unit is not suitable for connecting a speed-controlled filtration pump. Our product range includes other control units that are suitable for these types of pump.

The factory-inserted link between the two terminals labelled *Th* must be removed when connecting a safety thermal cutout. If no device is connected, then this link must remain screwed in place.

The factory-inserted link between terminals *13* and *14* must be removed when connecting an NR-12-TRS-2 water level controller. If there is no water level controller connected, the link between these terminals must remain screwed in place. In this case, terminals *11* and *12* remain unused.

The factory-inserted link between terminals *3* and *5* must be removed when connecting a EUROTRONIK-10. If there is no EUROTRONIK-10 connected, the link between these terminals must remain screwed in place. In this case, terminals *2* and *4* remain unused.

The factory-inserted link between the two terminals labelled *WSK* must be removed when connecting a winding protection switch. If no device is connected, then this link must remain screwed in place.

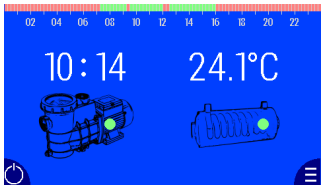
Opening one of the contacts between terminals *13* and *14* or *3* and 5 immediately switches off the filtration pump, dosing equipment and heating.

Closing one of the contacts between terminals *2* and *4* or *11* and 12 automatically switches on the filtration pump.

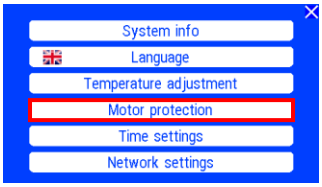
A 3.15A miniature fuse inside the unit protects the electronic controller and also the EUROTRONIK-10, the water level controller and the heating.

Electronic motor protection

Electronic motor protection protects the filtration pump from damage caused by overload. This requires setting the motor protection to the rated current of the filtration pump (please refer to the type plate on the pump). If the rated current of the filtration pump is not known, the motor protection can be set as follows:

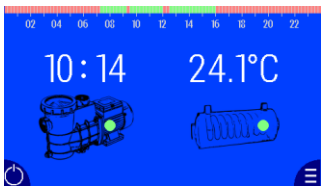


Press the button to open the Main menu.

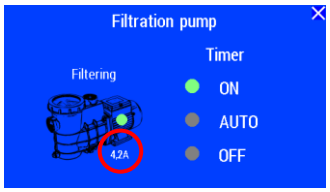


Press the "Motor protection" button.

Pressing the arrow sets the motor protection to 8.0A. Press the button to return to the home screen.

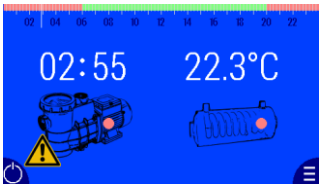


Press the "Filtration pump" button to change the operating mode of the filtration pump.



Press the Timer "ON" button. The current consumption is displayed below the filtration pump. (4,2A in this case)

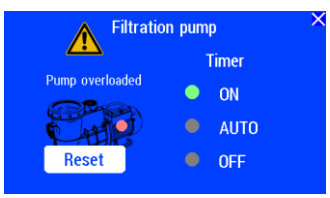
Set the motor protection value slightly higher (about 10%).



Resetting the motor protection

If the pump's current consumption is greater than the value set for the motor protection, the unit switches off the filtration pump.

This situation is identified in the "Menu" by a warning sign (warning triangle) and a red indicator light both on the filtration pump and on the heating symbol. Press the "Filtration pump" button to clear this condition.



Press the "Reset" button to reset the tripped motor protection.

Temperature control system

The electronic temperature control system and the temperature sensor have been calibrated to work correctly together. Recalibration must be performed if the sensor or the control unit is replaced separately. If the displayed temperature does not match the actual water temperature because the temperature sensor is fitted in an unsuitable position, it is possible to make an adjustment for this difference. (Please see “Calibrating the temperature” on page 10).

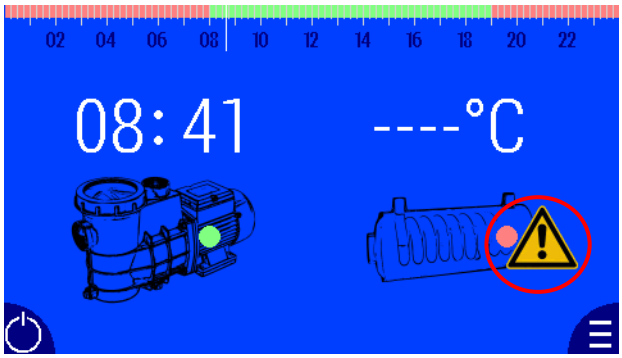
The following table can be used for checking the temperature sensor.

Resistance values of the temperature sensor:

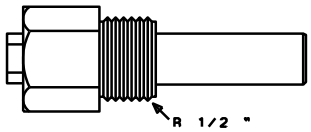
Temperature	Resistance
20°C	5800 Ohm
25°C	4600 Ohm
30°C	3700 Ohm

Connect the swimming-pool temperature sensor to terminals 15 and 16. The temperature sensor is supplied as standard with a cable length of 1.5m.

If required, this can be extended to a maximum length of 20m using a 2-core cable (min. cross-section 1.5mm²). Avoid running the sensor lead along with mains cables to prevent potential interference.



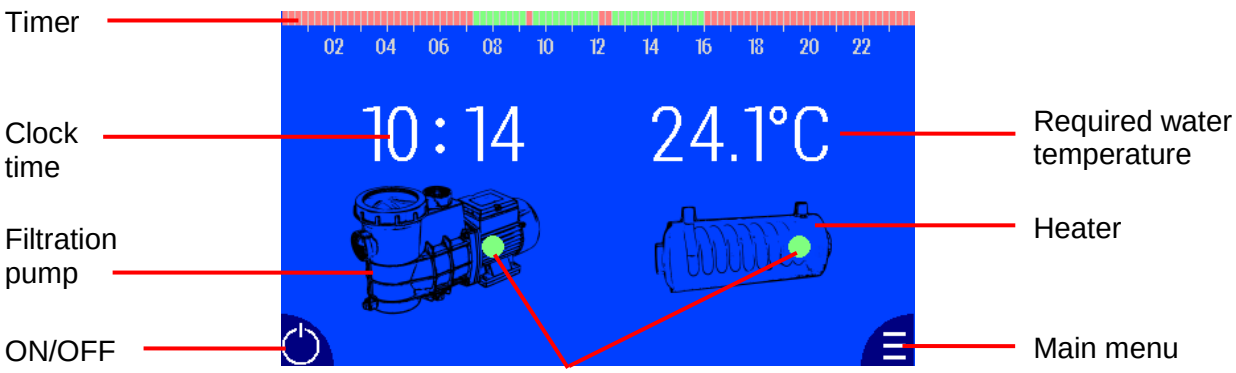
If a temperature sensor is not connected or is faulty, a warning sign (warning triangle) is displayed. There is no temperature displayed in the touchscreen, and the indicator light shows red.



Since precise temperature control can only be achieved with good heat transfer between the temperature sensor and swimming pool water, an DSI R 1/2" thermowell (part no. 3200200001) must be fitted in the piping system.

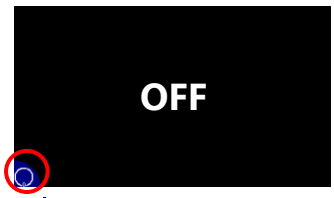
Operation

Touchscreen

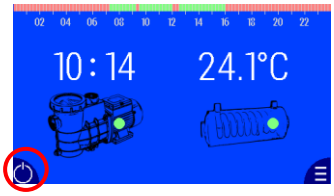


Operating mode:
green = ON
grey = OFF

Switching the PC-400-smart on and off

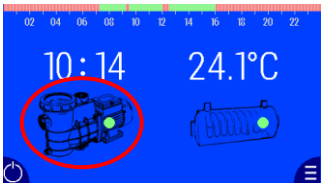


Press the button to switch on the unit.

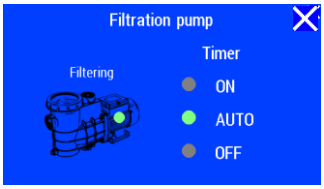


Press the button to switch off the unit.

Changing the operating mode of the filtration pump



The "*Filtration pump"* button can be used to select the operating mode *ON/ AUTO/ OFF*.



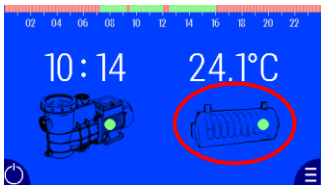
ON → runs continuously

AUTO → runs under timer

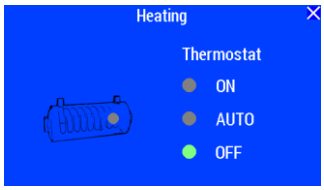
OFF → no filtering

Press the button to return to the home screen.

Changing the heating operating mode



The "*Heating*" button can be used to select the operating mode *ON/ AUTO/ OFF*.



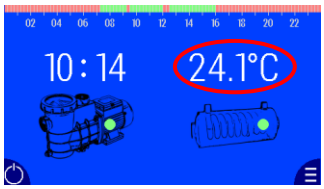
ON → runs continuously

AUTO → runs under timer

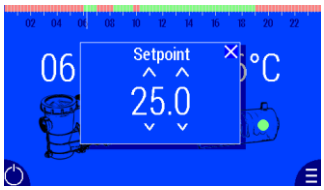
OFF → no heating

Press the ☒ button to return to the home screen.

Setting the required temperature

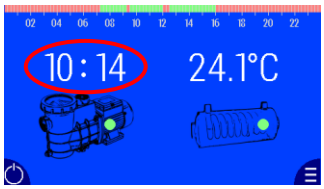


The water temperature can be set by pressing the "*Setpoint temperature"* button.

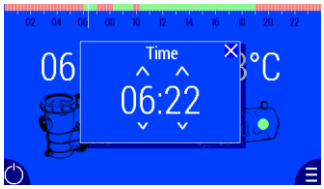


Pressing the ⩓ ⩔ arrows increases / decreases the required temperature. The displayed value is saved automatically. Press the ☒ button to return to the home screen.

Setting the time

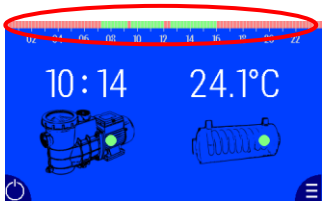


The clock time can be set by pressing the "*Time*" button.



Pressing the ⩓ ⩔ arrows adjusts the hours or minutes. The displayed clock time is saved automatically. Press the ☒ button to return to the home screen.

Setting the timer



The "*Timer*" can be set by pressing the time scale. In automatic mode, the filtration pump is switched on and off according to this setting. The minimum time setting is 15min.

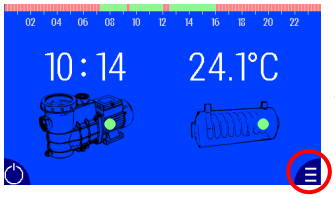
Pressing the individual boxes changes the switch status.

■ filtration pump is ON

■ filtration pump is OFF

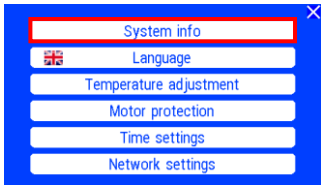
Press the ☒ button to return to the home screen.

Changing the settings in the Main menu

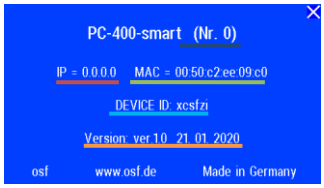


Press the button to open the "*Main menu*". This menu can be used to obtain the following information and/or to make relevant settings:

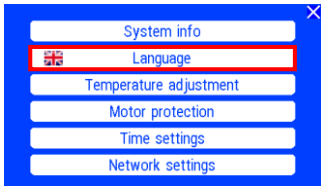
- *System info*
- *Language*
- *Temperature adjustment*
- *Motor protection*
- *Time settings*
- *Network settings*



Retrieve system information
Press the "*System info*" button. The following information can be obtained here:

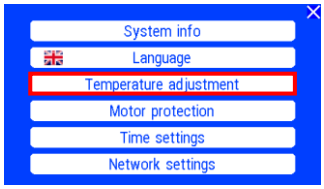


- Serial number
- IP address
- MAC address
- Device ID
- Version and date

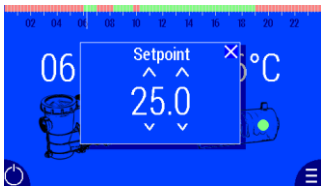


Change the language
Press the "*Language*" button.

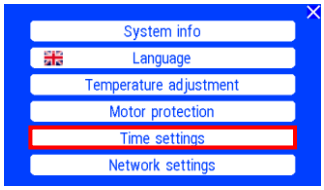
Press the individual button to select the required language. The ✓ symbol identifies which language is currently selected.
Press the button to return to the "*Main menu*".



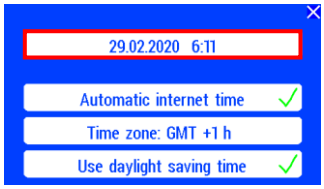
Calibrate the temperature
Press the "*Temperature adjustment*" button.



Press the arrows to adjust the temperature display. The displayed value is saved automatically. Press the button to return to the "*Main menu*".

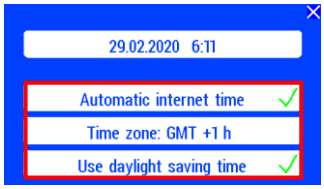


Change the time settings
Press the "*Time settings*" button.



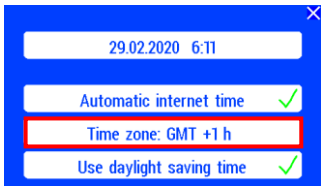
The time and date can be changed by pressing the highlighted button.

Press the ▲ ▼ arrows to adjust the hours, minutes or date. The displayed values are saved automatically.
Press the ☒ button to return to the "*Time settings*" menu.

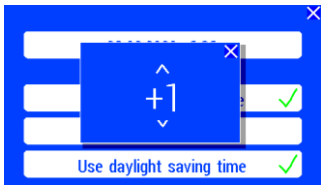


In the “Time settings” menu, the following settings can be altered by pressing the relevant button:
- Automatic Internet time
- Internet time zone
- Automatic summertime/wintertime changeover.

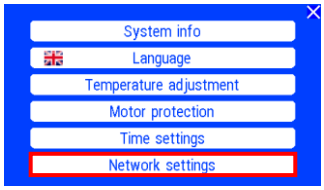
☑ selected ☒ deselected
Press the ☒ button to return to the "*Main menu*”.



This setting can be used to select the time difference with respect to GMT.



Press the ▲ ▼ arrows to adjust the time difference. The displayed value is saved automatically. Press the ☒ button to return to the "*Time settings*” menu.

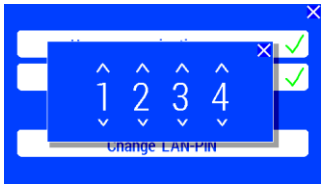


Change the network settings
Press the "*Network settings"* button.

In the "Network settings" menu, the following settings can be altered by pressing the relevant button:
- Use communication server
- IP address automatic
- Change LAN-PIN

☑ selected ☒ deselected
Press the ☒ button to return to the "Main menu".

Press the "*Change LAN-PIN"* button.



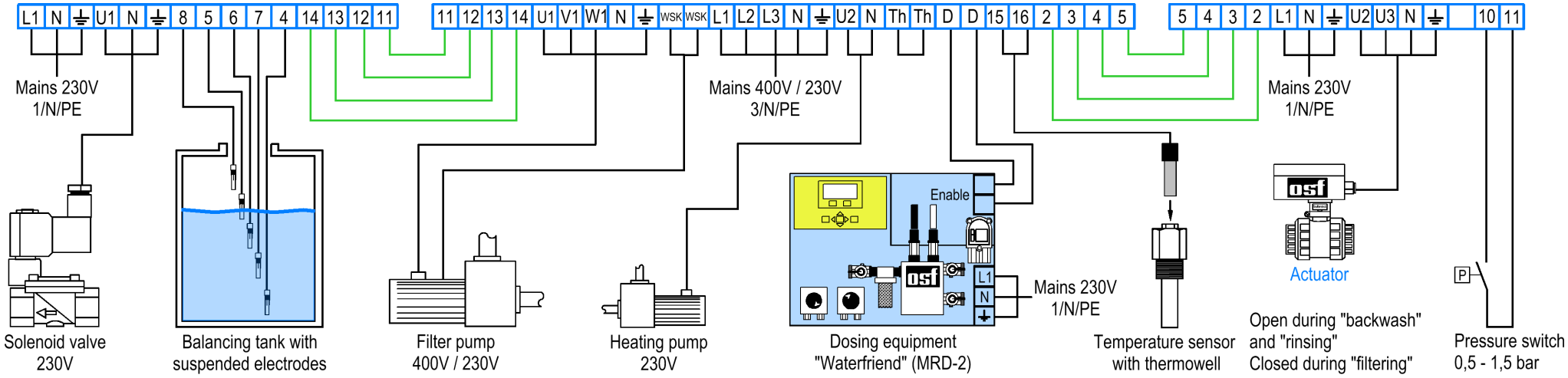
Press the ▲ ▼ arrows to enter the PIN. The displayed values are saved automatically. Press the ☒ button to return to the "*Network settings*” menu.

PC-400-smart combined with NR-12-TRS-2 and EUROTRONIK-10

Water level controller for
overflow pools with spillway

With Internet access

Backwash controller
EUROTRONIK - 10



Subject to changes osf **November 22**