

SENECT

SENECT|TWO

Manual



Product type

Product name:	SENECT TWO
Type:	TWO-A2-22-60
Producer:	SENECT GmbH & Co. KG An 44 – No. 11 76829 Landau / Germany

Important note:

Please read this manual carefully and store it so that you can use it later. Read the warning and safety notes attentive.

More information and latest software releases or documents can be downloaded from:

www.senect.de

Further information, application descriptions and answers to frequently asked questions can be also found on the SENECT Forum:

<http://forum.senect.de/>

© SENECT GmbH & Co. KG - FW 01.10

Table of contents

Product type	2
Table of contents	3
Used symbols and wording	4
General Security Notes	5
Intended use	7
Performance specification.....	7
Getting started	8
Getting started – short version	13
Operation	14
The menu.....	19
Sensors	22
Output ports.....	27
Description of the main output functions.....	36
WLAN.....	43
Technical data	61
Information about the correct disposal	61
Guarantee.....	62

Used symbols and wording

	<p><i>DANGER!</i> Warning of life threatening dangers.</p> <p><i>WARNING!</i> Warning of possible life threatening and / or severe irreversible injuries.</p> <p><i>ATTENTION!</i> Warning of possible medium or slight injury.</p>
	<p><i>ATTENTION!</i> Follow the notes to avoid damage of equipment.</p>
	<p><i>NOTE!</i> Further information for the use of the device.</p>
	<p><i>NOTE!</i> Further information for the use of the device.</p>

General Security Notes

The SENECT|TWO is an electronic measurement and control unit.



Since it is an electric product the common prerequisites for a safe instrument usage must be fulfilled. The device must be operated with



230 V AC (~50 Hz). Ensure that all cables are installed safely so that no obstacles for persons are built and all. Mount all cables and electric

devices protected against direct environmental impacts like overheating by direct sunlight and water. Even if the product is protected against spray water, the product's lifetime will be elongated, if it is mounted on a protected place.

For many applications a ground fault circuit interrupter (interrupting current ≤ 30 mA) is required by law. Inform yourself about the valid legislation. If the mains plug cable is damaged, only the producer or a qualified person designated by the producer is allowed to repair the damage.

The operating temperature of the device must be between 0°C and $+40^{\circ}\text{C}$. It is not allowed to modify the control unit, to open the housing or to insert anything into the housing.

If the power cable is damaged, it must be replaced by the producer or a qualified person designated by the producer to avoid potential dangers.

The device is designed to be operated by professional users. It can be also operated by children over the age of 8 years and persons with limited physical, sensorial or cognitive ability, if they are supervised, trained in the operation of the device, able to operate the device safely and if they understand potential risks resulting from the operation. It is for children or persons with limited physical, sensorial or cognitive ability not allowed to perform any maintenance works.

Please store this manual. We suggest the storage a copy of the manual in the vicinity of the device.

Technical and optical changes of this manual are subject to alterations.



Warning: Before doing any maintenance work switch off all electric devices or unplug the mains plug.

Intended use

The SENECT|TWO is an electronic control and measurement unit. There can be two SENECT sensors connected and the unit can control two actuators at its output ports.

The SENECT|TWO is developed to control processes in professional industrial aquaculture facilities.

Performance specification

The SENECT|TWO is a versatile measurement and control unit.

Every type of SENECT sensor can be connected to the sensor ports (e.g. the oxygen sensor O2S, the pH sensor XR-1 or the water level probe PS). The SENECT|TWO measures then the signal of the connected sensors, saves the measurements internally (up to max. 3 months) and can control output ports depending on the sensor readings.

At its two output ports, 24 V DC (max. power 20 W each) actuators like valves or fish feeders can be connected directly. Also actuators, which can be controlled via 4-20 mA or 0-10 V control signals can be controlled directly. Actuators with 230 V AC can be switched by using the optional PowerSwitch SC24-230.

The integrated WLAN module can be used to embed the SENECT|TWO into a WLAN network. With an established internet connection of the SENECT|TWO, the control unit can download software updates and send alarm messages. Additionally, with the SENECT Control App on an Android, iOS or Windows device, the SENECT|TWO can be operated remotely (Internet connection with port forwarding and dynamic DNS necessary, for more details see chapter WLAN).

Getting started

Scope of delivery

- 1 x SENECT|TWO
- 1 x Wall-mount set
- 1 x Manual

Note



Please check directly after delivery, that the package is not destroyed or damaged or was opened before. Please check also, that all parts as listed above are included. If anything is missing or broken, please contact us as soon as possible within 14 days. Unfortunately, we cannot accept later information of damage, which happened during the transport.

Installation and start-up

Choose a place for your SENECT|TWO which is clean, dry and protected from direct sunlight. Ensure that all cables are placed safely and all regulations are fulfilled.

To mount the SENECT|TWO, screw the wall-mount holders at the back of the housing.

Now, you can mount the SENECT|TWO on the place where you want to install it (e.g. on a wall).



Fig. 1: Mounting of the wall-mount holders.



Fig. 2: View from the bottom of the control unit.

Cable and connection to the power supply

Place all sensors at their designated positions and connect the sensor plugs with the SENECT|TWO at the plugs named **“SENSOR”**.

Connect all actuators with the green marked output plugs name **OUT 1** or **OUT 2**. If you do not use a SENECT actuator, please inform yourself on the data sheet of the actuator cable and of your actuator about the electronic connection. Please consider that the maximum output current on each port is limited to 1 A.



Connect the power cable to a splash water protected power plug and switch the SENECT|TWO with the on-/off-switch on the side on.

Now, you can see already the measurement values on the display and can arrange all the settings.

Please control always, if the functions work like you wanted to have them working.

To connect your SENECT|TWO to the internet, please have a look in the chapter „WLAN configuration“.

Application example: Oxygen control

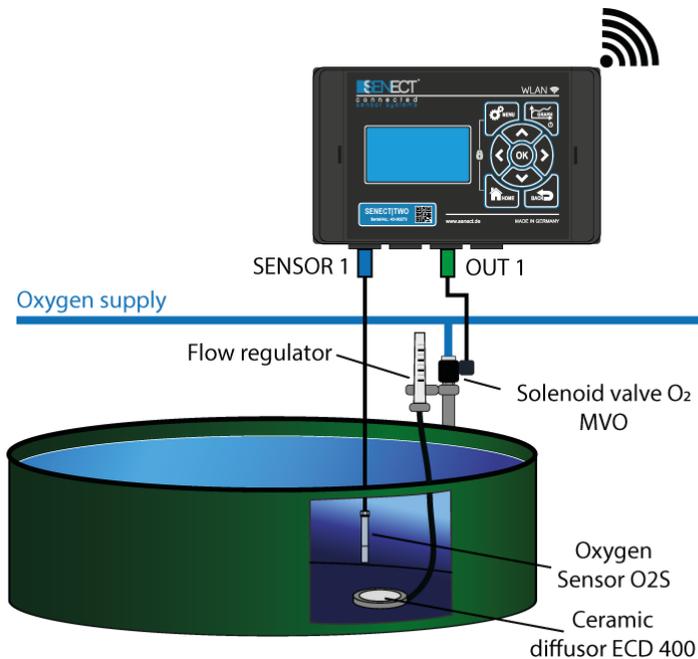
In this example, the oxygen sensor O2S is connected to **SENSOR 1** and the „normally opened“ solenoid valve (Type: MVO-M7-SC, Art. No.: 3020) is plugged into actuator plug **OUT 1**. („Normally open“ is selected here, that in case of a power shutdown the valve opens automatically and the fish still get oxygen.)

The desired oxygen level should be over 95% and if 100% are reached, the addition of oxygen shall be stopped. Go to the menu (**MENU / Output Ports / Plug 1**) and set:

- **Function: Sensor Control** – a new submenu appears (when you go back in the menu)
- In the submenu „**Sensor Control**“ set:
 - Control Parameter: O2 % a.s.
 - Sensor Plug: 1
 - Start value: 95%
 - Stop value: 100%
 - Max. Duration: 00:00:00
 - Break Time: 00:00

- In the submenu „**Output signal**“ set:
 - Polarity: Low Active (the output is switched off, when the O₂ concentration falls below 95% so that the [normally open] valve opens)

Now, all the settings are done and you can test the system, e.g. dipping the O₂S sensor in 0%-oxygen solution.



Getting started – short version

1. Mount the SENECT|TWO at a protected location.
2. Connect the sensors and actuators to your SENECT|TWO correctly.
3. Plug the power plug in a mains plug.
4. Set your settings in the MENU of the SENECT|TWO.
5. Control that all functions work like you want to have it.



To connect your SENECT|TWO to the internet, please have a look in the chapter „WLAN configuration“.

Operation

Display and symbols

On the display, you'll find information about current measurement and the status of the instrument.

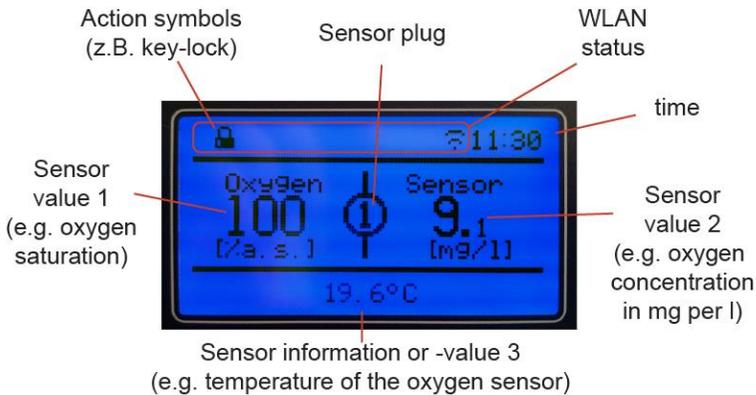


Fig. 1: Display of the SENECT|TWO.

The upper row shows you action symbols, which display the current status of the device or internet connection

The action symbols are:

	Alarm active
	Key lock active
	WLAN: no connection
	WLAN connection established, no internet access
	WLAN: connection with internet established
	WLAN: configuration mode active
	WLAN: firmware update available

By pressing the arrow buttons \leftarrow and \rightarrow , the display will show the measurements of the sensor plugs 1 to 2. Additionally, the values of the internal barometer and temperature sensor can be shown. The lower row of the display shows additional information, e.g. the temperature of the oxygen sensor.

By pressing the arrow keys **↑** and **↓** you can switch between displaying the input values (sensor readings) or the status of the output ports. Additional pressing **←** or **→** lets you switch between the output ports.



Fig. 3: Display of the output port status.

Buttons and menu

The SENECT|TWO is operated by the user via the buttons on the front. With the navigation buttons (**↓**, **↑**, **←**, **→**, **BACK** and **HOME**) you can navigate through the menu and change the displayed view (e.g. showing the sensor readings or the barometric pressure).

Cursors: With the cursor buttons you can move through the menu and change settings..

OK: With OK you confirm your selection.

BACK: The button BACK brings you one level back in the menu.

HOME: By pressing home, the home screen will be displayed and you exit the menu.

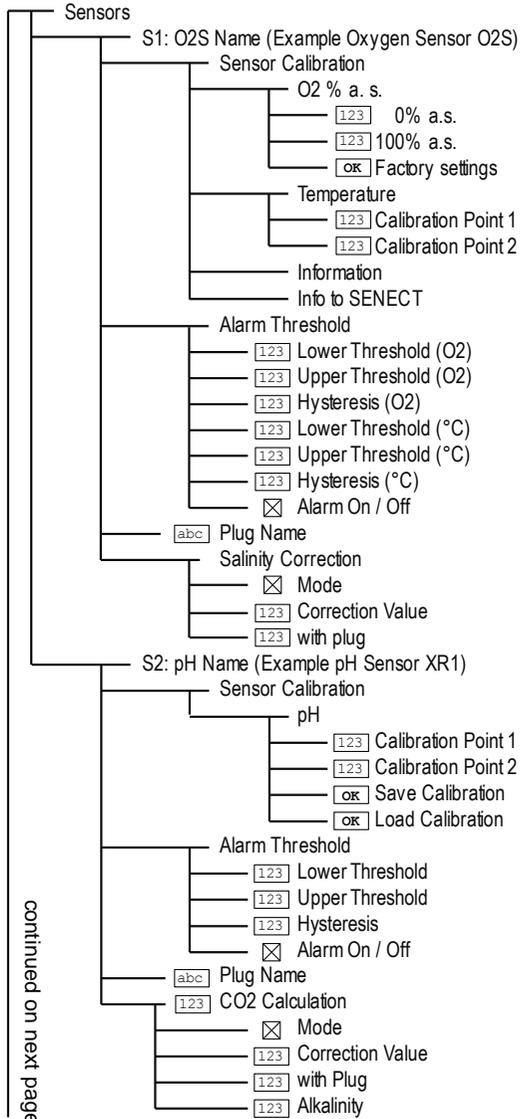
- MENU:** The menu is opened by pressing MENU.
- GRAPH:** With the GRAPH-button, the stored sensor readings are visualized as a xy plot. With the cursor buttons ← and → you can switch between the measured data while with pressing ↓ and ↑ you can change the temporal scale of the x axis (e.g. 1 hour, 1 day). Here you can also find the history recordings. Pressing GRAPH longer than 3 s will activate the standby-by mode or switch the SENECT|TWO back in normal mode.
- Lock:** By pressing the buttons **MENU** and **HOME** simulatanously, the lock is active. To unlock the keypad, you have to enter the Pin Code. The Pin Code is 0000 unless you have changed it in the menu.

All settings and parameters can be set in the menu. The following overview shows the menu exemplarily. Please consider that some parts of the menu are dynamic, which means that they only appear in certain constellation or with certain equipment.

Table 1: Description of the history entries.

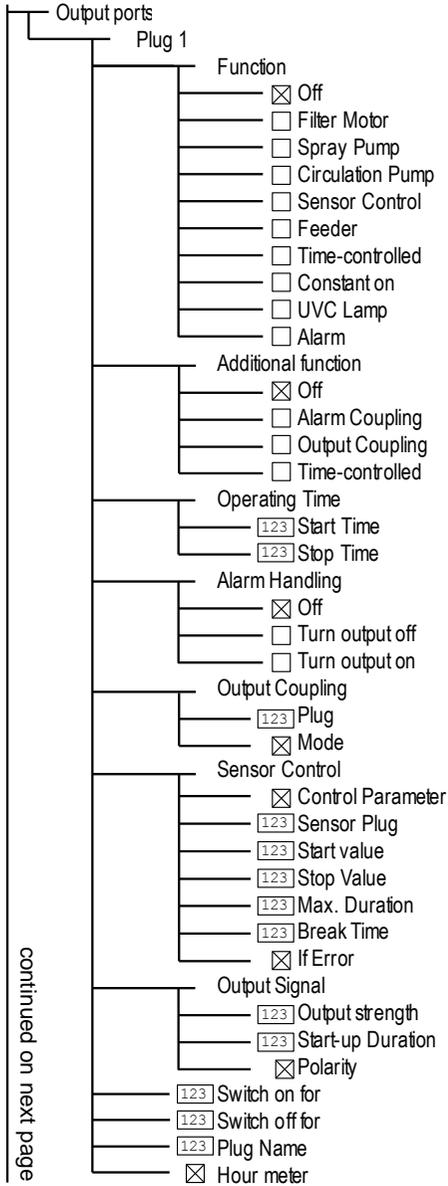
Entry	Description
System Start	Start of the control unit
Power fail	Power failure or control unit switched off
Factory setting	Factory settings loaded
Timer on	Timer controlled output was switched on
Timer off	Timer controlled output was switched off
Sen.Reg.on	Sensor controlled output was switched on
Sen.Reg.off	Sensor controlled output was switched off
Feeding	Feeder active
No Feeding	Feeding cancelled due to environmental parameters e.g. O ₂ , temp.
Output Alarm	Alarm on output
Output Ok	Alarm on output cleared
Sensor Error	Error at sensor
Sensor Alarm	Sensor measurements above or below alarm thresholds
Sensor Ok	Sensor values again in normal range

The menu



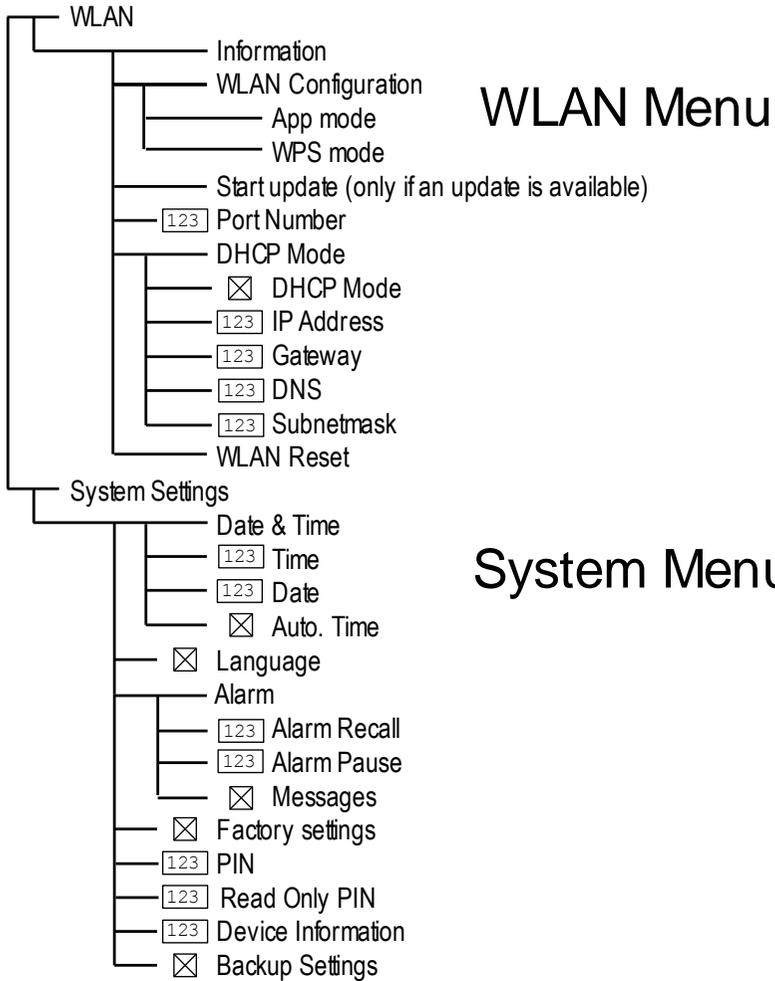
Sensor menu

continued on next page



Menu output ports

continued on next page



Sensors

To change the setting of the sensor, e.g. calibration or alarm settings, you have to select in the menu the according sensor. It is always displayed as:

Sensor plug: Type of sensor – Sensor name

e.g. S1: O2S – Tank 1

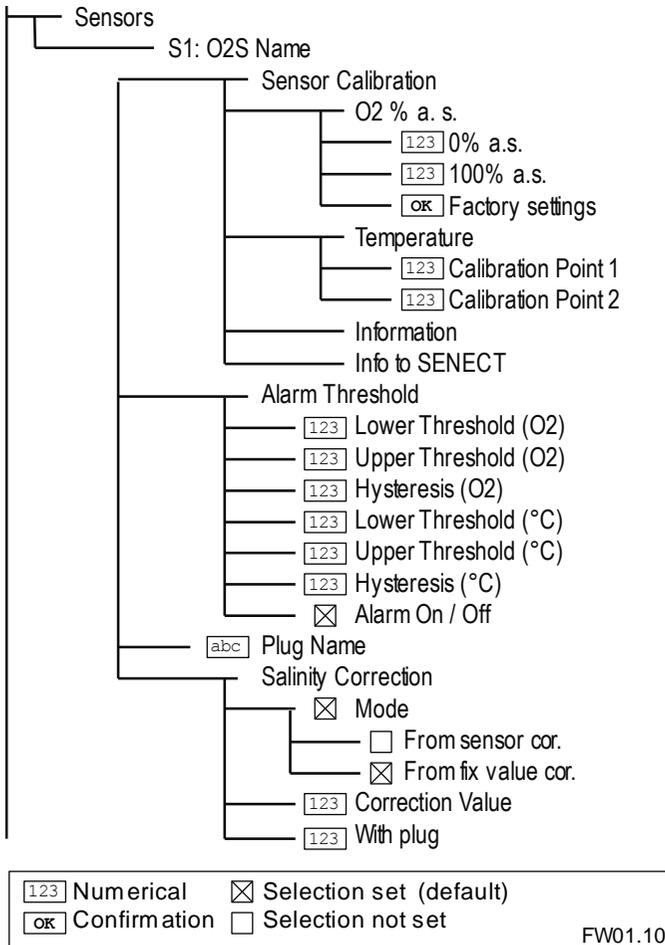
Please do always pay attention to the manuals of each sensor. **The menu depends always on the type of sensor connected.** Here, we show it exemplarily with the oxygen sensor O2S:

- **S1: O2S Name**

- **Sensor Calibration**

Every sensor should be calibrated regularly to achieve best accuracy. In this menu item, you can calibrate either the oxygen sensor signal or the temperature signal of the O2S.

Please choose, which parameter should be calibrated: e.g. **O2 % a.s.** for calibrating the oxygen signal.



<input type="text" value="123"/>	Numerical	<input checked="" type="checkbox"/>	Selection set (default)
<input checked="" type="checkbox"/>	Confirmation	<input type="checkbox"/>	Selection not set

FW01.10

All calibrations are programmed as 2-point calibrations, but there can be also only one point be changed. This is for example important if you want to calibrate your oxygen sensor only in air.

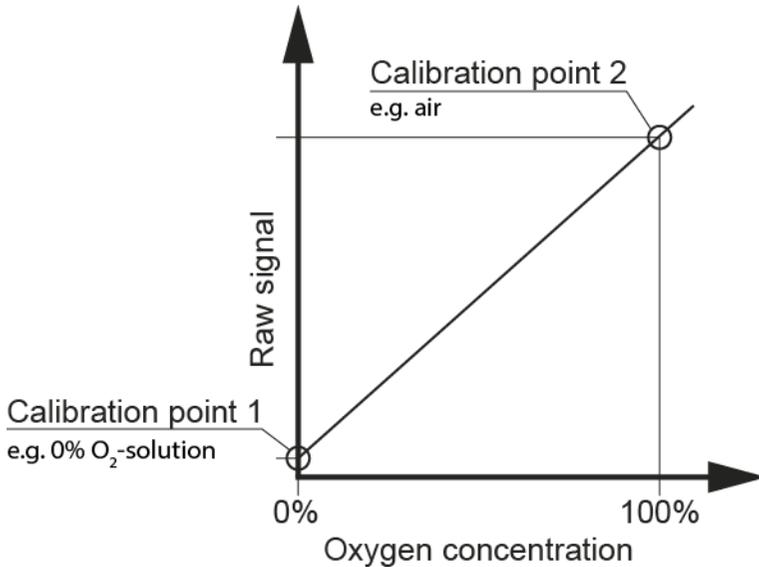


Fig. 4: 2-point calibration of the oxygen sensor.

To do so, please hold the sensor in air or 100% oxygen saturated water and select in the calibration menu **100% a.s.** If the measurement value is stable, press ok or wait 120 s.

For the 2-point calibration, you have also to change the calibration point 1 (0%-oxygen). Insert the sensor in 0%-

oxygen solution, select **0% a.s.** and wait until the value is stable. Confirm the calibration point with ok.

The calibration of the temperature channel is equivalent to the oxygen calibration.

Under the item **Information** you can see serial number of the sensor (SN) the signal at the lower calibration point (C0) and upper calibration point (C1) as well as the sensor mode.

By selecting **factory settings**, you can insert calibration values manually.

Under the menu item **Info to SENECT** error codes can be directly send via email to SENECT for further troubleshooting.

- **Alarm threshold**

In case there should be an alarm sent, when the sensor gives readings above or below a certain threshold, you can define these thresholds in this menu item. The **hysteresis** defines the tolerance of alarming. For example, if the lower threshold of 70% defines the alarm level and the concentration fluctuates between 69 and 71%, the hysteresis of 3% eliminates several warnings always when the sensor reaches 70%. With **alarm on / off** you can also deactivate the alarming for this sensor.

- **Plug name**

With plug name you can give the sensor a name of max. 8 characters, which will be displayed in the SENECT Control App.

- **Salinity correction**

Since the oxygen saturation concentration depends on the salinity of the water, the SENECT control can correct for the effect of salinity. Therefore, you can either enter a specific salinity (**Mode: Correction value**) or connect a conductivity sensor (**Mode: Sensor corrected**), which calculates the salinity and the correction based on conductivity measurements.

Output ports

The SENECT|TWO is able to control two output ports (OUT 1 and OUT 2). You can select a function according to which the output port is controlled. The current status can be seen at the right side in the menu:



Output switched on



Output switched off

▪ Function

Select the function of the output port. You can select between:

1. Off
2. Sensor Control
3. Feeder
4. Time-controlled
5. Constant on
6. UVC lamp

7. Alarm

Depending on the selected function, the submenu will be different. Possible submenus are:

- **Additional function**

You can add an additional function to the selected original function. There are three different types of additional functions:

Alarm coupling defines that the output will react, if a sensor recognizes an alarm situation, e.g. when a threshold is exceeded. In the new submenu “**Alarm handling**” you can select if the output should be turned off or switched on in case of an alarm – independent from the original function. This function can be used for example, when the feeders should be switched off, when the oxygen sensor recognizes low oxygen levels.

The **output coupling** switched the selected output port also in relation in to the other output port. This means, that it will be for example switched on, when the other output is activated.

At first, you have to select the output port, to which the additional function is related under the item “plug”. This one is the output, which gives the information.

In the next step, you can select the logic mode, how the output should respond to the “information giving output”.

Off	Function is switched off
Off if on	Output port is switched off, when the other output is on
Off if off	Output port is switched off, when the other output is off
On if on	Output port is switched on, when the other output is on
On if off	Output port is switched on, when the other output is off

One example here: to the OUT 1, an aeration device is connected which controls oxygen via the **sensor control** function. On OUT 2, a fish feeder is connected with the function “**feeder**”. The desired functionality is now, that the aeration should be activated always, when the fish feeder is feeding. Select at the OUT 1 the additional function “**Output coupling**” and refer in “**plug**” to OUT 2. Select “On if on” and the aeration is switched on (independent of the sensor control) when the feeder is activated.

The third possible additional function is “**Time-controlled**”. It can be used, when a function is selected and the output

port should additionally be switched in a temporal pattern. For example, on OUT 1 a solenoid valve which controls the oxygen input in tanks with a ceramic diffuser is connected. The selected function for OUT 1 is sensor control and only if there is not enough oxygen, the output is activated and the water oxygenated. The additional function “Time-controlled” can now be used to switch OUT 1 on regularly, e.g. every 12 hours for 2 minutes to avoid biofouling on the ceramic diffuser.

You can select under “time-controlled” different methods to control it temporally:

- **Timer Table**

In the timer table, you can define specific times when the output should be activated.

Choose “+ New Entry” to create a new activation time. Enter therefore the starting time and duration and press OK to save this entry.

By pressing →, you can delete entries from the list.

- **Interval**

With the interval function, you can define time intervals on which the output should be activated. Enter here the

duration of each event, e.g. always switch on for 5 minutes and the **interval** between the events, e.g. every 2 hours.

- **Output coupling**

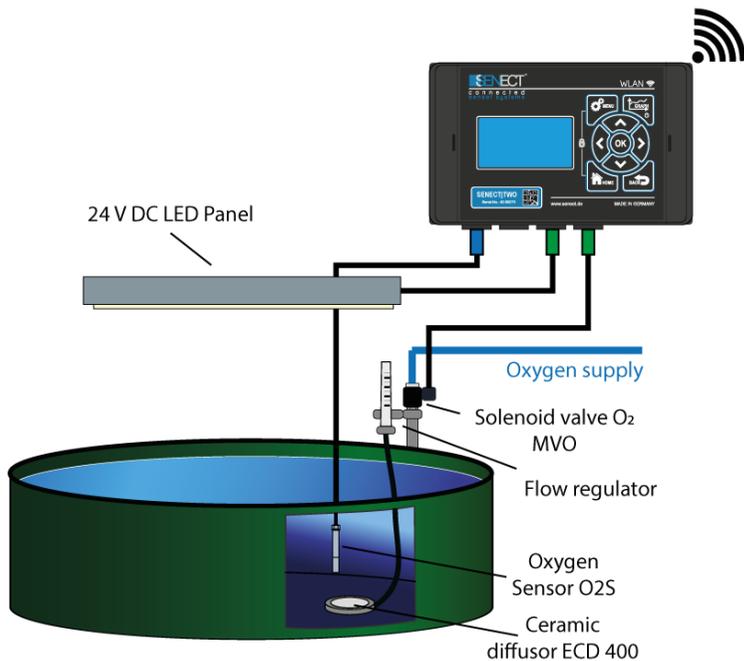
The output can be also switched depending on another output but with a positive or negative shift in time. With the **Turn on time** and **Turn off time**, you can select how long this output shall be active before the other (time-controlled) output is activated.

- **Daylight mode**

To simulate the seasons in terms of daylight, it is necessary to change the start and stop of the time-controlled function each day so that the light duration will be elongated or shortened. With this time function you can set a duration which will be change per day, e.g. + 1 min means that the time, when the output is switched on, will be increased 1 min per day.

Application example: Using the actuator output to control lights

In fish farming, it is often useful to simulate the daylight. With the function „time control“ you can use for example 24 V DC LED lights which can be controlled in their luminescence.



Let's assume that the LEDs are connected to the 24 V DC output port OUT 1 and that the lights should start at 7 a.m. in the morning, increase their luminescence in 30 min to the

maximum of 80%. The decrease starts at 6:30 pm and the day length should be increased by 2 min per day.

Set the following menu items:

- Function: Time-controlled
- Operating time:
 - Start time: 7:00
 - Stop time: 19:00
- Output signal:
 - Output strength: 80%
 - Start-Up Duration: 30:00 [mm:ss]
- Time-controlled
 - Mode: Daylight Mode
 - Daily change: 2 min

By setting the operation time in the daylight mode, you define when the lights start and end at the first day. At the second day, it starts 1 min earlier and stops 1 min later.

▪ **Output signal**

The output signal can be configured in three different ways:

1. The **strength** of the signal: The output signal of OUT 1 and two are 0-24 V DC as pulse width modulation, 4 – 20 mA and 0 – 10 V DC signal. With the strength

you can set in % how strong the output signal is, e.g. 100% means 24 V DC, 20 mA and 10 V, while 50% are 12 V DC, 12 mA and 5 V respectively.

2. **Start-up duration:** To increase and decrease the output signal slowly (ramp), the time of the start-up ramp can be set here. E.g. when you choose here 10 s, then the output strength will be linearly increased over 10 s to reach its maximum value (set by “Output strength”)

3. Polarity

The output polarity defines how the actor is activated. If the actor should be switched on by a voltage on the port, it is „active high“. This is the case for a normally closed solenoid valve for the water refilling. “Active low” would mean that if the output is activated, the voltage is reduced from 24 V to 0 V so that the actor can be activated (for example a normally opened solenoid valve).

- **Switch on for**

To switch the output port on manually, you can select here the duration. Confirm with OK. After the time specified, the output port switches back to its original function / state.

- **Switch off for**

To switch the output port off manually, you can select here the duration. Confirm with OK. After the time specified, the output port switches back to its original function / state.

- **Plug name**

With plug name you can give the output a name of max. 8 characters, which will be displayed in the SENECT Control App.

- **Hour meter**

To see how long an output was activated, you can use the “hour meter” menu item. Here you can set it to zero and from then on, there will be displayed in the screen of the corresponding output in the bottom line the hours of activation (press in the home screen **↑** to switch to the output screens and then **→** until you are the selected output port).

This function can be for instance be used to estimate exchange intervals of actuators, e.g. UVC lamps.

Description of the main output functions

- **Sensor Control**

To switch output ports in relation to the signal of a connected sensor, you have to select the “sensor control” function.

Select under “**Control Parameter**” the signal to which the output shall respond, e.g. % a.s. for the oxygen saturation.

Choose also from which sensor the signal comes with “**Sensor Plug**”. E.g. should the output be controlled by the oxygen sensor in plug *SENSOR 1*, select here *plug 1*.

By defining the “**Start-**” and “**Stop value**” you can set the thresholds of operation.



Is the start value below the stop value, the output is activated, when the signal sinks below the start value. If it rises up to over the stop value, the output is deactivated. This function can also be used vice-versa.

Application example (Start < Stopp): The output is used to control the oxygen level. The desired concentration is between 90% and 100% a.s. Therefore, the start value is set to 90% and the stop value to 100%. When the oxygen saturation drops below 90%, the output is activated and the

water oxygenated. Following this oxygenation, the saturation increases and if 100% are reached, the output is switched off again.

Application example (Stopp < Start): The opposite example of this is the control of a pump, which empties a pump sump. Here, the water level is the sensing parameter and to output, a pump is connected. The pump should be switched on, when the water exceeds a threshold, let's say 30 cm and switched off, when there is only 10 cm water left. Then, the start value with 30 cm is larger than the stop value with 10 cm.

For the sensor control, you can also use protection parameters like "**Max. duration**" or "**break time**".

- **Feeder**

For controlling fish feeders, you have to select the function „Feeder“. Then, the new submenu "**Feeder**" and "**Time-controlled**" appear.

The "Time-controlled" submenu is equivalent as described on page 29 and describes the times, when the feeder is active.

The submenu „Feeder“ allows you to use many specially designed **feeder functions** to better control your feeder, also in relation to environmental parameters. Please consider

that for some of the extra functions, the feeder must be calibrated. This menu item will be displayed dynamically, when the corresponding extra functions are selected.

As **feeder functions** can be selected:

1. Daily feed amount
2. Daily increase
3. Low O2 protection
4. Air pressure
5. Temp. Protection
6. Temp. Correction
7. Alarm = No feeding
8. Light stimulation

Depending on the selected **feeder functions** the displayed dynamic submenu can be:

Daily feed amount

When the feeder is calibrated, you can set here the total amount of feed (weight). Then, the feeder will automatically set the duration of the feed events (times must be selected in the time-controlled feeder menu) so, that the defined weight of feed is fed per day. In case you want to change the

feed amount depending on the temperature (temperature correction), please note that daily feed amount corresponds to the temperature of 16°C.

For example, select **Plug 1 / Function: Feeder** and under **Plug 1 / Time-controlled / Mode: Interval**. Set the interval period to 1 h and the daily feed amount to 100 g. Now, the control unit calculates, how long the feeder must be activated in each interval. If you set the duration manually, you can see the feed amount per event below the duration time.

Daily increase

Since fish grow with time and need therefore more feed per day, the feed control can automatically increase the daily amount of feed. Insert here the increase rate in %.

Environ. based feed.

Under this menu item, several environmental parameter based functions are included:

- **Low O₂ Protection:** In case the oxygen concentration is too low, ongoing feeding can deteriorate conditions. Therefore, the user can use this function to cancel the feeding, if the oxygen concentration is below a threshold. Enter in this menu item the concentration of oxygen below which the feeding is cancelled. Note, that it is

necessary that a SENECT oxygen sensor O2S needs to be connected and that this sensor is selected under “plug”.

- **Air pressure:** Since the barometric pressure can have an effect on feeding, you can select here under which barometric pressure (measured by the SENECT|TWO internally) the feeding should be cancelled.
- **Min. / Max. Temperature:** You can also set limits in the temperature, above which (min. temperature) or below which (max. temperature) feeding is allowed.
- **Temperature correction:** To feed more efficiently, the daily amount of feed can be adjusted by the sensor temperature. You can enter here directly the values of the data sheets of the feed producer in % or **kg feed per 100 kg fish biomass**. These values are used to automatically correct the daily feed amount (which refers to 16°C) according to the measured temperature.
- **Light stimulation:** Some fish feeders from SENECT are equipped with LEDs to attract the fish to the location of the feeder prior to the feeding. You can select in this menu item, how long before the feeding (**turn on time**) and how long after feeding (**turn off time**) the LEDs should be switched on. Additionally, start-up and end

ramps can be defined by the **start-up duration** to enable a soft light start.

- **Calibration:** The calibration of the feeder is a necessary step to use all feed-weight related functions. Catch therefore the feed which comes out of the feeder for 5 and 10 s and weight it. Type in the weight respectively. Now, you can use the function “Daily feed amount” and when you adjust the duration of the feeding, you can see directly the feed weight which corresponds to the duration.

The function “feeder” creates a dynamic submenu where additional features (Time-control – which are here the feeding times, Output signal, etc.) like previously described can be set.

Hint: If you want to increase the oxygen level prior to feeding, select the output port of the sensor-control (oxygen dosing valve, etc.) and select the additional function „Time-controlled“. Use the mode „Output coupling“ with the oxygen dosing plug and set the „turn on time“.

- **Time-controlled**

The function „time-controlled“ was described previously at page 29.

- **Output coupling**

This function was already described at page 31.

- **Constant on**

The function „Constant on“ switches the output port on. You can add an additional function to the „constant on“-function and adjust the output signal.

- **UVC Lamp**

When a UVC lamp is connected to a drum filter, it is permanently switched on, except the case is opened. Then the UVC should be switched off. Therefore, one connected sensor must be defined as a case switch.

- **Alarm**

Does one sensor value exceeds the upper threshold or falls below the lower threshold, a alarm state is activated and all outputs with alarm coupling or outputs with the function „alarm“ react. Here, you can for example connect an alarm lamp directly to the output (e.g. the SENECT Alarm lamp VIS-LED).

WLAN

Additional information and help with respect to the wifi connectivity can be found on the SENECT forum under:

<http://forum.senect.de>



Fig. 5: QR-Code to the link of the SENECT Forum.

- **Info**

Info shows information about the current WLAN connection of your SENECT|TWO.

SSID: WLAN network name

Signal: Signal strength of the connection (should be between -20 dB (strong) and -70 dB (weaker))

IP: IP-address of the control unit

MAC: Mac-address of the control unit

▪ **WLAN configuration**



Note: The remote access to the SENECT|TWO requires dynamic DNS, port forwarding of the router and internet access with IPv4. If you have only a DS-Lite internet connection, additional devices (e.g. FIP-Box from feste-ip.de) may be required.

If you want to integrate your SENECT|TWO in an existing WLAN-network, you need a Windows (Version 7 or higher), Android or iOS-based device



on which the SENECT Control App is installed. The SENECT Control App is available in the Google Playstore or the Apple App Store. The Windows- and MacOS versions of the app can be downloaded on www.senect.de/app.



Fig. 7: QR code for the link to the SENECT Control App in the Apple App Store.



Fig. 6: QR code for the link to the SENECT Control App in the Google Play Store

You can change the language of the app under the “Settings” button.

Please have the name of the WLAN-network (SSID Name) and the WLAN-password ready.

App Mode:

You need to proceed through the following steps to **connect the SENECT|TWO to the internet:**

- Set the SENECT|TWO in WLAN configuration mode (Menu/WLAN/WLAN Configuration/App Mode)
- Connect your smartphone or PC to the network SENECT_AP (this is the SENECT|TWO)
- Start the SENECT Control App, press the button “Settings”.
- Press “Send WLAN settings”.
- Enter the WLAN network name (SSID) and password. Set the Encryption and DNS/DHCP (typically “WPA / WPA2” and “on”)
- Press “Send settings to device ”



Settings

Overview

- 09:11:01 FW:00:88 9.4 °C
- 09:13:33 FW:00:88 9.3 °C
- 09:16:54 FW:00:88 9.3 °C

IRAS pro

- 09:11:01 FW:00:88 9.4 °C
- 09:13:33 FW:00:88 9.3 °C
- 09:16:54 FW:00:88 9.3 °C

IRAS FilterControl

- 09:11:01 FW:00:88 9.4 °C
- 09:13:33 FW:00:88 9.3 °C
- 09:16:54 FW:00:88 9.3 °C

Becken 1

- 09:11:01 FW:00:88 9.4 °C
- 09:13:33 FW:00:88 9.3 °C
- 09:16:54 FW:00:88 9.3 °C

Becken 2

- 09:11:01 FW:00:88 9.4 °C
- 09:13:33 FW:00:88 9.3 °C
- 09:16:54 FW:00:88 9.3 °C

Becken 3

- 09:11:01 FW:00:88 9.4 °C
- 09:13:33 FW:00:88 9.3 °C
- 09:16:54 FW:00:88 9.3 °C

Hint: Here you can hide or show the password.

WLAN Settings

SSID Name: WiFi name

Password: password

Encryption: Open / Without Auth.

DNS/DHCP: DHCP On

Send settings to device

Show saved WLAN Networks

Show available WLAN Networks

Send WLAN Settings

Send WLAN information to controller

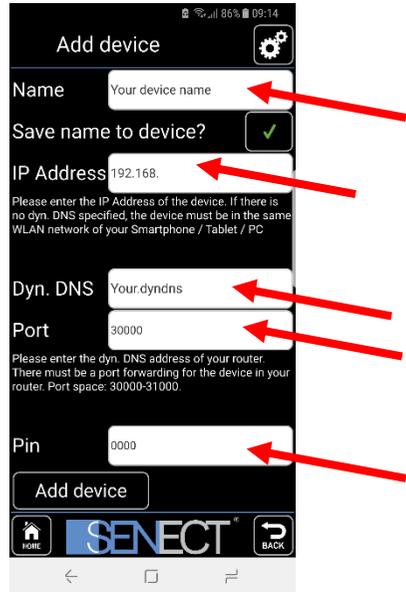
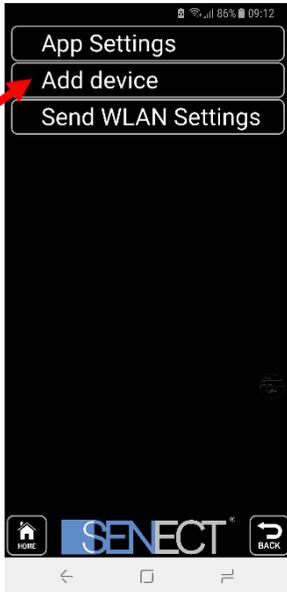
Now, the network information is transmitted from your smartphone to the SENECT|TWO which starts to establish the connection to your WLAN network. If this is successful, the WLAN symbol appears on the left side of the clock in the SENECT|TWO's display.

WPS Mode: If your router supports WPS, you can connect the SENECT|TWO directly with the router WLAN by pressing the WPS button (typically longer than 3 s) on the router and then selecting **Menu/WLAN/WLAN Configuration/WPS Mode**. Please note that the WPS Mode of the router is only for 2 minutes active.

Your router will now send the required SSID, password and connection settings directly to the SENECT|TWO.

Embedding the SENECT|TWO unit in your SENECT Control App:

1. Open the SENECT Control App and press the button “Add device”



2. Choose an individual name for the control unit and enter its IP address (you'll find it under Menu/WLAN/Information).

3. Enter the corresponding dynamic DNS address (next chapter), port number (at delivery 30000) and PIN (at delivery 0000)



There are 2 levels of operation possible: Full access for the entire menu or “read-only”-access, where only reading is allowed. To provide the “read-only” access, you need to set the “read-only PIN” in the system settings (must be different to the normal PIN) and enter this read-only PIN into the SENECT Control App here.

4. Press the button “Add device”

The SENECT|TWO can now be operated with your SENECT Control App when your smartphone / PC is within the same WLAN network. To **enable the remote access**, you need to establish a dynamic DNS connection:

1. Activate a DynDNS account (e.g. a MyFritz! account or register at dynDNS.org)
2. Open your internet router settings and allow the port forwarding
3. Send the dynamic DNS address to the control unit (via the app)

How this procedure works in detail, depends on the type of router. Here, we show this exemplarily for a **FRITZ!Box Router**:

1. Log in to your router (e.g. fritz.box)
2. Click on “Internet” to “Freigaben” and select to add a new device (“Gerät für Freigabe hinzufügen”, see Fig. 8)
3. Select at “Gerät” (Fig. 9) the SENECT|TWO. It will be labelled with “Senect-104xxxxx”, where the x denote the serial number of your SENECT|TWO.
4. Click on “Neue Freigabe” and the Anwendung is “Andere Anwendung” (Fig. 10)
5. Select as „Schema“: „http://“ and type in the port number of the SENECT|TWO (30000 as factory setting, if you use several SENECT control units, each single one must have its own port number. You can change it in the menu/WLAN/Port number)

FRITZ!Box 7490
 Internet > Freigaben

Portfreigaben

Gerät	IP-Adresse	Port	Status	Port	Gerät
lwm-B6-6D-AA	192.168.178.99	Monitor 4 Aquarium	30003	<input type="checkbox"/>	0 aktiv
lwm-B6-6D-B1	192.168.178.49	RAS Becken 5	30055	<input type="checkbox"/>	0 aktiv
lwm-B6-7A-B5	192.168.178.56	RAS FC	30033	<input type="checkbox"/>	0 aktiv
lwm-B6-7B-7F	192.168.178.61	RAS Mon 4	30067	<input type="checkbox"/>	0 aktiv
lwm-B8-9A-94	192.168.178.58	RAS PRO	30044	<input type="checkbox"/>	0 aktiv

Sie können die Einstellung "Selbstständige Portfreigabe" für alle Geräte deaktivieren, die hier keine Portfreigabe angefordert haben.

Fig. 8: Port forwarding.

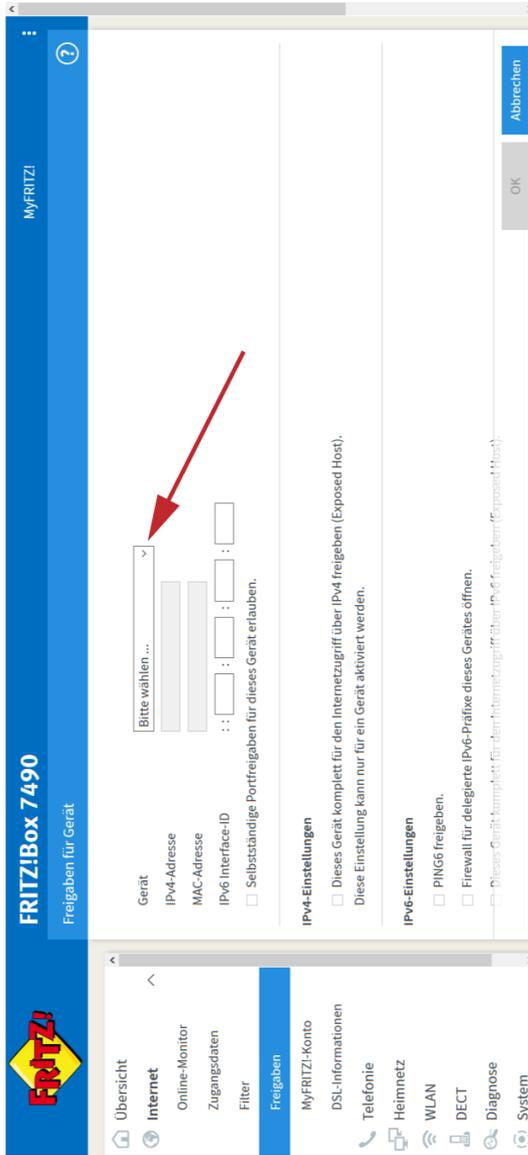


Fig. 9: Device.

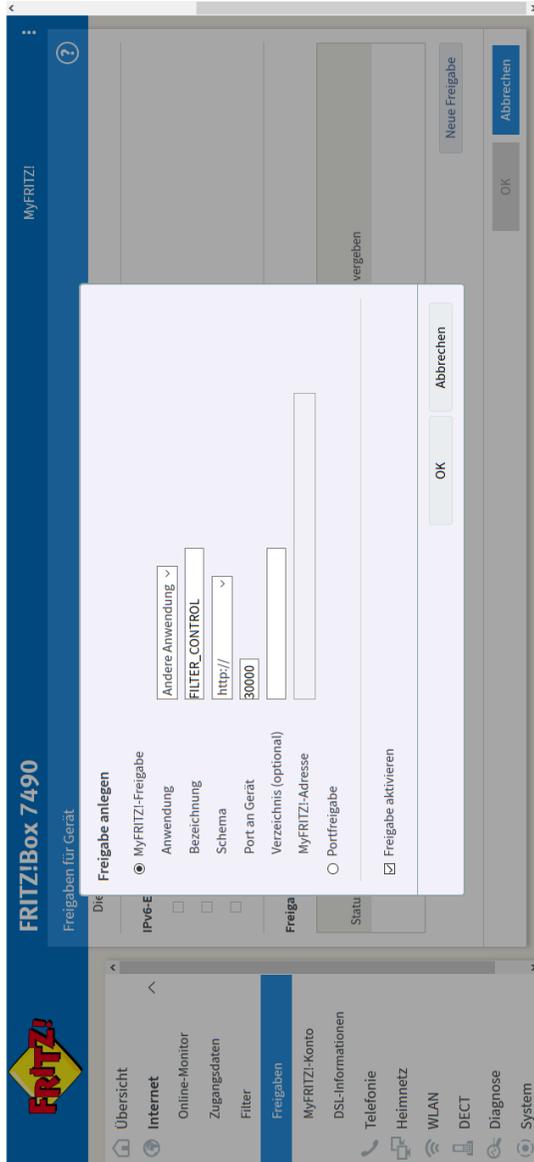
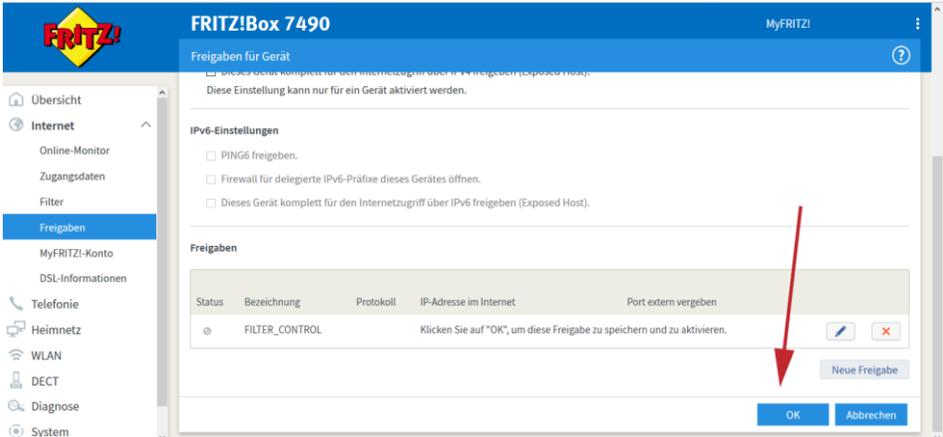


Fig. 10: Anwendung / Application → Other.

6. Klick "OK" to save your settings. The SENECT|TWO appears now in the overview and the status should turn to green (which may take some minutes).



7. If you again click on the pen (Bearbeiten), a window will open where you can see the **dynamic DNS address** of the control unit. You need this address in the SENECT Control App to establish the remote access. (Fig. 11)

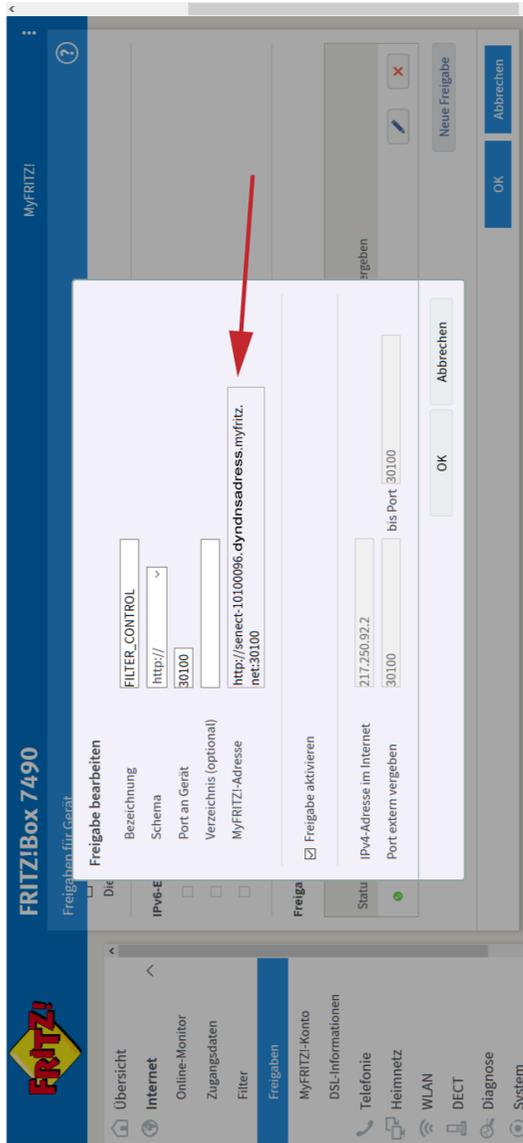


Fig. 11: Here you can find the dynamic DNS address (use only the dyndnsadress.myfritz.net part)

To enable the remote access with the SENECT Control App, you need to go to the WLAN settings of the control unit in your App. Press therefore the button “settings”.



Enter the dynamic DNS address without the “http://” and without the port number, e.g. here the “:30100” in the field Dyn DNS. Confirm with “Add device”.

Now, the remote access is enabled. You can test it, for example by switching off your WLAN in your smartphone (please ensure that you have then activated the use of mobile data”).

- **Start update**

If the update symbol appears in the display, a new update for your SENECT|TWO is available. Select „Start update“ to update your SENECT|TWO.



Do not switch the SENECT|TWO off during the update process!

- **Port number**

Under factory settings, the port number of your control unit is 30000. If you are using several SENECT control units, every unit needs its own port number. Here you can change it e.g. to 30001.

- **DHCP**

For some routers, it is necessary to switch DHCP off. Here you do this and then set the corresponding network settings manually.

- IP address
 - Gateway
 - DNS
 - Subnetmask
-

- **WLAN reset**

If you want to delete the WLAN settings, select „reset WLAN“ and confirm with yes. Please note that only the network settings and information is cleared.

Menu System Settings

- **Date & Time**

Set the date and time in this menu item. The SENECT|TWO is equipped with an internal rechargeable battery so that even without a power connection, the clock continues and all relevant settings are saved.

If you select “Auto. Time”, then the time signal of an internet time server will be used and the clock is continuously synchronized.

- **Language**

As language, „German“ and „English“ can be selected.

- **Factory settings**

If you want to reset the SENECT|TWO, choose „Factory settings” and confirm with yes. Warning: All settings and saved parameters are deleted!

- **Alarm**

- **Alarm recall**

In case of an alarming, the warning by the push service and email can be repeated, if the condition of the alarm remains. Here you can select, in which time steps you want to be reminded, e.g. every 15 min.

- **Alarm pause**

To suppress the alarm for a define time period, you can select in this menu item the time for this. This feature is for example useful if maintenance works are made.

- **Alarm messages**

In Alarm messages, you can select if you want to be alarmed on every alarm or if some messages, e.g. „feeding skipped“ should be omitted.

- **PIN**

Here you can enter a 4-number pin code to protect the SENECT|TWO from unauthorized usage. Note the pin code so that you unlock the SENECT|TWO again and store it at a safe place.

- **Read Only PIN**

Here you can enter a 4-number pin code which is used for the limited access with the SENECT Control App, where only reading is allowed. This “Read Only PIN” must be different to the normal PIN.

- **Device Infos**

Here you find information about the current device like the version of the firmware or the serial number of you SENECT|TWO.

- **Backup settings**

If you want to save all your settings, you can do this in the Backup Settings. Up to 3 settings can be stored and reloaded.

Technical data

Dimensions	191 x 140 x 92 mm
Cable length	2,8 m
Power supply	230 V AC / 50 Hz
Output power 24 V DC	Max. 24 W per port
Power consumption *	< 8 W
Temperature range	0°C to +40°C
Ingress protection	IP54 (mains plug IP44)
Data connectivity	2.5 GHz WLAN, remote access via dynamic DNS, port forwarding and IPv4

* The power consumption is defined as the power of the SENECT|TWO without connected consumers.

Information about the correct disposal



Your device is well packed at delivery. Please dispose the packaging material accordingly to the regulations in your country.

Do not throw the product in the casual litter bin. Make sure you are informed about the local disposal regulations and dispose your product accordingly. Alternatively, you can also send the product back to the producer.

The SENECT GmbH & Co. KG is member of the Stiftung Elektro-Altgeräte Register and the products are registered (WEEE-Reg.-Nr.: DE37193510).

Guarantee



Please check at delivery of your SENECT|TWO, that all parts are delivered completely and that they function correctly. In case of any claims, contact us immediately per email or phone (info@senect.de or +49-6341 - 95 95 210). Please describe your claim as detailed as possible so that we can provide a solution as fast as possible. The following details must be given to guarantee a fast support:

- Detailed error or claim description
- Information about the use of the SENECT|TWO (e.g. system type, filter)
- Your contact information

The SENECT|TWO has a guarantee of 1 year and a warranty of 2 years. Furthermore, the § 377 HBG (German law) is valid.