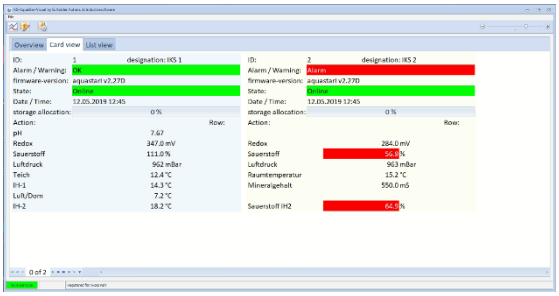
Operating Instructions V 1.6

iks aquastar visual software



1 Introduction

Congratulations! You have got a state-of-the-art computer measurement and control system and additionally you have purchased a new software which leaves nothing to be desired. The aquastar visual software is up-to-date concerning the visualisation of measurement data and the data base will store your values for decades so you can always recall processes and represent them graphically and analyse them. For this your settings are not only stored in the aquastar hardware but also in the software and they can be revised, edited and stored in the database. The design is clear and the biological relations can be viewed.

Like most of the modern software programmes aquastar visual can be installed on your homepage, the smartphone/tablet (iOS and android) and so you have all control possibilities within reach wherever you are. For realising the communication with the devices the aquastar visual software works with the iks cloud and synchronises all data automatically. To a good monitoring of your aquatic systems naturally belongs also a good alerting. For this the software provides a time-controlled e-mail sending, which means you can choose up to 4 times of day when an e-mail shall be sent to your address. If safer status messages are required, this can be done by the service mail to SMS. So you get status messages depending on the configuration of the aquastar like oxygen level, redox potential, pH-value, concentration, temperature and so on.

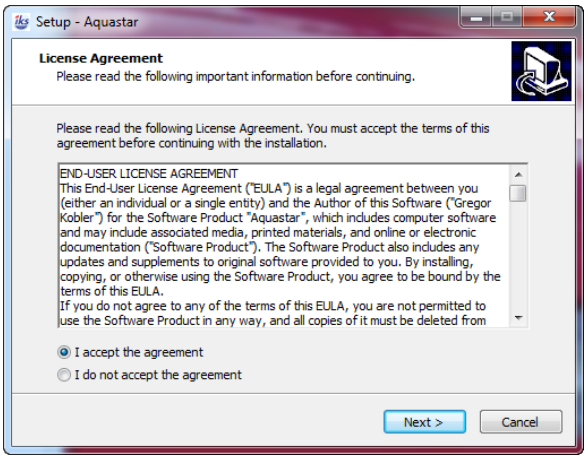
The software has been written in Delphi 10.3.3 Rio. The data base: Firebird V3.0. The IKS cloud needs Web Hoster PHP at least Version 7 and Emon CMS Open Source. If you want to have a survey over the development of professional industrial software, just follow the link: https://www.gksoft.ch

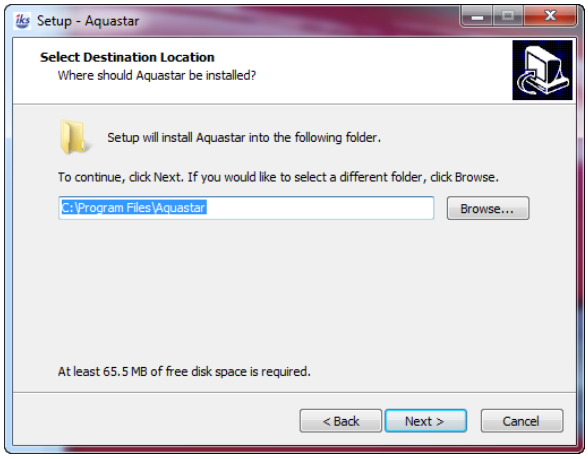
1. Content

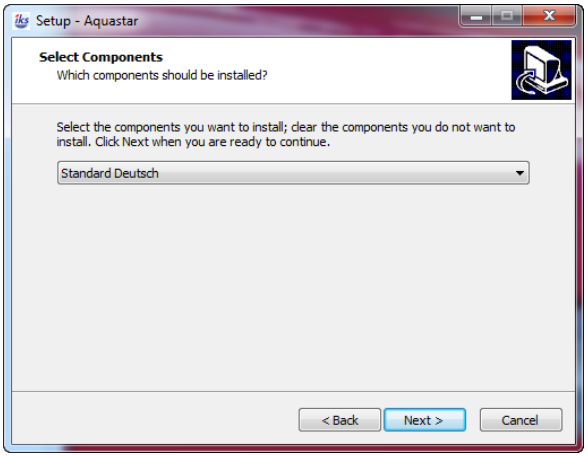
2 Installation of the Software

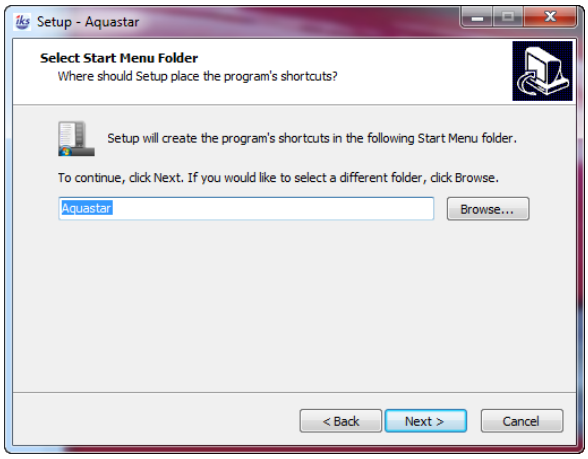
Go to http://www.koisupport.ch/iks-aquastar-visual/ .There you can find all important information to the software.

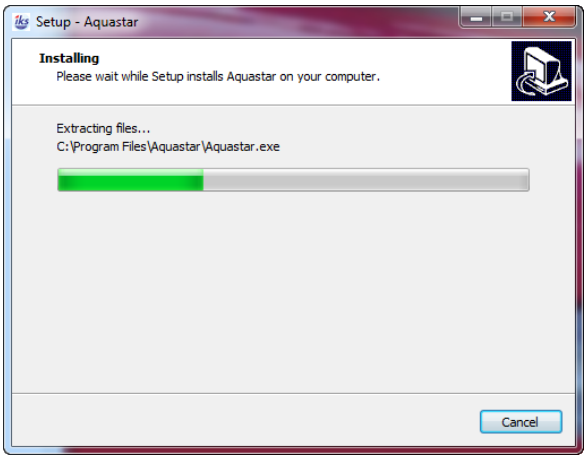
Warning: During installation the virus scanner should be switched off! If possible, you should define an exception for the virus scanning for the installation directory «C:\program files\Aquastar». We guarantee that our programme are absolutely virus free and also digitally signed, however, there are still some virus scanners that don't look at the digital signature.

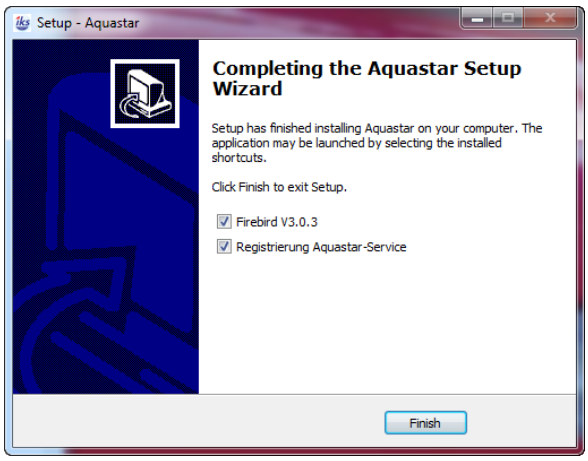


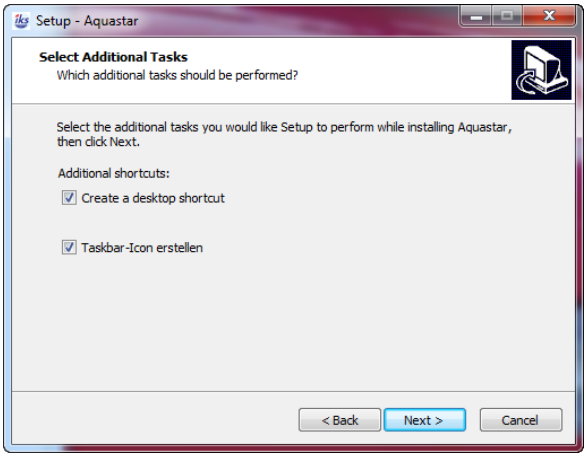


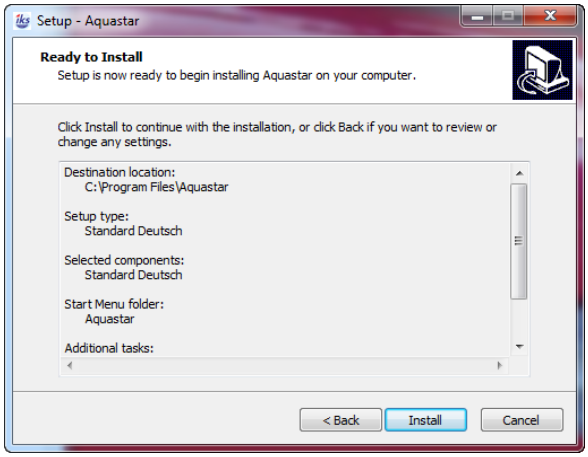




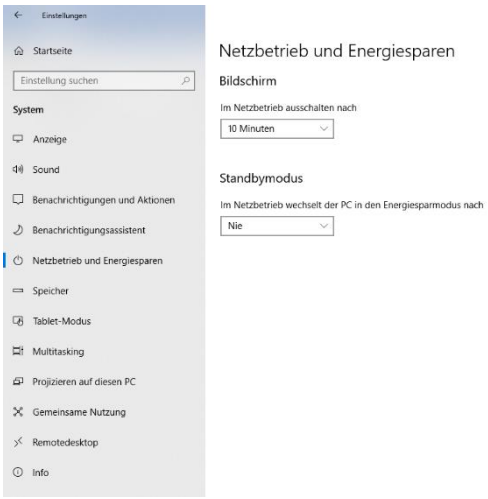








2.1 Settings “Windows Network Operation” and “Saving Energy”



The Windows service runs in the background and the aquastar visual software is in operation, even if the programme is closed. A Windows user does not have to be logged in.

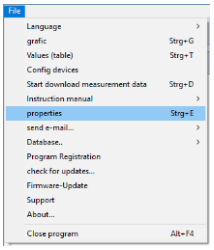
However, it is important to make the setting „Never“ in the stand by mode because in the standby mode the PC is switched off and thus also the Windows service.

2.2 Connecting aquastar visual software with the iks aquastar

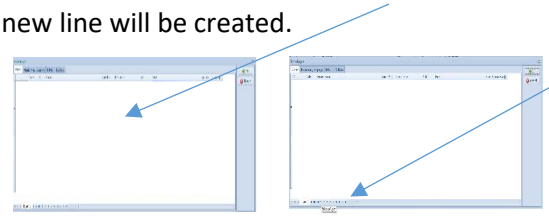
You connect the aquastar with the PC like this. There are several opportunities that differ according to the hardware.

For this you need the iks PC cable (item no. 3000) with the Mini-DIN-Plug for the aquastar PC socket, which you can plug in directly at the serial 9-pole input or with a serial to USB adapter at the USB port depending on the PC. If the 3m cable is too short for you, we can also offer you extension cables

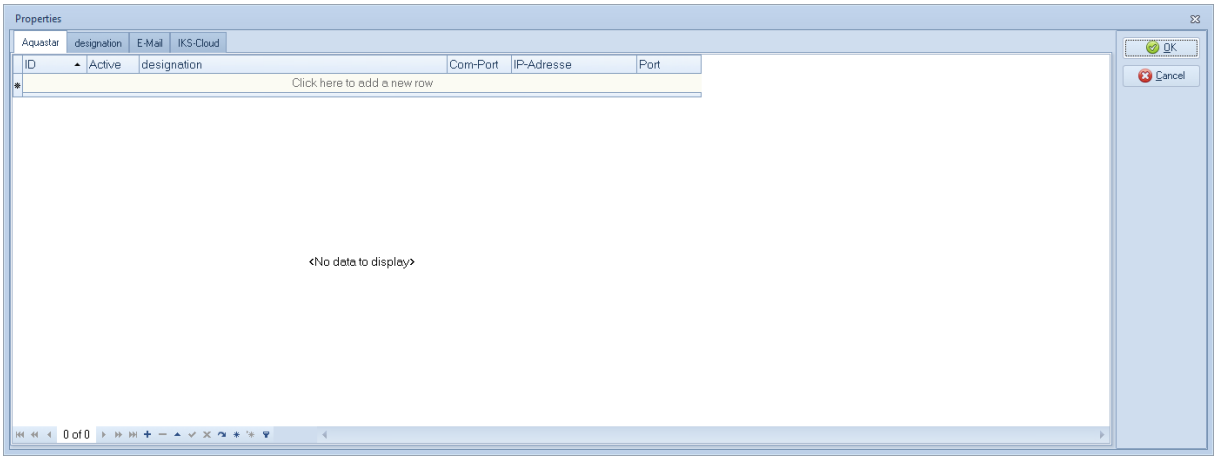
(3m, 5m or 10m). We also offer a Y-cable with which you can also operate an iks external display (s. aquastar operating instructions).



File, settings shows you an empty grid. Now click on the „+“ in the bottom line. A new line will be created.



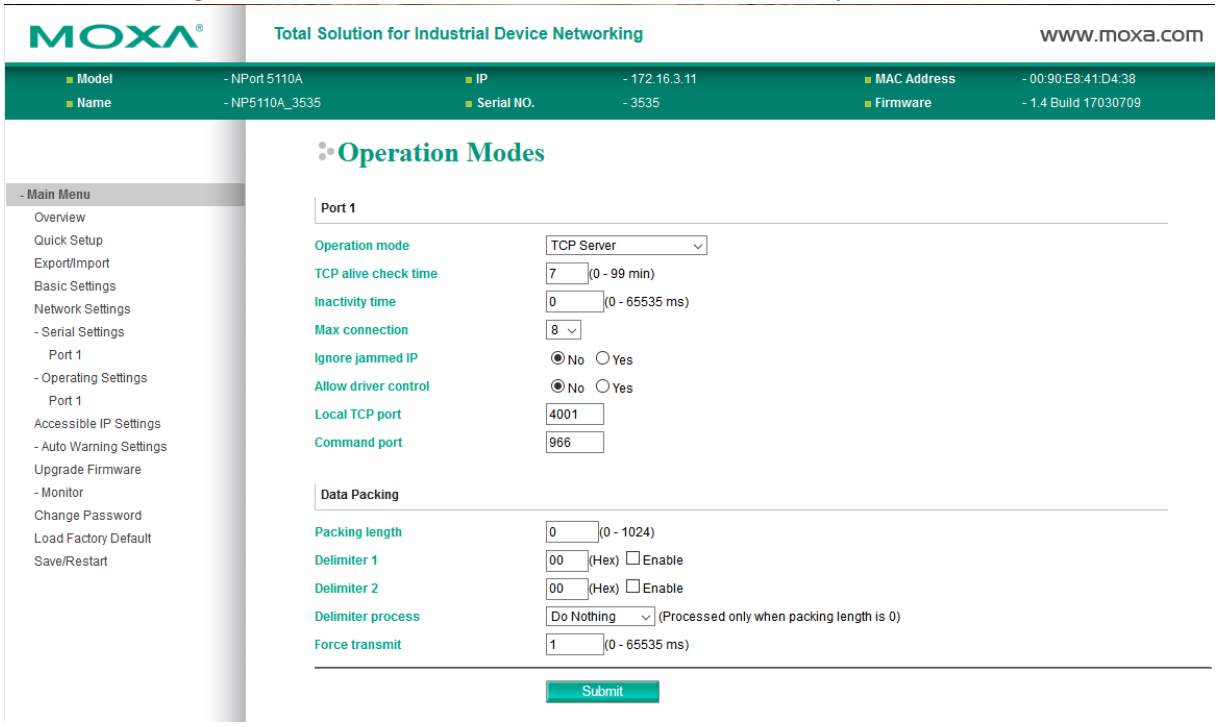
First enter a name and click on „active“ for activating the device and close it by putting a number on „Com-port“.



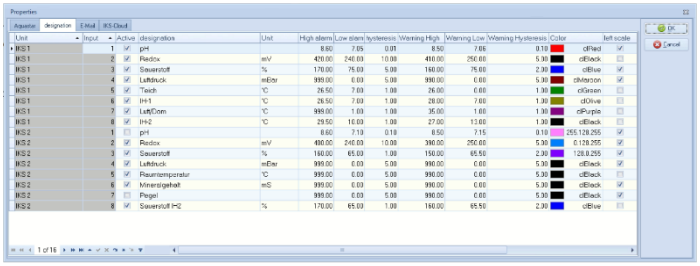
If you use a USB-Serial-Converter, Windows attributes a Com-Port number to you when the converter is connected to the PC. You have to have a look into the device manager to see which number you have been attributed to.

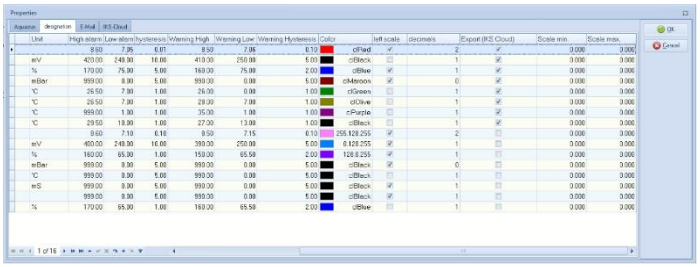
If you use an Ethernet-Serial –Converter, you have to leave the Com-Port with „0“ and indicate an IP-address as well as a port of the Ethernet-Serial-Converter.

Follow the configuration of an Ethernet-Serial-Converter (in case that you have this converter).



It is necessary to change the operation mode to TCP-server and the «Force transmit» to 1ms. All other settings can be set to standard values. In this case, for the Moxa-Converter it has to be entered the IP-address 172.16.3.11 and the port 4001 into the columns of the aquastar-device-grid.





After you have defined a device you can go into the register „naming of inputs“.

And configure the sensors of this device with the sensor names and units etc.

The column „left scale“. Here you can define for which sensor the scale appears on the left side. Without tick it is on the right side. This option allows to lay 2 graphics on top of each other while the value size is displayed once on the right and once on the left side.

The column „Decimals“ defines the number of decimals behind the comma.

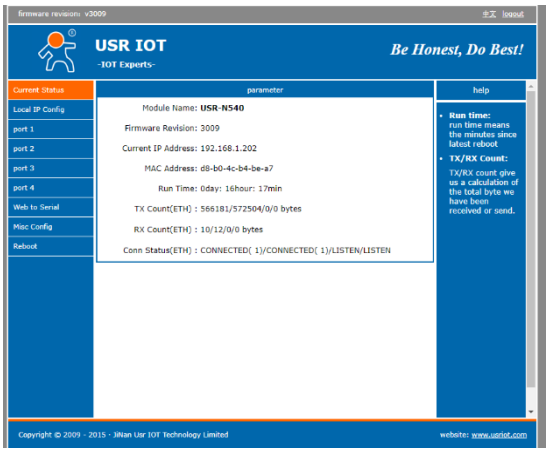
Have you licenced the option “iCloud”, you can define here which sensor values shall be sent into the cloud. With “OK” you end the entries.

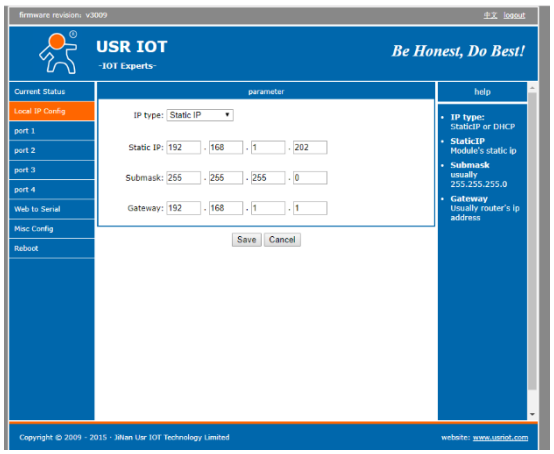
3 USR-N540 RS232 to Ethernet Converter

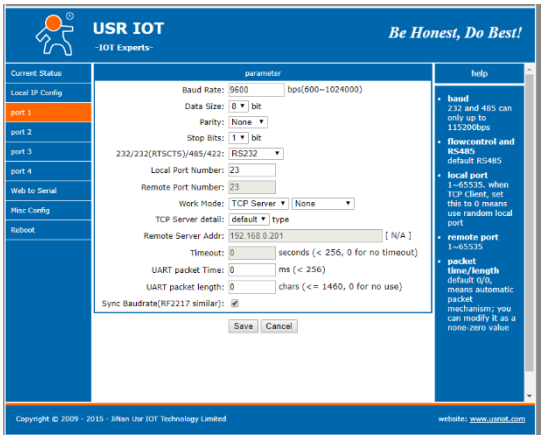
This converter has 4 channels. (4 devices with 8 sensors each can be connected).

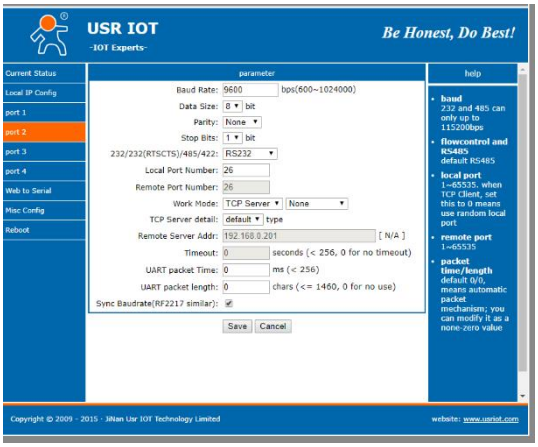
3.1 Screen Shots Settings of Serial Converter

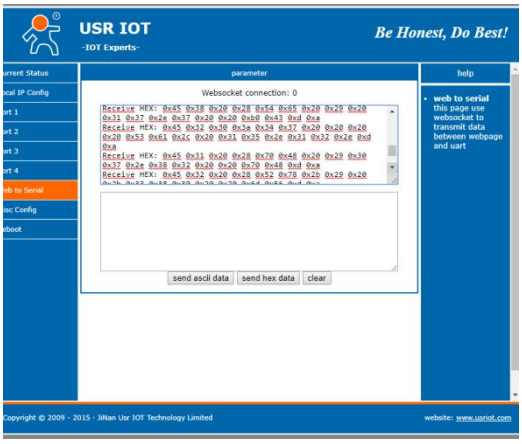
The following screenshots show the settings.











Web to Serial shows you, whether everything has been connected correctly and whether the parameters are correct as well. If that is the case, Hex Dump appears in the upper window and the red underlined lines show you how fast the aquastar is sending the 8 sensor values to the converter.

4 Certified Converters

4.1 Ethernet-Serial Converters

The following products are certified and work with our software.

- Moxa NPort-5110A (1-port)

- USR-N510 (1 port)

- USR-N520 (2-port)

- USR-N540 (4 port)

- USR-TCP232-301 (1-port)
  Warning: this device additionally needs a zero-modem cable (9 pole-male-male).

Generally there will be many more devices that work as well but without liability!

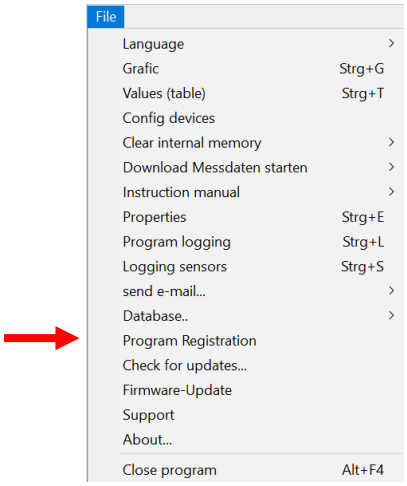
4.2 USB-Serial Converter

The following products are certified and work with our software.

- ATEN -UC232A

Generally there will be many more devices that work as well but without liability!

5 Licensing



After installation the programmes runs in the demo mode. If you have purchased a license via our homepage, you will be informed by the indicated e-mail address with the following mail.

This is an automatically generated e-mail, please, do not answer it!

Dear Mr. Hans Muster

It follows the necessary information for the licensing of your purchased iks aquastar visual software.

Please, keep this information in a safe place!

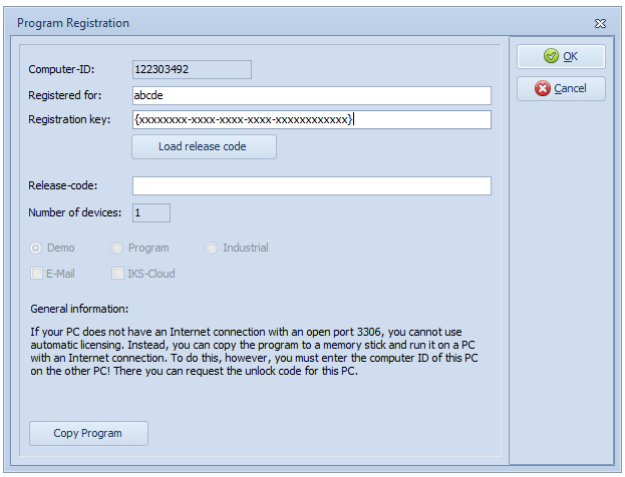
aquastar registration information
Name: *abcde*
Registration key: *{xxxxxxxx-xxxx-xxxx-xxxx-xxxxxxxxxxxx}*

License: *Industrial*
Options: *E-mail / iks-cloud*
Number aquastars: *2*
Number licenses: *1*

Kind regards
Your iks aquastar visual team

Start the registration programme and enter the two values „Name“ and „Registration key“ into the corresponding boxes. The programmes needs administration rights, from windows 7 on there might occur the user account control, under certain circumstances there might only occur a little shield symbol in the task bar!

Click on it and confirm the question with „yes“. After that you should see the following form.



After you have entered the data, click on „Load release code“, then the programme tries to reach our license server by the port 3306 via internet for requesting the release code.

If your computer should not have internet access or the port 3306 might be locked because of a firewall, you have the opportunity to copy the programme «C:\program files (x86)\Aquastar\ProgrammRegistrierung.exe» on another PC which has an internet connection. However, it should be noted that the computer-ID of the PC, on which iks aquastar visual is installed, must be entered, otherwise there is a danger that your license is licensed for the wrong PC.

If the license request has been completed, the release code is entered automatically and the released options are displayed, now only complete by „OK“. The programme has been licensed now.

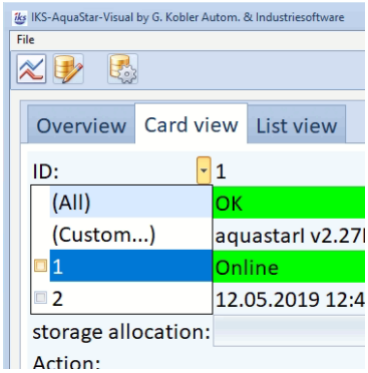
6 Description and Representation of the Menu Features

6.1 Differences Industrial-Version and Private-Version

The overview and the list view are only available in the industrial-version, additionally one picture of the plant per aquastar can be included! With the industrial-version up to 255 aquastars can be installed, with the private-version maximally two. The options e-mail and iks-cloud are included in the industrial-version, in the private-version they can be released by paying a lump sum.

6.2 The Overview (only in the Industrial-Version)

6.3 Screen Scaling and Data Filter

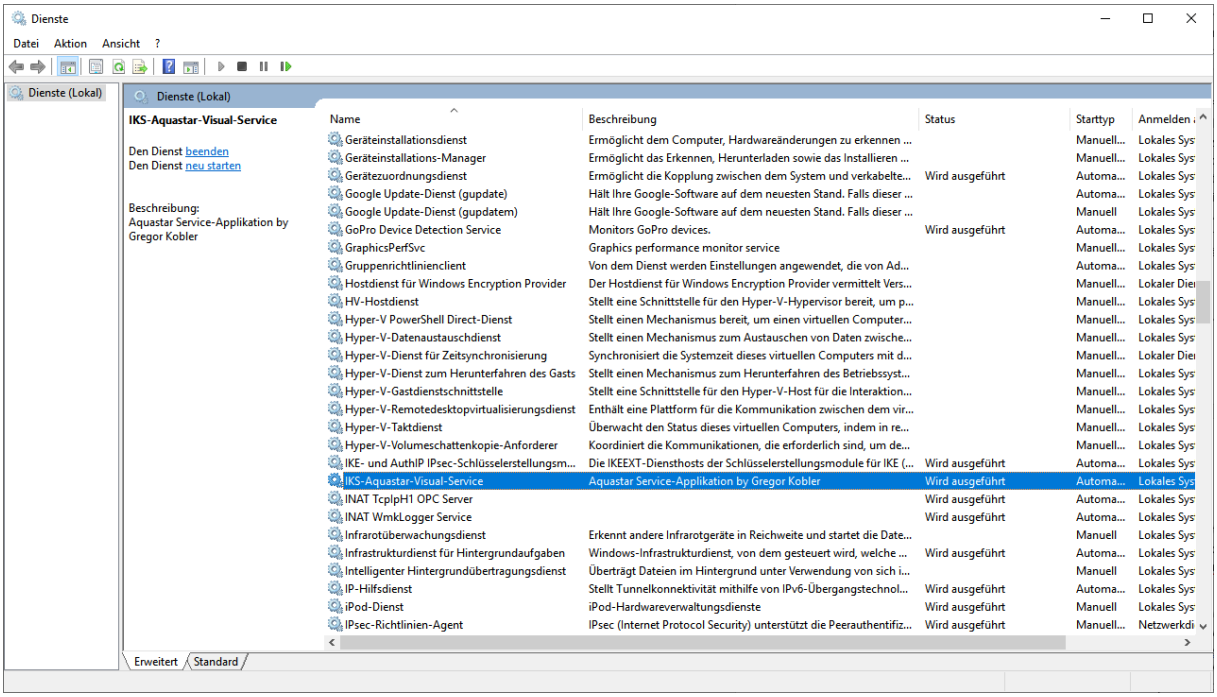


The numbers of devices on a screen page depends on the dissolution of the screen, someday the device data cannot be read anymore. With the slide bar you can adapt the size on the upper right. For many devices you can set a filter. For doing this guide your mouse to the field ID and open the filter menu. A filter on the status field helps with most devices to set the display promptly on, e.g., an offline device. The bars highlighted in green show that there is a communication between hardware and software and that it works trouble-freely. If the communication gets interrupted, the colour highlighting changes to red. If any value in the system causes an alarm, this is shown by a colour change from green to red. In the two fields on the bottom line you can see who the owner of the license is and whether the Windows service runs or not.

6.4 The Windows Service (Win Service)

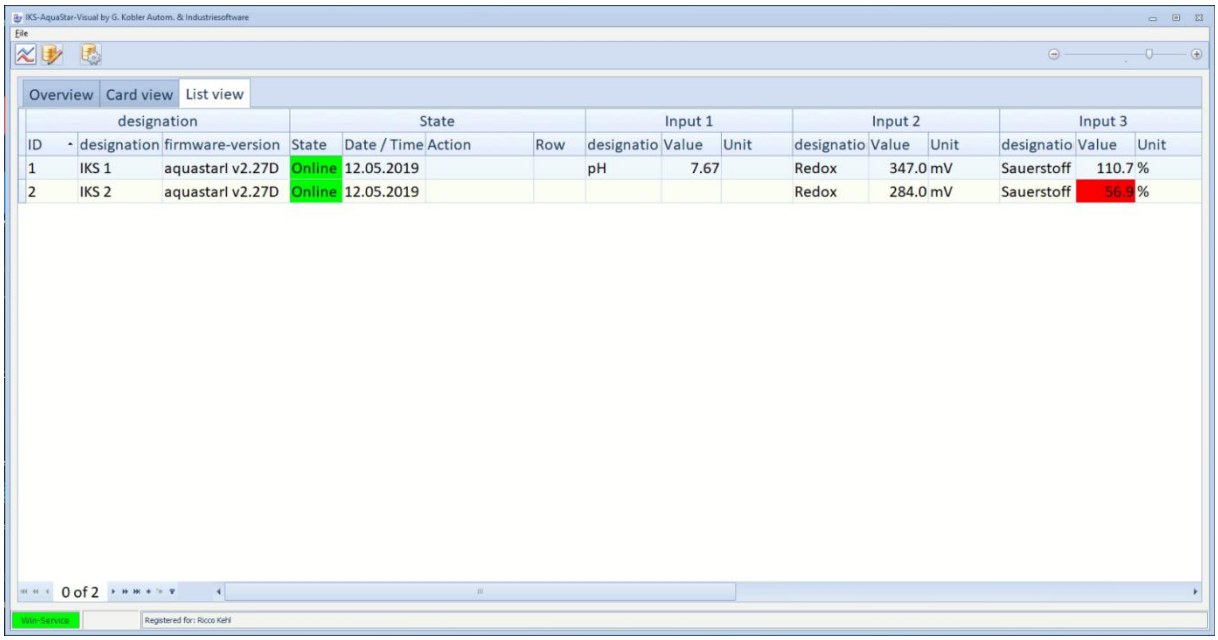
iks aquastar visual service. This service provides for the maintenance of the communication between hardware, meaning the aquastar, and the aquastar visual software. The service always runs in the background of the concerning device even when the aquastar programme is not open. With the following clicks you can have a look at it, start/stop the service.

Start, settings, in the window “search settings” you have to write down „Dienst“, then „show local services“ appears.



That is what you have to select. On the following screen all services are displayed which run in the background of your computer. Scroll down until iks aquastar visual service appears. After selecting, on the upper left „shut down service/restart service“ appears. It might be necessary to shut down the service before a new update is installed.

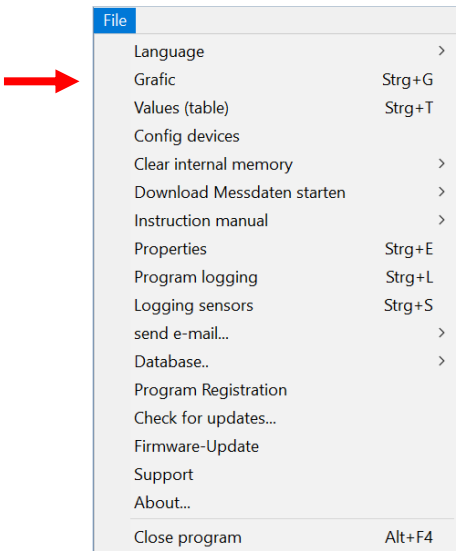
6.5 The List View (only in Industrial-Version)



In the list view devices and values are diplayed as table. Mark one device by a mouse click, then have a look on the values from output 1 to 8 by moving the fields with the arrow keys to the left/right. Alternatively you can also move the slider/bar on the lower edge by keeping the right mouse key pressed on it and move it bidirectionally.

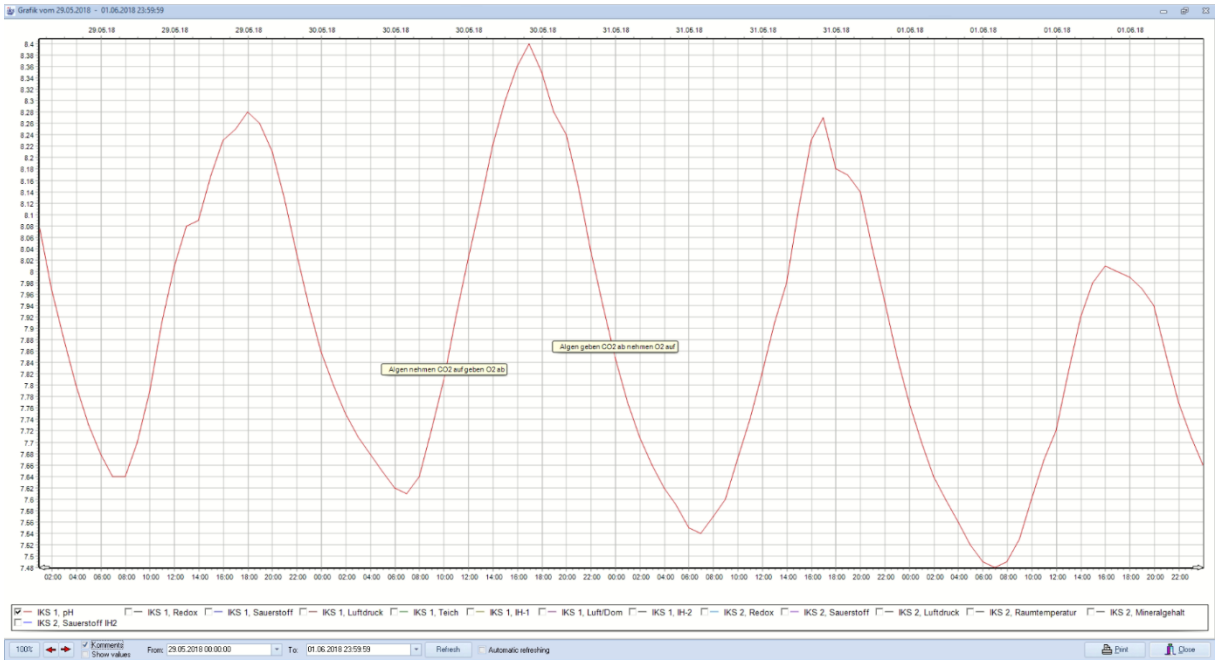
7 The File Menu with Submenu

7.1 Graphic



The graphic representation coupled with the Firefox data base and the very reliable hardware turn iks aquastar and iks aquastar visual into an extremely powerful tool for data aquisition and data analysis. Being reliable means for us to be able to run for decades without loosing any data. That separates quickly the wheat from the chaff. Here a little excursion into practice. Where does the aquastar run and how did it come to the further development of the software. Data acquisition with the aquastar started in 2000 at a Koi pond arrangement with 90m^3 of water. The arrangement has grown to about 150m^3 within 18 years. A permanently controlled oxygen level is essential because 10 sturgeons (120cm-170cm) and average 50 Koi (50cm-90cm) belong to the stock. Additionally a controlled redox potential with ozon generators for getting a good water quality. In midsummer the aquastar controls an acid proportioning pump, when the pH-value wants to get higher and higher, for avoiding gil necrosis. Much fodder deposits at high water temperatures high NH_3-amounts because of the fish who make the pH-value boost along with strong and long solar radiation by assimilation of the water plants/algae. As NH_3 gets the more toxic the higher the ph-value is, we are going to make it that way. We know that this kind of method is not shared by everybody, but experience has shown that under certain circumstances it is necessary to create the regulating and control effort like this.

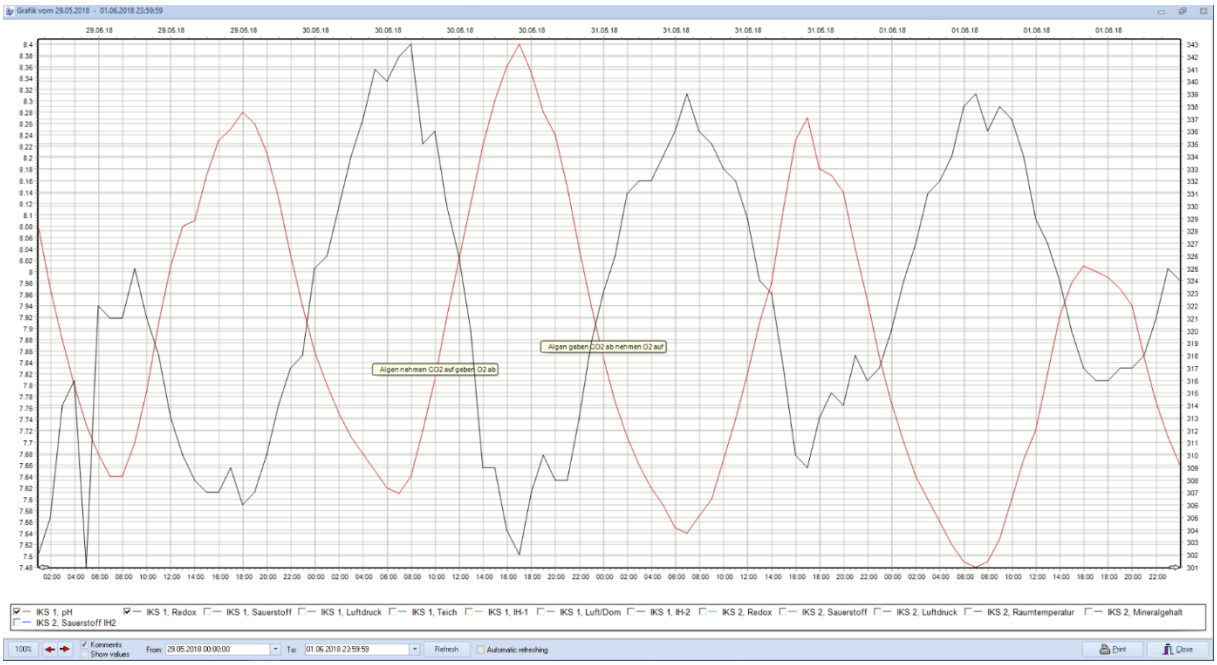
Now let us come to the graphic



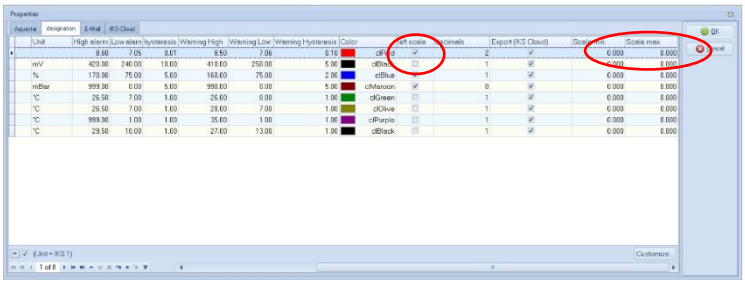
x-axis pH-value, y-axis time of day, top-axis date

The menu bar under the graphic shows the names of the connected sensors and the two devices that are connected (iks1 and iks2) and the value line with the corresponding colours. By making a tick the graphic changes to the value view. Thus there is always a new scale and so an excellent display. You can lay graphics on top of each other so you can better display dependencies in the bio chemical procedures.

7.2 Laying Graphics on top of each other, showing and hiding Axes



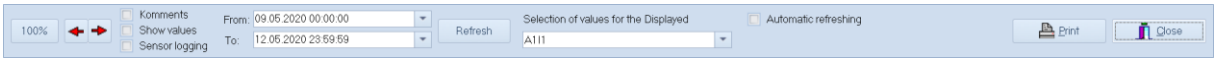
Here you see 2 graphics on top of each other with red showing the pH-value and blue the redox-value. Top-axis the date, Y-axis time of day, X-axis pH-value and on the right side the scale for the redox-value.



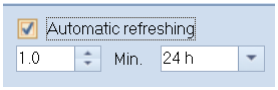
Under settings, name, input, left scale – make ticks for left scale. Without tick the right scale appears while having selected two graphics. With the two columns “scaling min” and “scaling max” the scale in the graphics can be limited. If a “0” is entered in both of the columns, the scale is scaled automatically to the maximal or minimal value of the display. If “0” is entered in both of the columns, the scale is automatically scaled to the minimal or maximal value of the display respectively.

7.3 Handling the Graphic

On the lower edge one can find the operating elements for the graphic view.

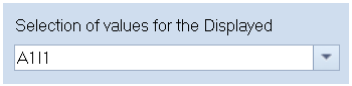


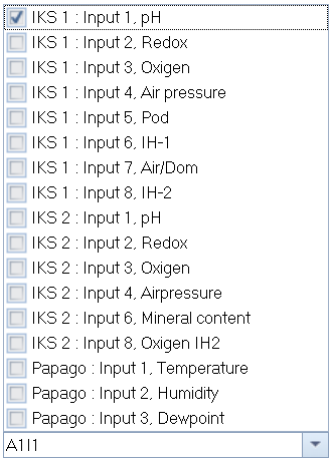
There you can choose a time frame from which you want to see the data, after that press the key „update“. The values are now displayed. Click on the option „automatic update“, two further elements will appear.



Now you can choose the time for the update as well as the time frame for the displayed values.

The selection of the sensors is done with the checkboxes in the selection list, set the check mark at the inputs you would like to have displayed in the graphic.

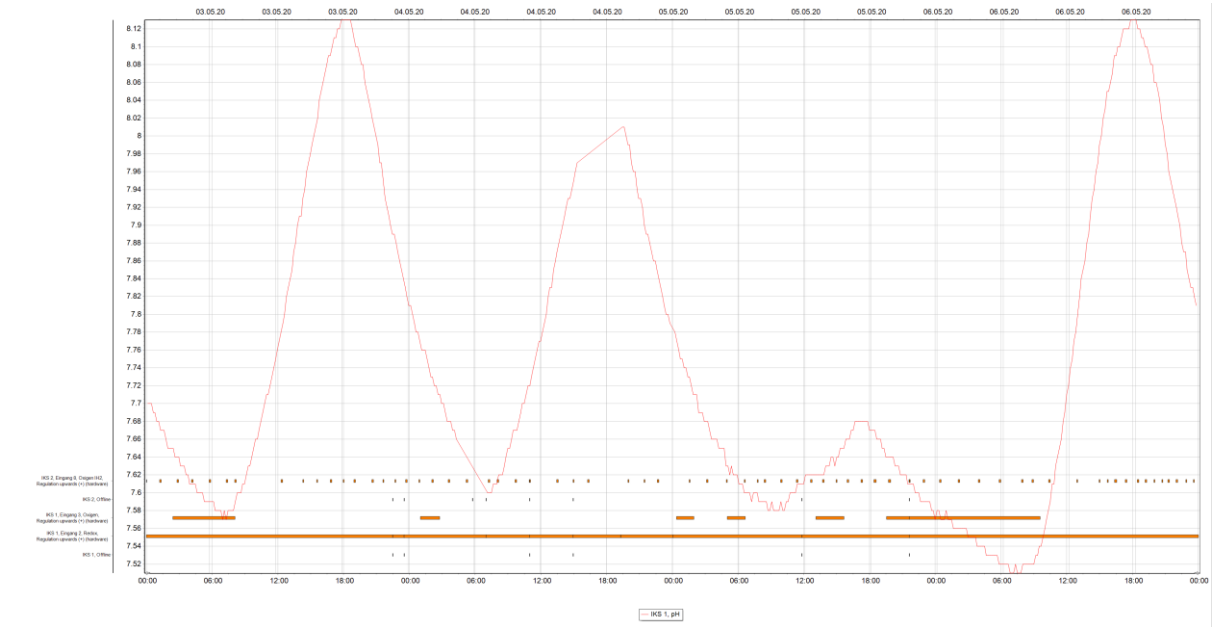




The option „comment“ displays the comments that have been stored per curve value. You can add comments by a right-hand click on the curve value.

With the option „Show values“ a vertical cursor is displayed over the graphics. At the same time the topical value on the curser position appears in the legend.

The option "Sensor logging" displays the Gantgraphic (horizontal bar chart). Thus, the sensor events are superimposed on the graphics.

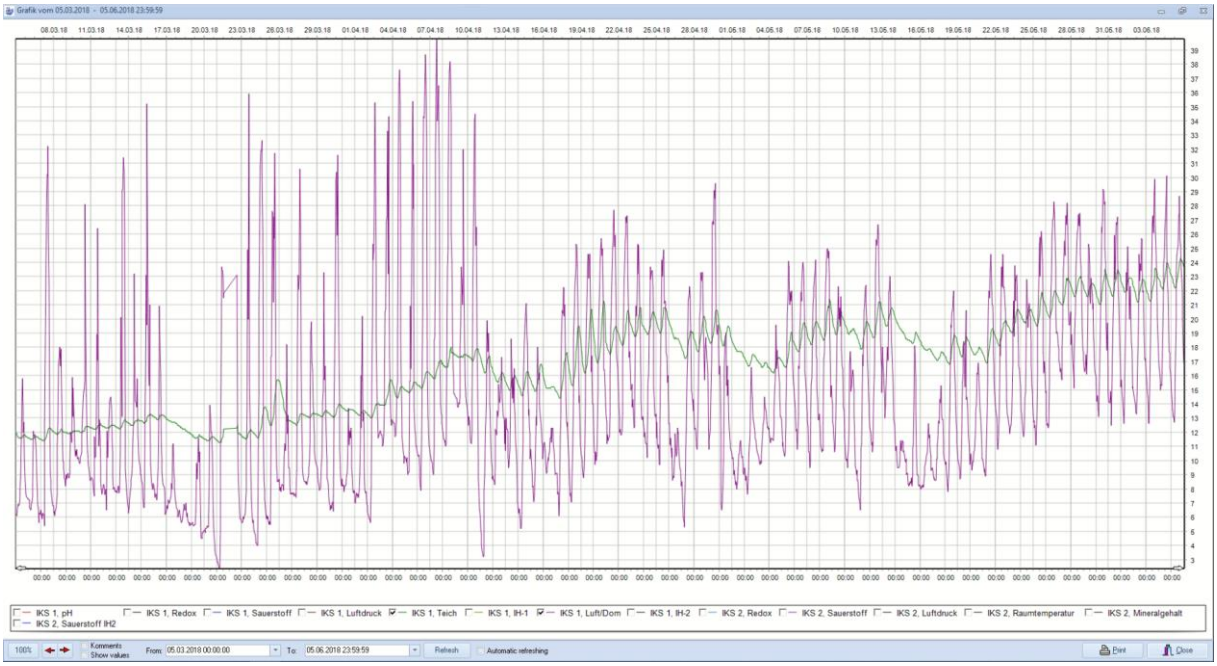


The button „100%“ serves as tool to come back to the whole overview after you have zoomed into the graphic.

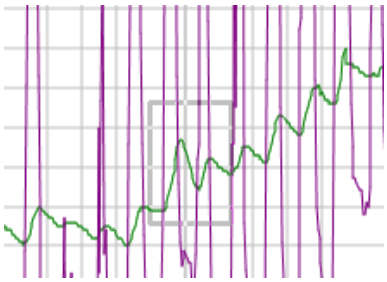
The two red arrows to the left/right move the time „from/to“ forwards and backwards each for the difference time of „to-from“.

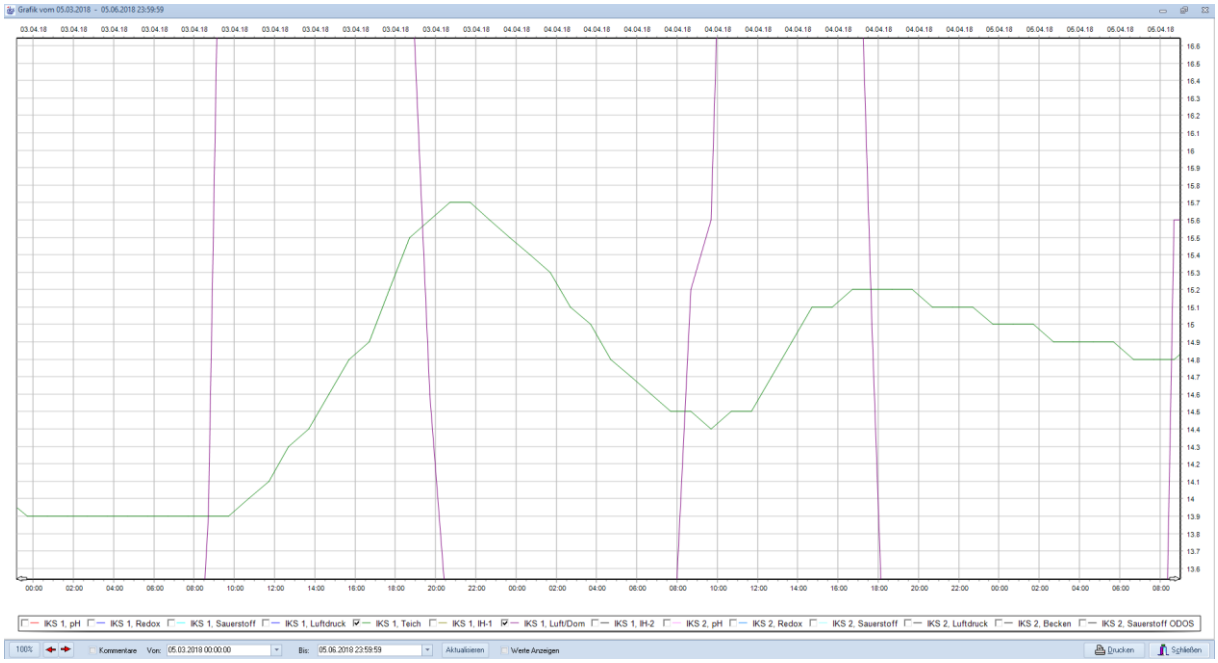
7.4 Grafic Zoom In/Out

In the following example you see the water temperature in green and the air temperature in violet. The selected area is 3 months. In case of longer lasting warmth periods you can see the water temperature rising slowly. If you now want to have a look at one night to see how much the water temperature falls, the zoom function can be selected.



Put the cursor at the beginning of the area to be zoomed and keep the left mouse-key pressed. Move with the mouse from the upper left to the lower right until the area to be zoomed is appropriate for you. Then loosen the left mouse-key. To get back move from the upper right to the lower left somewhere on the graphic.





7.5 The pH-Value and the Assimilation

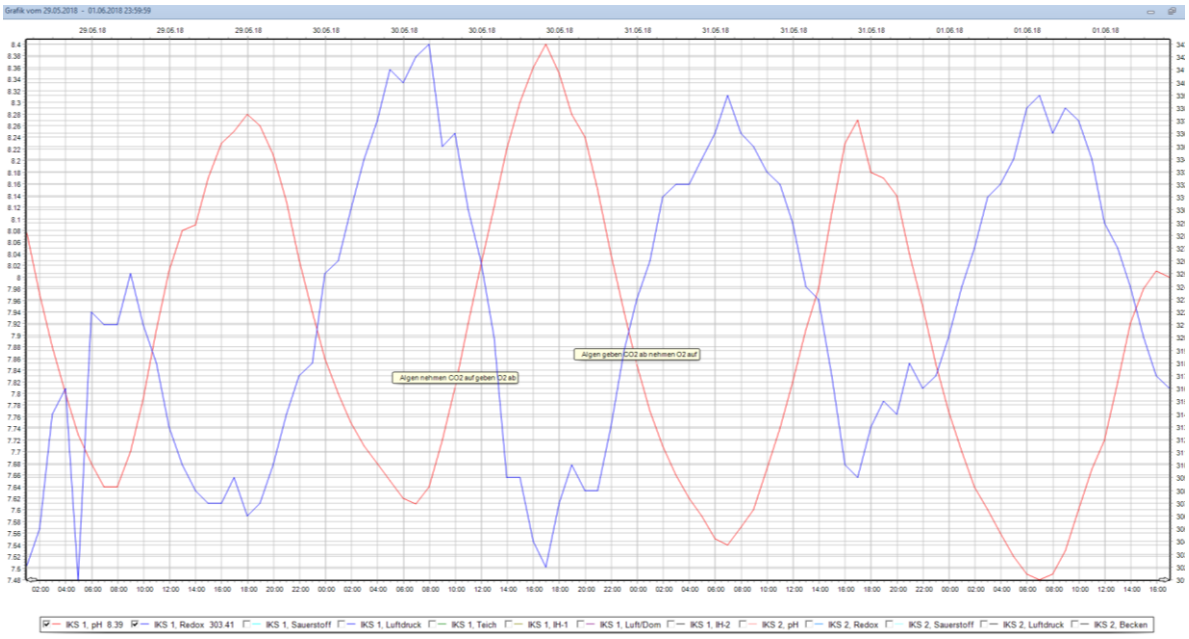
In the ph-value diagram one can recognise the day/night rhythm. This is generated by the shift of the carbon dioxide balance following the CO_2 intake and release which exists in the water dissociatedly as carbon dioxide. This acid is responsible for increasing and decreasing ph-values. In the example you can also see the annotation of the curves and if the option „display values“ is activated, you can also let be displayed and read on each point of the curve the corresponding value. If you leave the area of the graphic along the value line vertically, the line and the value remain in the graphic. For making the annotation line not too long we have written algae, meaning algae and water plants together. When we talk in this paper about water plants and algae, we mean green algae, ball algae and green water plants as algae that don't include chlorophyll do not make assimilation, of course.

For years we have been trying to keep a beautiful green lawn in the pond, sometimes the thread algae increase alarmingly, so one has to weed it like the weed in a garden. Brown algae, read algae and black coverings are not part of our interest.

It suddenly attracts the informed reader's attention that the oxygen also has an intake and release function concerning the assimilation. We are going to have a closer look at this by observing the oxygen curve.

7.6 pH-Value and Redox-Potential

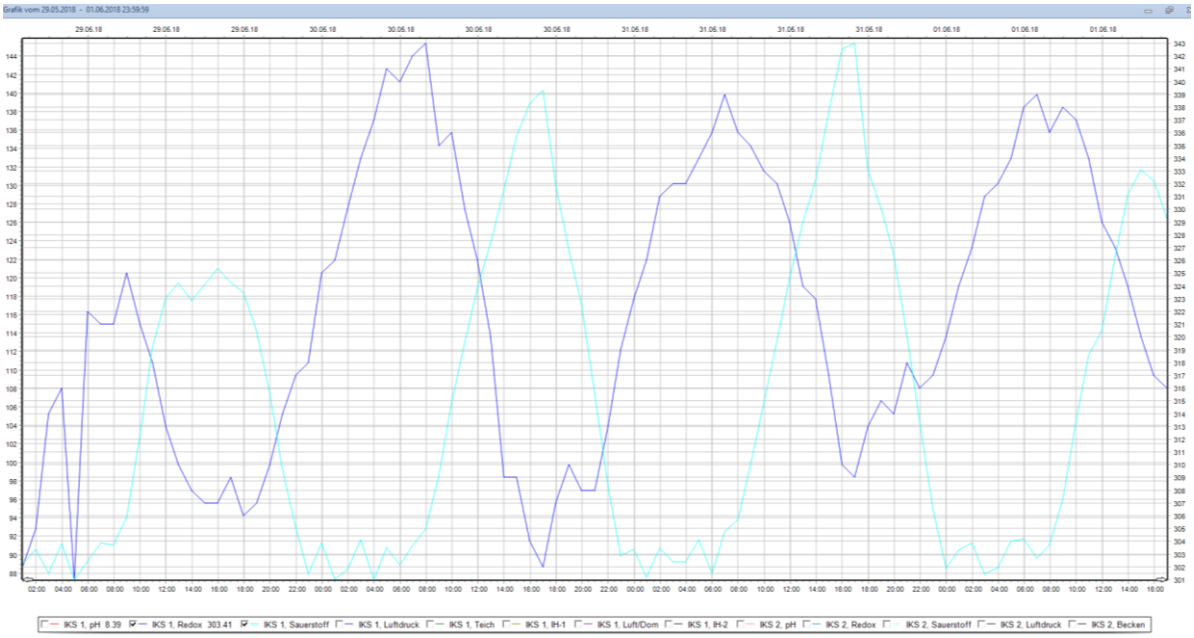
If you now take the graphic of the redox value into the graphic of the pH-value, you get the following picture.



The redox-potential shows the balance reaction between oxidisable and reducible proportions in the water. A high redox-potential, meaning a high mV-value, means that little reducing substance is in the water and vice versa. Drinking water has 600mV and 700mV depending on the region, which means, it contains few reducible proportions, it is clean and nearly free from reducible components. However, one should only measure drinking water if the disinfection agents, that have been added, have been outgased. As it is generally known chlorine, ozone and other water disinfection agents make the redox-potential rise, because they create a high oxidation level by destroying reducible

material. That means, the redox-value depends on the oxidation level of the substances in water and so also from the dissolved oxygen in the water. Concerning the pH-value we have observed the carbon dioxide balance which inter alia intakes and releases oxygen depending on the light conditions. One can say, that oxygen which is neither a base nor an acid does not influence the pH-value. With the redox-value it is different, as it is influenced by oxygen very much. So, carbon-dioxide balance and redox-reaction balance still influence each other indirectly. Such correlations only become visible when you lay graphics on top of each other. That is a good reason for praising the software and value it as very good. In the following chapter we consider the redox-potential with the oxygen graphic.

8 The Redox-Value and the dissolved Oxygen

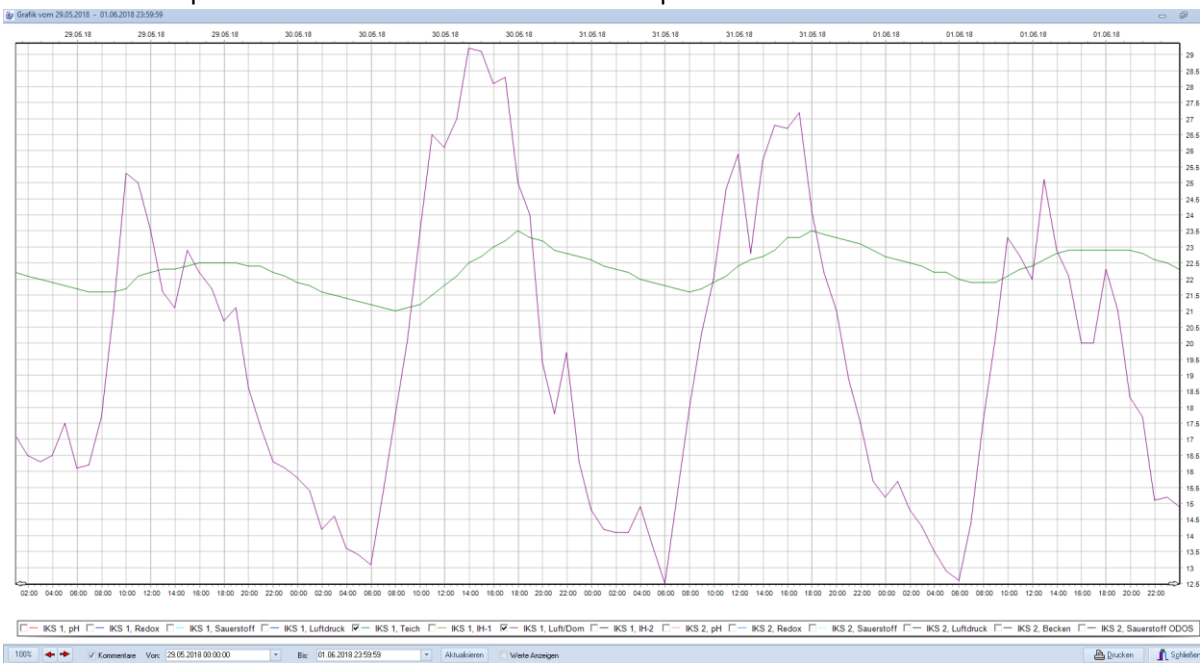


Dark blue is redox and turquoise is oxygen, the colours can be defined freely by the user.

Depending on the solar radiation the oxygen production is accordingly strong and at night the consuming process starts, meaning oxygen is used. The amount of oxygen production thus depends on the amount of algae and water plants in the system as well as on the solar radiation. In this example one can see that the oxygen level does not fall more than 88%. This lower tolerance is limited by oxygen and ozone entry. Without this action 60% and less are not seldom in koi ponds. This can become dangerous for sturgeons in the mid summer, as they cannot change to air breathing.

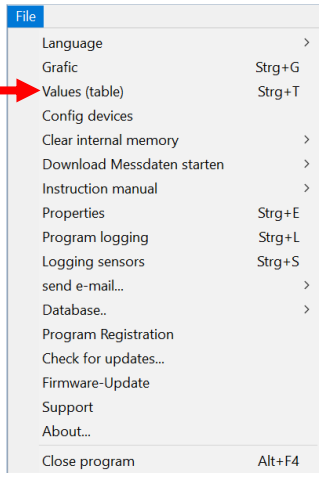
9 Representation of the Temperature

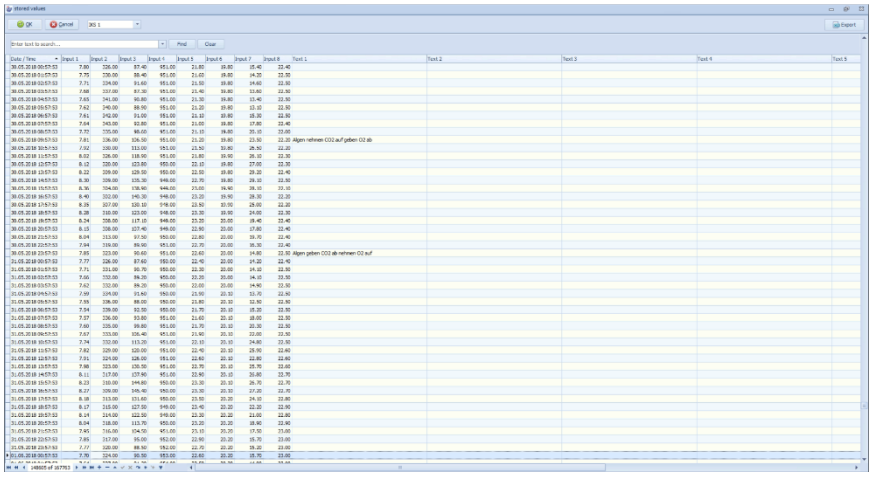
Green is the temperatur oft he water and violet the temperature of the air



If air- and water-temperature are measured and represented graphically, one can see the difference between day and night very well. Although more than 100m^3 of water are measured, the difference is yet relatively high, especially when the sun shines on it the whole day. So we can analyse influences like cloudy weather, high amounts of rain, cold nights, water exchanges and many more.

10 Representing Values in a Table



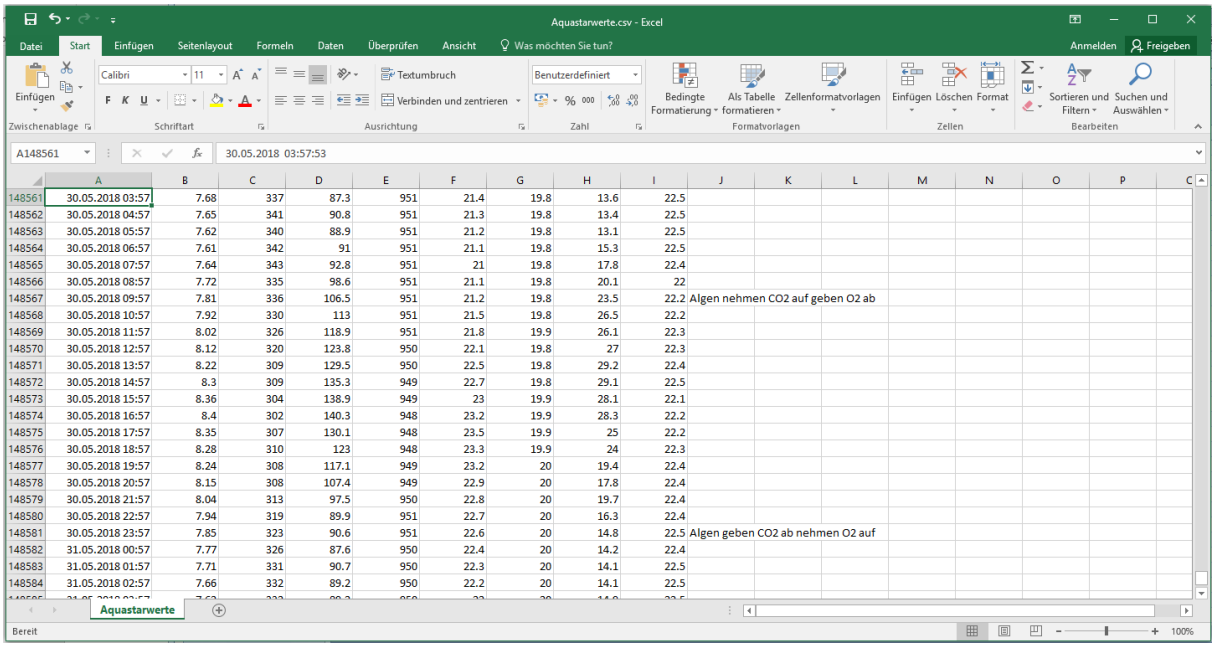


Values from the Firebird-SQL data base in a table

11 Export in Excel

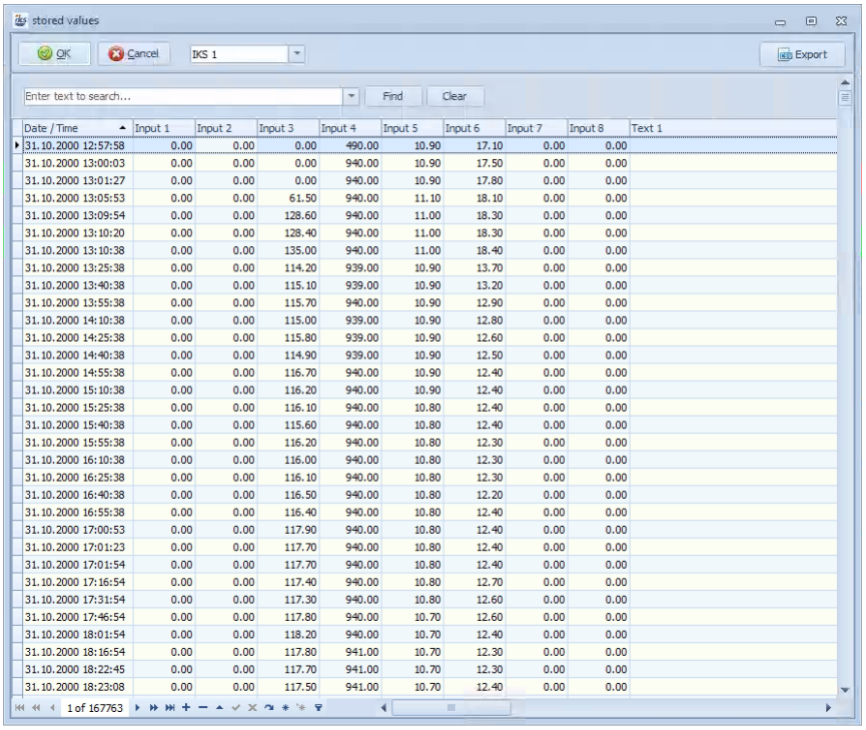
With the export function you get one tool more with which you can export the measured data to Excel where you can execute all sorts of functions.

The data base has nearly 150'000 records now. One entry is entered into the memory per hour. This entry contains date, time and the values of the 8 measuring stations. Here one needs to mention that the aquastar has been in operation since year 2000 and that the measured values have been



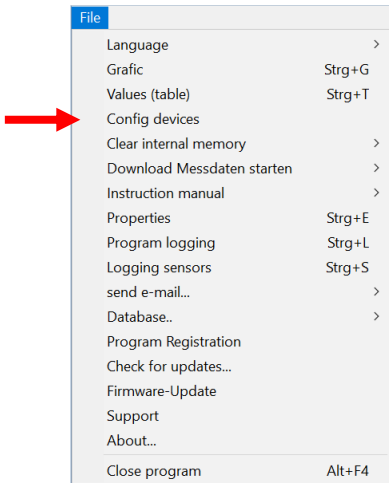
	A	B	C	D	E	F	G	H	I	J
148561	30.05.2018 03:57	7.68	337	87.3	951	21.4	19.8	13.6	22.5	
148562	30.05.2018 04:57	7.65	341	90.8	951	21.3	19.8	13.4	22.5	
148563	30.05.2018 05:57	7.62	340	88.9	951	21.2	19.8	13.1	22.5	
148564	30.05.2018 06:57	7.61	342	91	951	21.1	19.8	15.3	22.5	
148565	30.05.2018 07:57	7.64	343	92.8	951	21	19.8	17.8	22.4	
148566	30.05.2018 08:57	7.72	335	98.6	951	21.1	19.8	20.1	22	
148567	30.05.2018 09:57	7.81	336	106.5	951	21.2	19.8	23.5	22.2	Algen nehmen CO2 auf geben O2 ab
148568	30.05.2018 10:57	7.92	330	113	951	21.5	19.8	26.5	22.2	
148569	30.05.2018 11:57	8.02	326	118.9	951	21.8	19.9	26.1	22.3	
148570	30.05.2018 12:57	8.12	320	123.8	950	22.1	19.8	27	22.3	
148571	30.05.2018 13:57	8.22	309	129.5	950	22.5	19.8	29.2	22.4	
148572	30.05.2018 14:57	8.3	309	135.3	949	22.7	19.8	29.1	22.5	
148573	30.05.2018 15:57	8.36	304	138.9	949	23	19.9	28.1	22.1	
148574	30.05.2018 16:57	8.4	302	140.3	948	23.2	19.9	28.3	22.2	
148575	30.05.2018 17:57	8.35	307	130.1	948	23.5	19.9	25	22.2	
148576	30.05.2018 18:57	8.28	310	123	948	23.3	19.9	24	22.3	
148577	30.05.2018 19:57	8.24	308	117.1	949	23.2	20	19.4	22.4	
148578	30.05.2018 20:57	8.15	308	107.4	949	22.9	20	17.8	22.4	
148579	30.05.2018 21:57	8.04	313	97.5	950	22.8	20	19.7	22.4	
148580	30.05.2018 22:57	7.94	319	89.9	951	22.7	20	16.3	22.4	
148581	30.05.2018 23:57	7.85	323	90.6	951	22.6	20	14.8	22.5	Algen geben CO2 ab nehmen O2 auf
148582	31.05.2018 00:57	7.77	326	87.6	950	22.4	20	14.2	22.4	
148583	31.05.2018 01:57	7.71	331	90.7	950	22.3	20	14.1	22.5	
148584	31.05.2018 02:57	7.66	332	89.2	950	22.2	20	14.1	22.5	

recorded for 18 years. And this via several Windows operating systems until today. This leads to the conclusion: the aquastar is a fully developed and very safe, long-living measuring system.

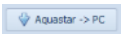


Date / Time	Input 1	Input 2	Input 3	Input 4	Input 5	Input 6	Input 7	Input 8	Text 1
31.10.2000 12:57:58	0.00	0.00	0.00	490.00	10.90	17.10	0.00	0.00	
31.10.2000 13:00:03	0.00	0.00	0.00	940.00	10.90	17.50	0.00	0.00	
31.10.2000 13:01:27	0.00	0.00	0.00	940.00	10.90	17.80	0.00	0.00	
31.10.2000 13:05:53	0.00	0.00	61.50	940.00	11.10	18.10	0.00	0.00	
31.10.2000 13:09:54	0.00	0.00	128.60	940.00	11.00	18.30	0.00	0.00	
31.10.2000 13:10:20	0.00	0.00	128.40	940.00	11.00	18.30	0.00	0.00	
31.10.2000 13:10:38	0.00	0.00	135.00	940.00	11.00	18.40	0.00	0.00	
31.10.2000 13:25:38	0.00	0.00	114.20	939.00	10.90	13.70	0.00	0.00	
31.10.2000 13:40:38	0.00	0.00	115.10	939.00	10.90	13.20	0.00	0.00	
31.10.2000 13:55:38	0.00	0.00	115.70	940.00	10.90	12.90	0.00	0.00	
31.10.2000 14:10:38	0.00	0.00	115.00	939.00	10.90	12.80	0.00	0.00	
31.10.2000 14:25:38	0.00	0.00	115.80	939.00	10.90	12.60	0.00	0.00	
31.10.2000 14:40:38	0.00	0.00	114.90	939.00	10.90	12.50	0.00	0.00	
31.10.2000 14:55:38	0.00	0.00	116.70	940.00	10.90	12.40	0.00	0.00	
31.10.2000 15:10:38	0.00	0.00	116.20	940.00	10.90	12.40	0.00	0.00	
31.10.2000 15:25:38	0.00	0.00	116.10	940.00	10.80	12.40	0.00	0.00	
31.10.2000 15:40:38	0.00	0.00	115.60	940.00	10.80	12.40	0.00	0.00	
31.10.2000 15:55:38	0.00	0.00	116.20	940.00	10.80	12.30	0.00	0.00	
31.10.2000 16:10:38	0.00	0.00	116.00	940.00	10.80	12.30	0.00	0.00	
31.10.2000 16:25:38	0.00	0.00	116.10	940.00	10.80	12.30	0.00	0.00	
31.10.2000 16:40:38	0.00	0.00	116.50	940.00	10.80	12.20	0.00	0.00	
31.10.2000 16:55:38	0.00	0.00	116.40	940.00	10.80	12.40	0.00	0.00	
31.10.2000 17:00:53	0.00	0.00	117.90	940.00	10.80	12.40	0.00	0.00	
31.10.2000 17:01:23	0.00	0.00	117.70	940.00	10.80	12.40	0.00	0.00	
31.10.2000 17:01:54	0.00	0.00	117.70	940.00	10.80	12.40	0.00	0.00	
31.10.2000 17:16:54	0.00	0.00	117.40	940.00	10.80	12.70	0.00	0.00	
31.10.2000 17:31:54	0.00	0.00	117.30	940.00	10.80	12.60	0.00	0.00	
31.10.2000 17:46:54	0.00	0.00	117.80	940.00	10.70	12.60	0.00	0.00	
31.10.2000 18:01:54	0.00	0.00	118.20	940.00	10.70	12.40	0.00	0.00	
31.10.2000 18:16:54	0.00	0.00	117.80	941.00	10.70	12.30	0.00	0.00	
31.10.2000 18:22:45	0.00	0.00	117.70	941.00	10.70	12.30	0.00	0.00	
31.10.2000 18:23:08	0.00	0.00	117.50	941.00	10.70	12.40	0.00	0.00	

12 Configuration of the Devices



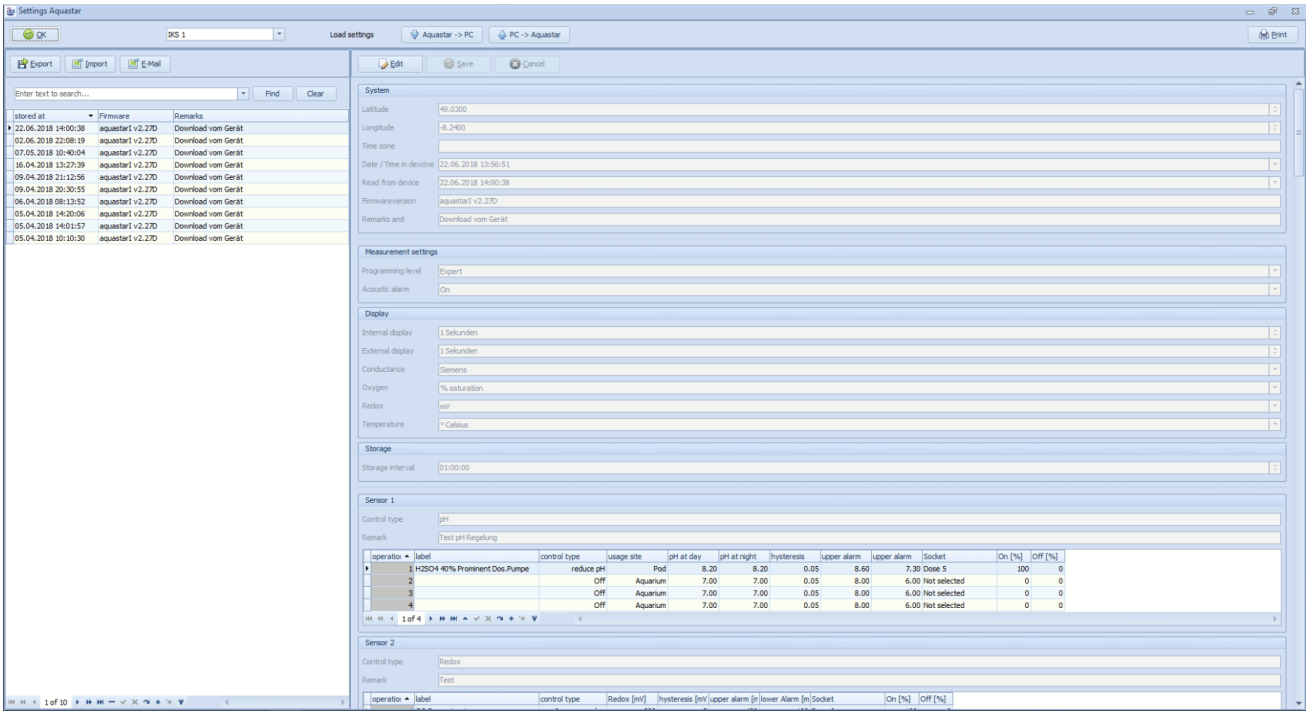
Within these 7 pages all settings from the aquastar are listed. Connect the aquastar via a serial interface with the PC and click on the button „aquastar to PC“. All settings will be entered into the



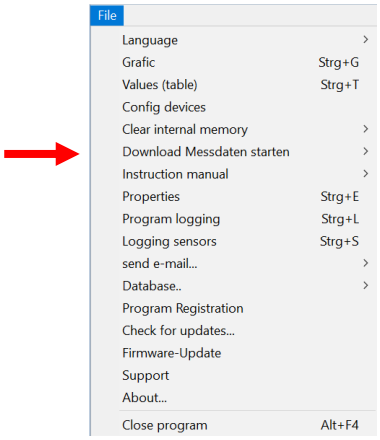
aquastar visual programme. You have the following options to proceed with the settings:

Download from aquastar to PC, Upload from PC to aquastar, exporting in a file, importing from a file, modifying values at the PC, sending settings as e-mail, printing settings.

How to configure the aquastar can be read in the iks aquastar operating instructions V 2.xx.

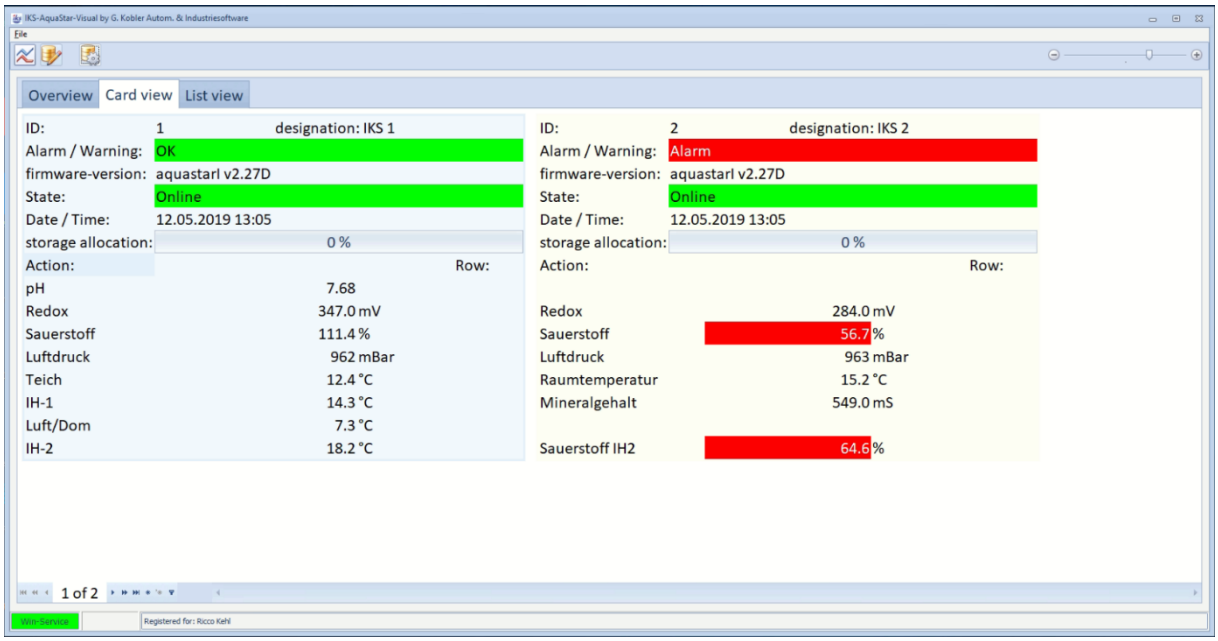


13 Starting Download of measured Data

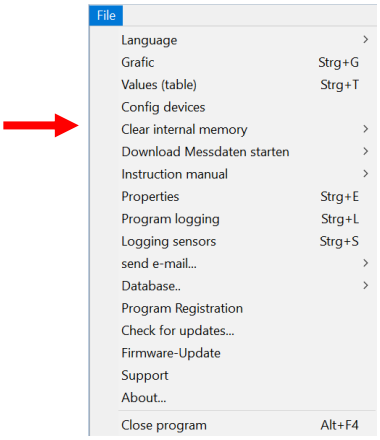


The aquastar has 2000 storage spaces for the measured data. One storage space consists of date, time and the values of the connected sensors. So if you have the values be written down in the memory, e.g. once per hour, the space is sufficient for nearly three months. Whenever you make a download of the data the contents will be written down from the memory into the data base. If they are stored on the PC, the memory of the aquastar can be emptied in the meantime, that is how the download becomes faster. In the map view at „actions“ you see the process of the download and how many lines are being downloaded. If the download is finished “Finished” appears on the line.

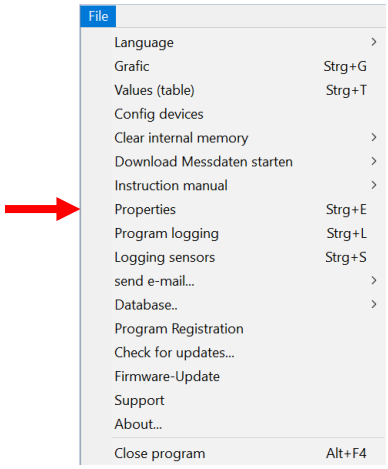
From the Industrial-Version I2.28D on you can additionally see the topical memory usage in %.



From version I2.28, the internal memory in the device can also be deleted.

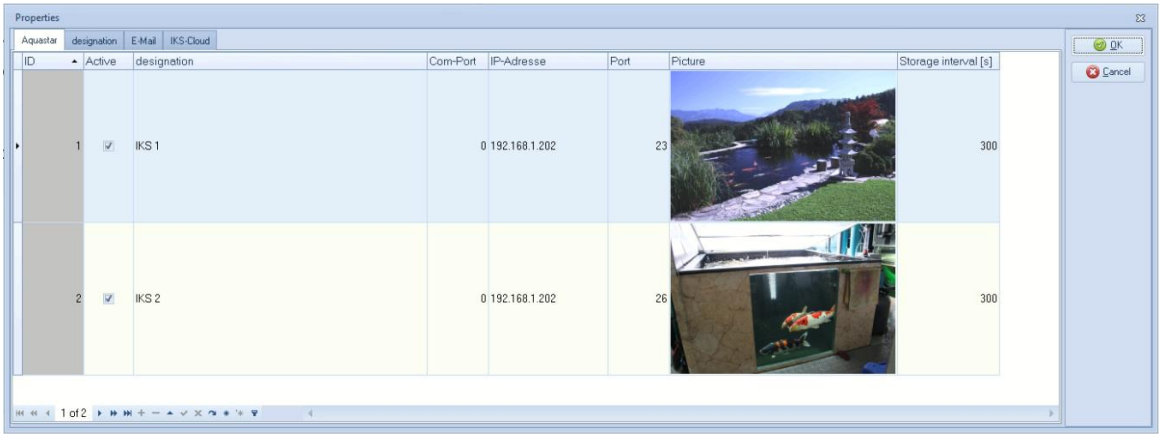


14 Settings



Under this menu the characteristics of the devices like Com-Port, IP-address names of the devices and their ID, all settings to represent all necessary settings for the graphical representation as you wish, as well as your picture are displayed.

14.1 Device Settings



If

The aquastar is operated by a serial interface, you can see the corresponding port in the Com-Port field. If the device connection is made ready for network e.g. by a 4 Port IOT RS232/485 to Ethernet Converter, 4 aquastars can be connected. Then you see the converter address in the field IP-address and in the next field the Port. In the field «Com-Port» there must be a «0» !

14.2 Several iks aquastars in the Network (Example)

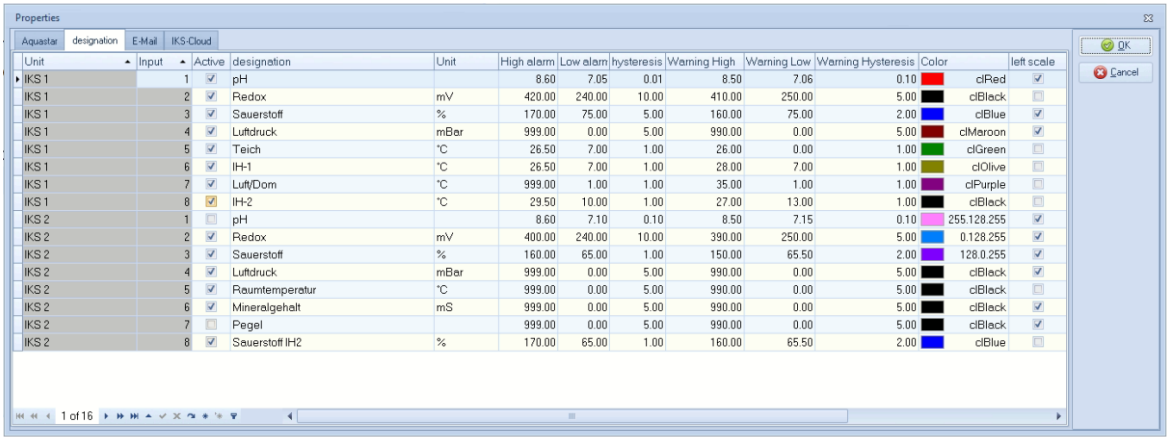
Example 4 Port RS 232/485/422 Converter to Ethernet

The USR-N540 from IOT is a 4 Port Converter, which converts the aquastar signal into an Ethernet signal. That is how you can connect up to 4 aquastars which provides you with 32 sensor slots. If you connect several converters to a switch one can have up to 255 devices.

14.3 Input Settings

Each device varies in the usage of its inputs. In order that the visual software can process these inputs correctly and display them the arrangements are made in this screen.

The 2 line display of the aquastar shows you input no., measured value, measurement unit (%, mV, °C) and, if there is a control, when an alarm rises with «+» / «-» / «*».

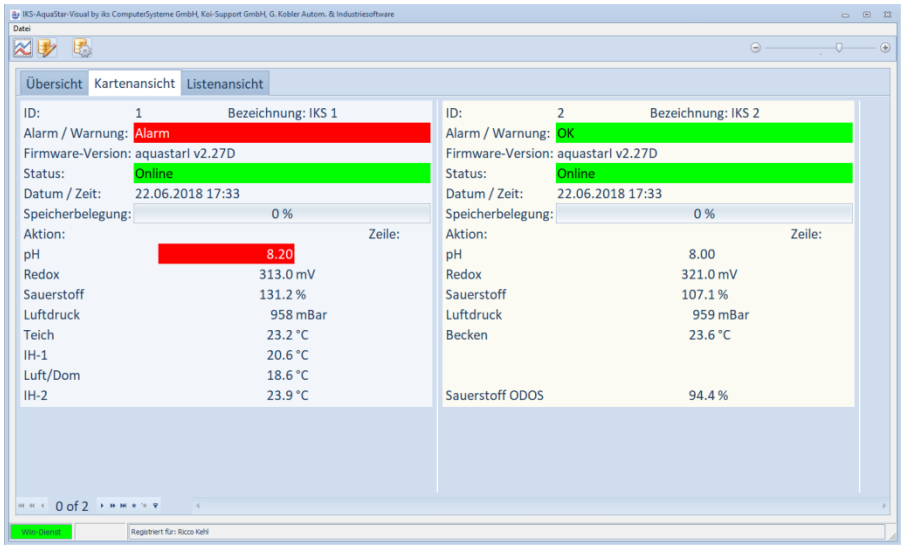


Unit	Input	Active	designation	Unit	High alarm	Low alarm	hysteresis	Warning High	Warning Low	Warning Hysteresis	Color	left scale
IKS 1	1	☑	pH		8.60	7.05	0.01	8.50	7.06	0.10	clRed	☑
IKS 1	2	☑	Redox	mV	420.00	240.00	10.00	410.00	250.00	5.00	clBlack	☐
IKS 1	3	☑	Sauerstoff	%	170.00	75.00	5.00	160.00	75.00	2.00	clBlue	☑
IKS 1	4	☑	Luftdruck	mBar	999.00	0.00	5.00	990.00	0.00	5.00	clMaroon	☑
IKS 1	5	☑	Teich	°C	26.50	7.00	1.00	26.00	0.00	1.00	clGreen	☐
IKS 1	6	☑	IH-1	°C	26.50	7.00	1.00	28.00	7.00	1.00	clOlive	☐
IKS 1	7	☑	Luft/Dom	°C	999.00	1.00	1.00	35.00	1.00	1.00	clPurple	☐
IKS 1	8	☑	IH-2	°C	29.50	10.00	1.00	27.00	13.00	1.00	clBlack	☐
IKS 2	1	☐	pH		8.60	7.10	0.10	8.50	7.15	0.10	255.128.255	☑
IKS 2	2	☑	Redox	mV	400.00	240.00	10.00	390.00	250.00	5.00	0.128.255	☑
IKS 2	3	☑	Sauerstoff	%	160.00	65.00	1.00	150.00	65.50	2.00	128.0.255	☑
IKS 2	4	☑	Luftdruck	mBar	999.00	0.00	5.00	990.00	0.00	5.00	clBlack	☑
IKS 2	5	☑	Raumtemperatur	°C	999.00	0.00	5.00	990.00	0.00	5.00	clBlack	☐
IKS 2	6	☑	Mineralgehalt	mS	999.00	0.00	5.00	990.00	0.00	5.00	clBlack	☑
IKS 2	7	☐	Pegel		999.00	0.00	5.00	990.00	0.00	5.00	clBlack	☑
IKS 2	8	☑	Sauerstoff IH2	%	170.00	65.00	1.00	160.00	65.50	2.00	clBlue	☐

With the aquastar visual software you can attribute a name to each input and the corresponding measurement unit. Each input can be set to active or passive by a tick. For the alarming you have the following options which you can set.

14.4 Alarms and Warnings

- High alarm, Low alarm
- Warning high Warning low

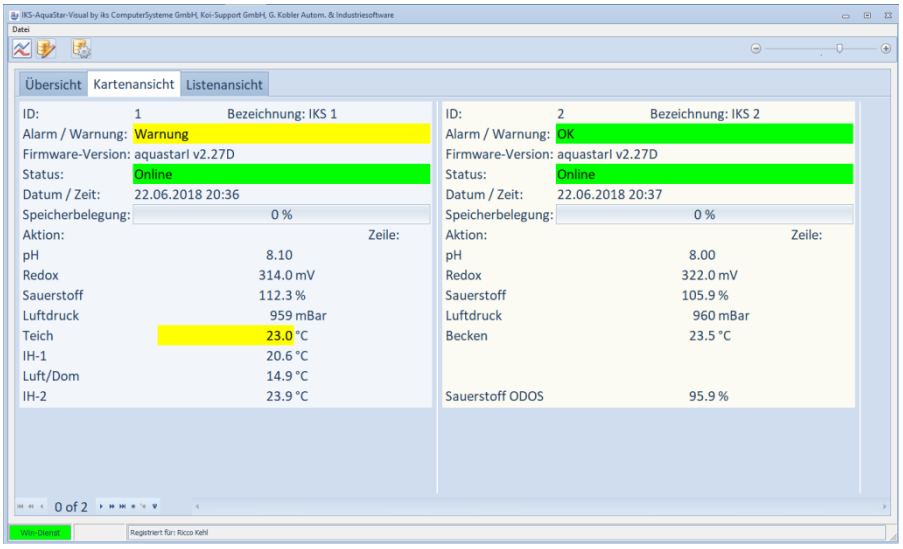


In this example the high alarm pH-value has been set to 8.10, the hysteresis to 0.1

The sent e-mail text:

ALARM iks aquastar visual: Date/Time: June 22nd, 2018 17:36:15. Topical value of ph 8.20

The value has risen higher than the value of 8.10.



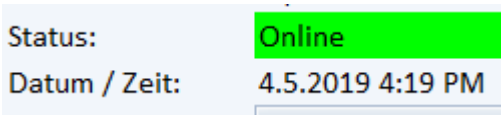
In this example the temperature warning has been set to 22°C, the hysteresis to 1°C.

In the overview the status reports are shown as well.

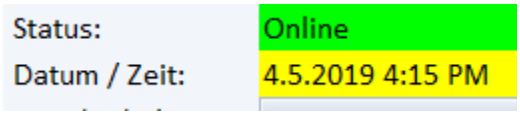
14.5 Time Display

If the time in the aquastar differs more than 5 minutes from the time in the PC, the display becomes «yellow». If it differs more than 10 minutes, the display becomes «red».

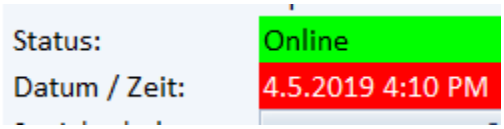
Normal time display:



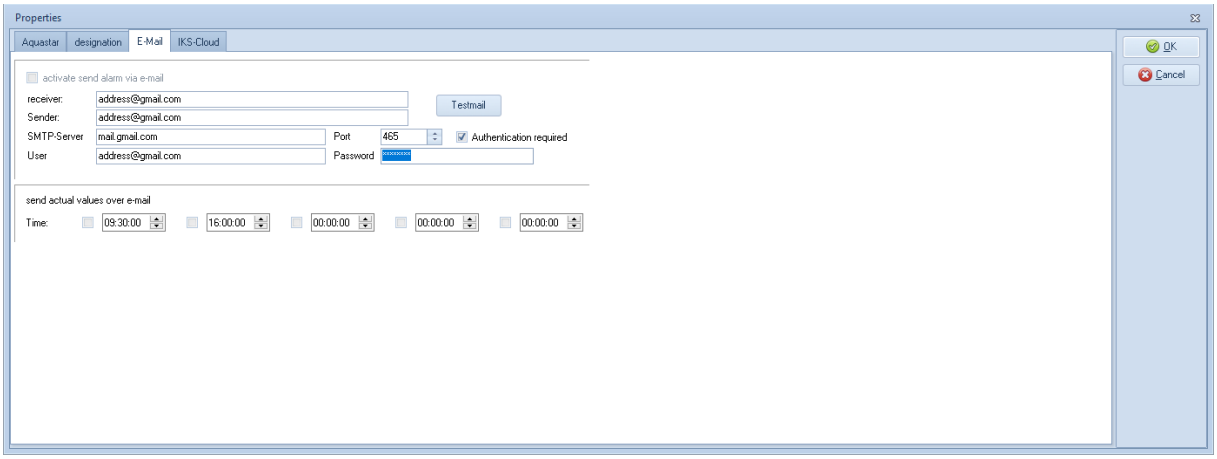
Difference 5 – 10 min.



Difference > 10 Min.

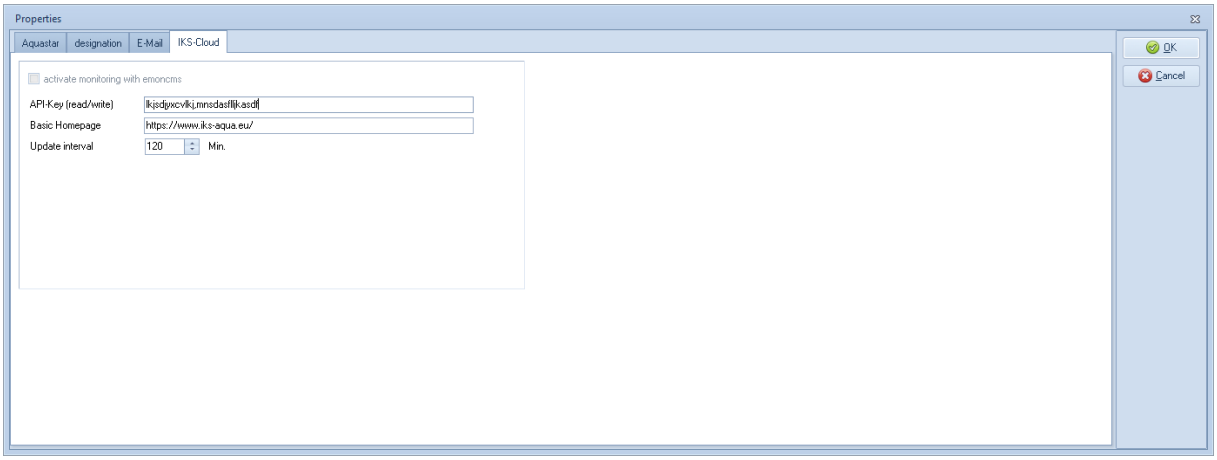


14.6 E-Mail



Here the alarms and warnings are activated/deactivated. Make a tick, if you want to get e-mail reports. Enter the settings for mail delivery of your provider and send a test mail afterwards to see if the settings have been alright. You also have the possibility to enter up to 5 different times of day. At the entered point of time the content of the map view is sent by e-mail.

14.7 iks Cloud

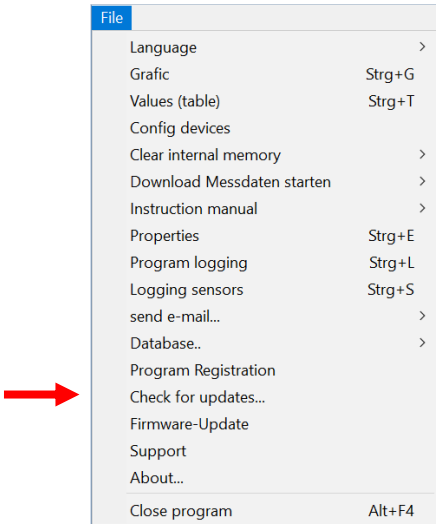


With the option iks cloud you have the possibility to store the measured data in a cloud. In a cloud you can store applications, memory, data bases, infrastructure, communication and much more and call them up again. You can have access to this central storage location with laptops, servers, desktops, phones and tablets. Only the cloud gives you the opportunity to have a look at your data/graphics from the mobile phone or tablet, from an internet café, from your friend's PC, etc., meaning practically from everywhere via internet. If you have ordered this option together with the iks software license, make a tick at "export" where you activate the iks cloud. With the purchased license you get the API key and you have to enter the address of your home page into the fields. The update interval for standard applications is 15 minutes.

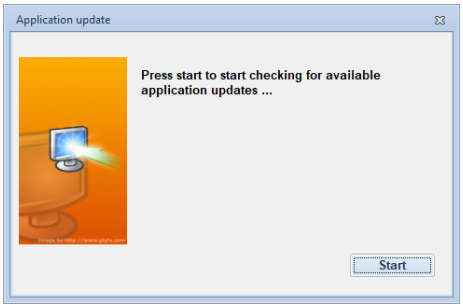
It follows an example on how the data look like in the iks-cloud.

https://www.koisupport.ch/curves/

15 Checking for Update…



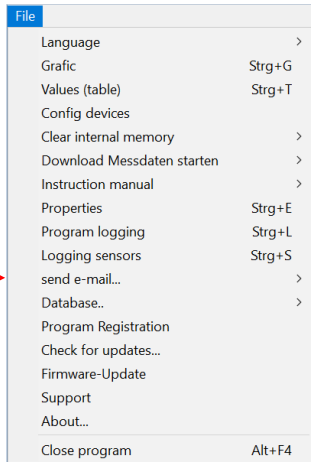
iks aquastar visual is extended and improved constantly. Here you can download the latest version of the iks aquastar visual. The installation happens automatically after having clicked on „start“.



During the update process it might be that the programme needs administration rights several times, from Windows 7 on the user account control will appear, under certain circumstances it might be that only a small shield symbol appears in the task bar!

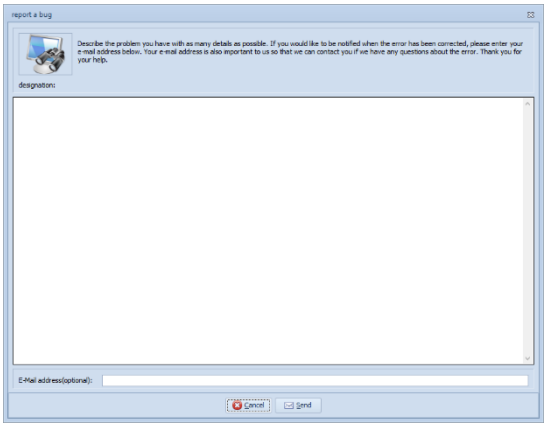
Click on it and confirm the question with «yes».

16 Sending an E-Mail…

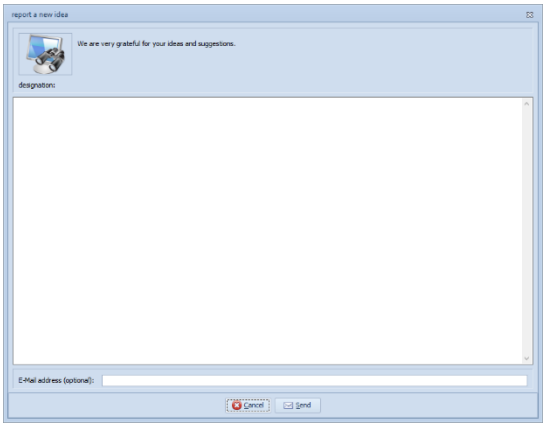


Reporting mistakes, sending ideas, sending exception-files. With these 3 options you can inform us for improving the programme constantly, for reporting detected mistakes and if you have an idea how to improve the programme you can take the opportunity and write us.

16.1 Reporting a bug

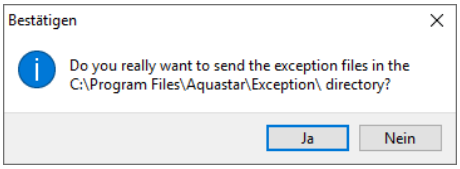


Reporting a new Idea

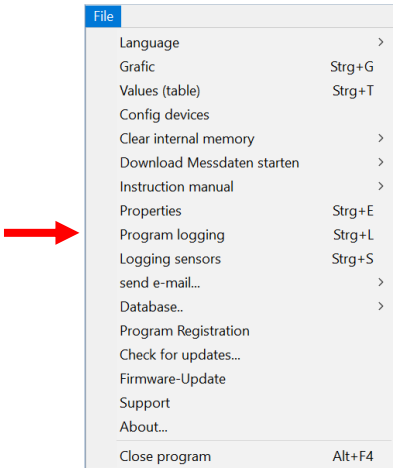


16.2 Reporting Exception-Files

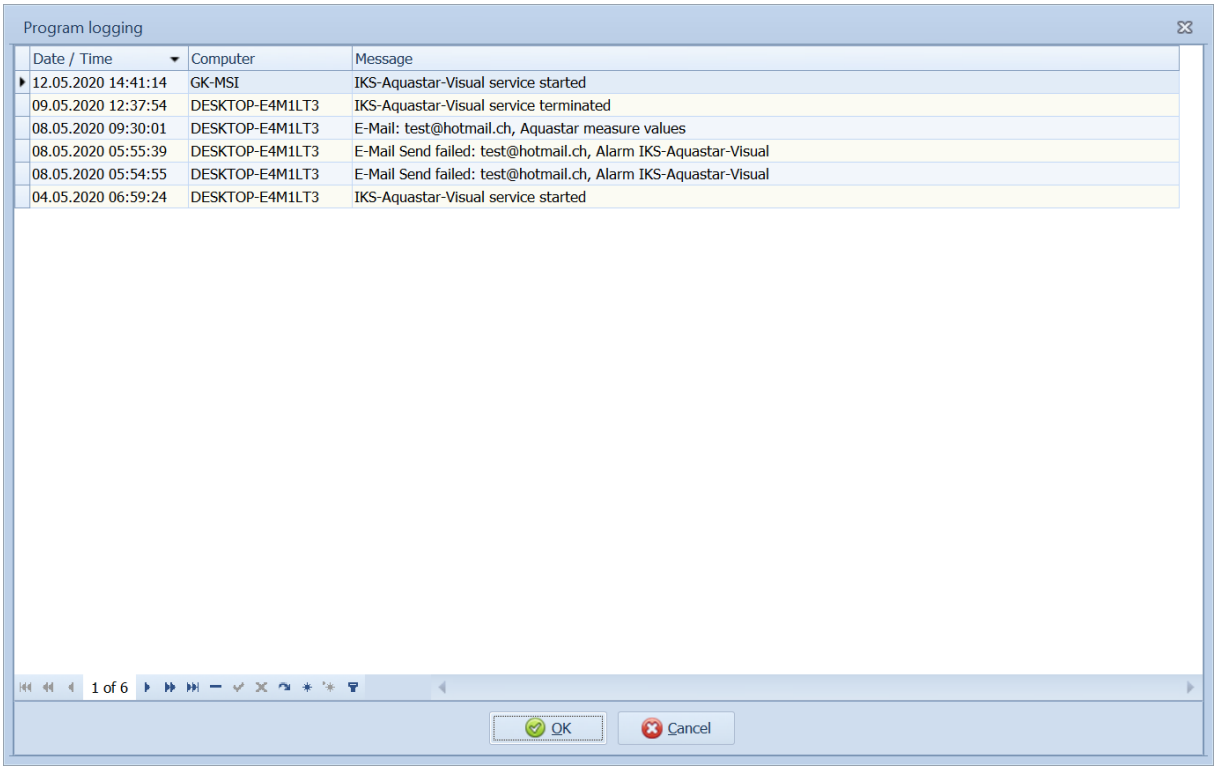
In the background iks aquastar visual stores many actions and possible mistakes. For locating mistakes faster and repair them it would help us much if you sent the error file to us after having detected an error.



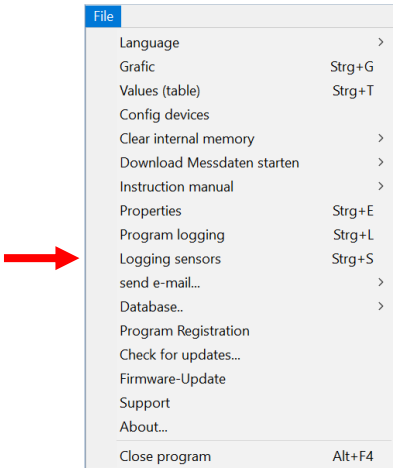
17 Program logging...



In the dialog box for program logging, system messages are displayed in chronological order.



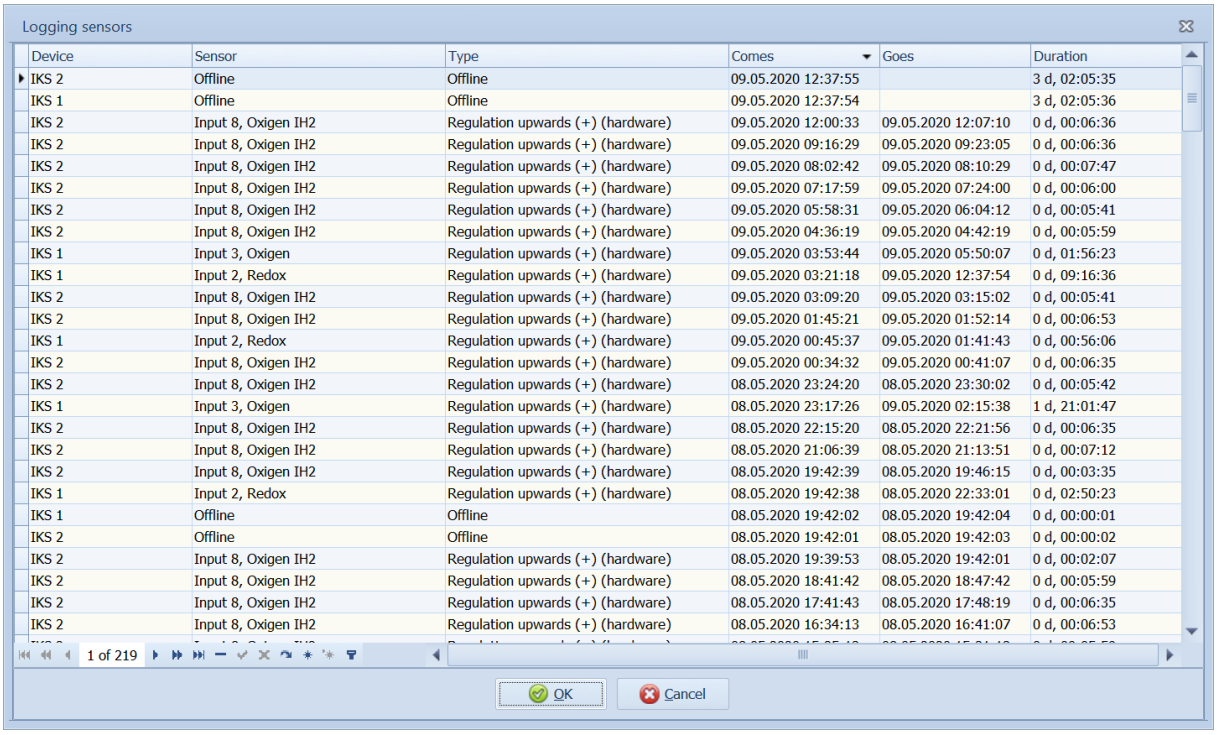
18 Logging sensors…



In the dialogue box, the events per sensor are displayed in chronological order.

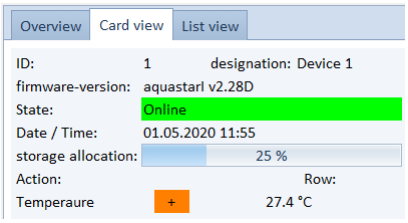
The following events are registered:

- Offline
- Upper alarm (software)
- Lower alarm (software)
- Upper warning (software)
- Lower warning (software
- Alarm (hardware)
- Regulation upwards (+) (hardware)
- Regulation downwards (-) (hardware)



For each sensor you have the control in the overview by the display with a symbol, which indicates a hardware event at the sensor.

See chapter 14.1 and 14.3 how to set the alarms generated in the software.

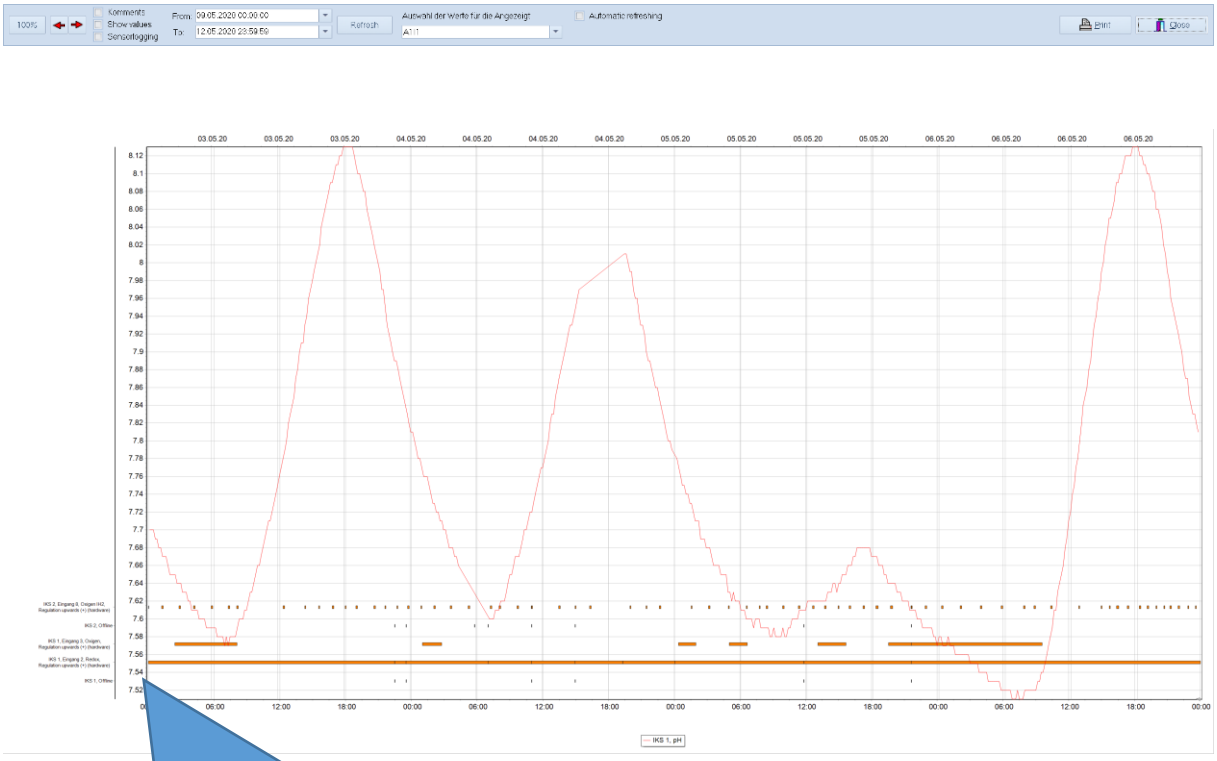


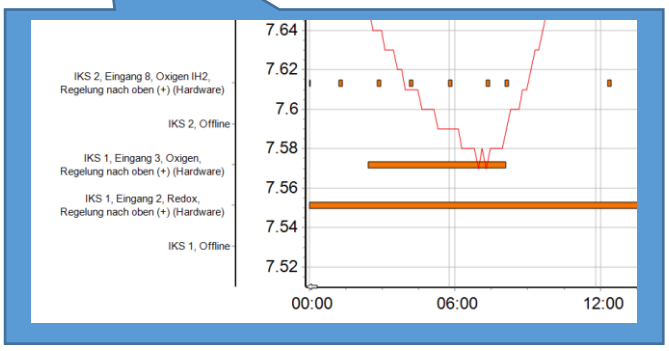
+ Regulation upwards

- Regulation downwards

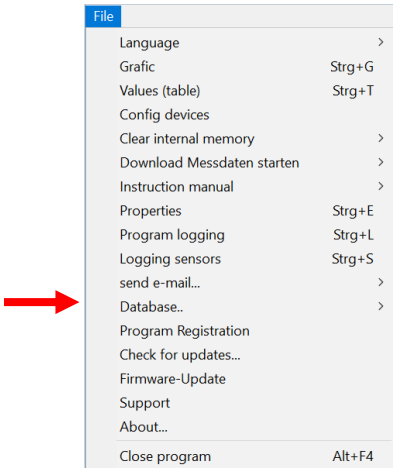
* Alarm

In the graphical view, you can use the Sensor Logging checkbox to superimpose the events on the curve graphic by means of a Gantt chart (horizontal bar chart). Thus, they can associate a change in value with a switching of the control in the aquastar. Let's assume you switch a heater on and off at the temperature sensor. Then you should see a temperature change in the curve when the aquastar switches the heating on/off.





19 Data Base…

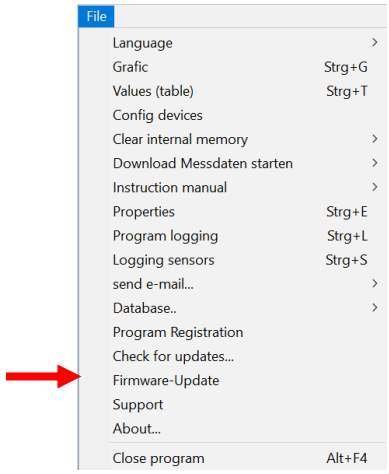


The data base is the heart of the system. In order that data never get lost, it is very important to make a backup in regular time intervals. The backup can be filed on different data carriers and on different places (backup-folders, stick, NAS etc.).

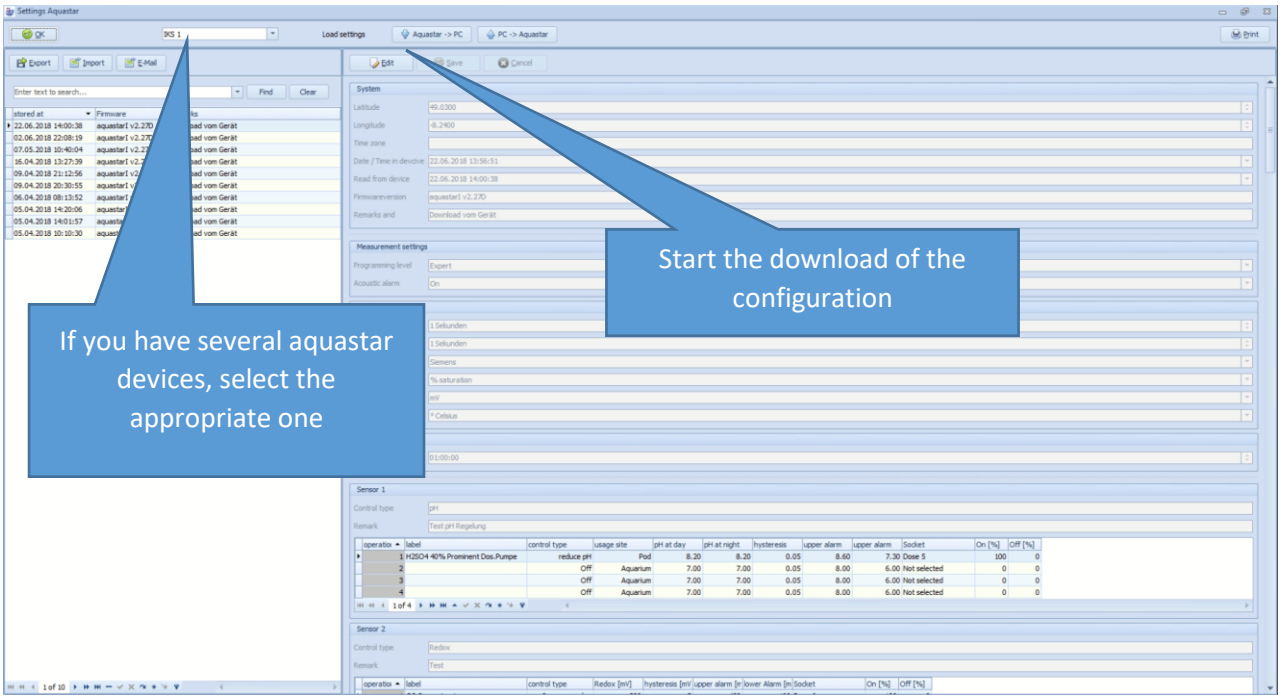
To do so is important most of all when you change the hardware or if your PC/data carrier doesn't work anymore.

By the recovering function you can thus reconstitute all data again, e.g. on a new PC.

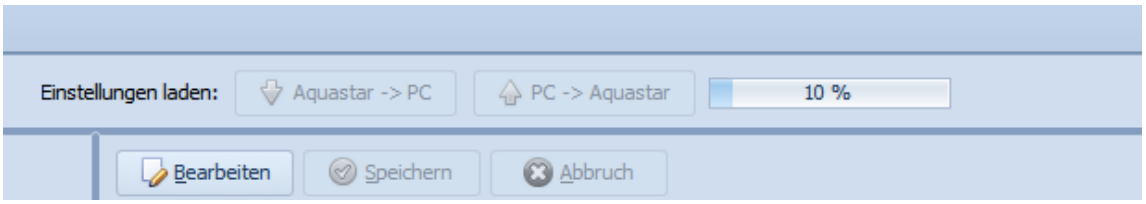
20 Firmware-Update



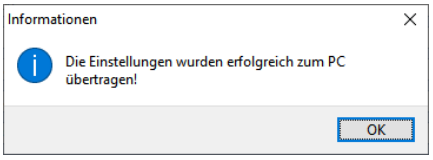
Before you update the firmware, you should absolutely make a backup of your settings on the aquastar! You can transfer the device settings under „file/configuration devices".



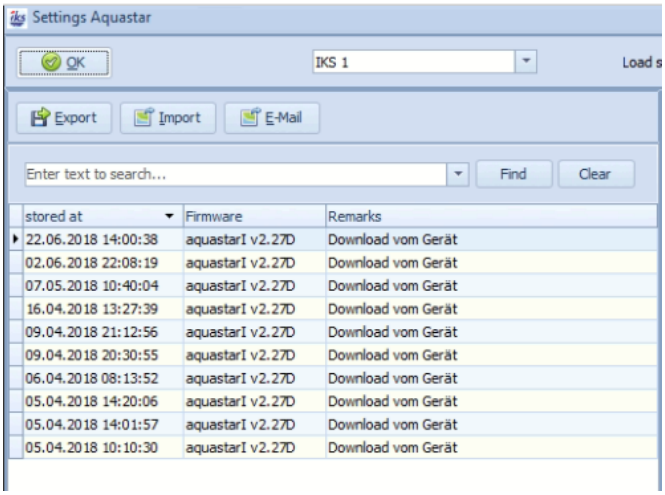
After having started the download the progress is displayed.



If the configuration has been transferred to the PC without error, the following message appears.

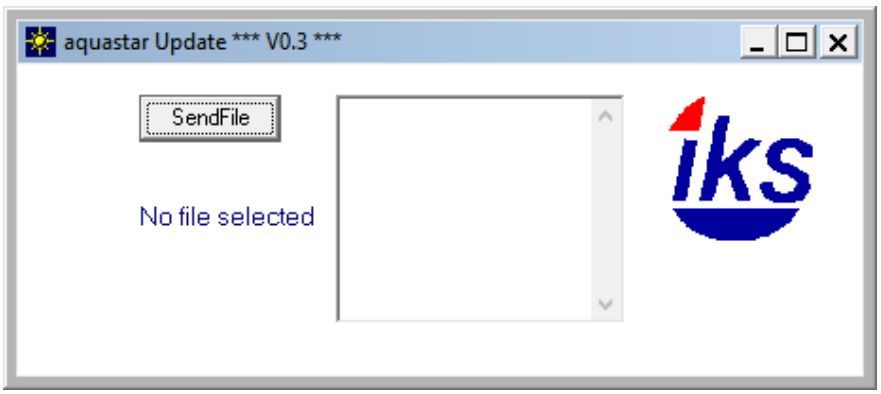


In the left part of the screen you can now see a data base entry of the topical configuration of your device.



Now you can start the actual firmware-update of the device. First, the aquastar service will be finished, here administration rights are needed as well and the user account control will ask you for them. 

Afterwards the programme «UpdateV03.exe» will be started. This programme serves for the transmission of the firmware.

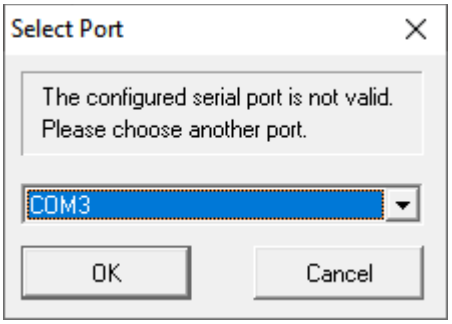


After starting UpdateV03 choose a file by «SendFile». The most topical file at the moment is «aqua226DE.hex» for the private-version. For the industrial version, please, contact directly the

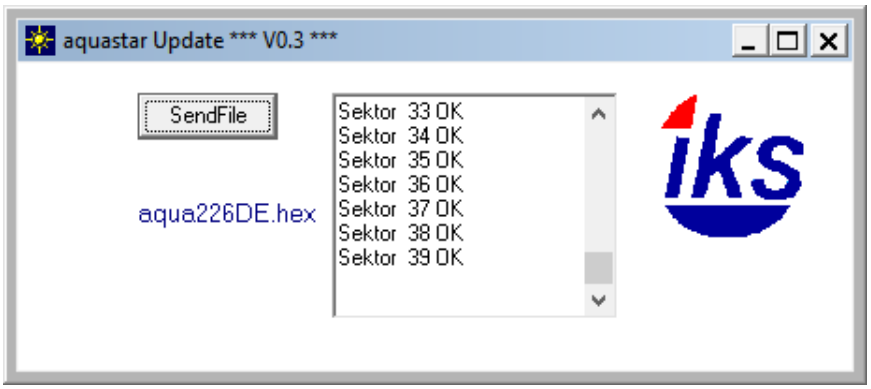
company iks ComputerSysteme GmbH. The topical firmware files can be downloaded under the following link.

https://www.iks-aqua.com/html/deutsch/download.php#software

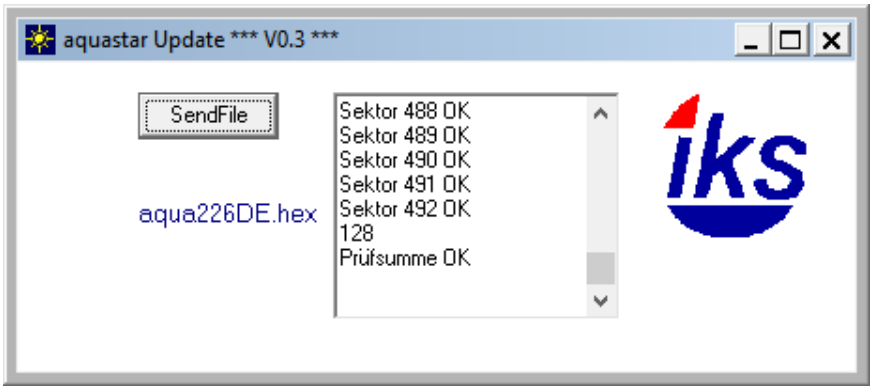
If you have chosen the file, select the Com-Port to which the aquastar is connected.



Then the upload will be started.



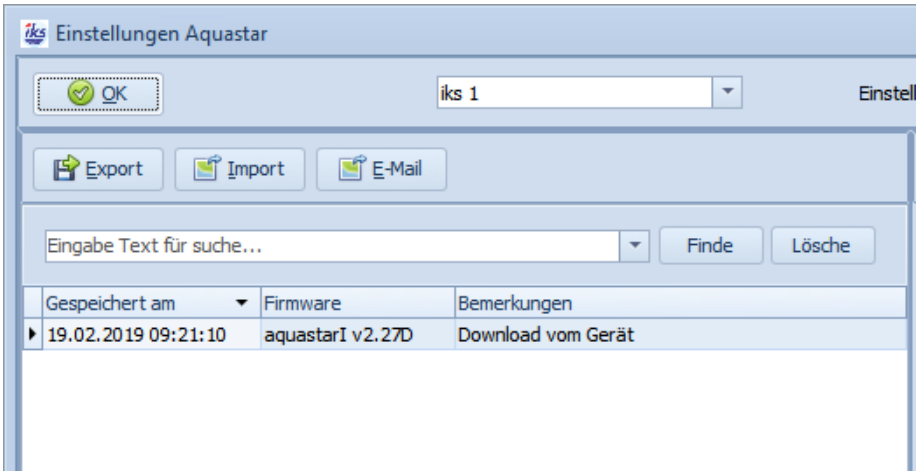
When it is finished, you'll see the following message



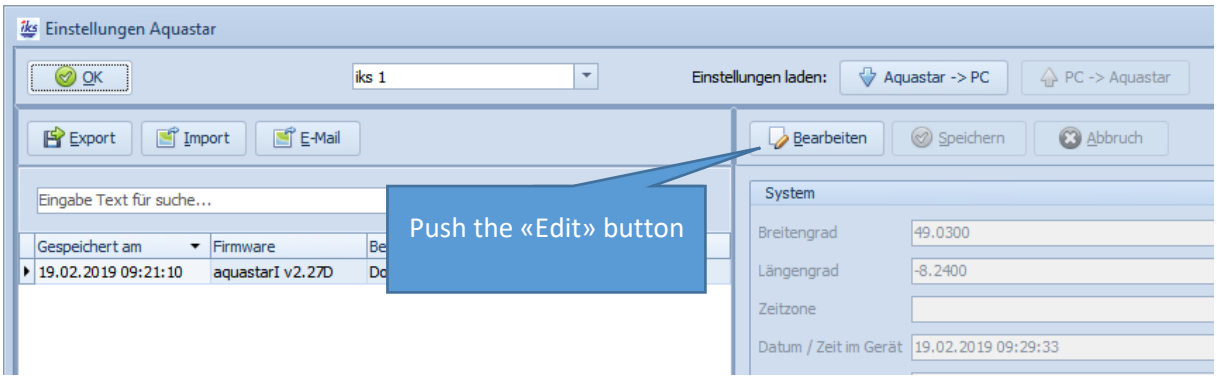
Now you can start our software iks aquastar visual again, you'll be asked again for administration rights. 

That's needed for starting the aquastar service.

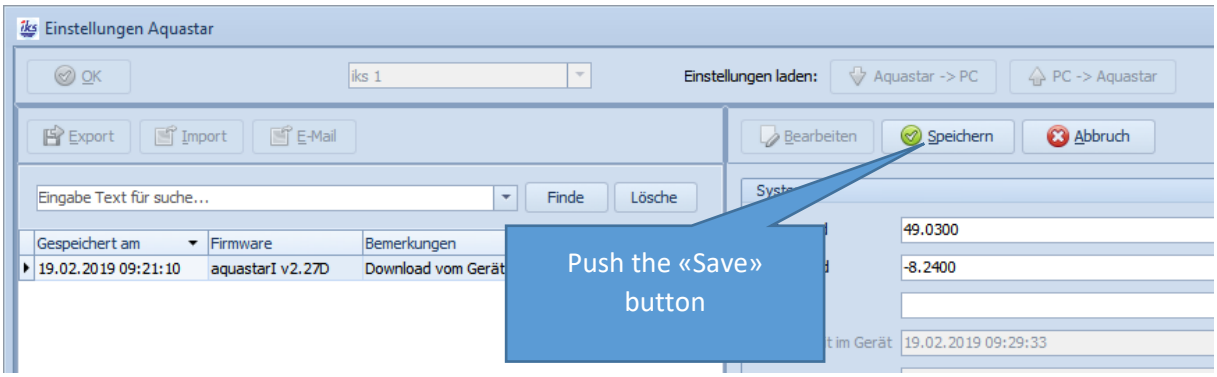
Afterwards you go to «File/Configuration devices» and select the configuration of which the backup has been made beforehand.



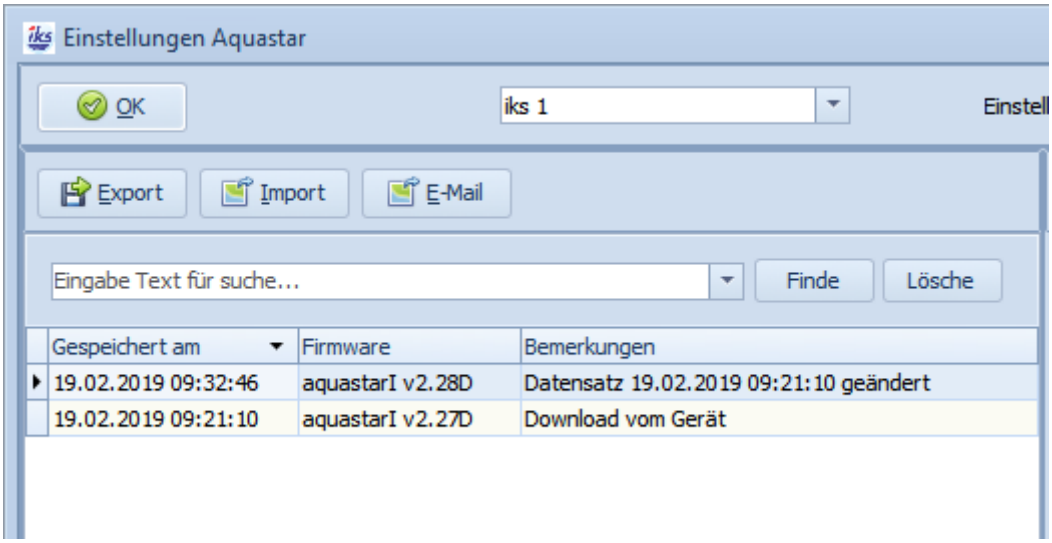
However, this is still stored under the old firmware version.



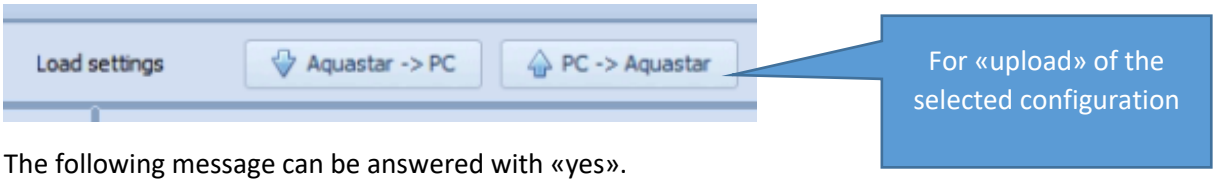
Now you «Edit» it and «Save» the configuration again straight away. So a new data set has been created which has the topical firmware version and which can be loaded on the aquastar.



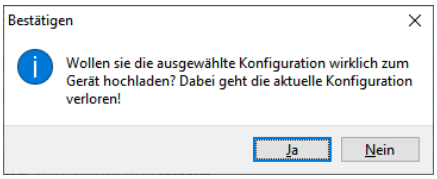
Now a copy from the original data set has been created in the new firmware-version.



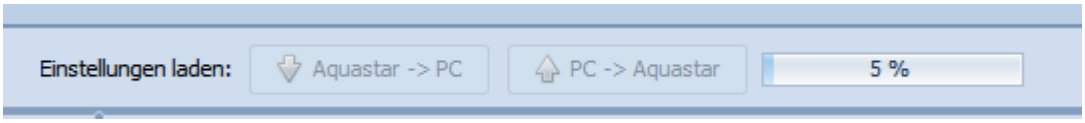
Now you can upload this to the device.



The following message can be answered with «yes».



Again the progress display appears.



And afterwards the following message will appear if everything is ok.

Note: Our software supports the following firmware versions:

- Private-version: V26 and higher
- Industrial-version: V27 and higher

In case of older firmware-versions you first need to update the firmware and reconstitute the device configuration by hand, so you can use our software!

21 Description of the Table Grid

The table grids serve for displaying/editing the table contents, there are several sectors that are described in detail. The table grid occurs again and again in the whole programme, the displayed data can be very different, but the operating concept is always the same.

21.1 Navigator

 First data set / page back / one data set back

 One data set forward / page forward / last data set

 Display of currently selected data set / number of maximal data sets

 Insert data set / delete data set

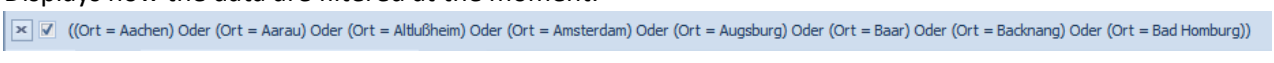
 Edit data set / Take over modifications / interrupt modifications / read new data set

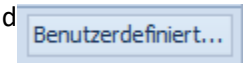
 Save position / recall saved position / edit filter

Depending on the display the single buttons can be visible/hidden, active/deactivated. If a table cannot be edited, the buttons for editing are deactivated, e.g.!

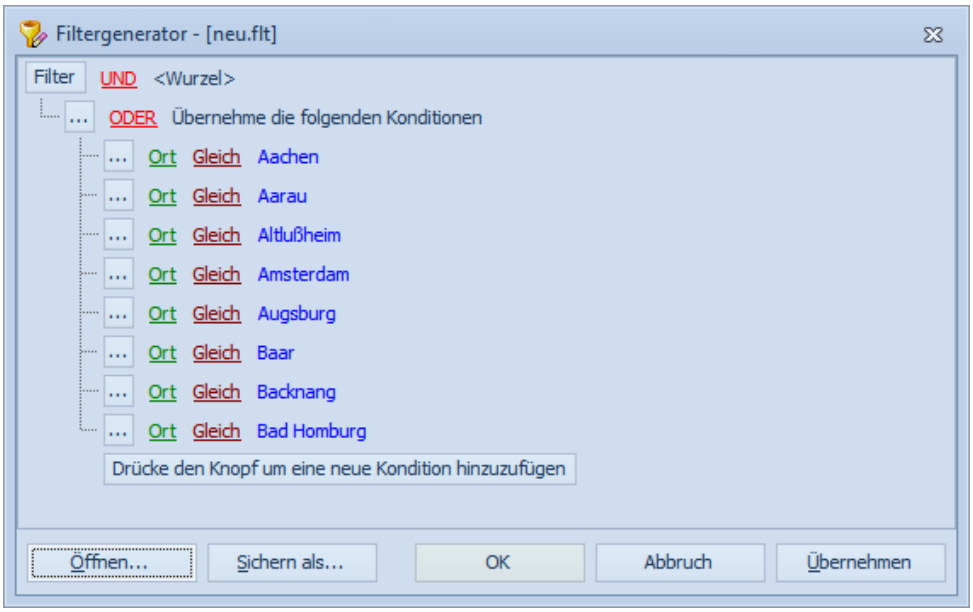
21.2 Filter

Displays how the data are filtered at the moment.



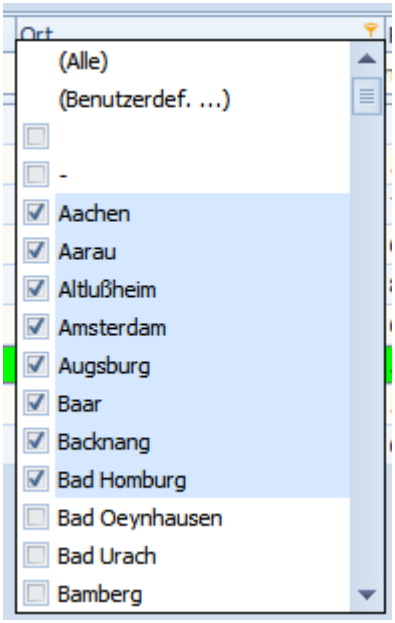
With the button  the filter can be d  or be switched on and off by the button 

. For editing the filter push the button .



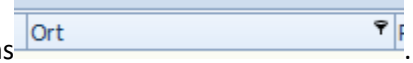
Afterwards an editing window is opened.

For setting a filter for a specific column, move the mouse over the corresponding column. After that the filter symbol  appears in the column. Click on the button.



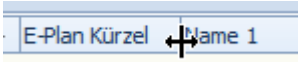
Now you can select the corresponding filter criteria.

Should the filter already be active, the filter symbol remains active in this column.

The filters can be combined arbitrarily with several columns  .

21.3 Title – Headings

The title headings can be enlarged/minimized, moved (per drag-n-drop) by the mouse.



Enlarging / minimizing

Moving

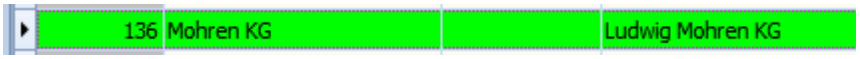
The symbol  shows the sorting in the corresponding column. Rising or descending when the column has been clicked on for the second time.

By a click into the column the sorting can be changed, when the Shift-key is pressed and the mouse clicks in another column, one can add a second/third sorting.

21.4 Indicator

The indicator shows the current position oft he data set (active data set).

 Active data set. This can also be highlighted.



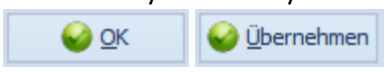
 Data set in editing mode

 Data set in insertion mode

The data set to be processed is written by the button  in the navigator in the table or also when the data set is abandoned, e.g. by clicking on another data set. If you want to reverse the changes, you have to click on the button  in the navigator.

It might be, that the data set cannot be saved in the table (error message, e.g. double data set), then you can process the data set further or you click on interrupt.

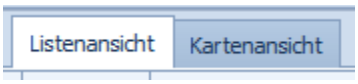
Warning:

The changes in a table are only definitively taken over into the data base, when the OK/Apply button has been clicked! 

If the OK-button has been clicked, the window is closed in the same time. Yet if the Interrupt button 

is clicked, all changes that have been made before in the table get lost.

21.5 Register

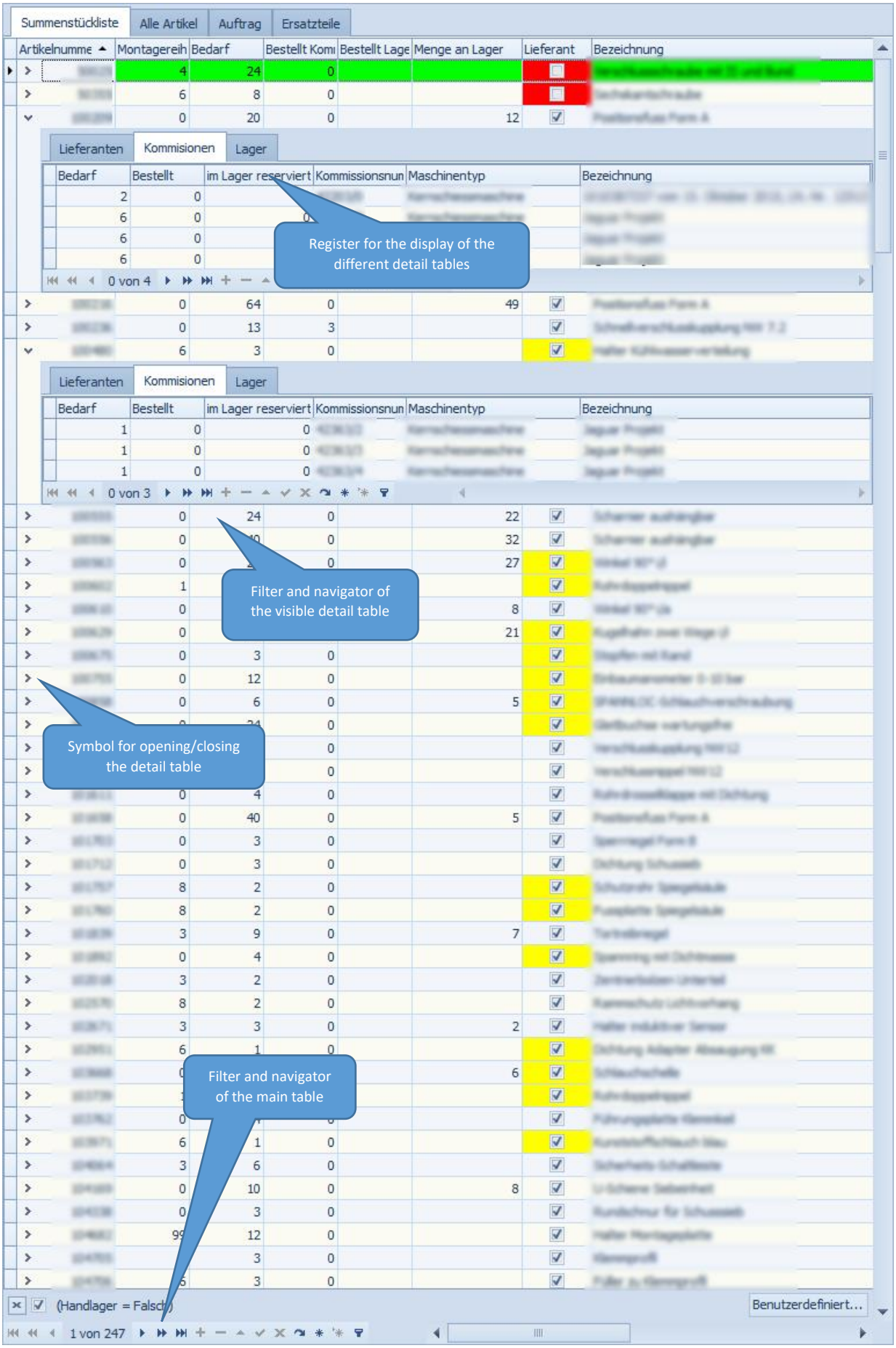
In diverse views there are different registers that can be selected. 

In this example the data can be displayed in the map view.

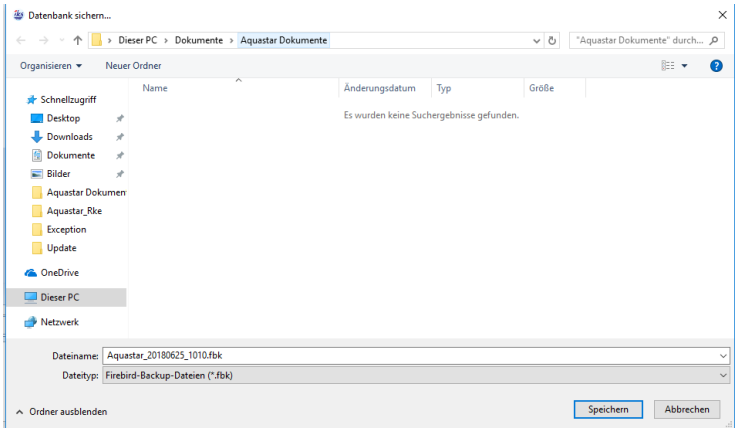
In general the operation is the same as in the table view, the only difference is that the column titles appear on the left and the data on the right.

21.6 Main/Detail-Table Grid

In certain cases the table grids are interlaced as shows the following example. Then one hast to keep in mind that there is one own sector for filter and one for navigator for master table and detail table each.

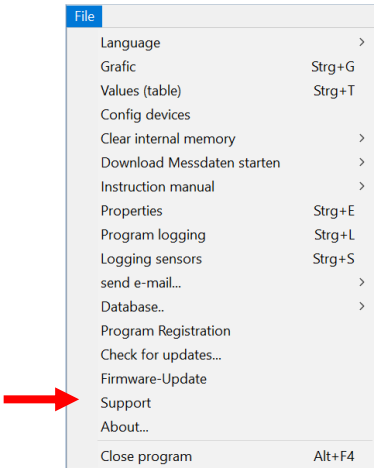

Register for the display of the different detail tables
Filter and navigator of the visible detail table
Symbol for opening/closing the detail table
Filter and navigator of the main table

22 Backup/Restore Database



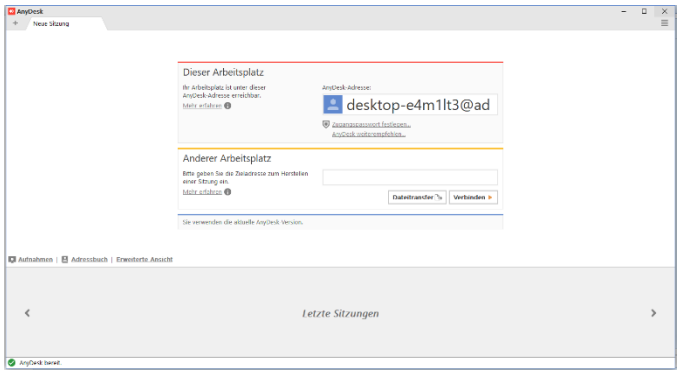
The data base is saved in a backup file and can be reconstituted when needed.

23 Support...



AnyDesk is a remote control program with which the developer/Supporter/Manufacturer can help you via remote access to configure aquastar visual.

Use this simple and quick opportunity, when you don't know how to proceed. Contact us before by telephone.



24 About…

- Developer of the software

- Support and application of software and hardware

Manufacturer of the hardware. Here you get information on all iks products