Bio-Well Water Sensor Manual
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Contents

Terms

Area – *Bio-Well Software* parameter calculated as number of pixels on the GI related to the object being analyzed.

Bio-Well Account/Subscription – an account (Login and Password) created on www.bwacc.com website that allows *User* to work with the *Bio-Well software* in *Online mode*.

Bio-Well device – is an impulse analyzer device that is able to extract *electro-photonic emission* from the conductive object placed on its electrode, capture the resulting *gas discharge* (created by excitation of air molecules by the *electro-photonic emission*) and send the created *glow images to the computer via USB cable*.

Bio-Well Server – Internet server that hosts the code for analyzing/processing the *Scans* made by the *Bio-Well device* and keeps the Bio-Well *User's* d*atabases* of Cards and *Scans*.

Bio-Well software – is a computer program that is able to read the captured *glow images* from the *Bio-Well device* via USB cable, edit them and send to the remote server for calculation of the various parameters.

Deviation S – *Bio-Well software* parameter calculated as standard deviation of the Area parameter of the last 20 captured GI.

Electro-photonic emission – irradiation from a conductive object under the influence of high frequency high intensity electro-magnetic impulse.

Electro-Photonic Imaging (EPI) – technology (synonym of GDV) based on Kirlian effect that allows to capture and process digital images of the gas discharge (Glow).

Energy – *Bio-Well Software* parameter derived as numeric evaluation of the energy of the Glow captured by the *Bio-Well device* and calculated by multiplication of Area on Average Intensity on correction coefficient.

Environment – regime or mode of capturing images of the installed on the glass electrode of the Bio-Well device calibration metal cylinder with fixed interval (5 seconds) between captures, to which an external electrode is connected: Bio-Glove, Sputnik sensor or Water sensor.

Gas discharge (Glow) – light emitted by the gas (air) due to the excitation of its molecules by the electrons and photons from an object under study with the use of EPI technology.

Glow Images (GI) – digital images created by the *Bio-Well software* after processing the *Glow* from the object placed on the glass electrode of the *Bio-Well device.*

Gas Discharge Visualization (GDV) – same as EPI (synonym).

Intensity - *Bio-Well Software* parameter calculated as average value of intensity (brightness from 0 (black) till 255 (white)) of pixels on the GI related to the object being analyzed.

Kirlian effect – phenomenon of *electro-photonic emission* from conductive objects under the high intensity high frequency electro-magnetic field.

Offline mode – regime of the *Bio-Well software* functioning without Internet connection, that allows to capture the GI, but doesn't allow to process them and get any parameters.

Online mode - regime of *Bio-Well software* functioning with Internet connection, that allows to capture the GI, process them and calculate parameters.

Scan – an experiment made by the Bio-Well *User* in "*Stress test*" or "*Environment*" modes in the *Bio-Well Software.*

User – person that has his/her own registered *Bio-Well Account/Subscription* on www.bwacc.com website.

Purpose

Bio-Well Water sensor is a standard laboratory Oxidation Reduction Potential (ORP) meter used for pH measurements of liquids. Tip of the Water sensor is covered with platinum in order to exclude corrosion during measurements.

Bio-Well Water sensor is not designed for evaluation of water (liquid) quality or comparing different types of waters (liquids) from the quality stand point, at the same time you can compare different waters (liquids) in their EPI parameters (see examples below).

Water sensor is most useful for relative comparison of liquids with the same chemical composition. For example, water before non-chemical influence (magnetic field, invocations, human intention, etc.), during and after it.

Comparing waters with different chemical composition is not so reliable and absolute values of the GI will have no sense at all, only the deviation of signal in time will have some meaning (Deviation S).

NB! Before using Bio-Well Water sensor please read the Bio-Well device and software manual! You can find it on www.bio-well.com/gb/resources.

Technical Information about Bio-Well device

Bio-Well device belongs to electrical equipment for use in ordinary locations.
The device is intended for use in Dry Location — A location not normally subject to dampness or wetness.
Bio-Well device provides no risks to life and property.
The device is intended for working with a personal computer.
Operating conditions:

-ambient air temperature from +10°C/50°F to +35°C/95°F;
-relative air humidity 75% at a temperature of 30°C;
-atmospheric pressure from 84 to 106.7 kPa (630–800 mmHg);
-direct current power supply with operating voltage of 5V.

NB! Main parameters, characteristics, dimensions and warranties are provided in the Passport of the Bio-Well device (supplied with every device).

Important Remarks and Safety Measures

User should pay special attention to the following:

- While touching the glass electrode of the Bio-Well device do not touch any grounded conductive objects (like heating pipes, etc.).
- During the scanning process keep the Bio-Well device at least 50cm from the computer.
- Always keep the glass electrode of the Bio-Well device in clean condition (using alcohol or wet tissues with alcohol – best option; if not possible – use regular screen cleaner).
- If Bio-Well device was in a cold environment (less than 10°C/50°F) before starting using it please wait for at least 1 hour to warm up.
- During "Environment" Scan (experiment) shifts in relative humidity should not exceed 5% and shifts in air temperature should not exceed 5°C.
- During "Environment" Scans do not turn on/off electrical devices within the room where the Bio-Well device is operating.
- Do not use cell phones near the Bio-Well device or Water sensor as it can alter the result.
- Presence of different people in the room may affect the measurement results.
- Do not take "Environment" measurements during strong atmospheric changes as they can affect the readings.
- Be aware of changes in geomagnetic background (e.g. Sun and Moon rise/recess, magnetic storms) during "Environment" measurements.

Preparing to measurements

In order to make measurements with the Water sensor User should first prepare the Bio-Well device.

1. Check the connection of the USB cable between the Bio-Well device and computer.

2. Take out the finger insert from the Bio-Well device and install the calibration insert instead.

3. Note that calibration is not mandatory for conducting measurements with Water sensor.

4. Connect the wire from the Water sensor to the calibration cylinder.

NB! In some cases the GI can be very week (very low Area) that forces the Bio-Well software to go in the loop of repeating the capturing process (time loop). Then you will have to extend the wire between Water sensor and calibration cylinder: take the wire (with "banana" plugs) from the calibration set and connect it with the wire (supplied with the Water sensor). Having two wires between Water sensor and Bio-Well device will increase the electrical capacity and hence the Area of glow.

5. Put the Water sensor in the bottle (jar/vessel) with conductive liquid (water, solution, etc.).
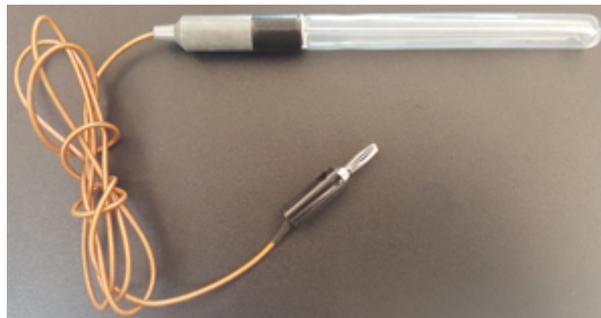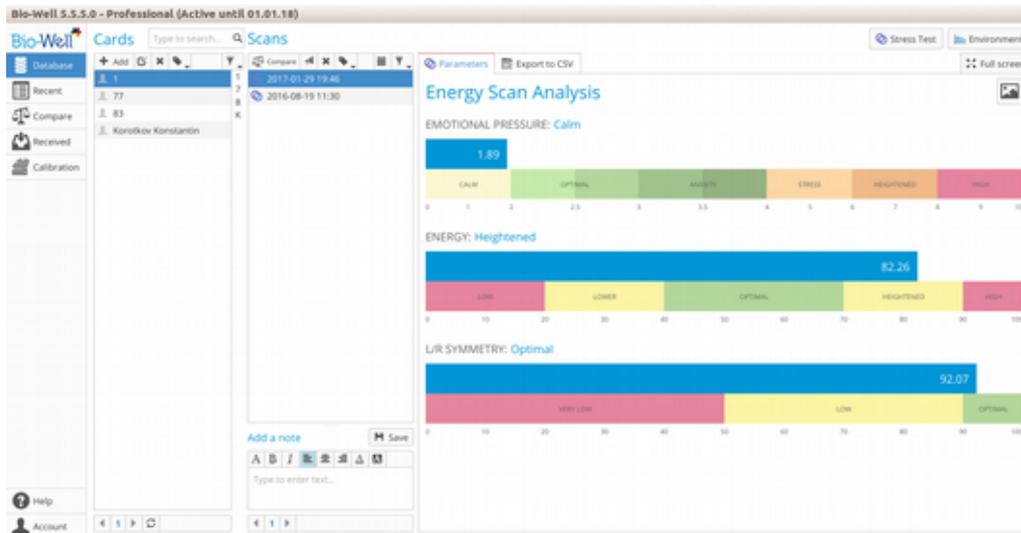

Pic. 1. Water sensor for the Bio-Well device.

Creating a new Scan/Experiment

Select or create a new Card in which you want to make an "Environment" Scan.

In the top right corner of the Main screen of the software interface click "Environment" button to create a new Scan/Experiment.
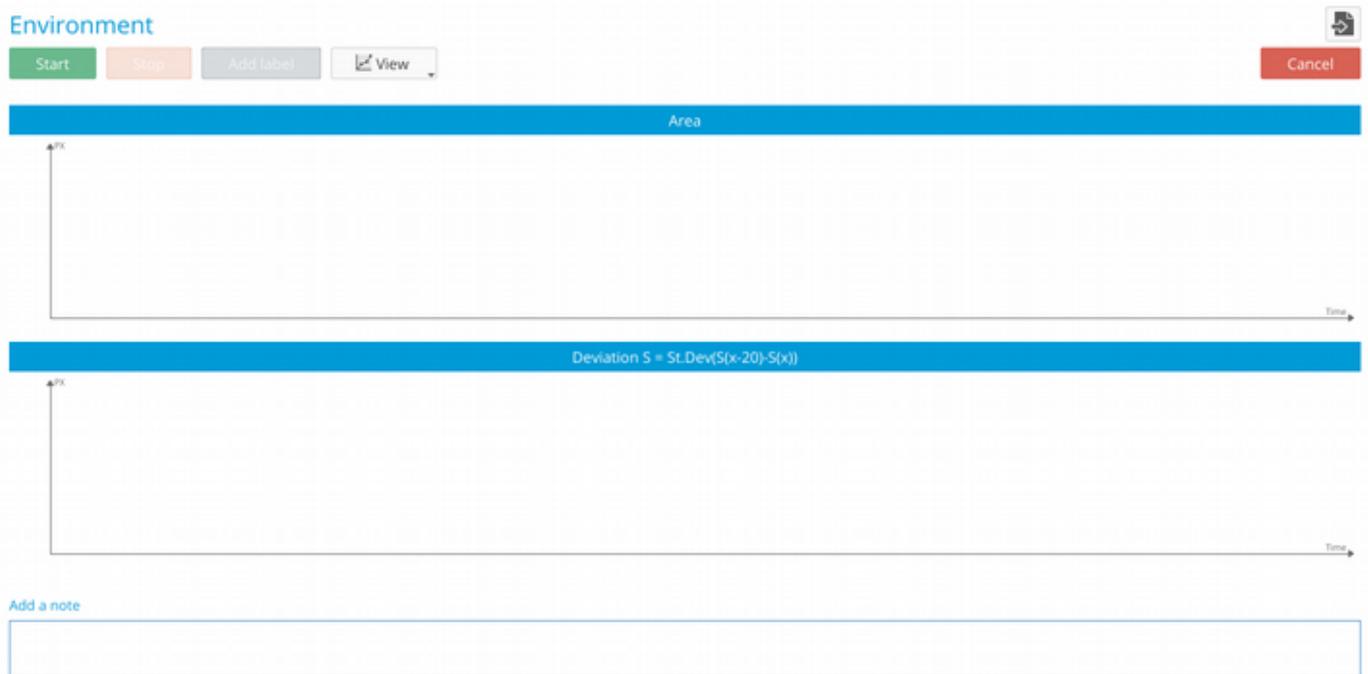
Pic. 2. Main screen of the Bio-Well Software.

Conducting a Scan/Experiment

This mode enables the measurement of dynamic processes (longterm).

Once you click "Environment" button - a special interface will be displayed.

*Pic. 3. Interface for conducting an "Environment" Scan.*

It is recommended that during the readings no other activity would be done at the computer and computer would not switch to a sleeping mode till the completion of the session.

Click "Cancel" button to return to the Main screen and cancel the experiment.

Click "Start" button to begin experiment. Test image of the metal cylinder will be shown. It should look like a circle with very little or no pixel noise inside (pic. 4). Only first 10 images will be displayed for you to check if position of cylinder is correct.

During the first three minutes (time digits will be of red color), a baseline signal is recorded - this data is excluded from further analysis.

You can click "Cancel" button to return to the Main screen and cancel the experiment at any moment.
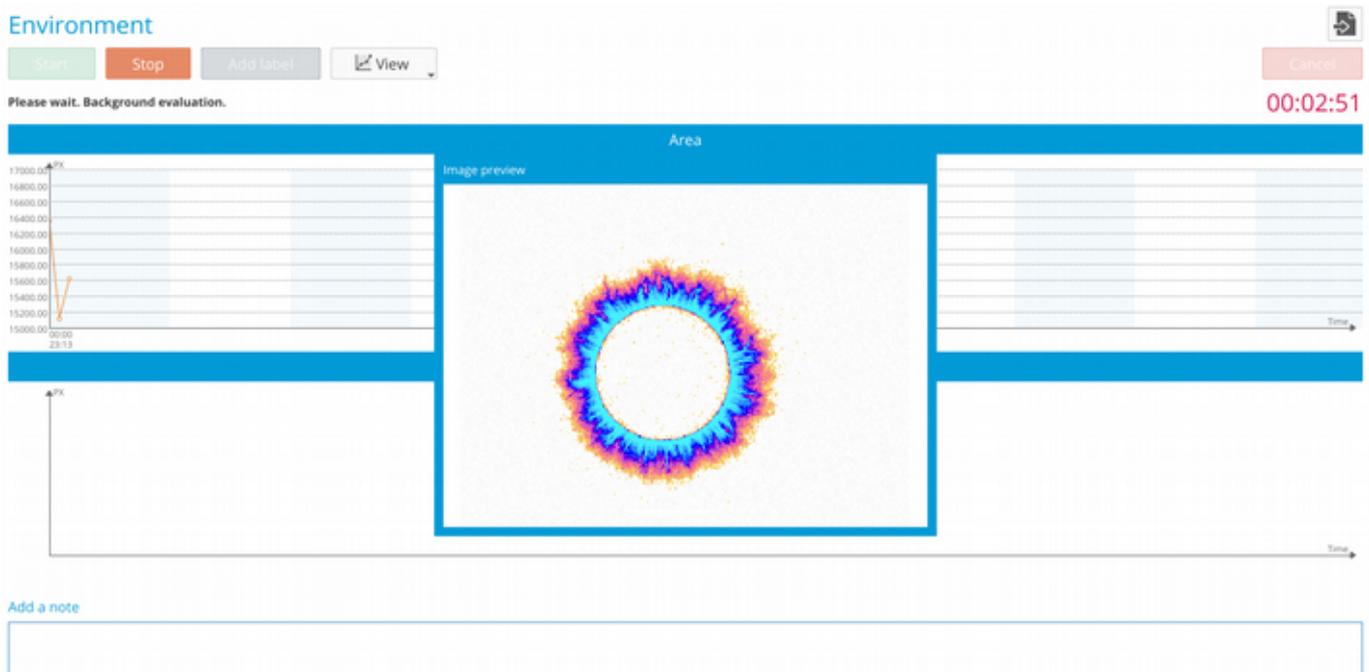
Pic. 4. Correct GI of the metal cylinder.

Once warming up time is finished (3 minutes) you will be able to add labels by clicking "Add Label" button. Labels may be added during readings. Just assign a name to every Label that you add and click "OK".

Pic. 5. Adding labels to the experiment.

Click "View" button to change the graphs displayed on the screen. Options are: Area, Intensity, Energy, Deviation S (Standard deviation of Area parameter of the last 20 GI). You can select all of them:

Pic. 6. All graphs displayed during "Environment" Scan.

In such a case resolution will be low and you will not be able to really analyze any of them by your eyes. We recommend to select 1 or 2 graphs to be displayed during the experiment. It will not affect the final result – anyway all 4 parameters will be calculated for all the experiment.

Added labels will be displayed on the graphs as red lines.

Pic. 7. Labels with names "2" and "3" were added.

X axis represents time. Each dot on the graphs represents one Glow Image taken each 5 seconds.

Y axis represents the value of the selected parameter on the graph. You can manually change the scale of the Y axis by clicking with left mouse button on the Y axis and specifying the range that you are interested in, and clicking "OK" (see pic. 8).
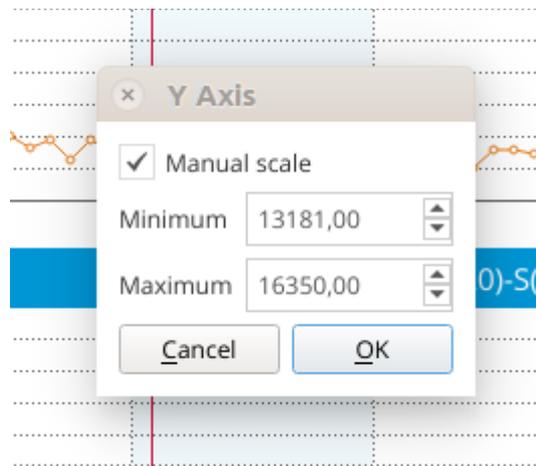
Pic. 8. Setting up manually scale of the Y axis on the graph.

In the bottom of the screen you can see the "Add a note" field, where you can add any notes about this experiment.

In order to minimize the interference with the experiment you should not add labels during the experiment. There is a possibility to add labels on the timeline (X-Axis) after the experiment is finished and saved.

Clicking "Stop" button and approving it by clicking "Yes" in the pop-up window will save the data on the computer if Offline, or on the server if Online. In Online mode Scan will be automatically processed on the Bio-Well Server and downloaded to your computer – you will see the result on your screen.

Once downloaded the result of the "Environment" Scan will be available for editing and statistical analysis.

Processing and Interpretation of Results

Select the Scan/Experiment that you want to analyze. In the Scans column of your database such experiments are marked with the following symbol - 📈 .

You will see the following screen (pic. 9). To enlarge the view – click "Full screen" button.

Top bar will give you several instruments to apply:
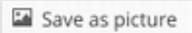
Save as picture - save the graphs as an image on your computer (specify the destination folder and name).

- saves the graphs in BDF file format on your computer.
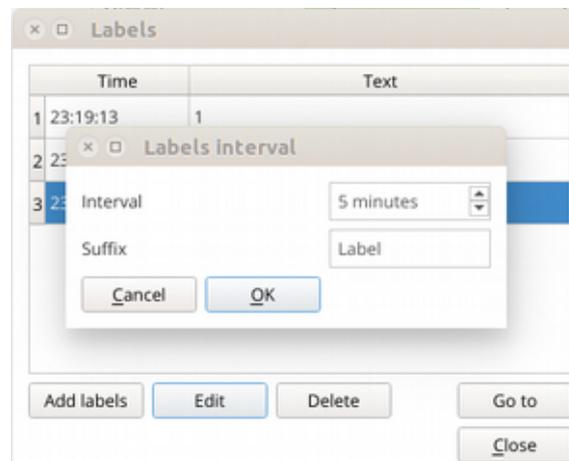
- click to edit labels in this experiment (pic. 10).
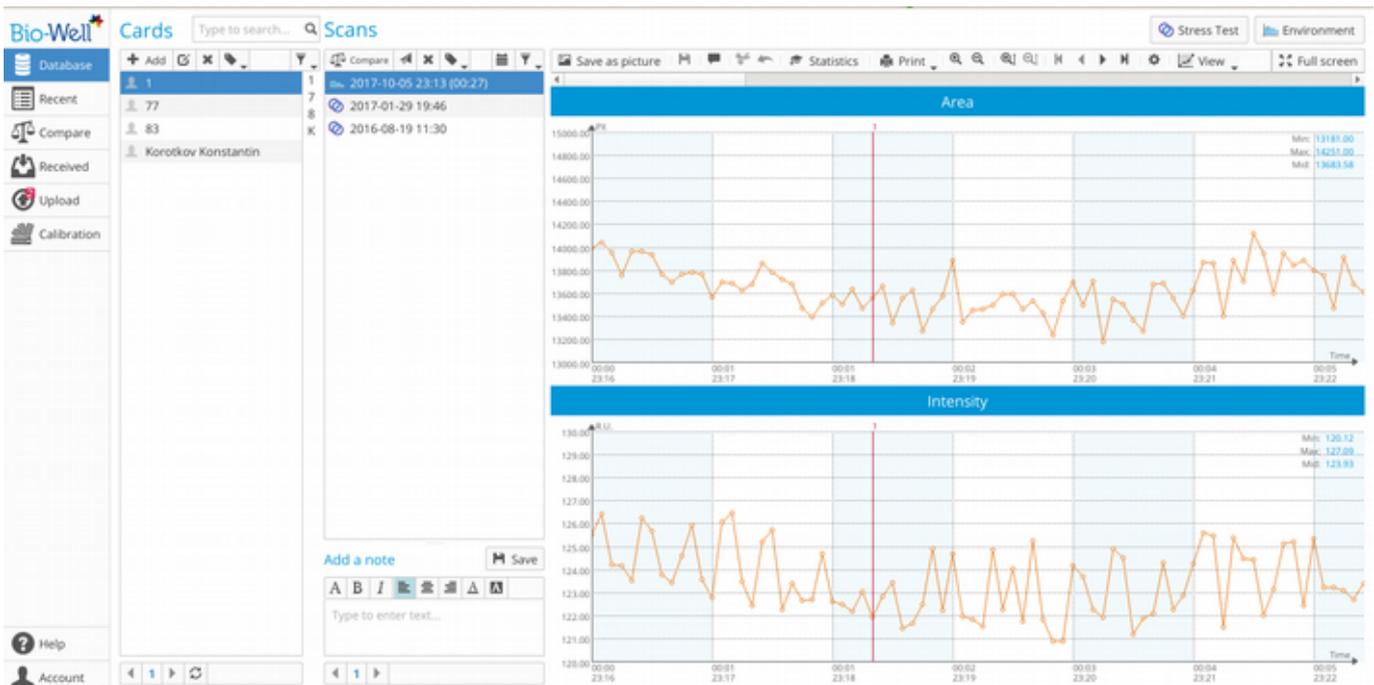
Pic. 9. General view of the "Environment" experiment.

Pic. 10. Editing labels list of the "Environment" experiment.

Here you can add, edit names and delete labels from the list. "Go to" button will show on the screen the part of the graph with the selected label. Adding labels is only automatic here:

Pic. 11. Automatic adding of the labels.

You can specify interval (from 60 seconds to 6000 seconds) and suffix of the labels and click "OK" to automatically add them. In the example above program will add labels every 5 minutes with names "Label1", "Label2", "Label3", etc.

- click to cut one image (dot on the graph) or series of images from the experiment. Click with the right mouse button on any dot to select it (it will be marked with the green vertical line) or click and hold the right mouse button and then move the mouse cursor to select a range of images (dots) that you want to cut from the graph (the diapason will be colored in green).

- click this button to undo last change that you have made.

- click this button once you are ready with all the rest of the features and ready to calculate the statistics – a new window will be opened.

- click to open a drop-down list:

- Print all: send to printer all the available graphs (4).

- Print selected: send to printer only selected graphs that you see on the screen.

- Save as CSV: save all the experiment with all 4 parameters calculated to a CSV file format.

- click these buttons to maximize or minimize the scale of the X axis.

- click these buttons to maximize or minimize the scale of the Y axis.

[navigation buttons] - click these buttons to navigate through the graph. You can also use horizontal scroll bar on the top of the graphs to navigate through experiment.

[gear button] - click this button to open a pop-up window with the parameters of the plot (pic. 12).
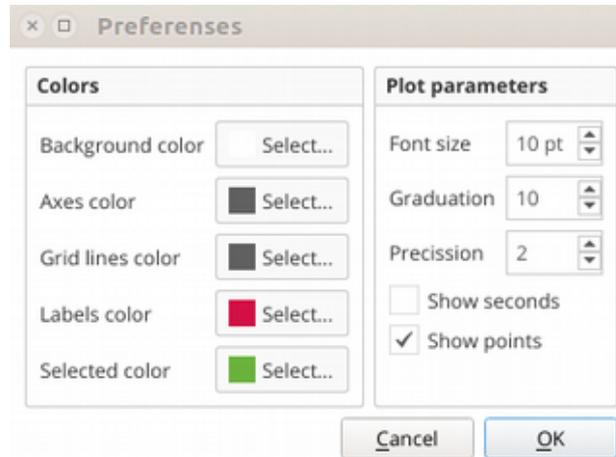
Pic. 12. Parameters of the plot that you can edit.

Change any of the available parameters and click "OK" to apply them.

As soon as you have made all the preparations to statistical analysis – click "Statistics" button – a new window will be opened (pic. 13).

Top bar instruments panel is almost the same as on the initial screen with the "Environment" Scan results.

If you point mouse cursor on any dot on the graph and click the right mouse button – you will add a new label. You will be prompted to enter the name of the new label.

Pic. 13. Statistics window for the "Environment" Scan.

Once you have finished editing labels manually – click "Calculate" button to get the statistical analysis of the 4 parameters for the periods between the labels that you have added.

The Bio-Well Server will calculate parameters for all labeled intervals and parametric / non-parametric statistical values. Every interval is compared with the previous interval (pic. 14).

NB! For more correct statistical analysis please make sure that intervals that are compared to each other contain same time period in them. In example, each interval is 5 minutes long – then they will contain equal number of images in them. Time volume of the intervals depends on the kind of phenomenon under study.

Red columns in the report show the average value of the parameter of a specific interval. Black vertical lines on top of them are showing the deviation of this parameter from the average value during the interval (called confidence interval). If these black lines (confidence interval) intersect with the confidence interval of another interval – then there is no statistically significant difference between these intervals for this parameter.
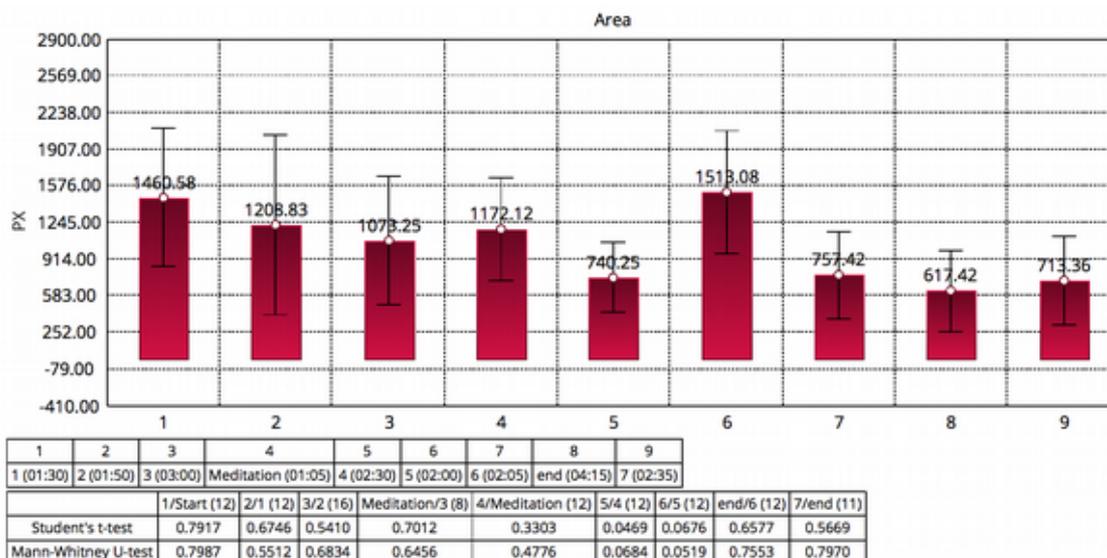
Pic. 14. Statistical analysis of the intervals between the labels in the "Environment" Scan.

In this report you can scroll through the pages with 4 different parameters calculated for every interval specified. You can "Save as picture", "Save as PDF", "Save as CSV" or print this report.
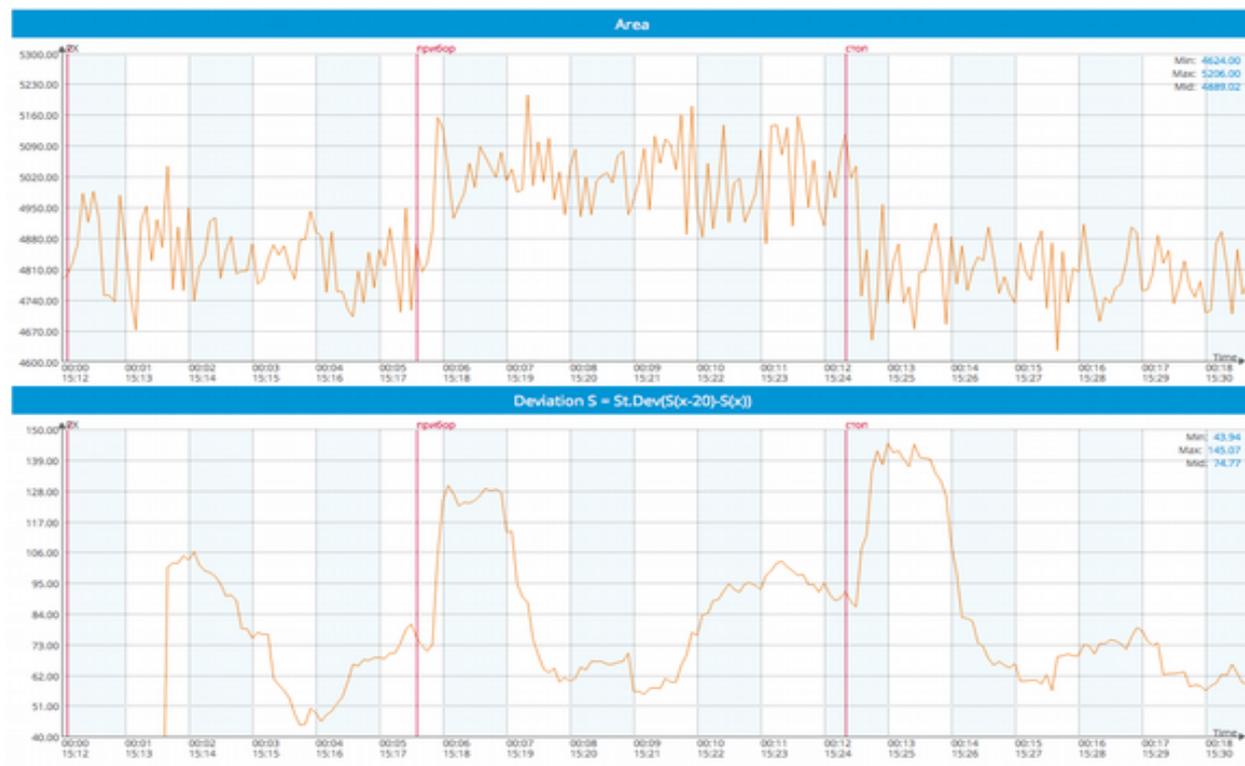
Standard report consists of 4 pages: one page for each parameter – Area, Intensity, Energy and Deviation S.

There is one more parameter that Bio-Well software is able to calculate for intervals that are more then 35 minutes long - Activity Level of Space (ALS). But it is developed for measurements with Sputnik, so please do not pay attention to this parameter in the report if you are using Water sensor.

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Water sensor is most useful for relative comparison of liquids with the same chemical composition. For example, water before non-chemical influence (magnetic field, invocations, human intention, etc.), during and after it.

Comparing waters with different chemical composition is not so reliable and absolute values of the GI will have no sense at all, only the deviation of signal in time will have some meaning (Deviation S).

Example 1: Response of water to high frequency electromagnetic fields (generator is turned on and off).
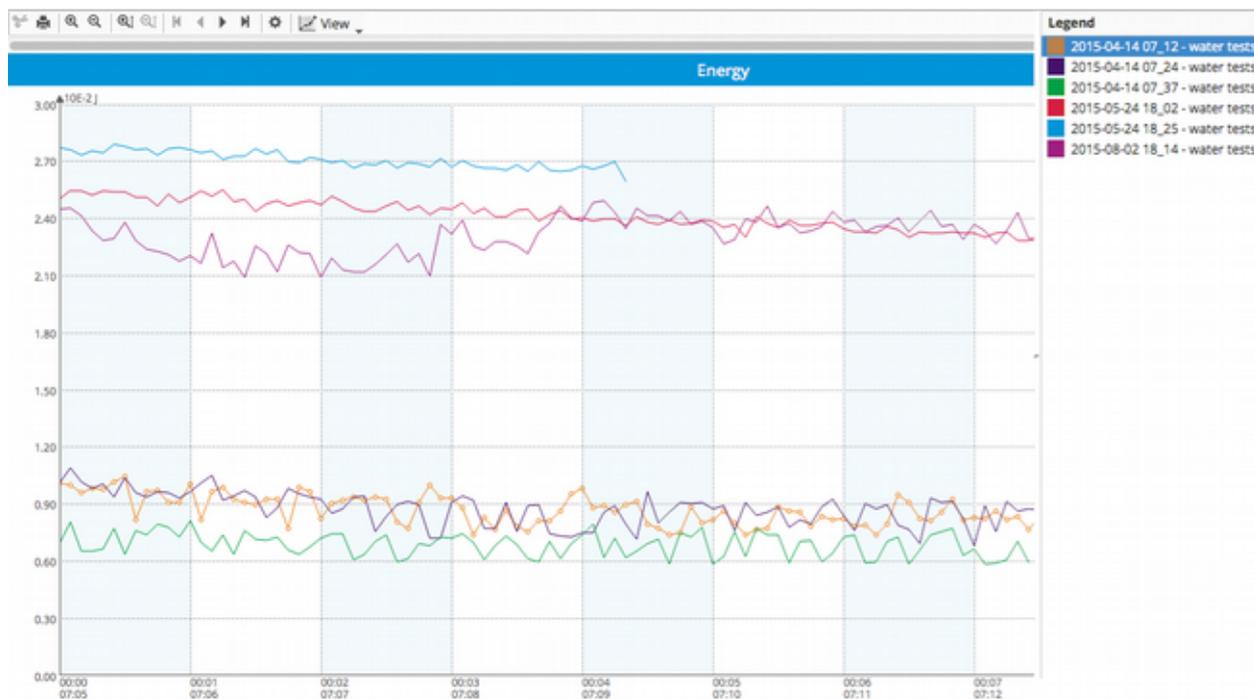
Example 2. Comparing of 3 different waters (two samples were measured twice).
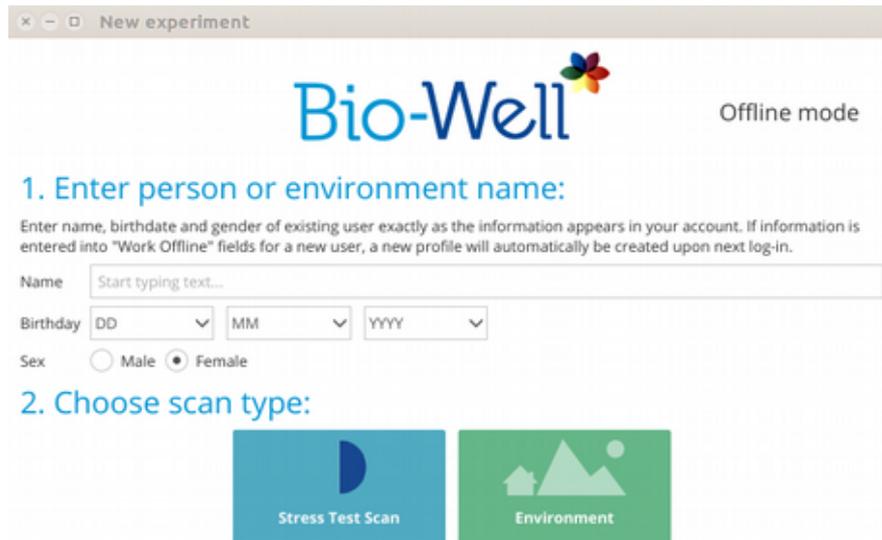
Example 3. Comparing of 3 different waters (two samples were measured twice).

Offline Mode

Readings may be taken when not connected to the Internet. Data will be saved in the computer and processed when the Internet connection becomes available.

In Offline Mode it is necessary to add a Name, Date of birth (or date of the experiment in case of making "Environment" Scan) and Gender (not needed for "Environment" Scans) and select the mode of the Scan: "Environment" (pic. 15).

Pic. 15. Offline mode interface.

Offline Scans will be saved as BDF files on the computer's drive. When next time you will be logged in online, an "Upload" button will appear; click it to send the data to the server to be processed.

While doing Offline Scans in "Environment" mode – program will not show you any graphs as it is unable to calculate the parameters locally – they are calculated only on the Bio-Well Server.