

# Echo Wave II Touch Software

## Options Settings



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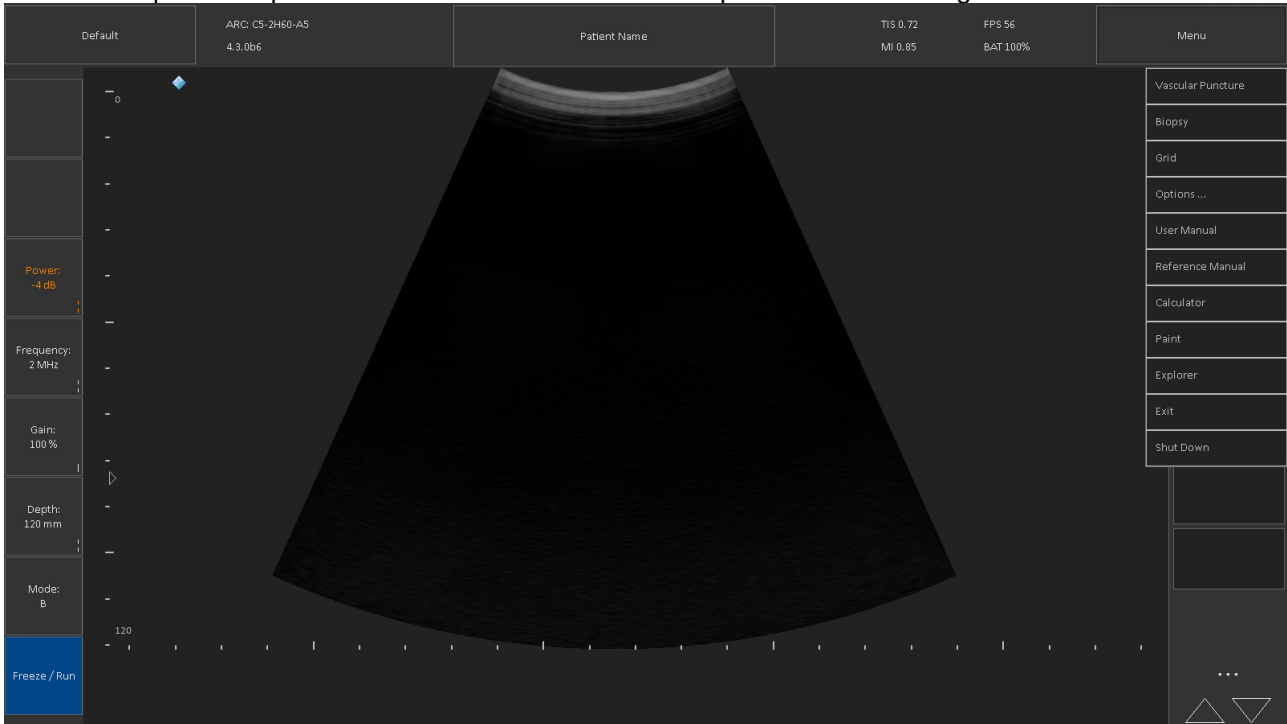
# 1. Introduction

This document describes "Echo Wave II" ultrasound scanning software settings in the Options menu.

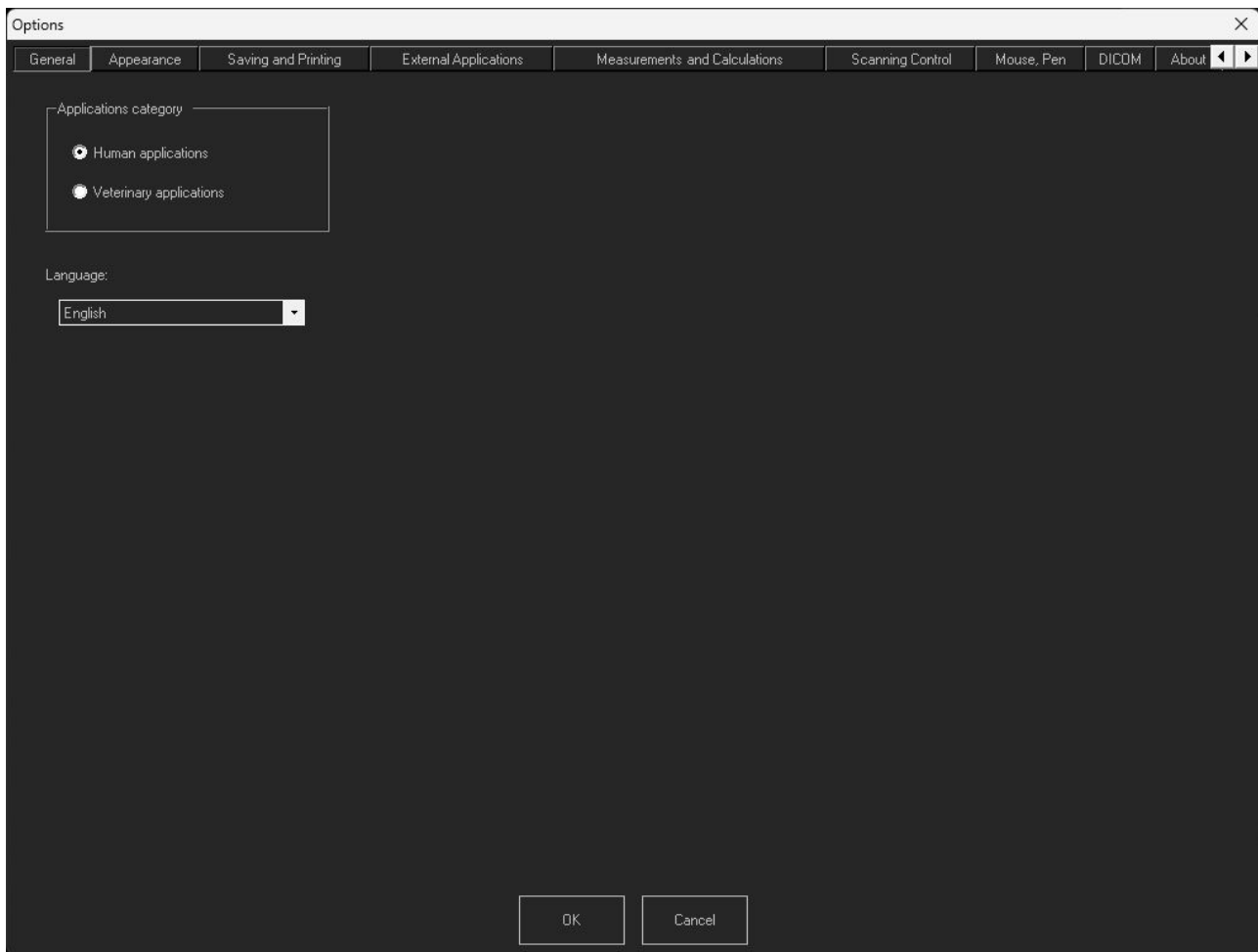
Echo Wave II application has very wide possibilities to adjust how it looks and acts in different situations, change units, and many more. This is possible to do in the Options menu. This document describes the Options menu functions in detail.

Please note that in this manual the software screenshots shown may look slightly different from the actual software user interface because the user interface can be customized and depends on the chosen options.

To open the Option menu click "Menu" and select "Options". See the image below.



## 2. General Tab

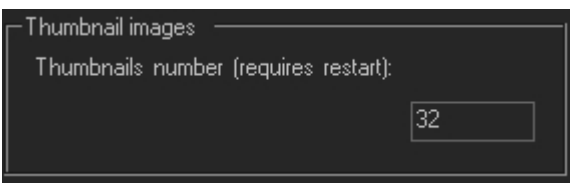
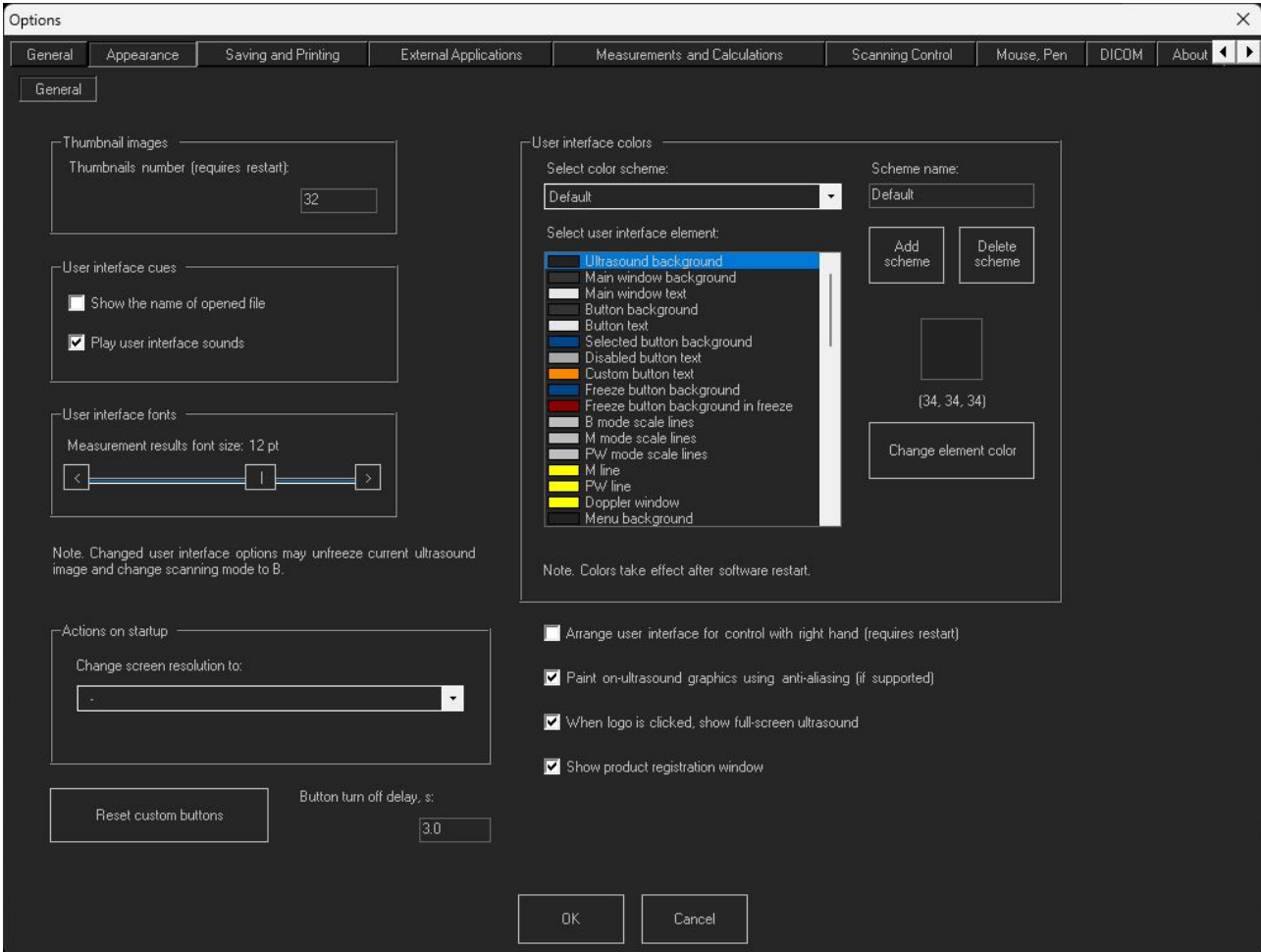


It is possible to select the usage of ultrasound scanner: Human or Veterinary applications. Depending on the selection, corresponding measurement packages and scanning presets will be used.

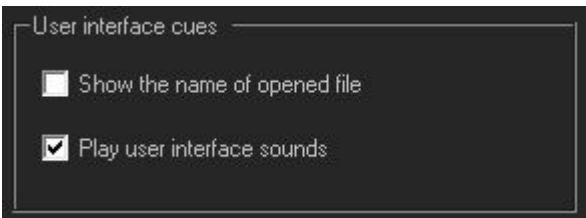
**Language:** allow to select preferable language. It is possible to choose between: Chinese, Deutsch, English, French, Italian, Korean, Lithuanian, Magyar, Polish, Romania, Russian, Spanish, Ukrainian languages.

### 3. Appearance Tab

#### 3.1. Appearance Tab -> General Tab

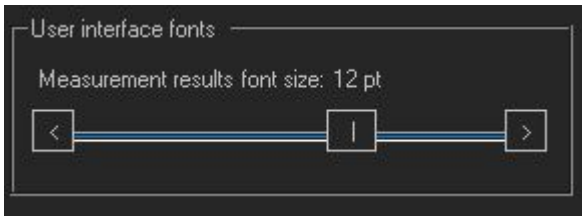


**Thumbnails number** changes the number of thumbnails stored by the software.

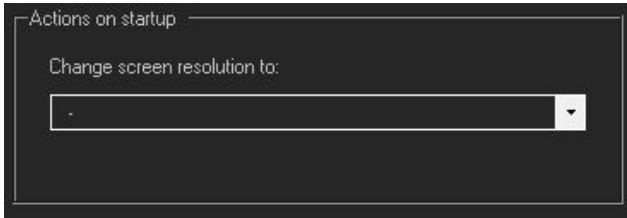


**Show the name of opened file**  
When enabled, in the bottom left side of the opened file you will see the file name.

**Play user interface sounds**  
When enabled, then, during value change when approached maximum or minimum value, user will hear sound



**Measurement result font size**  
 Changes the font size of measurement results that are shown below ultrasound image.

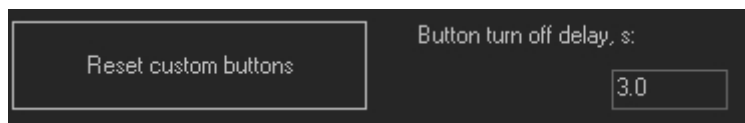
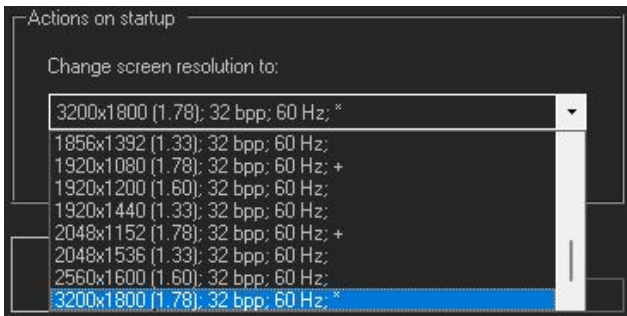


**Change screen resolution to:**

During program start up changes the computer display resolution to selected.

*Changing screen resolution, you change the "scale" of the software window. You can make everything look bigger. To do that you can select lower resolution from the list. To help make the right choice there are some additional details near each resolution: 1920x1080 resolution itself, (1.78) resolution ratio, 32 bpp color depth; 60Hz screen refresh rate.*

*The best choices are resolutions with the same or close screen ratio. They are marked with a "+" sign in the end. The "\*" sign is marking default resolution.*



**Reset custom buttons**

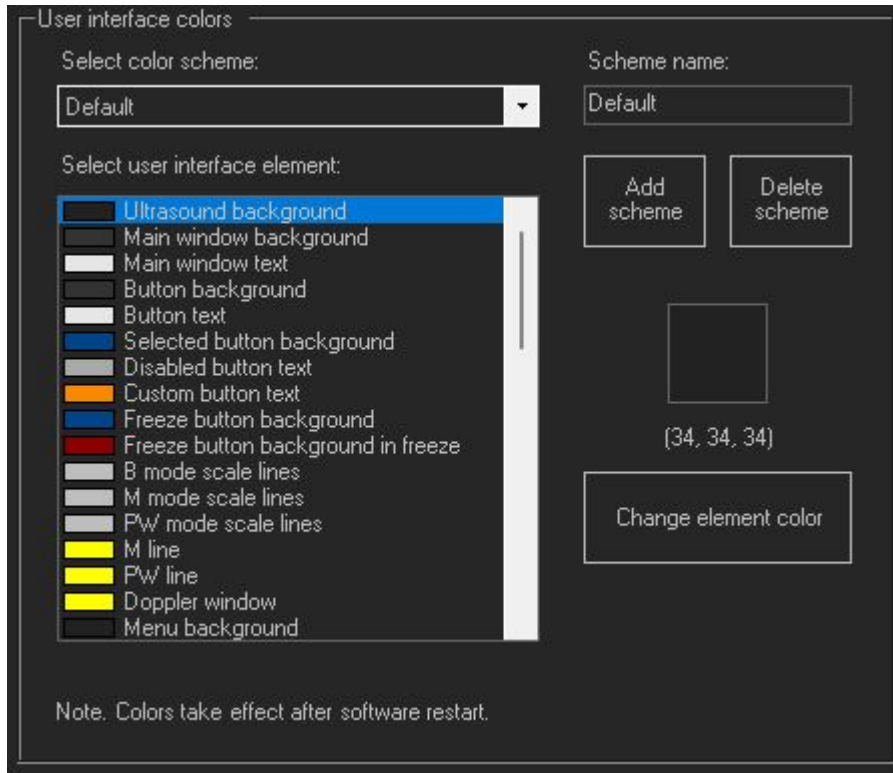
The software has possibility to set custom functions on 3 buttons. Pressing this button will remove all user set functions.

*To set the function user have to press and hold on any of three selectable buttons and hold till the selection menu appear. Then user can select the function he wants to apply to selected button. It is possible to select different functions in scanning and freeze modes.*

**Button run off delay, s:**

Sets the time scanning mode button function remain active.

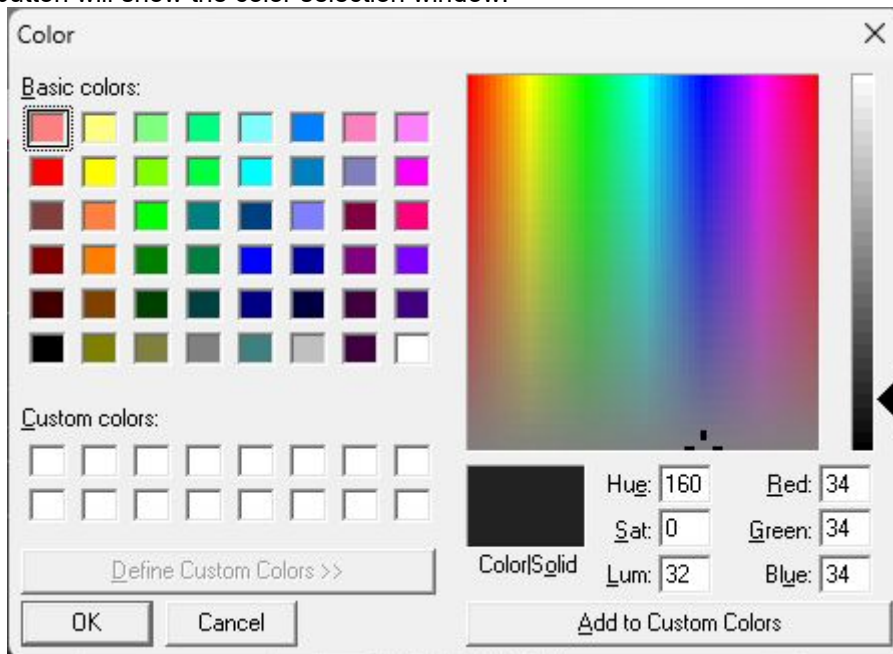
*When user is activating scanning mode function button it remain active for some set period of time. This delay allows user to do desired actions- do swipes or press and drag, to change the function value.*



This control allows to change color of different user interface elements and save all changes to named theme.

To create new scheme user should press **Add scheme** button and new scheme with random number name will appear. To change the name user should enter new scheme name in **Scheme name** field.

To change the color of desired element user have to select it from the list. Then pressing **Change element color** button will show the color selection window.



User selects desired color and press OK. New element color will be applied after pressing OK and closing option window and restarting the software.

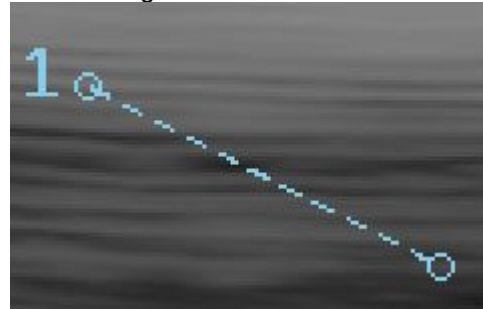
**Arrange user interface for control with right hand (requires restart)**

If enabled, then, after software restart, interface controls position will be “mirrored”. Ultrasound controls will be on the right and thumbnails will be on the left side of software window.

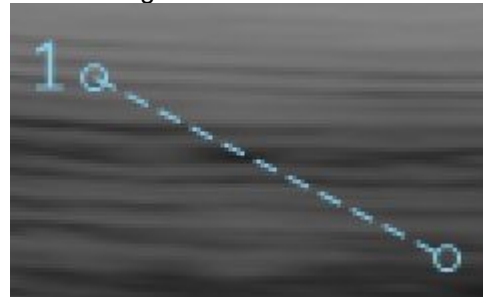
**Paint on ultrasound graphics using anti-aliasing (if supported)**

When enabled, all graphics on ultrasound image (i.e., measurements) are painted using anti-aliasing – more smooth. If this control is disabled graphics will be “pixelized”.

Anti-aliasing disabled



Anti-aliasing enabled

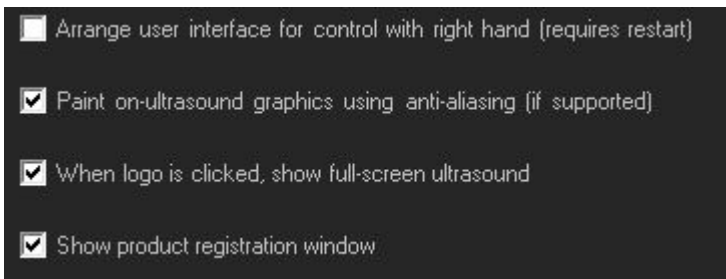
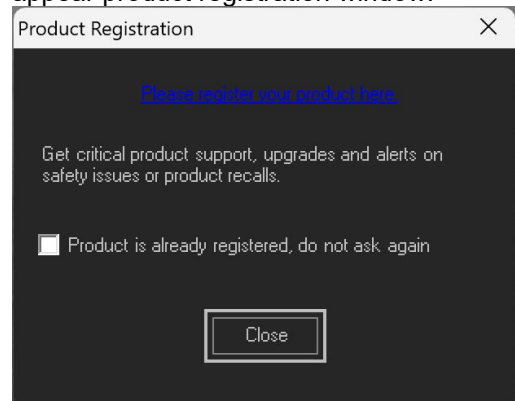


**When Logo is clicked, show full-screen ultrasound**

When enabled, clicking on Telemed logo in upper left corner will show the ultrasound image full-screen.

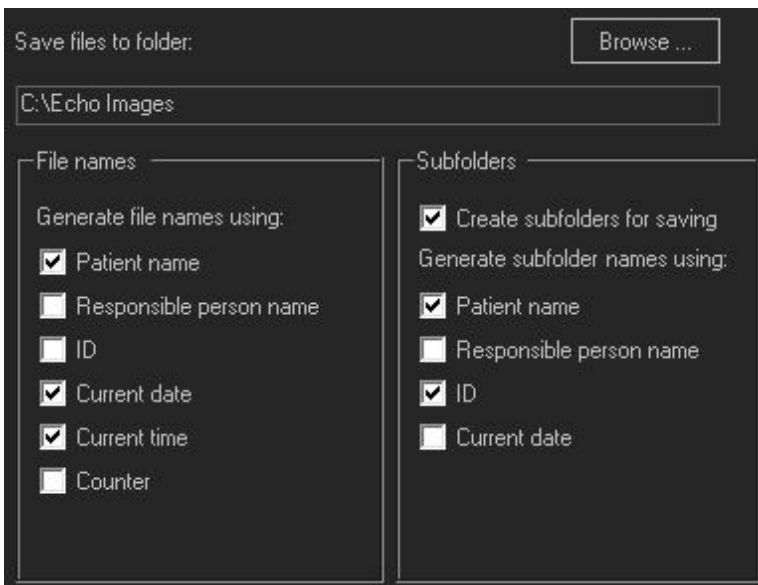
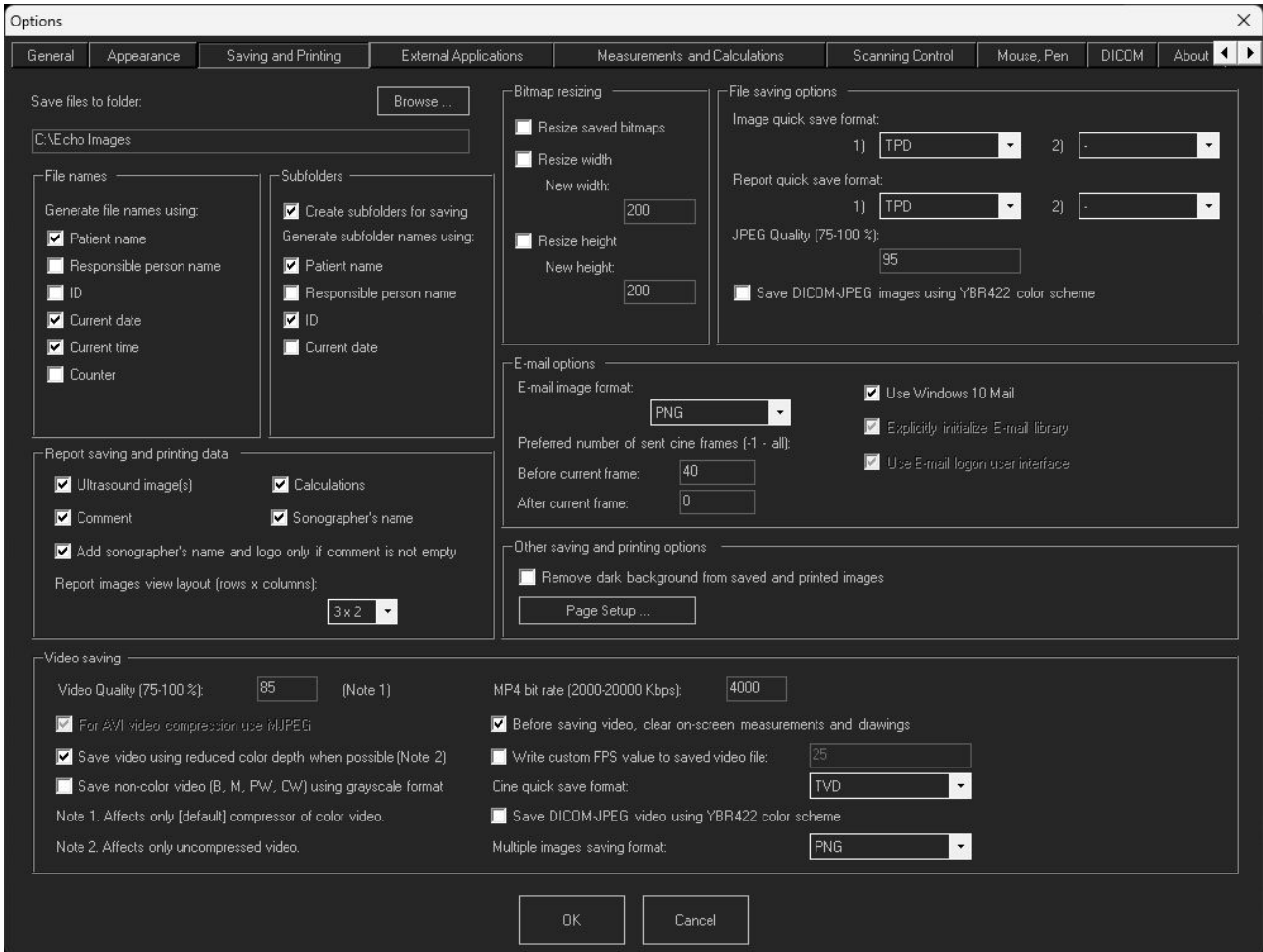
**Show Product registration window**

When enabled, during startup will appear product registration window.





## 4. Saving and Printing Tab



Pressing **Browse** will allow you to change the default folder for ultrasound image storage.

### Generate names using

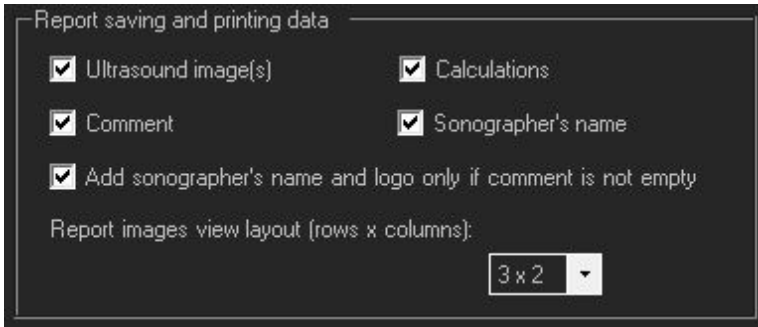
The file name will be generated depending on the selected checkboxes.

### Generate subfolders for saving

automatically creates subfolders for saving if the check box is enabled.

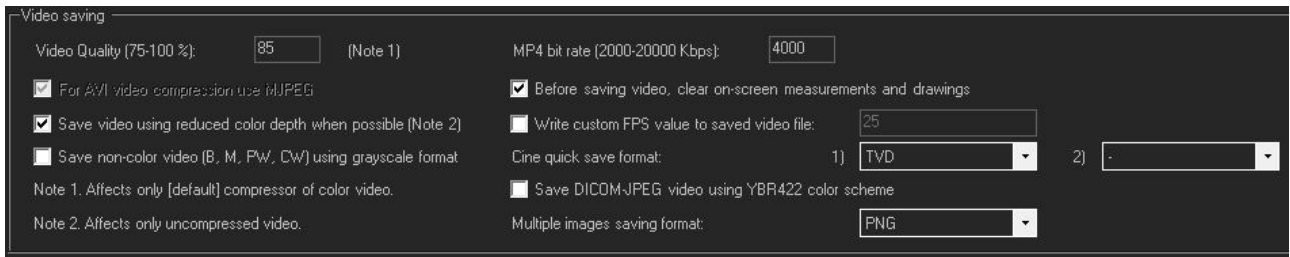
Subfolder names are created depending on selected checkboxes: **Patient name**, **Responsible person name**, **ID** or **Current date**.

This allows sorting of images by saving them to separate subfolders.



Allows to select what data should be displayed in generated report. There is the possibility to select that the sonographer's name and logo to report is added only if the comment field is not empty.

The drop list Rows x Columns at the bottom is changing the layout of images shown in report dialog and the number of image columns in generated report.



**Video Quality** changes the quality of a compressed video file. Larger quality gives better video quality but requires more space for storage.

**For AVI video compression use MJPEG**

If enabled, for AVI video compression will be used MJPEG codec, otherwise default windows codec will be used.

**Save video using reduced color depth when possible.** Helps to reduce the space required for uncompressed video storage.

**Save non-color video (B, M, PW, CW) using grayscale format.** Saving in grayscale format makes video file smaller.

**MP4 bit rate** allows to change the bit rate from 2000 to 20000 Kbps. Larger bit rate gives better image quality but requires more space for video storage.

**Before saving video, clear on-screen measurements and drawings.** Measurements are usually done only on one frame from the entire cine. Saving them on video is not convenient.

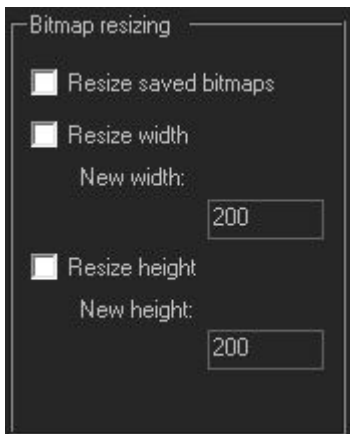
**Write custom FPS value to saved video file.** This option allows to write to video file desired frame rate value if used video viewer cannot handle actual ultrasound frame rate that may be enough high.

**Cine quick save format** allows to select the cine file format. If second file format is selected, then cine will be saved in 2 selected file formats simultaneously.

**Save DICOM-JPEG video using YBR422 color scheme**

This may be enabled if your DICOM viewer does not support RGB format that is used by default.

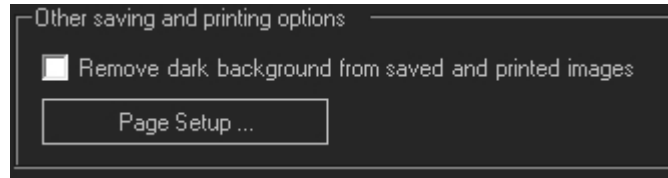
**Multiple images saving format** changes the format of saved Multiple images. Multiple images – special mode when cine is saved as multiple images where every frame is a separate image file.



**Resize saved bitmaps**

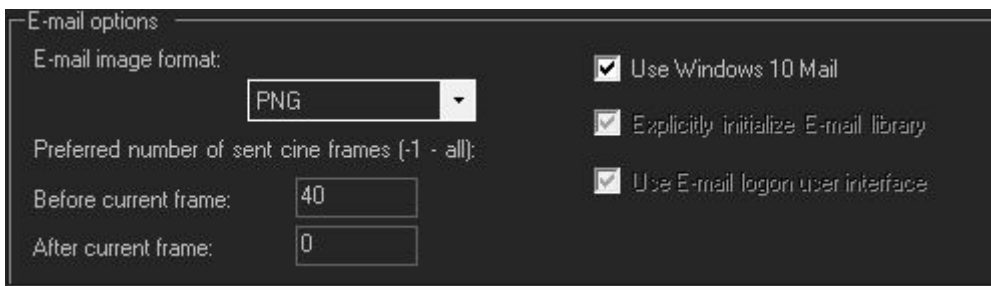
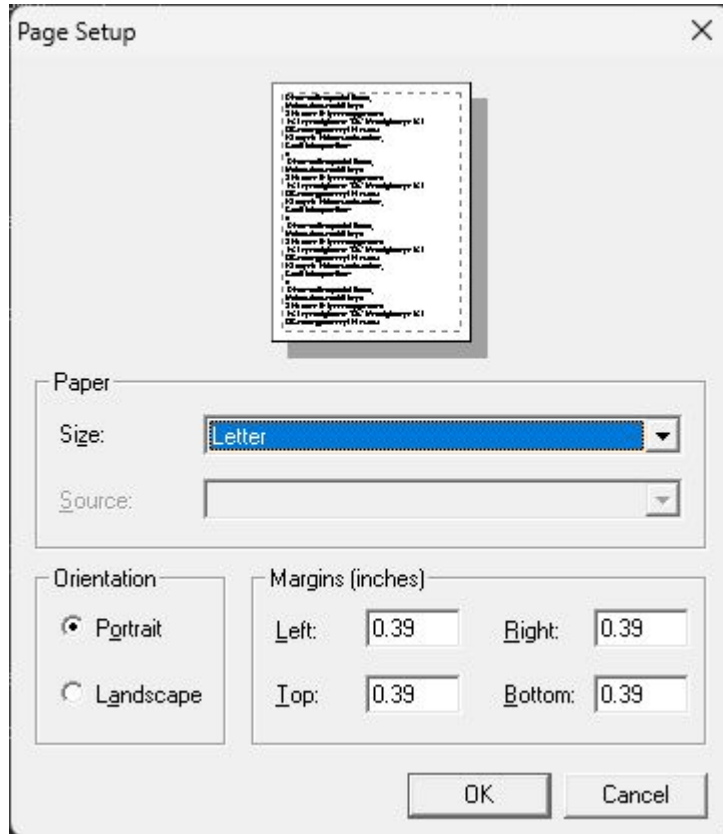
When enabled, all saved images will have entered width/height values.

This may be useful when you need to have an image having a specific small size. Max width/height values are 999.



The first check box removes dark background from saved and printed images and replaces it with white. This allows to save toner when printing and makes header/scanning parameters text more contrast.

**Page Setup...** Button, when pressed, will call the page setup window where is possible to change print page parameters.



**E-mail image format** drop list allows to select what image format should be used and attached to the e-mail when you press **Send by E-mail** in the Graphical User Interface (GUI).

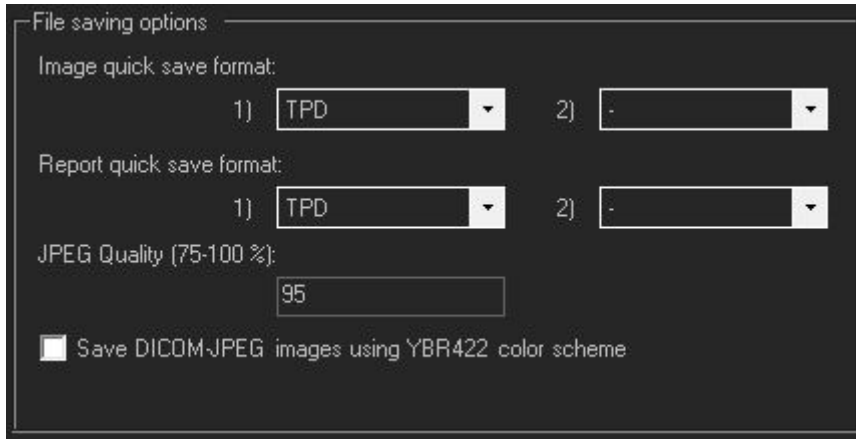
**Preferred number of sent cine frames** selects the preferred number of cine frames that will be included in the e-mail attached file. It is possible to set a number of frames before the current frame and select some number after the current frame. The current frame is the fame displayed at the moment when the **Send Cine by E-mail** command was selected. Entered number “-1” means all frames before or after current frame.

**Use Windows 10 Mail.** When selected, Windows 10 mail will be used for sending images and cines. Please note that copy of sent attachments will be saved to documents folder of the current user.

**Explicitly initialize E-mail library** and **Use E-mail logon user interface** should be disabled if you

are using Windows Live Mail. Otherwise, you can see the message “There is no email program associated...” even if you have set the default e-mail program.

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**File saving options** allows to select what file types will be used then you are pressing **Quick Image Save** or **Quick Cine Save**.

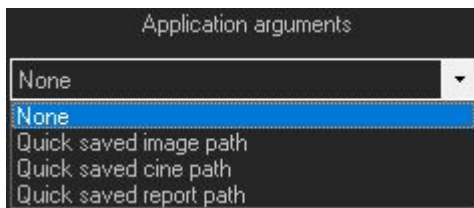
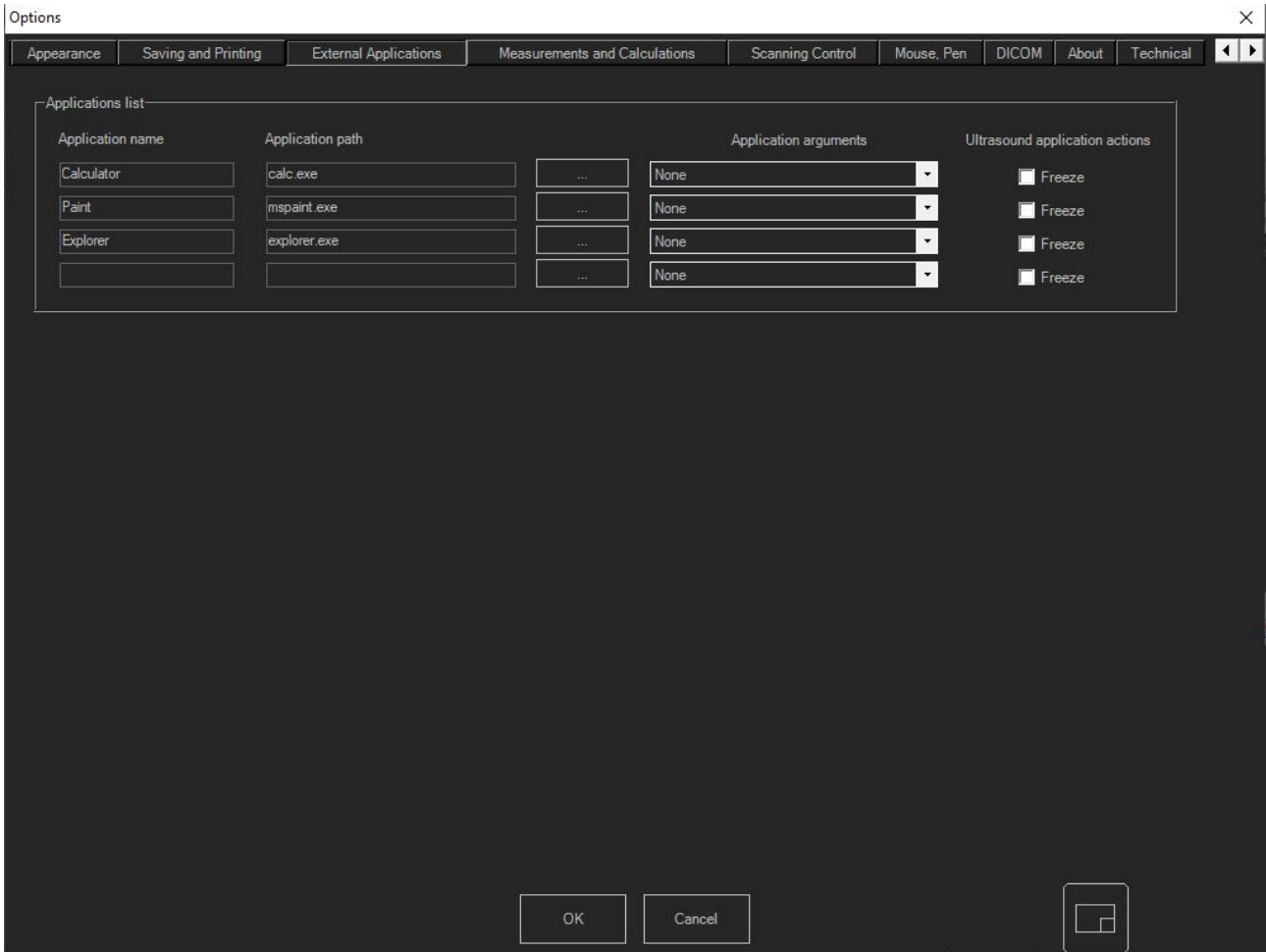
It is possible to save the same image file in 2 different file formats. If some value is selected in the 2nd drop list, then the file will be saved in 2 formats.

**JPEG Quality** field changes the quality of saved JPEG files. The small quality number gives a small image size but reduces the quality.

Also it is possible to select to **save DICOM-JPEG using YBR422 color scheme**. This may be used if your DICOM viewer does not support RGB format that is used by default.

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## 5. External Applications Tab



Allows to select external applications that are visible after pressing the software “Menu” button at top toolbar.

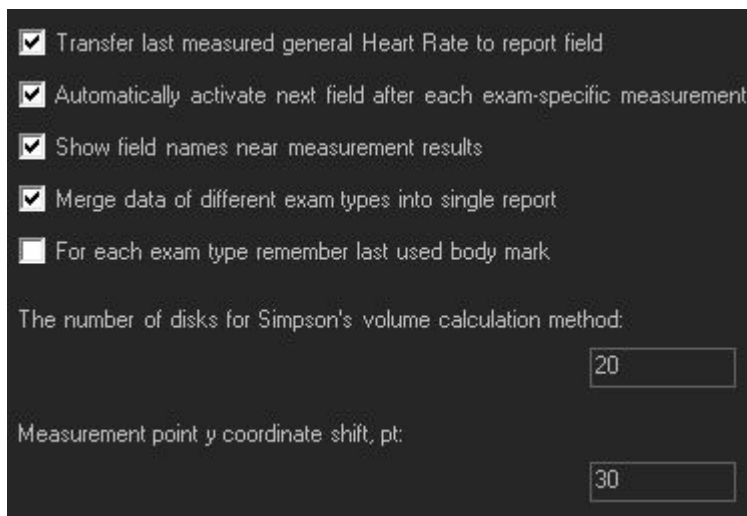
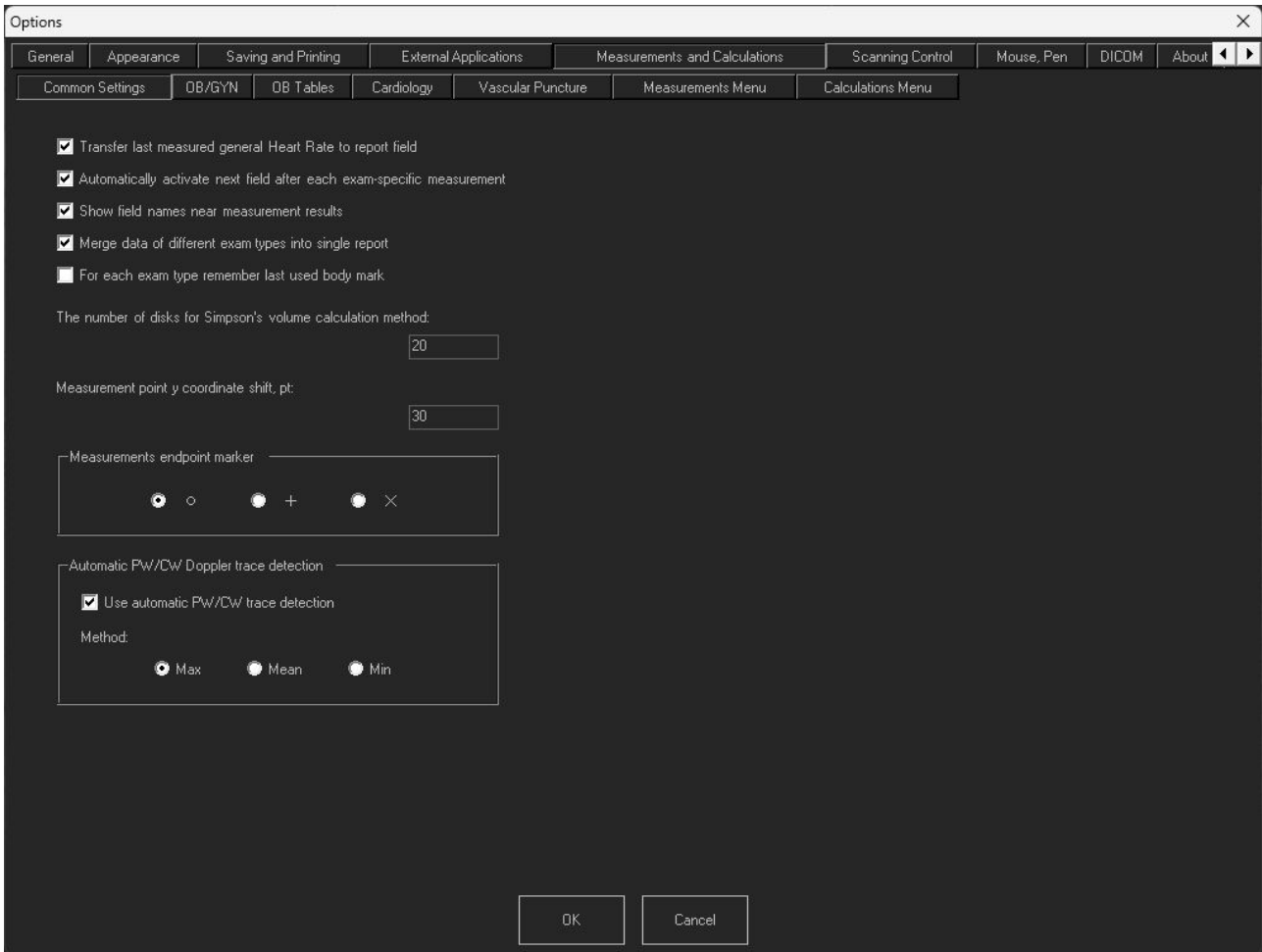
It is possible to modify or add custom programs. After pressing the “...” button, the Explorer window will appear. After \*.exe file selection, its path will appear in the text box and the user should enter the **Application Name**.

Also, it is possible to send some **arguments** to the application

Enabling **Freeze** check boxes will force Echo Wave II to Freeze ultrasound when external application opened.

## 6. Measurements and Calculations Tab

### 6.1. Measurements and Calculations Tab -> Common Settings Tab



#### Transfer last measured general Heart Rate to report field

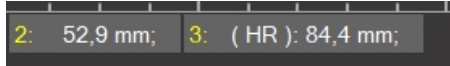
If enabled, last general Heart Rate (HR) measurement on M mode image or on PW mode image is transferred to HR report field and to HR field in Patient window.

**Automatically activate next field after each exam-specific measurement.**

If enabled, allows to do all exam-specific listed measurements one by one without selecting something additionally.

**Show field names near measurement results**

When some exam specific measurement is done, if this control is enabled, near measurement result below ultrasound image is shown the name of measured field (like HR).



**Merge data of different exam types into single report**

If enabled, it is possible to select in the measurement menu different types of measurement (General, OB/GYN, Abdominal...) and they will be saved in one report. If this control is disabled, the user must choose the exam type in the Patient window. Then only this exam type-specific measurements will be seen and only they will be saved in the report.

**For each exam type remember last used body mark**

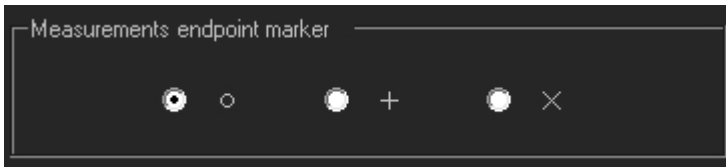
If enabled, then every time you select exam at Patient window, the software restores and displays near ultrasound image the body mark that was used last time with that exam type.

**The number of disks for Simpson's volume calculation method**

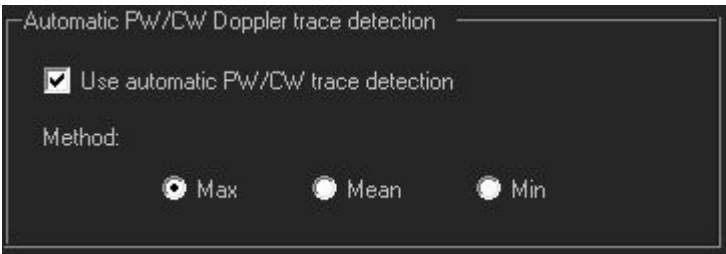
Changes the number of disks used for volume calculation using Simpson's method.

**Measurement pointy coordinate shift, pt**

If measurements are done using touch screen, touch value should be taken above touching object. Otherwise user will be unable to see where he is putting the mark as it will be hidden with touching object-finger or touch pen. This control sets the distance above touch object used to take measurement value.



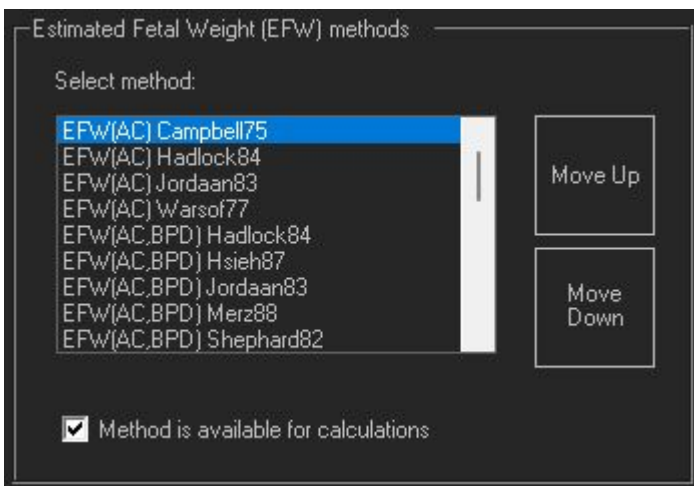
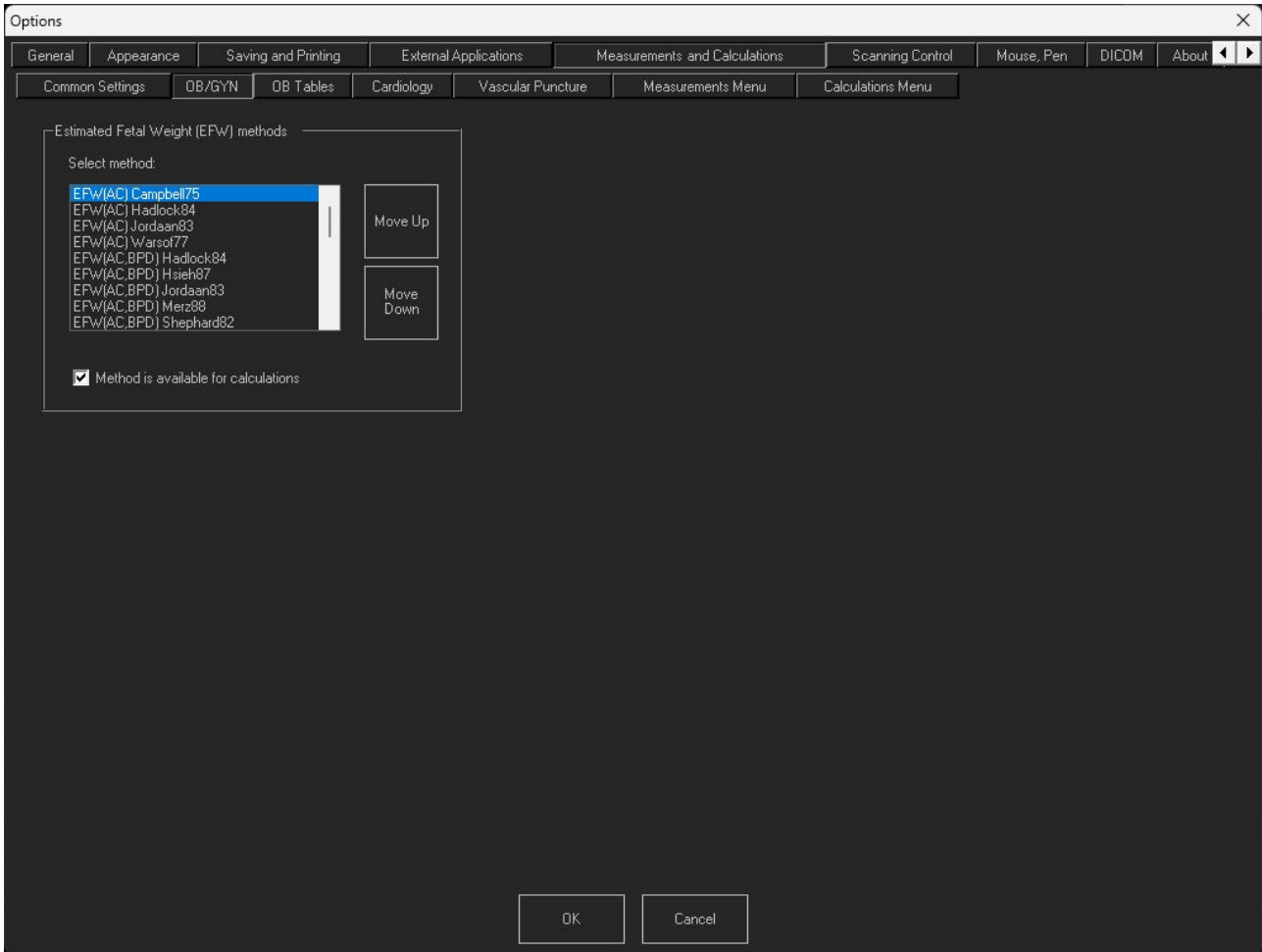
Changes marker view used for measurement endpoints



**Use automatic PW/CW Doppler trace detection** checkbox selects if PW trace is detected automatically by software (option is enabled) or is painted manually by the user (if option is disabled).

**Method** radio boxes allow to select what values should automatic trace algorithm use and return to the user. It is possible to select to use the maximal value, calculate the mean value or return the minimal detected value.

## 6.2. Measurements and Calculations Tab ->OB/GYN Tab



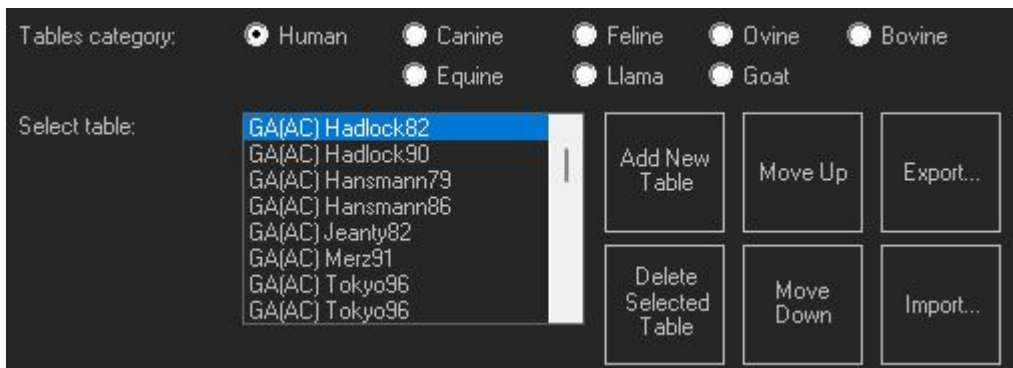
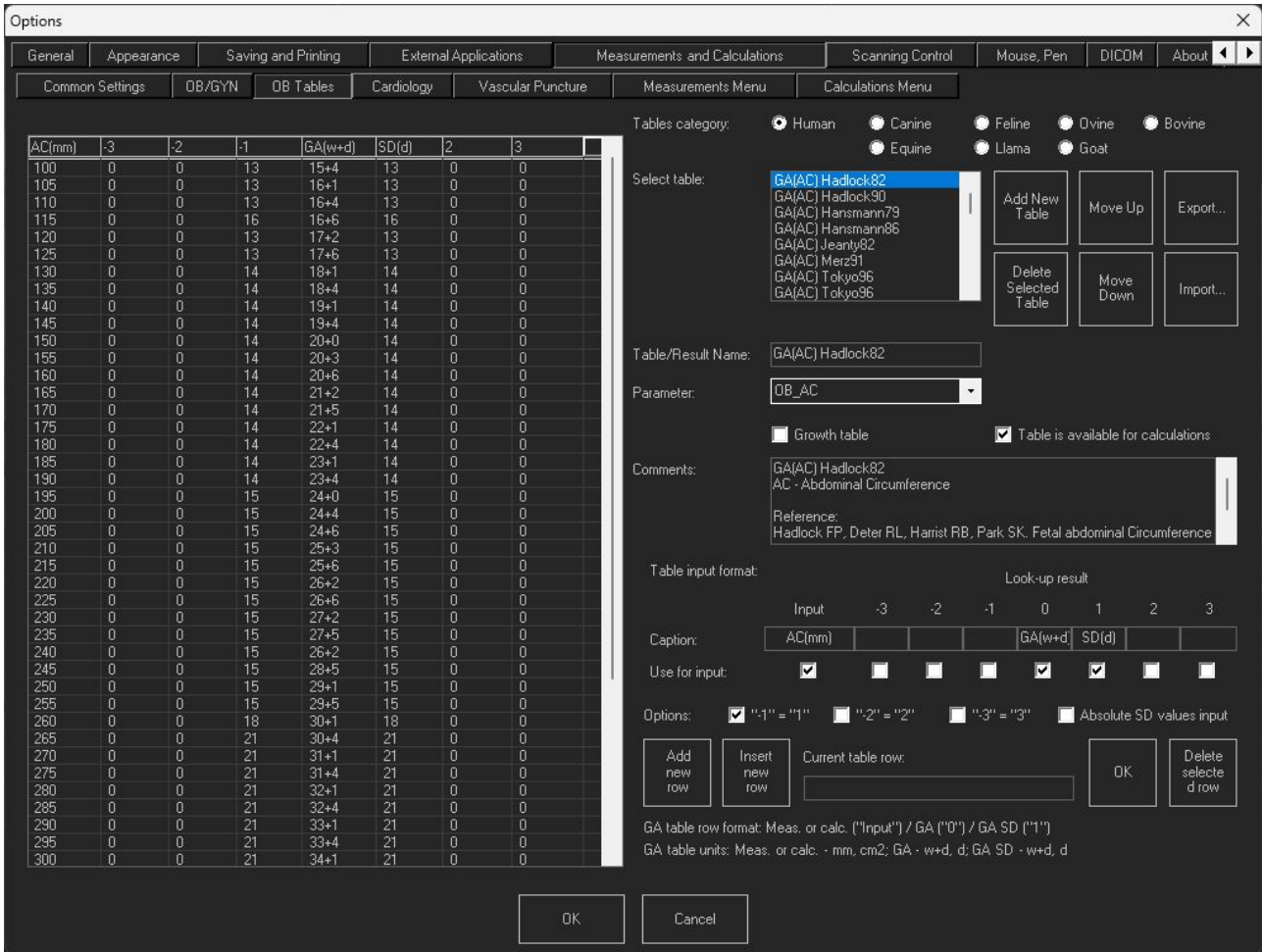
### Estimated Fetal Weight (EFW) methods

If one of the methods is selected in the list, then it is possible to enable/disable the selected method by clicking **Method is available for calculations** check box.

The selected method can be moved up or down in the list by clicking the **Move UP** or **Move DOWN** buttons.



### 6.3. Measurements and Calculations Tab ->OB Tables Tab



This settings window allows to modify or create a new OB table.

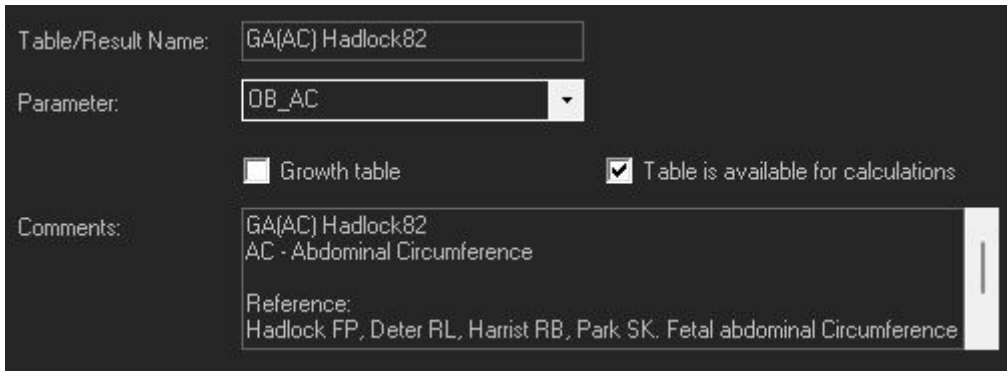
On the left side of this tab are shown current table values. On the right side are controls to modify the table.

**Table category:** allows to select from the database the category of tables to display.

**Select table:** Allows to select the exact table from the list.

It is possible to **Add New Table**, **Delete Selected Table**, **Move Up** or **Move Down** the selected table by pressing the corresponding buttons.

By pressing **Export** or **Import** buttons it is possible to import or export selected table from/to text file.



**Table/Result Name** field allows modification of the selected table name.

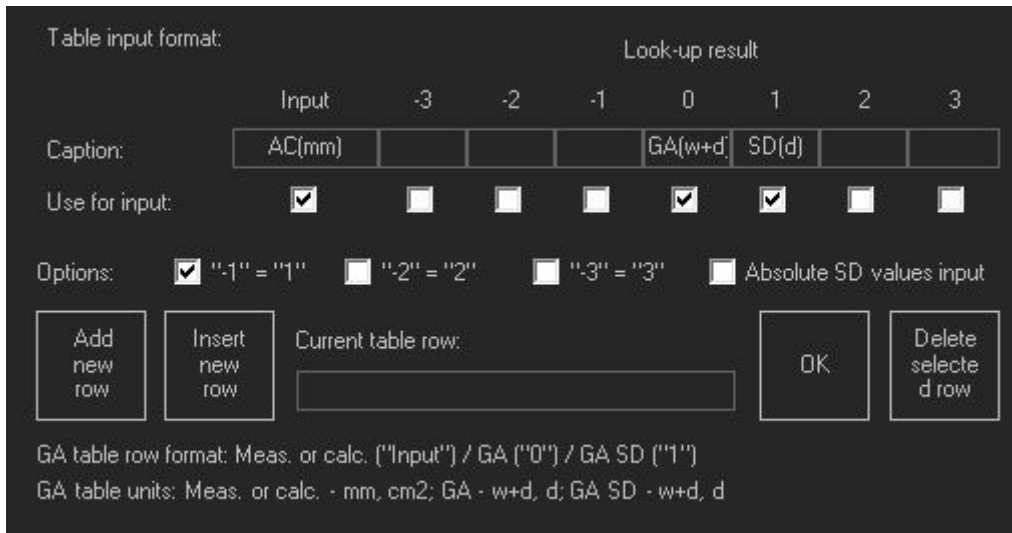
**Parameter** list allows to select what parameter is measured (for example, AC - Abdominal Circumference) and defined in table.

**Growth table** checkbox, if enabled, means that table is defined for Growth trending. Otherwise the table is used for Gestational Age (GA) calculation.

**Table is available for calculations** checkbox, if enabled, means that selected table is used for calculations and available at OB options window. If disabled, the table is not used for calculations.

*This option allows to select preferred tables or tables that are usually used in your country or clinic from many available tables.*

**Comment** field allows to enter table comments and reference the source of the table.



**Caption** fields allow to specify table column names. First column is an input (measurement), column marked with “0” is a central look-up result (Gestational Age for GA table). Columns “-3”, “-2”, “-1”, “1”, “2”, “3” at the left and right of column “0” are for Standard Deviations (SD).

For Gestational Age (GA) tables, “Input” column is some parameter that is measured on ultrasound like AC (Abdominal Circumference) and central result “0” is Gestational Age (GA). GA is specified as weeks+days.

For Growth trending tables, “Input” column is Gestational Age (GA) and result column “0” depends on used parameter (for example, AC).

**Use for input** checkboxes, if enabled, specify what columns are used in table. Some tables in referenced publications may have only input value and look-up result (GA), others may also have standard deviations of different intervals specified as SD, 2SD, 3SD or percentages.

**Options** checkboxes, if enabled, allow to specify that standard deviation columns “-1”, “-2”, “-3” are equal to corresponding columns “1”, “2”, “3” with negative sign and enter data of only positive SD column(s).

**Absolute SD values input** checkbox, if checked, means that standard deviation values are entered as absolute, and otherwise values are entered as relative to the central “0” value. Selection depends on how standard deviation is specified in the referenced publication.

**Add new row** button adds an empty row to the end of the table. **Insert new row** button inserts empty row above selected table row. **Delete selected row** button deletes the selected table row.

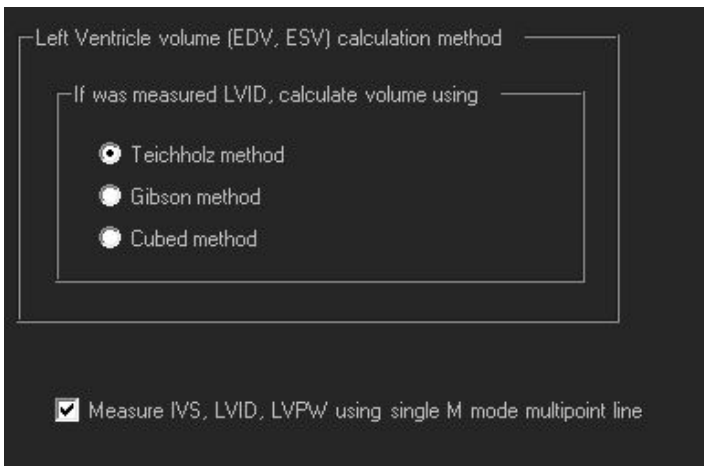
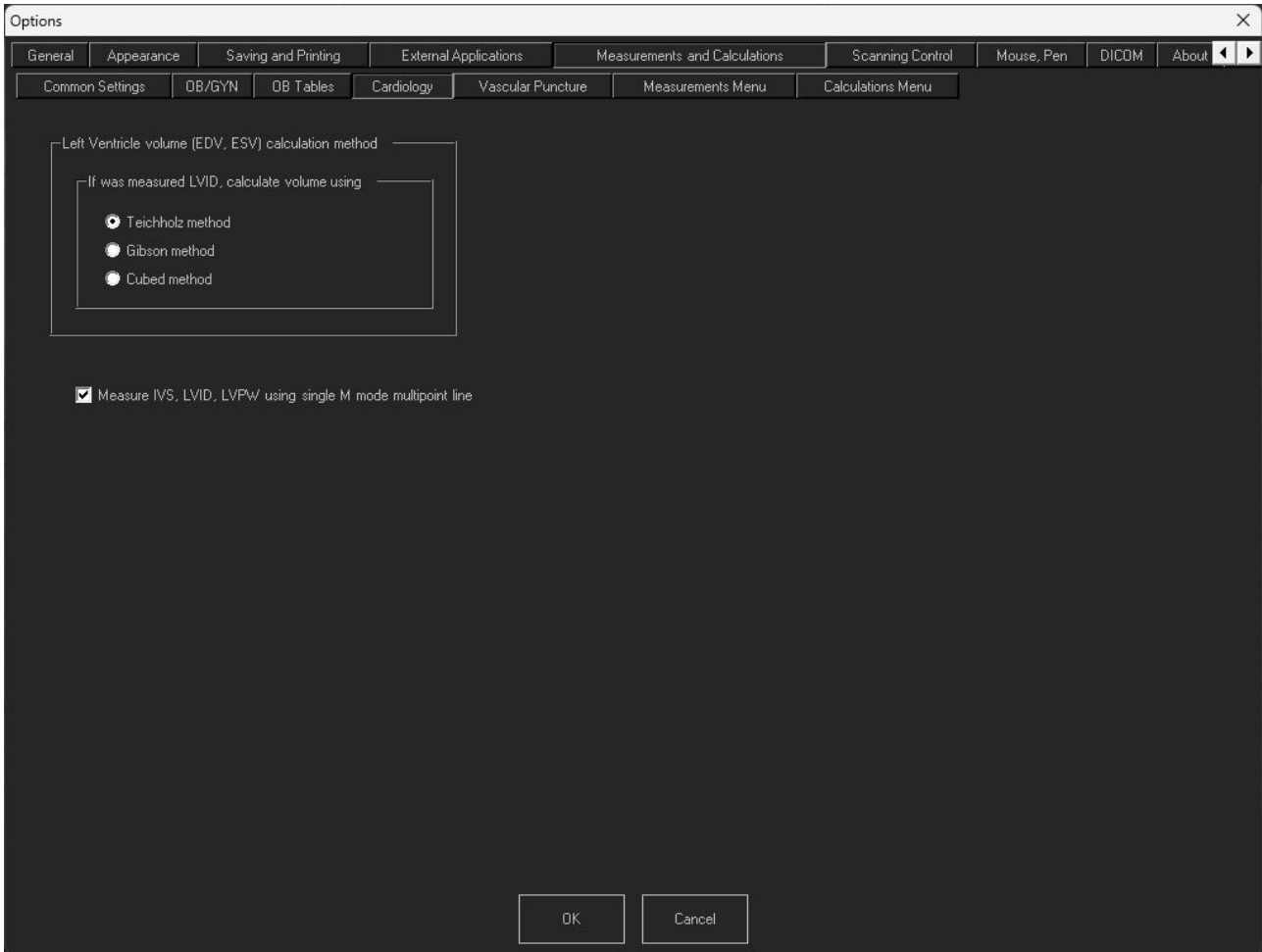
**Current table row** field allows to modify data of the selected row. Entered data must correspond to columns that were selected using “Use for input” checkboxes. As separators are used semicolons “;”.

Measurements on ultrasound are entered as numbers in mm or cm<sup>2</sup> units. GA is entered using w+d (weeks+days) format (like "5+10"), absolute SD is entered using w+d format, relative (not absolute) SD is entered using days (d).

The **OK** button sets data from the "Current table row" field to the selected table row.

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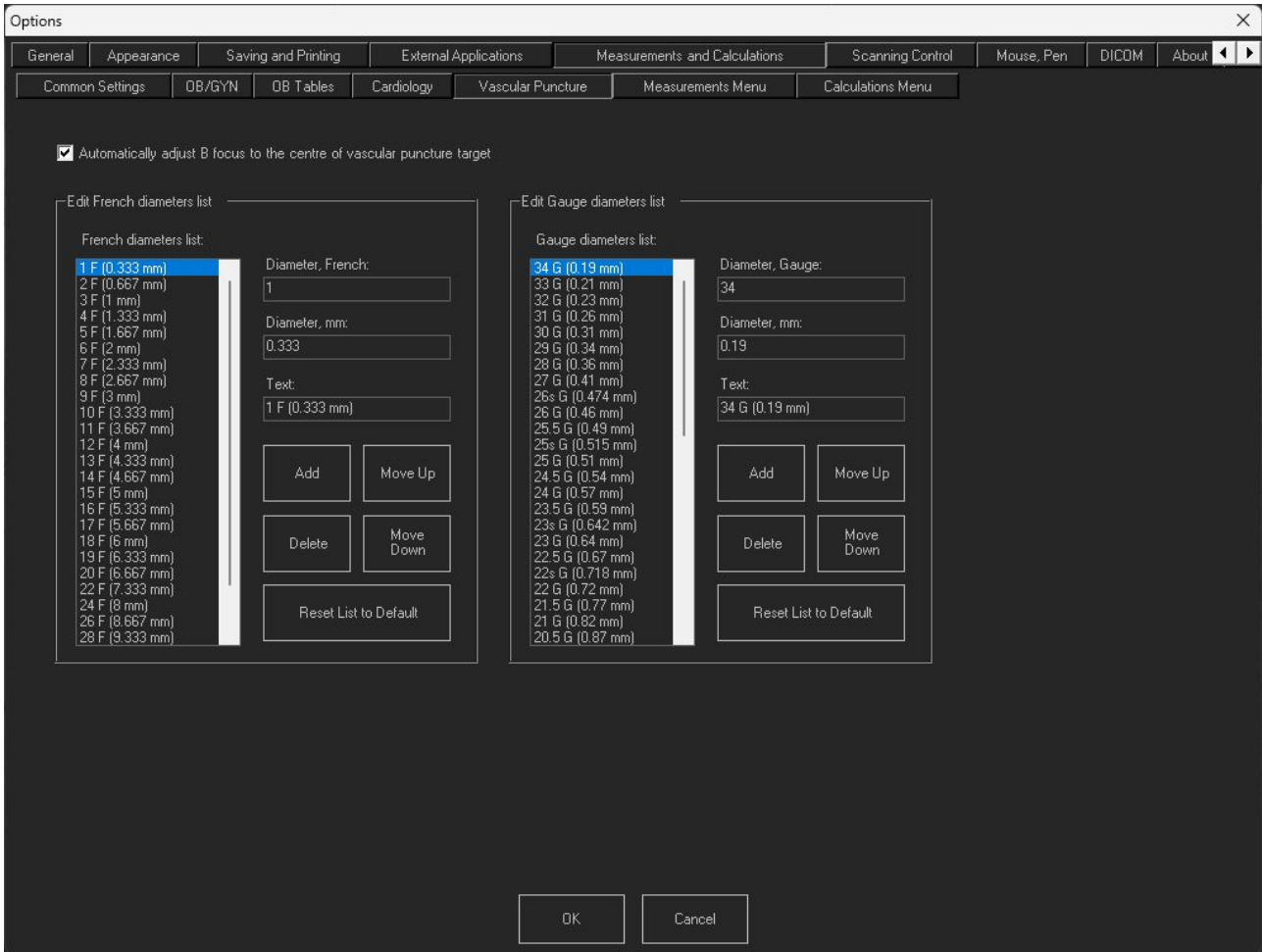
### 6.4. Measurements and Calculations Tab ->Cardiology Tab



**Method** checkboxes allow to select Left Ventricle volume calculation method when doing exam-specific Cardiology measurements.

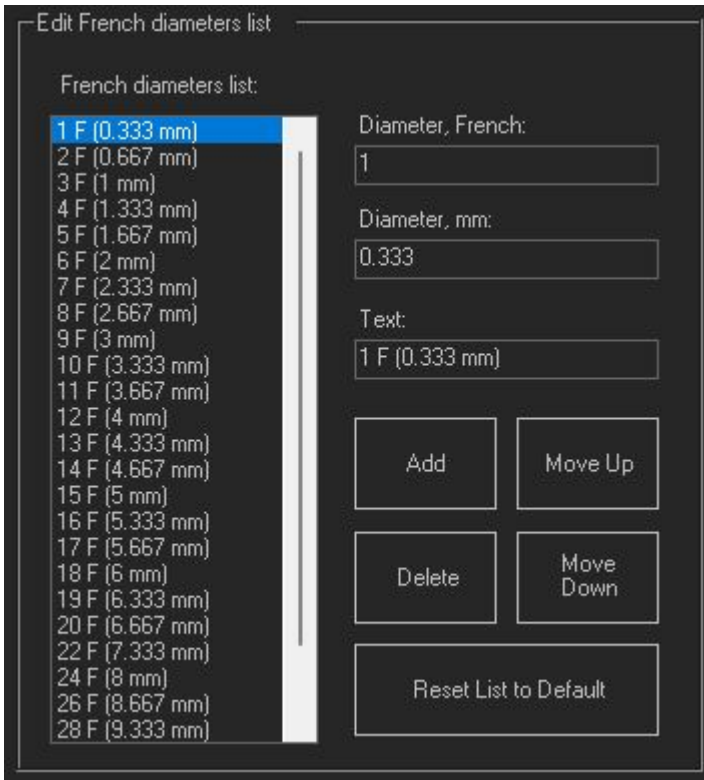
**Measure IVS, LVID, LVPW using single M mode multipoint line** checkbox, if enabled, specifies that mentioned measurements will be done by setting points along single vertical line on the M mode image. If this option is disabled, each measurement is done with separate distance measurement.

### 6.5. Measurements and Calculations Tab ->Vascular Puncture Tab



Automatically adjust B focus to the centre of vascular puncture target

If the check box **Automatically adjust B focus to the centre of vascular puncture target** is enabled, then ultrasound image focus will automatically move if the target is moved.



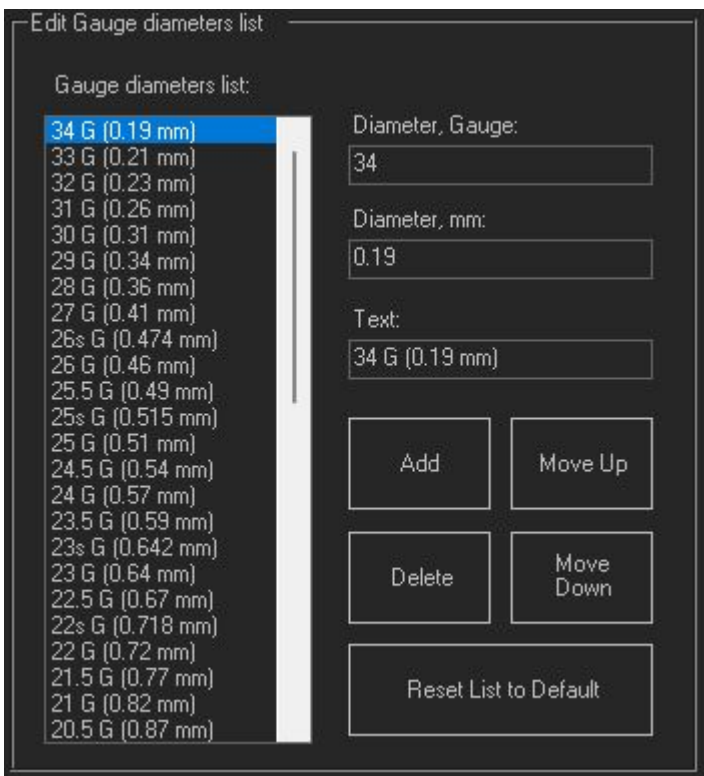
**French diameters list** is the list of all saved catheter/needle diameters in French unit that will be shown when using Vascular Puncture control panel and selecting “French” units. It is possible to select any item in this list, and then item information will appear on the right:

**Diameter French:** diameter value in French units

**Diameter, mm:** diameter value in mm This value is used by the system for calculation and representation.

**Text:** displayed set name  
It is possible to modify any of the items. Buttons **Add** and **Delete** allow to add new or delete selected item. Buttons **Move Up** and **Move Down** allow to move selected list item down or up in the list.

**Reset List to Default** will reset the list to its initial state, and user-added items will be removed.



**Gauge Diameters List** is the list of all saved catheter/needle diameters in Gauge scale that will be shown when using Vascular Puncture control panel and selecting “Gauge” units. It is possible to select any item in this list, and then all item information will appear on the right:

**Diameter, Gauge:** diameter value in Gauge units

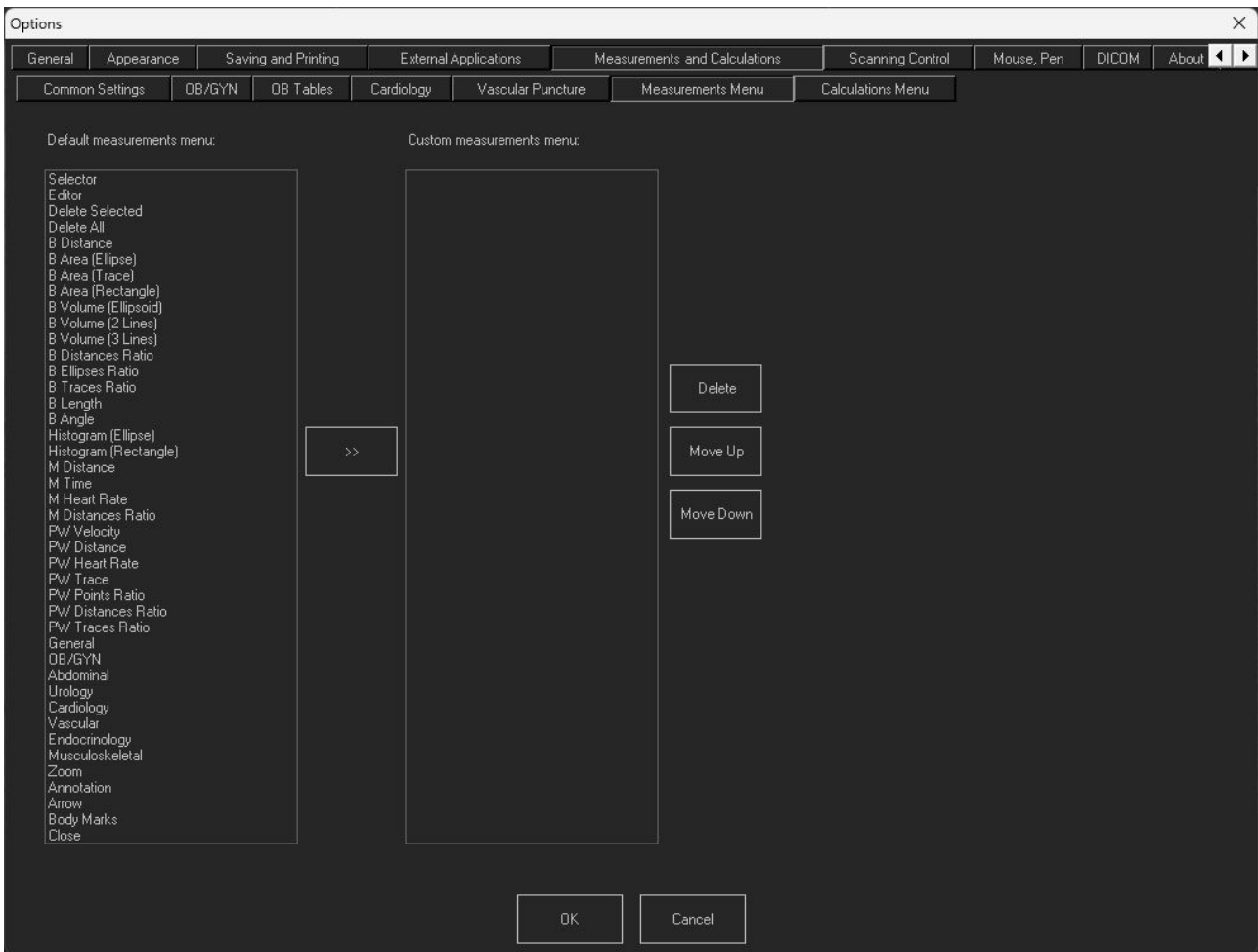
**Diameter, mm:** diameter value in mm This value is used by the system for calculation and representation.

**Text:** displayed set name  
It is possible to modify any of the items. Buttons **Add** and **Delete** allow to add new or delete selected items. Buttons **Move Up** and **Move Down** allow to move selected item down or up in the list.

**Reset List to Default** will reset the list to its initial state, and user-added sets will be removed.

Above options allow to create custom lists of catheter/needle sizes in French and Gauge units.

## 6.6. Measurements and Calculations Tab ->Measurements Menu Tab



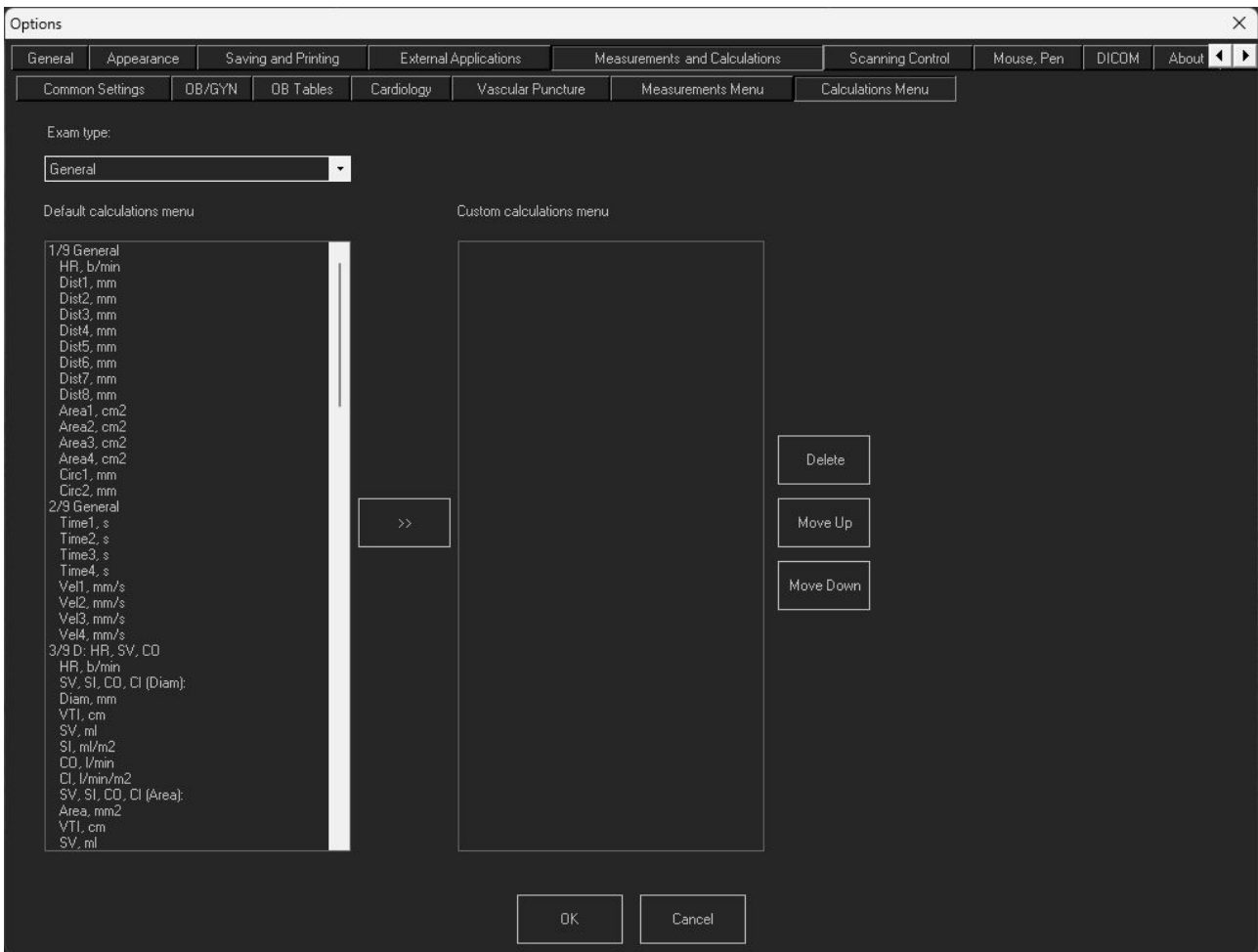


**Default measurements menu:** the list of measurements available by default. If any of the default measurements will be transferred to the **Custom measurements menu**, then program will use the custom menu of measurements. By pressing **Delete**, **Move Up** or **Move Down** buttons it is possible to correct the measurement position in the custom menu.

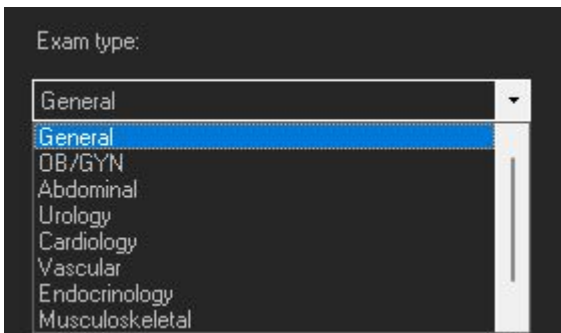
To return to the default measurements menu you should delete all entries in the custom measurements menu field.



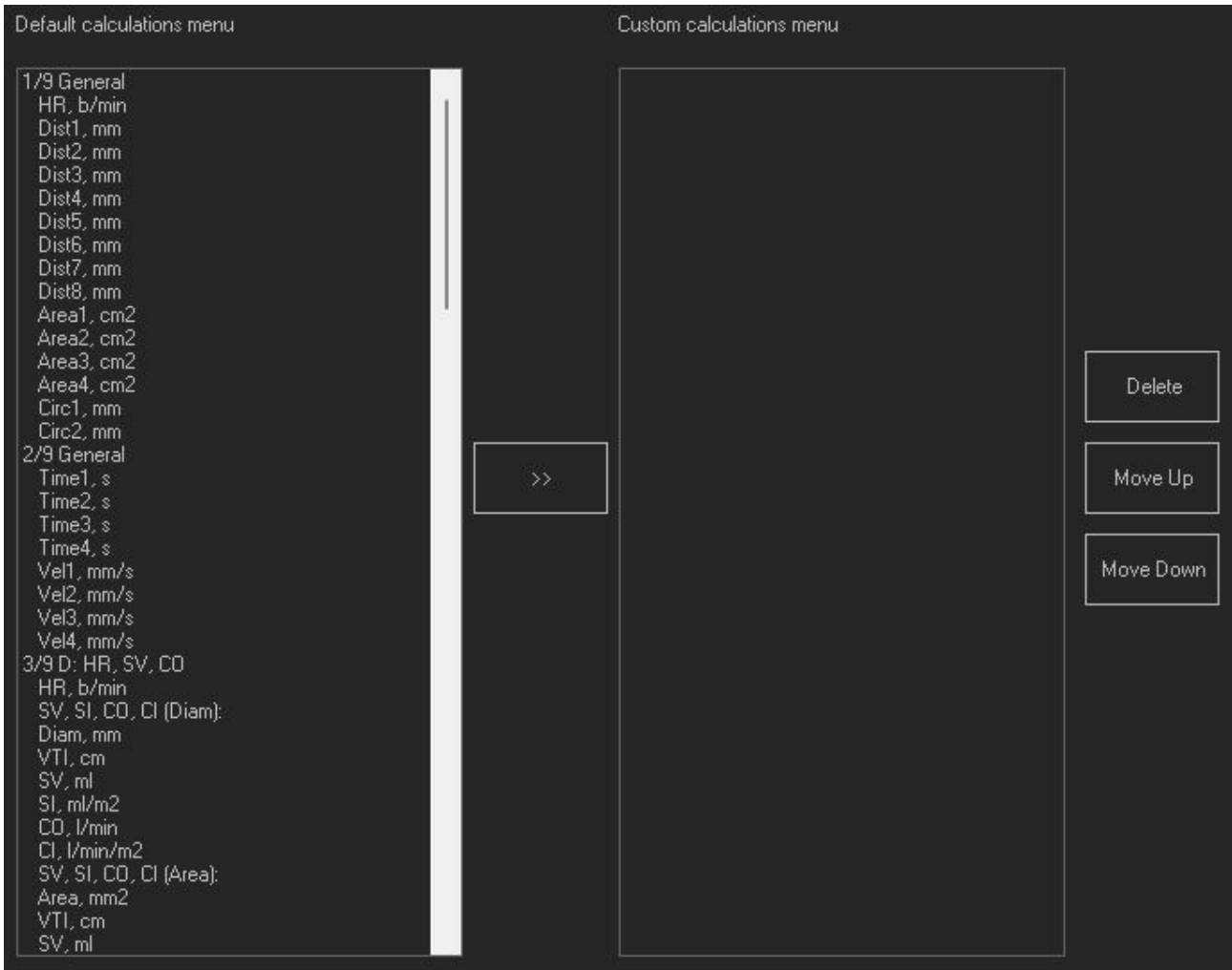
### 6.7. Measurements and Calculations Tab -> Calculations Menu Tab



This settings window allows to create the custom calculation list according to your needs.



**Exam Type** drop list allows to select what exam type will be modified.

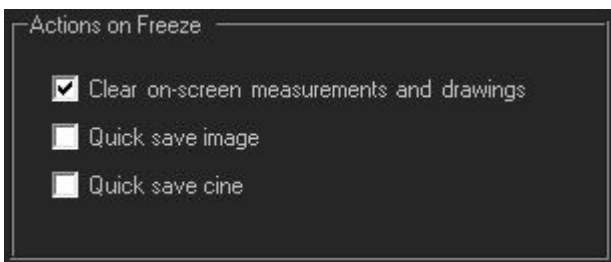
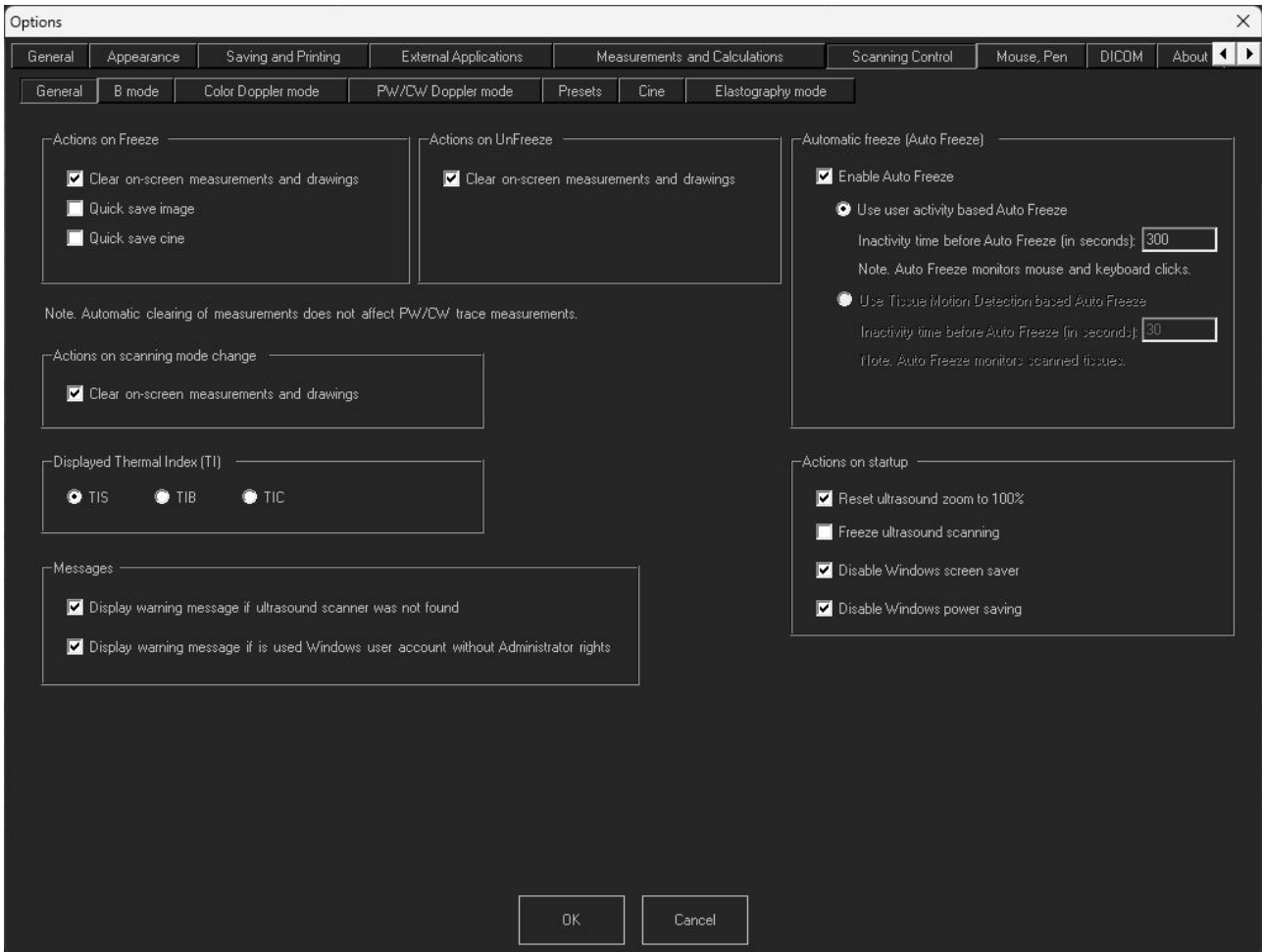


**Default calculations menu:** the list of calculations available by default. If any of the default calculations will be transferred to the **Custom calculations menu**, then program will use the custom menu of calculations. By pressing **Delete**, **Move Up** or **Move Down** buttons it is possible to correct the calculation position in the custom menu.

To return to the default calculation menu you should delete all entries in the custom calculation menu field.

## 7. Scanning Control Tab

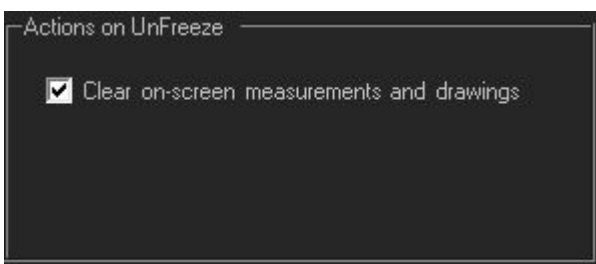
### 7.1. Scanning Control Tab -> General Tab



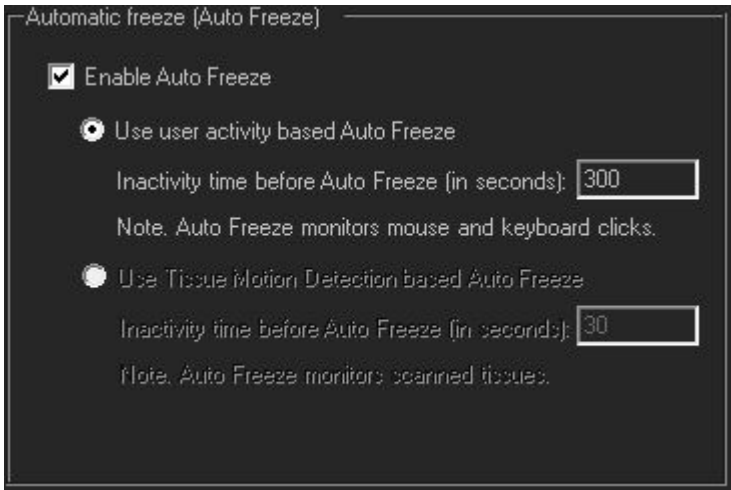
**Clear on-screen measurements and drawings** if enabled all measurements and drawings are cleared when the freeze is activated.

**Quick save image** if enabled makes quick image save each time when freeze is activated.

**Quick save cine** if enabled makes quick cine save each time when freeze is activated.



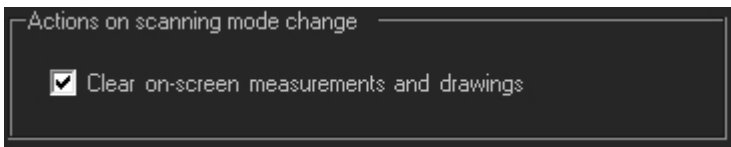
**Clear on-screen measurements and drawings** if enabled all measurements and drawings are cleared when the freeze is deactivated.



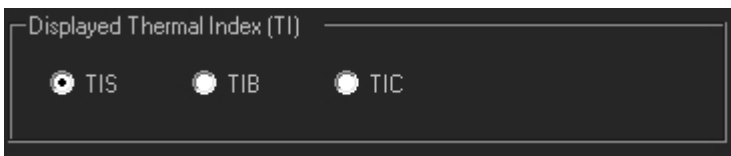
**Enable Auto Freeze**, when enabled, will make ultrasound device go to freeze mode after some time of inactivity. Options specify how activity is measured.

**Use user activity based Auto Freeze.** When enabled, software will detect user activity - keyboard clicks, mouse movements and, if no activity is detected in set time interval, system will go to freeze mode.

**Use Tissue Motion Detection based Auto Freeze.** When enabled, software automatically senses if there are some changes/tissue movements on the ultrasound image. If no changes are detected in the set time interval, the system will go to freeze mode.



**Clear on-screen measurements and drawings.** If enabled, then, if the user changes scanning mode, all measurements and drawings will be cleared.



Allows to select what type of **Thermal Index (TI)** to display:

**TIS:** thermal index in soft tissue

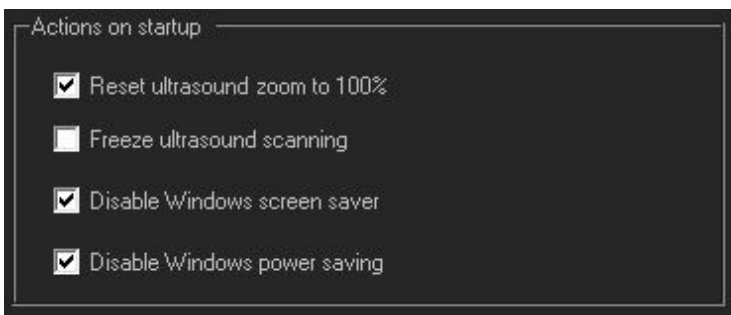
**TIB:** thermal index for bone at the focus

**TIC:** thermal index for cranial bone



**Display warning message if ultrasound scanner was not found.** If enabled, then, each time the ultrasound scanner will not be detected, you will see the message.

**Display warning message if is used Windows user account without Administrator rights.** If enabled, then, each time the system is started by the user without the Administrator's rights, you will see the warning message.



**Reset ultrasound zoom to 100%.** If enabled, then during the start-up ultrasound image zoom will be reset to default 100%. If not enabled, then software will restore last used zoom value.

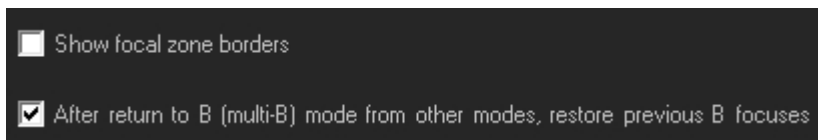
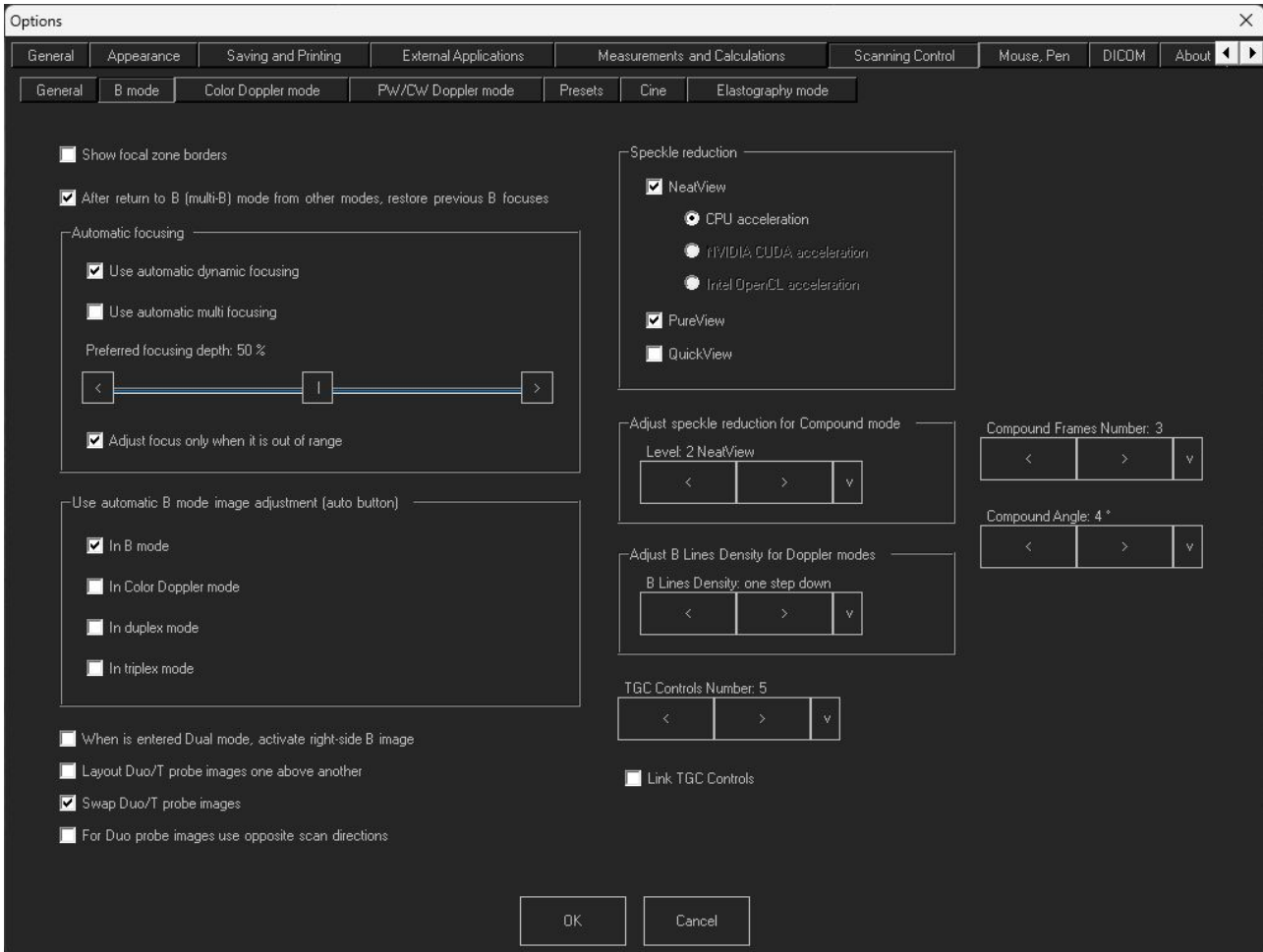
**Freeze ultrasound scanning.** If enabled, then, after the system starts, ultrasound system will be in freeze mode.

**Disable Windows screen saver.** If enabled, then, while Echo Wave II software is open, Windows screen saver will be disabled.

**Disable Windows power saving.** If enabled, then, while Echo Wave II software is open, Windows power saving will be disabled.

---

## 7.2. Scanning Control Tab -> B mode Tab



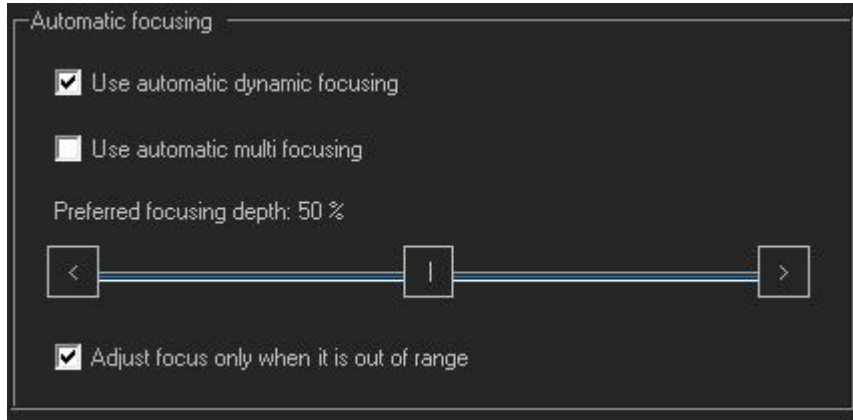
### Show focal zone borders.

When enabled, special characters appear above and below focus marks. They are marking the width of the focusing zone.



### After return to B (multi-B) mode from other modes, restore previous B focuses.

If enabled, then the initial B mode focus will be restored when returning from other imaging modes (CFM, PW,...). Normally in Doppler modes is used single B focus and it moves together with the Doppler window/marker. This option allows to return B focusing state to the one that was before entering Doppler mode.



### Use automatic dynamic focusing

When enabled, after depth change software adjusts dynamic mode focuses to keep them at preferred focusing depth that is specified as a percentage of current scanning depth. The software will try to keep focuses at the center (or other specified position) of visible image or as close as possible near it. Focusing depths in millimeters may change after each scanning depth change.

If automatic focusing option is not enabled, after depth change focuses remain at the same depths in millimeters, and this means that they may move away from the central part of visible image and you will need to adjust the focusing depth manually using Focus control.

### Use automatic multi focusing

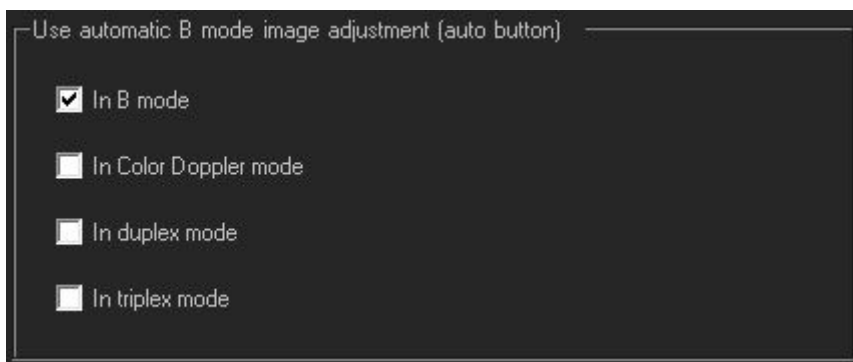
When enabled, operates in the same way as **Use automatic dynamic focusing**, with exception that affected focusing mode is multifocus (static focusing).

### Preferred focusing depth

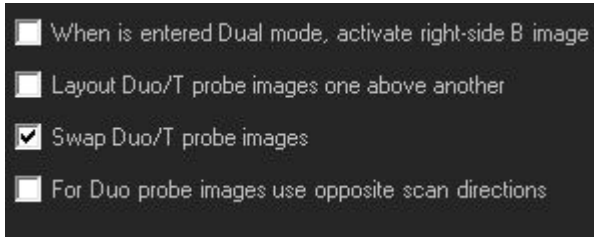
Allows to select preferred automatic focusing depth that is specified as a percentage of current scanning depth.

### Adjust focus only when it is out of range

When enabled, the software adjusts focus not every time when depth is changed, but only when, after depth change, the focus becomes out of range. This happens if scanning depth is large, focus is set at large depth, and the user selects smaller scanning depth that is smaller than previously specified focusing depth. In such case, the software will automatically set focus to the lowest possible value for the newly specified scanning depth. Depending on the used ultrasound scanner, automatic out of range focus adjustment may be done even if all automatic focusing options are turned off.



Allows to select in what modes (B, Color Doppler, duplex, triplex) is done automatic B mode image adjustment when at scanning controls toolbar is clicked "Auto" button. By default automatic B image adjustment is done only in B mode (checked checkbox **In B mode**). If you want B image to be automatically adjusted when you click "Auto" button in Color Doppler mode, put the check on **In Color Doppler mode**.



**When is entered Dual mode, activate right-side B image**

When enabled, after entering Dual mode right side B image will be active, otherwise active is the left B image.

**Layout Duo/T probe images one above another**

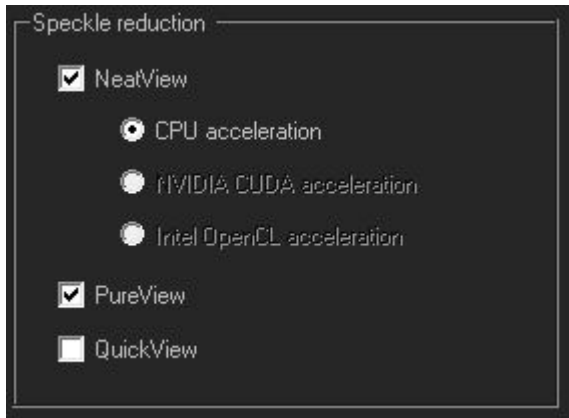
When enabled, Duo/T probe images are positioned one above the other, otherwise they are positioned side by side.

**Swap Duo/T probe images**

When enabled, Duo/T probe images are swapped.

**For Duo probe images use opposite scan directions**

When enabled, scanning direction of one Duo probe image is changed to the opposite. This is done to achieve a continuous probe image – the end of the first probe image is the beginning of the second probe image.



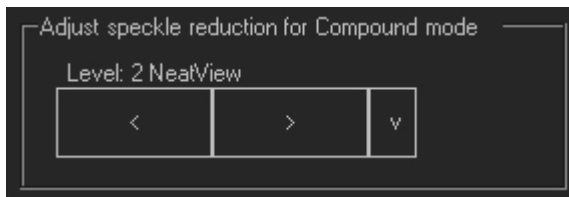
Checkboxes allow to configure what speckle reduction filters are allowed to use in software Speckle Reduction control.

**NeatView** check box allows to enable or disable NeatView speckle reduction filters. Radio buttons below allow to select the acceleration method. Depending on the system, it is possible to select CPU, Nvidia CUDA or Intel Open CL acceleration.

**PureView** check box allows to enable/disable PureView speckle reduction filters.

**QuickView** check box allows to enable/disable QuickView speckle reduction filters.

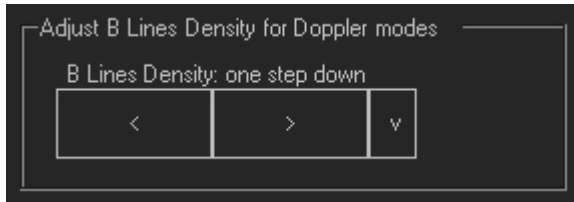
At least one speckle reduction filter must be enabled.



Allows to select what speckle reduction filter level will be initially used when the compound mode is selected.

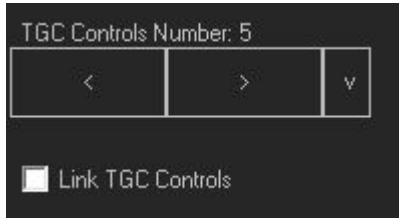
It is possible to select: Leave as is, Disable or some desired level of NeatView/PureView filter.





Adjust **B Lines Density** for Doppler modes

Allows to select B lines density in Doppler modes: one step down or leave not changed. Making B line density one step down will lower B image resolution, but increase frame rate.

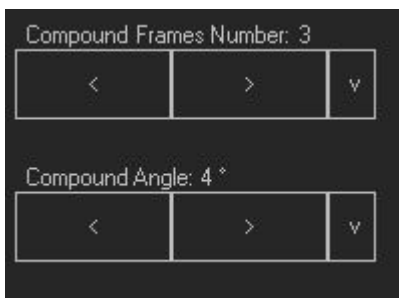


#### **TGC controls number**

Allows to select the number of TGC sliders. It is possible to select from 5 to 10 TGC controls.

#### **Link TGC Controls**

When enabled, TGC control points will move all together.



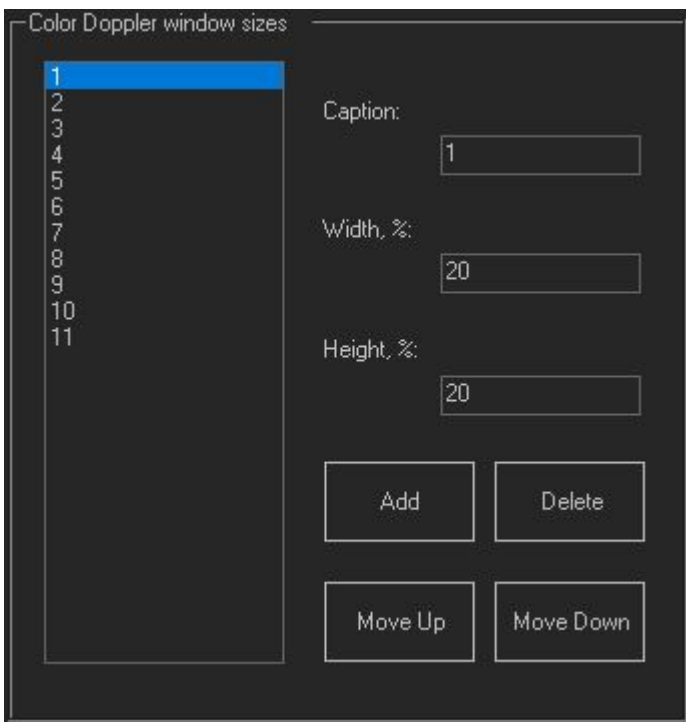
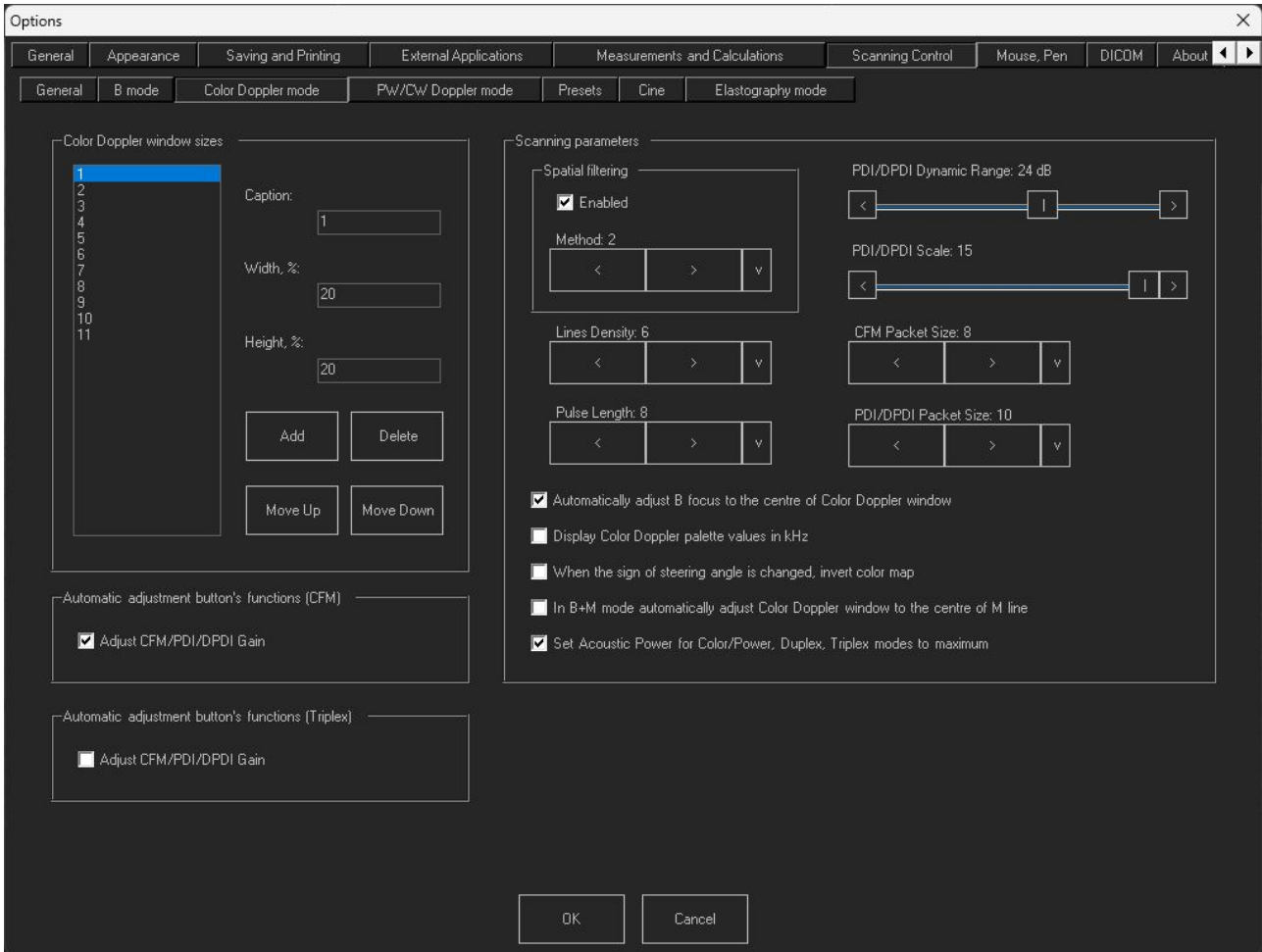
#### **Compound frames number**

Allows to change the number of frames used for compound ultrasound image creation. It is possible to select from 2 to 5 frames. Using larger number of frames may lead to better compound image quality but may reduce frame rate.

#### **Compound Angle**

Allows to change the angle used to form the compound image. It is possible to select from 2 degrees to 10 degrees.

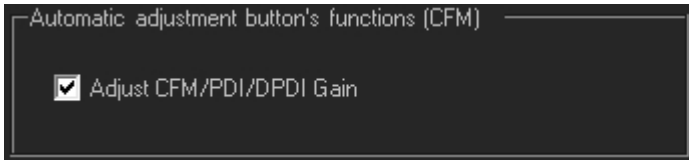
### 7.3. Scanning Control Tab -> Color Doppler mode Tab



Specifies predefined Color Doppler window sizes that are shown in window size control.

Window size is set in percentages from the whole ultrasound image.

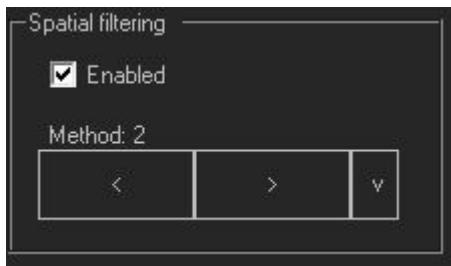
The user can customize the list of Doppler window sizes, move list items up or down, add new and delete selected items using **Move Up**, **Move Down**, **Add**, **Delete** buttons. Displayed name of selected list item is entered to **Caption** field, horizontal size to **Width** field, vertical size to **Height** field.



When enabled, automatic adjustment “Auto” button becomes functional in Color Doppler modes. When it is activated, color Gain is automatically adjusted.



When enabled, automatic adjustment “Auto” button becomes functional in Triplex mode. When it is activated, color Gain is automatically adjusted.



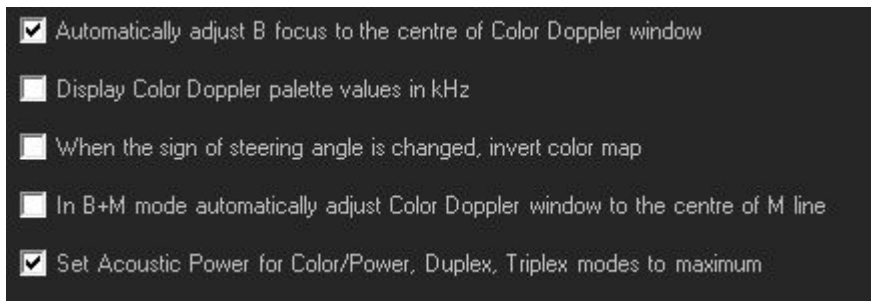
When enabled, **Spatial filter** allows to obtain smoother Color Doppler Images. Higher values make the Color Doppler image smoother, but the resolution of the image is decreasing.



**Lines density** control optimizes the Color Doppler frame rate or the spatial resolution for the best possible color image. Higher density values produce images with better spatial resolution and lower lines density values produce images with higher frame rates.



The **Pulse Length** control allows to adjust the resolution of the Color Doppler image. Increasing pulse length will increase the sensitivity and image quality, but this will also increase TI and MI. In some cases, the increase of pulse length may lead to automatic Power reduction for safety reasons.



**Automatically adjust B focus to the centre of Color Doppler window.**

When enabled, focus is automatically adjusted to the centre of the Color Doppler window and, if the window is moved, the focus will also move.

**Display Color Doppler palette values in kHz.** When enabled, the velocity values above and below

Color Doppler palette are displayed in kHz. By default they are displayed in cm/s.

**When the sign of steering angle is changed invert color map.**

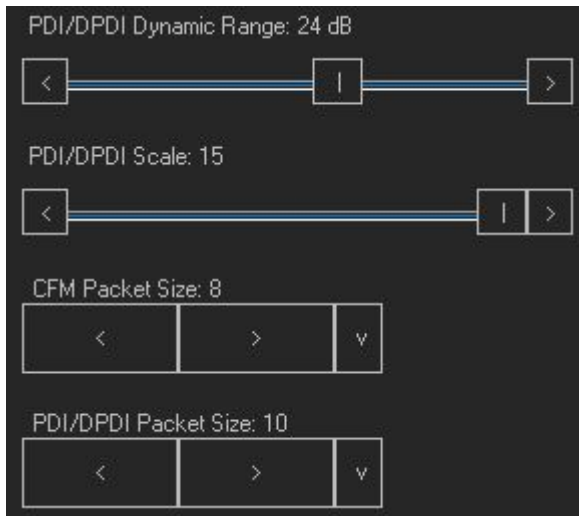
If enabled, after the change of steering angle from positive to negative, the color map is inverted (blood flow direction will be inverted).

**In B+M mode automatically adjust Color Doppler window to the center of M line.**

If enabled, then the color window will be adjusted to the center of the M line horizontally and will automatically move if the M line is moved.

**Set Acoustic Power for Color/Power, Duplex, Triplex mode to maximum.**

If enabled, then color modes will always start with Acoustic Power set to maximum value.



**Dynamic Range** controls how echo intensities are converted into various shades of gray. A larger dB value means that more shades of gray are used.

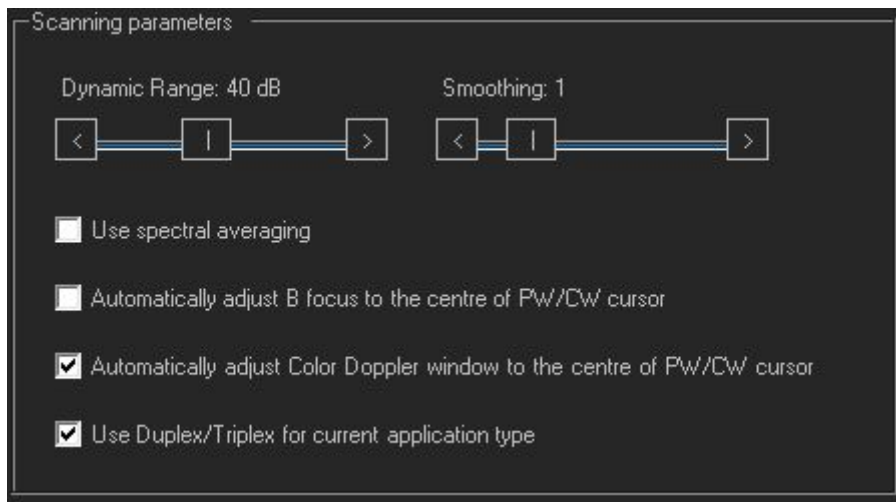
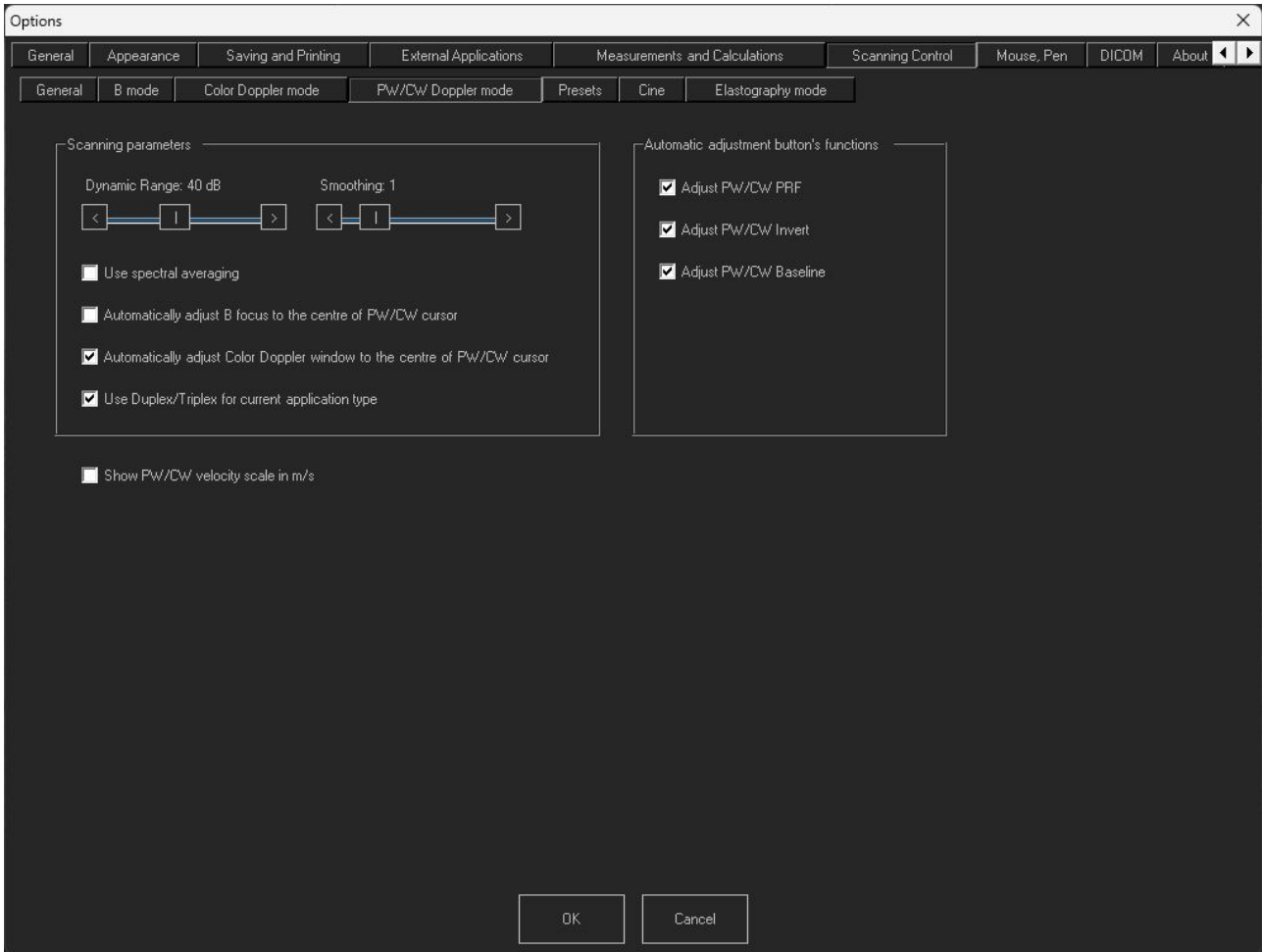
*More shades of gray in some cases can lead to unwanted noise appearance. It is better to adjust this parameter step by step while checking the resulting image.*

**PDI/DPDI Scale** adjustment changes the level of power visualized in Power Doppler and Directional Power Doppler modes.

**CFM Packet Size** changes the intensity of the colors in the Color Doppler mode. Larger values increase the intensity but will lower the frame rate.

**PDI/DPDI Packet Size** changes the intensity of the colors in the Power Doppler and Directional Power Doppler modes. Larger values increase the intensity but will lower the frame rate.

### 7.4. Scanning Control Tab -> PW/CW Doppler mode Tab



**Dynamic Range** controls how echo intensities are converted into various shades of gray. A larger dB value means that more shades of gray are used.

*More shades of gray in some cases can lead to unwanted noise appearance. It is better to adjust this parameter step by step while checking the resulting image.*

**Smoothing** allows you to obtain smoother spectral Doppler images. Larger values make the image

smoother.

**Use spectral averaging**

Spectral averaging makes spectral Doppler images smoother.

**Automatically adjust B focus to the centre of PW/CW cursor**

When enabled, B focus is automatically adjusted to the centre of PW/CW cursor and will automatically move if the cursor is moved

**Automatically adjust Color Doppler window to the centre of PW/CW cursor**

When enabled, Color Doppler window is automatically adjusted to the centre of PW/CW cursor and will automatically move if the cursor is moved

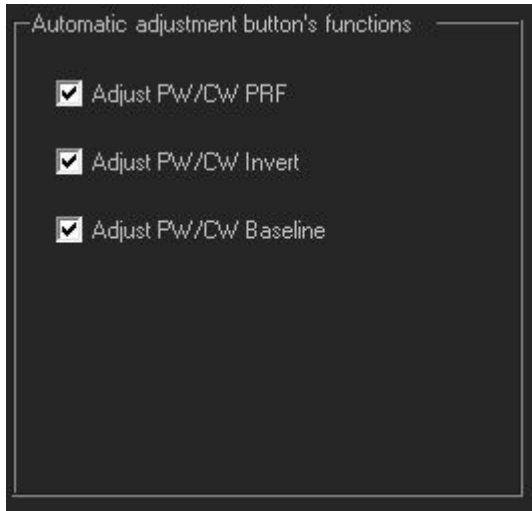
**Use Duplex/Triplex for current application type**

When enabled, Duplex/Triplex will be enabled for the current exam type, and otherwise it will be disabled.

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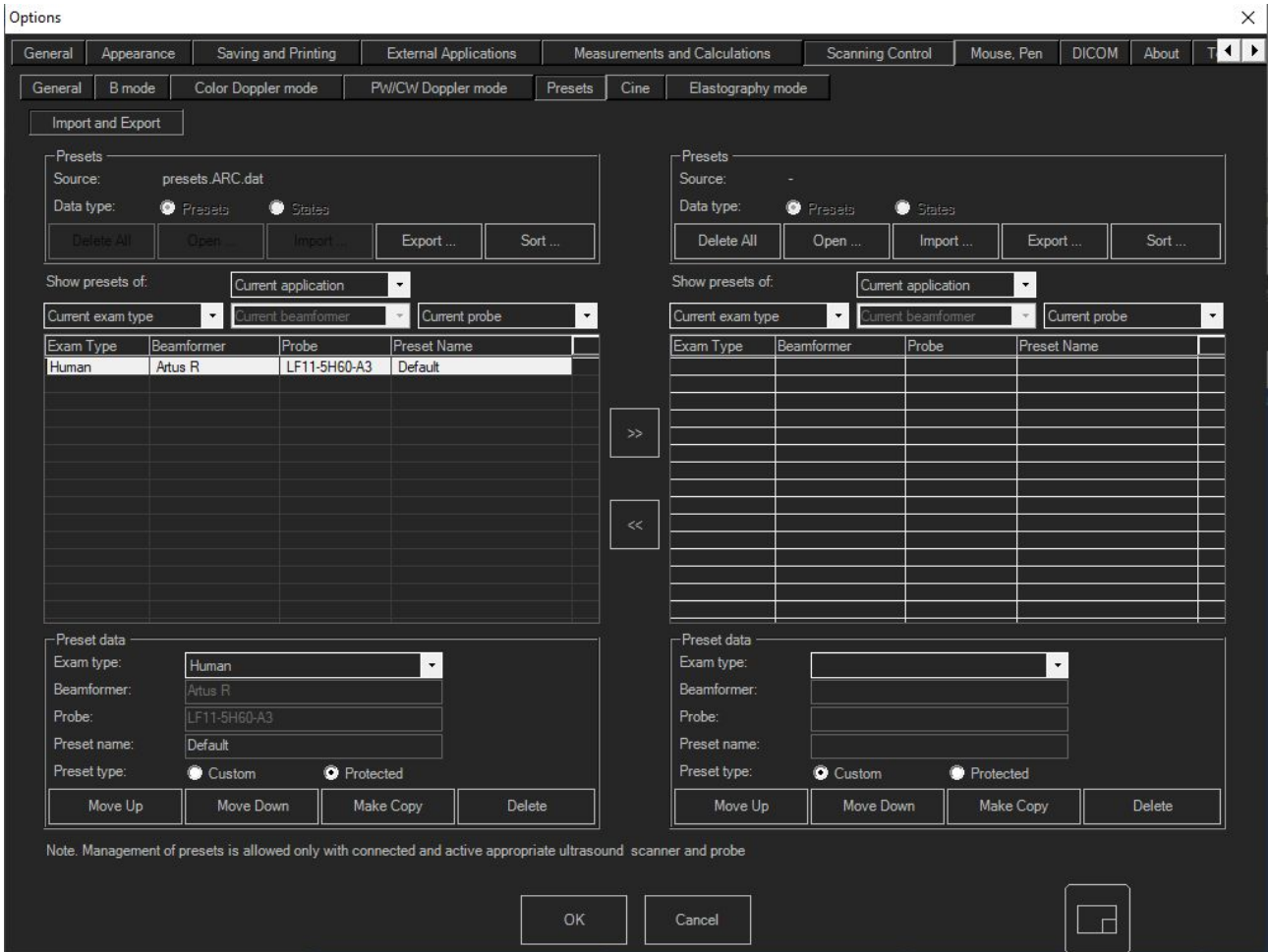
Show PW/CW velocity scale in m/s

When enabled, PW/CW velocity scale will be shown in m/s. Otherwise PW/CW velocity scale is shown in cm/s.

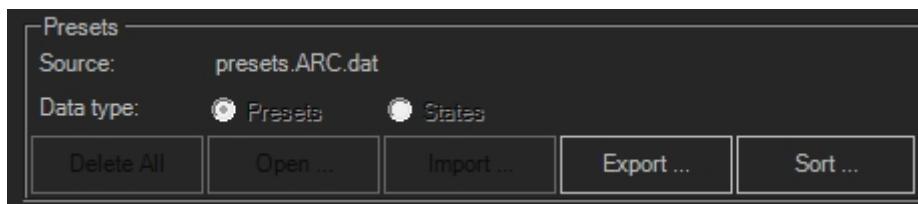


Selected functions/adjustments that will be done when "Auto" button is clicked in spectral Doppler modes.

### 7.5. Scanning Control Tab -> Presets Tab



Preset Import and Export consist of 2 similarly looking parts. The Left part shows the presets that are currently used by the program. The Right part shows imported/opened presets. It is possible to move favorite presets here and export them to file.



**Source:** shows the name of the \*.dat file used by software to store current presets.

**Data type:** indicates what data is shown in the list. In user mode are shown **Presets**. In software service mode it is possible to access last used settings (**States**) when software was closed.

**Delete All** Remove all presets.

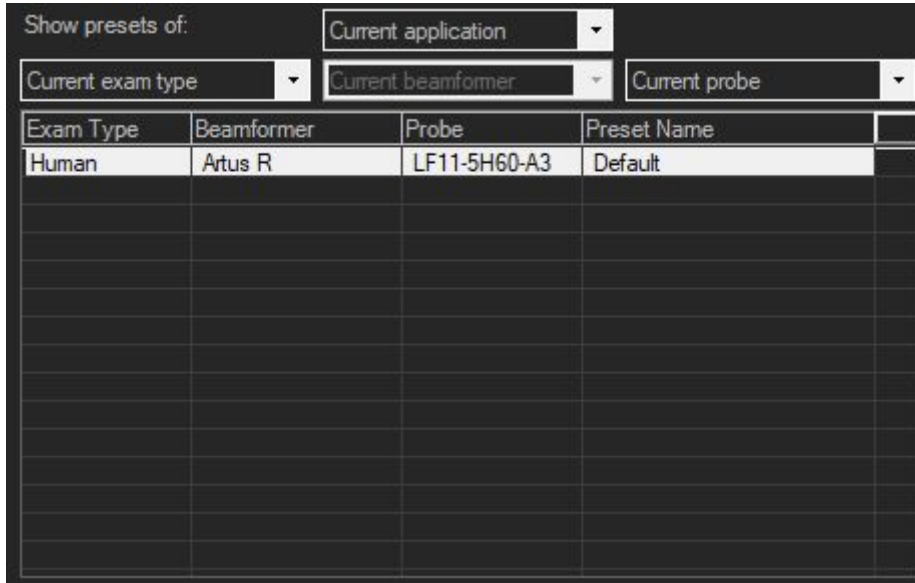
**Open** Opens a preset file.

**Import** Imports selected file. Import adds files to already present presets list while **Open** replaces them.

**Export** Exports selected presets.

**Sort** Allows to select how presets are displayed. It is possible to select between 2 ways: "Probe, Exam" or "Exam, Probe".

**Delete All, Open** and **Import** functions are only available in the Right menu part. Selected presets between Left and Right parts are moved using arrow buttons ">>" and "<<".

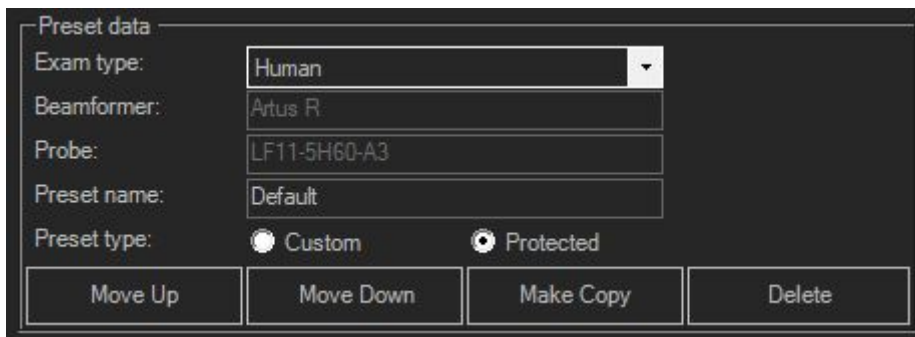


It is possible to filter presets by different parameters:

**Application type:** All applications or Current application

**Exam Type:** All exam types, Current exam type, Human or Veterinary depending on **Application type** selection. Selections “All exam types” and “Current exam type” were left for compatibility with previous software versions when presets were divided by exam type. Now presets are divided only by application type (Human or Veterinary).

**Probe:** All probes, Current probe or any probe from the list



When preset is selected, preset data will appear.

User can modify the preset **Exam type** - Human or Veterinary and change the **Preset name**.

Also it is possible to change the **Preset type**. Protected type usually have presets created in Telemed, and Custom – are presets created by the user. If preset is protected, it cannot be deleted from main user interface.

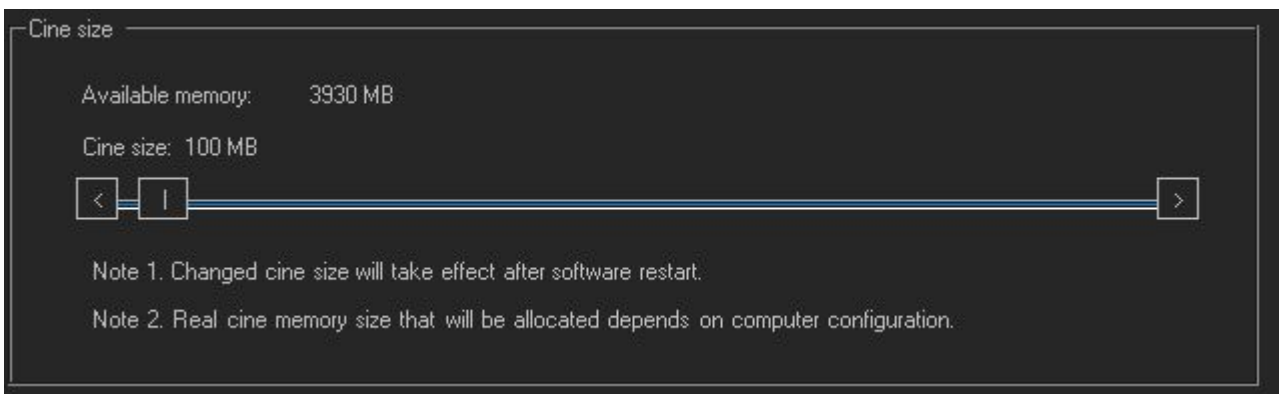
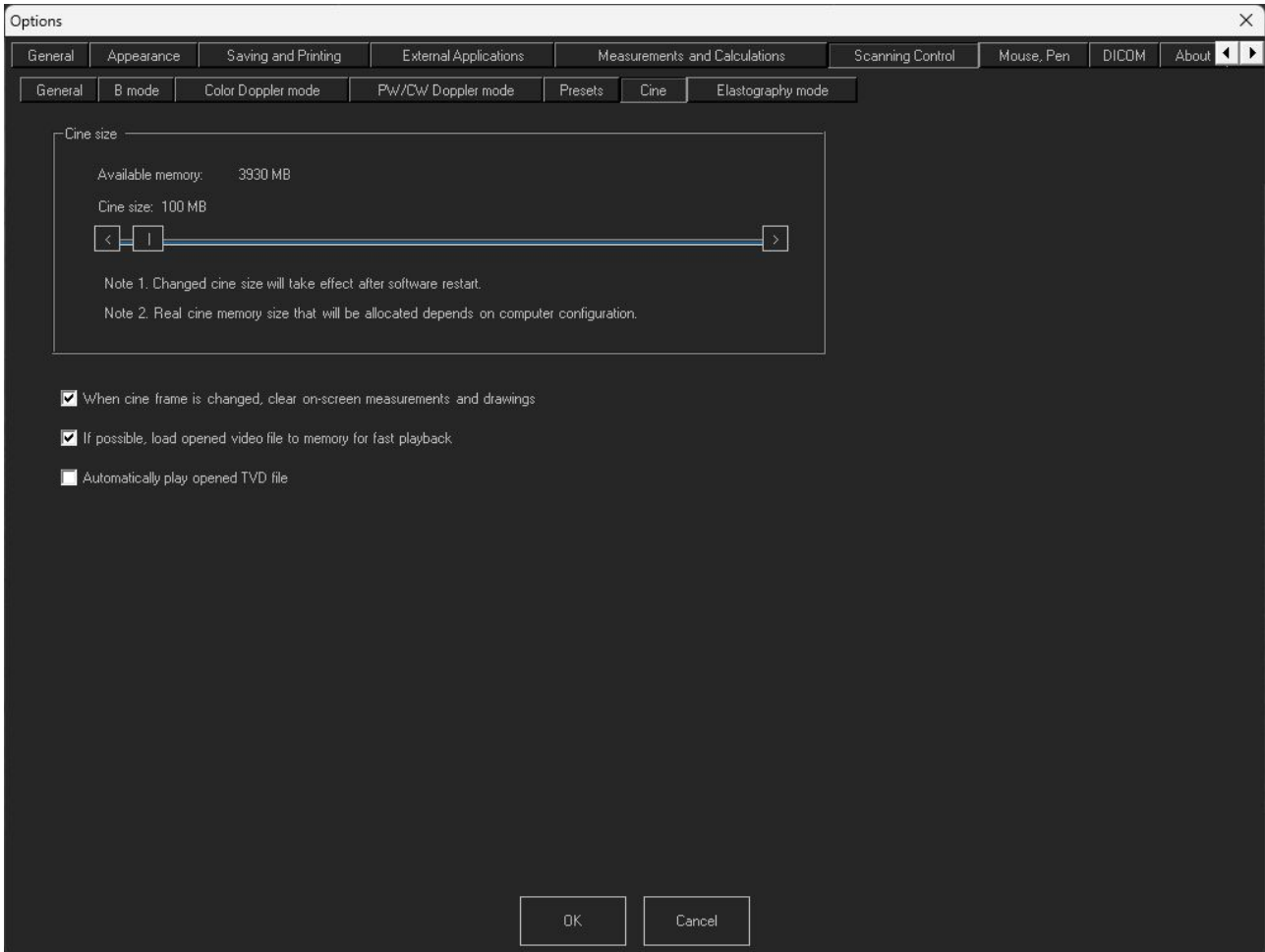
Pressing **Move Up/Down** buttons will move the selected preset up or down in the list. **Make Copy** will create a copy of the selected preset. **Delete** will delete the selection.

*This option window is useful when you want to export your presets for backup purposes or for moving them to another computer.*

*Pressing the **Export** button will export presets that were selected in the list below. If required, desired to export presets can be moved to the Right side (using the arrow button “>>”) and then selected and exported using the Right side **Export** button. Several presets in the list can be selected by holding the Shift keyboard key and clicking desired presets interval with the mouse or holding Shift and using the keyboard Up/Down arrows. Also multiple selections can be made by holding the keyboard Ctrl button and clicking presets with the mouse.*

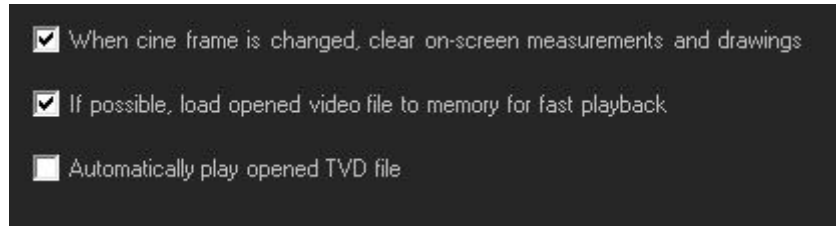


## 7.6. Scanning Control Tab -> Cine Tab



### Cine size

This control allows to select what amount of available memory to use for cine storage while scanning. The more memory is selected, the larger cine (more frames) can be stored.



**When cine frame is changed, clear on-screen measurements and drawings.**

If enabled, then changing of current frame to another one will clear all measurements and drawings.

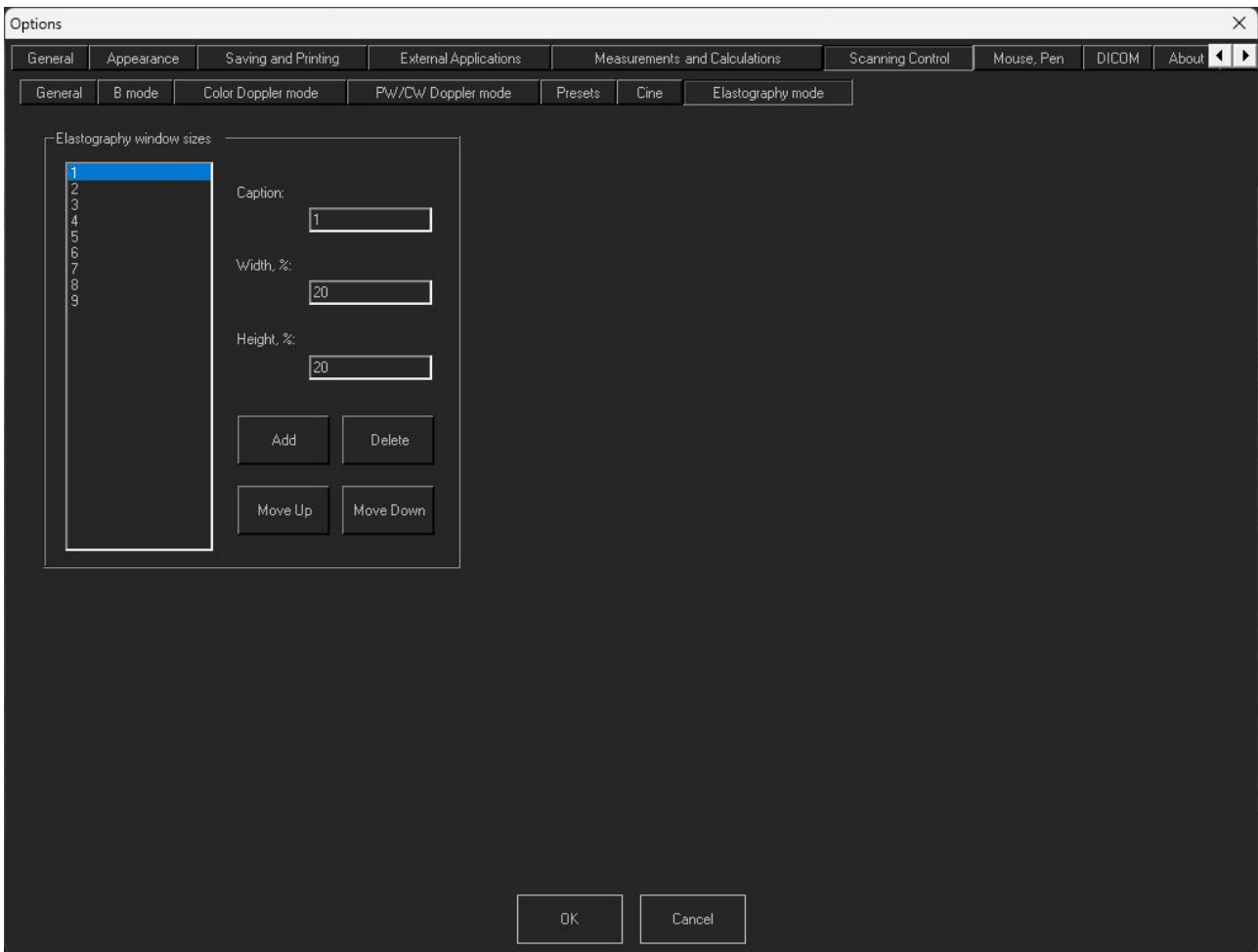
**If possible, load opened video file to memory for fast playback**

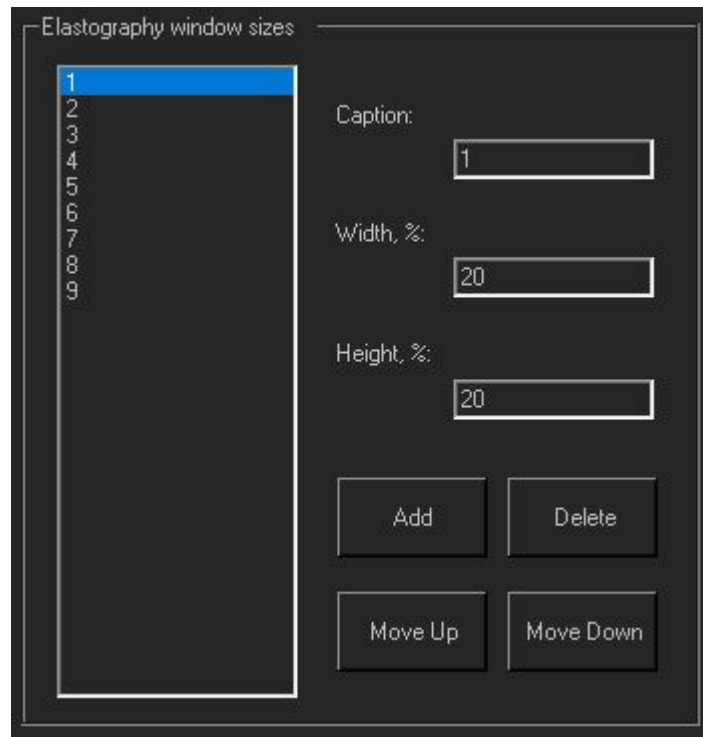
If enabled, then software will try to load the opened AVI video file to memory. If the file is large and there is not enough available memory, then the file will remain on disk. Loading file to memory improves video playback performance.

**Automatically play opened TVD**

If enabled, then the opened TVD file will be played automatically.

### 7.7. Scanning Control Tab -> Elastography mode Tab





Specifies predefined color Elastography window sizes that are shown in window size control.

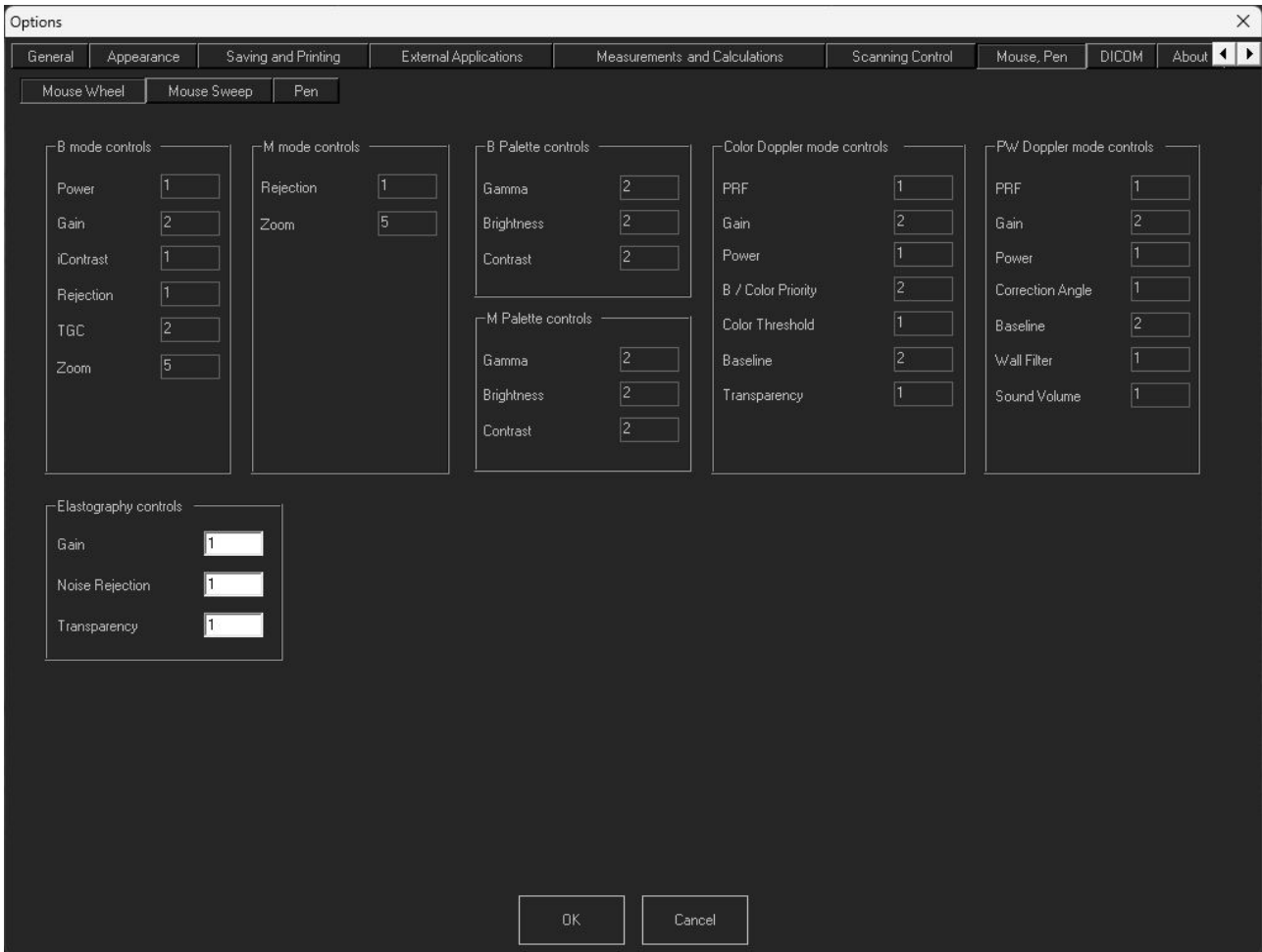
Window size is set in percentages from the whole ultrasound image.

The user can customize the list of Elastography window sizes, move list items up or down, add new and delete selected items using **Move Up**, **Move Down**, **Add**, **Delete** buttons. Displayed name of selected list item is entered to **Caption** field, horizontal size to **Width** field, vertical size to **Height** field.

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## 8. Mouse, Pen Tab

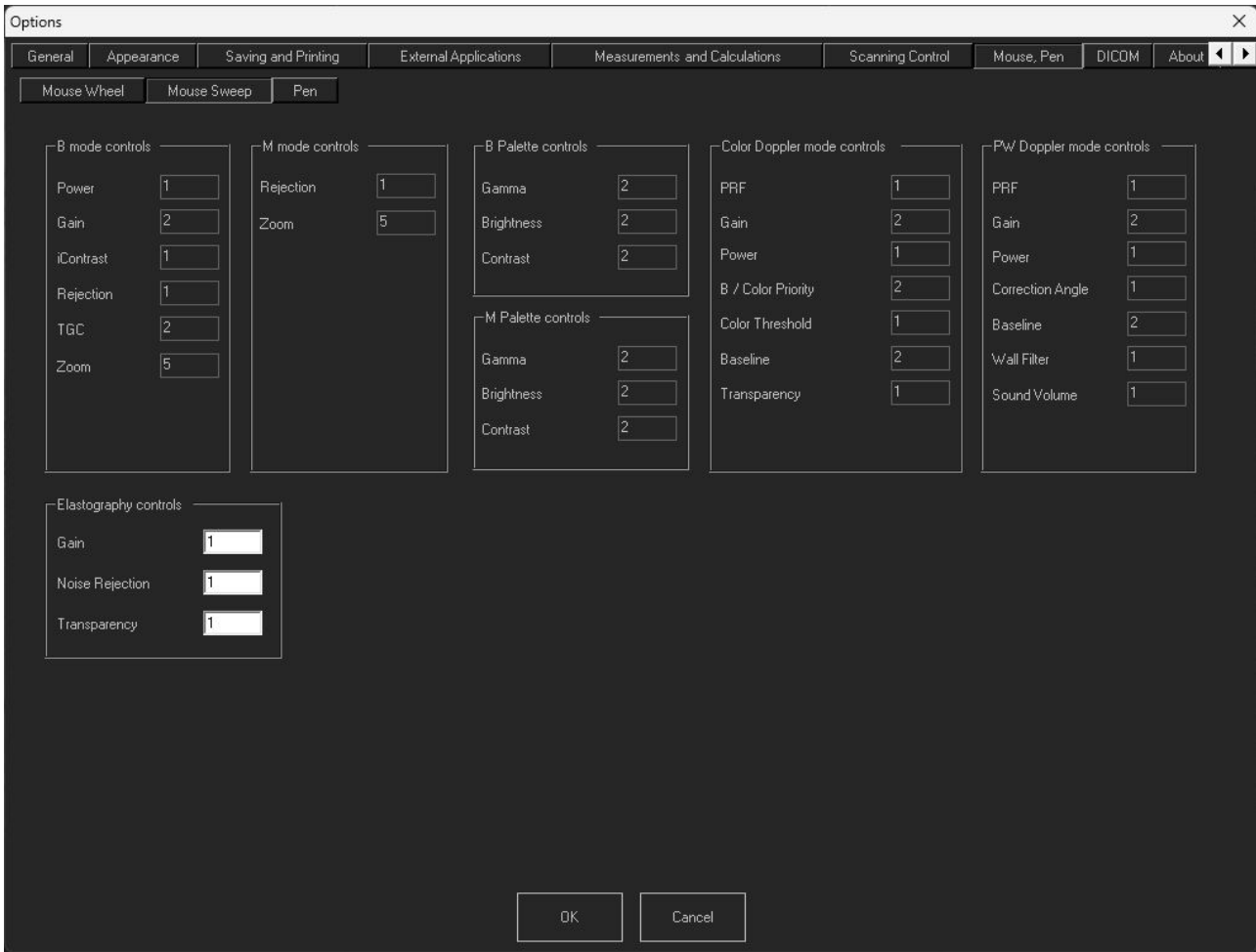
### 8.1. Mouse, Pen Tab -> Mouse Wheel



This options tab allows to configure how many indices in scanning control's values list correspond to single mouse wheel step. If in text field is entered value 1, this means that control values are not skipped. If is entered 2, this means that by rotating mouse wheel we see every second value of selected control. Larger step values can be entered when the control has many values.

If 0 is selected, then the software will use the wheel step setting from the Windows operating system.

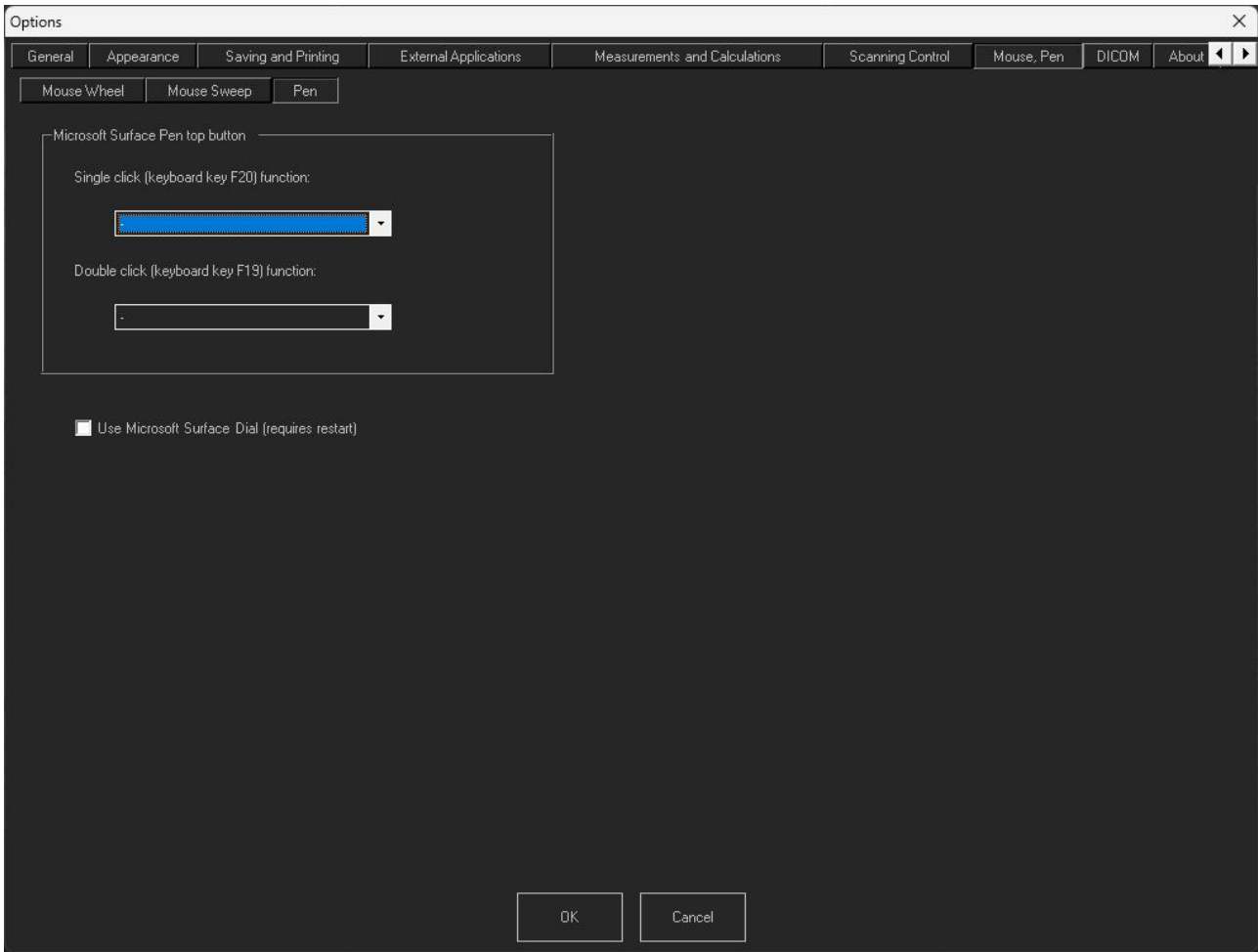
## 8.2. Mouse, Pen Tab -> Mouse Sweep Tab



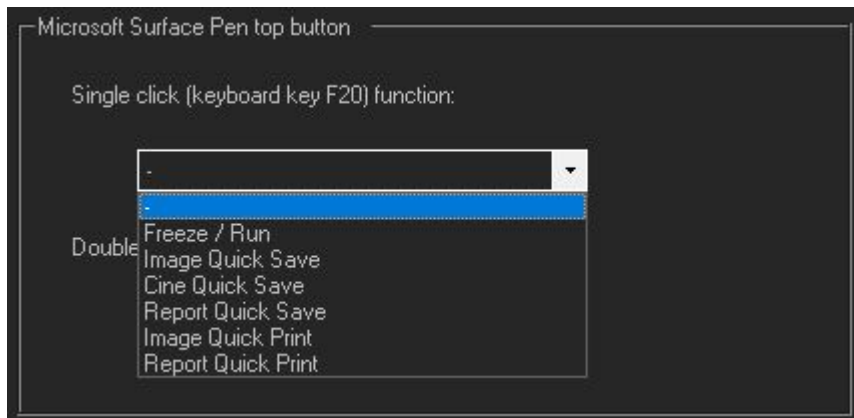
This options tab allows to configure how many indices in scanning control's values list correspond to single mouse or touch sweep step. If in text field is entered value 1, this means that control values are not skipped. If is entered 2, this means that by making one sweep we see every second value of selected control. Larger step values can be entered when the control has many values.

*To make the sweep with mouse you should select control you want to change and then press left mouse button and do sweep movement like you would do with fingers.*

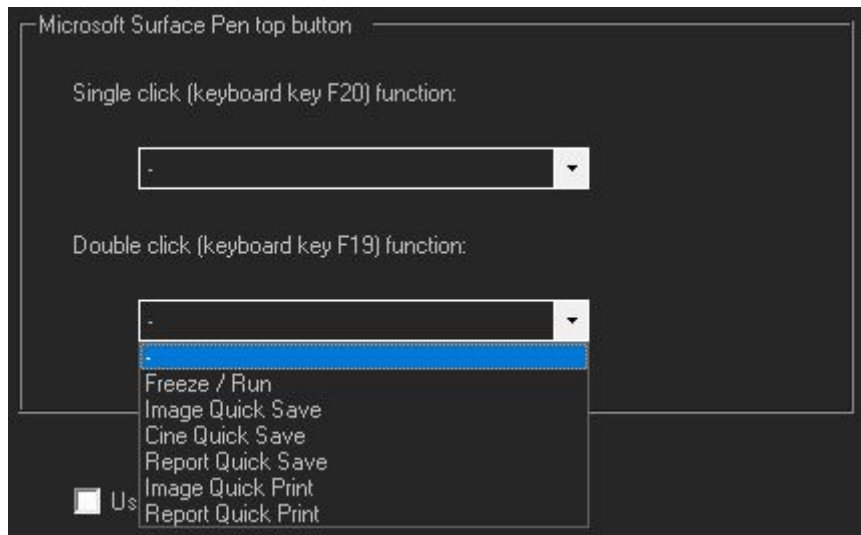
### 8.3. Mouse, Pen Tab -> Pen Tab



This options Tab allows to set the parameters of Microsoft Surface Pen top button and enable MS Surface Dial.



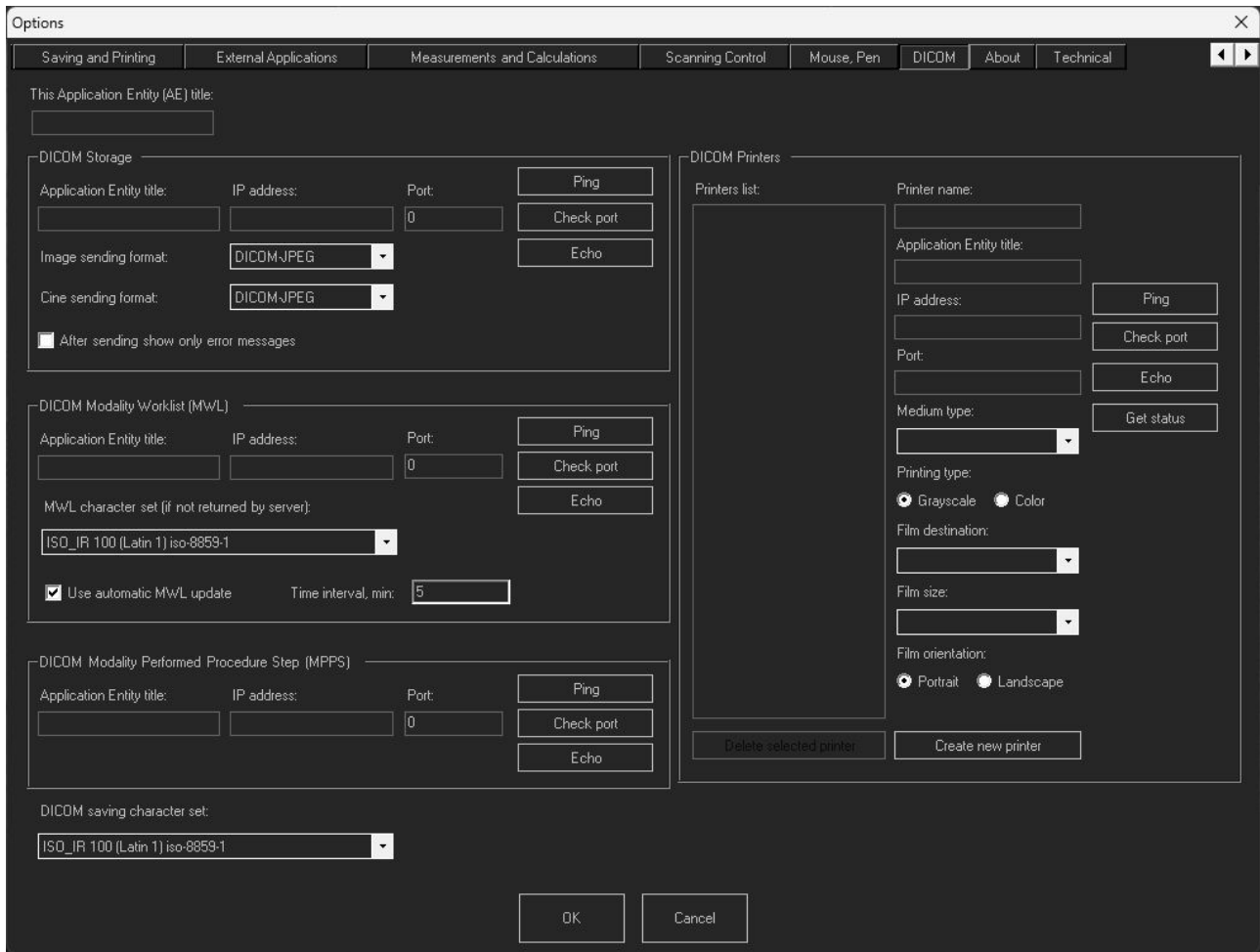
It is possible to select what action will be activated when single click is done.



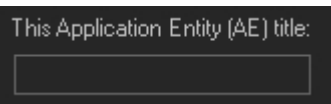
Also, it is possible to select what action will be activated when double click is done.



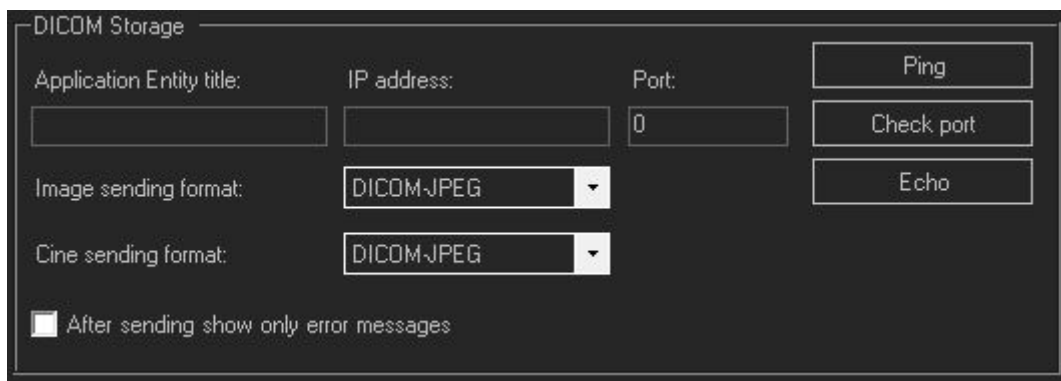
## 9. DICOM Tab



This tab allows to adjust software DICOM settings. When doing adjustments, please also read “Echo Wave II Software DICOM Conformance Statement” and DICOM Conformance Statements of used servers.



The field allows to enter this Application Entity (AE) title. AE titles (names) are used when configuring communication between different DICOM entities (applications, devices).



**DICOM Storage** group is used to configure sending of DICOM images to DICOM images storage server if you have one.

**Application Entity title** field is used to enter DICOM AE title of storage server, **IP address** - IP address of storage server, **Port** - port of storage server.

**Image sending format** and **Cine sending format** lists allows to select either DICOM (uncompressed) or DICOM-JPEG (JPEG compressed) image/cine format. The use of JPEG compression produces smaller images that require less storage. JPEG compression is lossy.

Before selecting sending formats you will need to check specification or DICOM Conformance Statement of your images storage server to find out what formats it supports.

**After sending show only error messages**, if enabled, after image/cine sending to the DICOM storage server shows the status message only if an error occurs. If disabled, status messages are shown every time for any status.

Buttons **Ping**, **Check port** and **Echo** are used to test communication with the DICOM storage server.

**Ping** sends an Internet Control Message Protocol (ICMP) echo message to the specified address.

**Check port** tries to connect to specified IP address and port using TCP socket.

**Echo** sends DICOM echo message to the specified server.

**DICOM Modality Worklist (MWL)** group is used to configure DICOM MWL server parameters if you have such a server. After entering MWL server parameters you will be able to select examination patients from a DICOM Worklist that is opened by clicking on the "Select patient from DICOM worklist" button inside the "Patient" window.

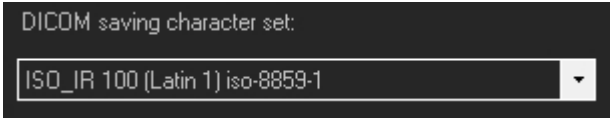
Here **Application Entity title**, **IP address** and **Port** fields are used to enter the corresponding data of the MWL server. Buttons **Ping**, **Check port** and **Echo** are used to test communication with the server.

**MWL character set** list is used to specify the character set that must be used to decode received DICOM data if the server does not return this information.

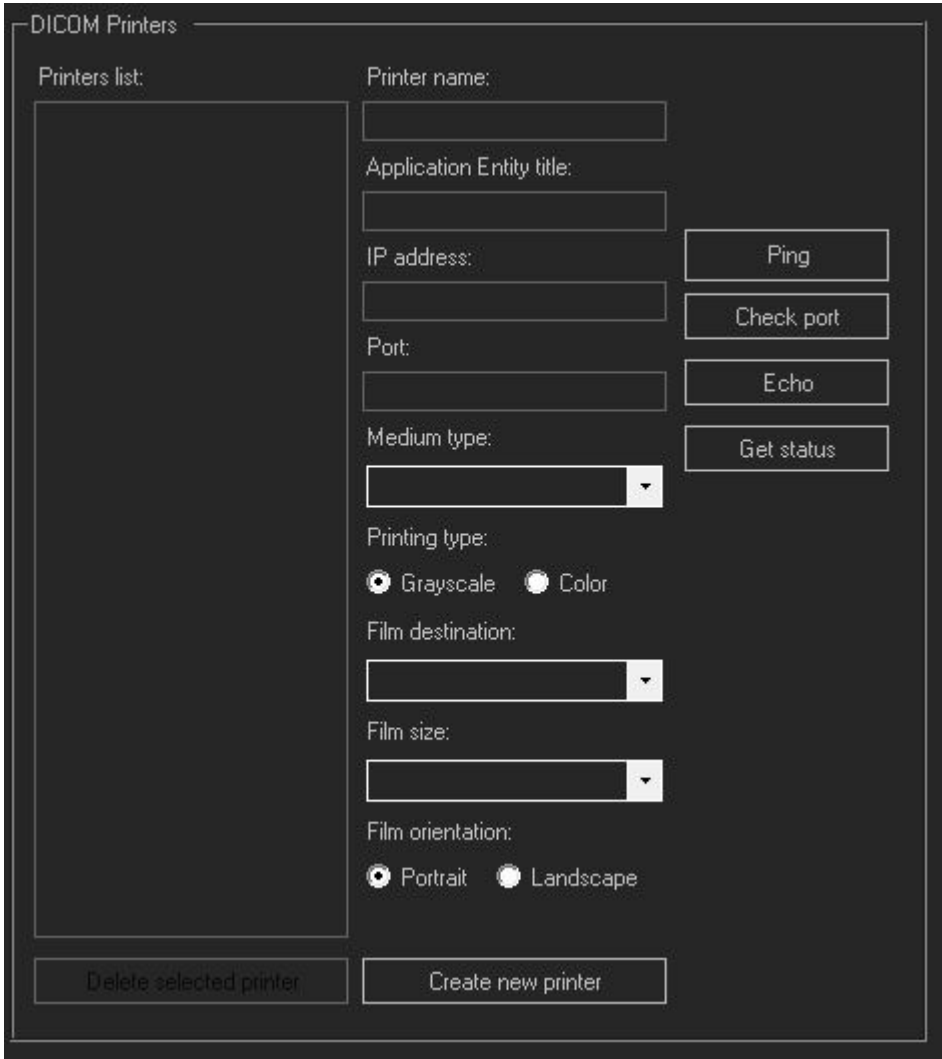
**Use automatic MWL update** checkbox and **Time interval** in minutes field allow to send periodic queries to MWL server and get newly registered patients data from it. If this option is not enabled, for sending queries must be clicked "Send query" button at the DICOM Worklist window.

**DICOM Modality Performed Procedure Step (MPPS)** group is used to configure DICOM MPPS server parameters if you have such a server. MPPS is used to update the examination status on the server and group to server sent images by exam. For this you need to select the patient from MWL, click "Start exam" button there, send images to the server and, when done, click "Finish exam" button to finish the examination.

Here **Application Entity title**, **IP address** and **Port** fields are used to enter the corresponding data of MPPS server. Buttons **Ping**, **Check port** and **Echo** are used to test communication with the server.



**DICOM saving character set** list is used to specify the character set that is used when saving texts inside DICOM images and cines. Selection of the character set depends on your used language. Please read “Echo Wave II Software DICOM Conformance Statement” to see what character set should be used for what language.



**DICOM Printers** group is used to configure network printers that support DICOM format if you have such printer connected to your network.

**Printers** list shows the names of added printers. When the printer in this list is selected, its data is populated to other fields.

To add new printer, click **Create new printer** button. To delete selected printer, click **Delete selected printer** button.

**Printer name** is printer’s name that will be shown at menu of “Send” button at software bottom toolbar.

**Application Entity title**, **IP address** and **Port** fields are used to enter corresponding data of the DICOM printer.

Buttons **Ping**, **Check port** and **Echo** are used to test communication with the DICOM printer. **Get status** button gets and displays the printer status.

**Medium type** list allows to select what medium is used in printer, for example, PAPER, FILM.

**Printing type** radio buttons select if the printer must print color or grayscale images.

**Film destination** list allows to select from what printer bin is used medium for printing.

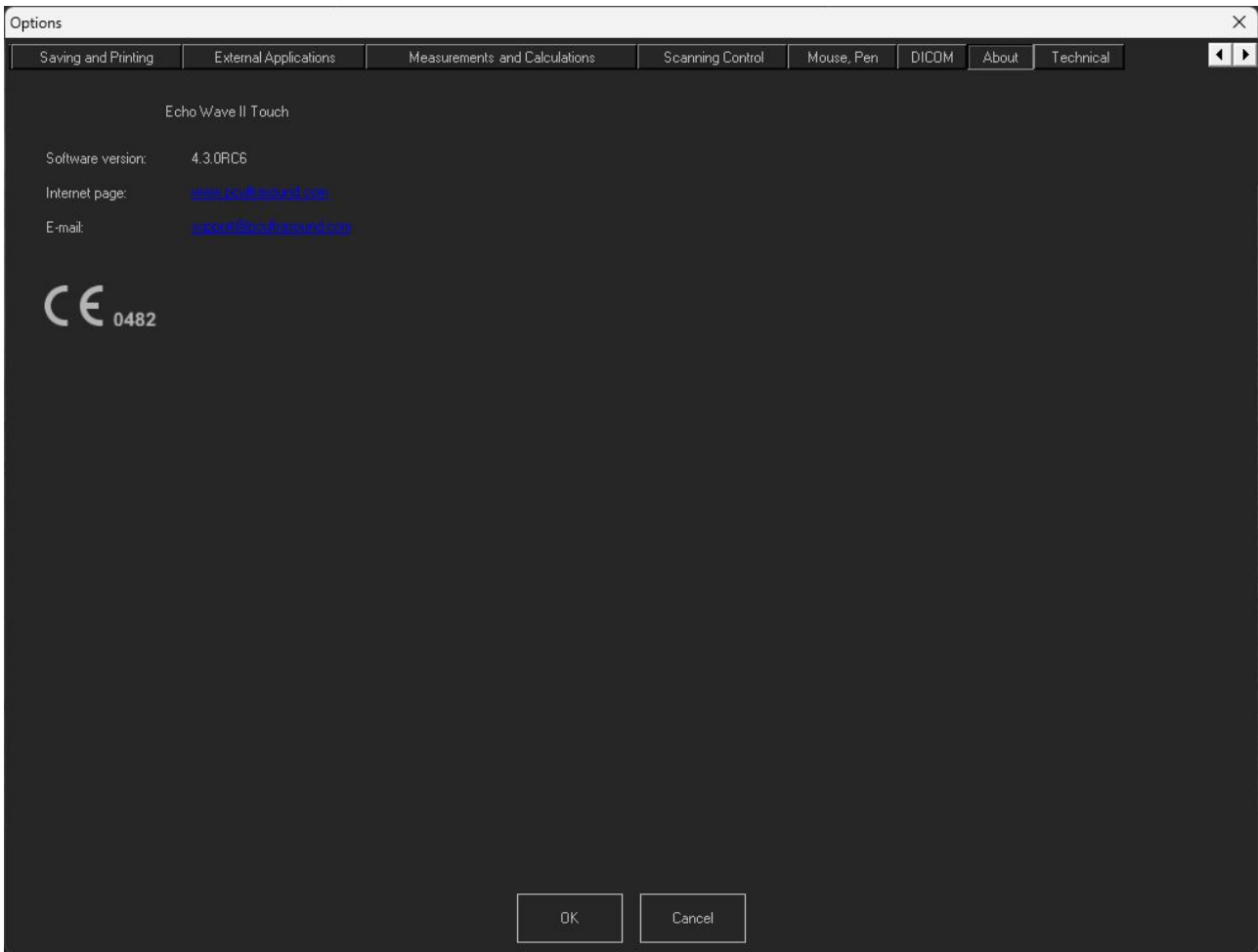
**Film size** list allows to select film size, for example, A4.

**Film orientation** radio buttons select if film orientation is portrait or landscape.

Please check the documentation of your printer and its DICOM Conformance Statement to know what settings must be used.

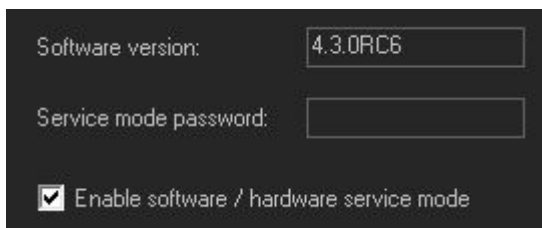
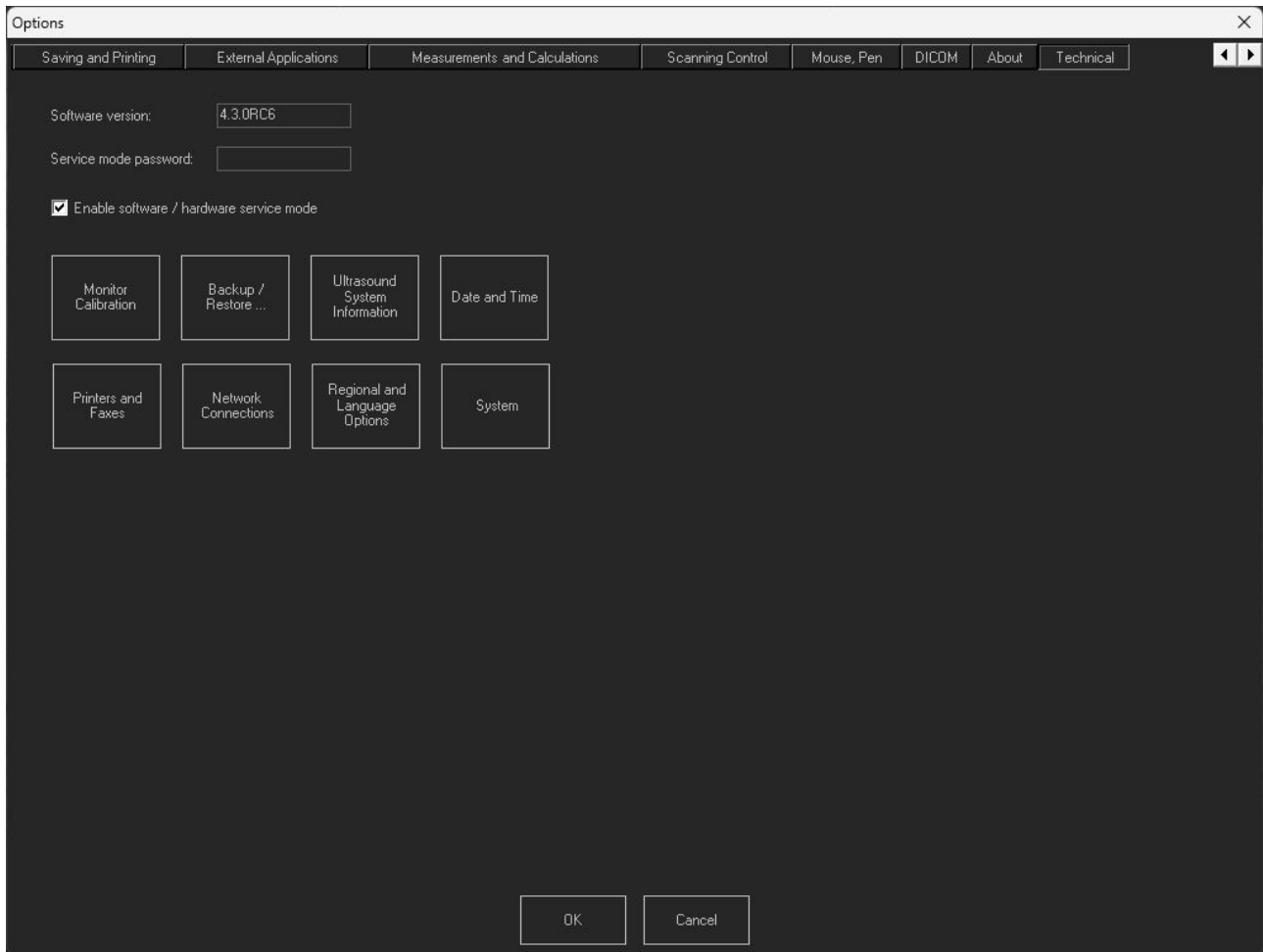
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## 10. About Tab



This tab displays information about software.

## 11. Technical Tab

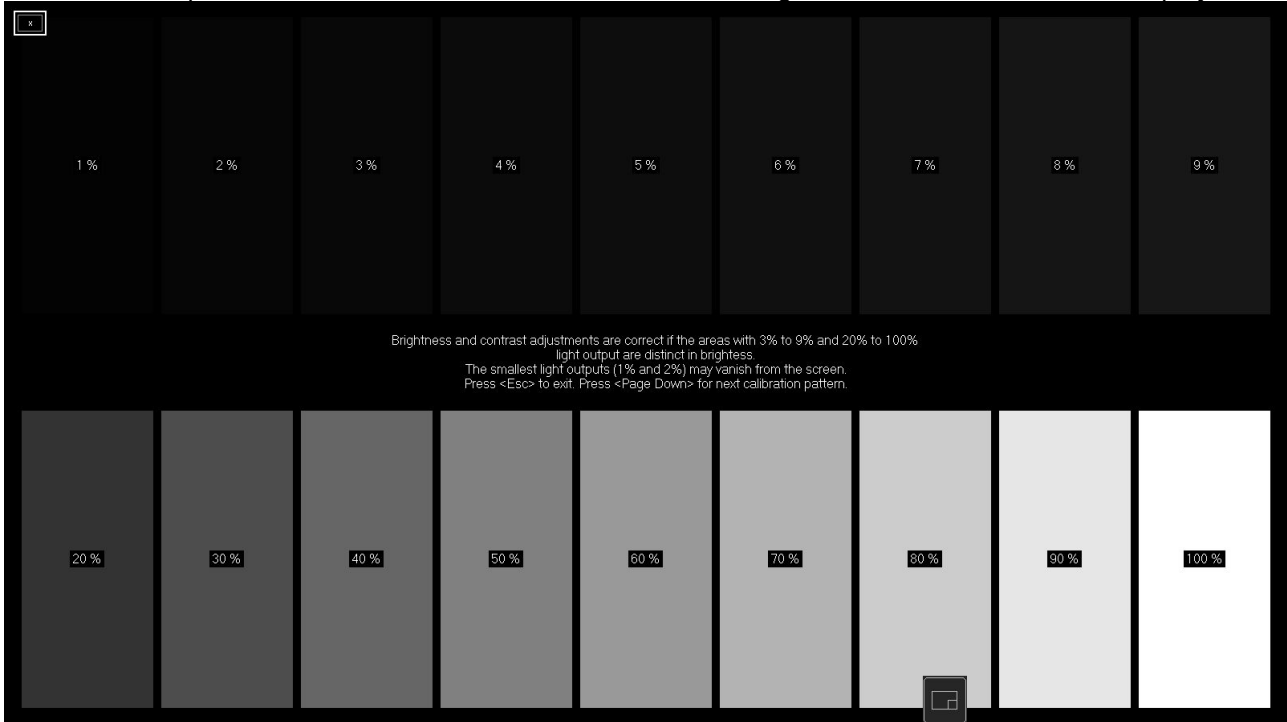


This options menu allows to enable service mode - the special mode dedicated to TELEMED engineers.



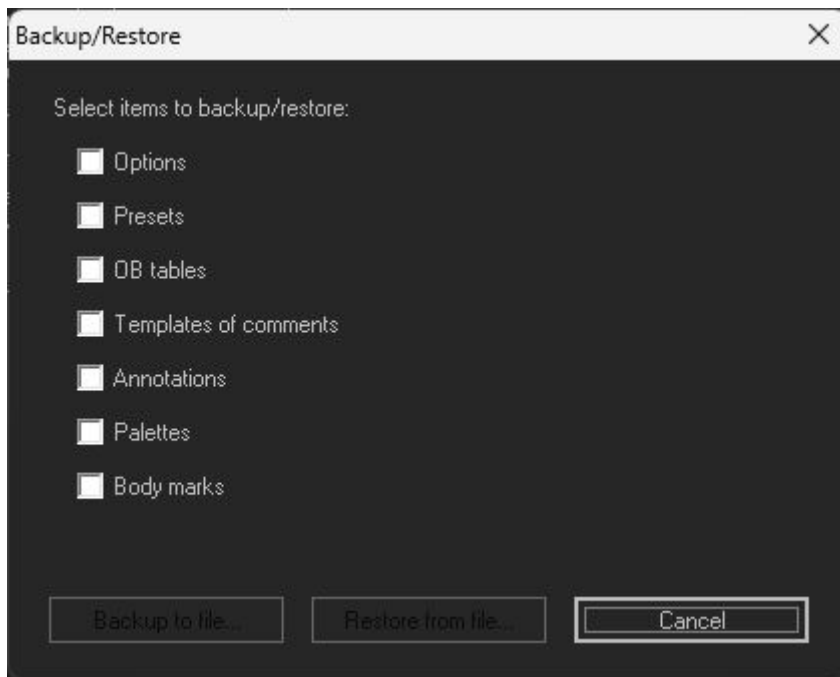
### Monitor Calibration

Show special table which user can use to calibrate the brightness and contrast of used display



### Backup/Restore

Shows Menu which allows to create backup of used settings and presets or restore from previous backup.



### Ultrasound System Information

Calls special utility which gathers all information about used computer hardware and connected ultrasound system. All information can be saved to file. This file our support is usually asking to send if user faces some kind of system issues.



### Date and Time, Printer and Faxes, Network Connections, Regional and Language Options, System Buttons

These buttons are shortcuts to Windows options. This is making easier access to essential Windows settings.



## 12. References

1. Echo Wave II Touch Software Reference Manual.  
File: "EchoWaveII\_Software\_Reference\_Manual.\*".
2. Echo Wave II Touch Software DICOM Conformance Statement.  
File: "EchoWaveII\_Software\_DICOM\_Conformance\_Statement.\*".

### 13. Revision History

<b>Revision</b>	<b>Revision Date</b>	<b>Description of Revision</b>	<b>Revision Author</b>
1.0.0	2024.02.27	Initial release.	I.Ciunel

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Technical Support e-mail: [support@pcultrasound.com](mailto:support@pcultrasound.com), [support@telemed.lt](mailto:support@telemed.lt)