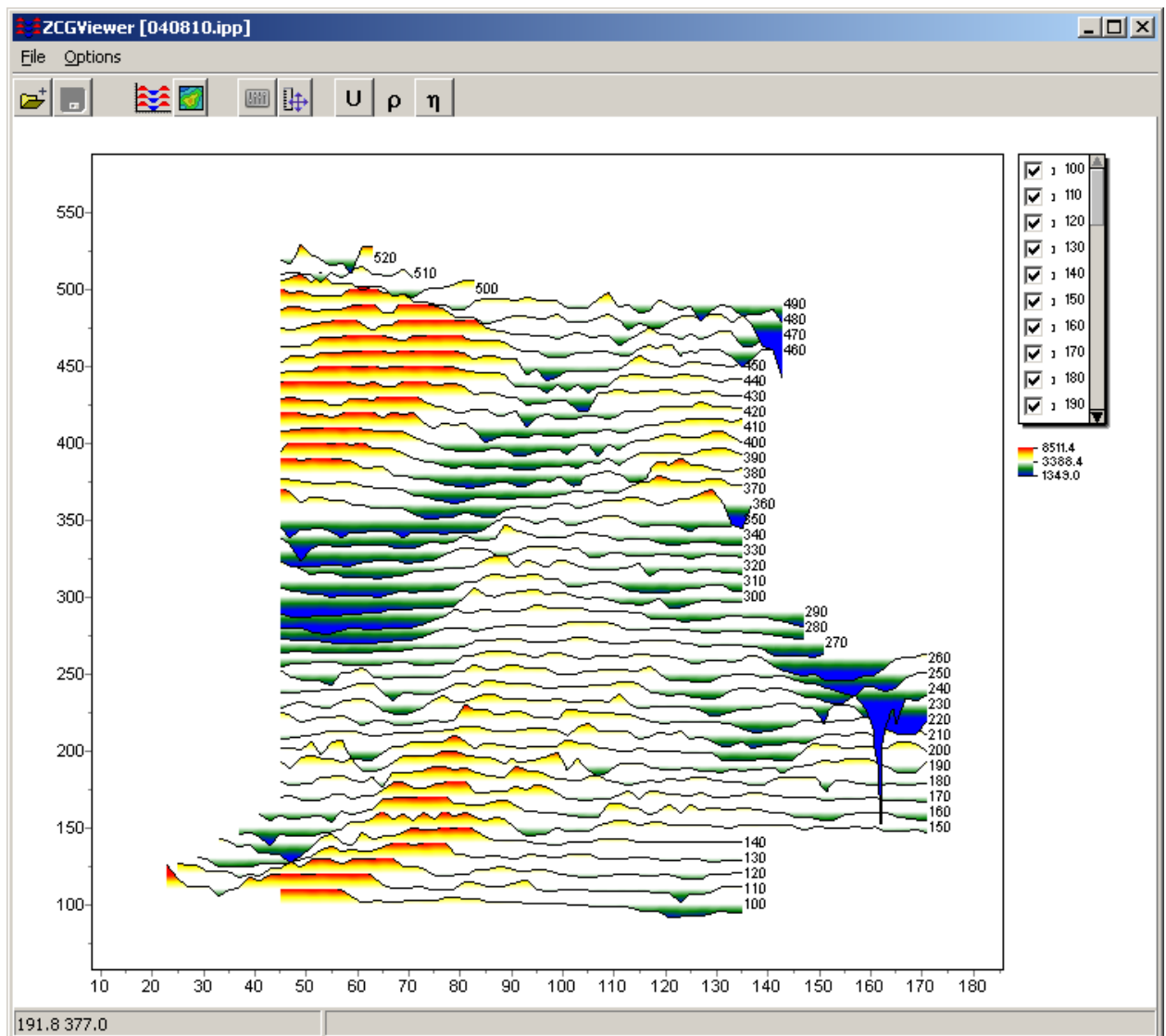


Visualization program for the results of area electrical survey measurements.

ZCGVIEWER

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The ZCGViewer program is designed to visualize the results of area electrical survey measurements in the form of plots and isolines. The program allows to calculate the apparent resistances from the signal modulus values measured in the receiving line in a wide frequency range. A line or a loop can be used as an electromagnetic field source. User-friendly interface and extensive graphical capabilities of the program allow, even for a novice user, to quickly prepare reporting materials. The result of ZCGViewer work are scaled plans of plots or isolines of apparent resistivity fully prepared for printing. ZCGViewer uses a simple data format consisting of several columns, which can be imported from any table editor.



Calculations on direct current are performed according to the classical schemes, which are based on the calculation of the electric field \mathbf{E} and the magnetic field \mathbf{B} of the electric survey

unit, formed by the point earthing A and B and the supply cable lying on the ground surface. The electric field **E** is generated solely by the point earths and for this reason the position of the cable relative to the survey planchet can be arbitrary. The magnetic field **B** is mainly determined by the supply cable and partly by the point earths.

When working with the methods of median and external gradient, the DC algorithm is also recommended to use for electrical survey units the electromagnetic parameter V , which exceeds 25-50 μGN . The parameter V , $\mu\text{H/m}$ is determined by the formula

$$V = \rho_0 / (l^2 f),$$

where ρ_0 , Ohm m - estimate of the average value of the electrical resistivity of the studied block of rocks; l , km - distance of the installation (half of the distance AB); f , Hz - frequency.

On alternating current, the electric field of the point earthing changes significantly with increasing frequency. Additionally, the electric induction field of the supply cable contributes to the total electric field **E**. With approach to the cable and increasing frequency, the contribution of the induction field can significantly (by an order of magnitude or more) exceed the electric field of the point earthing. The magnetic field **B** of the electrical survey unit also changes significantly. For these reasons, when working at low parameter values, V the processing of observation results must take into account the frequency of the current. In the present program, the calculation of normal electromagnetic fields required to calculate the coefficients of the electrical survey units is carried out in quasi-stationary approximation with a limiting (upper) frequency value of 2500 Hz. This approximation does not take into account the contribution of displacement currents to the specific electrical conductivity of rocks and corresponds to the case of a low-frequency electric field in nonmagnetic media.

Installing and uninstalling the program

The ZCGViewer software is supplied on CD or via the Internet. This manual is included in the package. You can download the latest program updates from the website: www.zond-geo.com.

To install the program, overwrite the program from the CD into the desired directory (e.g. Zond). To install an update, simply overwrite the new version of the program over the old one.

Before you start the software for the first time, you need to install SenseLock security driver. To do this, open the SenseLock folder (the driver can be downloaded from the CD, or from the website) and run the file InstWiz3.exe. After installing the driver, insert the key. If everything is OK, you will see a message in the lower system panel that the key is detected.

To uninstall the program, erase the program's working directory.

System requirements

The CGViewer program can be installed on a computer with Windows 98 and higher. Since the program is currently actively using the system registry resources, in systems above Windows XP, it should be run as an administrator (right-click on the program icon - run as administrator).

Creating and opening a data file

To start working with the ZCGViewer program, it is necessary to create a data file of a certain format, containing information about profiles, pickets, coordinates of measurements and measurement results themselves.

Usually one file contains data for one section of work. Text data files organized in the format of the program ZCGViewer, have the extension "*. DAT" EXTENSION. The data file format is described in detail in the **Data File Format** section.

For the correct operation of the program the data file must not contain:

- non-traditional characters separating entries in a string (use TAB or SPACE characters)
- absurd values of measurement parameters
- It is desirable that the total number of measurements contained in one file does not exceed 15000.

Data file format

The program presents a universal data format including information about profiles, pickets, coordinates and measurement geometry and measurement results themselves. All geometric values used by the program are set in meters

DAT program data format

A text data file consists of five columns. The first line of the data file contains the keys indicating to the program what type of data this or that column belongs to. The values of the keys are given below:

Line - Profile number (preferably a whole number).

East - X (horizontal, west-east) coordinate of the measurement point. (X is the center of the receiving line). It can be a geographic coordinate in meters.

North - Y (vertical, south-north) coordinate of the measurement point. (Y is the center of the receiving line). It can be a geographic coordinate in meters.

Station - Picket number (preferably an integer number). For correct display of graphs the pickets should follow consecutively along the profile.

Field - Measured value of the electric or magnetic field normalized to the current in the supply line or loop. For multi-coil loops the measurement is also normalized to the number of loop turns. For non-contact measurements, the value must be multiplied by the transient coefficient of the stacked line.

If you import arbitrary measurements into the program, e.g. ground magnetic survey data, you should use the word **userfield** instead of the control word **field**. Example [magdata.dat](#), [spdata.dat](#). Naturally, there is no description of the source and receiver geometry.

The sequence of columns can be arbitrary, only the presence of all five columns in the data file is important.

In addition to the key string, the program must contain control strings for setting the geometry of sources and receivers. All geometric values of the program are set in **meters**. The following keys are used to specify the source: **AB=** for the line, **ABCD=** for the loop. The line description of

the supply line parameters is written as follows. The first entry is X coordinate A, the second is Y coordinate A, the third is X coordinate B, the fourth is Y coordinate B, the fifth is current frequency.

AB= -50 0 50 0 625 ! X1 Y1 X2 Y2 frequency.

The description line of the loop parameters is written as follows. The first entry is X coordinate A, the second is Y coordinate A, the third is X coordinate B, the fourth is Y coordinate B, the fifth is X coordinate B, the sixth is Y coordinate B, the seventh is X coordinate B, the eighth is Y coordinate B the ninth is current frequency (in Hertz).

ABCD= -50 0 50 0 50 100 -50 100 625 ! X1 Y1 X2 Y2 X3 Y3 X4 Y4 frequency.

The position of the source is set in the coordinates of the survey plot (unlike the coordinates of the receiver). The number of sources with different geometry is unlimited, i.e. several sources with different geometry and frequency can be used on one tablet. All measurements following the source description correspond to the given source, i.e. its geometry. This can be used to visualize large tablets, with multiple positions of the supply line or loop.

The key **MN=** is used to specify the geometry of the receiving line. The line description of the supply line parameters is written as follows. The first entry is X coordinate M, the second is Y coordinate M, the third is X coordinate N, and the fourth is Y coordinate N. The coordinates of the sources are set relative to the measuring point (in the relative coordinate system).

MN= -0.5 0 0.5 0 ! X1 Y1 X2 Y2 length - 1 meter, direction - along the X-axis.

In this case, if the measurement point coordinate is (100, 100), then the coordinates of the receiving electrode M are (99.5 0) and N (100.5 0).

Often, when measuring with a stalked line, the orientation of the receiver line repeats the direction of the profile (with all its bends). In this case, the description of the receiver line geometry is made as follows: the first line contains the service word - "alongline", in the second line the length of the receiver line is written.

byline

MN=5

When measuring the vertical component of the magnetic field:

For the frame (vertical dipole), a string of three entries (separated by a space) is entered, starting with the key "M".

The entry will look like this:

M 0 0

The zeros in this case do not mean anything, but you must enter them.

For a finite-size loop, a string of nine entries (with a space) is entered, starting with the key "MNOP".

"MNOP" MX MY NX NY OX OY PX PY, where MX, MY, NX, NY, OX, OY, PX, PY (numbers) are relative loop coordinates.

The zero coordinate must be in the center of the loop, so for a square loop with side $L=100$ the entry would look like this

MNOP -L/2 -L/2 L/2 -L/2 L/2 L/2 -L/2 L/2

Or

MNOP -50 -50 -50 50 -50 50 -50 50

The recording point will be the center of the loop.

The number of receiver lines or loops with different geometry is unlimited, i.e. several receivers with different geometry can be used on one plate. This is related both to the different orientation of the profiles and to the measurement of different components. It is more convenient to use "alongline" when profiles have different orientation and measurements along them. Example [alongline. dat](#). All measurements following the description of the receiver have its geometry (relative).

The following is a listing of a simple data file, with one measurement profile.

Line	East	north	station	Field	
AB=	-50.00	52.50	150.00	52.50	625
MN=	-0.50	0.00	0.50	0.00	
1.00	0.00	0.00	0.00	0.00	
1.00	2.00	0.00	0.00	0.00	
1.00	4.00	0.00	0.00	0.00	
1.00	6.00	0.00	0.00	0.00	

1.00	8.00	0.00	0.00	0.00
1.00	10.00	0.00	0.00	0.00
1.00	12.00	0.00	0.00	0.00
1.00	14.00	0.00	0.00	0.00
1.00	16.00	0.00	0.00	0.00
1.00	18.00	0.00	0.00	0.00
1.00	20.00	0.00	0.00	0.00
1.00	22.00	0.00	0.00	0.00
1.00	24.00	0.00	0.00	0.00
1.00	26.00	0.00	0.00	0.00
1.00	28.00	0.00	0.00	0.00
1.00	30.00	0.00	0.00	0.00
1.00	32.00	0.00	0.00	0.00
1.00	34.00	0.00	0.00	0.00
1.00	36.00	0.00	0.00	0.00
1.00	38.00	0.00	0.00	0.00
1.00	40.00	0.00	0.00	0.00
1.00	42.00	0.00	0.00	0.00
1.00	44.00	0.00	0.00	0.00
1.00	46.00	0.00	0.00	0.00
1.00	48.00	0.00	0.00	0.00
1.00	50.00	0.00	0.00	0.00
1.00	52.00	0.00	0.00	0.00
1.00	54.00	0.00	0.00	0.00
1.00	56.00	0.00	0.00	0.00
1.00	58.00	0.00	0.00	0.00
1.00	60.00	0.00	0.00	0.00

Load arbitrary data








To load data from a tabular text file or MS Excel file, select the **Import from text/excel** main menu item. After selecting the file, the Export text data dialog box will appear. The columns containing: distances along the profile or pickets (ProfPos/Station), horizontal coordinates (X/Latitude and Y/Longitude), height of the measuring point (Z), data (data), profile number (Line) in the Type line are specified there. And also the units are set in the Units line for each value. The Start and End buttons are used to set the start and end data line. Select the desired line and click the appropriate button. The start data line is highlighted in green in the table, the end data line is highlighted in red.

Export text data					
OK Start End					
Type	line	X/Longitude	Y/Latitude	station	data
Units	none	m	m	none	lin
1	Line	east	north	station	userfield
2	-1400	6461107.293	7742159.964	-1220	197.65
3	-1400	6461112.886	7742151.674	-1210	199.46
4	-1400	6461118.479	7742143.384	-1200	198.6
5	-1400	6461124.071	7742135.095	-1190	197.8
6	-1400	6461129.664	7742126.805	-1180	198.05
7	-1400	6461135.257	7742118.515	-1170	199.21
8	-1400	6461140.849	7742110.225	-1160	204.2
9	-1400	6461146.442	7742101.935	-1150	204.97
10	-1400	6461152.035	7742093.645	-1140	204.7
11	-1400	6461157.627	7742085.355	-1130	205.74
12	-1400	6461163.22	7742077.066	-1120	198.01
13	-1400	6461168.813	7742068.776	-1110	198.07
14	-1400	6461174.405	7742060.486	-1100	205.11
15	-1400	6461179.998	7742052.196	-1090	200.5
16	-1400	6461185.591	7742043.906	-1080	202.04
17	-1400	6461191.183	7742035.616	-1070	207.46
18	-1400	6461196.776	7742027.326	-1060	201.42
19	-1400	6461202.369	7742019.036	-1050	204.23
20	-1400	6461207.962	7742010.747	-1040	200.91
21	-1400	6461213.554	7742002.457	-1030	204.83
22	-1400	6461219.147	7741994.167	-1020	205.88
23	-1400	6461224.74	7741985.877	-1010	207.83
24	-1400	6461230.332	7741977.587	-1000	205.45
25	-1400	6461235.925	7741969.297	-990	206.37
26	-1400	6461241.518	7741961.007	-980	208.87

How to work with the program

Toolbar of the main program window

The toolbar is used to quickly call the most frequently used functions in the program. It contains the following function buttons (from left to right):

	Open the data file.
	Call the Save Data dialog box.
	Display the data in the form of a graph plan.
	Display the data in the form of a plan of isolines.
	Display the data as a point map.
	Call the Image Settings dialog box.
	Display the data in equal (on both axes) scale.
U	Display the measured signal moduli or any user-defined values.
	Display apparent resistances.
	Display apparent conductivities.

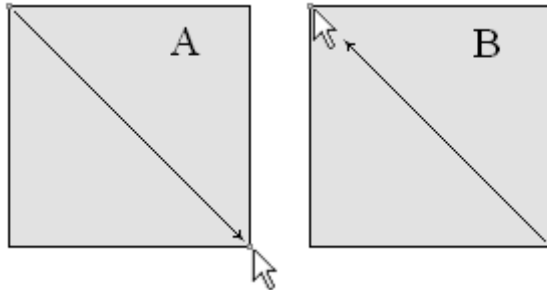
After opening the data file, the chart plan appears in the right section of the status bar with an information line.

Data image

After opening a tab, the chart plan appears in the center of the display, and an information bar appears in the right section of the status bar.

Axes are scaled in the Axis Settings dialog box (SHIFT+right-click on an axis).

Zooming in or moving an individual area is done with the button depressed (the tool is a "rubber rectangle"). To select the area to be zoomed in, the mouse pointer moves down and to the right, with the left button pressed(A). To return to the original scale, the same actions are performed, but the mouse moves up and to the left (B).




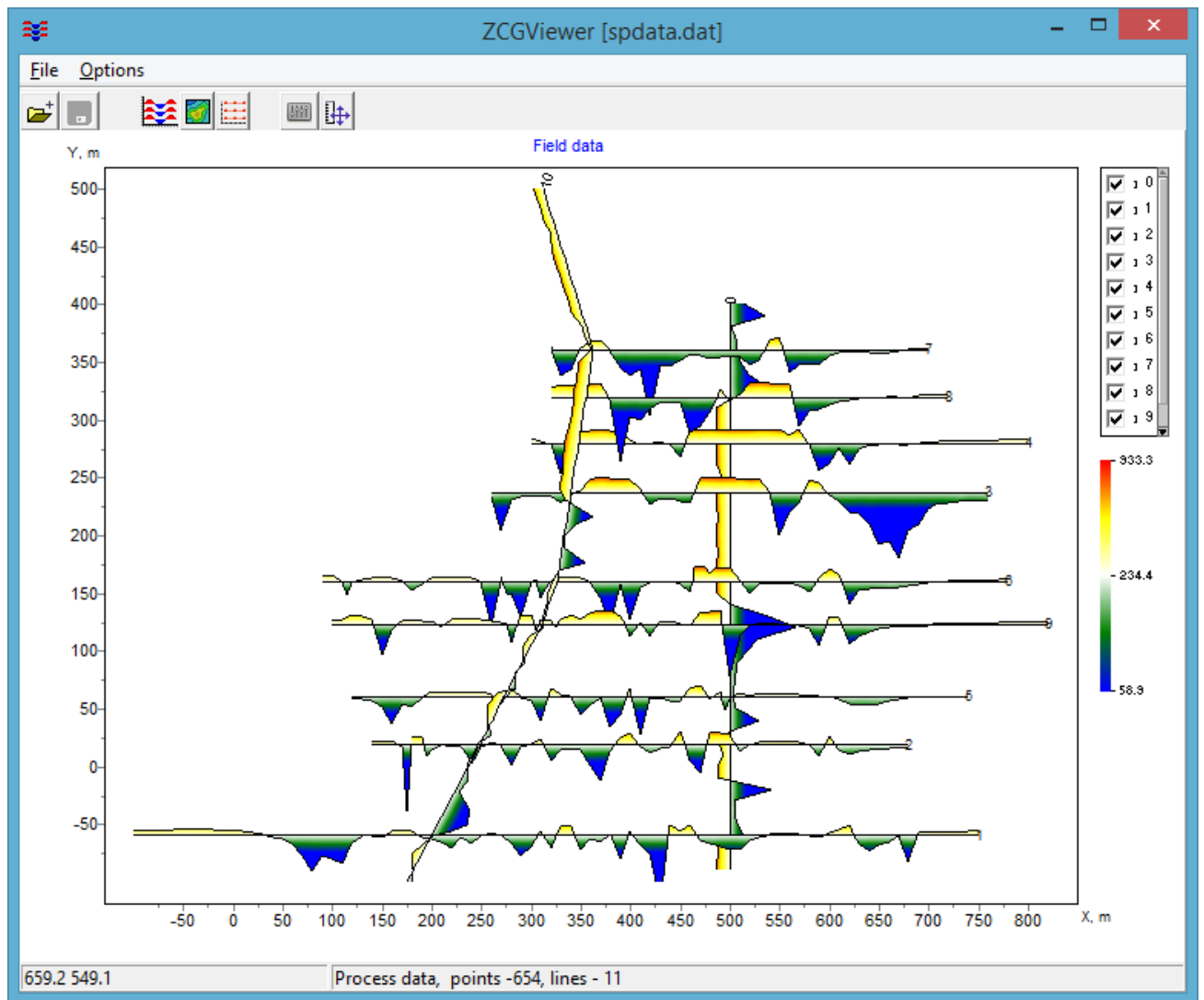
The mouse **wheel** is used to change the scale of the graphs. Disabling individual graphs is done with the left mouse button in the legend of the graphs. Selecting one and respectively deleting the rest of the graphs is done by pressing the mouse button on the legend with the SHIFT key pressed. If you press it again, the opposite operation is performed.

When you move the mouse cursor while working with the program windows, the left section of the status bar of the main program window displays the coordinates corresponding to the proper axes of this window.

Data visualization modes

Schedule plan

The plot plan  is used to represent area data, in the form of color filled plots. The plotting is performed in the XY axes. The color scale establishes the relationship between the depicted value and the color.



Use the mouse scroll wheel to change the scale of the graphs. The legend on the right side of the object allows you to enable or disable certain profiles.

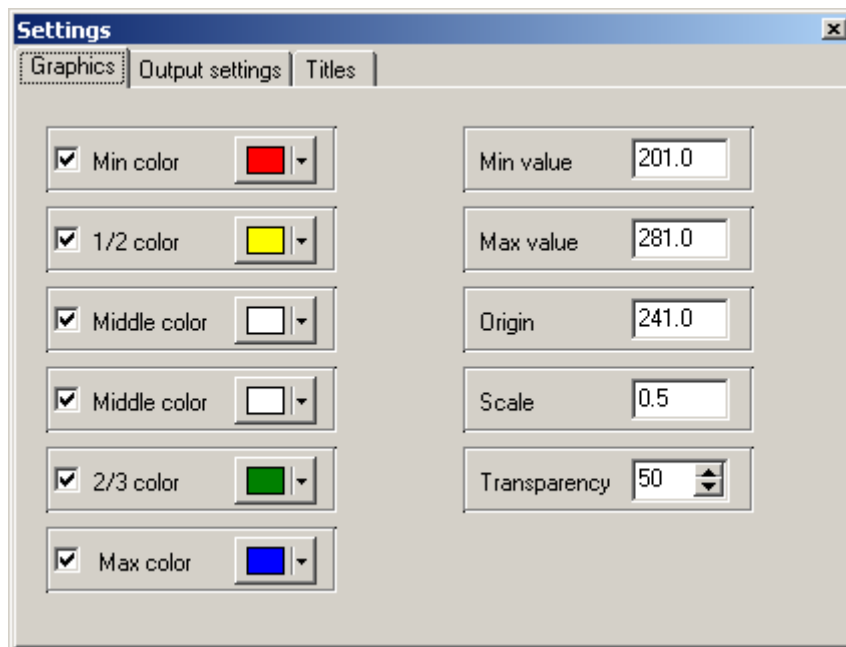
Right-clicking in the object area brings up a context menu with the following options:

Setup	Call the Contours Plan Settings dialog box.
Print preview	Print out the isoline plan.
Save picture	Save the isoline plan to a graphical file.
X:Y=1:1	Set the same scale along the horizontal axes
Load background	Upload an image as a substrate (graphic file)
Load googlemap	Download a Google map as a backdrop

Remove background	Remove the current substrate
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Charts settings dialog box

The dialog box is used to configure the parameters related to the display of graphs.

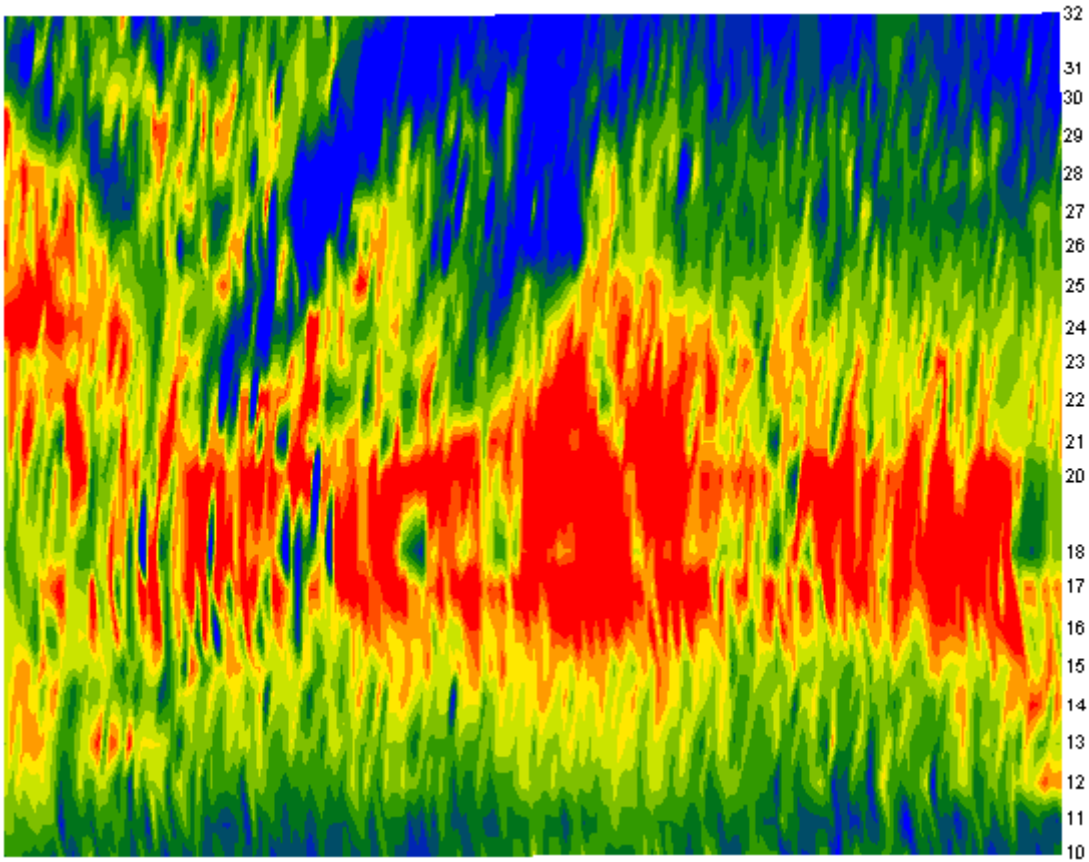


The Graphics tab contains options for specifying colors and scaling the graphs. The **Min color** , **1/3 color**, **Middle color**, **2/3 color** and **Max color** options specify an interpolation sequence of colors from **Min color** to **Max color** through **1/3 color**, **Middle color** and **2/3 color**. The palette created in this way is used for gradient filling of graphs. The **Min value** and **Max value** options match the minimum and maximum values of the data with **Min color** and **Max color**. The **Origin** option sets the correspondence of the average data value to **Middle color**. The **Scale** option sets the scale (in units of values per pixel) of the graphs. The **Transparency** option sets the transparency of the graphs.

Plan of isolines

The plan of isolines  serves for representation of area data, in the form of isolines. It is drawn in the XY axes. The color scale establishes the relationship between the depicted value and the color.

Clicking a point on the isoline plan displays the configuration of the source and receiver corresponding to that measurement.



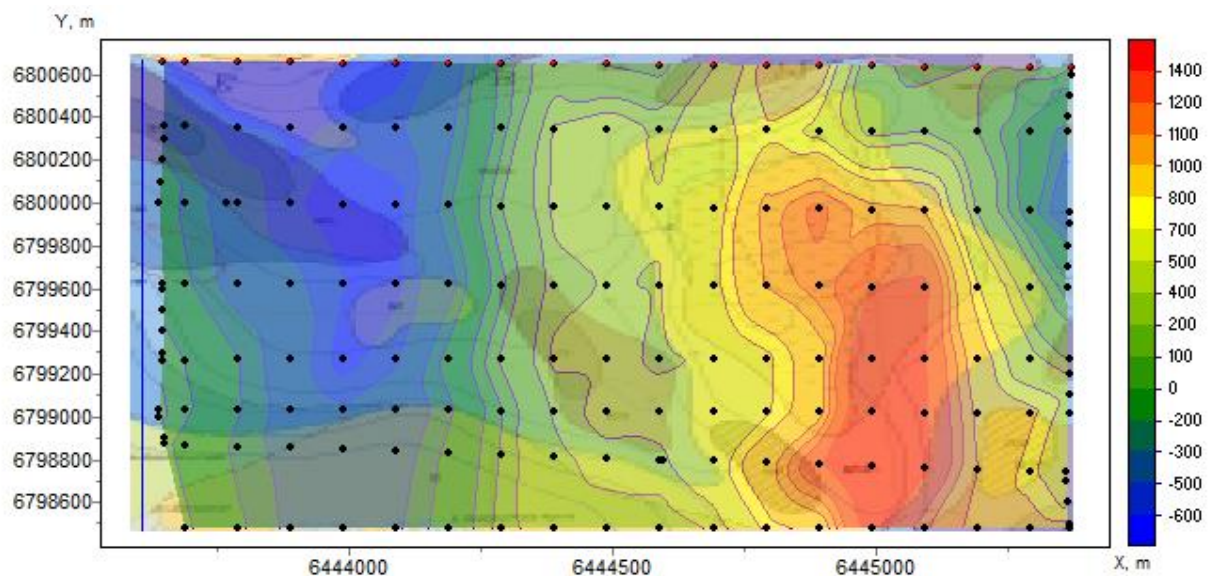
The red line shows the position of the current profile, for which the graphs of the observed and calculated parameter are shown (the field in the upper right corner), the blue dotted line shows the current position of the model slice.

Right-clicking in the object area brings up a context menu with the following options:

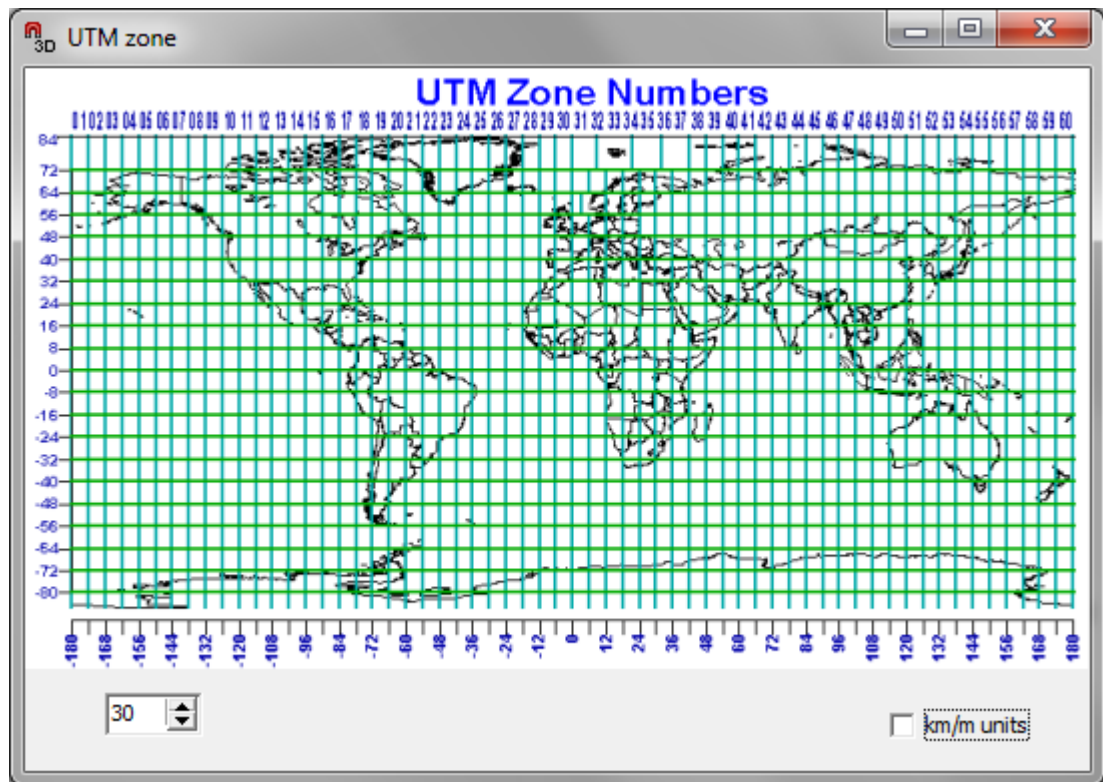
Log data scale	Use the logarithmic scale for the color scale.
Smooth mode	Smooth the contours of the isoline plan
Display grid point	Show measurement point marks.
Display ColorBar	Show the color scale.
Setup	Call the Contours Plan Settings dialog box.

Print preview	Print out the isoline plan.
Save picture	Save the isoline plan to a graphical file.
Save XYZ file	Save the isoline plan to the Surfer format.
X:Y=1:1	Set the same scale along the horizontal axes
Load background	Upload an image as a substrate (graphic file)
Load googlemap	Download a Google map as a backdrop
Remove background	Remove the current substrate
Draw in Surfer	Export to Golden Software Surfer

The Load background option allows loading any raster file as a background, and the image itself becomes semi-transparent. This option is very useful for comparing measured data with topographic maps, charts, geological maps and tectonic charts, as well as with data of other methods (geophysical, geochemical, etc.) presented in graphical form.



The Load googlemap option allows you to load a Google map according to the set coordinates of points (if the coordinates are set in the UTM system). After selecting this option, the UTM zone window appears, where, accordingly, it is necessary to select the number of the zone.



The Axis Editor is called by right-clicking with the SHIFT key on the axis of interest.

The Setup dialog box for the isoline plan parameters

The screenshot shows a dialog box titled "Contour-section setup" with a close button (X) in the top right corner. The dialog is divided into several sections:

- Box margins (pixels):** Contains four spin boxes for "Left margin" (set to 25), "Top margin" (set to 1), "Right margin" (set to 70), and "Bottom margin" (set to 5).
- User data limits:** Contains two input fields for "Minimum" (1315.7) and "Maximum" (6328.4), with a checkbox above them that is currently unchecked.
- ColorScale:** Contains a "Fixed" checkbox (unchecked) and a "Settings" button with a color bar icon.
- Num levels:** Contains a spin box set to 15.
- Isolines:** Contains a checkbox that is checked.
- Font:** A button located below the box margins section.
- Buttons:** "Apply" and "Cancel" buttons are located at the bottom of the dialog.

The dialog box is used to set the parameters of the isoline plan.

Box margins area

Left margin - sets the indent (in pixels) of the image from the left edge of the window.

Right margin - sets the indent (in pixels) of the image from the right edge of the window.

Top margin - sets the margin (in pixels) of the image from the top edge of the window.

Bottom margin - sets the margin (in pixels) of the image from the bottom edge of the window.

User data limits area

The **User limits** option tells the program whether to use the minimum and maximum data values or to use the values of the **Minimum** and **Maximum** fields when specifying isoline sections.

The **Minimum** field - sets the minimum value when defining isoline sections.

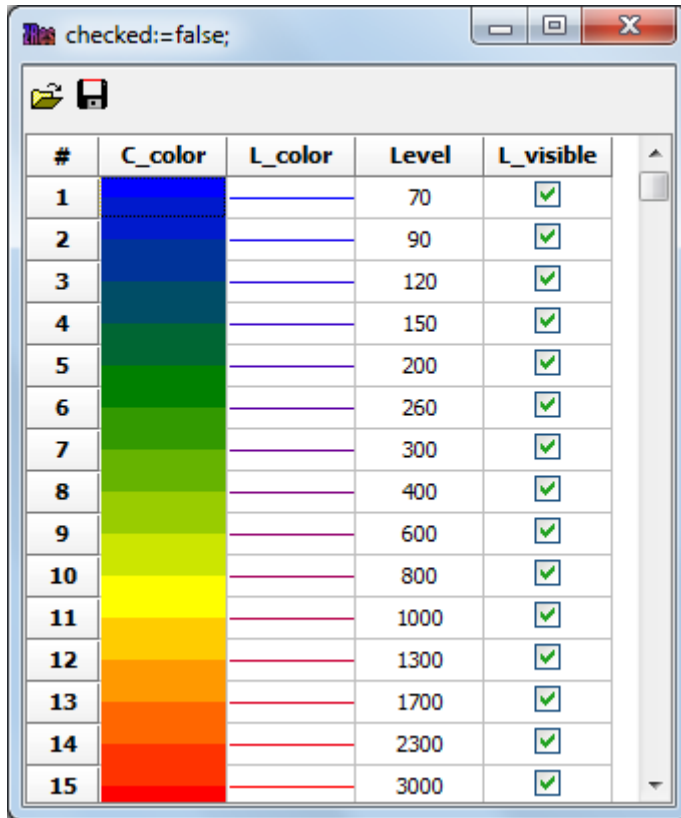
The **Maximum** field - sets the maximum value when defining the isoline sections.

The **ColorSale** area allows the operator to create a palette (check the box to use these settings)

Num levels field - defines the number of isoline sections. The isoline sections are set in uniform linear or logarithmic steps, depending on the data type.

Isolines option - tells the program whether or not to draw isolines.

Use the **Settings** button to set the fill parameters. After clicking it, the Edit Levels dialog box appears. The dialog is represented by a table with the following columns. *C_color* - color scale for filling. To edit the color scale, right-click on the column name, and the Color palette dialog box appears. To edit a specific color, right-click on the corresponding color. *L_color* - color scale for isolines. It is edited similarly to the color scale for isolines. *Level* - sets values for isolines. The right click on the column name opens the Automatic dialog box where you may specify the maximal and minimal values for isolines, and set the logarithmic step of isolines. The *L_visible* column allows you to disable one or more isolines by unchecking the corresponding box.



The **Font** button is used to set the parameters of the fill legend fonts. After pressing it, the **TeeFont Editor** dialog box appears.

The **Font** button calls the Font settings dialog box for the fill legend.

The **Outline** button brings up a dialog box for setting the outline lines of the letters.



The **Inter-char** spacing option sets the inter-letter spacing for the text.

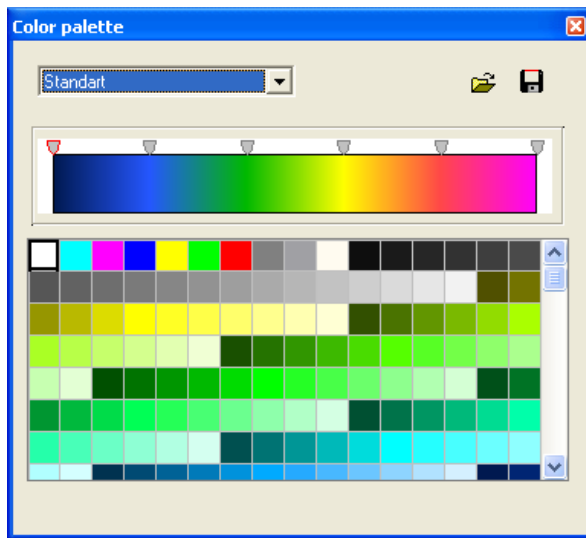
The **Gradient** button brings up a dialog box for setting a gradient fill for text.

The **Outline gradient** option specifies where to apply a gradient fill to the text: on the stroke line or on the inner area of the letters.


The **Shadow** button brings up a dialog box to configure the appearance of the shadow that falls from the text.

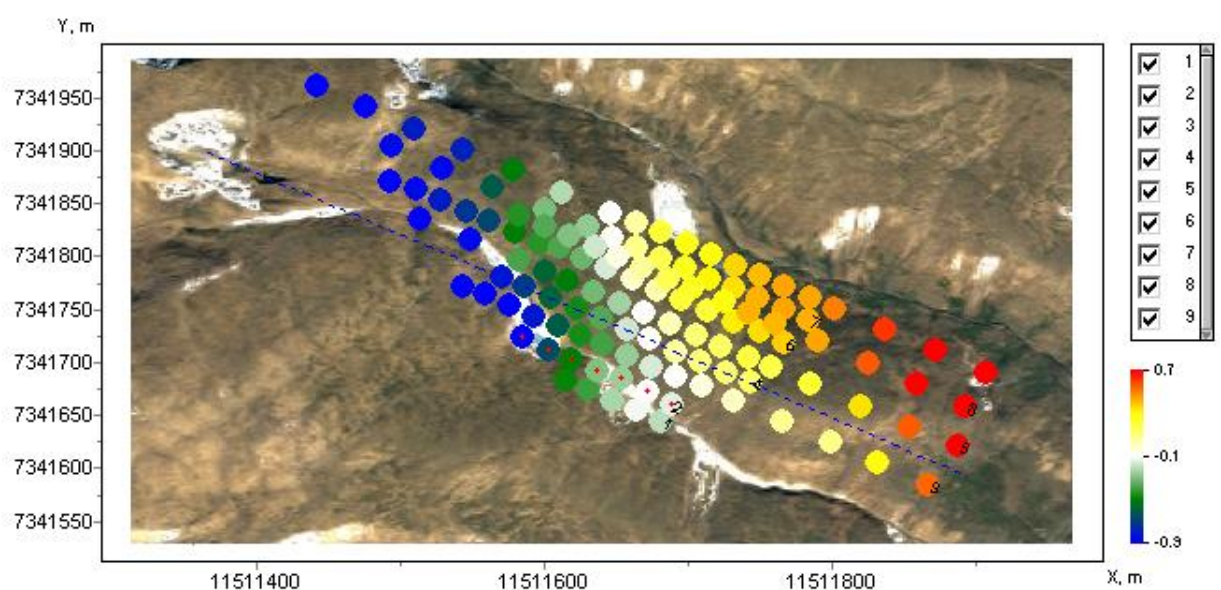
The Color palette dialog is used to customize the palette of the program object by right-clicking in the *C_color* column of the Edit Levels dialog. The dialog allows you to select one of the default palettes (forward and reverse rainbow, grayscale, etc.) or create a custom scale. To

add a slider to the scale, use the right mouse button with the Ctrl key pressed. To delete a slider, use the Delete key. You can also save a custom palette using the  button or load an existing one using the .



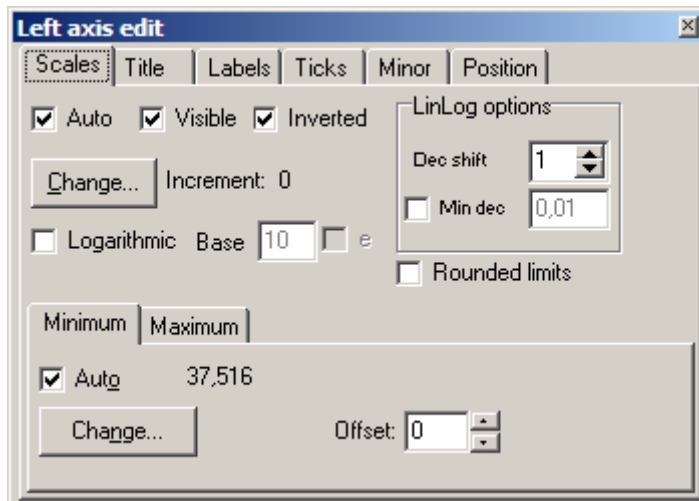
Point map

Presenting data as dots  is convenient when using the substrate. To change the size of points, use the mouse scroll wheel. To enable or disable dots for one or another profile, you can use the legend on the right side of the object.



A red line with crosses shows the position of the current profile.

Axis editor



The editor is intended for adjusting the graphical and scale parameters of the axes. It can be called by right-clicking with the SHIFT key on the axis of interest. A pop-up menu with two items appears: **options** and **default**. The first calls the dialog box, the second sets the values to default.

The first tab of the **Scales** dialog box contains options related to adjusting the scale parameters of the axis.

The **Auto** option tells the program how to determine the minimum and maximum of the axis. If the option is enabled, the axis limits are found automatically, otherwise they are set by the user in the Minimum and Maximum areas.

The **Visible** option allows you to show/hide the selected axis.

The **Inverted** option determines the orientation of the axis.

The **Increment change** button brings up a dialog box for setting the axis label step.

The **Logarithmic** option sets the axis scale - logarithmic or linear. In the case of an alternating axis you should additionally use the options of the **LinLog options** area.

The **Base** option defines the base of the logarithm for the logarithmic axis.

The **LinLog options** area contains options designed to adjust the linear-logarithmic axis. The linear-logarithmic scale allows you to represent alternating or zero containing data on a logarithmic scale.

The **Dec Shift** option sets the offset (in logarithmic decades) relative to the maximum modulo limit of the axis to zero. The minimum (pre-zero) decade has a linear scale, the rest have a logarithmic scale.

The **Min dec** option sets and fixes the value of the minimum (pre-zero) decade, if the option is enabled.

The **Rounded limits** option tells the program whether or not to round the axis minimum and maximum values.

The **Minimum** and **Maximum** areas contain a set of options for setting the axis limits.

The **Auto** option determines how the axis limit is determined - automatically or set with the **Change** button.

The **Offset** option sets the percentage shift of the axis limit relative to its actual value.

The **Title** tab contains options related to setting the title of the axis.

The **Style** tab:

The **Title** option defines the title text of the axis.

The **Angle** option determines the angle of the axis header text.

The **Size** option defines the indent of the axis header text. When set to 0, the indentation is set automatically.

The **Visible** option allows you to show/hide the axis header.

Text tab:

The **Font** button brings up a dialog box for setting the font for the axis header.

The **Outline** button brings up a dialog box for setting the outline lines of the axis header letters.

The **Inter-char** spacing option sets the inter-letter spacing for the axis header text.

The **Gradient** button brings up a dialog box for setting the gradient fill for the axis header text.

The **Outline gradient** option specifies where to apply a gradient fill to the text: on the stroke line or on the inner area of the letters.

The **Shadow** button brings up a dialog box to configure the appearance of the shadow falling from the axis title text.

The **Labels** tab contains options related to configuring the axis labels.

The **Style** tab:

The **Visible** option allows you to show/hide axis signatures.

The **Multiline** option is used to set multiline axis captions.

The **Round** first option rounds the first axis signature.

The **Label on axis** option removes captions that are outside the axis.

The **Alternate** option arranges the axis signatures in two rows.

The **Size** option defines the indent of the axis captions. When set to 0, the indentation is set automatically.

The **Angle** option defines the angle of the axis caption text.

The **Min separation %** option sets the minimum percentage distance between signatures.

Text tab:

The **Font** button brings up a dialog box for setting the font for the axis captions.

The **Outline** button brings up a dialog box for setting the outline lines of the axis captions.

The **Inter-char spacing** option sets the inter-letter spacing for the axis caption text.

The **Gradient** button brings up a dialog box for setting the gradient fill for the axis caption text.

The **Outline gradient** option specifies where the text will be gradient-filled: on the stroke lines or the inner area of the letters.

The **Shadow** button brings up a dialog box to set the appearance of the shadow falling from the axis caption text.

The **Ticks** tab contains options related to setting the main axis labels.

The **Axis** button brings up the Axis line setup dialog box.

The **Grid** button brings up a dialog box for setting the grid lines of the main axis labels.

The **Ticks** button brings up a dialog box for setting the lines of the main external axis labels. The **Len** option sets their length.

The **Inner** button brings up a dialog box for setting the lines of the main internal axis labels. The **Len** option sets their length.

The **Centered** option centers the grid of axis labels.

The **At labels only** option tells the program to draw the main labels only when there is a signature on the axis.

The **Minor** tab contains options related to the setting of intermediate axis labels.

The **Grid** button brings up a dialog box for configuring the grid lines of intermediate axis labels.

The **Ticks** button brings up a dialog box for setting the lines of intermediate external axis labels. The **Length** option sets their length.

The **Minor** button brings up a dialog box for setting the lines of the main internal axis labels. The **Len** option sets their length.

The **Count** option sets the number of secondary labels between the main labels.

The **Position** tab contains options that define the dimensions and position of the axis.

The **Position %** option sets the offset of the axis on the graph relative to the standard position (as a percentage of the graph size or screen units, depending on the value selected by the Units option).

The **Start %** option sets the offset of the axis start on the graph relative to the standard position (as a percentage of the graph size).

The **End %** option sets the offset of the axis end on the graph relative to the standard position (as a percentage of the graph size).