
Users Manual

EDISON

version 2.1

English and American

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Introduction

Background

The development within geotechnical field investigations has during the last decades moved towards more accuracy by introduction of electronically measuring. Measuring of drilling parameters has become routine since registration instruments are available to be mounted on drill rigs. Calculations, presentations and drawings are almost always made by computers.

The time between the investigation in the field and the report for the foundation has remarkable decreased. To be cost effective, the Contractors and the Consultants have a demand for a very short time period between field and invoice. It is also today very common to use Cell Phones to transfer the results as data files over Internet,. The Geologist can have the results on his Computer screen immediately after the drilling is completed to decide about the next step.

Quality Control systems are today vital for all companies. This means that the field personnel must have a tools to control and edit their own results. To be able to do this the results must first be visualised by a drawing. Before EDISON this could only be done after the field results where the presentation where done at the office.

The Swedish Geotechnical Institute has developed a soft ware which gives you the possibility to control and editation already in the field.

What is Edison ?

Edison is a soft ware developed by the Swedish Geotechnical Institute. Edison gives you a tool to control, edit and secure the Quality already in the field. The Edison soft ware is also usable in the office as a program to get a fast over view and to perform a quick drawing from the drilling. The soft ware works under Windows 3.1x, 95, 98 and NT.

The program reads files saved in .STD format. The files are shown on the screen as graphs as well as alpha numerically. Here are the possibilities to adjust wrongly stored values or comments. The corrected data file is again stored. Also the original file is stored as backup. The original file can always be brought back for Quality Control.

In the soft ware is a list of all method codes, commentary codes and parameter codes. Also codes of your own is possible to be added, i.e. codes specific for the customer.

Graphically and alpha numerically are all measured parameters presented. Not only the ones used for the specific method. These are used for control of the performed drilling to see if the drilling is performed according to the standard.

Edison is not a evaluation soft ware but a program used to fill the gap between the field personnel and the responsible Consultant.

Definitions

Main block

Part of the file consisting of general information on a drill hole.

Data block

Part of the file consisting of measured values and comments on a drill hole.

Commentary codes

Codes used by the field and the laboratory for remarks and valuations done in the field and in the laboratory.

Method codes

Codes used in the main block to describe what method has been performed.

Synchronisation parameter

Parameter relating the measured values to i.e. depth or time.

Synchronisation axis

The axis in a diagram jointly used for several parameters.

Quick menu

Menu shown when you click the right button on the mouse.

Installation

What you need

To be able to use Edison a computer fulfilling or exceeding:

- Microsoft Windows 3.1x, 95, 98 or NT.
 - At least 8 MB RAM.
 - 1 MB available space on the hard disk drive.
-

New installation

1. Insert the disk in the a-drive.
 2. **Windows 3.1x**
Chose **File** and **Run** in the Program Manager.
Windows 95 and 98
Chose **Start** and **Run**.
Windows NT
Chose **Start** and **Run**.
For Windows NT the routines for copying are installed.
 3. Write **a:setup** and press **enter**.
 4. Follow the instructions on the screen.
-

Upgrading from version 2.0.

Install the new version in the same directory as the old program.

The format of the files containing the codes has been changed. If you want to continue using your old code files, you have to delete the three following files in Edison's program directory. sgfparam.ini, sgfmetod.ini and sgfcomm.ini.

The next time you start Edison the program will recreate these files based on your old code files.

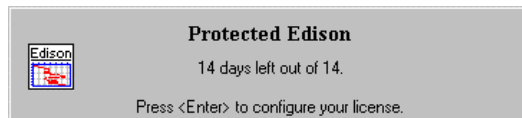
Registration of Edison.

Edison is protected by a soft ware based copy protection and will be fully functional for 14 days. To continue using the program, it must be registered at the Swedish Geotechnical Institute.

If the program is not registered it will cease to run after 14 days.

Start message.

The start message appears each time you start Edison:



The start message indicates that you are running a protected version of Edison and for how many days it will continue to operate.

Once the program is installed in your computer, it generates a code specific for the computer. This code is called *Site Code*. To register the program, the *Site Code* must be sent to SGI. SGI will return another code, The *Site Key*, which will activate the program license.

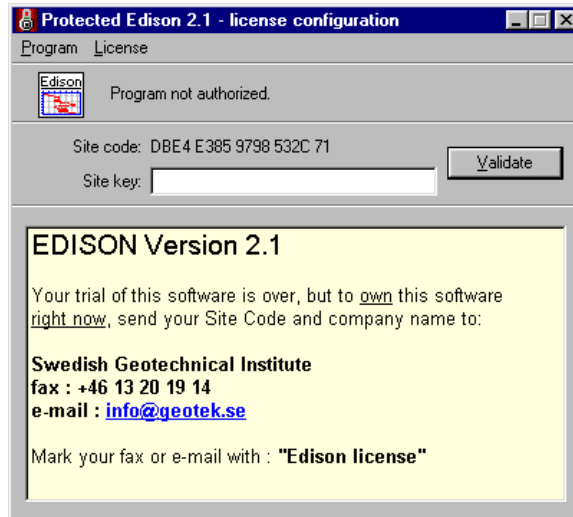
When a valid Site Key is entered, the following start message appears.



Registration dialog.

The registration dialog is used to activate the program license and to transfer the license from one directory to another.

To display the registration dialog press **ENTER** while the start message appear.



To activate your license, send your *Site Code* and company name to:

SGI

fax +46 13 20 19 14

e-mail info@geotek.se

Mark your fax or e-mail with "**Edison license**".

SGI will reply with a Site Key. Enter the Site Key into the site key field and click **Validate**.

Transfer the license.

Direct license transfer.

Direct transfer is used to transfer the license from one directory (the source) to another (the target). The source and target directories must be located in the same computer.

1. Copy all the files from the source directory to the target directory.
2. Start Edison in the source directory and bring the registration dialog up.
3. Select **Transfer to directory** on the **License** menu.
4. Provide the path name to the target directory and click **Ok**.

Floppy disk transfer.

To transfer the license from one computer to another, you must have a licensed copy of the program installed on one computer (the source) and an unlicensed copy of the program installed on another computer (the target). You will also need a floppy disk.

1. Start Edison on the target computer and bring the registration dialog up.
2. Select **Transfer into computer** on the **License** menu.
3. Insert the floppy disk and supply the path to the floppy disk, click **Ok**.
4. Take the floppy disk out of the target computer and place it in the source computer.
5. Start Edison on the source computer and bring the registration dialog up.
6. Select **Transfer out of computer** on the **License** menu and supply the path to the floppy disk, click **Ok**.
7. Take the floppy disk out of the source computer and return it to the target computer.
8. Press **Continue transfer** (or select **Transfer into computer..** again if the target program was interrupted).

Introduction

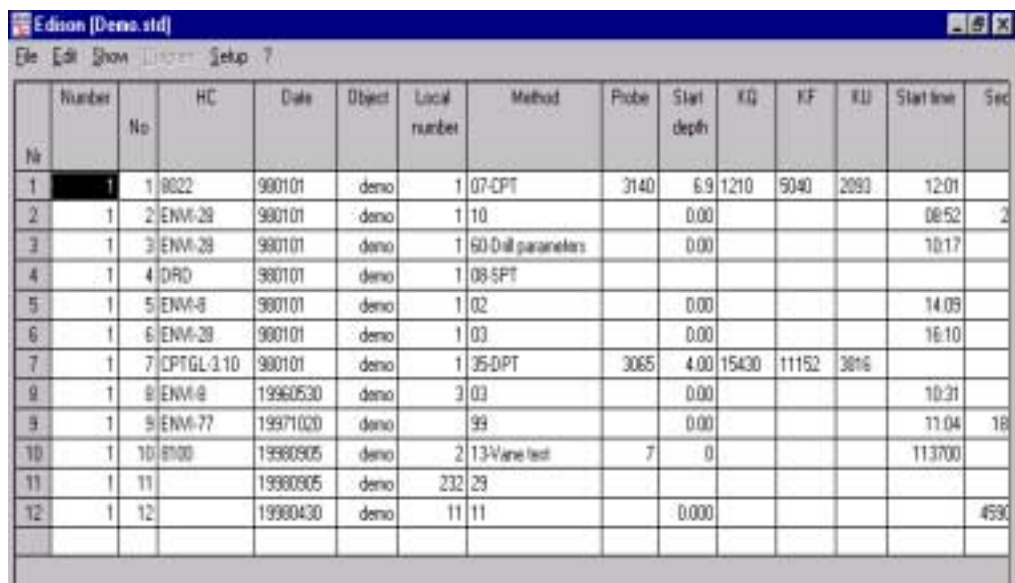
Below is a short presentation of the functions of the soft ware. For more detailed information, study chapter **Functions**.

To open a data file

Chose **File** and then **Open**.

Mark the file **demo.std** in Edison's program catalogue and click on **Open**.

Edison opens the file and the screen shows:



The screenshot shows a window titled 'Edison (Demo.std)' with a menu bar (File, Edit, Show, Window, Setup) and a table of data. The table has 14 columns: Nr, Number, No, HC, Date, Object, Local number, Method, Probe, Start depth, KQ, KF, KU, Start time, and Sec. The data rows are as follows:

Nr	Number	No	HC	Date	Object	Local number	Method	Probe	Start depth	KQ	KF	KU	Start time	Sec
1	1	1	8022	990101	demo	1	07-CPT	3140	6.9	1210	5040	2090	12:01	
2	1	2	ENVI-28	990101	demo	1	10		0.00				08:52	2
3	1	3	ENVI-28	990101	demo	1	60 Drill parameters		0.00				10:17	
4	1	4	DRD	990101	demo	1	08-5PT							
5	1	5	ENVI-8	990101	demo	1	02		0.00				14:09	
6	1	6	ENVI-28	990101	demo	1	03		0.00				16:10	
7	1	7	CPTGL-110	990101	demo	1	35-DPT	3085	4.00	15430	11152	3816		
8	1	8	ENVI-8	19960530	demo	3	03		0.00				10:31	
9	1	9	ENVI-77	19971020	demo		99		0.00				11:04	18
10	1	10	8100	19980905	demo	2	13-Vane test	7	0				11:3700	
11	1	11		19980905	demo	232	29							
12	1	12		19980430	demo	11	11		0.000					4590

The table shows the drillings and soundings stored in the file. Every sounding has one line and every column corresponds to a parameter from the main block.

Editing the main block

The information in the table can be edited by marking the cell and press enter or double click on the cell you want to be corrected.

If you change **Method**, a window is shown and the method is changed from a list.

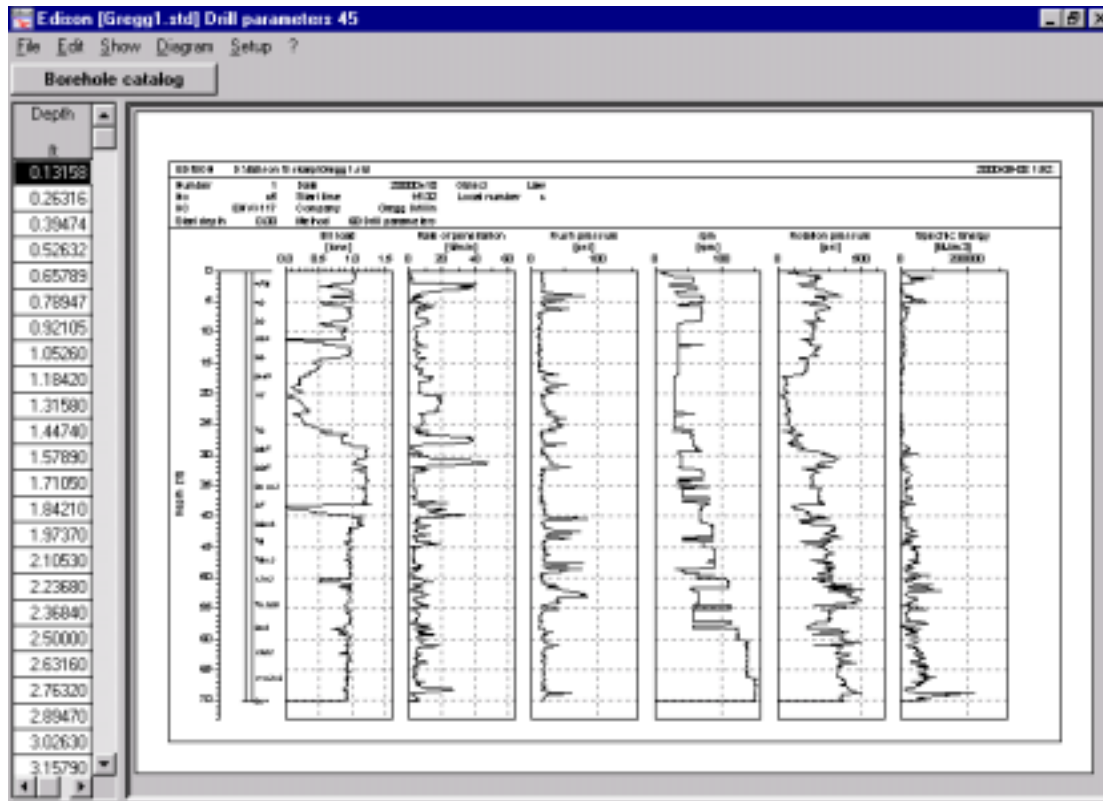
For editation in the main block the following functions are on the **Edit** menu. Some of them are also on the menu reachable by clicking on the right button on the mouse.

- **Copy.**
Copies the market files into the Window clip board.
- **Copy borehole.**
Creates copies of drill holes or connect data from several drill holes.
- **Delete row.**
Cuts all data from the market cell. If a whole column is market, that parameter is taken away. If a line is market (click on the column far left) the whole drill hole is erased.
- **Insert column.**
Adds a parameter.
- **Change code.**
Changes the code for the marked column.
- **Fill down.**
The cells are filled with data from the marked cell on the top.

Show diagram

Chose **Show** and click **Diagram** or double click on a head line.

Edison is changing to editing of data block and the screen shows:



On the upper part of the screen are the measured values in the data block as tables. On the lower part, the values are presented as a diagram.

Between the table and the diagram is a sharing list. It can be moved by using the pointer. Press the left button on the mouse and drag the list to a wanted position.

Zoom

You can **zoom in** a part of the diagram by marking a point on the diagram. Press left button and drag a rectangle right/down.

To **zoom out**, you mark a point and drag left/up when left button is pressed. The diagram returns to the previous size. If no earlier zooming is done, the size will adjust to the size of the screen.

Panorate

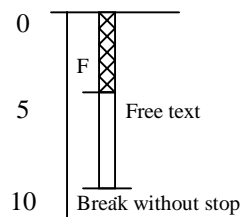
When an area is zoomed you can move it around while keeping the right button pressed down.

Scale

When you change to view diagram, Edison adapts the scales from the data. Change the scales manually by:

- **Double click on the axis**
In the pop up menu shown, give minimum and maximum values for the axis.
- **Click and drag the axis.**
Take the axis with the pointer and drag the axis until you have reached the wanted scale.

Borehole bar.



The borehole bar is drawn to the right of the y-axis. It presents **codes for comments (code K)** and **text (code T)**.

Comment codes are shown to the left of the bar, sometimes with a pattern. Stop codes are written below the bar.

Text is always written to the right of the bar.

Locate data.

By clicking on a spot in a diagram, the value closest to the spot, is marked in the table. To mark an interval, click on the upper spot, hold shift down and click on the lower spot.

If you click to the left of or inside the borehole bar, Edison looks in the column for comment codes. If no code is present the row below with a code is marked.

If you click to the right of the borehole bar, Edison looks for data in the column for text.

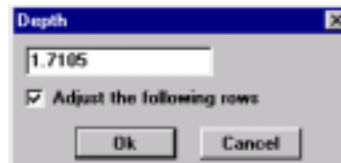
Quick menu.

The diagram has a pop up menu shown if you press the right button on the mouse.

Editing data block.

The measured data can be edited in the same way as in the main block with some exceptions:

- If you edit data in the first column, this window is shown on the screen:



If **adjust the following rows** is marked, all the following values after the spot will be adjusted so the difference between the readings will be kept.

- If you edit data in the column **Comments**, a window is shown where you chose the comment actual.

To edit data from the data block, the following functions are under **File**, alternatively on the quick menu.

- **Copy.**
Copying the marked cells to the Window clip board.
- **Delete**
This function is dependent of what is marked.
- **Delete special.**
This gives opportunities for what data shall be deleted.
- **Add row/column.**
Adds an empty row above the marked row. / Adds a parameter.
- **Sort.**
Sorts data from chosen parameter.
- **Change code.**
Changes the code for the marked parameter.
- **Correct depth.**
Edit of stop depth.
- **Calculate.**
Multiply or add a constant to the measured data in a column.
- **Fill down.**
The cells are filled with data from the marked cell on the top.

Save data file.

Go back to the main block by pressing Borehole catalogue or chose Edit and than Bore hole catalogue..

Edit the other bore holes in the same way.

Go to File and than to Save as...

Functions.

File menu.

New

Create a new file or adds a new sounding to the file.

To be able to create a new sounding, the parameters included in the method must be defined, see **Set up Method codes**.

Open.

Opens a new data file.

Add.

Adds data from another data file.

If one data file is opened, data from another file can be added. The data from the new file is place after the first file.

Save.

Saves data.

Data is saved under that name the file was given at **Open** or at the latest **Save as..**

See also **Set up, Options and Security**.

Save as..

Saves data under a new name.

This gives you the opportunity to chose another file name.

See also **Set up, Options and Security**.

File menu.

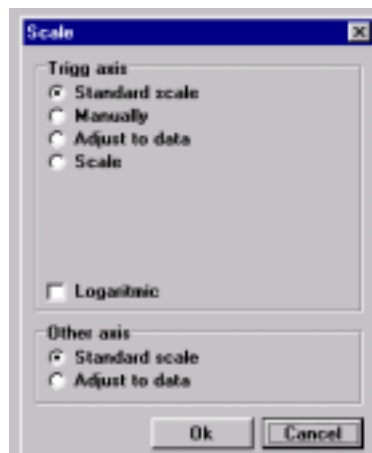
Print..

Print out of a diagram.

This works differently if you are editing a main block or a data block.

- **Editing a main block.**

By marking several rows you can print several soundings at the same time. Before print out the following window is shown. Here you set the scale for the synchronisation axis. **If standard scale is chosen** the scales are adopted to fit the method. See **Set up, Codes and Method codes**.



- **When editing values in data block.**

The diagram is printed out.

Print set up..

Set up of the printer and format.

Edit menu.

Copy.

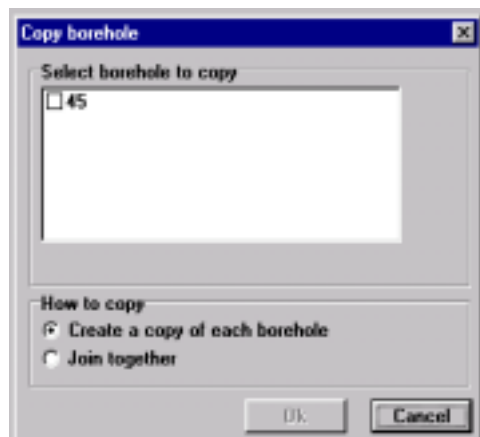
Copying the marked cells in the table to Windows clip board.

If the marked area is too large, a message is shown. In that case choose a smaller area and make the copying in two steps.

Copy bore hole.

Connects or copies data from several soundings.

When this function is activated the window below is shown:



In this list you find all soundings stored in this data file. Mark the drillings you want to be copied by x mark the square besides the bore hole number.

Data files can be copied in two ways:

- **Create a copy of every bore hole.**
For every bore hole marked a copy is created. The copy is placed last in the file.
- **Join together.**
Edison first makes a copy of the marked bore hole. Then it adds the measured data from the other bore holes.

Edit menu.

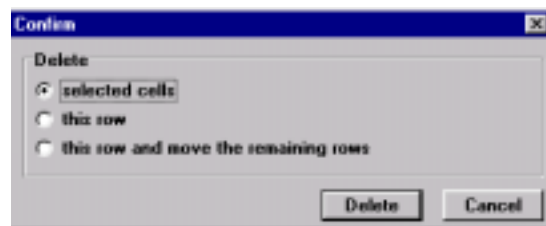
Delete.

Deletes the marked values.

This function is dependent of what is marked.

- **One or more columns.**
The marked columns are deleted.
- **One or more rows in the main block.**
The marked bore holes are deleted.
- **Cells in the main block.**
The data in the marked cells are deleted.
- **Cells in the data block.**

The following window is shown:

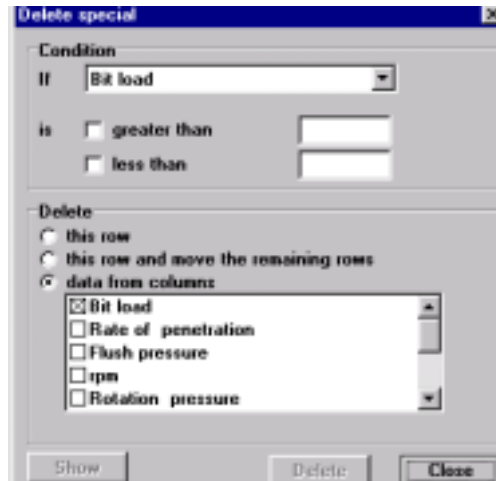


- **Marked cells.**
The data in the marked cells are deleted.
- **The whole row.**
The whole row is deleted.
- **The whole row and connect the following values.**
All the measured data (except the first column) on the marked row are deleted, after that the following data is "lifted one step up".

Edit menu.

Delete special.

Deletes data according to terms.



This function gives you the possibility to delete data following specified terms. Edison controls the whole column and deletes all data following the chosen term.

You can chose to delete:

- **the whole row**
- **the whole row and connect the following..**

All measured data (except the one in the first column) on the marked rows are deleted. The following data are moved "up" and connects.
- **data from certain columns**

Data for those marked in the list are deleted.

The button **show** marks the values which are going to be deleted with a red dot in the diagram.

Insert row.

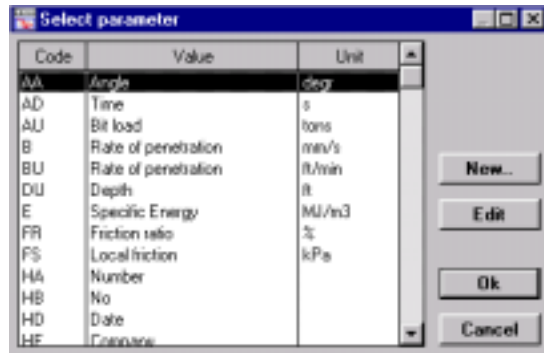
Inserts an empty row in the data block.

This can not be done in the main block.

Edit menu.

Insert column.

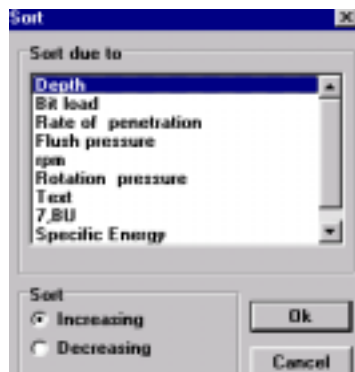
Inserts a parameter in the main or data block.



At the time there is no check however the parameter already exists.

Sort.

Sorts data.



Mark the parameter the soft ware shall sort by, than chose if data shall be sorted increasing or decreasing.

Change code.

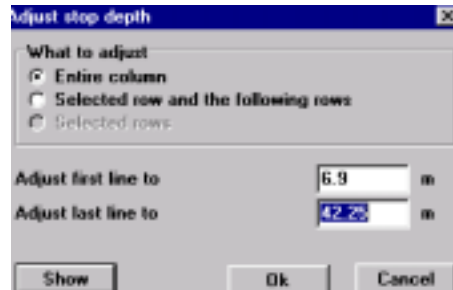
Changes code for the marked column.

When this function is activated the same window as **Insert column.**

Edit menu.

Adjust depth

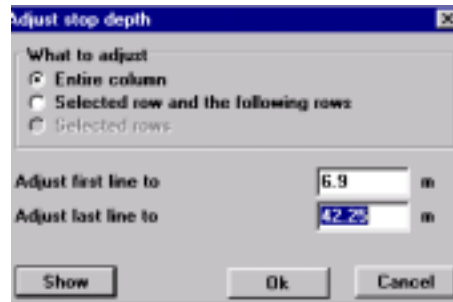
Adjusts the depth for a sounding.



Depending if you take a larger or smaller interval, Edison will stretch or shrink the data. The button **show** rewrites the diagram according to the new stop depth.

Calculate.

Calculates data in a column.



The calculation is made on a column. Chose between to multiply or add a constant to:

- **Entire column**
- **Selected rows**
Only those measured values marked in the table.
- **Selected row and following rows**

Fill down.

Fills the cells in the marked area with data from the upper marked cell.

Show menu.

Diagram / Borehole bar.

Changes between editing of main block and data block.

Codes.

Shows the parameter codes.

When this function is activated one additional row is shown in every column. On the line the code for actual parameter is marked.

Priority.

Shows the order of assortment for columns.

Every parameter gets a number in which order they will be shown. Look at **Set up Parameter** and **Set up Options**.

Diagram menu

Adjust scales.

Adjusting the scales on the axis according to data.

This function checks the minimum and maximum values for the data written in the diagram. After that the axis are adjusted so all data are presented. See also **Set up Diagram**.

Standard scale.

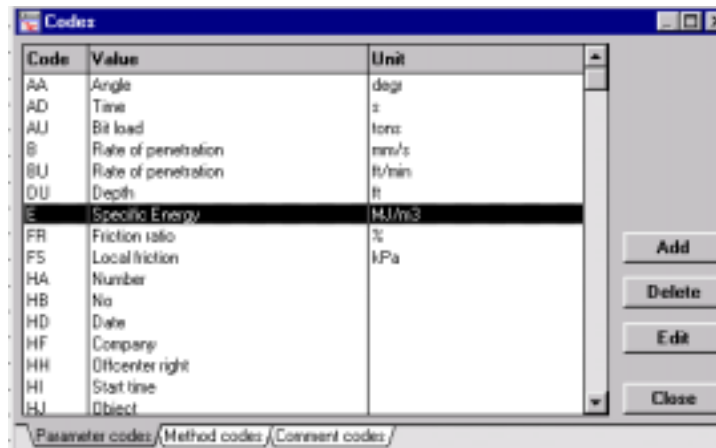
Adjusting the scales on the axis according to standard.

For every method you can define a standard scale. If a parameter not is defined, the scale is not changed.

Set up menu.

Codes.

Defining of codes for parameters, methods and comments.



The screenshot shows a window titled 'Codes' with a table of codes. The table has three columns: 'Code', 'Value', and 'Unit'. The rows are as follows:

Code	Value	Unit
AA	Angle	deg
AD	Time	s
AJ	Bit load	tons
B	Rate of penetration	mm/s
BU	Rate of penetration	f/min
DU	Depth	ft
E	Specific Energy	MJ/m ³
FR	Friction ratio	%
F5	Local friction	MPa
HA	Number	
HB	No	
HD	Date	
HF	Company	
HH	Offcenter right	
HI	Start time	
HJ	Object	

At the bottom of the window, there are three tabs: 'Parameter codes', 'Method codes', and 'Comment codes'. On the right side, there are four buttons: 'Add', 'Delete', 'Edit', and 'Close'.

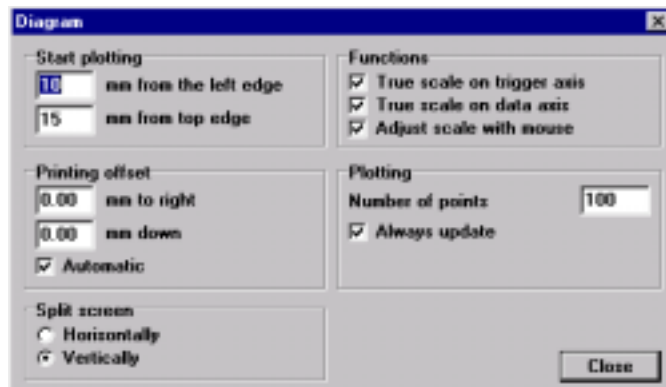
The table shows the codes for parameters which are defined in the program. In the lower part of the window there are three books. Change between codes for parameters, methods and comments.

Add, is adding a new code, **Delete**, is deleting the marked code in the list and **Edit**, is changing the set up for the marked code. For more information look

Set up menu.

Diagram.

Set up for diagram.



Start plotting gives you the distance in mm from the upper/left frame of the paper surrounding the diagram.

When you print out a diagram sometimes its position on the paper needs to be adjusted. At **Printing offset** you adjust the position of the diagram.

Functions.

- **True scale on trigger axis.**

Tells how Edison will adjust the scale when you chose **Adjust scales** on the **Diagram** menu. The trigger axis is that axis which is the same for all diagram. True scale means that minimum and maximum values are adjusted to the length.

- **True scale on data axis.**

Corresponding to the other axis.

- **Adjust scale with mouse.**

Tells if you shall be able to change the scales by pulling them with the mouse. You can always double click on the axis to change scale.

Plotting tells Edison how to write data in the diagram. **Number of points** tells how many values to be drawn before the screen is up dated. If square **Always up date** is not marked the up dating of the screen is done when all the values is drawn.

Split screen.

- **Horizontally**

The table is shown on top of the diagram.

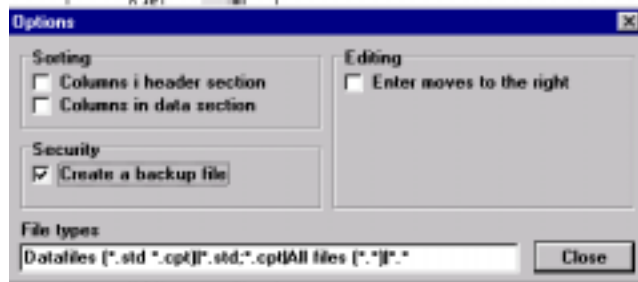
- **Vertically.**

The table is shown to the left of the diagram.

Set up menu.

Options.

Other set ups.



Sorting tells you if the columns in the main block / data block shall be sorted by the priority of the parameter. This does not effect the way the data is stored.

Security.

If you chose **Create a back up file** Edison will create a copy of the existing file when you chose Save. The copy get the same name but with extension .bak.

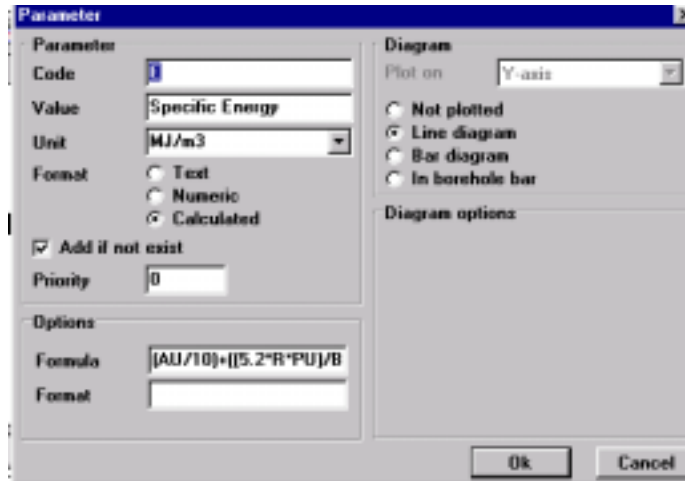
The copy is made only if there is no existing copy.

Editing.

Enter moves to the right tells you how the cursor moves after editing a cell.

Editation of parameter codes.

When you chose to edit or add a parameter code the window below shows. It comes up also if you double click on a column headline in the tables.



Code is according .STD format.

Value and **Unit** describes what parameter it is. This is in the headlines in tables and diagram. In the field **Value** the sign | (ascii code 124) can be added. This shares the text in the table into two lines.

Trigger parameter tells that the parameter is the triggerparameter. It is used by Edison to design the look of the diagram.

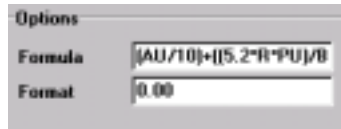
Add if not exist tells that this parameter always shall be a part of the data and main block. Also if it has no part in the data file i.e. comments or text.

Priority is a number in the interval -10000 to 10000. It tells in which order the columns shall be presented in the tables.. If you have chosen sort columns (see **Set up – Options**). Edison will sort the columns according to their priority. The higher priority the longer to the right it will be placed.

Format tells how Edison shall treat the data.

- **Numeric** is placed to the right in the table and can be drawn in the diagram.
- **Text** is placed to the left in the table and is not presented in the diagram.
- **Calculated** is a parameter getting its value through a formula.

For a **Calculated** parameter the following alternative are possible.



Formula is the formula giving the parameter its value. To get the value from other parameters you use the significant code for every parameter.

The following functions can be used in a formula:

+	Addition
-	Subtraction.
*	Multiplication.
/	Division.
(Start parenthesis.
)	End parenthesis.
ABS(x)	Returns the absolute value of x.
ATAN(x)	Returns the angle value in radians for arctan x.
COS(x)	Returns the cosine for the angle x. x in radians.
EXP(x)	Returns the exponent for x (e^x).
LN(x)	Returns the natural logarithm (base e) of x.
ROUND(x)	Returns the closest integer of x.
SIN(x)	Returns the sine value of x. z in radians.
SQRT(x)	Returns the square root value of x.
SQR(x)	Returns the value of x square. ($x*x$)
TRUNC(x)	Returns the truncated value of x.

Format tells how the value is presented in the table. 0.00 is the value with two decimals.

Plot on tells you on which axis the parameter shall be drawn. This is only for trigger parameters. When Edison creates a diagram, the software takes the trigger parameter and draw its axis. Than all the other parameters are drawn on the opposite axis.

For the parameters which is no trigger parameters, you can chose how they will be presented in the diagram.

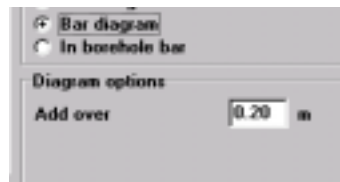
- **Not plotted.**

- **Line diagram.**

Edison draws a line between every measured value.

- **Bar diagram.**

Presents the measured data as bars.

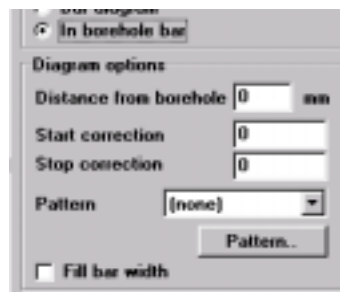


The values are added up in that interval chosen. Devide the sum with the number of measured data. The diagram presents the result as a bar with the height as the interval.

- **In borehole bar.**

Presents measured data close to the borehole bar. The parameters telling on/off of something can be presented inside or beside the borehole bar.

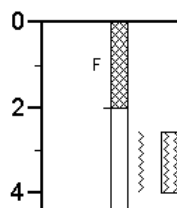
Distance from borehole says how far from the left side of the borehole bar the parameter shall be drawn.



Star and Stop correction gives the values where the values shall be corrected.

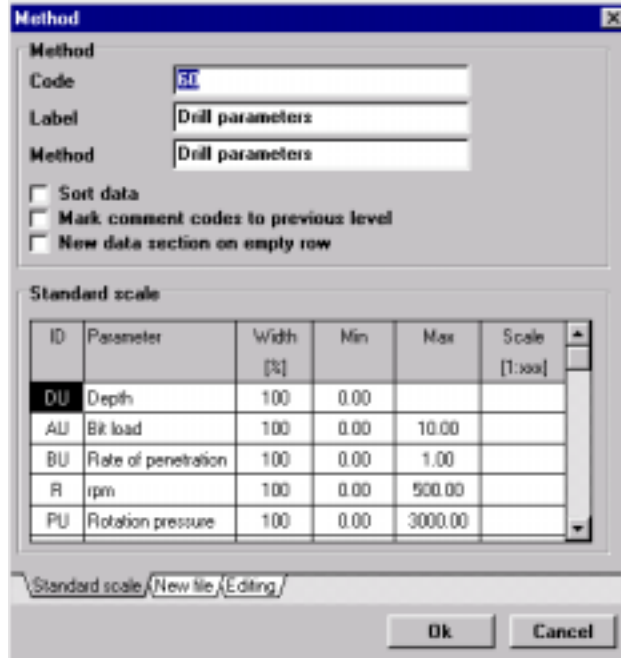
On **Pattern** is a list of pre defined pattern draw able. See chapter **Set up Pattern**.

Fill bar width tells if the pattern shall be drawn only once or if it shall fill the borehole bar up. Below is an example of the pattern ZigZag presented both ways.



Set up method codes.

If you chose to edit or add a method code the window below is shown:

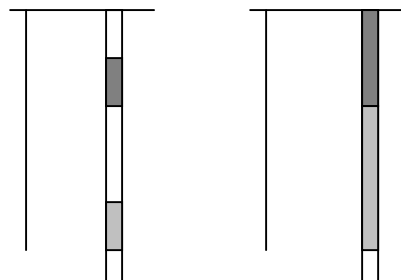


Code is a method code according to .STD. **Label** is shown together with code in the column Method.

If the square **Sort data** is marked Edison will sort the data in the data block when you change to edit of data block. Measured data is sorted increasing following the value of the trigger parameter.

Comment codes are noted on the previous code. The comments are normally drawn on the previous level. (line in the data file). If the square is marked it will be presented all the way to the previous level.

Depth	Comments
m	
0.20	
0.40	30- Fill
0.60	
0.80	
1.00	32- Friction



Empty row in the data block indicates a new data block. For some methods there can be several data blocks in one sounding (i.e. Vane Test). Edison separates the different data blocks by an empty row in the table.

Under the book **Standard scale** you set the width and standard scale.

ID	Parameter	Width [%]	Min	Max	Scale [1:xxx]
DU	Depth	100	0.00		
AU	Bit load	100	0.00	10.00	
BU	Rate of penetration	100	0.00	1.00	
R	rpm	100	0.00	500.00	
FU	Rotation pressure	100	0.00	3000.00	

Standard scale / New file / Editing

Width gives the width of the diagram regarding available space. 100% correspond to standard width. If you chose 0% the parameter will not be presented.

In the example above will the axis for Point resistance (Q) be twice as long as the other axis and the max value will always be 20 MPa. If the Point pressure (QC) is one parameter in the data file it will not be presented. Friction (F) will be presented in a diagram with standard width and adjusted scales. Pore pressure will be drawn in a diagram with standard width and in scale 1:5000.

Under the book **New File** you find the parameters in the method. This is used when you create a new sounding in book **New file**.

When creating a new file
Parameters included in this method

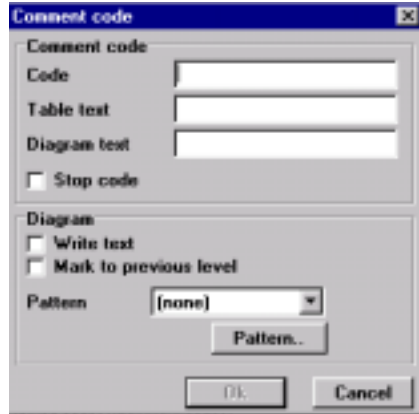
Header section		Data section	

Standard scale / New file / Editing

Under the book **Editing** you can add parameters you want to use while editing (i.e. calculated parameters). These parameters will not be saved.

Set up comment codes.

If you want to edit a comment code the following window is shown:



Code is a code in accordance with standard .STD. **Table text** is the text presented in the table. **Diagram text** is presented in the diagram.

If the code is a **Stop code** it is presented automatically in the borehole bar.

Codes not being stop codes, you can chose how they will be presented in the borehole bar.

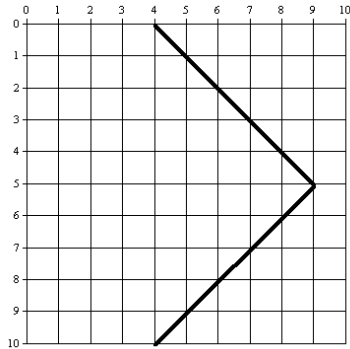
If the square **Write text** is marked, the text written in **Diagram text** to the left in the borehole bar.

If **Marked to previous level** is marked, the diagram text is in the centre between actual and previous level. Otherwise the text is written on the actual level.

Under **Pattern** is a list of pre defined pattern. They will be printed in the borehole bar. See **Set up Pattern**.

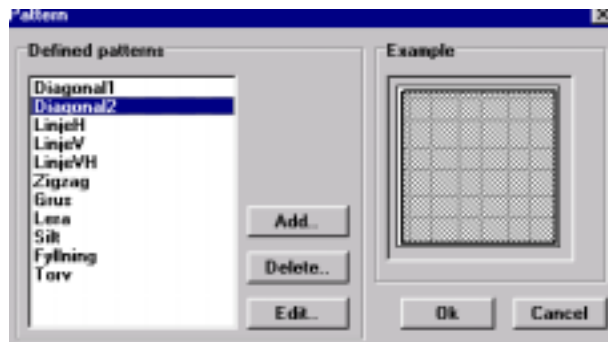
Set up Pattern.

To be able to define a pattern lines in a square 10 mm² is used. The co-ordinates are given for the start and end on every line. A pattern can consist of up to 10 lines.



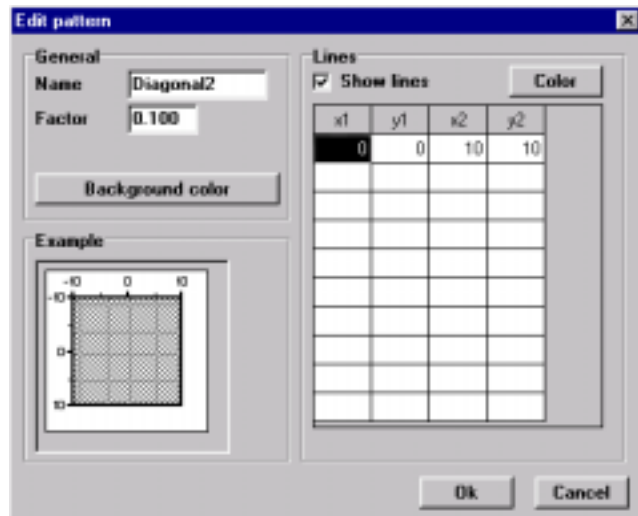
When Edison is filling an area up, the defined lines are repeated until the whole area is filled.

If you want to edit a pattern the following window is shown:



When you mark a pattern, there is an example shown to the right.

When you chose **Edit** or **Add** the following window is shown:



Factor is a scale factor deciding the size of the pattern. If the scale factor is 1, the pattern will be 10 mm at print out.

Co-ordinates are always given as numbers in the interval 0 - 10.