

MAGNETIC FIELD METER 3000

Software Manual

This manual complies with software version 2.0

Combinova AB would appreciate to receive feedback. Your comments will help improve the software.

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Section 1 – Start up

- 1.1 System requirements
- 1.2 Program installation
- 1.3 Terminology
- 1.4 Basics

1.1 System requirements

Supported operating systems are:

Windows XP, Windows Vista Windows 7.and 8(Microsoft)

Minimum screen resolution 1024 x 768.

Use 96 DPI. (normal font size for Windows)

CPU clock min. 1 GHz.

Ram-memory min. 1 GB.

Disc space min. 500 MB.

One USB 2 port.

1.2 Program installation

Install CD on the computer, follow the instructions on the screen.

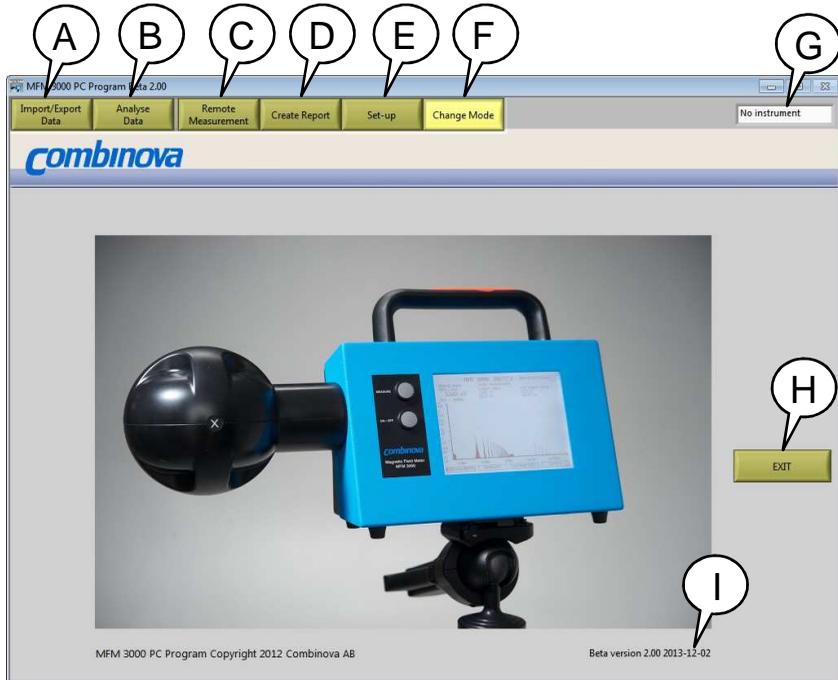
1.3 Terminology

List of terms used.

Choice Menu	screen with options to choose data for editing, presentation, import or export
Database	file that contains all measurement data used by the program.
Field	piece of data in a database record.
Logged data	data downloaded from instrument.
Measurement	group of records from the same occasion.
Presentation	screen with time diagram, FFT diagram or harmonics diagram.
Project	group of measurements
Records	group of fields

1.4 Basics

- A to E - Buttons to choose operating mode.
- F - Return to main menus to change mode or exit program.
- G - Connection indicator, shows serial number on connected instrument.
- H - Exit program.
- I - Program version.



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Section 2 – Import and Export of data

To enter click the button “Import/Export data”.

- 2.1 Create a project or choose an existing project in database
- 2.2 Import data from instrument to database
- 2.3 Import data from file to database
- 2.4 Store data in database
- 2.5 Erase data from instrument log memory
- 2.6 Edit database
- 2.7 Export data

2.1 Create or choose an existing project in database

- A - Choose an existing project.
One project can contain several loggings or single measurements.
- B - Create a new project, write comments.
- C - Save the new project to the database

2.2 Import data from instrument to database

- D - Download logged data from Instrument.

Connect the MFM 3000 with the USB cable to the computer.

Turn on the MFM 3000.

Click on (D) "Download log data". Data will appear in the (F) "Select Records" window.

Mark the readings to be stored in the database and click (I) "Save to Project"

The marked readings will be transferred to the database and at the same time all downloaded data is stored under an automatic generated file name. The format is [day, month, year, hour-minutes, serial number, numbers of log values .log] and is stored in a folder defined under "Set-up / Application".

The download takes from some seconds up to 25 minutes depending on the number of measurements to download.

2.3 Import data from file to database

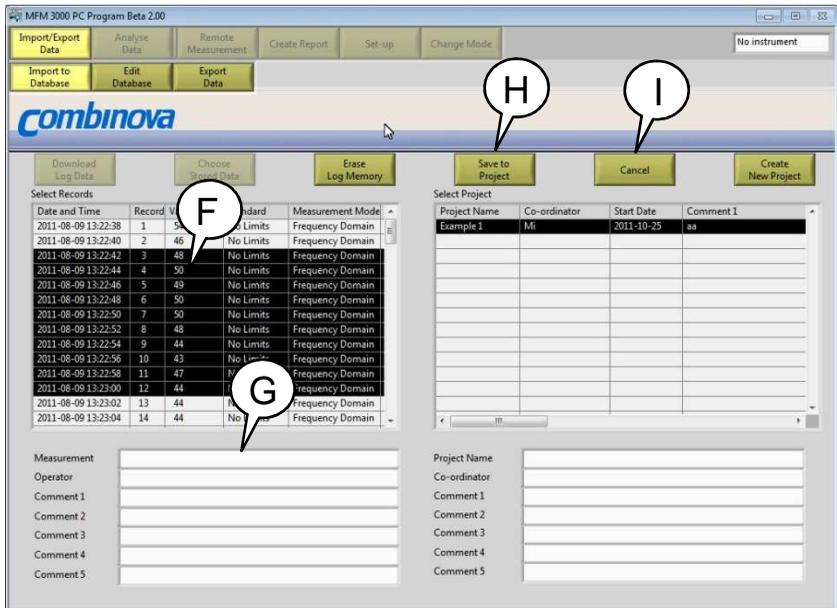
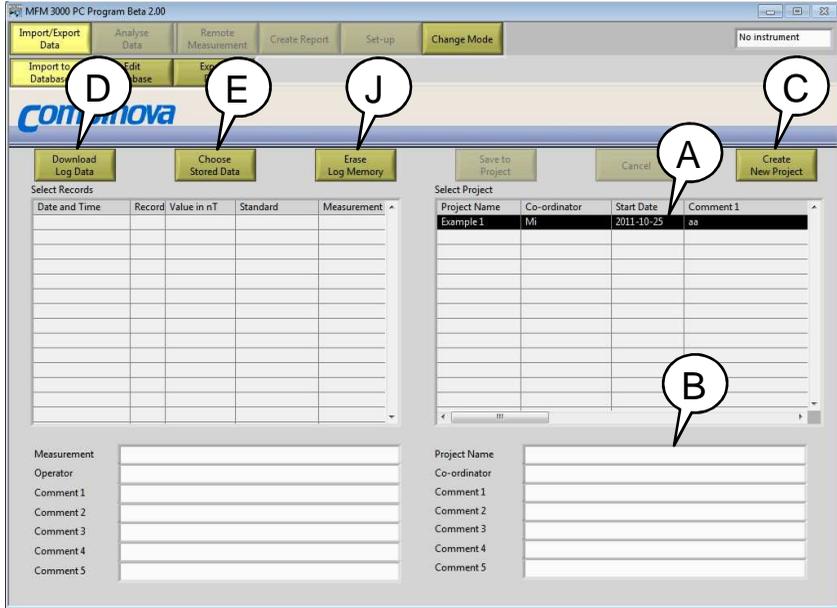
- E - Opens .log files. Log-data saved under this program.

2.4 Store data from instrument in database

- F - Choose measurement data to be saved to database.
Use ctrl or shift button together with the pointer to select data.
- G - Write comments to the measurement.
- H - Save to the database.
- I - Cancel the operation.

2.5 Erase data from instrument log memory

- J - Erase the log memory in MFM 3000.
Connect the MFM 3000 with the USB cable to the computer.
Turn on the MFM 3000.
Click on "Erase Log Memory".



2.6 Edit database

- A - Select a project.
- B - Delete measurement from database.
- C - Change or add comments to the measurement.
- D - Save changes in measurement to the database.
- E - Cancel the operation.
- F - Select measurement.
- G - Delete project from database.
- H - Change or add comments to the project
- I - Save changes in project to the database.
- J - Cancel the operation.

2.7 Export data

- K - Select measurement.
- L - Select a project.
- M - Select file format.
- N - Select number of records.
- O - Include / exclude FFT.
- P - Present in columns / rows.
- Q - Export to file.

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Import/Export Data | Analyse Data | Remote Measurement | Create Report | Set-up | Change Mode

Import to Database | Edit Database | Export Data

Save | Cancel | Delete | Save | Cancel | Delete

Select Measurement to Edit / Delete

Measurement	Operator	Start Date and Time	Number of Records
BAE-systems 2		2013-10-01 11:22:38	16
BAE-systems 1		2013-09-24 08:42:02	4
2 record		2011-07-25 10:27:22	2
1 record		2011-10-05 18:55:33	1
test	MI	2011-08-04 13:25:00	7928
Remote logging	MI	2011-10-25 12:59:01	39
Office + train 1 km away	MI	2011-08-04 13:38:25	301
Office background noise	MI	2011-08-09 13:22:38	101
Sinus, triangle, square wave	MI	2011-07-25 10:27:22	3
Noise	MI	2011-10-05 18:55:33	6

Select Project to Edit / Delete

Project Name	Co-ordinator	Start Date	Comment 1
Example 1	MI	2011-10-25	aa

Measurement: Office background noise
Operator: MI
Comment 1: The label "Comment x" in Project and Measurement can be changed to a text that better meets the user's needs. Use "Ctrl+shift+F10" and change view to make the line numbers for each text visible.
Comment 2: Then go to "Set-up" - "Language set-up" to edit text.

Project Name: Example 1
Co-ordinator: MI
Comment 1:
Comment 2:
Comment 3:
Comment 4:
Comment 5:

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Import/Export Data | Analyse Data | Remote Measurement | Create Report | Set-up | Change Mode

Import to Database | Edit Database | Export Data

Select Measurement to Export

Measurement	Operator	Start Date and Time	Number of Records	Comment 1	Comment 2
BAE-systems 2		2013-10-01 11:22:38	16		
BAE-systems 1		2013-09-24 08:42:02	4		
2 record		2011-07-25 10:27:22	2		
1 record		2011-10-05 18:55:33	1		
test	MI	2011-08-04 13:25:00	7928		
Remote logging	MI	2011-10-25 12:59:01	39		
Office + train 1 km away	MI	2011-08-04 13:38:25	301		
Office background noise	MI	2011-08-09 13:22:38	101	The label "Comment x" in Project and Measurement can be changed to a text that better meets the user's needs. Use "Ctrl+shift+F10" and change view to make the line numbers for each text visible.	
Sinus, triangle, square wave	MI	2011-07-25 10:27:22	3		
Noise	MI	2011-10-05 18:55:33	6	aaaa	bbbb

Select Project

Project Name	Co-ordinator	Start Date	Comment 1
Example 1	MI	2011-10-25	aa

Semicolon Separated
Comma Separated
Tab Separated
EXCEL
--

Select Records: + 1 -
Start: + 16 -
Stop:

Reading databases
Include FFT
Data in Columns
Export to File

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Section 3 – Analysis of data

To enter click the button “Analyze Data”.

- 3.1 Choose measurement to analyze
- 3.2 Frequency Domain Time diagram
- 3.3 Time Domain Time Diagram
- 3.4 FFT diagram
- 3.5 Harmonics diagram

3.1 Choose measurement to analyze

- A - Choose project.
- B - Choose measurement.
- C - Load measurement to be analyzed.
- D - Load indicator.
- E - Measurement information.
- F - Number of records in measurement.
- G - Show time diagram.
- H - Show FFT diagram.
- I - Show harmonics diagram.

The screenshot shows the MFM 3000 PC Program interface. Callouts A through I point to the following elements:

- A:** Choose Project button
- B:** Measurement table
- C:** Load Measurement button
- D:** Value field (0)
- E:** Comment field
- F:** Choose Measurement button
- G:** Analyze Data button
- H:** Re-run Measurement button
- I:** Create Work button

The interface includes a menu bar with options: Import/Export Data, Analyze Data, Re-run Measurement, Create Work, Set-up, and Change Mode. Below the menu bar are buttons for Choose Measurement, Time Diagram, FFT Diagram, and Harmonics. The main area contains a Measurement table, a Choose Project table, and a Choose Measurement table.

Measurement	Operator	Start Date and Time	Number of Records	Comment 1	Cor
BAE-systems 2		2013-10-01 11:22:38	16		
BAE-systems 1		2013-09-24 08:42:02	4		
2 record		2011-07-25 10:27:22	2		
1 record		2011-10-05 18:55:33	1		
test	MI	2011-08-04 13:25:00	7928		
Remote logging	MI	2011-10-25 12:59:01	39		
Office + train 1 km away fre	MI	2011-08-04 13:38:25	301		
Office background noise	MI	2011-08-09 13:22:38	101	The table "Comment x" in Project and Measurement.	can
Sinus, triangle, square wave	MI	2011-07-25 10:27:22	3		
Noise	MI	2011-10-05 18:55:33	6	aaaa	bbb

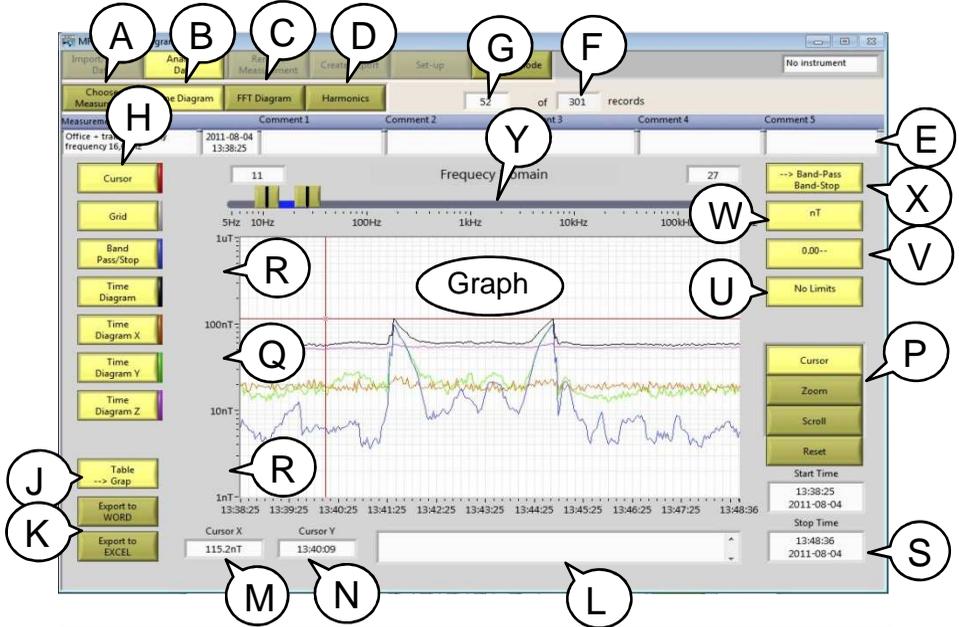
3.2 Frequency Domain Time diagram

- A - Select measurement from database
- B - Show Time diagram.
- C - Show FFT diagram.
- D - Show Harmonics diagram.
- E - Measurement information.
- F - Number of records in measurement.
- G - Records number at cursor position.
Use the cursor to choose the record to be used in the FFT and Harmonics diagram presentation.
- H - Display or hide different components in the graph-window.
- J - Toggle between graph and table presentation.
- K - Single presentation report.
- L - Write a comment to the records at current cursor position.
- M - Magnetic field value at cursor position.
- N - Time value at horizontal cursor position.
- P - Horizontal cursor, zoom and scroll function.
- Q - Click in the middle of the scale to toggle between logarithmic and liner presentation on the vertical scale.
- R - Click on the top or the bottom of the scale to change the upper or lower limits for the vertical scale.
- S - Start and stop time and date for the measurement.
- U - Chose standard and show measurement as % of limits referring to chosen standard.
- V - Choose number of decimals or exponent.
- W - Choose unit (Tesla, Gaus, A/m).
- X - Toggle between band-pass or band-stop filter function.
- Y - Band-pass / stop toll.
- Graph - Time graph with five diagrams:
 - The full frequency range.
 - The chosen band-pass / stop filter function.
 - The whole frequency range X,Y,Z values.
- Table - Table presentation.

In Time diagram mode the cursers position (Z) determines record number (G).

The chosen record will be used when switching to FFT(B) or Harmonic (C) operating panel.

Supported standards see appendix A



No.	Time	SHz	400Hz nT	X nT	Y nT	Z nT	11.0Hz - 27.0Hz BP nT	Comment
1	13:38:25	6.47	19.43	20.54	52.12	58.42		
2	13:38:27	7.77	19.22	19.88	52.08	58.09		
3	13:38:29	7.00	20.69	14.88	52.40	57.37		
4	13:38:31	6.69	20.56	17.64	52.05	57.79		
5	13:38:33	6.61	16.09	17.05	52.27	56.38		
6	13:38:35	5.91	16.61	16.41				
7	13:38:37	5.93	17.18	17.17				
8	13:38:39	5.59	20.84					
9	13:38:41	5.72	19.89	14.79				
10	13:38:43	4.62	18.90	14.12	52.74	56.88		
11	13:38:45	5.00	17.92	15.50	52.45	56.65		
12	13:38:47	5.23	19.33	15.33	52.94	57.52		
13	13:38:49	5.62	19.12	15.66	52.40	57.04		
14	13:38:51	4.39	18.85	14.23	52.37	56.54		
15	13:38:53	4.35	19.11	14.53	52.90	57.19		
16	13:38:55	4.95	18.31	14.28	52.61	56.60		
17	13:38:57	4.68	18.59	12.87	52.95	56.67		
18	13:39:00	4.35	19.15	15.41	51.82	56.45		
19	13:39:02	4.74	17.55	13.20	51.99	55.52		
20	13:39:04	5.48	20.53	15.38	51.78	56.88		

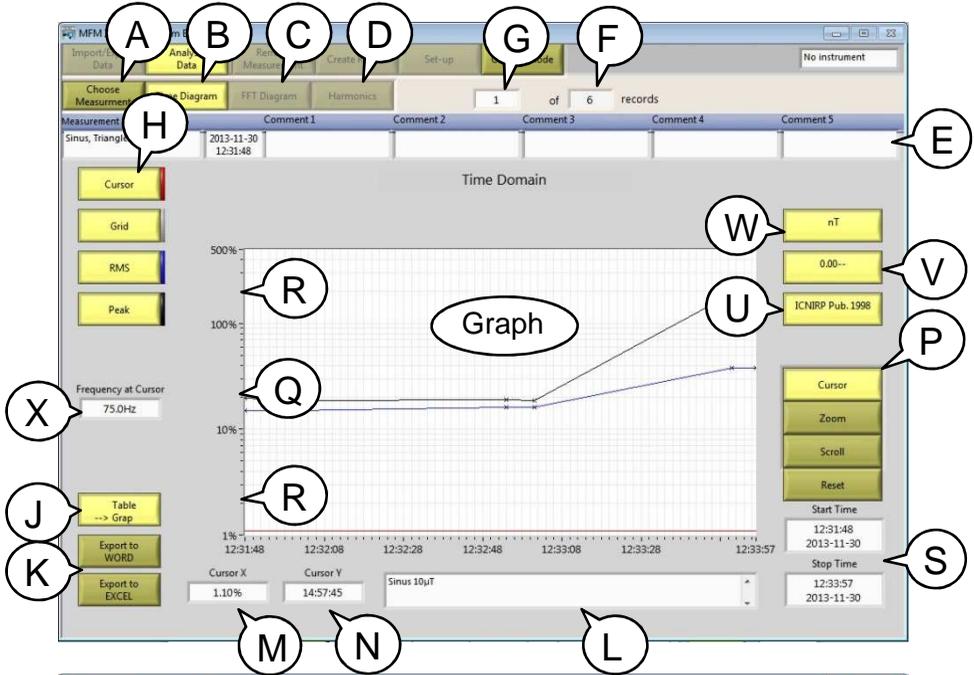
3.3 Time Domain Time diagram

- A - Select measurement from database
- B - Show Time diagram.
- C - Show FFT diagram.
- D - Show Harmonics diagram.
- E - Measurement information.
- F - Number of records in measurement.
- G - Records number at cursor position.
Use the cursor to choose the record to be used in the FFT and Harmonics diagram presentation.
- H - Display or hide different components in the graph-window.
- J - Toggle between graph and table presentation.
- K - Single presentation report.
- L - Write a comment to the records at current cursor position.
- M - Magnetic field value at cursor position.
- N - Time value at horizontal cursor position.
- P - Horizontal cursor, zoom and scroll function.
- Q - Click in the middle of the scale to toggle between logarithmic and liner presentation on the vertical scale.
- R - Click on the top or the bottom of the scale to change the upper or lower limits for the vertical scale.
- S - Start and stop time and date for the measurement.
- U - Chose standard and show measurement as % of limits referring to chosen standard.
- V - Choose number of decimals or exponent.
- W - Choose unit (Tesla, Gaus, A/m).
- X - Frequency component at cursor position.

Graph - Time graph with two diagrams:
Peak and RMS values in chosen unit.
Peak and RMS values in % of limits.

Table - Table presentation.

Supported standards see appendix A



The screenshot shows the MFM 3000 software interface displaying a 'Time Domain' table. The table has the following columns: No., Time, 5Hz - 100kHz RMS %, 5Hz - 100kHz Peak %, Hz, and Comment. The data is as follows:

No.	Time	5Hz - 100kHz RMS %	5Hz - 100kHz Peak %	Hz	Comment
1	12:31:48	14.9	19.8	75.0	Sinus 10µT
2	12:32:00	14.9	18.5	75.0	Sinus 10µT
3	12:32:54	16.0	18.9	75.0	Triangle 10µT
4	12:33:01	16.0	18.6	75.0	Triangle 10µT
5	12:33:51	38.1	190.9	75.0	Square 10µT
6	12:33:57	38.1	191.1	75.0	Square 10µT

The table is labeled 'Table'. The interface includes a menu bar (Import/Export Data, Analyse Data, Remote Measurement, Create Report, Set-up, Change Mode), a toolbar (Choose Measurement, Time Diagram, FFT Diagram, Harmonics), and a status bar (4 of 6 records). The table area is surrounded by various control buttons: Cursor, Grid, RMS, Peak, Table, Export to WORD, Export to EXCEL, nT, 0.00--, ICNIRP Pub. 1998, Cursor, Zoom, Scroll, Reset, Start Time, Stop Time, and Frequency at Cursor (75.0Hz). The table area is also labeled with callouts M through S.

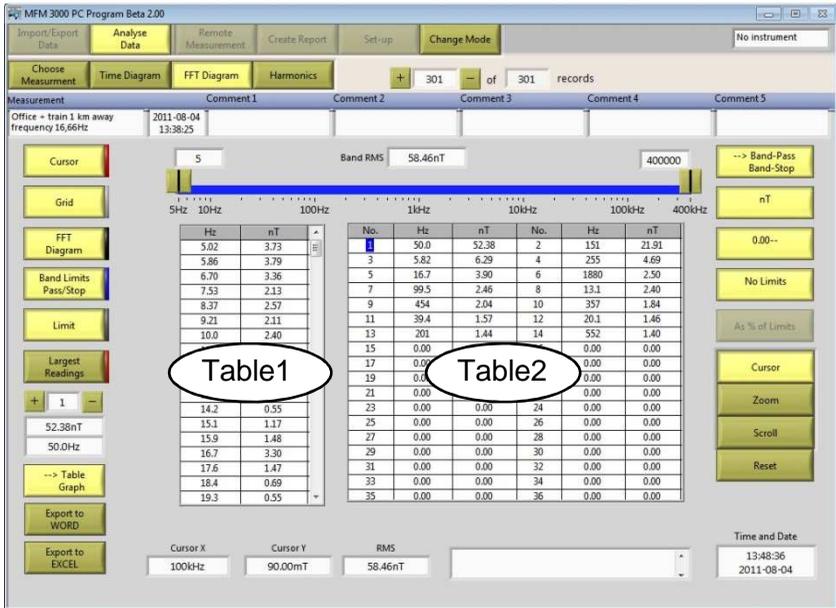
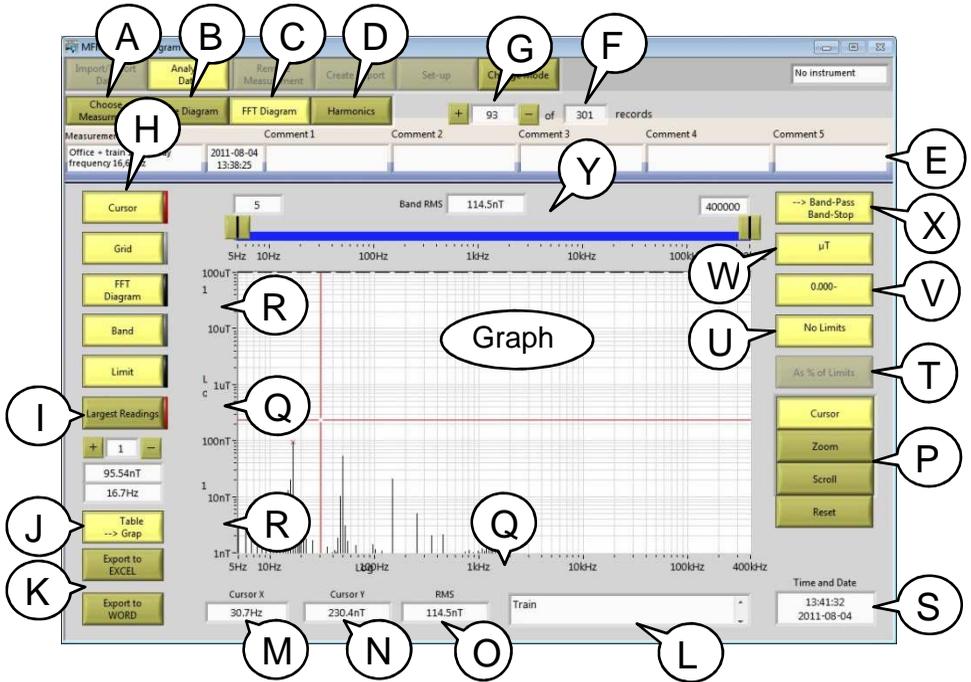
3.4 FFT diagram

- A - Select measurement from database
- B - Show Time diagram.
- C - Show FFT diagram.
- D - Show Harmonics diagram.
- E - Measurement information.
- F - Number of records in measurement.
- G - Record number.
- H - Display or hide different components in the graph-window.
- I - Displays value and frequency of detected peaks.
Peak is defined as a value with two lower values on each side,
peaks under 10nT are not detected.
- J - Toggle between graph and table presentation.
- K - Single presentation report.
- L - Write a comment for the current graph.
- M - Magnetic field value at cursor position.
- N - Frequency at horizontal cursor position.
- O - RMS value for the frequency span in the window.
- P - Horizontal cursor, zoom and scroll function.
- Q - Toggle between logarithmic and liner presentation on the
vertical and horizontal scale.
- R - Click on the top or the bottom of the scale to change the
upper or lower limits for the vertical scale.
- S - Date and time for the record registration.
- T - Show measurement as % of limits referring to different standards
- U - Show limits for different standards.
- V - Choose number of decimals or exponent.
- W - Choose unit (Tesla, Gaus, A/m).
- X - Toggle between band-pass or band-stop filter function.
- Y - Band-pass / stop toll with RMS value.
- Graph - Spectrum graph with up to 40 largest peaks marked.
- Table1 - FFT table presentation with value and frequency.
- Table2 - The 40 highest peaks detected with value and frequency.

The scroll (G) buttons make it possible to scroll through all records in the measurement.

The chosen record will stay active when switching presentation to Time diagram (A) or Harmonics diagram (C).

The RMS value (R) represents the displayed frequency span and is therefore affected by the zoom function.



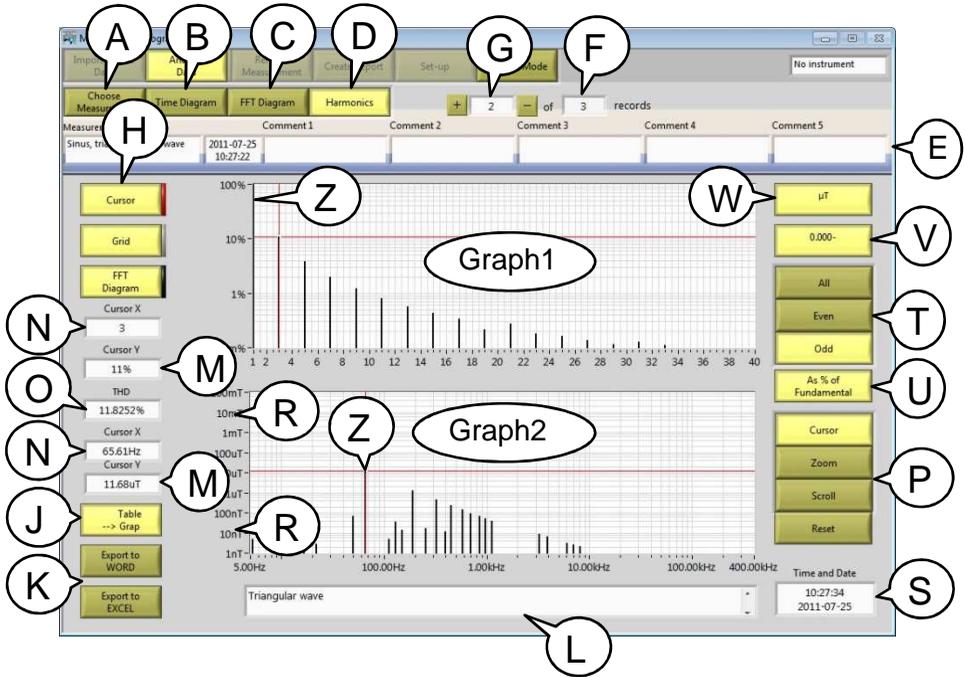
3.5 Harmonics diagram

- A - Select measurement from database
- B - Show Time diagram.
- C - Show FFT diagram.
- D - Show Harmonics diagram.
- E - Measurement information.
- F - Number of records in measurement.
- G - Record number.
- H - Display or hide components in the graph.
- J - Toggle between graph and table presentation.
- K - Single presentation report.
- L - Write a comment for the current graph.
- M - Value at vertical cursor position.
- N - Frequency / position number at horizontal cursor position.

- O - THD amplitude $THD_U = 100 \times \sqrt{\sum_{n=2}^{40} \left(\frac{U_n}{U_1}\right)^2}$ 0 to 999%
- P - Horizontal cursor, zoom and scroll function.
- R - Click on the top or the bottom of the scale to change the upper or lower limits for the vertical scale.
- S - Date and time for the record registration.
- T - Show odd, even or all components.
- U - Show in % or requested unit (Tesla, Gaus, A/m).
- V - Choose number of decimals or exponent.
- W - Choose unit (Tesla, Gaus, A/m).
- Graph1 -Fundamental and harmonics overtones up to number 40.
- Graph2 -Spectrum graph with up to 40 largest peaks marked.
 Use cursor to mark the requested fundamental.
 Peaks is defined as a value with two lower values on each side,
 peaks under 10nT is not detected
- Table - Table with harmonics overtones up to number 40.

The scroll (G) buttons make it possible to scroll through all records in the measurement. The chosen record will stay active when switching presentation to Time diagram (A) or FFT diagram (B). Use the cursor (Z) in the lower FFT diagram on the screen to select a signal to analyze.

The upper Harmonics diagram on the screen shows the fundamental frequency and 39 overtones in the chosen unit (Tesla, Gauss, A/m) or in % of the amplitude of the fundamental frequency (Z).



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Import/Export Data Analyze Data Remote Measurement Create Report Set-up Change Mode No instrument

Choose Measurement Time Diagram FFT Diagram Harmonics + 2 - of 3 records

Measurement Sinus, triangle, square wave 2011-07-25 10:27:22 Comment 1 Comment 2 Comment 3 Comment 4 Comment 5

No.	Hz	Odd %	No.	Hz	Even %
1	65.61	100.00	2	131.22	0.29
3	196.82	10.84	4	262.43	0.15
5	328.04	3.89	6	393.65	0.10
7	459.26	1.98	8	524.86	0.07
9	590.47	1.20	10	656.08	0.06
11	721.69	0.80	12	787.29	0.05
13	852.90	0.57	14	918.51	0.04
15	984.12	0.40	16	1044.74	0.03
17	1115.33	0.29	18	1171.97	0.03
19	1246.55	0.22	20	1312.16	0.03
21	1377.77	0.27	22	1443.37	0.03
23	1508.98	0.18	24	1574.59	0.03
25	1640.20	0.16	26	1705.80	0.21
27	1771.41	0.14	28	1837.02	0.02
29	1902.63	0.12	30	1968.24	0.15
31	2033.84	0.13	32	2099.45	0.08
33	2165.06	0.11	34	2230.67	0.07
35	2296.28	0.07	36	2361.88	0.07
37	2427.49	0.07	38	2493.10	0.09
39	2558.71	0.08	40	2624.32	0.08

Table

Time and Date 10:27:34 2011-07-25

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Section 4 - On line measurement

To enter click the button "Remote Measurement".

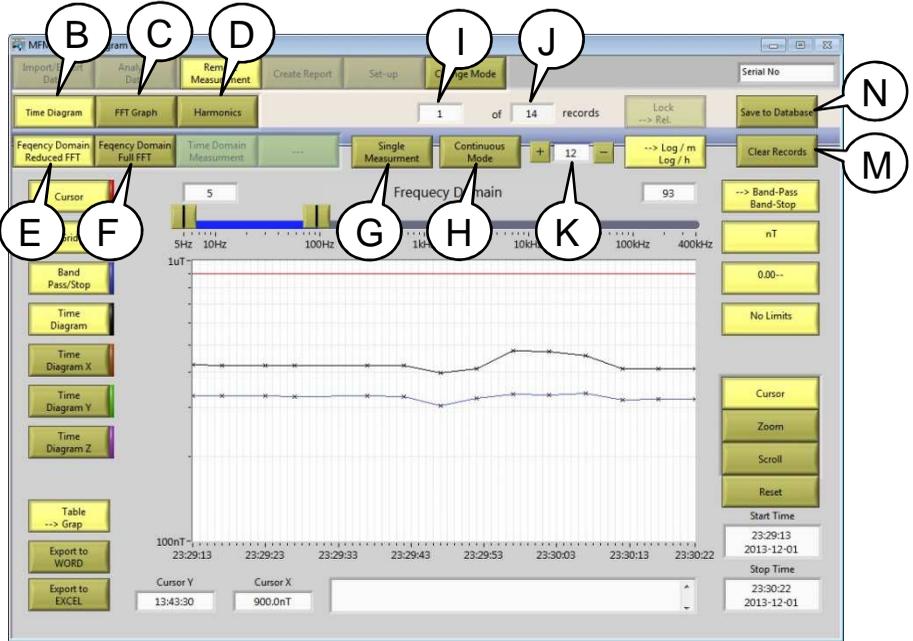
4.1 Remote measurement operating panel

Do not mix measurements made in different modes or standards.
Always (save the result) clear the program log memory (M) after
changing mode or standard on the instrument.

4.1 Remote measurement operating panels

The operating panels in remote mode has the following functions:

- B - Show Time diagram.
- C - Show FFT diagram.
- D - Show Harmonics diagram.
- E - Reduced FFT (224 values).
- F - Full FFT, 2394 values (5-2000Hz) plus 6530 values (2-400 kHz).
- G - Start single measurement and show result.
- H - Start / stop continuous measurement and show result.
- I - Record number of displayed measurement.
- J - Number of records in measurement.
- K - Speed of continuous operation, max 20/min in time domain, 12/min or 3/min in frequency domain depending of the resolution of the FFT.
- M - Clear program record memory.
- N - Save records to database, see section 2.1.



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Section 5 - Create reports

To enter click the button "Create Report".

- 5.1 Report tool
- 5.2 Report tool operating panel
- 5.3 Time diagram
- 5.4 FFT diagram
- 5.5 Harmonics diagram
- 5.6 Single presentation report
- 5.7 Report tool templates
- 5.8 Single presentation templates
- 5.9 Tags
- 5.10 Print screen

5.1 Report tool.

The “Create report” tool gives the user the possibility to combine information from different measurements, diagrams and/or data records in the database. Any data from up to 9 different presentations (G) can be put into the same report (Word document). Group of tags that exist in a selected template are shown as highlighted buttons, dimmed buttons are inactive.

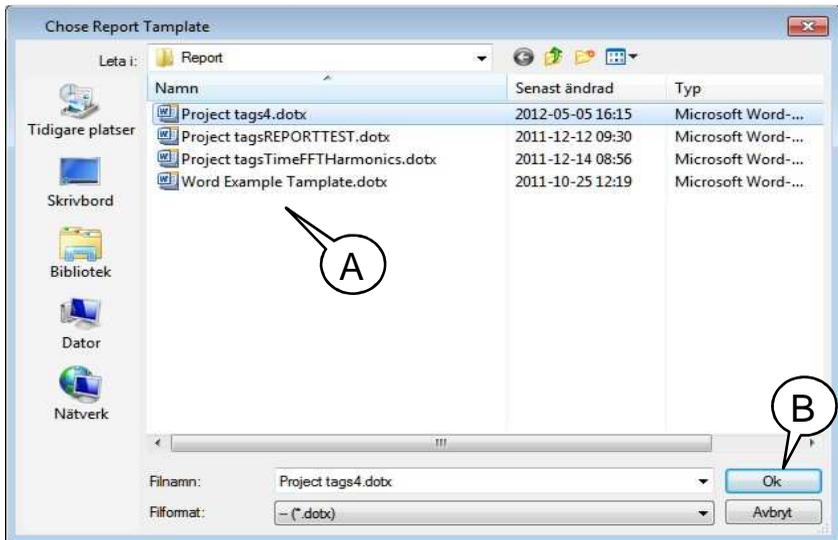
- a) To create a report, choose a template. (A)
- b) Mark the template and click OK. (B)
- c) Select project (C) and measurement. (D) from “choice menu”
- d) Load measurement to be analyzed. (E)
- e) Select presentation (F). Time Diagram, FFT diagram or Harmonics.
- f) Adjust presentation to your needs (see Section 3 – Analysis of Data)
- g) Use the highlighted buttons (G) to substitute the tags in the template for data from the adjusted presentation. Selected button will flash after substitution.
- h) To check the result press (H) to view the Word document. This can be done any time during the creation of a report

If the result is satisfying, name and save the document.

If the report is incomplete: close the document and continue the process (steps c – h). Data in flashing buttons (G) can be changed.

If the result needs to be changed: close the document. Select correct presentation and/or set of data. Continue the process (steps c – g)

To save the report press (I).



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Import/Export Data | Analyse Data | Remote Measurement | Create Report | Set-up | Change Mode

Choose Measurement | Time Diagram | FFT Diagram | Harmonics

Measurement: Sinus, triangle, square wave | 2011-07-25 10:27:22 | Comment 1 | Comment 2 | Comment 3 | Comment 4 | Comment 5 | Show Report | Save Report

Template Name: Project tag5.dots

Mode: Standard | FFT Mode: Normal

Choose Project

Project Name	Co-ordinator	Start Date	Comment 1	Comment 2
Example 1	Mi	2011-10-25	aa	bb

Choose Measurement

Measurement	Operator	Start Date and Time	Number of Records	Comment 1	Cor
BAE-systems 2		2013-10-01 11:22:38	16		
BAE-systems 1		2013-09-24 08:42:02	4		
2 record		2011-07-25 10:27:22	2		
1 record		2011-10-05 18:55:33	1		
test		2011-08-04 13:25:00	7928		
Remote logging		2011-10-25 12:59:01	39		
Office + train 1 km away frequency 16	ay fre	2011-08-04 13:38:25	301		
Office background noise	MI	2011-08-09 13:22:38	101	The table "Comment x" in Project and Measurement	can
Sinus, triangle, square wave	MI	2011-07-25 10:27:22	2		
Noise	MI	2011-10-05 18:55:33	6	aaaa	bbb

Callouts: C points to 'Choose Project', D points to the measurement list, E points to 'Load Measurement'.

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Import/Export Data | Analyse Data | Remote Measurement | Create Report | Set-up | Change Mode

Choose Measurement | Time Diagram | FFT Diagram | Harmonics

Measurement: Office + train 1 km away frequency 16 | 2011-08-04 13:38:25 | Comment 1 | Comment 2 | Comment 3 | Comment 4 | Comment 5 | Show Report | Save Report

Template Name: Project tag5.dots

Frequency Domain

5 | 400000

5Hz 10Hz 100Hz 1kHz 10kHz 100kHz 400kHz

1uT | 10nT

13:38:25 13:39:25 13:40:25 13:41:25 13:42:25 13:43:25 13:44:25 13:45:25 13:46:25 13:47:25 13:48:36

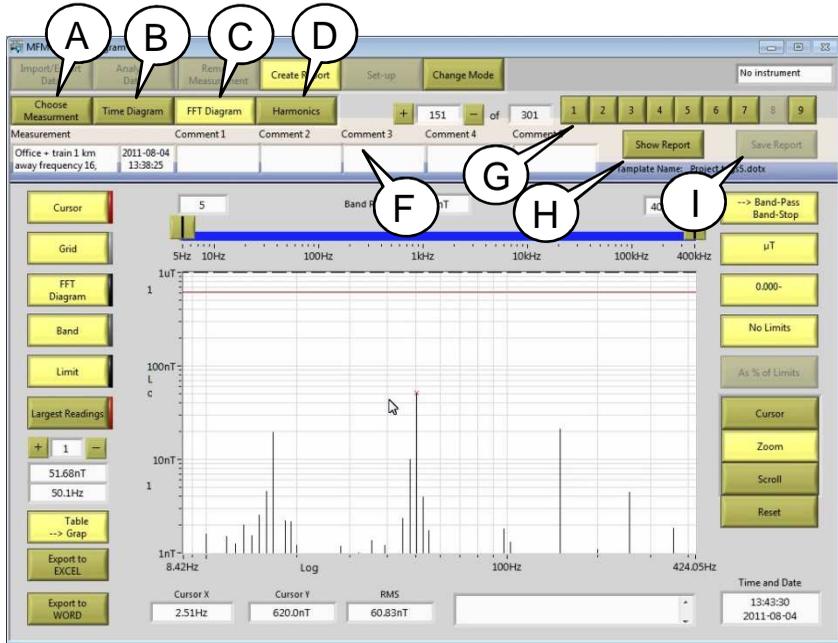
Cursor Y: 13:43:30 | Cursor X: 179.6nT

Callouts: F points to 'Harmonics', G points to the frequency axis, H points to the plot area, I points to the 'Band-Pass Band-Stop' button.

5.2 Report operating panel

The operating panel in report mode has following functions:

- A - Select measurement from database.
- B - Show Time diagram.
- C - Show FFT diagram.
- D - Show Harmonics diagram.
- F - Measurement information.
- G - Substitute the tags in the template for record data.
- H - View the report document.
- I - Save the report document to file.

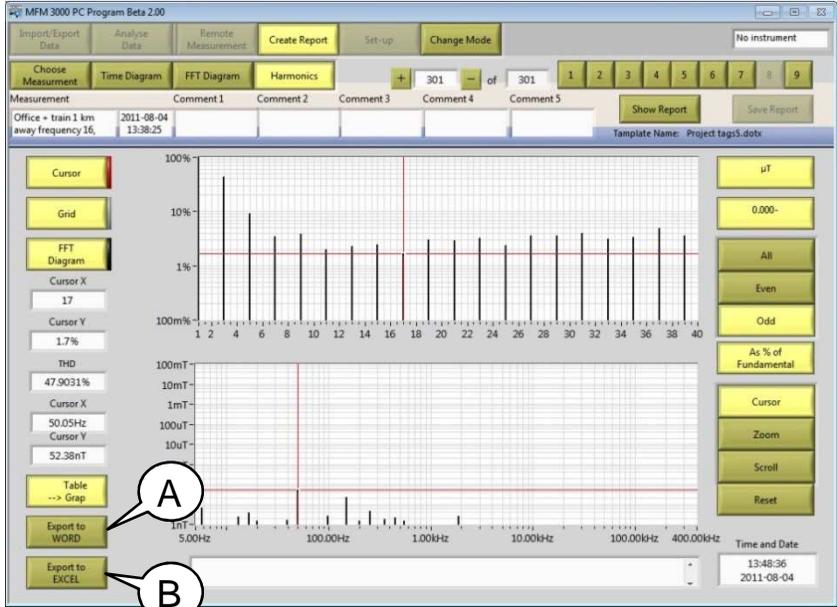


5.6 Single presentation report.

Single presentation report gives a possibility to print and export all data from all presentation screens to Excel and Word.

Templates can be designed by the user.

To printout use button (A) for Word or button (B) for Excel print out.



5.7 Report tool templates.

The report tool is tested together with Word 2007 and 2010.

To create a template in Microsoft Word use the tags <Tyxx> to get text and values from the measurement

Use "bookmarks" Gy00, Gy01, Gy02 to get graphs and tables into the documents.

In Word the tags can be called unlimited times in the same document, the bookmarks Gy00, Gy01, Gy02 just one time each in the same document. Save the templates as Microsoft Word xxxxx.dotx

Chapter 6.9 shows a list of the tags to be used under Microsoft Word. One example template is included in the installation. You find the example template in the folder

-Combinova/MFM 3000 /Default Libraries/Template/Report

The report generator can handle up to 9 sets of tags. The tag always starts with a T followed by three digits, the first digit is the set number. The two last digits is the tag function.

The bookmark for graphs works the same way. The bookmark always starts with a G followed by three digits, the first digit is the set number. The two last digits is the graph number.

5.8 Single presentation templates

The single presentation is tested together with Excel and Word 2007 and 2010.

To create a template in Microsoft Word use the tags <Txx> to get text and values from the measurement.

Use "bookmarks" G0, G1, G2 to get graphs and tables into the documents. In Word the tags can be called unlimited times in the same document, the bookmarks G0, G1, G2 just one time each in the same document. Save the templates as Microsoft Word xxxxx.dotx

To create a template in Microsoft Excel use the tags <Txx> to get text and values from the measurement.

Use the "cell name" function to get tables in to the documents.

In Excel the tags can be called unlimited times in the same document, the "cell name" function just one time in the same document. Save the templates as Microsoft Excel xxxxxx.xltx.

Chapter 6.9 shows a list of the tags to be used under Microsoft Word and Excel. Two examples of templates are included in the installation, one for Word and one for Excel. You will find example templates in the three folders

- Combinova/MFM 3000/DefaultLibraries/Template/Time
- Combinova/MFM 3000/DefaultLibraries/Template/FFT
- Combinova/MFM 3000/DefaultLibraries/Template/Harmonics

5.9 Tags.

Project tags	Time	FFT	Harmonics
Project name	<T0>	<T0>	<T0>
Project coordinator	<T1>	<T1>	<T1>
Date	<T2>	<T2>	<T2>
Comment 1	<T3>	<T3>	<T3>
Comment 2	<T4>	<T4>	<T4>
Comment 3	<T5>	<T5>	<T5>
Comment 4	<T6>	<T6>	<T6>
Comment 5	<T7>	<T7>	<T7>

Measurement tags	Time	FFT	Harmonics
Nr. of values	<T8>	<T8>	<T8>
Date and time	<T9>	<T9>	<T9>
Measurement name	<T10>	<T10>	<T10>
Operator	<T11>	<T11>	<T11>
Comment 1	<T12>	<T12>	<T12>
Comment 2	<T13>	<T13>	<T13>
Comment 3	<T14>	<T14>	<T14>
Comment 4	<T15>	<T15>	<T15>
Comment 5	<T16>	<T16>	<T16>

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Import/Export Data Analyse Data Remote Measurement Create Report Set-up Change Mode

Import to Database Edit Database Export Data

combinova

Save Cancel Delete Save Cancel Delete

Select Measurement to Edit / Delete

Measurement	Operator	Start Date and Time	Number of Records
BAE- T10	T11	2011-07-25 22:38	T8
BAE-systems T10		2011-07-25 10:42:02	
2 record		2011-07-25 10:27:22	2
1 record		2011-10-05 18:55:33	1
test	MI	2011-08-04 13:25:00	7928
Remote logging	MI	2011-10-25 12:59:01	39
Office + train 1 km away	MI	2011-08-04 13:38:25	301
Office background noise	MI	2011-08-09 13:22:38	101
Sinus, triangle, square wave	MI	2011-07-25 10:27:22	3
Noise	MI	2011-10-05 18:55:33	6

Select Project to Edit / Delete

Project Name	Co-ordinator	Start Date	Comment 1
Exc T0	MI T1	20 T2	aa T3

Measurement: Remote logging T10
 Operator: MI T11
 Comment 1: T12
 Comment 2: T13
 Comment 3: T14
 Comment 4: T15
 Comment 5: T16

Project Name: Example 1 T0
 Co-ordinator: MI T1
 Comment 1: aa T3
 Comment 2: bb T4
 Comment 3: cc T5
 Comment 4: dd T6
 Comment 5: ee T7

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Import/Export Data Analyse Data Remote Measurement Create Report Set-up Change Mode

Choose Measurement Time Diagram FFT Diagram Harmonics

151 of 301 records

Measurement: Office + train 1 km away T10

Comment 1: T9 Comment 2: T12 Comment 3: T13 Comment 4: T14 Comment 5: T15 Comment 6: T16

Frequency Domain

11 T24 27 T25

5Hz 10Hz 100Hz 1kHz 10kHz 100kHz 400kHz

1uT

100nT

10nT

G0 G1

1nT

13:38:25 13:39:25 13:40:25 13:41:25 13:42:25 13:43:25 13:44:25 13:45:25 13:46:25 13:47:25 13:48:36

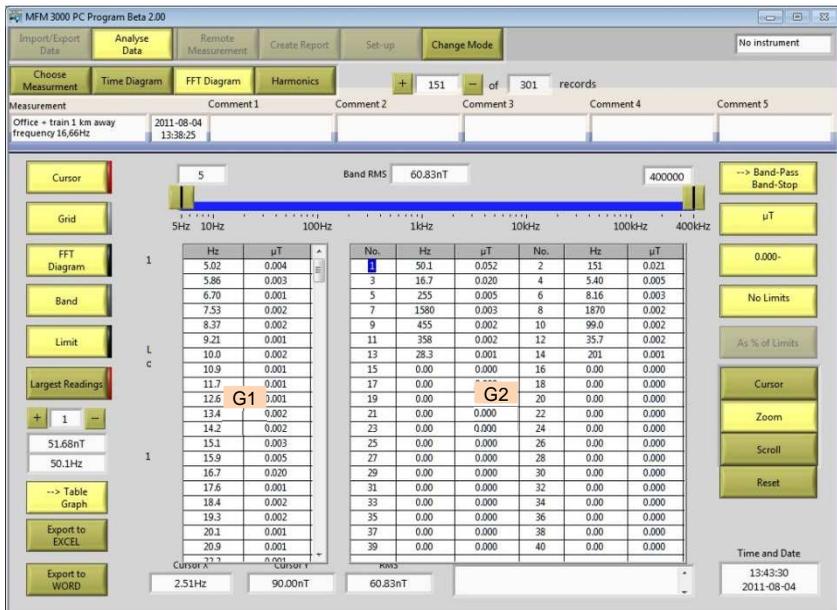
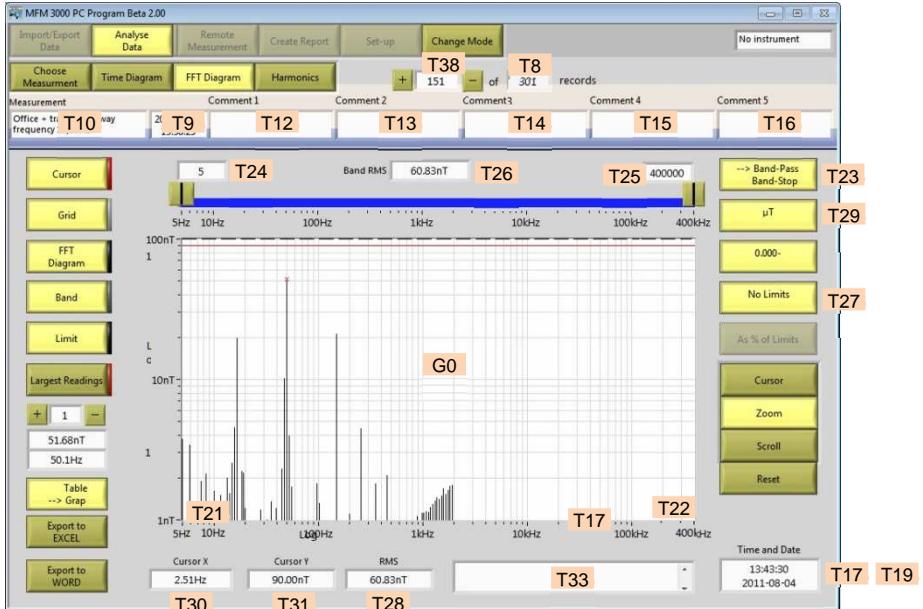
Cursor X: 900.0nT Cursor Y: 13:43:30

T21 T22 T23 T29 T27

Start Time: 13:38:25 T17 T19
 Stop Time: 2011-08-04
 Start Time: 13:48:36 T18 T20
 Stop Time: 2011-08-04

T30 T31 T33

Measurement values	Time	FFT	Harmonics
Start Time:	<T17>	<T17>	<T17>
Stop Time:	<T18>	-N/A-	-N/A-
Start Date:	<T19>	<T19>	<T19>
Stop Date	<T20>	-N/A-	-N/A-
ZoomStartTime/frequency	<T21>	<T21>	-N/A-
ZoomStopTime/frequency	<T22>	<T22>	-N/A-
Band Pas Stop:	<T23>	<T23>	-N/A-
Band Min:	<T24>	<T24>	-N/A-
Band Max:	<T25>	<T25>	-N/A-
Band RMS:	<T26>	<T26>	-N/A-
Standard:	<T27>	<T27>	-N/A-
RMS total:	<T28>	<T28>	-N/A-
Unit:	<T29>	<T29>	<T29>
CursorX1:	<T30>	<T30>	<T30>
CursorY1:	<T31>	<T31>	<T31>
CursorX2:	-N/A-	-N/A-	<T32>
CursorY2:	-N/A-	-N/A-	<T33>
Comment at Curser pos.	<T33>	<T33>	<T33>
THD	-N/A-	-N/A-	<T34>
Date from instrument	Time	FFT	Harmonics
Dateline	<T36>	<T36>	<T36>
Meas No in Database	<T37>	<T37>	<T37>
Pos No	<T38>	<T38>	<T38>
Pos No original	<T39>	<T39>	<T39>
No of values in FFT	<T40>	<T40>	<T40>
Log stat	<T41>	<T41>	<T41>
Axis	<T42>	<T42>	<T42>
Standard	<T43>	<T43>	<T43>
Mode	<T44>	<T44>	<T44>
Limit low Hz	<T45>	<T45>	<T45>
Limit high Hz	<T46>	<T46>	<T46>
Time domain Peek μ T	<T47>	-N/A-	-N/A-
Time domain RMS μ T	<T48>	-N/A-	-N/A-
Time domain Peek %	<T49>	-N/A	-N/A-
Time domain RMS %	<T50>	-N/A-	-N/A-
Freq.domain RMS μ T	<T51>	<T51>	<T51>
Freq.domain X FFT μ T	<T52>	<T52>	<T52>
Freq.domain Y FFT μ T	<T53>	<T53>	<T53>
Freq.domain Z FFT μ T	<T54>	<T54>	<T54>
Time domain Hz	<T55>	-N/A-	-N/A-



Bookmarks for Word.

Graph will appear with its upper left corner at the bookmark.
To scale the graph place it inside a "text frame".

Time Graph

- G0 Time graph
- G1 Table with FFT from measurement
Number of values x 234 or 8924, frequency and amplitude

Spectrum Graph

- G0 Spectrum graph
- G1 FFT Table 234 or 8924 frequency + amplitude values
- G2 Table with 40 highest peaks, frequency + amplitude values
Peek is defined as a value with two lower values on each side
peaks under 10nT are not detected.

Harmonic Graph

- G0 Spectrum graph.
- G1 Harmonic graph
- G2 Table with 40 harmonics overtones, frequency + amplitude values.

Table for Excel

Rename the cell where the upper left corner of the table should appear to "Table0"

Time Graph

Table0 Table with FFT values, frequency + amplitude from a logged data.

Spectrum Graph

Table0 Table with FFT values, frequency + amplitude.

Harmonic Graph

Table0 Table with 40 harmonics overtones, frequency + amplitude values.

Templates

Two examples of templates are included in the installation, one for Word and one for Excel.

To create a template for Word use tags (<Txx>) and the "bookmarks" function in Word and save the templates as Microsoft Word xxxxx.dotx.

To create a template for Excel use tags (<Txx>) and the "cellname" function in Excel and save the templates as Microsoft Excel xxxxxx.xlsx.



Measurement: Office = train 1 km away, Frequency = 16.66Hz, Date: 2011-08-04 13:38:25

Cursor X: 17, Cursor Y: 1.8%, THD: 47.0367%, 50.07Hz, 51.68nT

Plot Label: G2

No.	Hz	Odd %	No.	Hz	Even %
1	50.07	100.00	2	100.14	4.42
3	150.21	41.75	4	200.28	2.16
5	250.35	9.05	6	300.43	1.95
7	350.50	3.77	8	400.57	2.23
9	450.64	4.30	10	500.71	1.50
11	550.78	1.81	12	600.85	2.26
13	650.92	2.04	14	700.99	1.83
15	751.06	2.40	16	801.14	2.54
17	851.21	1.79	18	901.28	2.85
19	951.35	2.17	20	1001.42	3.12
21	1051.49	2.54	22	1101.56	3.19
23	1151.63	3.29	24	1201.70	3.51
25	1251.77	2.55	26	1301.85	2.71
27	1351.92	3.92	28	1401.99	3.96
29	1452.06	4.02	30	1502.13	2.92
31	1552.20	4.40	32	1602.27	4.46
33	1652.34	3.00	34	1702.41	4.41
35	1752.48	3.23	36	1802.55	4.73
37	1852.63	4.90	38	1902.70	3.47
39	1952.77	3.47	40	2002.84	0.11

Buttons: µT, 0.000-, All, Even, Odd, As % of Fundamental, Cursor, Zoom, Scroll, Reset

Time and Date: 13:43:30, 2011-08-04 (T33)

5.10 Print screen.

Press F8 to print screen with the default printer.

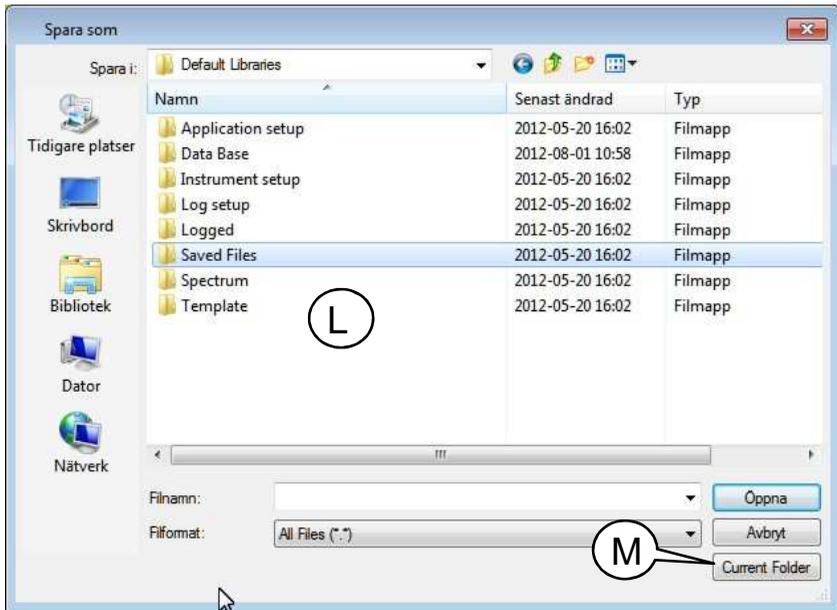
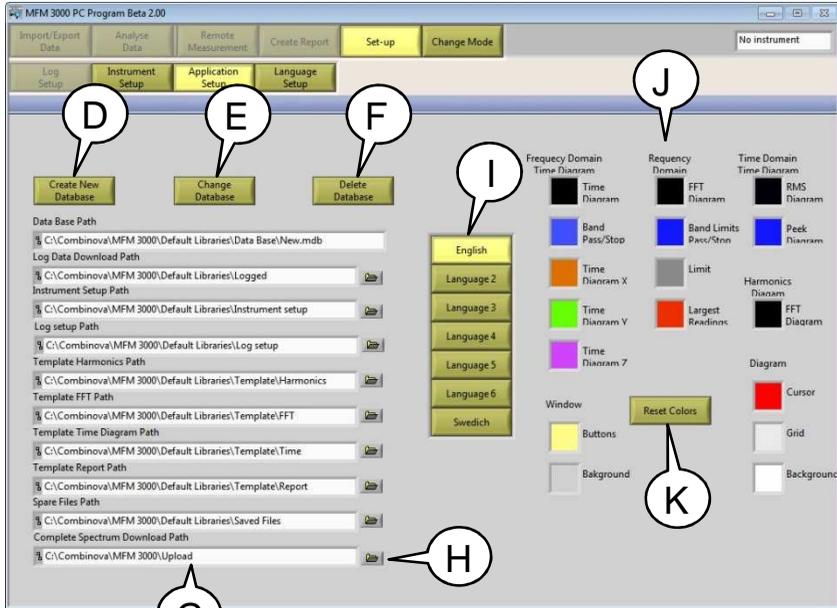
Section 6 - Setup

To enter click the button Set Up.

- 6.1 Log setup (not implemented)
- 6.2 Instrument setup (not implemented)
- 6.3 Program setup
- 6.4 Edit language

6.3 Program setup

- D - Create data base.
- E - Change data base.
- F - Delete data base.
- G - Path to:
 - Data Base
 - Log Data
 - Instrument Setup
 - Log Setup
 - Harmonic Templates
 - FFT Templates
 - Time Diagram Templates
 - Report Templates
- H - Change path
- I - Choose Language.
- J - Choose color for different components on the display.
- K - Reset to default colors
- L - Create or find folder
- M - Chose as active folder



6.4 Edit language

Text table able to handle up to seven different languages.

Most of the texts in the program are represented in the text table.

To identify the position for the text to edit use "CTRL+SHIFT+F10"
to toggle between line number and text for the object you need to edit.

- A - Save and exit.
- B - Exit without saving.
- C - Do not make changes in this column.

Language Table

Pos.	Comment	English	Language 2	Language 3	Language 4	Language 5	Language 6	Language 7
379		379	379	379	379	379	379	379
380		380	380	380	380	380	380	380
381		381	381	381	381	381	381	381
382	Update Firmware	Update Firmware	382	382	382	382	382	Updatera Instrument
383	Lines Left to Load	Lines Left to Load	383	383	383	383	383	Rader kvar att läsa
384	Load Measurement	Load Measurement	384	384	384	384	384	Ladda Mätning
385		385	385	385	385	385	385	385
386		386	386	386	386	386	386	386
387		387	387	387	387	387	387	387
388		388	388	388	388	388	388	388
389		389	389	389	389	389	389	389
390	Save	Save	390	390	390	390	390	390
391	New Database Name	New Database Name	391	391	391	391	391	Namn på ny databas
392	Save	Save	392	392	392	392	392	Spara
393	Select Database	Select Database	393	393	393	393	393	Välj Databas
394	Can't delet aktiv databas	Can't delet aktiv database	394	394	394	394	394	Kan inte ta bort aktiv databas
395	Delet	Delet	395	395	395	395	395	Ta bort
396	Database File to Delet	Database File to Delet	396	396	396	396	396	Databasatt ta bort
397		397	397	397	397	397	397	397
398		398	398	398	398	398	398	398
399		399	399	399	399	399	399	399
400	No Limits	No Limits	400	400	400	400	400	Inga normer
401	ICNIRP Occ. 1998	ICNIRP Occ. 1998	401	401	401	401	401	ICNIRP Occ. 1998

Appendix A

Supported standards.

- ICNIRP Occupational 1998 (5 Hz – 400 kHz).
For frequencies above 100 kHz these 1998 limits are still valid.
- ICNIRP Public 1998 (5 Hz – 400 kHz)
The 1998 limits are still used in the EU recommendation 1998/519
for limitation of public exposure
For frequencies above 100 kHz these 1998 limits are still valid
- ICNIRP Occupational 2010 (5 Hz – 100 kHz)
For frequencies up to 100 kHz the limits were updated in December 2010.
- ICNIRP Public 2010 (5 Hz – 100 kHz)
For frequencies up to 100 kHz the limits were updated in December 2010.
- EN 50500 Public (5 Hz – 20 kHz)
Exposure limits for EMF from railway environment
- EN 50500 Occupational (5 Hz – 20 kHz)
Exposure limits for EMF from railway environment..
- EN 62233 ICNIRP Public (10 Hz – 400 kHz)
Exposure limits for EMF from household equipment
- IEC 62233 IEEE 95.6 Public (10 Hz – 3 kHz)
Exposure limits for EMF from household equipment
- Directive 2013/35/EU AL low (5 Hz – 100 kHz)
..Minimum health and safety requirements regarding the
exposure of workers to the risk arising from physical agents