

Messlabor

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Chapter 1

Messlabor

1.1 CONTENTS

MESSLABOR =====

Please make your choice:

A short [Overview](#) [Requirements](#) [Copyrights](#) [Installation](#)

Explanation to the used [Fileformat](#) . A short [Example](#) How to use this [Program](#) ? [Preferences](#)

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Please excuse my poor english.

1.2 short overview

This program allowed to make plots from given x/y datas. You can link the points with different modes (nothing, line, spline) and apply some [statistic](#) functions (like regression, median, mean etc.) on the datas.

1.3 Requirements

- WB 3.0 or better (should not be any problem) - at least 1 MByte RAM (more recommended!) - iff.library 2.0

1.4 Copyrights:

Messlabor is Copyright by Henk Jonas. The complete archiv can be freely distributed. I give you the permission to change this documentation and the catalog-files in case you found an error, a bad explanation or you want translate it in another language. But, please send me your changes.

The distributor may charge a fee to recover distribution costs. But not more!

I make no warranties or representations with this software. I hope there are no errors but i don't guarantee it. If you have found an error or you have any idea what this program should can do, please write me a letter or EMail. ([address](#))

I'm very happy if you send gifts, cards or money to me, or if you support independent and progressive groups.

1.5 Installation

Just copy the whole drawer wherever you want. Change in the program on the **tooltypes** for GUIDE= to GUIDE=PROGDIR:Messlabor. and for SCREEN= to SCREEN=0. After the program is started you can use the menu Others/Preferences... to change all interesting **settings** .

1.6 Fileformat:

The program support ASCII-files. I think about support for other fileformats, if you have an idea for a wellsupported fileformat please write me. (**address**)

The datas can be in column- or lineformat. The x- and y-datas can change in the programm. The titles of axes will take from the first cells in the table, but you can edit this titles w/o to change the contents in the first cells.

Numbers is'nt allowed to open with blanks. The separators for columns and lines and the decimalpoint may free change.

(**Example**)

1.7 Examplefile:

Here you can see a example:

```
time,way 0,0 1,3 2,7 3,9 4,12 5,11 6,6 7,4 8,0
```

This file can loaded with this **Preferences**:

```
ZEILENTRENNER=10 (lineseparator) SPALTENTRENNER=44 (columnseparator) DEZIMALPUNKT=46 (decimalpoint) SPALTEN=2 (columnes) ZEILEN=10 (lines)
```

You find in this archiv also two other examples, this can also be loaded with the (default) preferences above. Please look also at the plots.

· Example 1 · Example 2 · Plot to example 1 · Plot to example 2

1.8 How to use?

Let's split this program in two sections. First the **Tablesection** , here you can see the datas in a table and you can select which columns you want to use, and second the **Plotsection** , here you can plot the datas.

1.9 Tablesection:

The menus:

Project

- New Clear the table.
- Open-->ASCII Load a ASCII-(Text) **file** with the datas.
- Save as... Save a ASCII-(Text) **file** under a giving name.
- About Infos about version and **Programmer** .
- Quit Quit the program.

Clipboard

- Copy Copy the table with columnseparator (TABULATOR) and lineseparator (RETURN) into the Clipboard.

- Paste Paste datas from the clipboard into the table.

Edit

- Transpose Change columns with lines in the table.

- x-datas Select column with x-datas.

- 1.y-datas Select column with main-y-datas for use in the plots and for use with the **statistic-functions** .

- 2.y-datas Select column with second-y-datas.

- Plot Plot after query some **settings** the x/y plot.

statistic

- Parameter-->Sort Y to Y2 Copy the column mark with Y sorted in the column mark with Y2. The column Y2 will be cleared before.

- Parameter-->Sort for X Sort all columns in the table for the column mark with X.

- Parameter-->Parameter from X Calculate statistic parameters from the column mark with X. You must sort the column before to get the right parameters!

- Analysis-->T-Test Please look at **statistic** from X/Y means that you test the columns X and Y, from para. means that you can insert the means, std. dev. and number of observation for both datas.

- Analysis-->Analysis of var. Please look at **statistic** X-Y means that you analyse the columns between X and Y, para. are n.y.i.

- Analysis-->Chi-Square-Test not yet implemented

- Links-->Correlation not yet implemented

- Links-->Regression Calculate **Regression** as Y-datas= function from (X-datas). With function yet a polynom of 1 to 5 degree.

Others

- Preferences... Open the **Preference** -window, for screenmode, column- and lineseparator, decimalpoint and tabledimension.

- Help Open this helpfile.

The Gadgets 'Open', 'X-->', 'Y-->', 'Y2-->', 'Plot' stand for the Menuitems Open-->ASCII, Edit/x-datas, Edit/1.y-datas, Edit/2.y-datas und Edit/Plot.

With the cursorkeys or the mouse you can mark the active cell in the table and the active column. If you press any key, you activate the stringgadget over the table, now it's possible to change the contents of the active cell.

1.10 Plotsettings:

window: Preference for Plot

This Window will be opened if you press the Plot Gadget or use the menuitem Edit/Plot.

here are some gadgets:

1. row: the titletext for the plot and the font for the titletext
2. row: the first line of the x-axistext and the y-axistext and a button for "exist x-datas for the y-datas?" n.i.y.
3. row: the second line of the x-axistext and the y-axistext and a button for "show datatable on the plot?" n.i.y.
4. row: factors for the x- and y-datas and a button for "show zeropoint?"
5. row: a button for "regressionplot on?" and a cyclegadget for "how to link the points?"
6. row: a cyclegadget for "which color for the plot?" n.i.y.
7. row: the font for the axistexts
8. row: buttons for "OK" and "CANCEL"

1.11 Plotsection:

The menus:

Project

- New Force a newdraw of the plot
- Save-->as ILBM... Save the plot as ILBM(IFF) with free width and height
- Save-->as GEM... Save the plot as GEM-Metafile
- Save-->as CGM... Save the plot as CGM-Metafile
- Save-->as EPS... Save the plot as EPS
- Print Print the plot with full printerresolution
- About
- Close Close the plot

Clipboard

- Copy Copy the plot in the actually size to Clipboard, Unit 0

Statistic

- Regression Calculate a regressionpolynom with degree from 1 to 5

After the calculation you can change the parameter and see the error for the regressionpolynom.

Misc

- Preferences... Open the window: **Preference for plot**
- Help Open this helpfile

1.12 Preferences:

Preferences

All preferences can change in the program or in the tooltypes in the icon.

max. tablesize

Here you can change the size of the table. The tablesize are static, that means the program will allocated the whole memory for the table to the begin. You need $20 * \text{lines} * \text{columns}$ [Byte]

separators

Here you can set the separators that the program use if it load a **ASCII-file** . The decimalpoint will be use in the whole plot as decimalpoint.

Behind the gadgets to insert the ASCII-CODES, exist a place to show the sign that you set. If you see a square, it means, the sign are not visible (z.B. newline or tabulator).

misc

Here you can change the screenmode and the place where are this helpfile.

To use the changes of screenmode or tablesize, you must restart the program.

The changes will be saved into the icon. You can change the tooltypes also separate.

There are this tooltypes possible:

SCREEN= (screenmode) ZEILENTRENNER= (ASCII-Code for the lineseparator) SPALTENTRENNER= (ASCII-Code for the columnseparator) DEZIMALPUNKT= (ASCII-Code for the decimalpoint) SPALTEN= (max. columnsize) ZEILEN= (max. linesize) GUIDE= (name and path for this helpfile)

Please use for SCREEN the number of the **screenmode** or 0 for to use the workbench.

That's the defaults:

ZEILENTRENNER=10 (normaly RETURN) SPALTENTRENNER=44 (.) DEZIMALPUNKT=46 (.) SPALTEN=10 ZEILEN=100
SCREEN=0 (Workbench Screen) GUIDE=PROGDIR:Meßlabor.guide

1.13 Examples for screenmodes:

PAL:Hires Lace =\$29004 NTSC:Hires Lace=\$19004 MULTISCAN:Prod.=\$39024

1.14 Statistic

parameters:

Kennwerte: (please sort the datas before)

mean median quantile number of observations standard dev error of mean gausstest

tests:

- t-test - analyse of variance

tables:

- table for **gausstest** - table for **t-test** - table for **variances**

1.15 gausstest

the parameter must be between:

(for $p=0.1$)

$n > <$

5 2.22 2.71 6 2.37 2.94 7 2.49 3.14 8 2.59 3.30 9 2.68 3.45

10 2.76 3.57 11 2.84 3.68 12 2.90 3.78 13 2.96 3.87 14 3.02 3.95 15 3.07 4.02 16 3.12 4.09 17 3.17 4.15 18 3.21 4.21 19 3.25 4.27

20 3.29 4.32 25 3.45 4.53 30 3.59 4.70 40 3.79 4.96 50 3.95 5.14 60 4.08 5.29 70 4.19 5.41 100 4.44 5.68 150 4.72 5.96 200 4.90 6.15

1.16 t-test

if parameter lower then tablevalue, then you have the same observations

degree oneside twoside of freedom $p=0.05$ $p=0.01$ $p=0.05$ $p=0.01$

1 6.31 31.82 12.71 63.66 2 2.31 6.97 4.30 9.92 3 2.35 4.54 3.18 5.84 4 2.13 3.75 2.78 4.60 5 2.02 3.37 2.57 4.03 6 1.94 3.14 2.45 3.71 7 1.89 3.00 2.36 3.50 8 1.86 2.90 2.31 3.36 9 1.83 2.82 2.26 3.25 10 1.81 2.76 2.23 3.17 15 1.75 2.60 2.13 2.95 20 1.72 2.53 2.09 2.85 30 1.70 2.46 2.04 2.75 50 1.68 2.40 2.01 2.68 100 1.66 2.37 1.98 2.63

1.17 f-ratio

if parameter lower then tablevalue, then you have the same observations

if you look for variance-test (inside the t-test) then mean a parameter lower then the tablevalue pooled variance

'analysis of variance: x with (n1,n2) degrees of freedom'

for $p=0.05$

n1 1 2 3 4 5 6 7 8 9 10 15 20 30 50 100 n2 1 161 200 216 225 230 234 237 239 241 242 246 248 250 252 253 2 18.5 19.0 19.2
 19.2 19.3 19.3 19.4 19.4 19.4 19.4 19.4 19.4 19.5 19.5 19.5 3 10.1 9.55 9.28 9.12 9.01 8.94 8.89 8.85 8.81 8.79 8.70 8.66 8.62
 8.58 8.55 4 7.71 6.94 6.59 6.39 6.26 6.16 6.09 6.04 6.00 5.96 5.86 5.80 5.75 5.70 5.66 5 6.61 5.79 5.41 5.19 5.05 4.95 4.88 4.82
 4.77 4.74 4.62 4.56 4.50 4.44 4.41 7 5.99 4.74 4.35 4.12 3.97 3.87 3.79 3.73 3.68 3.64 3.51 3.44 3.38 3.32 3.27 10 4.96 4.10 3.71
 3.48 3.33 3.22 3.14 3.07 3.02 2.98 2.85 2.77 2.70 2.64 2.59 15 4.54 3.68 3.29 3.06 2.90 2.79 2.71 2.64 2.59 2.54 2.40 2.33 2.25
 2.18 2.12 20 4.35 3.49 3.10 2.87 2.71 2.60 2.51 2.45 2.39 2.35 2.20 2.12 2.04 1.97 1.70 30 4.17 3.32 2.92 2.69 2.53 2.42 2.33
 2.27 2.21 2.16 2.01 1.93 1.84 1.76 1.70 50 4.03 3.18 2.79 2.56 2.40 2.29 2.20 2.13 2.07 2.03 1.87 1.78 1.69 1.60 1.52 100 3.94
 3.09 2.70 2.46 2.31 2.19 2.10 2.03 1.97 1.93 1.77 1.68 1.57 1.48 1.39

1.18 Tabelle 4

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1.21 Programmentwicklung

folgende Fehler/Funktionen wurden beseitigt/eingeführt

V1.0 erste Veröffentlichung

V1.0b - Fehler bei StringToReal beseitigt - Regression zeigt Koeffizienten an - Regressionskoeffizienten können verändert werden
- AmigaGuideLibrary wurde zweimal geschlossen (:-O)

V1.1 - PubScreen "Worbench" wieder freigeben, wenn nicht mehr gebraucht - mehr Statistik-Fkt. (Mittel, Median, ...) - Regressionskurve malt nicht mehr außerhalb des Diagramms

V1.1b - Werte im Programm änderbar - EPS-Ausgabe des Diagramms - Parameterübergabe durch die Workbench - Position des Fensters wird gespeichert

V1.2 - EPS-Ausgabe bis auf Vorschaubild vollständig - Localisiert (bisher gibt's einen englischen Katalog)

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