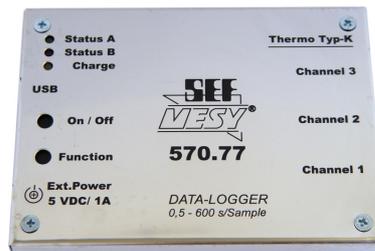


## Manual Mesy for Windows 1.0

**MESY**<sup>®</sup>

Software for  
570.70  
570.77  
570.35  
570.20  
from SEF GmbH



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Subject to technical change.

# Manual Mesy for Windows 1.0

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# Manual Mesy for Windows 1.0

Congratulations to your newly purchased software Mesy for Windows®. The program offers extensive functions for recording, manipulating and analysis of measurement data obtained from devices of the Mesy® - group sold by SEF GmbH.

The software is available in two versions: a full version which supports all devices of the Mesy®- group and a limited version, only supporting USB devices. The limited version is shipped with all devices sold by SEF. In case you plan to use this software in conjunction with an older serial Mesy®, the full version is required. The full version has to be activated by a code. This code is connected to the harddisk-ID. The activation key can be ordered from ADC GmbH. Both versions offer the same functions, regardless of the supported hardware. To obtain this version, please contact ADC GmbH.

The software can:

- Record and display measured curves
- create and edit referential curves
- export measurement data into Microsoft Excel® format
- analyze measurement data
- create a safe documentation

Mesy is a registered trademark of SEF GmbH.  
Excel is a registered trademark of Microsoft Inc.

## Overview

# Manual Mesy for Windows 1.0

## General topics

When using the program, any window, even the main program, can be exited by simply pressing the [ESC] key. Please notice, that this is the equivalent to the cancel button. Possible changes made by the user may be lost.

Size and position of the windows will be saved and restored with the next start of the program. In case you are unable to see a window, despite of opening it, please check the file „Mesy3.ini“ in the Mesy root directory. By chance a previous user has worked with a higher screen resolution and moved a window to a position which isn't displayed any longer. To solve the problem please close the invisible window by pressing [ESC] and validate all window positions by editing the file „Mesy3.ini“. If you are uncertain about this procedure, it is possible to delete the file „Mesy3.ini“. Afterwards, all windows will be displayed with standard size (800 x 600 pixel) in the upper left corner.

# Manual Mesy for Windows 1.0

Before you can collect data with your software, you must specify certain parameters.

Mesy distinguishes between parameters regarding the measurement devices and the measurement itself.

Set parameters for your Mesy device using menu

## ***Mesy -> Type***

and choosing the Mesy®-Type you need. USB Mesy devices must be specified separately. Look at the casing of your Mesy device, the device type is printed somewhere. In case you are using the serial model, activate the options desired. There's no need to determine, which serial model is used.

Chose

## ***Mesy -> Mode***

in the main menu, to specify whether online measurement is desired other data is read from the device's memory. USB-Mesy®-model 570.70 does not support data storage. If type 570.70 has been chosen, this menu point is deactivated.

**Device parameters: Menu  
Mesy**

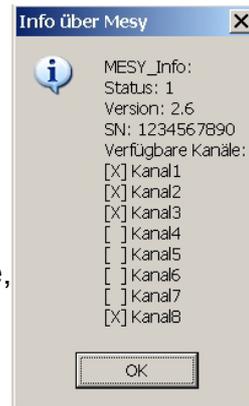
# Manual Mesy for Windows 1.0

Get additional information regarding your Mesy® by choosing

**Mesy -> Get state.**

Here you may test, which measurement channel is supported. Depending on the device used, further information is available. For the USB-Mesy® 570.77 the serial number, internal firmware version and Mesy®-status is given. A status of 1 represents a properly working device, 0 an internal error.

The last entry in menu **Mesy** is dependent on the Mesy® device chosen.



**Hardware  
parameter:  
Menu Mesy**

# Manual Mesy for Windows 1.0

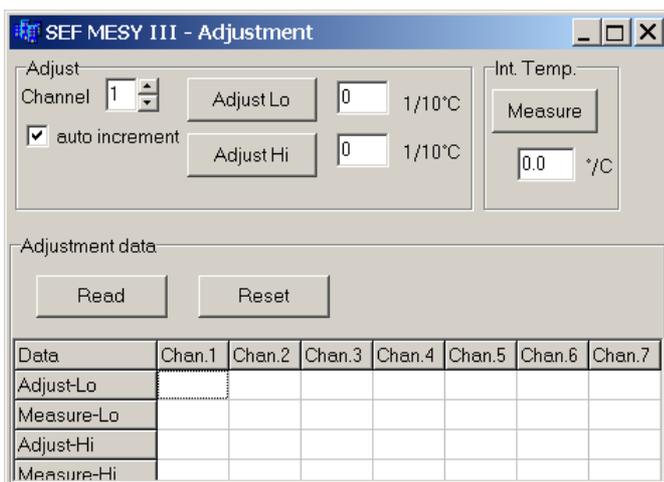
## Menu Mesy Adjust

Thermo elements with various precisions can be purchased on the market today. You have to adjust your measurement box to the connected temperature sensor.

In case you are using the USB model, please use menu:

### **Mesy -> Adjust**

to set the Mesy® to the thermo elements used:



A two point adjustment is used, in which the temperature measured with your Mesy® is compared to a gauged temperature.

Please notice, that the adjustment process involves the entire measurement chain, from temperature sensor to measurement box. After completion of the process, the temperature sensor shouldn't be used for other measurement channels, otherwise a readjustment is required.

For most measurements, the precision given by the default constants is accurate enough. Therefore a complicated readjustment is seldom needful.

# Manual Mesy for Windows 1.0

Take the USB cable and connect your measurement box with the PC.

Connect the temperature sensor with the measurement device.

Start your "Mesy for Windows".

In the table 'Adjustment data' click on button [Adjustment].

Please have two containers holding non-conducting fluids with different temperatures at hand. For example: 25°C and 100°C.

## **WARNING:**

Never use water, otherwise a short circuit may occur.

Adjust the two channels at 25°C and afterwards at 100°C.

Put the measurement pickups for all three channels into the container holding the 25°C fluid.

Start with channel 1.

Choose channel 1 in your software.

Set a value of 250 (temperature in 1/10 °C) in the field <Adjust Lo>.

Press button <Adjust Lo>

The table will now hold the value specified, and the value read from your Mesy 3.0 will be displayed.

**Connect  
Measurement  
box with PC**

**Adjust  
temperature  
sensor**

**Adjust on lower  
temperature**

## Manual Mesy for Windows 1.0

Adjust channels 2 and 3 for the 25°C fluid as described above.

Afterwards, please adjust the channels for the 100°C fluid.

Put the measurement pickups for all three channels into the container holding the 100°C fluid.

Start with channel 1.

Choose channel 1 in your software.

Set a value of 1000 (temperature in 1/10 °C) in the field *<Adjust Hi>*.

Press button *<Adjust Hi>*.

The table will now hold the value specified, and the value read from your Mesy 3.0 will be displayed.

Adjust channels 2 and 3 for the 100°C fluid as described above.

Close the window *>Adjustment<* .

By pressing the button *>Measurement<*, a measurement is initiated. In case of correct adjustment, temperatures of 25°C and 100°C respectively will be shown for the single channels.

**Adjust on higher temperature**

# Manual Mesy for Windows 1.0

In case you are using the USB model, menu point

***Mesy -> configure***

is displayed.

Using the active window, you can read the system time and date of your Mesy®. Set the system time by double clicking on the current time. In the edit field, type in the actual time. Proper system time is necessary, when using stored measurement data triggered by a certain time value.

You must also specify the serial port, to which the Mesy® is connected.

Using an USB-serial hub (to be used with a notebook for example) is perfectly legitimate.

## **WARNING:**

Take care, that the Mesy device is properly adjusted. Maladjustment may result in a very slowly reacting software when starting or reading a measurement. In this case disconnect the Mesy device from your PC and try to stop the measurement manually.

**Menu Mesy  
configure**

# Manual Mesy for Windows 1.0

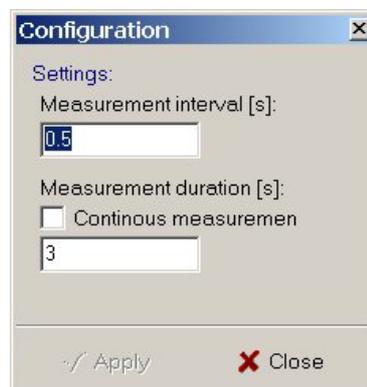
A measurement depends on two important parameters: measurement interval and duration.

To change these settings, click on symbol  in the icon bar of your measurement.

Measurement duration is only relevant for online measurements. In case of a memory measurement, all data is read from the Mesy® device, therefore the duration is given.

For online measurements the interval is not restricted and for memory measurement with the Mesy® 570.77, only 500 ms steps are legitimate. In this case the measurement interval will be set automatically.

For the serial Mesy® the measurement interval is ignored, since all data is stored automatically every time the temperature changes on any channel, but latest every 5 seconds.



## Setting Measurement parameters

# Manual Mesy for Windows 1.0

In case the user has chosen memory measurement via menu

## ***Mesy -> Mode***

you can use the icon  to prepare a measurement. Define a trigger to specify, whether or not the measurement is started by the device itself. Typically a temperature trigger is used. In conjunction with a serial Mesy®, the starting time of the measurement can be set. Remember that the internal device time is used, so be sure to check it.

Once a trigger has been defined, click [Apply]. The values are now written to the device.

It is now safe to disconnect the Mesy® from your PC and carry it to the destination point. Take notice, that a serial Mesy® has to be switched off (switch to „OFF“) and on (switch to „RAM“) to activate the trigger. Please refer to your device manual for further explanations.

### **IMPORTANT:**

If you are using a USB-Mesy®, be sure to always prepare a measurement even if no triggers are required. This way, the measurement interval is send to the device, otherwise it could be left undefined.

**Setting measurement parameters**

# Manual Mesy for Windows 1.0

## Toolbar

To start a measurement, a new window has to be created. Choose menu point

***File -> New -> Measurement.***

When starting the software, this window is opened automatically.

The active window contains a toolbar in it's upper region. Using these buttons gives you access to the most common functions. Following is a short description of every button:



 ***Prepare memory measurement:*** Use this button to define the trigger for memory measurements and send these settings (for USB-Mesy® also the measurement interval) to the device.

 ***Start/readout measurement:*** Click on this button to start a measurement. When using the online mode, data is read according to the specified measurement interval and added to the entire measurement. The current graph shows the newest data read. In case of memory measurement, data will be read from the device and the entire graph is displayed at once. Take care to use hardware, which correlates with your device settings.

 ***Stop measurement:*** By clicking this button, an online measurement may be stopped instantly. In case of a continuous measurement, only this button stops the measuring process. Clicking the button performs no action if a measurement duration has been set. Reading data from a memory measurement is not interrupted by clicking this button.

# Manual Mesy for Windows 1.0

## Toolbar

 *Clear measurement data:* This button clears all measurement data.

 *Load measurement:* Press this button to open a dialog, in which to choose a stored measurement. After you have opened the file, data will be displayed in a new window. Alternatively this function can be performed by using the menu **File -> Load -> Measurement**.

 *Save measurement:* By clicking on this button, you may save the current measurement including additional data as for example markers. If the current measurement has no name, you must choose one. This function is also available under menu **File -> Save**.

 *Save measurement as:* Save the current measurement. Unlike the „save“ function, a new file name has to be given. Alternatively this function can be performed by using the menu **File -> Save as**.

 *Save as Excel file:* This function saves the current measurement in Microsoft's® Excel® format. In case you have installed Excel® on your PC, it is opened for the newly created file. You may now edit the measurement values.

 *Print measurement:* This button opens a window, in which you can either print your measurement or edit the print layout. In case the currently active tabsheet is „Graph“ or „Info“, the data is printed as a graphics. Tabsheet „Data“ forces the data to printed as a table.

 *Edit measurement settings:* Opens a window to set Measurement parameters, for example measurement interval and duration.

# Manual Mesy for Windows 1.0

## Toolbar



*Show reference*: This button may have two states: Usually it is not pressed and no reference curve is shown. Pressing it causes the reference curve for the current measurement to be blended in. In case no reference has been assigned yet, a dialog is opened for choosing a reference. The reference curve is not assigned permanently to the measurement, for example every time the measurement is loaded it has to be reassigned. A constant link is not favorable, since we may compare a measurement with several reference curves.



*Select reference*: Use this button to assign a reference to your measurement. Only one! reference at a time can be assigned. Comparison with several references must be performed manually, one by one.



*Extract reference from curve*: One way of creating a reference curve, is extraction from a measurement. In this case data from a single channel is taken as a frame for a new reference curve. You must specify the tolerance area, in which the curve lies. Please notice: The tolerance expands from the positive to negative value, therefore the tolerance range is twice the given value. For a temperature of 80 °C and given tolerance of 5 °C the tolerance range is between 75 °C and 85 °C.



*Autoscale*: Pressing this button automatically scales the measurement curve, ie. the display size is adjusted so that the entire curve can be seen at once (including the reference curve). If activated while performing an online measurement, the time axis is continuously stretched to fit in the entire curve.

# Manual Mesy for Windows 1.0

## Toolbar

 *Interpolate measurement (smoothen curve)*: To smoothen a curve, calculated „non real“ values can be added to the curve. In tabsheet „Data“ these values are shown in grey instead of black color. When saving the measurement, these values are not stored but can be calculated again later on. This procedure may take some time, depending on the number of measurement values. For a serial Mesy-model interpolation is not required, since the temperatures are not taken at a certain time, but rather when changes occur. In this case drastic changes in temperature force a high measurement density which helps to smoothen the curve. If the user starts an interpolation during an online measurement, only values up to the current time are interpolated. No further points will be calculated. Therefore it is advisable to interpolate after the measurement is complete.

 *Prepare analysis*: If you wish to obtain more than the default information in your analysis, it is necessary to define the desired temperature ranges here. Click on this button to open a window for defining them.

 *Execute analysis*: Use this button to start the analysis. The channel to be analyzed is defined via the select bar in „Analysis view“. You may switch to „Analysis view“ by pressing the button „Analysis“ right from the graph. The analysis includes calculation of min/max temperatures and min/max slope. In case you have specified extra temperature ranges [see Prepare analysis] extra information is supplied.

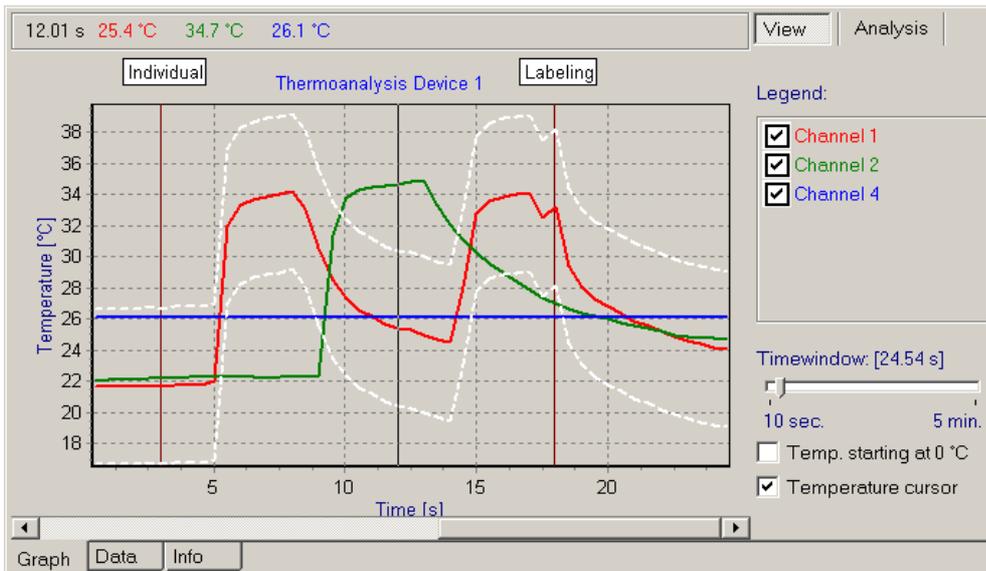
 *Show/hide marker*: This function displays or hides markers, which have been set during the measurement or added afterwards.

 *Edit marker*: Opens a window, to edit markers for the current measurement. Set markers during the measurement by pressing [Space]. Give marker selfexplaining names to document important stages of the measurement (for example, entry into the welding machine in case your Mesy'AE is used for determining temperature profiles).

# Manual Mesy for Windows 1.0

The most important method for gaining a quick overview of the temporal course of measurement values.

## Graph View



Tabsheet „Data“ contains a component for graphical display of your measurement curve. On the right side of the sheet you may find an area for additional information.

In our example, the diagram contains some information apart from the actual curve. Two dotted white lines surround the curve for channel one. This is a reference curve blended in. It was extracted from measurement curve 1 with a tolerance of  $\pm 5^\circ \text{C}$ . Therefore channel 1 is situated halfway between the two outer reference lines.

## Manual Mesy for Windows 1.0

You can also see three vertical lines. Two brown ones are situated below the label boxes and a black one. The brown lines are markers blended in with additional labels.

The black line represents the temperature cursor. You may move it to the left or right, using your mouse. The box seen in the upper region displays the time corresponding to the cursor and temperatures for different channels at the time given. You may enable/disable the cursor with the checkbox „Temperature cursor“.

The tabsheet „Graph“ offers more information, relevant for the diagram's format. A legend shows the labels of every colored line. The label („channel n“ by default) may be changed using tabsheet Data. The associated colors can be chosen using a context sensitive popup menu. Right click on the entry, whose color must be edited and click on **Change color**.

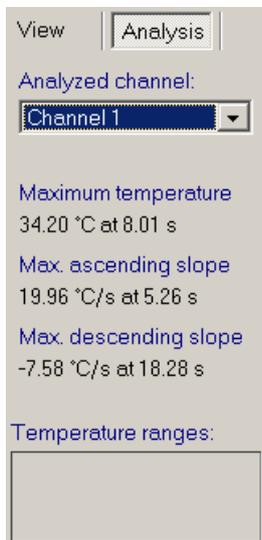
Underneath the legend, you will find the settings for the time scale. In case you want a different time range (displayed in square brackets), edit the given value. If *Auto scale* is active, time spans greater than 5 min. may be encountered.

### Graph View

# Manual Mesy for Windows 1.0

In case the option *Auto scale* as been chosen, you will find a checkbox „Temp. begins at 0 °C“ in the lower right corner of the window. Decide here, whether to start at 0°C or the minimum temperature of all channels.

Choose button „analysis“ on the right side to display information regarding the analysis of the curve.



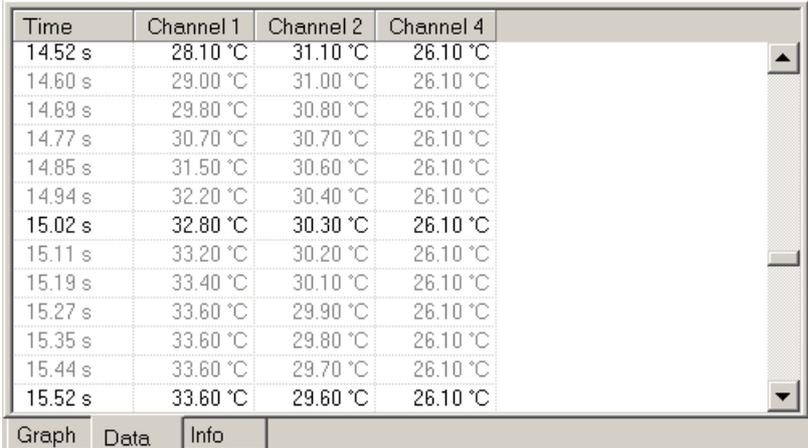
In the selectbox, choose the channel to be analyzed. By clicking the analysis button  standard values for maximum temperature and maximum/minimum slope will be evaluated for the given channel. In case analysis temperature ranges are defined, the diagram will show them colored and they will appear in the list „temperature ranges“.

## Graph View

# Manual Mesy for Windows 1.0

The tabsheet data is a display of the measured data in table format.

**Data view**



Time	Channel 1	Channel 2	Channel 4
14.52 s	28.10 °C	31.10 °C	26.10 °C
14.60 s	29.00 °C	31.00 °C	26.10 °C
14.69 s	29.80 °C	30.80 °C	26.10 °C
14.77 s	30.70 °C	30.70 °C	26.10 °C
14.85 s	31.50 °C	30.60 °C	26.10 °C
14.94 s	32.20 °C	30.40 °C	26.10 °C
15.02 s	32.80 °C	30.30 °C	26.10 °C
15.11 s	33.20 °C	30.20 °C	26.10 °C
15.19 s	33.40 °C	30.10 °C	26.10 °C
15.27 s	33.60 °C	29.90 °C	26.10 °C
15.35 s	33.60 °C	29.80 °C	26.10 °C
15.44 s	33.60 °C	29.70 °C	26.10 °C
15.52 s	33.60 °C	29.60 °C	26.10 °C

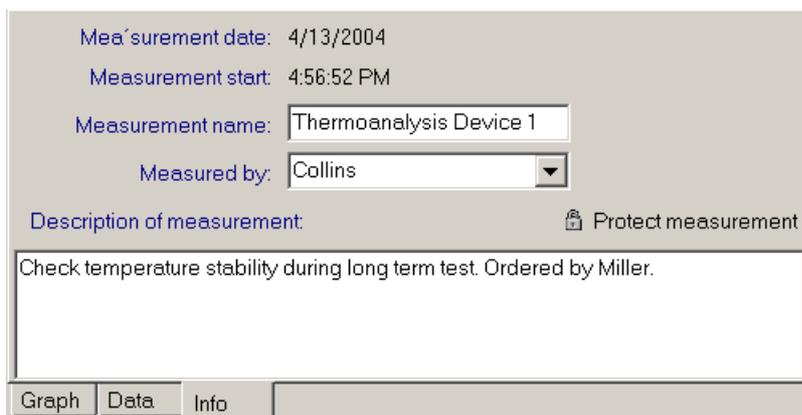
The Dataview of a measurement displays time and temperatures for all channels within a table. In case the measurement has been interpolated, the calculated values will be shown as well. To distinguish them from the measured values, they appear in grey color.

In this tabsheet you may change the channel labels. Just click the desired channel in the header row of the table. The channel labels will be saved with the measurement and displayed in the legend.

## Manual Mesy for Windows 1.0

The tabsheet info view is used to show additional information regarding the measurement.

### Info view



The screenshot shows a software window with a light gray background. At the top, there are four lines of text: 'Measurement date: 4/13/2004', 'Measurement start: 4:56:52 PM', 'Measurement name: Thermoanalysis Device 1', and 'Measured by: Collins'. Below this is a section titled 'Description of measurement:' with a 'Protect measurement' icon and text to its right. The description text reads: 'Check temperature stability during long term test. Ordered by Miller.' At the bottom of the window, there are three tabs: 'Graph', 'Data', and 'Info', with 'Info' being the active tab.

The measurement has a start point (date and time) which is determined automatically. For a memory measurement, this point is the starting time for reading values from the Mesy® device. The starting time is taken from the system time of your PC, so be careful to set it properly. The starting time of a measurement cannot be edited.

Certain information can be added to the measurement: measurement name, name of the person in charge as well as further description of the measurement. The name of the measuring person can be chosen from a list, in case file „User.txt“ exists in the Mesy root directory. Edit this file, by right clicking the listbox and choosing „edit template“. All information shown in this tabsheet is saved with the measurement.

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Your measurement can be protected by creating a password. Every time you wish to save the measurement and a password exists, the user is forced to enter the code before saving possible changes. In case the password is unknown, all changes made to the measurement are lost. Due to this technique, any unauthorized manipulation of the measurement description is reduced. Every measurement can have it's own password.

Choose button „Protect measurement“ to protect the currently active measurement. Choose a password and save your measurement afterwards, in order to keep the password permanently. Further changes to the measurement data can only be saved, if the password is entered correctly in advance.

Another method to protect measurements, is to assign a master password. In order to do so, click on menu:

### ***Additional -> Change master password***

If a master password has been defined, this code will be taken as the password for the current measurement as soon as it is saved. An additional password can only be assigned, if the master password has been entered before. This way, an employee cannot misuse the master password, to assign a custom password for editing the measurement later on. Should a master password exist, a measurement specific password can only be assigned after the master password has been entered.

**Protecting by  
password**

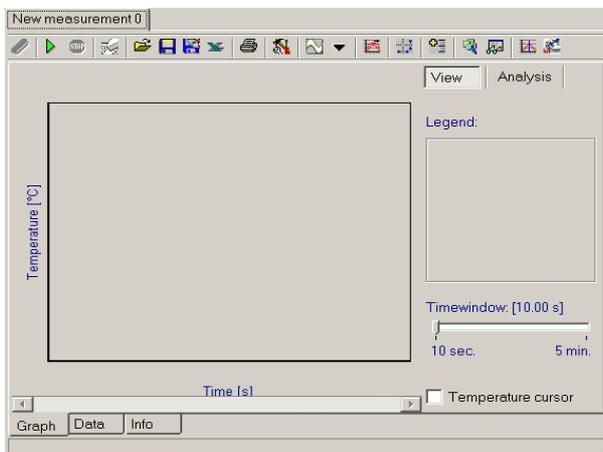
**Master  
password**

# Manual Mesy for Windows 1.0

UTo start a measurement, a new window has to be created. Choose menu point

**File -> New -> Measurement**

When starting the software, this window is opened automatically.



Click on this green button  to start a measurement. When using the online mode, data is read according to the specified measurement interval and added to the overall measurement. The current graph shows the newest data read. In case of memory measurement, data will be read from the device and the entire graph is displayed at once.

## NOTICE:

In case the software „hangs“, please check whether the Mesy device connected to the PC is the same as configured in your program. The device type is printed on the device's casing.

To stop a measurement, please click on symbol  Stop.

## NOTICE:

Reading data from a memory measurement cannot be halted, by pressing this button.

**Start  
Measurement**

**Stop  
Measurement**

# Manual Mesy for Windows 1.0

After reading data from the device's memory or completion of an online measurement, the user can save the measurement curve. Choose menu

***File -> Save as***

or the corresponding symbol  from the toolbar.

The user is explicitly asked to enter a filename.

In case a filename exists, choose menu

***File -> Save***

or the associated button  from the toolbar, to save the curve.

In both cases, all data associated with the measurement, as for example defined markers, is saved. If no filename exists, the user is asked to enter a filename.

The serial Mesy device could only be controlled by a DOS based software before. If you wish to import these files in Mesy for Windows please choose menu

***File -> load -> import***

Please notice, that this feature is only available in the full version.

Afterwards, choose the desired measurement (file extension .MKV). All Mesy for Windows functions are usable here as well.

**Save  
Measurement**

**Import  
Measurement**

# Manual Mesy for Windows 1.0

## Memory Measurement

If you are using a Memory-Mesy<sup>®</sup>, data can be read from the device's memory. To do so, please choose menu:

***Mesy -> Type -> Serial Mesy model***

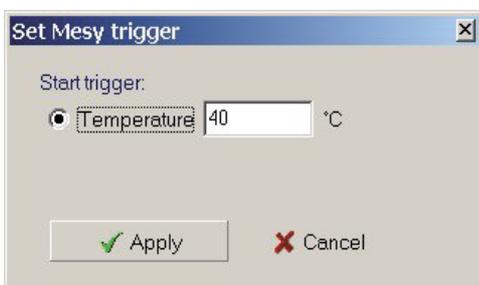
or.

***Mesy -> Type -> USB-Mesy 570.77***

Afterwards click

***Mesy -> Mode -> Read from memory.***

A new symbol  „Prepare memory measurement“ appears in the toolbar.



Define a start trigger, by setting an initial temperature at which the measurement is supposed to begin or the starting time in case you are using a serial Mesy.

Click on button „Apply“ to send the data to the device. Now the user can switch off the device and carry it to the destination point. After completing the measurement, you can connect the device to your PC again. Read it's memory by clicking on symbol  „Start/readout measurement“.

# Manual Mesy for Windows 1.0

The user has the choice to set markers at important points of the measurement. Just press key „Space“ to set a marker.

To show or hide markers, click on symbol  „show/hide markers“.

To edit markers, choose symbol .

Here the user can name, move or add markers or delete obsolete ones.



To add a marker, click on . To remove an existing marker, click on . To remove all markers, use symbol . „Delete all defined markers“. To insert a marker before another one, choose symbol . „Insert marker“.

By using the symbol for Microsoft Excel®, the user can export measurement data into MS Excel® and edit it to be used in other applications.

## Setting Markers

## Export to Microsoft Excel®

## Manual Mesy for Windows 1.0

To print your measurement, click on the  printer symbol found in the toolbar and the printer options will be shown.

Use the template designer to edit layouts other than the given default. To obtain a print preview, click on button „Preview with standard template“. To print directly, choose „Direct printing“. Please notice, that data will be printed in table format if tabsheet „data“ is on top while printing.

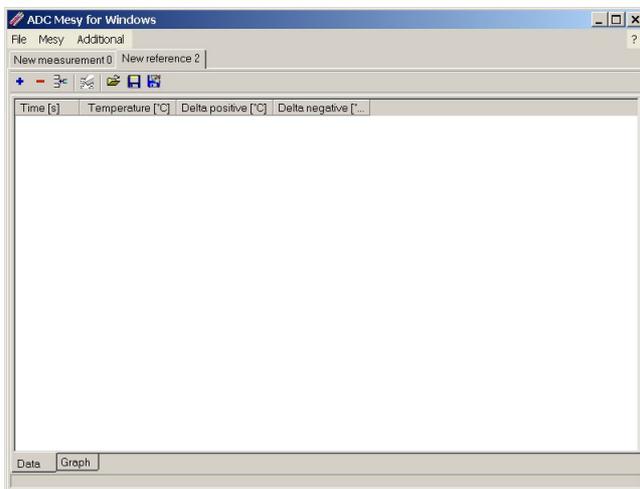
**Print  
Measurement**



# Manual Mesy for Windows 1.0

A reference curve is used to verify measurement results. Examples are peak values or slowly evolving temperatures to be expected. Using the reference, deviations from the specified tolerance are easily detected.

Extract a reference curve from an existing measurement curve and edit it later on or define a reference curve from scratch by specifying single temperature values .



To create a new reference curve, choose menu

***File -> New ->Reference***

Click on **+** to add a single value. Edit these values by clicking on a cell or pressing [Enter]. While adding values, the temperature value is taken from the previous row as a default value. By inserting an interpolation value  you can define a point with the mean time of the preceding and succeeding point.

**Reference  
curves**

**Extract a refer-  
ence from a  
curve**

# Manual Mesy for Windows 1.0

To extract a reference curve from an existing measurement, use button  from the toolbar.

Enter the desired channel, from which the curve is to be extracted and define the tolerance range.

Click on „Apply“ to save the reference. Choose file extension „.mref“ and save the file by giving it a meaningful name.

By extracting a reference curve from an existing measurement, a new window for editing single values is opened automatically. Here, the user can edit temperatures.

The tolerance (Delta pos. and Delta neg.) doesn't have to be the same for every point on the reference curve. You may enter differing values to reduce tolerance in critical sections of your process. In order to do so, choose tabsheet „data“ of your reference curve.

Manipulate single tolerance points by highlighting the field and pressing [F2].

The tabsheet „Graph“ shows the temporal course of your reference. The two lines shown represent upper and lower temperatures allowed. The display of the curve is equal to it's blended in appearance in your measurement curve.

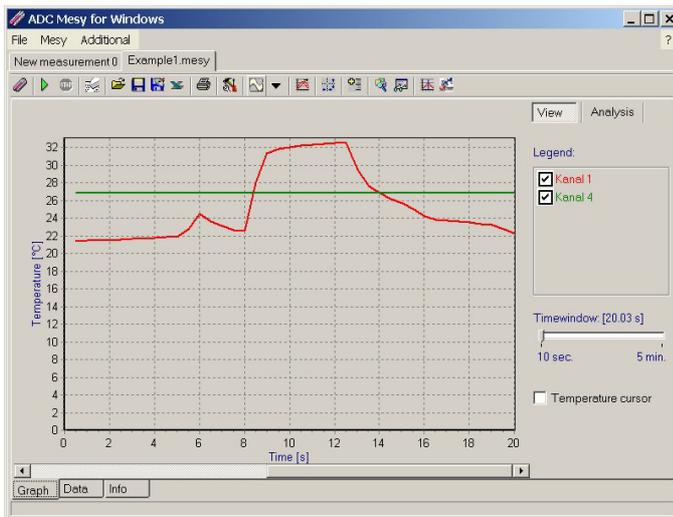
**Extract a reference from a curve**

**Tolerance of reference**

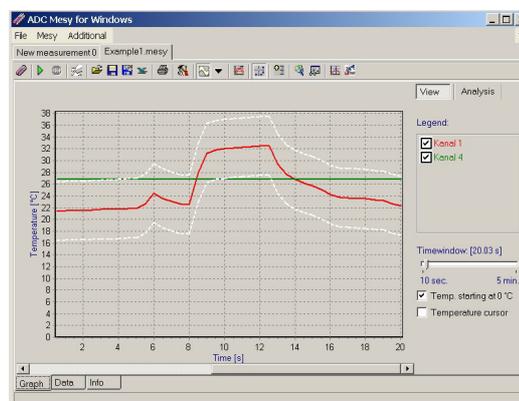
# Manual Mesy for Windows 1.0

To show an existing reference curve, click on button  „Show reference“.

reference  
existing



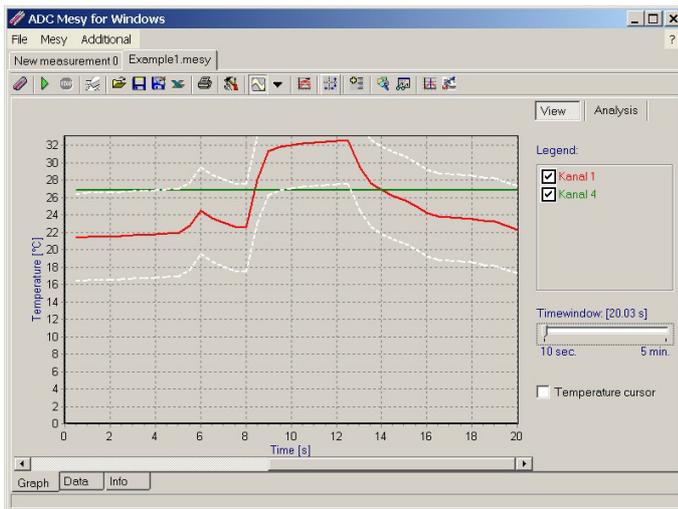
A menu will open, which navigates the user to the desired file on disk or display references which have been opened previously. Select the reference desired and click on the green  checkmark. The reference curve is displayed on top of the actual curve. To toggle it's display state, click on  „Show reference“.



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To adjust the size of the displayed curve to your window area, double click on the curve or choose button  „Autoscale“ from the toolbar.

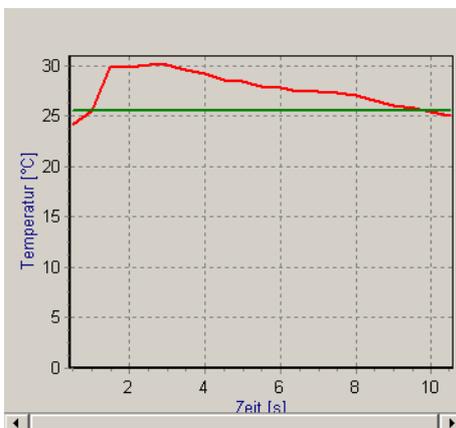
## Scaling



The Current curve as well as the reference curve are immediately fitted into the active window.

In case the option *Autoscale* is active, the user may decide to set the lower temperature bound to 0°C by clicking on „Temp. starts as 0°C“. Otherwise the lower bound equals the lowest temperature of any channel.

Display with/without option „Temp. starts at 0 °C“



An alternative is to vary the time scale by setting trackbar „Timewindow“ to intervals between 10 s and 5 min.

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To smoothen a curve, calculated „non real“ values can be added to the curve by pressing button  „Interpolate measurement“. In tabsheet „Data“ these values are shown in grey instead of black color. When saving the measurement, these values are not stored but can be calculated again later on. This procedure may take some time, depending on the number of measurement values. For a serial Mesy-model, interpolation is not required, since the temperatures are not taken at a certain time, but rather when changes occur. In this case drastic changes in temperature force a high measurement density which helps to smoothen the curve.

If the user starts an interpolation during an online measurement, only values up to the current time are interpolated. No further points will be calculated. Therefore it is advisable to interpolate after the measurement is complete.

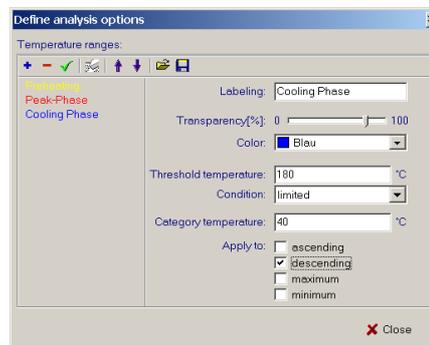
### Interpolation

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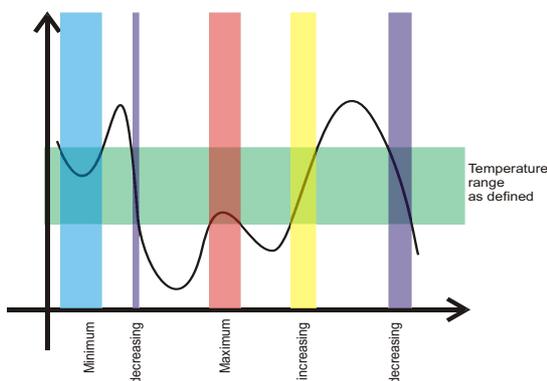
The program offers some functions for analyzing the measurement curve. To switch to analysis view, click button [Analysis] in Graph view.

Extra analysis data is obtained by clicking  „Prepare analysis“. A new window is opened, to edit conditions for more analysis data.

Use editbox „Labeling“ to input a name for the user defined analysis. Choose a color in which the desired range is shown and choose the desired transparency. The given temperature range will be displayed using these options in diagram view.



To highlight a temperature range, the user has to define a threshold temperature. Afterwards a condition must be chosen. The user has the following options: greater, smaller or limited. Greater describes the fact, that all ranges higher than the threshold temperature are highlighted, whereas smaller means, that the lower ranges are



marked. Limited is used to define an additional temperature range, bounded by an upper and lower temperature. You may specify further options: By choosing „ascending“, all ascending ranges in the previously defined temperature range are marked. Descending works analogously. „Maximum“ contains all maximum values, „Minimum“ the lowest temperature values. (see scheme)

## Analysis

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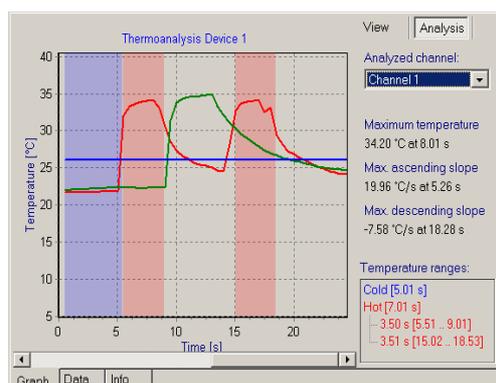
Define the appropriate values for your analysis. Click on **+** to add this function to the list. Define as many extra analysis functions as desired. Since the colored ranges appear in the order specified in the list, have a closer look at the ordering. By clicking on **↑** and **↓** the user has the ability to change the ordering of analysis functions.

To delete an analysis function, use button **-**.

In order to edit these functions, mark them and save the changes by clicking on **✓**.

The user doesn't have to perform these changes for every new measurement. Click on the usual Windows symbols for „save“ and „load“ in order to use them for other measurements as well. After completion of all entries, press „close“ to close the window. With every analysis performed, the user will get data for the additionally defined temperature ranges along with the standard values.

Before starting an analysis, the user must decide which channel to analyze by using the listbox shown. Afterwards you can start the calculation by clicking on . Standard analysis evaluates the maximum temperature as well as maximum/minimum slope of the curve.



By double clicking on the colored channels (right portion of the window) the user will see a tree diagram containing the analysis results. In our example, maximum temperature and max/min slope for channel 1 are displayed.