# Quick Reference Manual

# Test kit AS-ML Sensor Components

version 1.5, 10/2009

# Hardware

With the AS-ML sensor component series (see individual data sheets for more specific information), AppliedSensor introduced a new generation of MEMS metal oxide coated (MOS) chemical gas sensors. A unique technological approach guarantees low power consumption, high sensitivity, high stability and long lifetime. The test kit offers a dedicated operation environment for the sensors and provides an easy-to-use data acquisition and a standard PC computer interface.
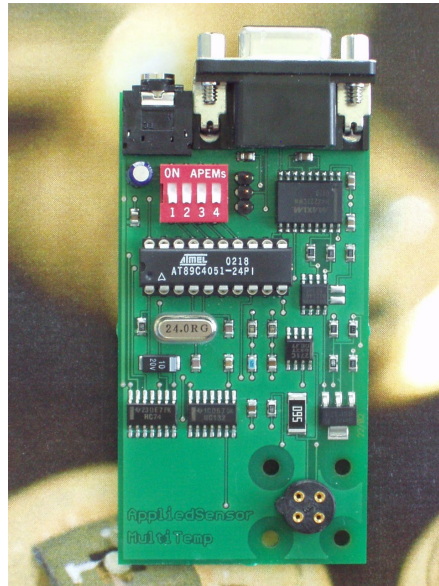


Fig. 1: Picture of the test kit hardware platform

In the following, the main specifications of the test kit are described:

**Dimensions**                93 x 44 x 20 mm

**Operational conditions**
    Ambient temperature    $0°C – 40°C$
    Ambient humidity       0 – 95% r.h., non-condensing
    Power                  6V standard DC-AC adapter 100-240V, 50/60 Hz
    Power consumption      < 0.5W
    Start-up time          < 2s

**Interface**
    Digital interface      RS-232, Baud rate 9.600 bit/s
    Sensor components      AS-ML series

# Software

## General

This part of the manual describes the EasyLog 1.4 software package.

⚠ Text positions which are characterized in this way should always be read through carefully before initiation of a system. In the case of nonobservance of these references, the AppliedSensor GmbH and/or its reseller undertakes no liability.

## Installation

Before you install your software, you should close all other application programs. Place the installation CD-ROM into the CD-ROM drive. Then start the installation program Setup.exe on this CD-ROM. And go through the installation wizard.
If the installation was carried out successfully, you can continue directly to work with EasyLog. A re-start of Windows is not required.

⚠ Before start the EasyLog.exe program, please power the demonstrator board first!

## Configuration of the serial port

If you have not connected the demonstrator board to the serial Com Port 1, please choose the correct port with the Com Port Select Box (on the Settings tab)
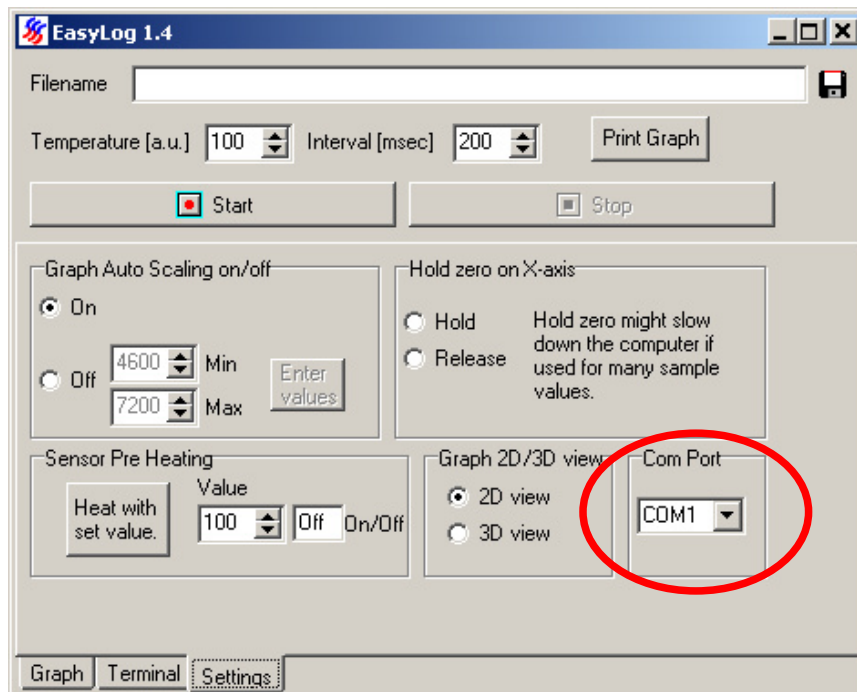


Fig. 2: Selecting a Com Port.

# EasyLog step by step

EasyLog automatically detects the type of device or test-kit that is connected to the computer once the correct Com Port has been selected. EasyLog will then change the parameter and display to match the properties of the attached device.

## Performing a measurement

Using EasyLog is simple and straightforward.

1. Set the desired temperature or pulse length (the range is 0 to 100 in arbitrary units / ms).
2. Set the desired measurement interval in msec.
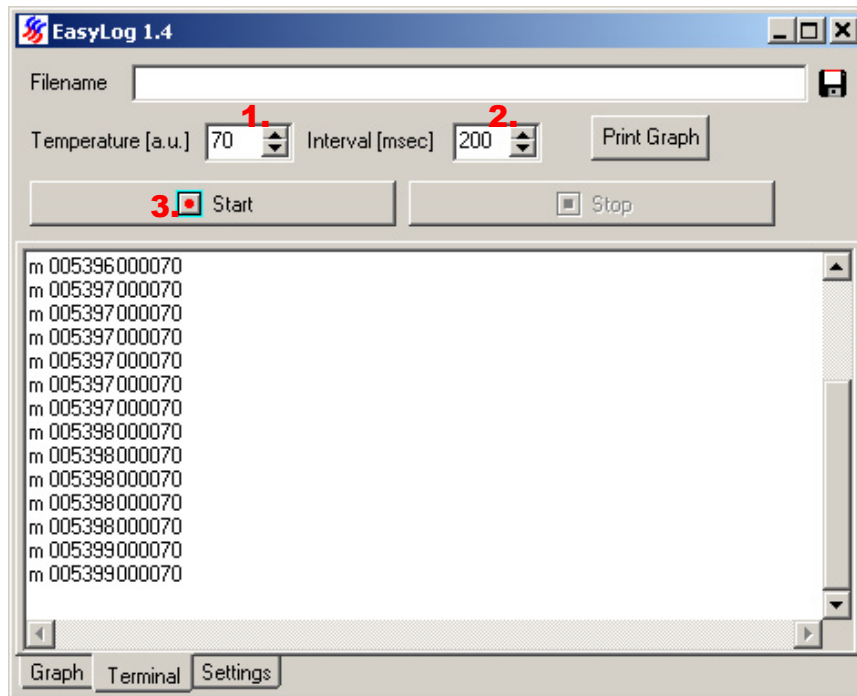3. Press the Start-Button



Fig. 3: Starting a measurement.

Now EasyLog will set the desired temperature for the sensor and start to measure. While the measurement is running, no settings can be changed.
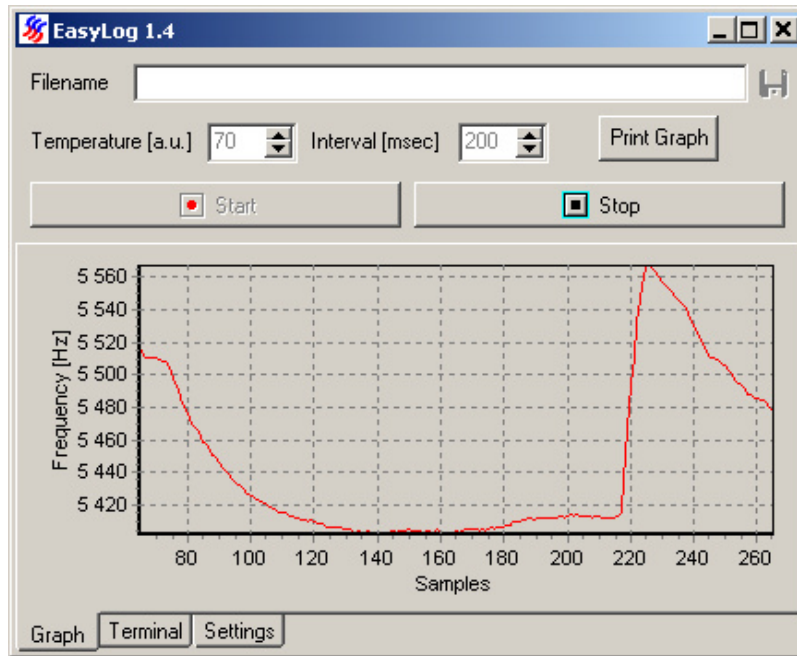
Fig. 4: A running measurement.

To stop the measurement, just press the Stop-button. If you want to see the transmitted data between the demonstrator board and the computer, select the page 'Terminal':
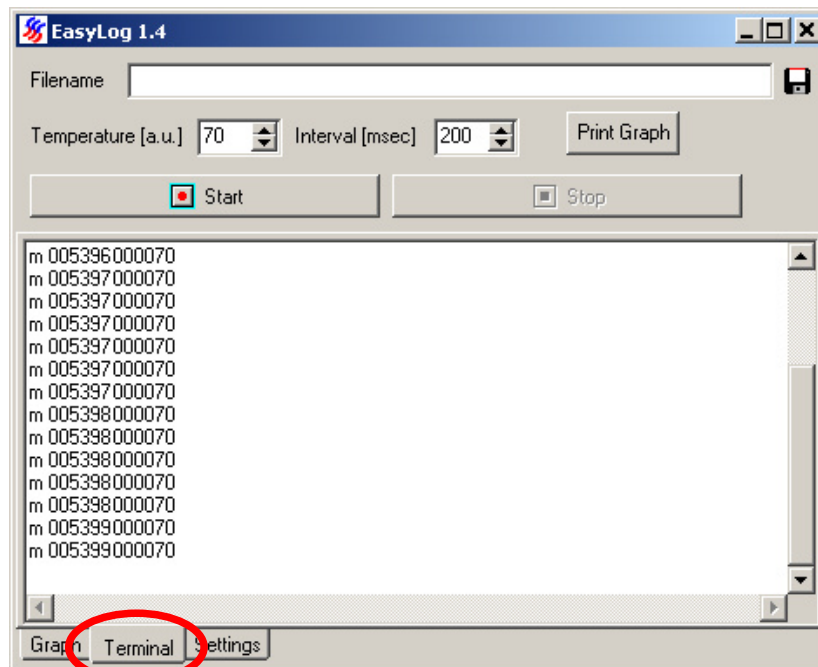

Fig. 5: Display of transmitted data.

⚠️ EasyLog will not store the recorded data if you have not selected a file **before** starting the measurement.

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# Logging measurement data to a file

In order to save data to a file, a filename has to be set **before** the measurement is started. A filename can be set by either typing the filename (including path) into the edit box 'Filename', or by clicking on the disk symbol next to the edit box. Clicking on the disk symbol will open a file save dialog.
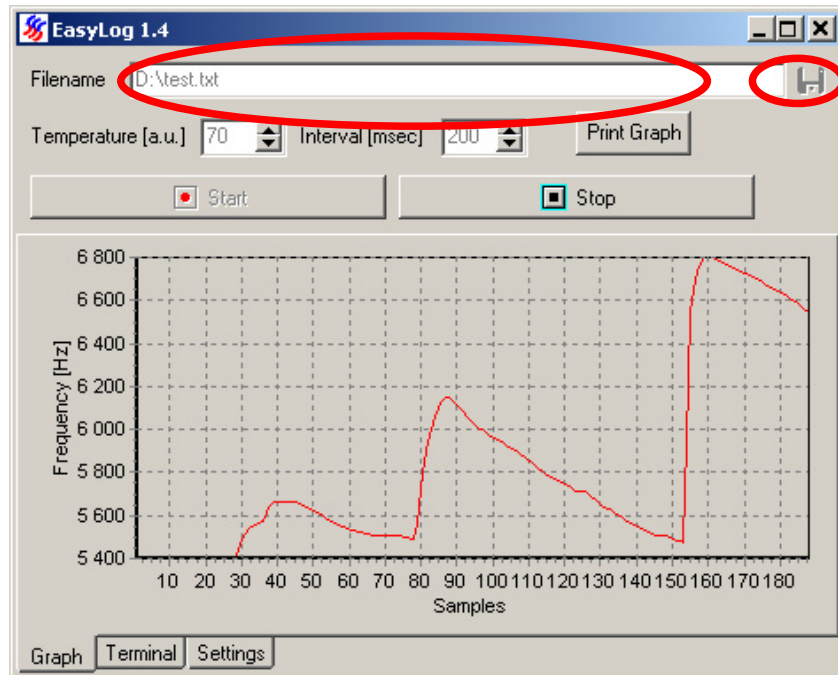

Fig. 6: Selecting a filename.

When the Start-Button is pressed EasyLog creates the chosen file. If the file already exists, a warning is displayed and you have the choice to overwrite the file or to cancel the measurement.
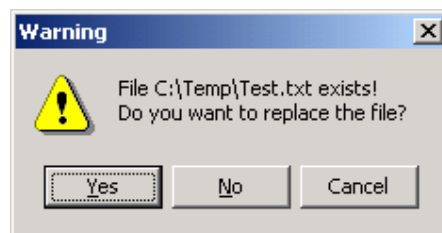

Fig. 7: File exists warning.

As long as the measurement is running new data is stored to the file. There is no limit to the number of measurements, but the size of your hard-disk (or 4GB if you are using a FAT formatted disk).
When the Stop-Button is pressed EasyLog closes the file. Now the file can be opened with any other program. The file format is text with a short header including date and settings. A detailed description can be found in the appendix.
If you open the file with Excel use 'Text Files' in 'Files of type' in the file open dialog. On the next page select 'Delimited' and on the next page select 'Tab' in 'Delimiters.

# Using the settings tab
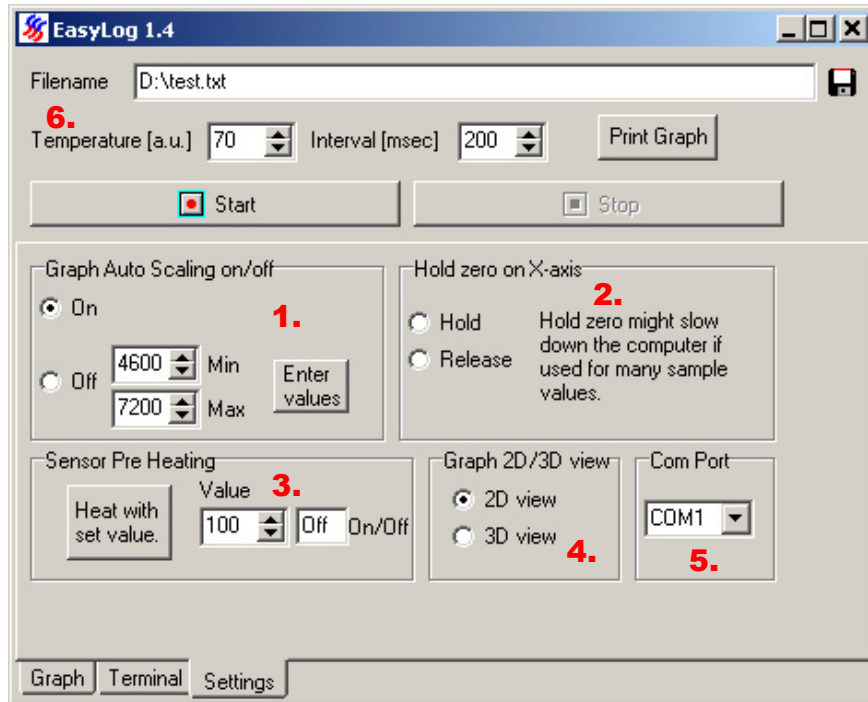


There are five sections in the Settings tab:

1) <u>Graph Auto Scaling on/off</u>: Enables the user to set the Y-axis scaling manually. This can be done during sampling. After the 'Off' box has been marked 'Min' and 'Max' values can be chosen, either by writing them manually or chosen with the up/down arrows, in the corresponding boxes, and then push the 'Enter values' button. Default is Auto Scaling On. The last values upon closing EasyLog will re-appear the next execution in the value boxes.

2) <u>Hold zero on X-axis</u>: Makes It possible to freeze the current low value on the X-axis. I.e. if the Hold button is pushed when X is the lowest value then X will be the lowest value until 'Release' button is pushed (or EasyLog is restarted), then the graph will display the default 200-intervall. After that the Hold feature can be used again. When Hold is active the load on the computer will increase if the sample graph window is being displayed, so there might occur some slowing down effect concerning the pc's performance.

3) <u>Sensor Pre Heating</u>: If you wish to heat the sensor without starting a measurement then use this possibility. Simply set the desired value, which is the same as the Temperature setting (6), and push the button (can be done repeatedly). When starting the measurement the sampling temperature will be according the setting in the Temperature box (6) as normal.

4) <u>Graph 2D/3D view</u>: Check the desired box to view the graph either in 2D or 3D mode. Default is 2D.

5) <u>Com Port:</u>  This is as shown earlier the place where to choose Com Port. (Default is as before Com1).

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## Printing the graph

To get a printout of the graph push the Print Graph-button (1).
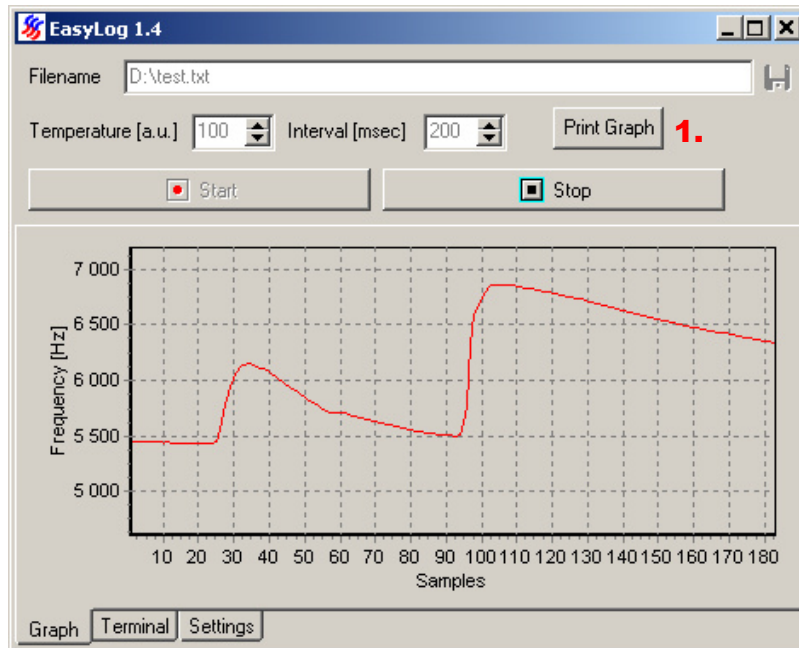


That will give a print of the actual sample window on the default printer. Format is 'landscape' and size will be determined by the size of the EasyLog window (i.e. to get a more easily read printout enlarge the EasyLog window). The printing can be done either during sample or when the sampling is stopped.

# Appendix

## File format

EasyLog is using a simple ASCII text format for output. All lines end with Carriage Return (ASCII 13) and Line Feed (ASCII 10)
The first line always is 'EasyLog 1.4 LogFile' to identify the file as an EasyLog file. The next three lines contain date/time and settings. The lines start with a text descriptor of the line content followed by a tab character (ASCII 9) and the content. 'Generated' is the start date and time of the measurement. The format depends on the 'Regional Options' as set in the Windows Control Panel.
Depending on the attached device different parameters are then printed in the file (e.g. 'Temperature' or 'Pulse length'). 'Interval' contains the measurement interval in msec.
'Parameters' show different values that are used for conversion of frequency to resistance.
The line 'Value' describes the recorded data and depends on the attached device. All following lines contain the recorded data from the sensor as defined in the line 'Value'.

```
EasyLog 1.4 Logfile
Generated:    11.06.2003 14:54:20
Temperature [a.u.]: 70
Interval:     200
Parameters:  71     564612557     -
1308891820
Value: Resistance [Ohm]     Frequency [Hz]
16108  35204
16114  35192
16120  35179
16128  35161
16132  35151
16142  35130
16140  35134
16149  35114
16153  35106
```

Fig. 8: Output text file.