

SpyLight®

V1.1.0

Manual

SpyLight®

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V1.1.0en/21.07.15

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1 Introduction

SpyLight® is software for the visualisation and documentation of process relevant data. The communication can be via the RS 232, RS485 or TCP/IP. The installation is simple. SpyLight® requires very little disk space and is simple to use. The logged data is displayed against time. The axes can be scaled as required. The zoom function allows easy evaluation of short time frames.

2 Minimum hardware requirements

The following minimum hardware requirements are recommended:

- PC with 512 Mbyte of RAM
- 1 Ghz Intel or AMD processor
- 100 Mbyte of free hard disk space

3 Installation / Very important notes

To install SpyLight®, just start the setup file. The program is compatible to the operating systems Microsoft Windows XP, Vista, 7 and 8. The installation program copies SpyLight® into a folder of your choice. After that links on the desktop and entries in the start menu will be created.

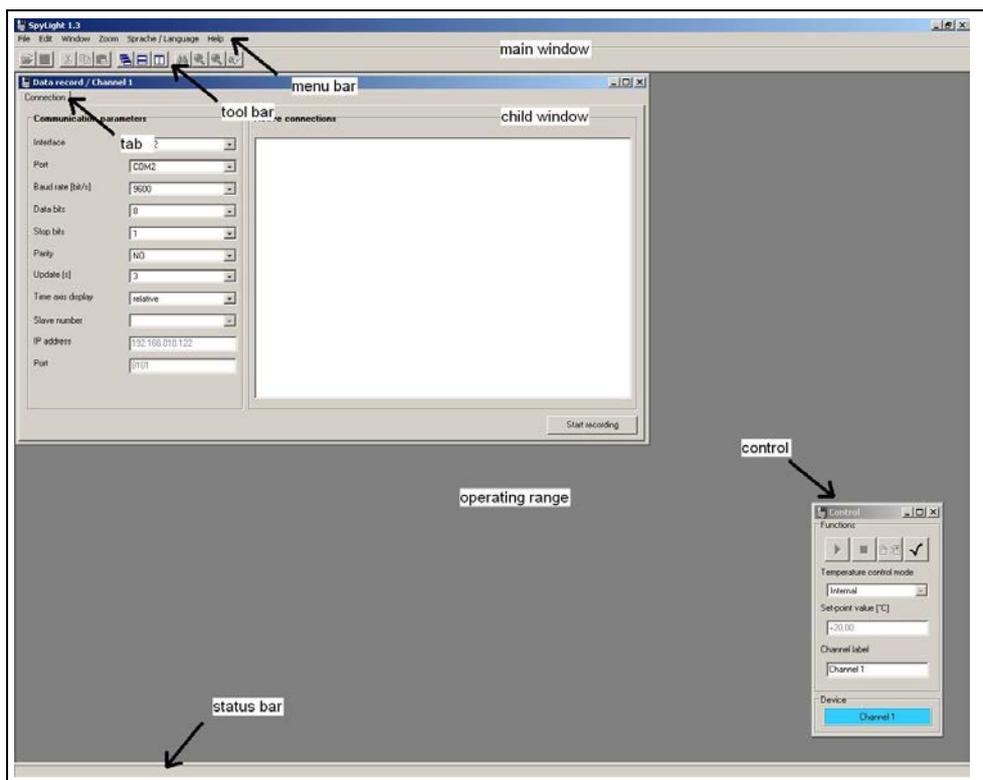
3.1 Very important notes

- Please read the instruction manual of the device and follow these instructions!
- This application uses the PC system time for internal calculations. Please note that changing the PC system time by a time server or by the switch to summer/winter time may cause data records to fail.
- If you establish a connection via RS-232, remember to set the slave address of the device to 1.
- A screen resolution of at least 1024x768 is highly recommended.

4 Starting SpyLight®

After you have started the program, a logo is displayed, after which you will see the user interface. In this version, you have the possibility to display an already saved file or to start a new data recording. All options require a data channel to transfer the data. There is one channel available in this application. Take a look on Figure 1.

Figure 1



The graphical user interface consists of a main window and multiple child windows. The job of the main window is to process the child windows and to offer the functions required. It contains the title of the application, a menu bar, a tool bar, the operating range for the child windows, a control window and a status bar. The menu and the buttons of the tool bar serve to activate various functions which will be explained here.

- File
- Edit
- Window
- Zoom
- Sprache / Language
- Help

4.1 File

Here for example one can configure the recording and display of new process data, or display a previously saved data file. An opened child window can be closed when it has the focus. During a data recording, one can save the values of the displayed data. It is also possible to print the graphical screen display, or the contents of the application information windows. The application may also be closed.

4.2 Edit

This menu offers text operations. One can copy an error or status message from an information window into the buffer so it can be used by other programs. The standard operations of „cut“, „copy“ and „paste“ are available.

4.3 Window

This menu serves to arranging the child windows. They can be arranged overlapping, vertical or horizontal. The menu shows all available child windows. This function is very useful if one child window is covered by another.

INFORMATION

That product supports one child window.

4.4 Zoom

This menu sets the zoom functions "overview", "arrange values" and "set zoom limit". These functions are described on page 14, section »Zoom functions«.

4.5 Sprache / Language

Here one can choose English or German language.

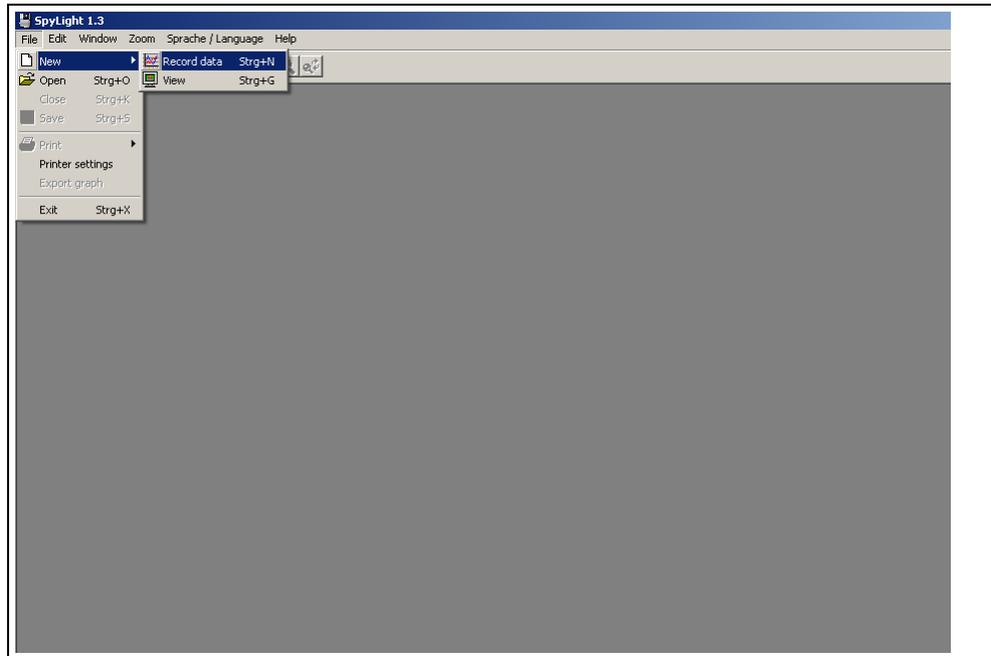
4.6 Help

This menu allows one to open a window with copyright information. You can find the handbook of SpyLight® in the installation folder of the application.

5 Starting a new data recording

Before one starts a new data recording, a thermostat must be connected to the PC. The interfaces RS-232, RS-485 and TCP/IP are available for use. The connection of the machine with a serial interface cable is described in the operating handbook of the machine concerned. After the machine is connected to the PC, the menu point "Record data" can be called up as shown in Figure 2, via the menu "File", sub-menu "New". It can also be called via the keyboard shortcut <Strg+N>.

Figure 2



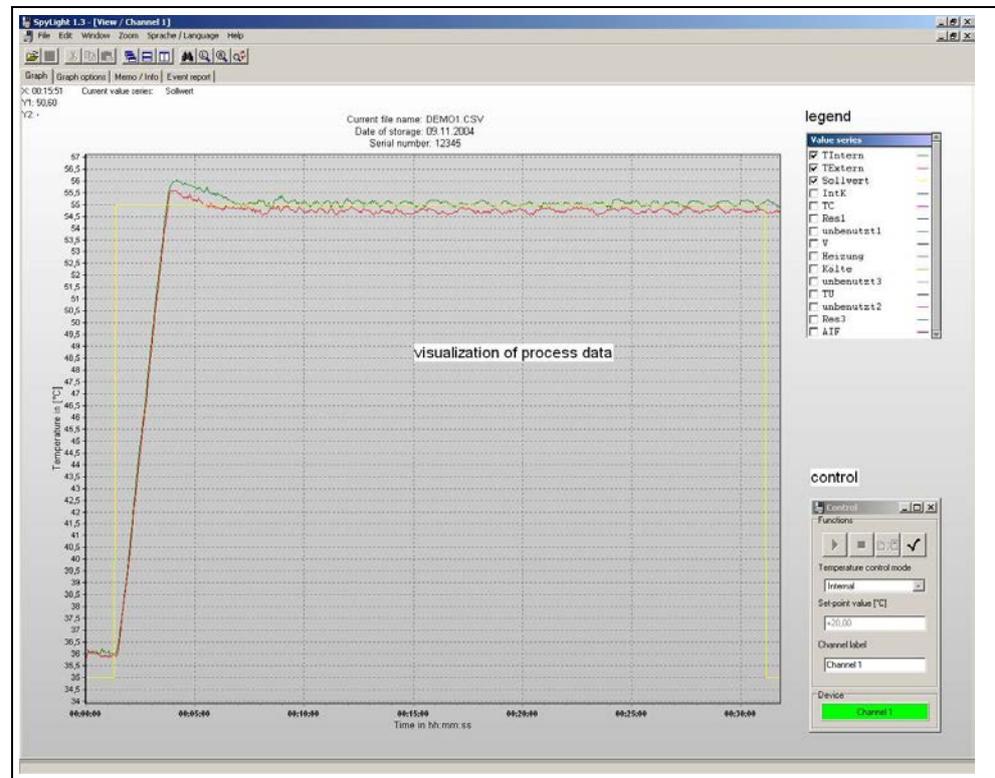
In addition to the above, further essential parameters for the data transfer must be set in another window. Here for example, the required interface, the appropriate COM port and the baud rate. The parameters are described in the following Table 1.

Table 1

Parameter	Description
Interface	Choose the required interface (RS-232, RS-485, TCP/IP). For a TCP/IP connection an IP address and an appropriate port must have been given. Note: A firewall can cause communication between PC and machine to fail. It is recommended that any firewall being used is deactivated.
Port	The program discovers all COM ports available depending on the chosen interface.
Baud rate	This parameter can contain a value between 1200 bit/sec up to 19200 bit/sec. Please use the value given in the operating handbook of the appropriate machine.
Data bits	Generally, the default value can be used.
Stop bits	Also here, the default value can be used.
Parity	The default value can be used.
Update	The graph is updated with the latest process data after this time. The longer the data recording is, then the higher this time should be made, to prevent the file becoming too large.
Time axis display	With a relative time axis, the time always begins at zero seconds. An absolute time axis begins with the present system time.
Slave number	This parameter can only be set in connection with the RS-485 interface. It gives the address of the slave being used.
IP address	If TCP/IP has been chosen, then the IP address can be given here.
Port	An appropriate port (default value: 8101) must also be configured.

After specifying these parameters, one can start the data recording by clicking on the “Start recording” button. After a successful recognition the user can choose a name for the data file. The program will automatically switch to the graphical display (Figure 3).

Figure 3



The user now has the possibility to find out, via five tabs, additional information about the data recording. The tab “Connection” shows the specified parameter on the left of the window, and a view of the present connections can be seen on the right.

The tab “Graph options” serves to change the graphic display of the process data. Under the group “Variables” one can specify for example the colour of a variable. The value of the graph axis can be manually changed, or an automatic time axis scaling can be chosen. The automatic scaling turns off the manual scaling. The user has also the possibility of activating a time window. The time window serves to display only the present values measured. The time frame is set by the user between 10 and 720 minutes. This is mainly useful for longer data recordings. Additionally, under the group “Graph” one can display faulty measurement data or change the gradient of the graphic display.

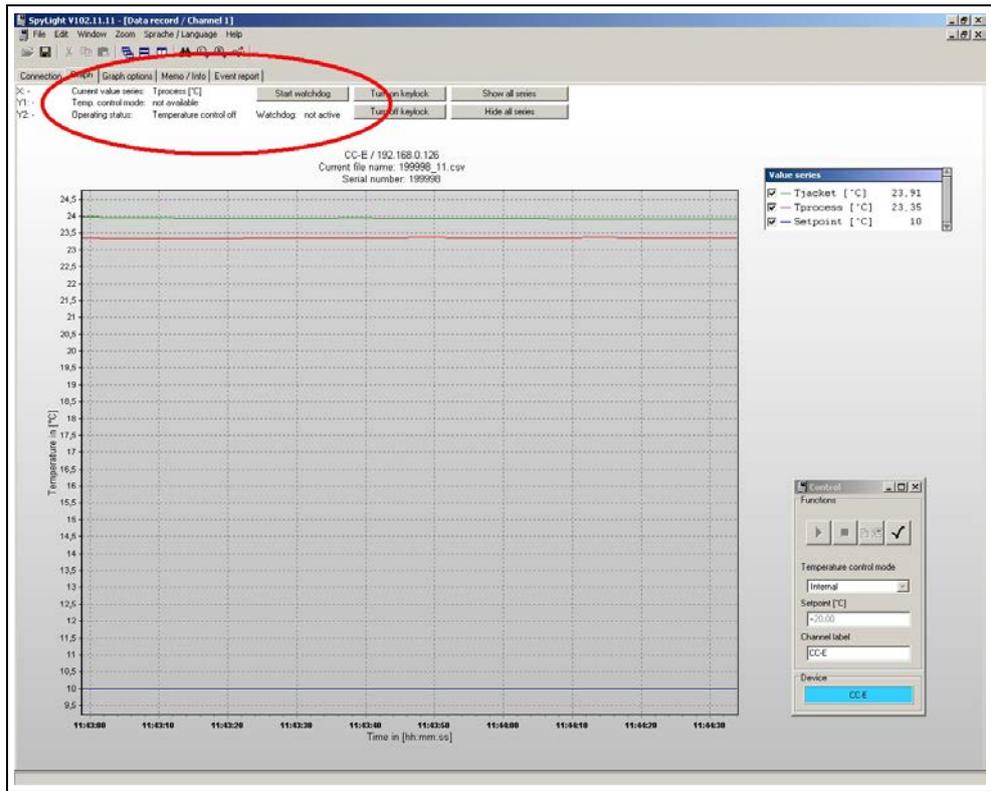
The menu point „Memo/Info“ consists of two information windows. The left window serves to display important notices by the user concerning the present data recording. In contrast, the right window displays information concerning the machine being used for example, and the path and file name of the presently recording data. The data is recorded in the **csv** format (comma separated value) and is thus MS Excel compatible. The file name is constructed like this:

<User chosen name or serial number> + _<data channel> + <index>.csv

If a data recording lasts longer than 12 hours, then a new file is produced. The index is incremented by 1. The last tab delivers event specific messages, such as the start of a new data recording, or possible errors during a data recording. Every entry is stamped with the actual time and date. The control window shows the user how the data channels are used. Visualizations are shown in green colour. Data recordings are shown in blue colour. The user is able to switch to a specific device by clicking on that channel. You also get the possibility of changing the channel label just by entering a new label. You can set it by hitting <ENTER> or by clicking on the upper “check mark”.

There is an additional information window available. It shows for example the temperature control mode, the operating status or the status of the watchdog. Furthermore, the user may start the watchdog of a device, may turn on/off the keylock of a device or may show/hide all value series. This is shown in the following Figure 4:

Figure 4

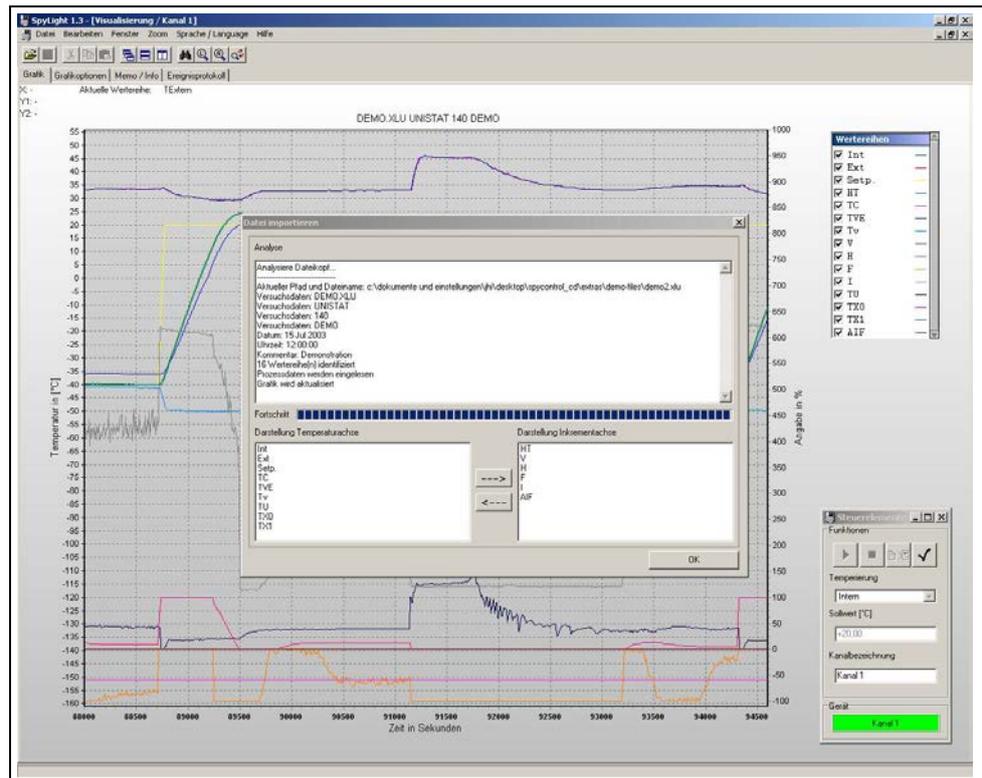


6 Displaying a previously stored data file

To display a previously stored data record, you must go to the menu “File”, sub-menu “New” and choose the menu point „View“ or use the keyboard shortcut <Strg+G>. You will then observe a file browser where you can choose your data file. The program automatically displays **xlu** files and those using the new file structure **csv**.

The data in the old **xlu** format is converted by the program. After it has been converted, it is possible to choose individual values to be associated with the vertical axis of the graph. An example of such a converted file is shown in Figure 5.

Figure 5



After the conversion, the graphic display is updated. It is now possible to confirm the conversion by clicking on “OK”.

The left axis of the graph displays the measured values in °C (degrees centigrade). The right hand axis visualizes the values in % (percent). The horizontal axis displays the relative or absolute time scale. On the right next to the graphic display one can find a legend with the attributes of the measurements. The activation, the colour and the name are displayed. Beneath the legend can be seen the display showing the occupied data channels and that which is presently active. Also the measured value is shown at the position the mouse pointer is at on the graphic display.

The menu point “Graph options” is split into three sections. These sections are called “Variables”, “Scaling”, and “Graph”. In the section “Variables”, a colour and a name can be chosen. The second area serves to manually set the minimum and maximum axis values of all three axes. It is also possible to choose an automatic scaling. In this case, the minimum on the time axis is fixed, and the maximum is adjusted to the present time. The minimum is dependant on the option “Time Window”. A time window displays the area of the graph which the user has set to a value between 10 or 720 minutes. Here however, the measured values are hidden that are older than this time span. The “Graph” section contains further two options. You have the choice to allow faulty measured value to be displayed in the graph or to change the gradient of the graphic display. The errors include timeout and synchronisation errors. The button “Accept values” accepts all modifications that have taken place since the menu was called up.

The tab “Memo/Info” contains a text input window and an information window. The text input window accepts anything written to describe the temperature control operation. The status window displays the program status messages. The contents of both windows can be printed and saved.

Another information window can be found under the tab “Event Report“. This window shows data concerning status and error messages, together with the present date and time. Various possibilities are available for an exact analysis of the displayed data. The exact range one wishes to examine can be visualized manually using the “Graph options“ menu.

The graph can also be shifted to any desired area using the right mouse button. Here however, care should be taken that the start point does not lay on a value, otherwise no functionality is available. For a magnified display of any area, basic and extended zoom functions are integrated into the program. These are explained in the following chapter on page 14, section »**Zoom functions**«.

7 Zoom functions

The basic zoom functions of SpyLight® are the ability to zoom in and out. A rectangle is drawn by pressing the right mouse button and pulling, from the upper left corner to the lower right corner of the area of interest. The start point of this rectangle **must** not lie on a value. If the rectangle is drawn in the other direction, then the previous zoom operation is cancelled.

The Figure 6 is included as help. By clicking on the binoculars symbol, an overall view of the total graph is given so that an impression of what has occurred during the entire recording can be gathered. The **large** magnifying glass symbol offers the possibility for the values to be so adjusted that all active values can all be displayed. The **small** magnifying glass is to save the displayed graph. The stored excerpt is displayed when a zoom operation is cancelled. Here, a rectangle must be drawn from the right lower corner to the upper left corner.

A manual display of the graphical excerpt is possible by using the tab "Graph options". Here, the limits must be manually entered, and then accepted with the "Accept values" button.

Figure 6



INFORMATION

Note for using the extended zoom function:

To display a particular area of a graph, proceed as follows: Using the tab "Graph options", deactivate the values which are not required to be displayed. Then set up the required values with the **large** magnifying glass symbol, then zoom into the required area. In order that you can return to this exact same spot, it should be saved with the **small** magnifying glass symbol. Cancel the zoom function to return to the original display.

8 List of Abbreviations

When data is being recorded, the identifiers of the process data are presented in abbreviated notation. The following abbreviations are used:

Table 2

Abbreviation	Description
Tjacket	Jacket temperature [°C]
Tprocess	Process temperature [°C]
Setpoint	Setpoint [°C]
Poko	Volt free contact (device dependent)
ECS	External control signal (device dependent)
Speed	Pump speed (device dependent)
Pressure	Pump pressure [mbar] (device dependent)



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