

# D-LOGG

Version 2.8-3 EN

Data converter



Operation

Winsol

Memory Manager



TECHNISCHE  
ALTERNATIVE



# Table of contents

Hardware / General information.....	4
Power Supply / Slide Switch.....	4
Data line .....	4
USB Interface.....	5
Software.....	5
Installation .....	5
Deinstallation.....	5
USB driver .....	6
Installation .....	6
Configuring the virtual COM port.....	7
<b><i>Winsol (from version 1.22)</i></b> .....	<b>8</b>
SETUP .....	8
Display .....	11
Names.....	12
Receive .....	12
Graphic.....	14
Excel .....	16
Customer mode.....	17
<b><i>Memory Manager(from version 2.07)</i></b> .....	<b>19</b>
Operating System Update .....	20
Troubleshooting .....	21

# Hardware / General information

## Power Supply / Slide Switch

When the data converter is connected to at least **one** controller (DL), the **slide switch** on the converter **must** be in the **"DL" position (left)!** Otherwise, problems with data logging can occur. The data converter receives the power it requires from the controller, regardless of whether it is connected to a PC or not.

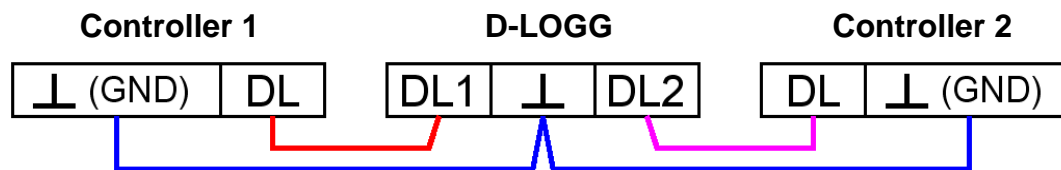
Bus load (DL-bus) = 15%

If the data converter is not connected to **any** controller, the **slide switch** for communication with the PC must be in the **"USB" position (to the right)**, so that the converter is supplied with power via the USB connector.

The recorded data is saved to internal memory every hour, where it is retained even when no power is present. This means that a power loss will result in a maximum loss of the last hour of data.

## Data line

Every UVR controller has a data line output DL (with the EEG30, TFM66  $\Rightarrow$  D0) that, together with the (sensor) ground conductor, forms a two-conductor cable. The data converter has 2 data line inputs for simultaneously recording measured values from up to two controllers.



Any cable with a cross section of 0.75 mm<sup>2</sup> can be used for the data link (e.g. twin-strand) having a max. length of 30 m. For longer cables, we recommend the use of shielded cable. If the data from two controllers is to be acquired by the data converter, then separate shielded cables must be used to provide protection against crosstalk errors. The data conductors must never be in the same cable as the CAN bus.

## **NOTE:**

- ◆ With the UVR1611 controller, output 14 (DL) can be used as both a data connection and a control connection. For data logging, output 14 must therefore always be configured as data line via the "Outputs" menu.
- ◆ UVR1611 – Controllers from version A2.16 additionally allow network input variables to be logged (*NETW.IP. $\Rightarrow$ DL.: yes*), which is then handled by the D-LOGG as a second virtual UVR1611. Logging of network variables is thus not possible when two physical controllers are connected to the data converter.
- ◆ The D-LOGG requires more operating current than the EEG30 and TFM66 devices can supply. When setting up a data connection between an EEG30 or TFM66 and the D-LOGG data converter, an additional 1 kOhm resistor must be installed between the D0 and the Plus power supply terminal of the EEG30 or TFM66.
- ◆ Logged data is lost when the number of data connections or the controller type is changed!

## USB Interface

The USB interface (slide switch in the "DL" position) does not represent an electrical connection between the data converter and the PC. For reasons of safety, it is electrically isolated via optocouplers.

In the "USB" position, the slide switch creates an electrical connection to provide power for the data converter from the PC. For this reason, the slide switch may only be set to the "USB" position when no connection to a controller exists.

For communication between the PC and D-LOGG, a special driver is also required that creates a virtual COM interface in the PC, which is then used by the *Winsol* or *Memory Manager* programs to access the data converter. **See also the chapter "USB driver".**

## Software

### Installation

The software on the CD provided (*Winsol*, *Memory Manager*, etc.) can be installed by selecting the desired menu option from the autostart menu that is automatically displayed when the CD is inserted.

The latest versions of the software are available for downloading at <http://www.ta.co.at> and they overwrite the existing software without losing any previously stored data. However, it is recommended to uninstall the existing versions of the software before installing new versions. This only then removes the application and all data created with the application is retained.

CAUTION: Newer software versions are not always compatible with the version of the converter operating system. The homepage provides information on this. It may be necessary to also upgrade the data converter operating system (see "*Memory Manager*").

### Deinstallation

The programs can be uninstalled using the <add/remove programs> function in the Windows control panel.

Windows 98, ME, 2000, XP: ... ⇒ Control Panel ⇒ Software (add or remove programs)

Windows Vista, 7: ... ⇒ Control Panel ⇒ Programs and Functions

## USB driver

The USB driver is required for USB communication between the PC and the Bootloader or D-LOGG and it creates a virtual COM port on the PC for this purpose.

The driver must be installed on the PC for this (see "*Installation*") and is automatically loaded when a Bootloader or D-LOGG is connected to the PC.

The required drivers are contained in the attached CD-ROM in the folder <install\USB-Treiber>, can be downloaded from the homepage <http://www.ta.co.at> or can also be installed via Windows Update.

You can find more information in the USB drivers manual in the attached CD-ROM or under <http://www.ta.co.at>.

### Installation

When a Bootloader or D-LOGG is connected to the PC with a USB cable, the PC automatically recognises a new hardware component and automatically starts the "Hardware-Assistant" (Hardware Wizard) if a driver has not yet been installed for this device.

If an Internet connection is available, Windows connects automatically to the Windows Update website to install a suitable driver. In this case no further steps are necessary.

If an Internet connection is not available, or no suitable driver has been found or if Windows is configured to prevent the automatic installation of drivers, the required drivers can be manually installed.

If the Wizard does not start automatically, the installation can also be manually started. When the device is connected to the PC but the driver has not been installed, it is displayed in the Windows **device Manager**) with an exclamation mark in one of the <other devices>, <Ports (COM and LPT)> or <USB Controller> lists. The driver installation can be manually started from here.

You can find more information in the USB drivers manual in the attached CD-ROM or under <http://www.ta.co.at>.

## Configuring the virtual COM port

If the virtual COM port assigned to the driver on installation is not supported by the *Winsol* and *Memory Manager* programs, the driver can be manually assigned a different free port. For a PC with an internal modem, it should be noted that COM3 is usually used for this modem.

The D-LOGG must be connected to the PC in order to configure the virtual COM port in the Windows *Device Manager*.

### Windows 98:

Start ⇒ Settings ⇒ Control Panel ⇒ System ⇒ Device Manager ⇒ Ports (COM and LPT)

### Windows 2000, XP (classic view):

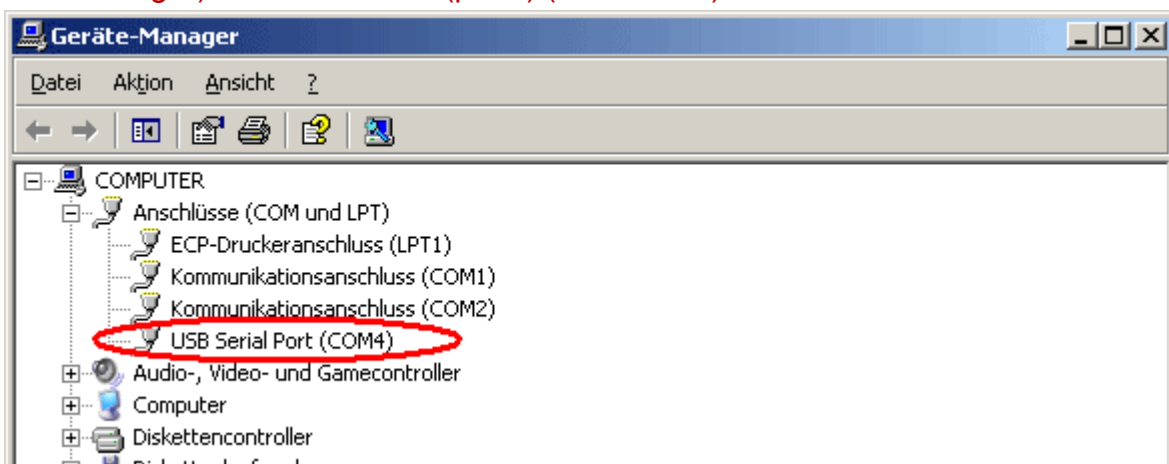
Start ⇒ Settings ⇒ Control Panel ⇒ System ⇒ Hardware ⇒ Device Manager ⇒ Ports (COM and LPT)

### Windows Vista (classic view):

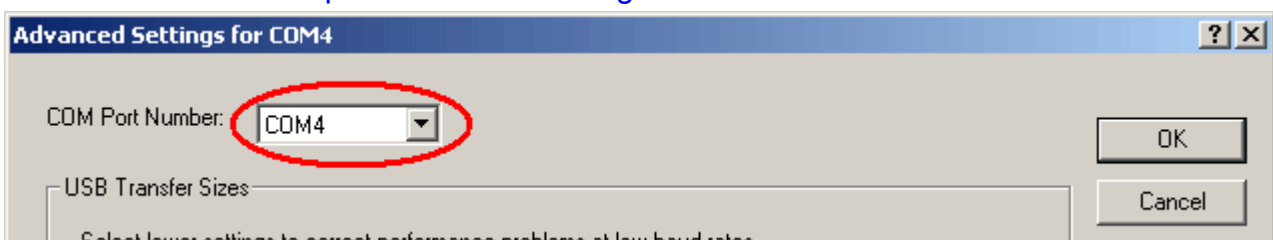
Start ⇒ Settings ⇒ Control Panel ⇒ Device Manager ⇒ Ports (COM & LPT)

### Windows 7:

Start ⇒ "Systemsteuerung" (control panel) ⇒ Hardware und Sound ⇒ „Geräte manager“ (device manager) ⇒ "Anschlüsse" (ports) (COM&LPT)



The driver can be assigned a different COM port in the properties of the <USB Serial Port>:  
USB Serial Port ⇒ Properties ⇒ Port Settings ⇒ Advanced...



## *Winsol* (from version 1.22)

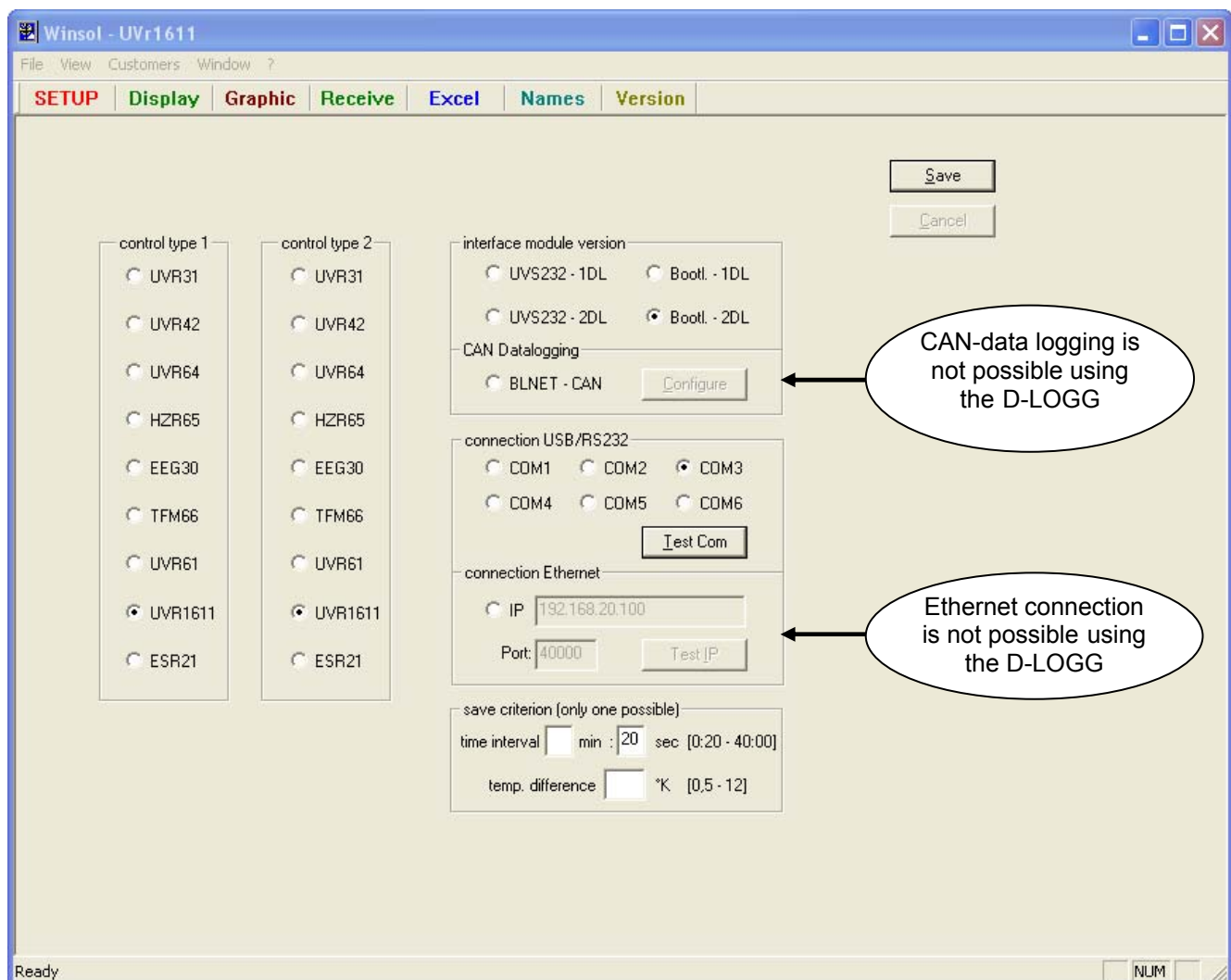
The *Winsol* program allows the acquisition and analysis of measurements recorded by the data converter.

Since *Winsol* can also be used as a visualization program with other interface modules (data loggers), the setup menu allows a choice of different devices. The D-LOGG data converter is not listed separately because it has the same data logging functionality as a Bootloader.

### SETUP

The setup contains the settings required for correct communication between the PC and the data converter.

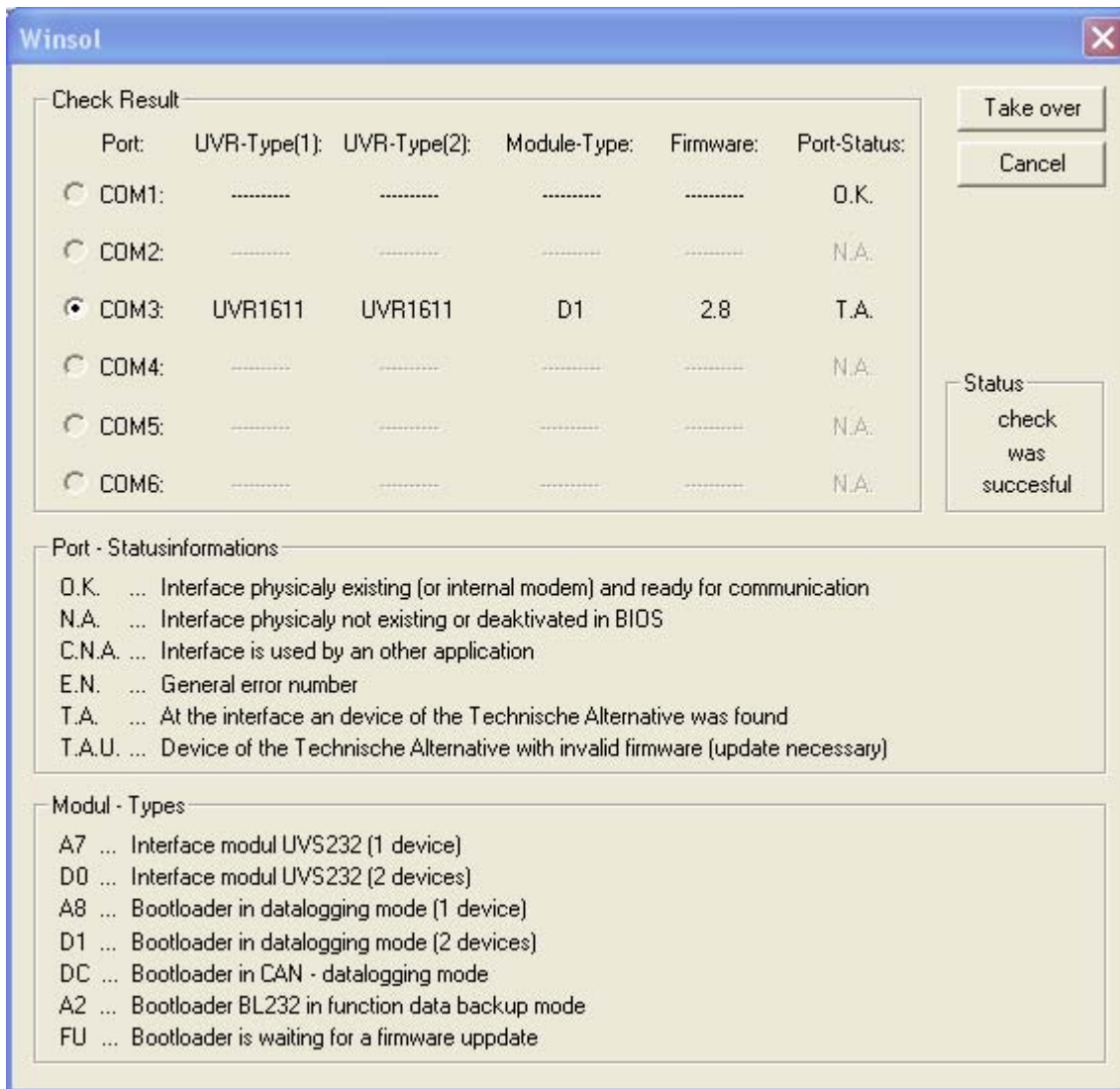
The language (German, English or Italian) is set via the menu "File/Language".



## Setting the COM-connection

Test Com

The "**Test Com**" command allows an automatic search for the data converter at the COM ports supported by *Winsol* (COM 1-6), independently of any current setup settings.



The type and number of controllers to be acquired is automatically recognized by the D-LOGG ("Module-Type": "A8" or "D1"). With "**Test Com**" the data converter always shows the type of the last device acquired.

Clicking "**Take over**" transfers the determined parameters into the setup.

**Remark:** "**Test IP**" is not possible using the D-LOGG and leads to an error message.

## Save criterion

save criterion (only one possible)

time interval  min :  sec [0:20 - 40:00]

temp. difference  °K [0,5 - 12]

The **save criterion** defines when the data converter should store a "data record" (all acquired measurements at a given time) in the \*.log-file.

Two **optional** criteria are available for data logging (one of the two must be selected).

- **Time interval**

Any value may be entered for the time criterion but the system uses an internal resolution of 20-second steps. Values are always rounded down (e.g.: Entry = 50 sec ⇒ Criterion = 40 sec). A small time period leads to large data volumes and is only recommend for brief detailed examinations.

- **Temperature difference**

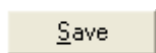
A save criterion of 3K is recommended for fault analysis purposes. A "data record" is saved every time a measured temperature changes by more than 3K or when an output state changes. The maximum time resolution is 10 seconds when doing this.

The maximum number of "data records" that the data converter can store depends on the type and number of controllers to be acquired.

Max. number of data records (data logging over DL-bus)	Controller type:	with 1xDL:	with 2xDL:
	UVR1611, UVR61-3	8000	4000
	ESR21 ESR31	16000	8000
	All others	32000	16000

A storage overrun leads to overwriting of the oldest data.

## Save



The **"Save"** command transfers the selected save criterion to the data converter and saves all setup settings on the PC.

Each time a command is executed from the menu bar, **Winsol** accesses the stored settings. **This means that changes must always be saved before a different menu is accessed!**

## Display

device1: UVR1611 | device2: UVR1611 | plant status

sensors			
sensor 1:	103.6 °C	sensor 9:	24.6 °C
sensor 2:	57.5 °C	sensor 10:	21.7 °C
sensor 3:	33.6 °C	sensor 11:	51.5 °C
sensor 4:	76.6 °C	sensor 12:	9.3 °C
sensor 5:	38.3 °C	sensor 13:	28.8 °C
sensor 6:	41.3 °C	sensor 14:	24.9 °C
sensor 7:	64.7 °C	sensor 15:	----
sensor 8:	----	sensor 16:	----

outputs			
output 1:	ON	output 8:	OFF
rev. level A1:	----		
output 2:	OFF	output 9:	OFF
rev. level A2:	----		
output 3:	ON	output 10:	OFF
output 4:	ON	output 11:	OFF
output 5:	OFF	output 12:	OFF
output 6:	OFF	output 13:	OFF
rev. level A6:	----		
output 7:	ON		
rev. level A7:	----		

heat volume counter 1			
power:	----	megawatt-hours:	----
		kilowatt-hours:	----

heat volume counter 2			
power:	----	megawatt-hours:	----
		kilowatt-hours:	----

time: 09:52:24      last data update: 09:52:11  
 next data update: 09:52:41

Ready      NUM

This window shows a table of the current measurements of the controllers connected to the data converter. The displayed time is that of the PC being used.

The "**Display**" function is the quickest and easiest way of checking the "controller → data converter" data connection.

If output 14 of the UVR1611 is set to "**NETW.IP.=>DL. : yes**", the current measurements at the network inputs are displayed on an extra tab as device 2. If "**NETW.IP.=>DL. : yes**" is changed over to "**no**", the data converter must be quickly turned off and on and "**Test Com**" executed.

Only the last update values are ever shown. Even when switching from one tab to the next, the current values are only shown when the next update is carried out. The time of the next update is shown at the bottom of the window.

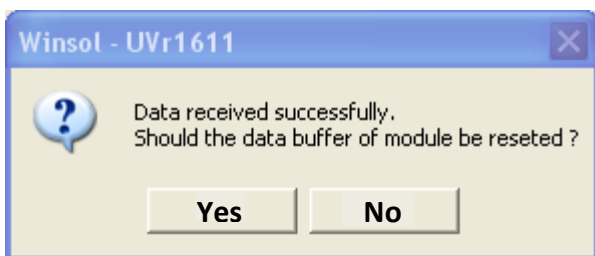
## Names

This menu allows the definition of "**Display**", "**Graphic**" and "**Excel**" user-defined names for the acquired measurements (e.g. outdoor temperature, room temperature, etc.).

## Receive

The "**Receive**" command reads the measured data stored in the data converter and saves it as a LOG file in the *Winsol* file system on the PC. A separate LOG file is created in the corresponding subdirectory ("...\log") for each month. When logging data from two controllers, *Winsol* saves the data in two separate "...log1" and "...log2" subdirectories. The filenames of LOG files contain year and month information of the data. For example, the file "Y200712.log" contains measurements from **December 2007**.

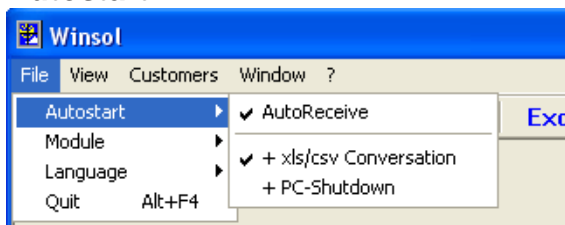
**Note:** When acquiring data from several systems, before reading the data it is essential to select the correct "**customer**" (see *customer mode*)!



The process of reading "**own data**" (customer: "own data") **automatically** deletes the data storage of the D-LOGG, but in the customer mode it is possible to specify that the data in the data converter is retained. It is recommended that after successfully reading in the data, the data is then deleted from the data converter. The data is deleted in the *Winsol* menu "File/module".

If a power failure occurs when logging data from controllers that do not have an internal clock then only the data recorded by the data converter after the power failure can be edited. A timestamp can no longer be generated for earlier data.

## Autostart



The data can be automatically read when the PC starts up, via the options in the "**File \ Autostart**" menu.

## "AutoReceive"

If this option is activated, the data which have been selected in the menu "Manage customers" are, upon booting of the PC, automatically read in and saved by the boot loader. The customers selected for the autoreceive process are read in in alphabetical order (see selection box in "Manage customers" dialogue). After reading-out, the data are automatically deleted from the boot loader.

There is a possibility of using Windows own functions "Scheduled tasks" (Windows XP) or "Task scheduler" (Windows Vista, Windows 7) to initiate automatic reading in on a running PC.

### ***"AutoReceive + xls/csv Conversation"***

In addition to "AutoReceive" after the reading in, \*.xls- or \*.csv files are automatically created with the settings specified in the function "EXCEL". In this respect, files are created for the months contained in the read-in data. Existing files are overwritten.

### ***"AutoReceive + PC-Shutdown"***

This option is possible in addition to "**Autoreceive**" and "**Autoreceive + xls/csv conversion**". Here, as the PC boots up, the data are automatically read in (incl. possible xls/csv conversion) and then the PC shutdown after the subsequent countdown.

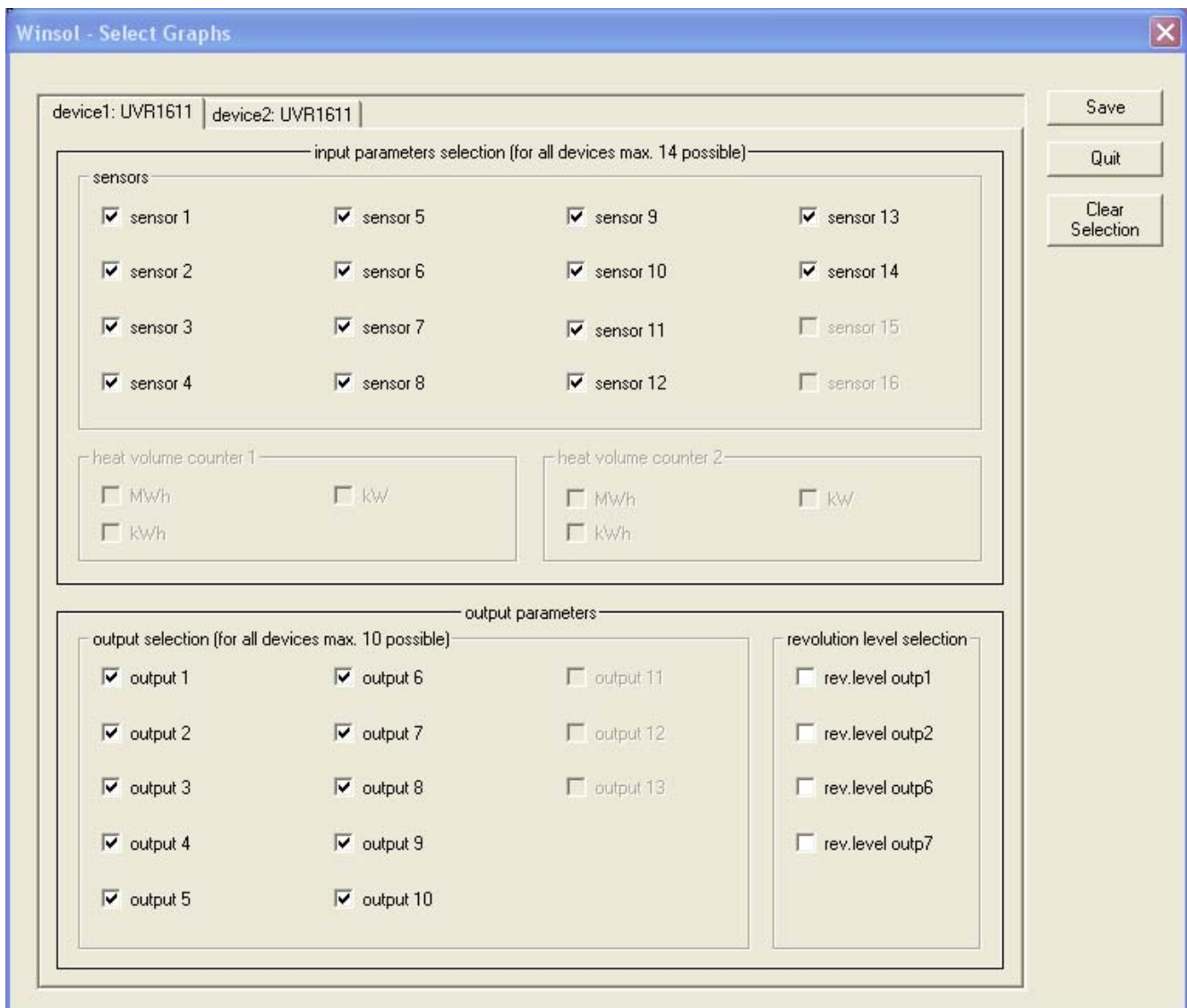
This function is intended for computers that are used exclusively for data acquisition. In this case the PC must be automatically powered up at specific times. This can be done with (e.g.) an external power timer that provides power to the PC at appropriate times and by making appropriate BIOS settings (power up when mains voltage is present).

## Graphic

This window shows a daily representation of the recorded data (LOG files). The "Help" menu item shows a list of the available key commands: It is possible to move the cursor, zoom in and out on the graph, switch auto-scaling, grid and cursor on or off, display "Help", print the graph and display or hide the output or temperature graphs.

In the menu "Graphs \ select graphs..." you can chose those parameters from all the devices which are to be displayed on the graph (up to 14 input and up to 10 output parameters). Once the maximum number is reached, it is not possible to select any further parameters. This option means the graph can be reduced to a few desired parameters so that is clearly laid out and easy to understand.

The entire selection is deleted by pressing "Cancel selection".



## Actual system example (1 controller):



**Cursor:** The "Help" menu item shows a list of the available key commands. For example, the cursor can be moved using the "←" and "→" buttons. The "↑" and "↓" buttons allow navigation by one day forwards and backwards in the graphic. Moreover the cursor can be moved by left-clicking the mouse at the desired point in time.



The cursor can also be moved using the top right arrow buttons (by one measurement interval, one hour or one day).

All values at the cursor position (date, time, temperature, output states, etc.) are displayed at the edge of the picture. By selecting "Autoscale" in the menu "Graphs" the scale of the vertical Y-axis is matched to the values.

"ZOOM IN" or "ZOOM OUT" or the scroll wheel are used to expand or shorten the time X-axis over the course of the day.

Optimum display resolution is achieved by maximising the window to the screen size.

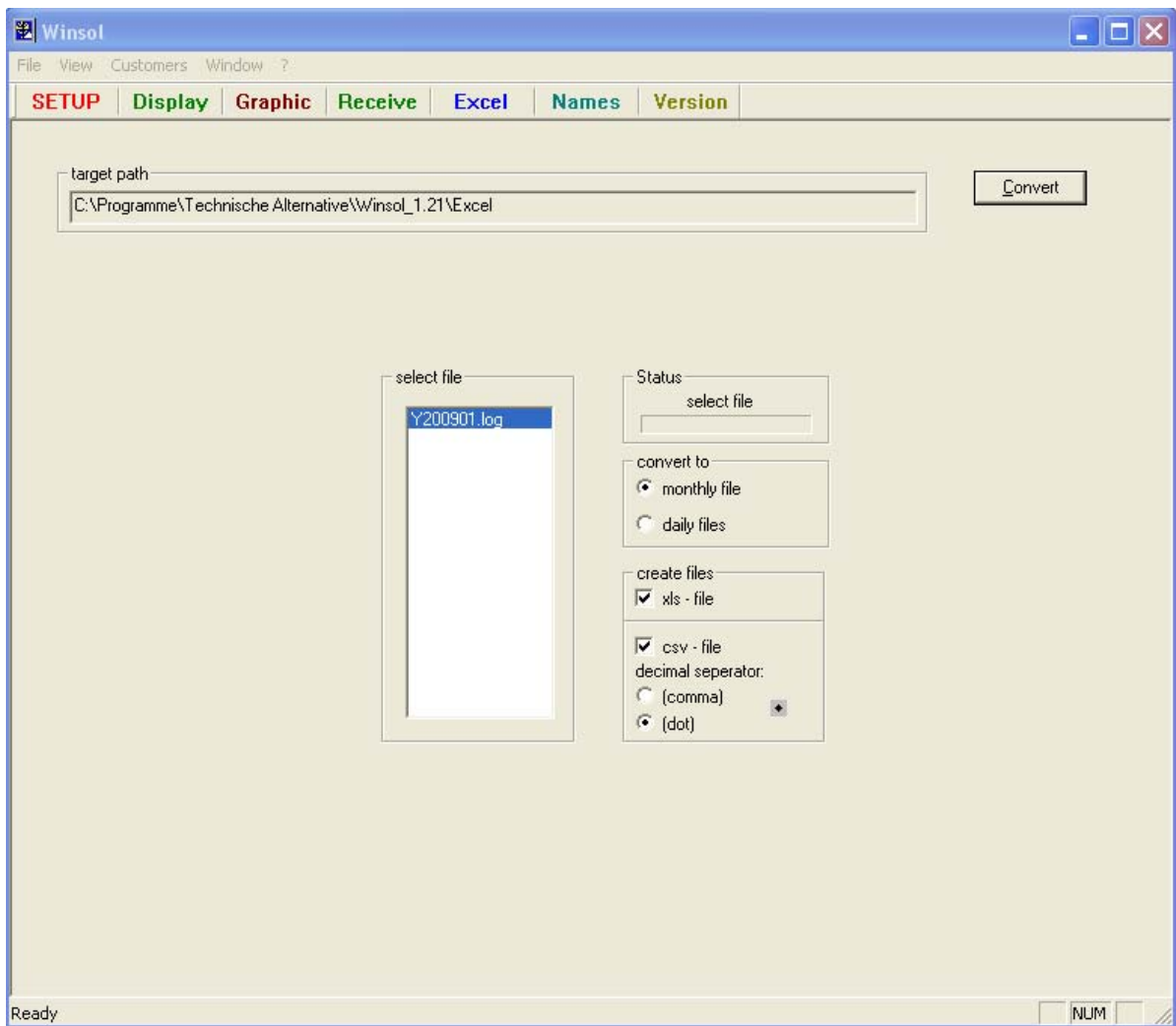
## Excel

This menu allows conversion of the LOG files into the \*.xls or \*.csv format, for further processing in any desired spreadsheet program supporting these formats. This allows the creation of own graphics and statistics using the recorded measurements. To adjust the generated table to suit the language-specific requirements, a comma or a full-stop can be specified as the decimal separator when generating the \*.csv file.

The created files are stored as daily or monthly data in the corresponding *Winsol* subdirectory ("...\Excel"). As with the LOG files, the name of the generated file contains information on the date of the measurements it contains. For example, the file "E071205.csv" contains measurements acquired on 05 December 2007. An existing file of the same name is overwritten. The month file E0906 contains the measurement data for June 2009.

When logging data from **two** controllers, *Winsol* generates files in three directories ("...\Excel", "...\Excel1" and "...\Excel2") with a combined data record in one directory and the respective separate data records in the other two directories.

The settings are saved during conversion.



### Typical \*.xls file:

	A	B	C	D	E	F	G	H	I	J
1	time stamp	sensor1/1	sensor2/1	sensor3/1	sensor4/1	sensor5/1	sensor6/1	sensor7/1	sensor8/1	sensor
2	04.03.2010	0,8	67,1	70,2	70,3	42	36,6	61,6	33,9	1
3	04.03.2010	0,8	67,1	70,2	70,3	41,6	36,6	61,6	33,9	1
4	04.03.2010	0,8	67,1	70,2	70,3	41,3	36,6	61,6	33,9	1
5	04.03.2010	0,8	67,1	70,2	70,3	41,1	36,6	61,5	33,8	
6	04.03.2010	0,8	67,1	70,2	70,3	40,9	36,6	61,4	33,8	1

### Typical \*.csv file:

	A	B	C	D	E	F	G	H	I	J	K	
1	Datum	Zeit	Gerät1:	Sens1/1	Sens2/1	Sens3/1	Sens4/1	Sens5/1	Sens6/1	Sens7/1	Sens8/1	Sens
2												
3	04.03.2010	19:22:20		0,8	67,1	70,2	70,3	42	36,6	61,6	33,9	
4	04.03.2010	19:22:50		0,8	67,1	70,2	70,3	41,6	36,6	61,6	33,9	
5	04.03.2010	19:23:10		0,8	67,1	70,2	70,3	41,3	36,6	61,6	33,9	
6	04.03.2010	19:23:30		0,8	67,1	70,2	70,3	41,1	36,6	61,5	33,8	

## Customer mode

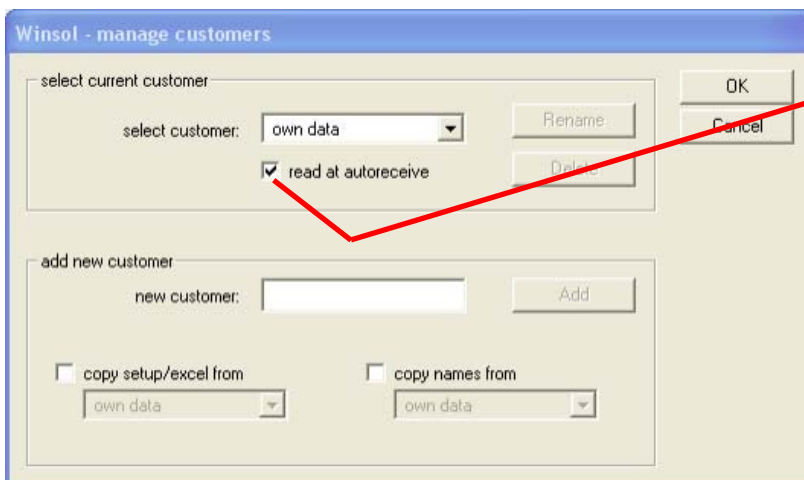
*Winsol* allows not only the management and analysis of "own data", it can also be used for analysing the data from other systems. For technical experts, this is an important tool for functional monitoring and troubleshooting customer systems.

Separate customer folders can be created and selected in the "**Customers / Manage customers...**" menu. A folder is created in the *Winsol* file system for each customer, in which the corresponding configuration and LOG files are stored. The "**Infosol**" directory in the *Winsol* program folder contains all these customer folders.

After creation of a customer the save criterion must be set in **SETUP** and "**Test Com**" and "**Save**" carried out.

The currently selected customer is displayed in the *Winsol* title bar (e.g. "*Winsol* – Bloggs").

If no customer name is displayed in the title bar, then the "own data" are selected.



From *Winsol* 1.21 the "Manage customers" dialogue can be used to specify for which customers (multiple selection possible) data should be read in during the AutoReceive process. In the factory, the Autoreceive process is carried out for "own data".

There are three ways of acquiring the measurements for a customer system:

1. The data converter is installed with the system and is regularly read on-site by a service technician using a notebook.
2. If the customer acquires the system measurements, then he/she can email the LOG files to the technical expert.
3. If the recorded data cannot be acquired on-site, then the measurements can be acquired as follows:

**Preparation of the data logging:**

- 1) Connect the data converter to the PC, without a DL cable and with the slide switch in the "USB" position.
- 2) Create and select a customer in *Winsol* for the data to be acquired.
- 3) Define the desired save criterion in setup (possibly after "Test Com") and transfer this to the data converter via "Save".
- 4) Move the slide switch to the "DL" position.

**Data acquisition at the customer site:**

- 5) Connect the data converter to the controller (ensure correct polarity!!). With a UVR1611, the data output must be activated (define output 14 as a data line).
- 6) As long as the D-LOGG is connected to the controller, the measurements are recorded according to the selected save criterion.
- 7) When the data converter is disconnected from the controller, the time and date must be noted because *Winsol* requires this information in order to assign the correct time when reading the data. This is not necessary with the UVR1611 and UVR61-3.

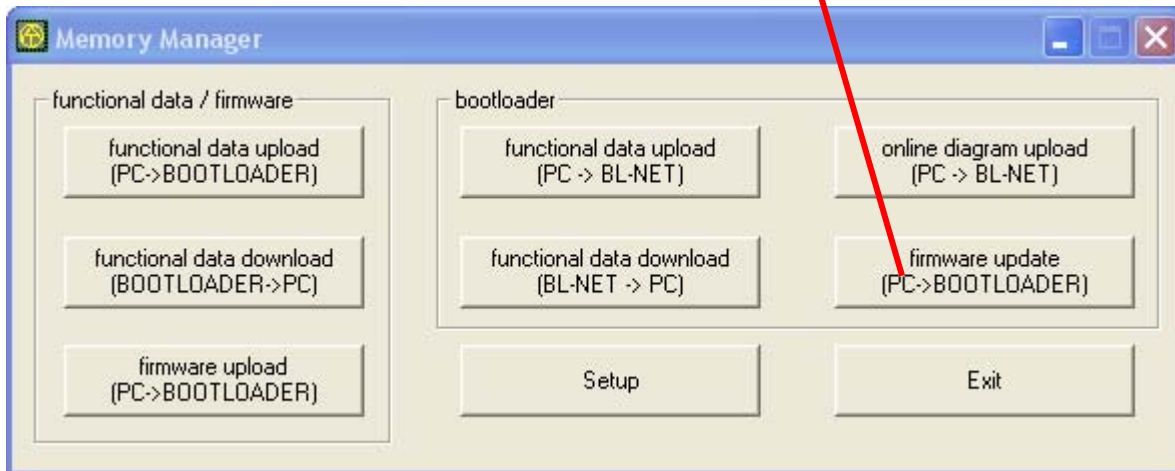
**Read the recorded data:**

- 8) Connect the data converter to the PC, without a DL cable and with the slide switch in the "USB" position.
- 9) Select the appropriate customer in *Winsol*
- 10) The data stored in the data converter can now be read by selecting "Receive" and specifying the noted time, then analysed as desired.

# *Memory Manager* (from version 2.07)

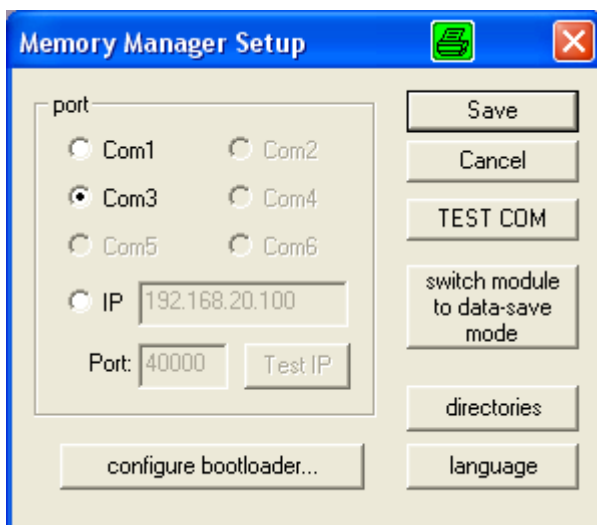
The *Memory Manager* program can be used to update the operating system of the data converter. All other functions of the *Memory Manager* are not used with the D-LOGG.

## Operating system update



Setup

**Setup** contains the settings which are necessary for correct communication between the PC and the D-LOGG.



Save

**Save** the set interface parameters

TEST COM

Using the command "**Test Com**" it is possible to carry out an automatic search of the data converter for COM-interfaces supported by the *Memory Manager* (connection via USB) independent of any setup settings.

directories

Selects the default directories

language

*Memory Manager* language selection

The remaining buttons are not applicable to the data converter.

## **Operating System Update**

The D-LOGG data converter has the same operating system (\*.frm) as the BL232 Bootloader, which can be downloaded from the homepage at <http://www.ta.co.at>.

CAUTION: Newer operating systems are not necessarily compatible with the software already present on the PC. The homepage provides information on this. The software on the PC should always be brought up to date before an operating system update.

It is advisable to read out any logged data before updating the operating system.

All program elements required for the system update are stored in a protected storage area (boot sector) that cannot be overwritten by the data converter. This means that interrupting the operating system transfer should not cause any problems. However, the device will not operate correctly until the operating system is fully loaded. In general, an update should only be performed when the newer operating system contains changes that are required (Never change a running system!). An operating system update always represents a certain small risk.

# Troubleshooting

## ◆ The D-LOGG data converter is not recognised by the *Winsol* "Test Com" function.

1. Make sure that the data converter is connected to the PC.
2. In the Windows *Device Manager*, check that the USB driver was correctly installed ([Device Manager](#) ⇒ [Ports \(COM and LPT\)](#)). In this case the virtual COM port appears in the list as "[USB Serial Port](#)".
  - 2.1. If the driver is not correctly installed, then perform the installation again (see chapter "[USB driver \ Installation](#)").
  - 2.2. If the driver has been assigned a COM port that is not supported by *Winsol* or *Memory Manager* (e.g. "[USB Serial Port \(COM12\)](#)"), change this setting (see chapter "[USB driver \ Configuring the virtual COM port](#)").
3. Run "Test Com" again. Note the displayed status of the COM port assigned to the USB driver.
  - 3.1. **C.N.A.**

If the interface is already being used by another application, this must be ended in order to communicate with the data logger. Multiple applications cannot access the interface at the same time.
4. If no controller is connected to the D-LOGG, then its slide switch must be in the "USB" position.
5. If the data converter is connected to at least one device, check the data transfer from the controller to the data converter (*see next point*).

## ◆ The data transfer from the controller to the data converter is not working. (No measurements are shown in the *Winsol* "[Display](#)".)

1. Make sure that the data converter is connected to the controller and the slide switch is in the "DL" position.
2. Check the wiring of the data cable and observe the correct polarity.
3. With a UVR1611, the data output must be activated (define output 14 as a data line).
4. If two controllers are to be acquired with the data converter, check the data connection with each of them individually in order to isolate the problem. To do this, remove the data cable from each of the controllers one after another. It is important to disconnect the data cable directly at the controller and not at the data input of the converter, otherwise you may get ambiguous results!
  - 4.1. If the data transfer works with each of the two controllers individually, then the problem is caused by crosstalk errors between the two data cables. In this case the cables must be laid separately or at least one cable must be shielded.
5. To isolate data transfer problems with a single cable, test the link using a short cable (< 1m).
  - 5.1. If the data transfer works with the short cable then the problem is caused by interference from an external source in the long cable. In this case, the cable must be laid using a different path or a shielded cable must be used.

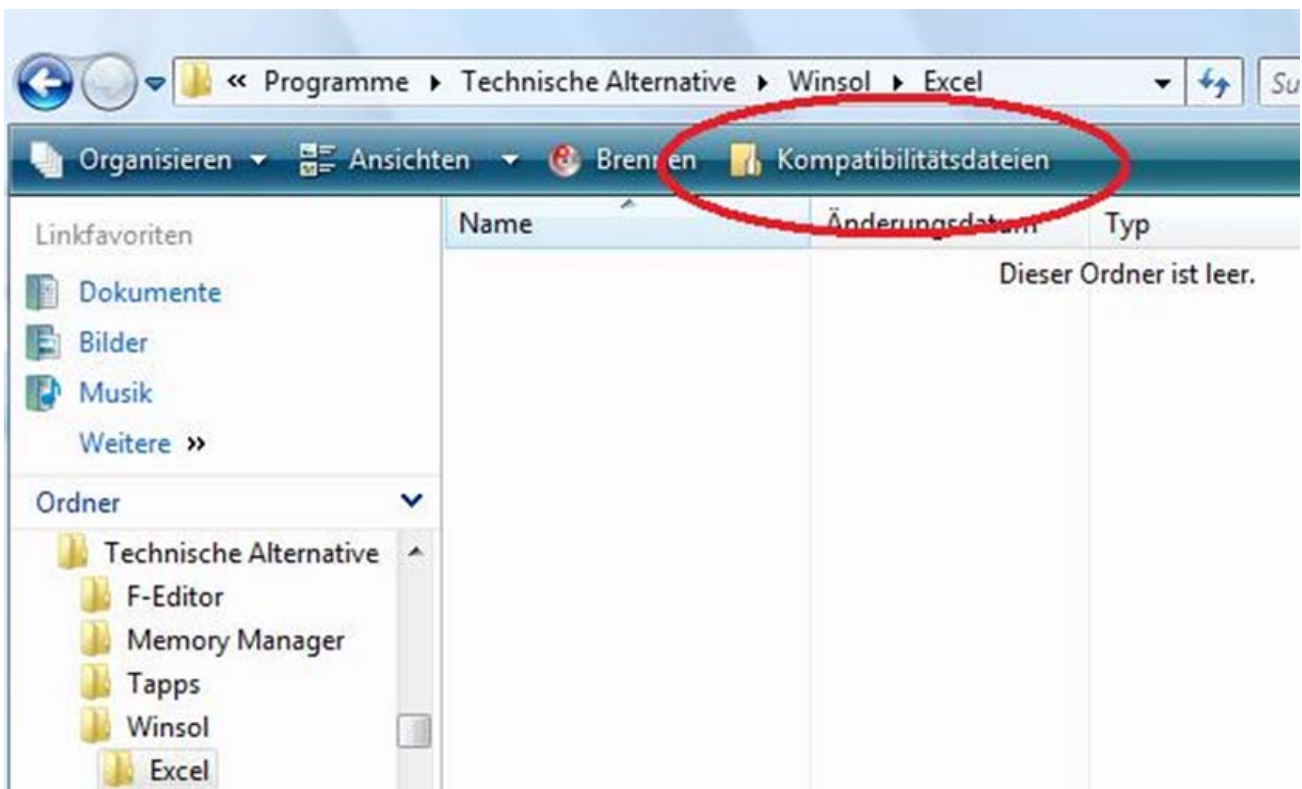
6. If problems persist after all the above points have been checked then please consult your dealer or directly contact the manufacturer. The problem can only be solved with an **exact fault description!**

◆ **The data is recorded with the wrong timestamp (date, time).**

1. When logging data from UVR1611 or UVR61-3 devices, the timestamp is generated by the controller. In this case the time information must be corrected at the controller. **Note:** To ensure a high time resolution, the data converter synchronises its clock with the controller during commissioning, or once a day, and updates the timestamp internally. If the time in the controller is changed, the D-LOGG must therefore be briefly powered off for a few seconds (remove DL) so that it immediately synchronises after a restart.
2. When logging data from controllers without internal clocks, the time on the PC, or the time at which the D-LOGG was disconnected from the controller, is assigned to the recorded data.

◆ **The log and Excel files are not displayed in the corresponding path or the searched for folder itself does not even exist**

Under certain circumstances, Windows 7 and Windows Vista, create the files in a "virtual program path". In Windows Explorer, the searched for files are reached by pressing the button "Compatibility files":



The files are then actually stored in the following path:

C:\Users\USERNAME\AppData\Local\VirtualStore\Programme\Technische Alternative\Winsol\...



## **Guarantee conditions**

**Note:** The following guarantee conditions do not in any way limit the legal right to a guarantee, rather expand your rights as a consumer.

1. The company Technische Alternative elektronische Steuerungsgerätegesellschaft m. b. H. provides a two-year guarantee from the date of purchase by the end consumer for all the devices and parts which it sells. Defects must be reported immediately upon detection and within the guarantee period. Technical support knows the correct solution for nearly all problems. In this respect, contacting us immediately will help to avoid unnecessary expense or effort in troubleshooting.
2. The guarantee includes the free of charge repair (but not the cost of on site fault-finding, removal, refitting and shipping) of operational and material defects which impair operation. In the event that a repair is not, for reasons of cost, worthwhile according to the assessment of Technische Alternative, the goods will be replaced.
3. Not included is damage resulting from the effects of overvoltage or abnormal ambient conditions. Likewise, no guarantee liability can be accepted if the device defect is due to: transport damage for which we are not responsible, incorrect installation and assembly, incorrect use, non-observance of operating and installation instructions or incorrect maintenance.
4. The guarantee claim will expire if repairs or actions are carried out by persons who are not authorised to do so or have not been so authorised by us or if our devices are operated with spare, supplementary or accessory parts which are not considered to be original parts.
5. The defective parts must be sent to our factory with an enclosed copy of the proof of purchase and a precise description of the defect. A filled in "service advice note", which can be downloaded from our homepage [www.ta.co.at](http://www.ta.co.at), will accelerate processing. A prior clarification of the defect with our technical support is necessary.
6. Services provided under guarantee result neither in an extension of the guarantee period nor in a resetting of the guarantee period. The guarantee period for fitted parts ends with the guarantee period of the whole device.
7. Extended or other claims, especially those for compensation for damage other than to the device itself are, insofar as a liability is not legally required, excluded.

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