Technische Alternative
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DATA CONVERTER

D-LOGGUSB

Together with the software provided, this versatile device offers the following basic functions:

- Data conversion of current measurements (temperatures, output states, etc.) for all controllers supporting this type of data output.
- Data logging (recording) of all converted values in an integrated storage system according to configurable storage criteria.
- Update of the converter operating system using the software provided on the homepage at www.ta.co.at.

The device has the following interfaces for this purpose:

- USB interface for PC communication (via virtual COM port)
- Two data line inputs for recording measured values from up to two controllers

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Hardware / General information

Power Supply / Slide Switch

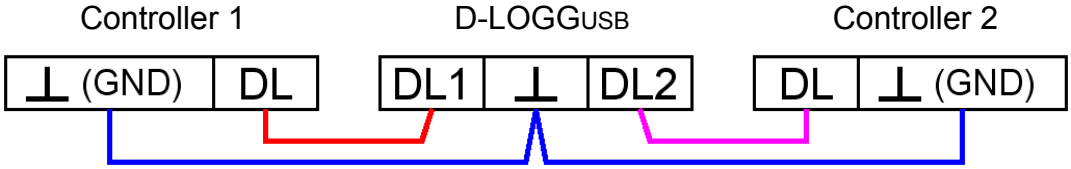
When the data converter is connected to at least ***one*** controller (DL), the ***slide switch*** on the converter ***must*** be in the ***"DL" position (left)***!! Otherwise, problems with data logging can occur. The data converter receives the power it requires from the controller, regardless of whether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

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 ⇨ 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 desired cable with a minimum cross-section of 0.35 mm² can be used as a data line cable (e.g. twisted pair), over a maximum distance of 100 m. 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.=>DL.: yes*), which is then handled by the D-LOGGUSB 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-LOGGUSB 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-LOGGUSB 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-LOGGUSB, 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 deinstall 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 deinstalled 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: … ⇨ Control Panel ⇨ Programs and Functions

USB driver

The USB driver is required for USB communication between the PC and the bootloader or D-LOGGUSB 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-LOGGUSB is connected to the PC.
The necessary driver is located in the <\install\USB-Treiber> folder of the CD provided but it can also be downloaded from the homepage at http://www.ta.co.at.

Any existing driver must first be deinstalled (see *"Deinstallation"*) before it can be replaced with a new version.

Installation

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

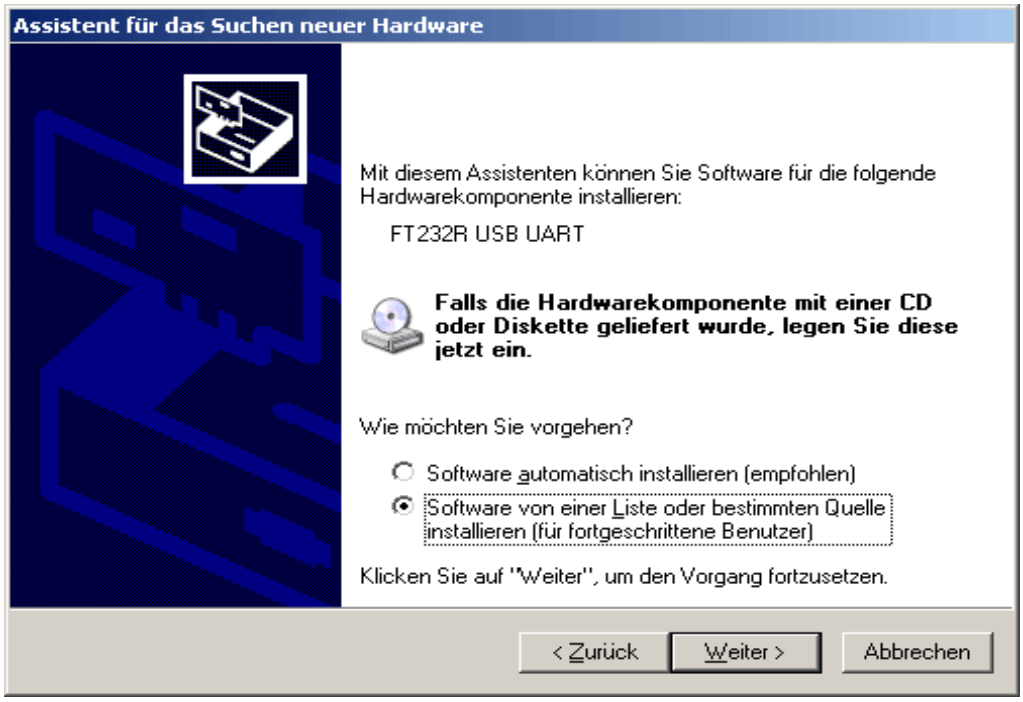
If the Wizard does not start automatically, the installation can also be manually started. When the device is connected to the PC but the driver has not been installed, it is displayed in the Windows ***Device Manager*** with an exclamation mark in one of the <*other devices*>, <*Ports (COM and LPT)*>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

2. The necessary driver can be installed using the "Hardware-Assistent" (Hardware Wizard).

Windows 98, ME, 2000: <"*Nach einem passenden Treiber für das Gerät suchen*" *(search for a suitable driver for the device)*>

Windows XP: <*"Software von einer Liste oder bestimmten Quelle installieren" (install software from a list or other source)*>

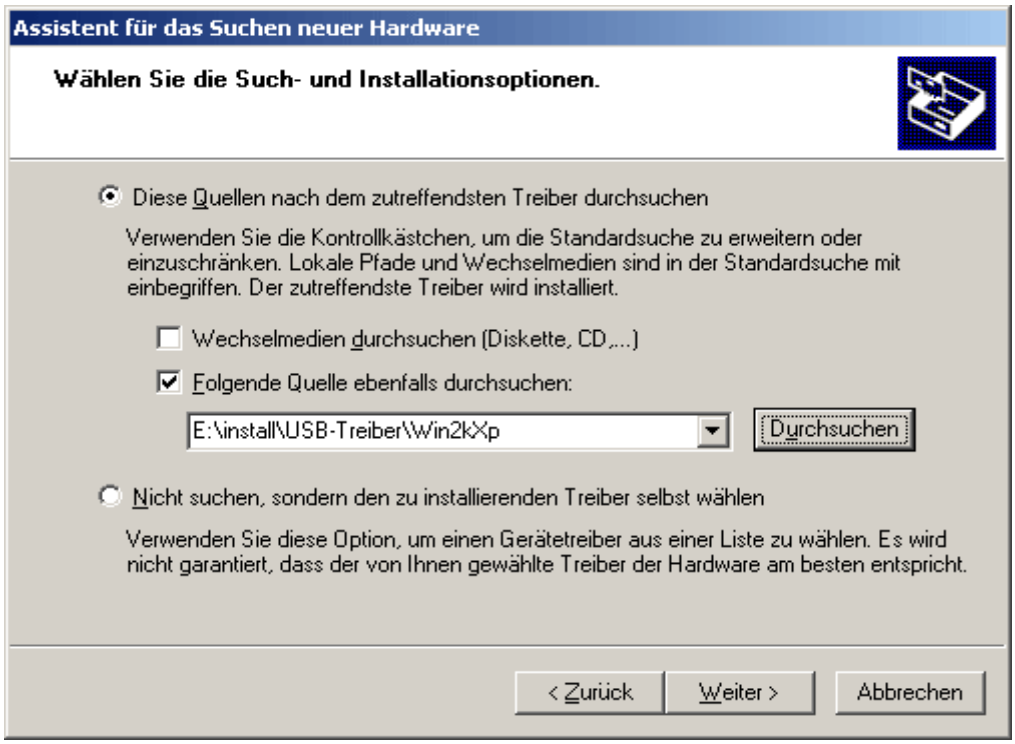
Windows Vista: <"*Auf dem Computer nach Treibersoftware suchen*" *(search the computer for driver software)*>



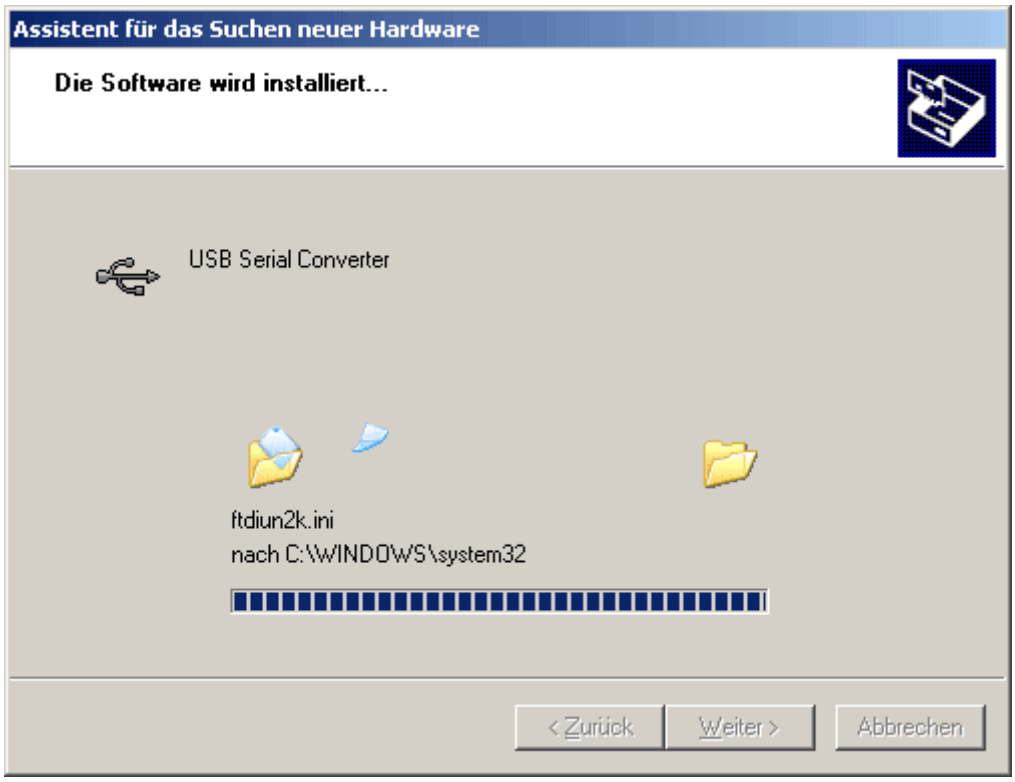
3. The next step is to enter the path to search for the driver files:

Windows 98, ME: <…\USB-Treiber\Win98Me>

Windows 2000, XP, Vista: <…\USB-Treiber\Win2kXp>



4. The driver found in the specified path is installed.



5. Clicking "Fertig stellen" (finish) completes the installation of the USB controller driver.

6. The "Hardware-Assistent" (Hardware Wizard) proceeds with the installation of the virtual COM port driver. This driver is installed in the same way.

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 bootloader or D-LOGGUSB must be connected to the PC in order to configure the virtual COM port in the Windows ***Device Manager***.

Windows 98:

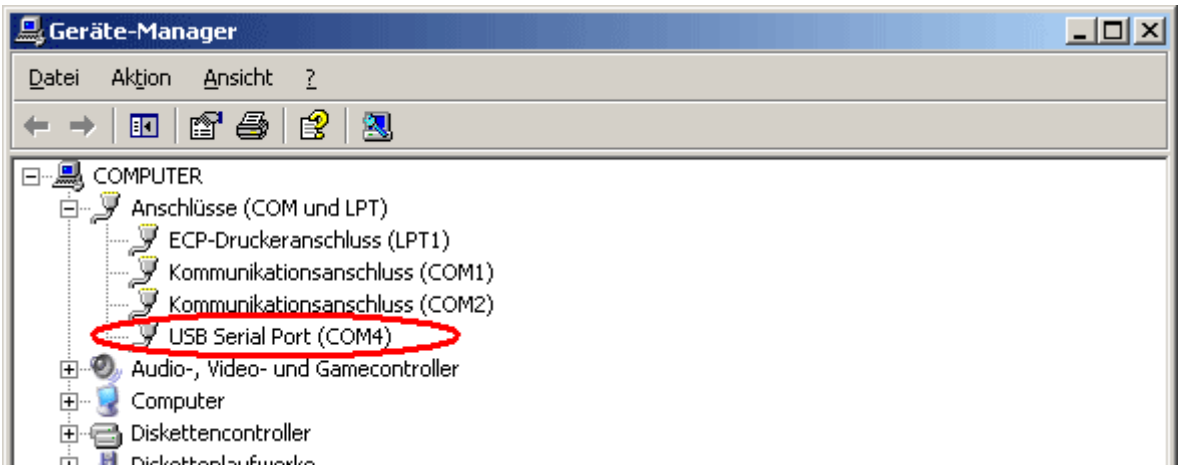
Start ⇨ Settings ⇨ Control Panel ⇨ System ⇨ Device Manager ⇨ Ports (COM and LPT)

Windows 2000, XP (*classic view*):

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

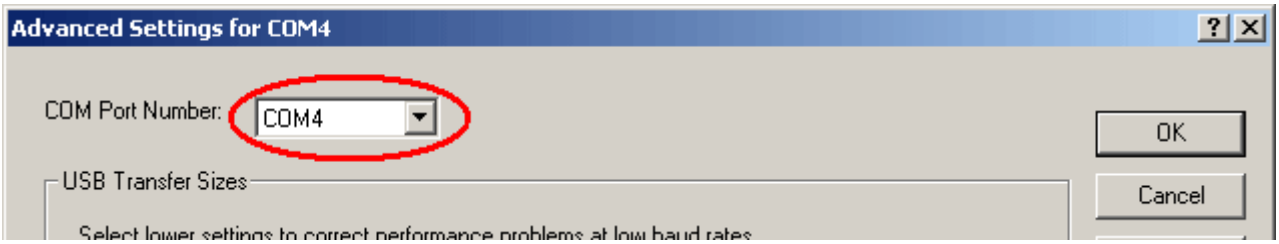
Windows Vista (*classic view*):

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



The driver can be assigned a different COM port in the properties of the <USB Serial Port>:

USB Serial Port ⇨ Properties ⇨ Port Settings ⇨ Advanced…



Deinstallation

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

- All bootloaders and D-LOGGUSB devices must be disconnected from the PC before the driver can be deinstalled.
- Select the driver software <FTDI USB Serial Converter Drivers> in the list of installed programs and then remove it.

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

  Windows Vista: … ⇨ Control Panel ⇨ Programs and Functions

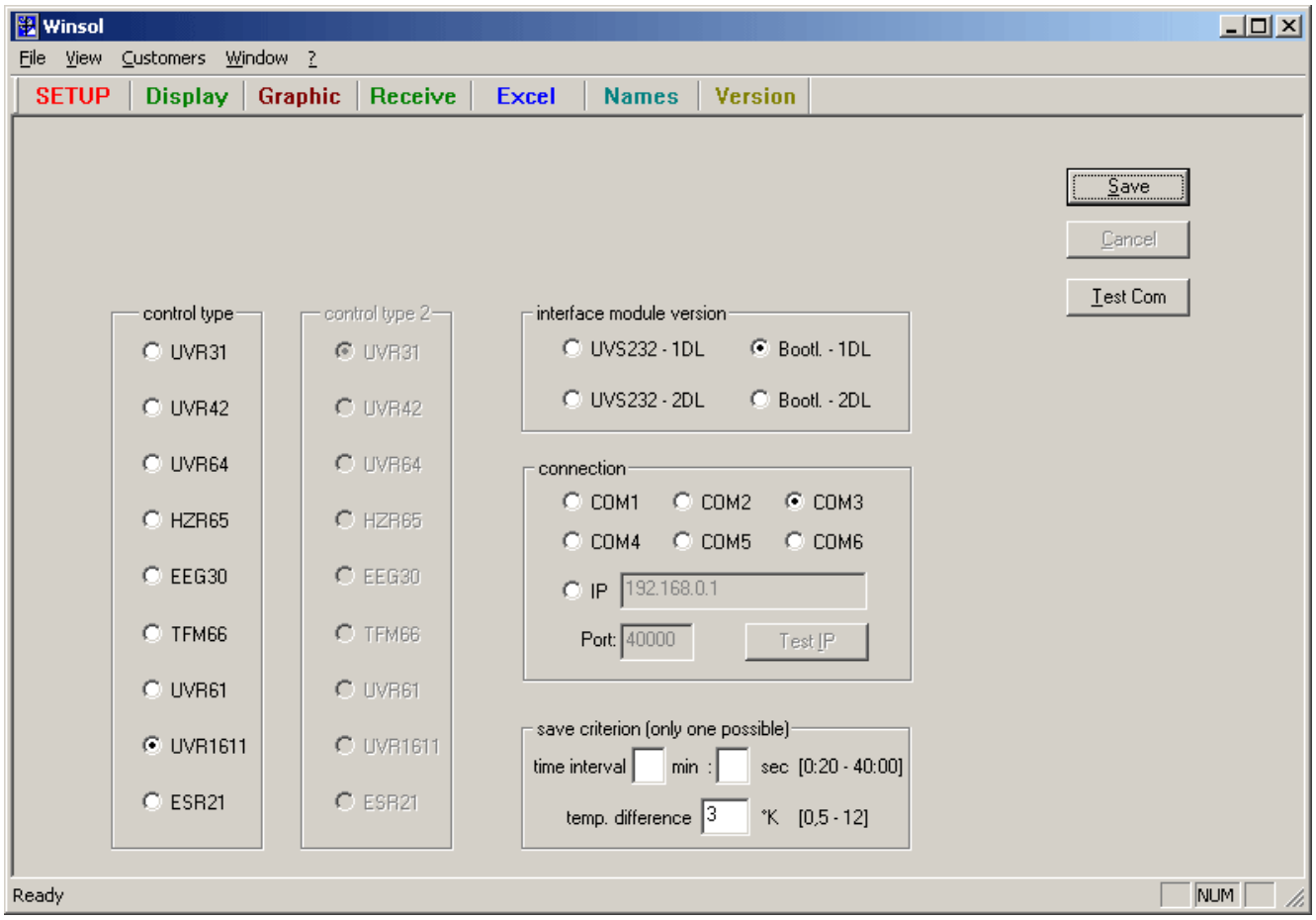
Winsol

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-LOGGUSB data converter is not listed separately because it has the same data logging functionality as a bootloader.

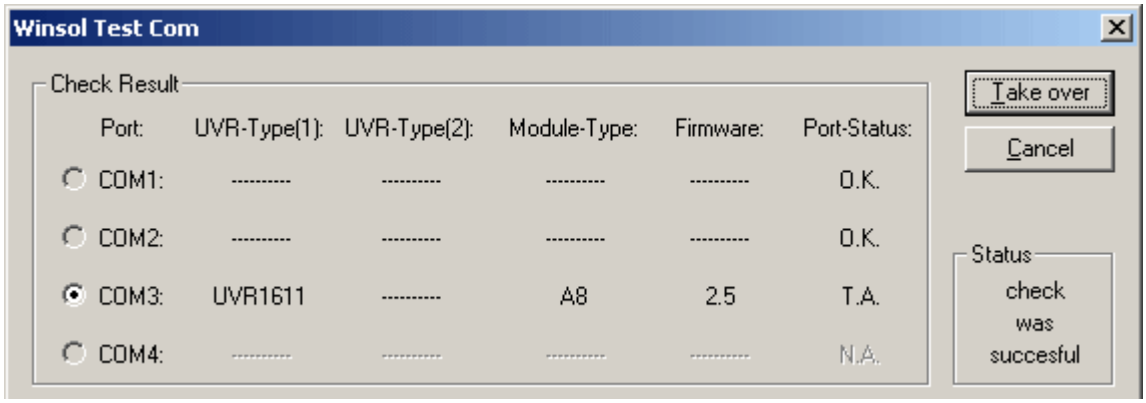
SETUP

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



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

The type and number of controllers to be acquired is automatically recognized by the D-LOGGUSB. 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.

The ***save criterion*** defines when the data converter should store a "data record" (all acquired measurements at a given time).
Two criteria are available:

- ***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. In addition to this, with save criterion < 1 minute not all data records can be converted into an Excel table because Excel can only manage a maximum of 65536 rows per table.
- ***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.

Number of data records by	controller type:	with 1xDL:	with 2xDL:
	UVR1611, UVR61-3	8000	4000
	ESR21	16000	8000
	all others	32000	16000

A storage overrun leads to overwriting of the oldest data.

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

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.

Names

This menu allows the definition of "Display", "Graphic" and "Excel" user-defined names for the acquired measurements.

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-LOGGUSB, but in the customer mode it is possible to specify that the data in the data converter is retained.
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.

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 then "own data" is automatically read from the data converter and stored when the PC is started up.
- *"AutoReceive + PC-Shutdown"*
  If this option is activated then "own data" is automatically read from the data converter when the PC is started up and the PC is then powered off after a countdown period.
  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).

Note: "*AutoReceive*" and "*AutoReceive + PC-Shutdown*" allow only the automated reading of "own data". This is not possible for customer data!

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. For example, the cursor can be moved using the "←" and "→" buttons. All values at the cursor position (date, time, temperature, output states, etc.) are displayed at the edge of the picture. The "↑" and "↓" buttons allow navigation by one day forwards and backwards in the graphic.
The "Graphs / Select graphs" allows selection of the parameter to be displayed in the graphic.

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. 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.

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.
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.

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

- The data converter is installed with the system and is regularly read on-site by a service technician using a notebook.
- If the customer acquires the system measurements, then he/she can email the LOG files to the technical expert.
- 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:

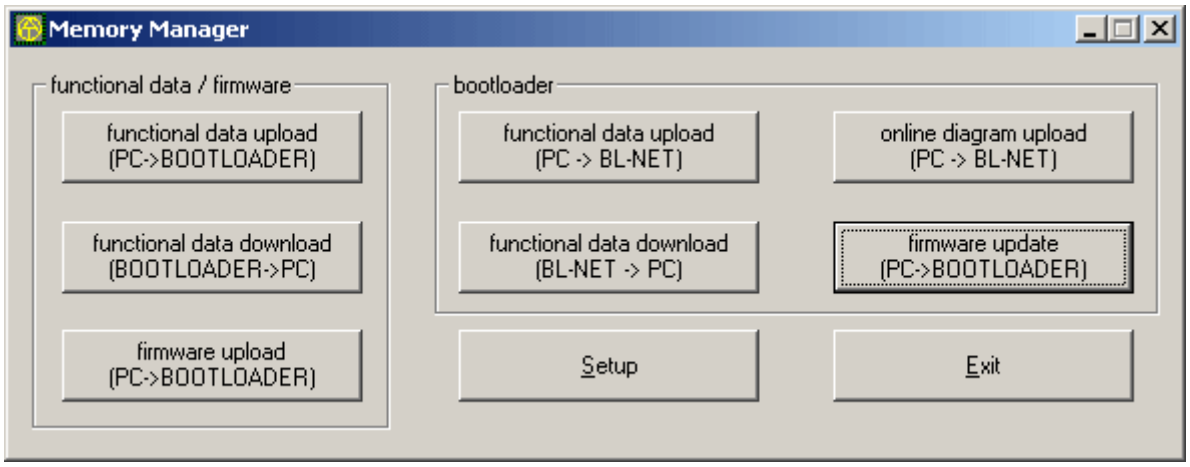
  5) Connect the data converter to the controller (ensure correct polarity!!). With a UVR1611, the data output must be activated (define output 14 as a data line).
  6) As long as the D-LOGGUSB is connected to the controller, the measurements are recorded according to the selected save criterion.
  7) 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

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-LOGGUSB.



Operating System Update

The D-LOGGUSB data converter has the same operating system 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-LOGGUSB 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-LOGGUSB, 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-LOGGUSB 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-LOGGUSB was disconnected from the controller, is assigned to the recorded data.

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