BL-NET

Version 2.19 EN

Manual version 2

Bootloader

Operation
Winsol 2.01
Memory Manager 2.08
TA-Designer 1.08

en

TECHNISCHE ALTERNATIVE

Table of contents

Hardware / General Information

Power supply

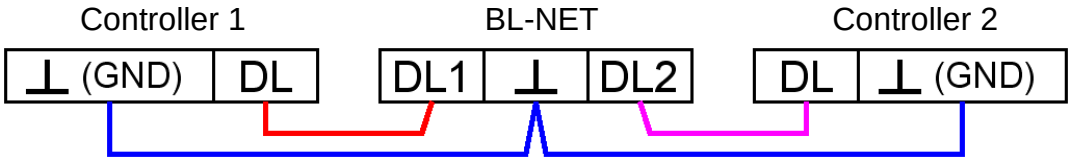
Power is provided via a connection between the controller and Bootloader over a DL (Data Line) or CAN cable. Data retention is guaranteed, even without a power supply. A compartment for an industry-standard 9V battery is provided, allowing it to be used as a portable device without a cable connection to the controller. This allows an infrared-(IR)-CAN interface to a controller and a USB connection to a PC. After the data transfer, the device switches off automatically. This ensures years of use. When operating the **Ethernet** interface power must **always** be provided via the **CAN bus**. To safeguard the power supply where there are more than 2 CAN bus members without their own power supply per UVR1611, the use of a 12V power supply (CAN-NT) is necessary.

Active interfaces / **Power supply**	USB	Ethernet	IR-CAN	Module (GSM)
Data line (DL bus)	**X**			
CAN bus	**X**	**X**		**X + CAN-NT**
Battery	**X**		**X**	

If the Bootloader is used as a hand device without a cable connection to a controller, it is advisable to remove the BL-NET from the PC after a successful data transfer to avoid unwanted activation of the Bootloader from the PC and ensure long battery life.

DL bus

Every ESR (ESR21 from version 5.0), UVR and HZR controller has a data line output DL (with the EEG30, TFM66 ⇨ D0) that, together with the (sensor) ground conductor, forms a two-conductor cable (DL bus). The BL-NET has 2 data line (DL) inputs for simultaneously recording measured values from up to two controllers.



Any cable with a cross section of 0.75 mm² 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 Bootloader, then separate shielded cables must be used to provide protection against crosstalk errors. The DL bus must never be in the same cable as the CAN bus.

If only the data line cable (DL-bus) is connected to the BL-NET, then this is also used as the power supply for the Bootloader (bus load = 73%).

When the DL is connected, the Bootloader indicates that a device has been connected to the DL input by briefly flashing the green LED. The Bootloader automatically recognises the number and type of the connected controller(s).

NOTE:

- With the UVR1611 controller, output 14 (DL) can be used as both a data connection and a control connection. For data logging via DL-bus, output 14 must therefore always be configured as a “Data Line” via the "Outputs" menu.
- UVR1611 - controllers from version A2.16 additionally enable the recording of network input variables, which are handled by the Bootloader as a virtual second UVR1611. When parameterizing output 14 as a "Data link", the menu option *NETW.EG.=>DL.:* must be answered by *yes*. Logging of network variables is thus not possible when two physical controllers are connected to the Bootloader (this instruction only applies for data logging via the DL bus).
- Only the UVR1611 can supply enough current to supply the Bootloader via the DL-bus (USB port). When there is a simultaneous power supply to a Bootloader and DL sensors, the "bus load" must be monitored. If the bus load is exceeded, the Bootloader must be supplied via a power pack (CAN-NT). The bus load of the BL-NET is 52%.
- An optional power adaptor (CAN-NT) is available for other devices.
- Logged data is lost when the number of data connections (DL-bus) or the controller type is changed!
- If the Bootloader is turned off (zero volts state), no data is lost.

CAN bus and IR-CAN infrared interface

The IR-CAN interface (infrared CAN) offers a simple way of transferring functional data. It is located under the two buttons of the UVR1611 and on the lower side of the Bootloader case. During the data transfer, the Bootloader must lie in the correct position on the controller: Bootloader – upper edge = Controller display – lower edge, the sideways position of the display is marked on the Bootloader.

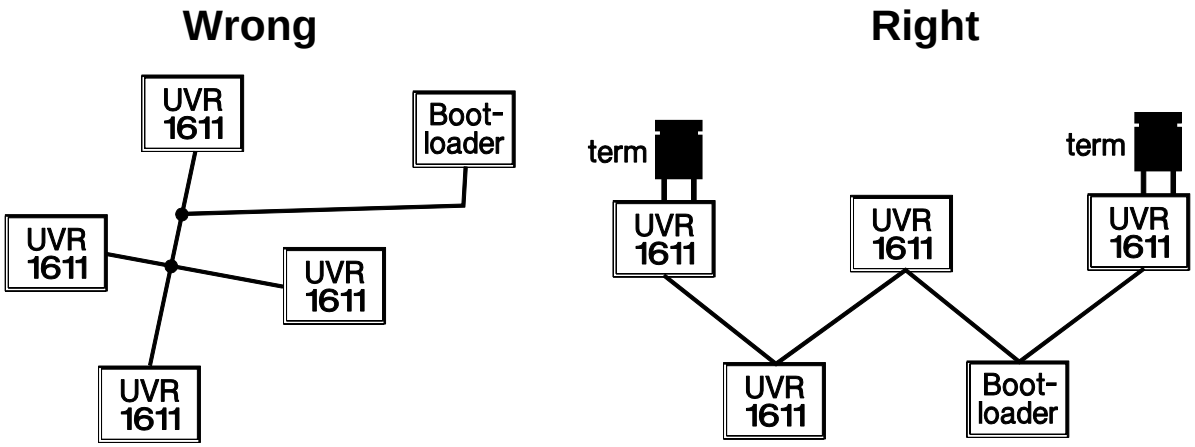
For transferring the functional data the controller must be prepared via the ***"Data Administration"*** menu. This is only permitted in expert mode. The controller switches to data transfer mode when the "*Upload* resp. *Download data really start?*" query is confirmed. After this, the Bootloader is placed in the correct position on the controller (at the lower edge of the display and between the markings). As with the CAN cable, the data transfer is started by pressing the START button on the Bootloader. The green LED flashes during the transfer and the functional data takes about 15 seconds to transfer.

Since an operating system can take about 5 minutes to transfer, this should always be done via a CAN bus cable connection. If the loading of the operating system is interrupted then a renewed transfer is only possible via a cable connection!

In addition to data transfer, the Ethernet interface of the CAN bus also allows direct access to the CAN network devices via a browser on the PC. Both LEDs flash briefly when the CAN cable is plugged in and after about 20 seconds, the green LED lights up to indicate that the BL-NET is ready to operate on the CAN bus.

When using the CAN bus to connect several devices, correct termination of the bus is important. The network **terminators** must be connected at the **cable ends**. The lower side of every controller UVR1611, every CAN device, and the Bootloader (alongside the start button), have a corresponding jumper bridge (***term***) for this. A CAN bus must never be connected from a node (terminal) to other devices in a star formation. The correct layout is a series cable from the first device (with terminator) to the second device, then the third, etc., and the last bus connection must also have a termination jumper.

Additional information on the correct layout of a CAN bus network (e.g.: cable selection, etc.) is provided in the UVR1611 controller handbook.



USB

The USB interface does **not** represent an electrical connection between the Bootloader and PC. For reasons of safety, it is electrically isolated via optocouplers. The Bootloader thus requires its own power supply, via the DL, CAN or a battery, when communicating via USB.

For communication between the PC and BL-NET via USB, a special driver is also required that creates a virtual COM interface in Windows, which is then used by the ***Winsol*** or ***Memory Manager*** programs to access the Bootloader. **See also the section "*USB driver*".**

Ethernet/LAN

The Ethernet interface is only active if the CAN connection is present or with a power pack (CAN-NT). When operating with only a data cable (DL-bus) or a battery, Ethernet communication is not possible.

A **crossed** network cable (“Cross-over”) must be used for direct connection with a PC. The PC must also be assigned a fixed IP address. The rear side of the BL-NET (the oval window) has a green LED that indicates an Ethernet connection to another device, and a red LED that indicates data transfer.

The Bootloader requires a fixed IP address because it does not support DHCP. **See also the section "*Connecting the BL-NET to a LAN network".***

GSM module (optional)

An optional GSM module is available for the BL-NET. This can be retrofitted by plugging it into a male socket inside the Bootloader.

Use of a 12V power pack (CAN-NT) is essential for operation of the GSM module.
The GSM module has its own operating manual.

Software

Installation

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 Bootloader operating system. The homepage provides information on this. It may be necessary to also upgrade the Bootloader operating system (see *"**Memory Manager**"*).

Deinstallation

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

Windows XP: … ⇨ Control Panel ⇨ Software (add or remove programs)

Windows Vista, 7: … ⇨ Control Panel ⇨ Programs and Functions

Windows 8: Move the mouse pointer into the left, bottom corner ⇨ Right mouse button ⇨ Programs and Features

USB driver

The USB driver is required for USB communication between the PC and the Bootloader 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 is connected to the PC.
The required drivers can be installed from the homepage http://www.ta.co.at or also via Windows Update.

Installation

When a Bootloader 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*>, <P*orts (COM and LPT)*> or <*USB Controller*> lists. The driver installation can be manually started from here.
For more detailed information please see the USB-drivers manual under http://www.ta.co.at.

Configuring the virtual COM port

Memory Manager supports COM ports COM1 – COM6. If the virtual COM port that has been allocated to the driver during installation is not supported by ***Memory Manager***, the driver can be manually allocated to another, still available port. For a PC with an internal modem, it should be noted that COM3 is usually used for this modem.

The Bootloader must be connected to the PC in order to configure the virtual COM port in the Windows ***" Device Manager "***.

Windows XP (*classic view*):

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

Windows Vista (*classic view*):

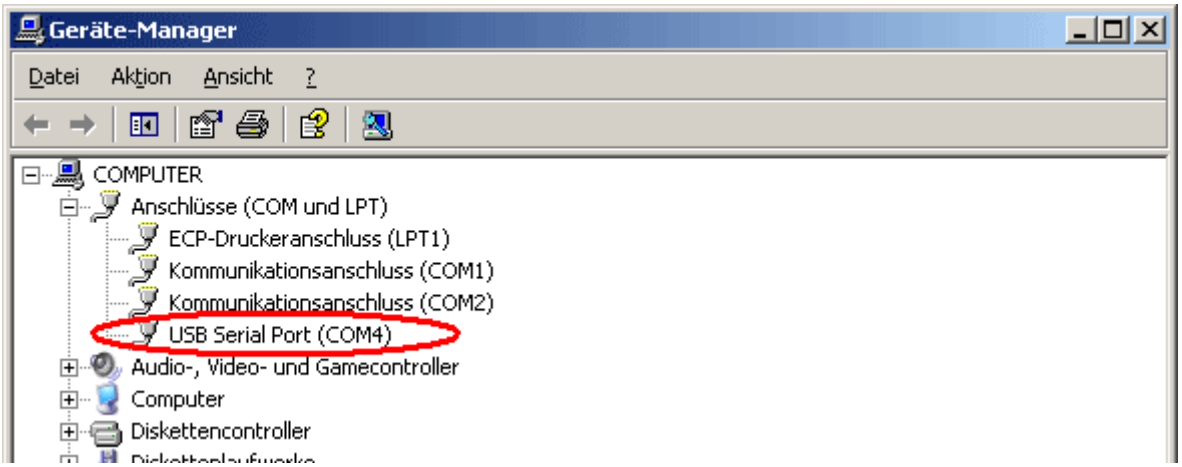
Start ⇨ Settings ⇨ Control Panel ⇨ Device Manager ⇨ Ports (COM & LPT)

Windows 7:

Start ⇨ Control Panel ⇨Hardware and Sound ⇨ Device Manager ⇨ Ports (COM&LPT)

Windows 8:

Move the mouse pointer into the left, bottom corner ⇨ Right mouse button ⇨ Device Manager



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 2.01)

The ***Winsol*** program is used for the acquisition and evaluation of measured values recorded by the data logger.

To be able to capture the data from several systems or data loggers, ***Winsol*** enables the creation and management of "**Customers**".

General toolbar

Deletes the logger data store

Reads the data stored in the logger

Setup - Selection of the data logger, interface, specification of the logger configuration and entry of the device description and the logged values.

Prints the displayed graphic

Opens an existing customer folder

Creates a new customer folder

Language

A number of languages are available for selection. Select menu "**Optionen \ Sprache**" (Options\Language) and click on the desired language. ***Winsol*** must be restarted for the language choice to come into effect.

Basic settings

The **Winsol** data path can be changed in the menu "**Options \ Basic settings...**". The standard setting is the ***Winsol*** installation path (e.g. C:\Programs\Technische Alternative\Winsol). We recommend creating a data path outside the program folder.
Already existing data must be manually copied into the new data path, before the setting is changed in Winsol and new data read in from the logger!

Procedure for transfer of existing data into a new data path:

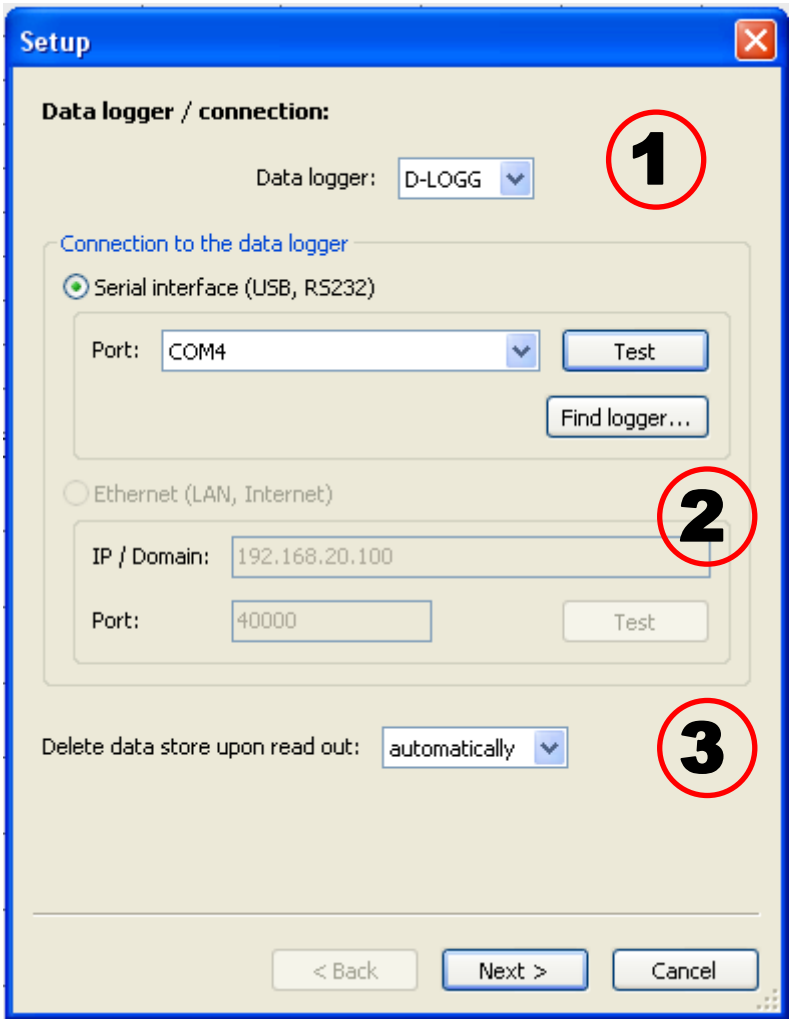
1. Create new data path (e.g. using Windows Explorer).
2. Copy the existing files and folders from the existing data path (e.g. installation path "C:\Programs\Technische Alternative\Winsol\") in to the new path.
3. In the Winsol basic settings, set the new path as a data path.

Setup dialogue

Selection of the data logger, interface, specification of the logger configuration and entry of the device description and the logged values takes place in the menu "**File \ Setup**".

"**Next**" is used to switch forward to the next setup window, while "**Cancel**" is used to cancel setup without changing the logger configuration.

1. Window: Data logger/connection



Summary:

Selection of the data logger:
BL-NET

Selection of the connection to the data logger: Serial interface (USB, RS232) or Ethernet (LAN, Internet)

Selection of how the data store should be deleted:
automatically, manually or never (only BL-NET).

1 **Selection of the data logger**

The data logger type can be specified here.

2 Selection of the connection to the data logger

The BL-NET can be connected to the PC both via the serial interface and also via Ethernet.

Serial interface (USB, RS232)

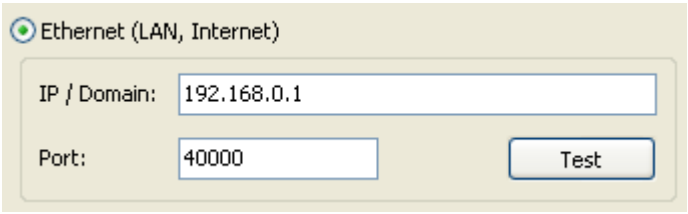
"**Test**" checks communication with the logger at the selected interface. Information about the connected logger is displayed. "**Apply**" is used to specify the logger type in Setup.

If the COM port is not known, "**Find logger**" is used to search all the COM interfaces of the computer for connected loggers.

The COM port and type of the logger found are displayed. "**Apply**" is used to set the highlighted logger type in setup.

Ethernet

For connection via Ethernet "**Ethernet**" must be selected. Moreover the IP address or the domain name of the BL-NET and its TA-port must be set. The Ethernet interface is only activated through the supply of the BL-NET via the CAN bus or a 12V power pack (CAN-NT)!



The **initial setup** of the Ethernet interface is described in the chapter **"Integration of the BL-NET into a LAN network"** in the BL-NET manual.

"**Test**" tests communication with the logger. Information about the connected logger is displayed. "**Apply**" is used to specify the logger type in Setup.

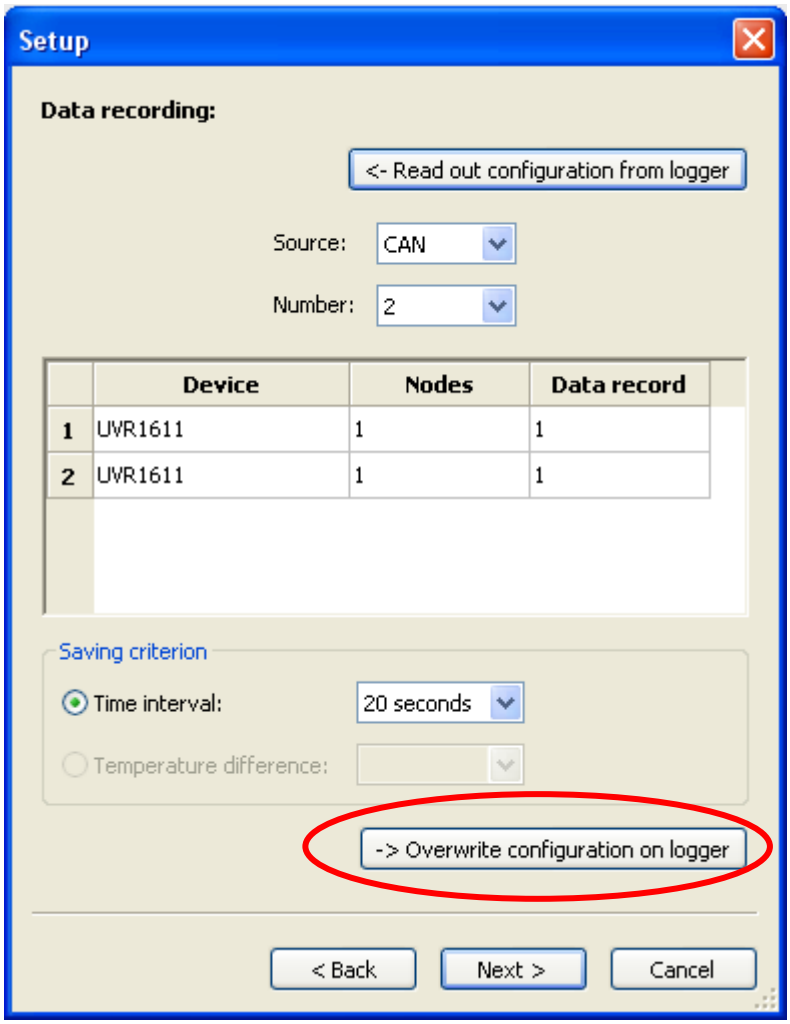
"**Test**" only leads to a valid result, if the BL-NET is correctly integrated in the LAN network (see manual) and its connection data have been correctly entered in the Winsol setup.

3 Clearing the data store

3 options are available:

automatically	After reading out of the memory, it is automatically deleted (recommended).
manually	After reading out of the memory, a query is displayed asking whether the memory should be deleted. It is recommended that the logger data store is deleted after successful reading out.
never	The memory is not deleted after reading out (not available with D-LOGG).

2. Window: Data recording



Summary:

Reading out of the configuration stored in the logger

Specification of the **Source** (CAN, DL) and number of data links or data records

Specification of the device types, additionally with CAN data logging, specification of the node number and the data record

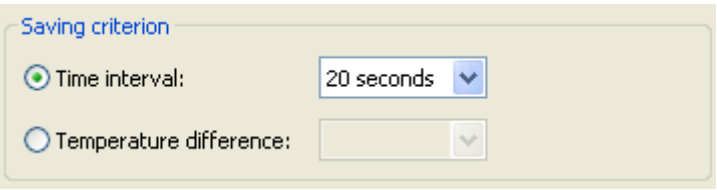
Selection of the saving criterion

Overwriting of the configuration in the logger

The changed settings are only saved and transferred as a configuration to the logger if this button is clicked.

Important instruction about CAN data logging: One controller UVR1611 must be assigned **node number 1** in the CAN network, so that the time stamp of this controller can be accepted from the Bootloader.

Saving criterion



The saving criterion is used to specify when the data logger is to save a point-in-time with all captured measured values.
Two criteria are **optionally** available for data logging over the **DL-Bus**.
When data logging using the **CAN bus**, **only** the time interval can be selected.

- **Time interval**
  Entry of a time interval between 20 seconds and 40 minutes is possible.
- **Temperature difference (only for data logging via DL)**
  For fault analysis, a saving criterion of 3.0K is recommended. Each time a temperature measured value changes by more than 3.0K **or** an output status changes, a "Measured value point-in-time" is saved. In this respect the maximum time resolution is 10 seconds. Adjustment range: 0.5 – 12.0K

Memory capacity
The maximum number of points-in-time that the data logger can store depends on the type and number of controllers to be recorded.

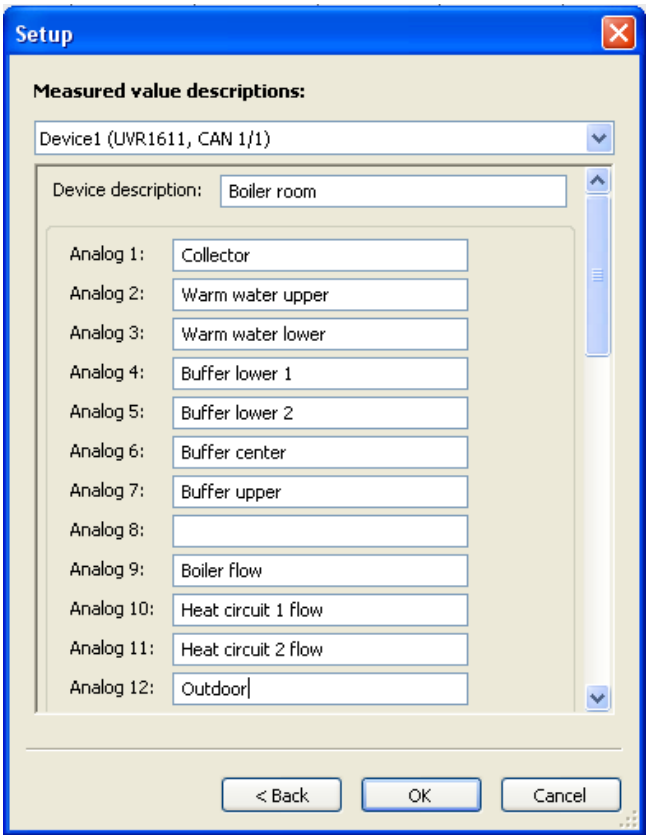
Max. number of points-in-time (Data logging using the DL-bus)	Controller type:	With 1xDL:	With 2xDL:
	UVR1611, UVR61-3, UVR63, UVR63H	8000	4000
	ESR21 ESR31	16000	8000
	All others	32000	16000

Max. number of points-in-time when CAN data logging	1 data record	2 data records	…….	8 data records
	8000	4000	……	1000

A memory overflow leads to overwriting of the oldest data.

3. Window: Measured value descriptions

A device description and descriptions for the measured values can be specified for all devices.



Summary:

Selection of the device

Device description

Description of the analog and digital values

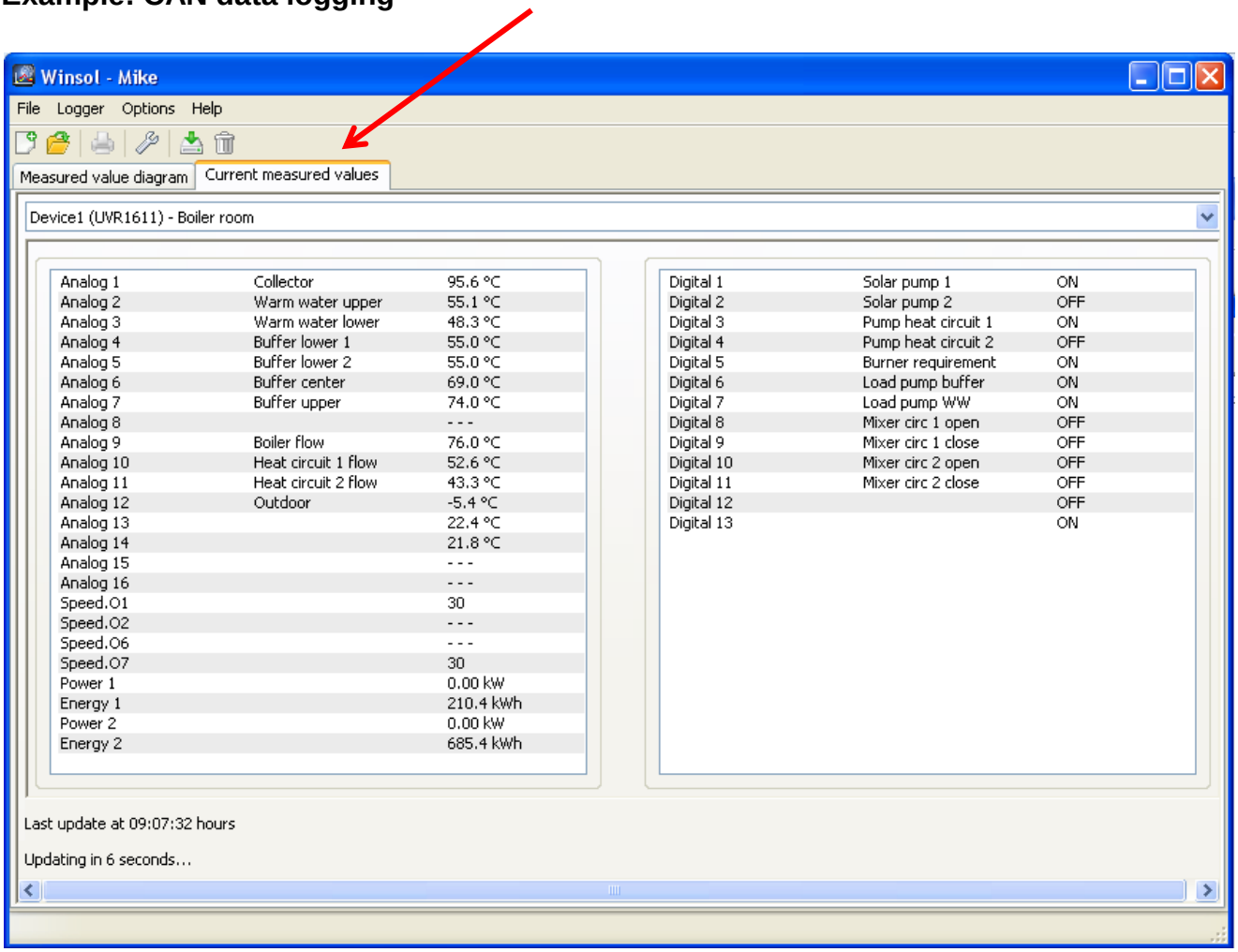
Conclusion of the setup process by clicking **OK**

Important: Setup is only completed if the "OK" button has been clicked.

Current measured values

In this tab, the actual measured values of the devices linked to the data logger are displayed in tabular format.
The tab "**Current measured values**" is the quickest and simplest option for testing the "Controller → data logger" data connection.
Each data record (device) is displayed in its own view. The selection is made using a selection box in the top part of the window.
The point-in-time of the displayed measured values is shown in the bottom part of the window (last update). The time shown here corresponds to the computer's time. The duration to the next display update is likewise displayed.

Example: CAN data logging

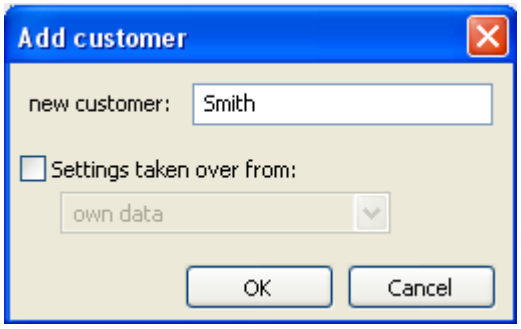


Customer mode

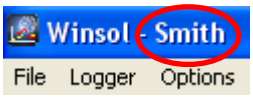
Winsol not only permits the management and analysis of its "own data", rather it also makes possible the analysis of system-external data. This is an important tool for the technician where function monitoring and troubleshooting of customer systems is concerned.

Add new customer

New customers can be added in the menu "**File \ New**…". A new folder is created in the ***Winsol*** file system for each customer, in which the corresponding configurations and log files are saved. The directory **"Infosol"** in the ***Winsol*** data path contains all these customer folders. There is also an option of transferring the setup settings of another customer.

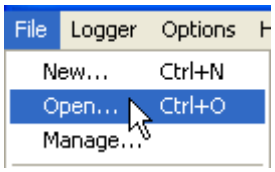


After creation of a customer the **Setup** settings must be set.
The currently selected customer is displayed in the ***Winsol*** title bar. If no customer description is shown in the title bar, the "own data" are selected.



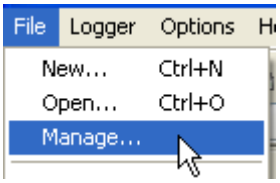
Open customer

An already created customer can be opened in the menu "**File \ Open...**".



Manage customer

Customers can be renamed or deleted via the menu "**File \ Manage...**".



Recording of measured values from a customer system

There are four options for recording the measured values from a customer system:

a) The Bootloader is read out **over the Internet**.

b) The data logger is installed by the system and regularly read out **locally** by the service technician using a notebook.

c) If the customer himself records the measured values from his system, then he can forward the log files to the technician **by email**.

d) If the reading out of the recorded data is **not possible locally**, the measured values can be recorded as follows:

Preparation for data recording:

1) Connect the Bootloader **without** a DL or CAN bus connection (CAN-L or CAN-H) to the PC
2) Ensure a reliable power supply: battery, power pack (CAN-NT) or CAN bus 12V supply
3) In ***Winsol*** create a customer for the data to be recorded and select.
4) Specify the desired configuration in setup and overwrite at the Bootloader.

Data acquisition at the customer:

5) Connect the Bootloader to the controller (observe polarity!). With a UVR1611, data output via the DL-bus must be activated (output 14 defined as "data link"). For output over the CAN bus, the desired values must be set in the menu "Network/data logging".
6) As long as the Bootloader is connected to the controller, the measured values are recorded according to the selected save criterion.
7) When disconnecting the Bootloader from the controller, date and time must be noted, because ***Winsol*** needs these so that when reading data in, the correct time can be allocated to it. This is not necessary with the UVR1611, UVR61-3, UVR63 and UVR63H.

Reading out of the recorded data:

8) Connect the Bootloader **without** a DL or CAN connection (CAN-L or CAN-H) to the PC
9) Ensure a reliable power supply: battery, power pack (CAN-NT) or CAN bus 12V supply
10) Select the corresponding customer in ***Winsol***.
11) The data stored in the Bootloader can now be read in with "**Read out logger data**" and then analysed.

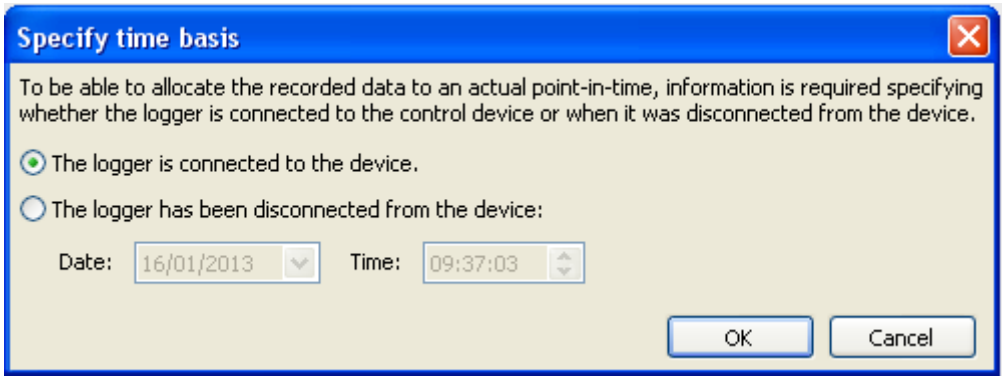
Read out logger data 

Reading out of the logger data is started in the menu "**Logger \ Read out data**".
The data recorded and stored in the Bootloader are read out and saved as a log file in the ***Winsol*** file system on the PC. A log file is produced for each month in the corresponding sub-directory ("...\log"). When data logging from two or more data records (devices) ***Winsol*** saves its data in the sub-directories "…\log1" and "…\log2" etc.. The file name of a log file contains information about the year and month of the contained data. For example, the file "**Y2012**10.log" contains the measuring data saved in October 2012.
Warning: If the data of several systems are recorded, then before the data is read in, it must be ensured that the correct "**Customer**" (see ***Customer mode***) is selected!

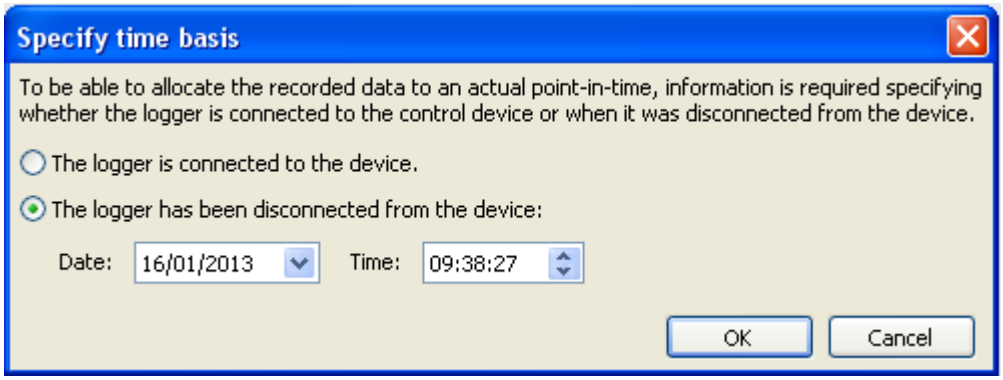
Reading out from devices without a timestamp

Devices without a timestamp are the following:
EEG30, **ESR21**, **ESR31**, **HZR65**, TFM66, UVR31, UVR42 and **UVR64**.
These devices do not have an internal clock with time **and** date.
When reading out from these devices, a differentiation is made as to whether the data logger remains connected to the device or not during reading out.

1. **The logger is connected to the device**
   In this case the PC time is taken as the reading out point-in-time.



2. **The logger has been disconnected from the device.**
   Winsol now requests entry of the point-in-time at which the disconnection occurred.

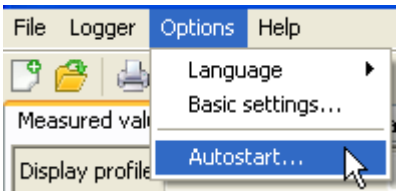


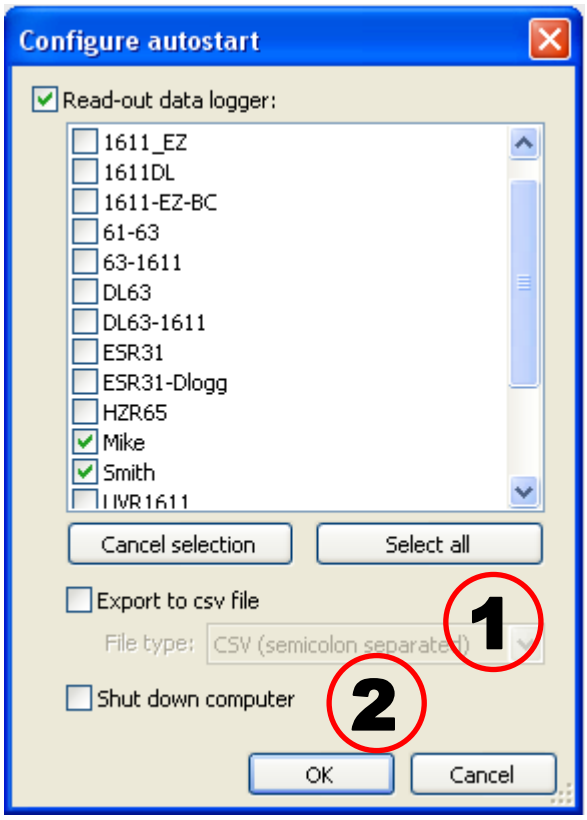
3. **Interruption of data recording**

If logging has been interrupted by a loss of power at the logger, ***Winsol*** cannot allocate the values logged prior to the power failure to a particular time.
"**Discard data**" means that all data prior to the power failure are discarded, and only the data after the interruption are evaluated by Winsol.
If the display of all data is required and correct time allocation is not relevant, the duration for the interruption of recording can be entered, with the assumption that the data are to be processed by Winsol.

Autostart

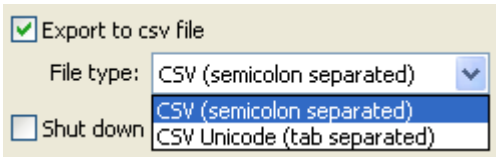
An automatic reading out of the data **when booting** the PC can be implemented using the options in the menu "**Options \ Autostart**".





Selection of the customers that are automatically read out when booting the PC.
The logger data store is then deleted if in the customer setup, delete has been set to automatic or manual.

1 **Autostart - Export to csv file**
After reading out of the data, csv files are automatically created in the selected format. These files are saved in the folder <Data path>\Infosol\Customer\csv. Existing files are overwritten.



2 **Shut down computer**
This option is also possible. Here, as the PC boots up, the data are automatically read in (incl. possible csv conversion) and then the PC shutdown after the subsequent countdown.
This function is intended for computers that are used solely for data acquisition. In this case, the PC must be automatically booted in a time-dependent manner. For example, this is possible using an external time switch, which supplies the computer with power in a time-dependent manner and if the appropriate BIOS settings have been made (bootup, if supply voltage applied).

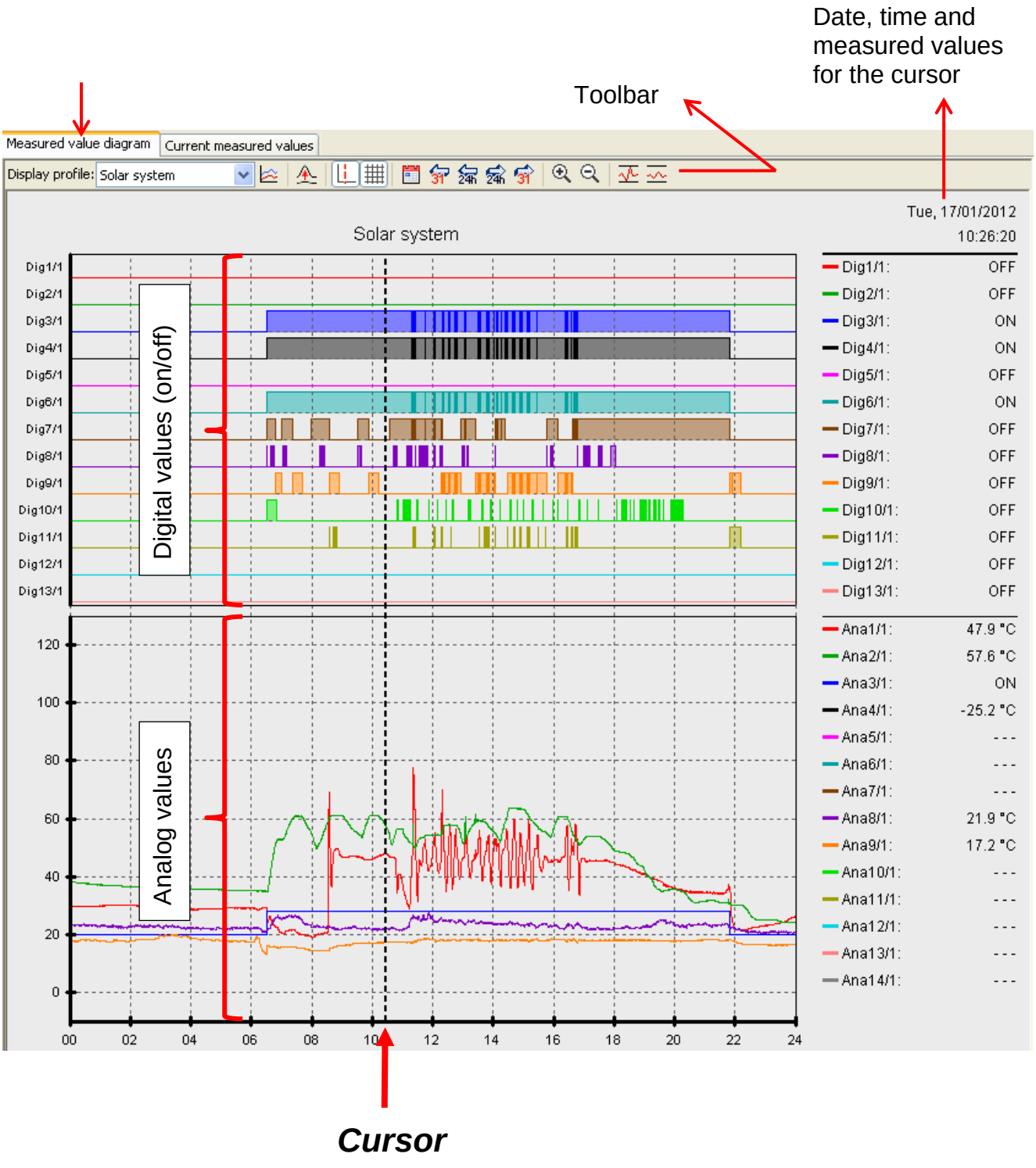
Delete logger data

Using the menu "**Logger \ Delete data**", the data stored in the logger can be manually deleted.

Measured value diagram

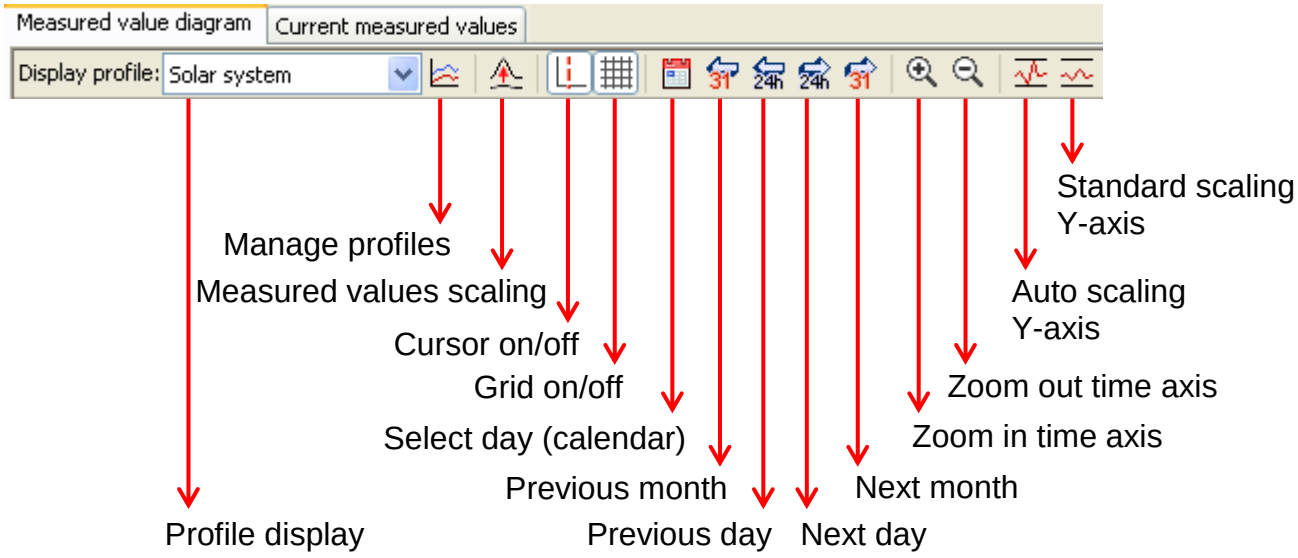
This window presents the recorded data (log files) over the course of the day.
Optimum display of the graphic is possible using the comprehensive adjustment and operating options. A maximum 16 analog and 16 digital values from all the logged values can be displayed simultaneously. The menu option "**Manage profiles**" is used to select the values to be displayed and the colour of the curves. Moreover independent profiles can be created, modified or deleted for various system areas.

Actual example of a system (1 controller, 2 data records, data logging over CAN bus, "Solar system" display profile):



Cursor

Toolbar measured value diagram



Navigation methods

There are various options and methods, for optimally configuring or changing the graphics display to meet your individual requirements.
Navigating in the graphic takes place using keyboard and mouse commands that are listed in the following tables:

Shifting the display window

Navigation	*Keyboard*	*Mouse*
Shifting the display window along the **X-axis** (only possible, if the time axis displays less than 24 hours)	Only with the cursor hidden: ← and →, Shifting by 1/48 of the display window per key press	Move the mouse with the **right** mouse button depressed
Shifting the display window along the **Y-axis**	**Page up** and **Page down** Shifting by 1/40 of the display window per key press	Move the mouse with the **right** mouse button depressed

X-axis zooming

Navigation	*Keyboard*	*Mouse*
X-axis zooming (+)	**z** The fixed point is the position of the cursor (if activated) or the middle of the diagram	Scroll "forward" (fixed point is the position of the mouse pointer), or button on the toolbar (fixed point is the cursor position (if activated) or the middle of the diagram)
X-axis zooming (-)	**u** The fixed point is the position of the cursor (if activated) or the middle of the diagram	Scroll "back" (fixed point is the position of the mouse pointer) or button on the toolbar (fixed point is the cursor position (if activated) or the middle of the diagram)

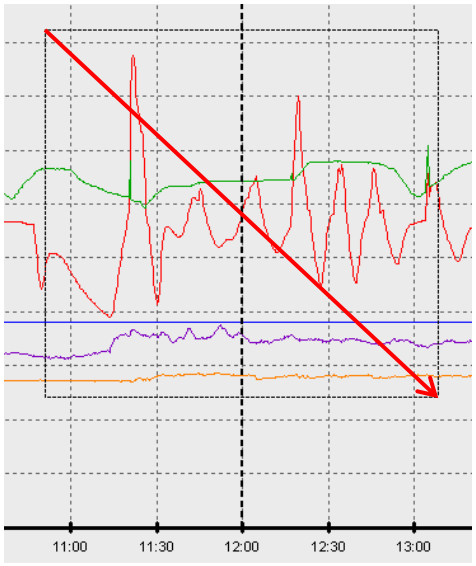
Y-axis zooming

Navigation	*Keyboard*	*Mouse*
Y-axis zooming (+)	**Ctrl** + **z** Fixed point is the middle of the diagram	Scroll "forward" + pressed **Ctrl** key Fixed point is the position of the mouse pointer
Y-axis zooming (-)	**Ctrl** + **u** Fixed point is the middle of the diagram	Scroll "back" + pressed **Ctrl** key Fixed point is the position of the mouse pointer

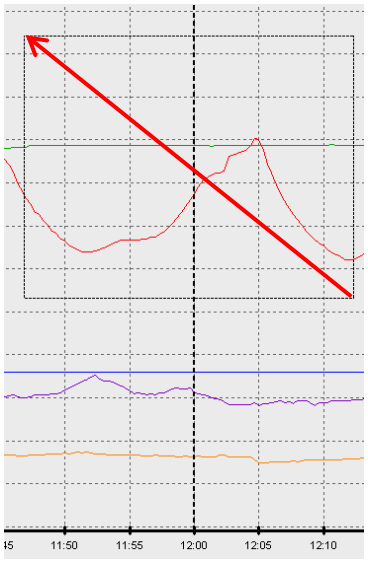
Zooming in X- and Y-axes (simultaneously)

Navigation	*Keyboard*	*Mouse*
Zoom in X- and Y-axis (+)	-	Zoom window with depressed **left** mouse button (see figure)
Zoom out X- and Y-axis (-)	-	**Negative** zoom window with depressed **left** mouse button (see figure)

Example: **Zoom in** (draw zoom window from top left to bottom right)



Zoom out (draw zoom window from bottom right to top left)



Winsol

Move cursor in X-axis

Navigation	*Keyboard*	*Mouse*
Set cursor	-	Double-click with left mouse button (positioning at the closest measuring point)
Measuring point / step forward	→	-
Measuring point / step back	←	-
min. 1/24 of the display pane / step forward	**Ctrl** + →	-
min. 1/24 of the display pane / step back	**Ctrl** + ←	-
1 day / step forward	↑	Toolbar: 
1 day / step back	↓	Toolbar: 
1 month / step forward	**Ctrl** + ↑	Toolbar: 
1 month / step back	**Ctrl** + ↓	Toolbar: 
Start day	**Pos1**	-
End day	**End**	-
Start recording	**Ctrl** + **Pos1**	-
End recording	**Ctrl** + **End**	-

Other functions

Navigation	*Keyboard*	*Mouse*
Hide cursor	**c**	Toolbar: 
Auto-zoom in Y-axis	**a**	Toolbar: 
Standard-zoom in Y-axis	**s**	Toolbar: 
Grid hide/show	**g**	Toolbar: 
Press (print dialogue)	**Ctrl** + **p**	Menu bar: 

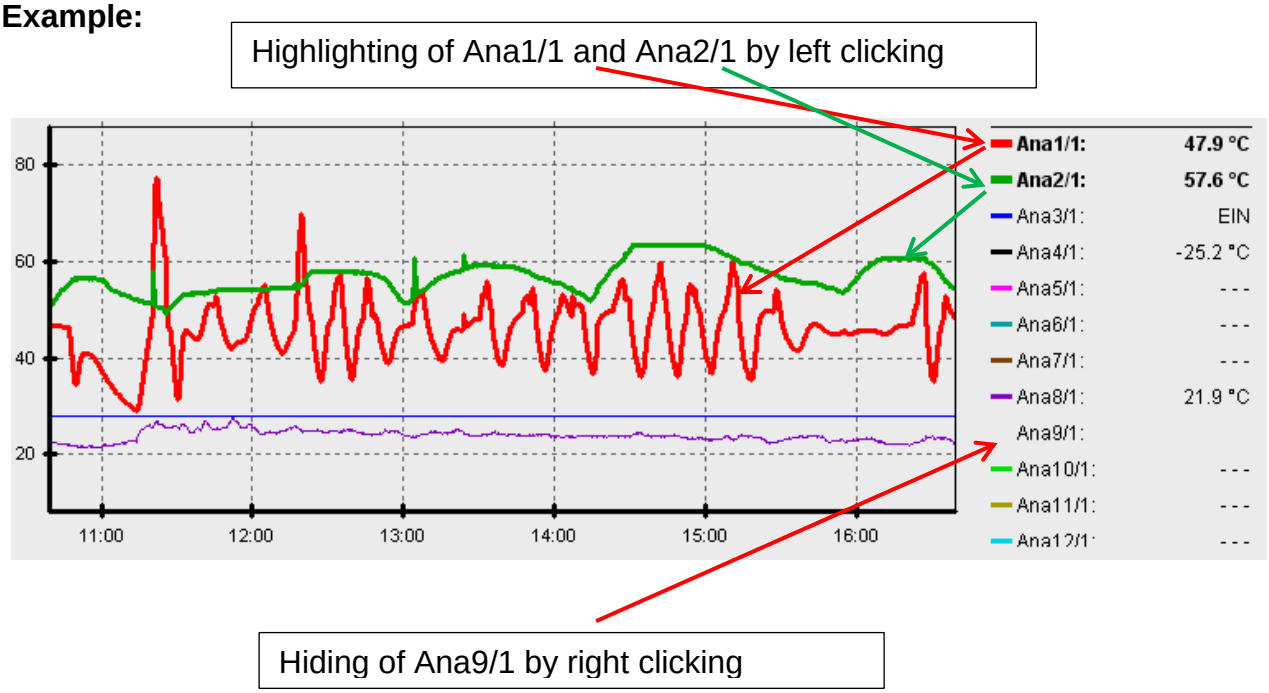
Highlighting or hiding graphs

Clicking a measured value in the right table with the **left** mouse button causes the value and graph to be especially highlighted.

Clicking a measured value in the right table with the **right** mouse button causes the value and graph to be hidden.

Clicking again causes the highlighting or hiding to be cancelled.

Example:



Display of non-logged times

If there is less than 1 whole day between the logged data records, then the last measured point is linked to the first measured point for a particular sensor by a straight line.
If there is more than 1 whole day between the logged data records, then dashed lines are displayed.

If a day is selected from the calendar  in which no values were logged, then the diagram remains empty, therefore no dashed lines are displayed.

Measured values scaling 

This menu option is used for matched scaling of various measured value units.
This improves the perceptibility of measured values in the graphic.

Grid on/off 
Makes possible the display and hiding of the grid.

Cursor on/off 

If the cursor is switched off, no measured values are listed on the side and at the top right only the date of the displayed day is henceforth displayed.

Select day 

Calendar for selection of the day displayed.

Navigation 

Navigation forwards or backwards in the data recording by a day or month.
Here only days are displayed, on which measured values have been recorded. I.e. days without any data are jumped over.

Time axis zooming 

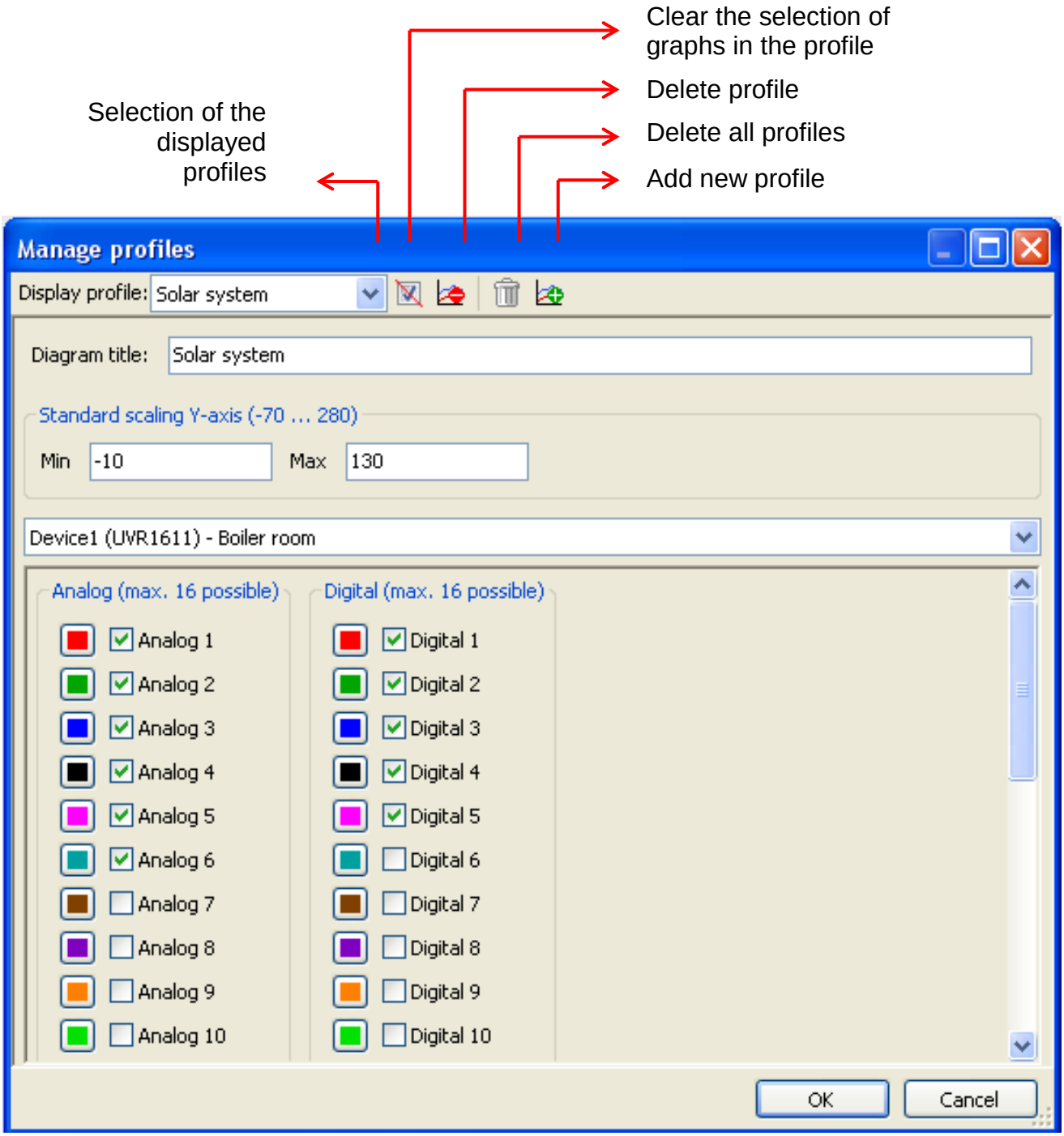
Extending or shortening of the time axis (display pane: min. 30 minutes, max. 24 hours). The fixed point is the position of the cursor (if activated) or the middle of the diagram.

Y-axis scaling 

For optimum representation clicking "Auto-scaling Y-axis"  causes the Y-axis scale to be matched to the values.
Clicking "Y-axis standard scaling"  causes the scaling to be reset to the default values that were set in the profile.

Manage profiles

The menu option "**Manage profiles**" (Manage profiles) is used to select the values to be displayed and the colour of the graph curves. Moreover independent profiles can be created, modified or deleted for various system areas and a separate diagram title specified.



Export

In this menu, the log files can be converted into *.csv file format for further processing with any spreadsheet program. In this way you can create your own graphics and statistics with the recorded measuring data.

Troubleshooting

◆ Ethernet connection: The BL-NET is not recognised during "**Test**" of ***Winsol***.

1. For communication over Ethernet, the Bootloader must be connected to the CAN bus or supplied with a 12V power pack (CAN-NT) via the CAN interface.
2. Ensure that the Bootloader is connected via Ethernet with the PC or LAN network. An existing connection via Ethernet is signalled via a green LED in the oval window on the bottom side of the Bootloader. For a direct connection with the PC a **crossed** network cable must be used.
3. For a direct connection of BL-NET and PC via Ethernet, a fixed IP address must be allocated to the PC. If the PC has a WLAN (wireless network), it must be ensured that the network related part of the IP address differs from the WLAN part.
4. Check the Ethernet configuration of the BL-NET (see chapter ***"Connecting the BL-NET to a LAN network"***) and note the IP address and TA-port of the Bootloader.
5. Ensure that the IP address and the TA-port of the Bootloader are set correctly in the ***Winsol*** setup.

◆ Serial interface (USB, RS232): The Bootloader is not recognised during "**Test**" of ***Winsol***.

1. Ensure that the Bootloader is connected to the PC via a USB connection.
2. Check that the power supply of the BL-NET.
3. Check in the Windows ***Device Manager*** whether the USB driver has been correctly installed (Device Manager ⇨Ports (COM and LPT)). In this case, its virtual COM port appears in the list as "USB Serial Port".

   3.1. If the driver has not yet been correctly installed, carry out the installation again (see Chapter "**USB driver \ Installation**").
4. If the Bootloader is provided with at least one controller, check the data transfer from the controller to the data logger (*see the next point*).

◆ Data transfer from the controller to the Bootloader is not working.
(No measured values are displayed in the "**Current measured values**" of ***Winsol***.)

1. Ensure that the Bootloader is connected to the controller via the DL-bus or the CAN bus.

2. Check the connections and in particular ensure the polarity is correct.

3. With the UVR1611, data output must be activated if logging over the data link (DL-bus) is to take place (output 14 defined as "**data link**").

4. Ensure that, the BL-NET is configured for the corresponding data logging process (DL-bus or CAN bus (see ***Setup dialogue*** chapter)

5. If several controllers are recorded using the Bootloader, check the data connections individually to limit the problem. To do this, connect the data link (DL-bus) or CAN bus as appropriate to the other controllers. When doing so it is important that the data link is connected directly to the controller and not to the data input of the data logger, as otherwise you will not receive useful results!

5.1. If data transfer functions over the DL-bus with each controller individually, then the cause of the error is crosstalk between the two data links of the DL-bus. In this case the two data links must be routed separately or at least one data link must be routed in a shielded cable.

5.2. If data transfer via the CAN bus functions with each controller individually, the cause of the fault may be the allocation of 2 identical network node numbers or an incorrect network terminating resistor.

6. To limit the cause of the error during data transfer to a single data link, carry this out as a test over a short cable (< 1 metre).

6.1. If data transfer functions over the short cable, then the error cause could be crosstalk caused by an external interference source in the data link (DL-bus). In this case, the data link must be routed in another way or a shielded cable must be used.

7. If, in spite of the testing of all listed points, incorrect behaviour still exists, please contact your dealer or contact the manufacturer directly. However the cause of the fault can only be found if a **precise description of the fault** is provided!

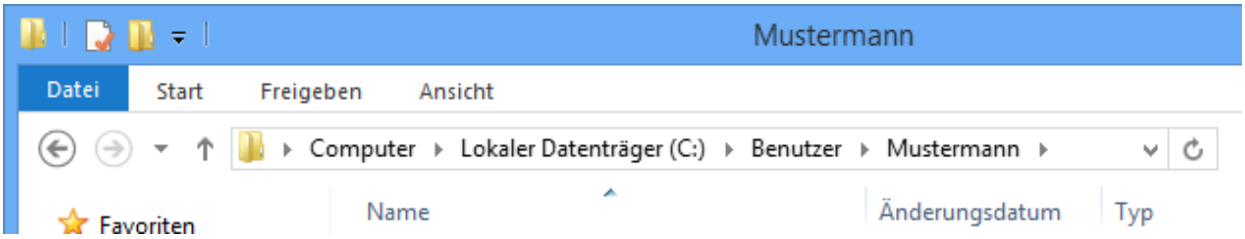
◆ The data are recorded with an incorrect timestamp (date, time).

1. As when data logging with the VR1611 or UVR61-3 the timestamp is generated by the controller, in this case the time indication in the controller must be corrected.
   Warning: To be able to ensure a higher time resolution, the data logger synchronizes with the controller during startup and as a consequence updates its internal timestamp. Therefore the data logger must be switched off (zero volts state) for a few seconds after changing the time settings in the controller (pull out the DL and/or CAN bus), so that it immediately synchronises itself after the restart.
2. When data logging using controllers without an internal time, the time or the point-in-time at which the data logger was disconnected from the controller is taken from the PC, so that the time can be allocated to the recorded data.

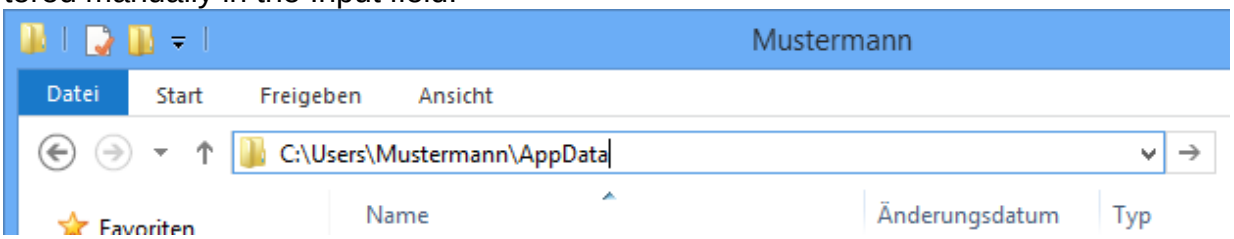
◆ The csv files are not displayed in the corresponding data path "C:\Programs\..." or the searched for subdirectory itself does not even exist.

Under certain circumstances, under Windows 8, Windows 7 and Windows Vista, the files are saved under a user-specific "virtual program path":

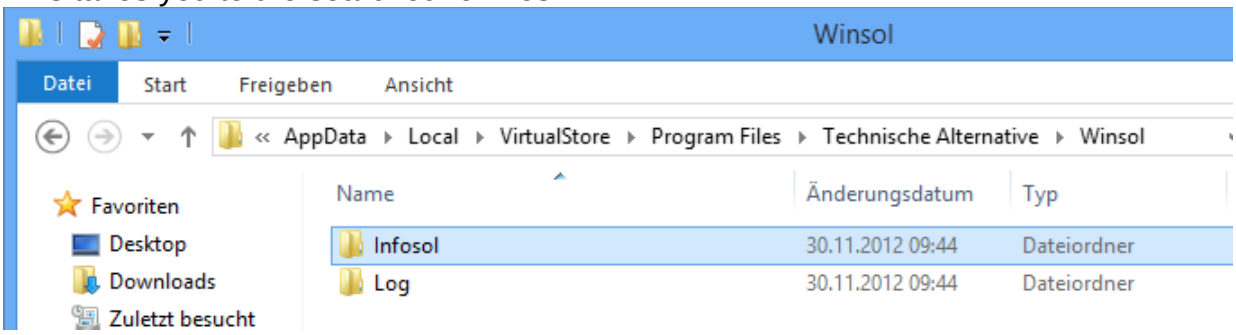
C:\Users\<USERNAME>\AppData\Local\VirtualStore\Programs\Technische Alternative\Winsol\...



The folder "AppData" is not displayed as a matter of course and must therefore be entered manually in the Input field.



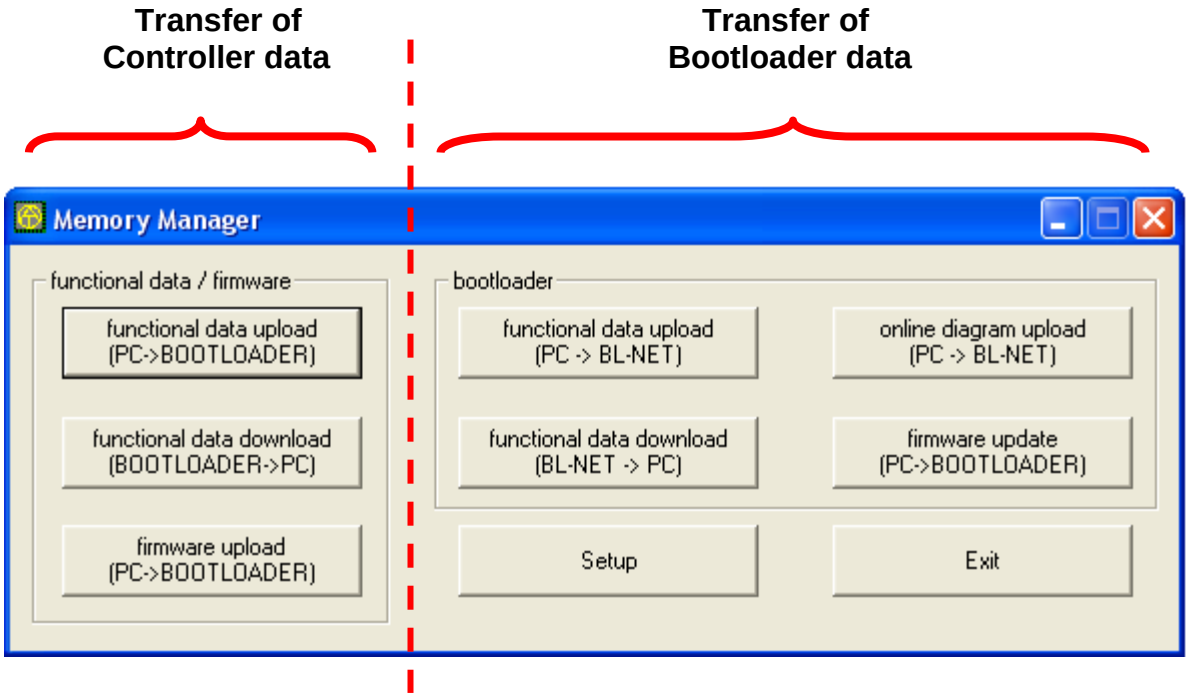
This takes you to the searched for files.



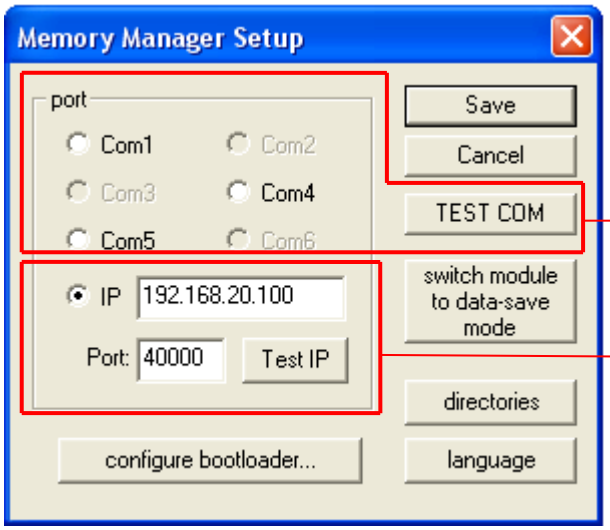
It is generally recommended that the Winsol data path is chosen outside the Program folder (default installation path) (see Chapter "**Basic Settings**").

Memory Manager *(from version 2.08)*

The program ***Memory Manager*** can be used to update the Bootloader and to transfer the operating systems of devices that are linked using the CAN bus (UVR1611, CAN-Monitor, etc.) to the Bootloader.
Functional data can also be copied in both directions (data upload and download).



The **Setup** contains the settings required for correct communication between the PC and the Bootloader.



Setting of the USB port (virtual COM port)

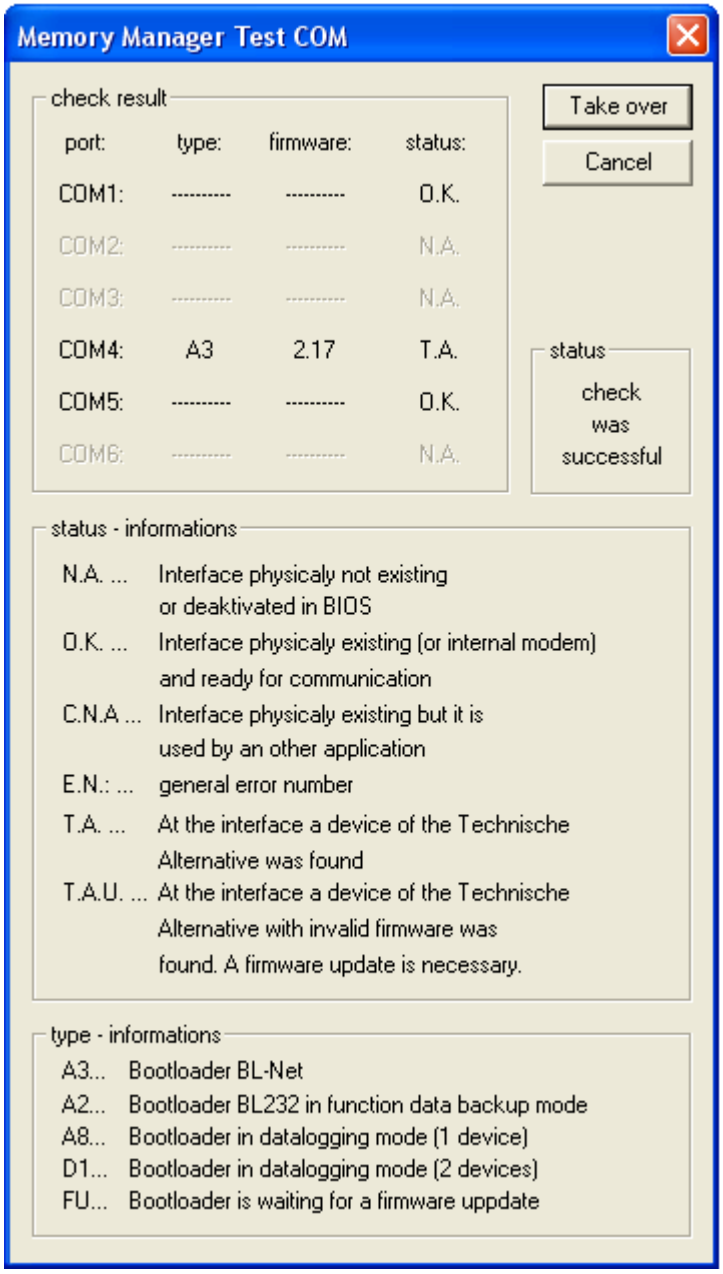
or

setting the Ethernet/LAN interface

USB connection

TEST COM

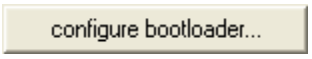
The "**TEST COM**" command allows an automatic search for the Bootloader at the COM ports supported by ***Memory Manager***, independently of any current setup settings
Memory Manager only supports COM ports between COM 1 und COM 6.



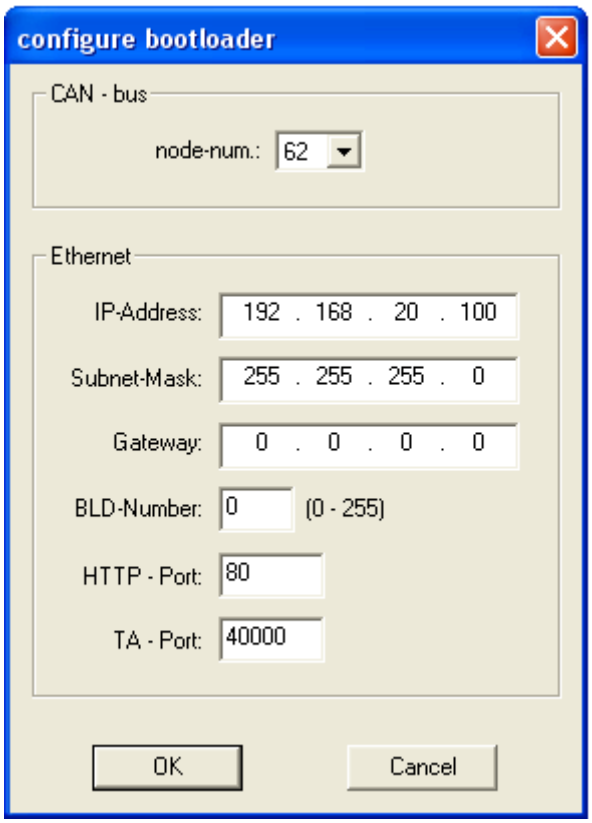
The determined parameters can be transferred into the setup using "**Take over**".

If testing was not successful, the instructions in the "Troubleshooting" chapter should be observed.

Ethernet/LAN connection



The menu is used for **configuring** the basic settings of the BL NET (see "**Connecting the BL-NET to a LAN network**"). The Bootloader must be connected via USB for this purpose.



Node number of the BL-NET in the CAN network

IP address of the BL-NET

Subnet mask of the BL-NET (not used)

Gateway of the BL-NET (not used)

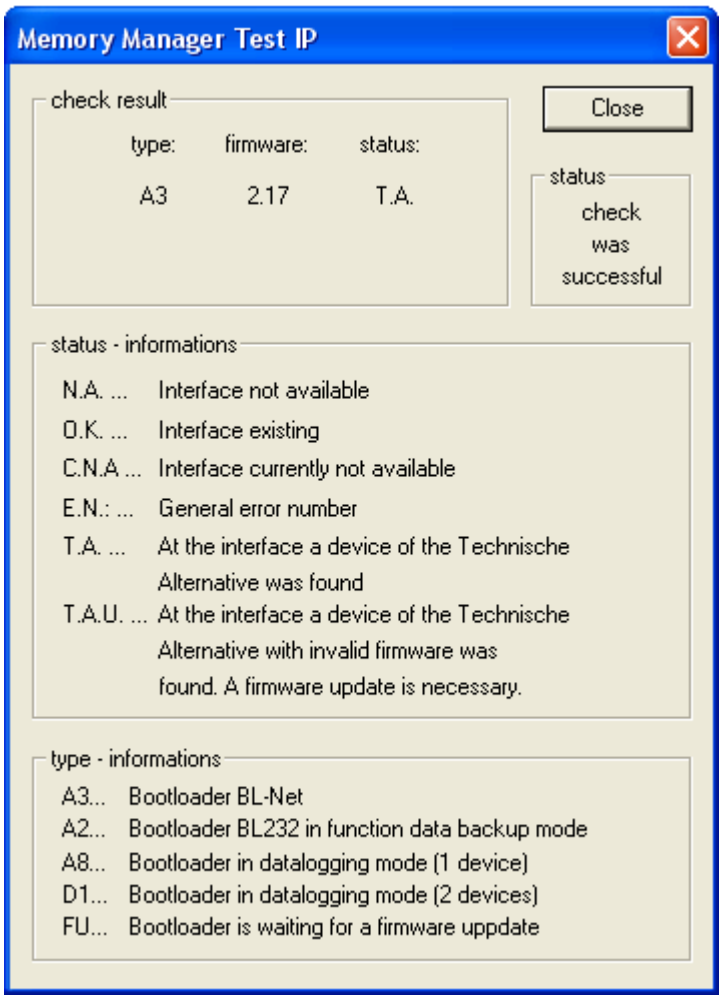
Bootloader number (= last position of the MAC address)

HTTP port for web browser access

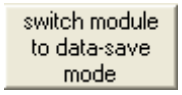
TA PORT for communication with ***Memory Manager*** and ***Winsol***

Warning! The IP address is not transferred when downgrading from version 2.19 to 1.43 and also when a new upgrade to version 2.19 is carried out. Hence a USB connection is essential!

"**Test IP**" has the same function as "TEST COM", but for the Ethernet connection. "**Test IP**" only returns a valid result when the Ethernet interface of the BL-NET has already been parameterized and the IP address and port of the Bootloader have been correctly specified.



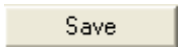
If testing was not successful, the instructions in the "Troubleshooting" chapter should be observed.



This is only required for the BL232 Bootloader, with the BL-NET the storage is large enough to save both the logged data and the system data at the same time.

Selection of the **standard directories**

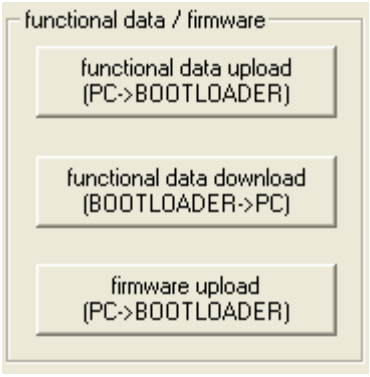
Memory Manager language selection



Saves the set interface parameters

Transfer of controller data

Transfer of the controller data is started from the left area of the ***Memory Manager***:



Functional data upload (PC→Bootloader)

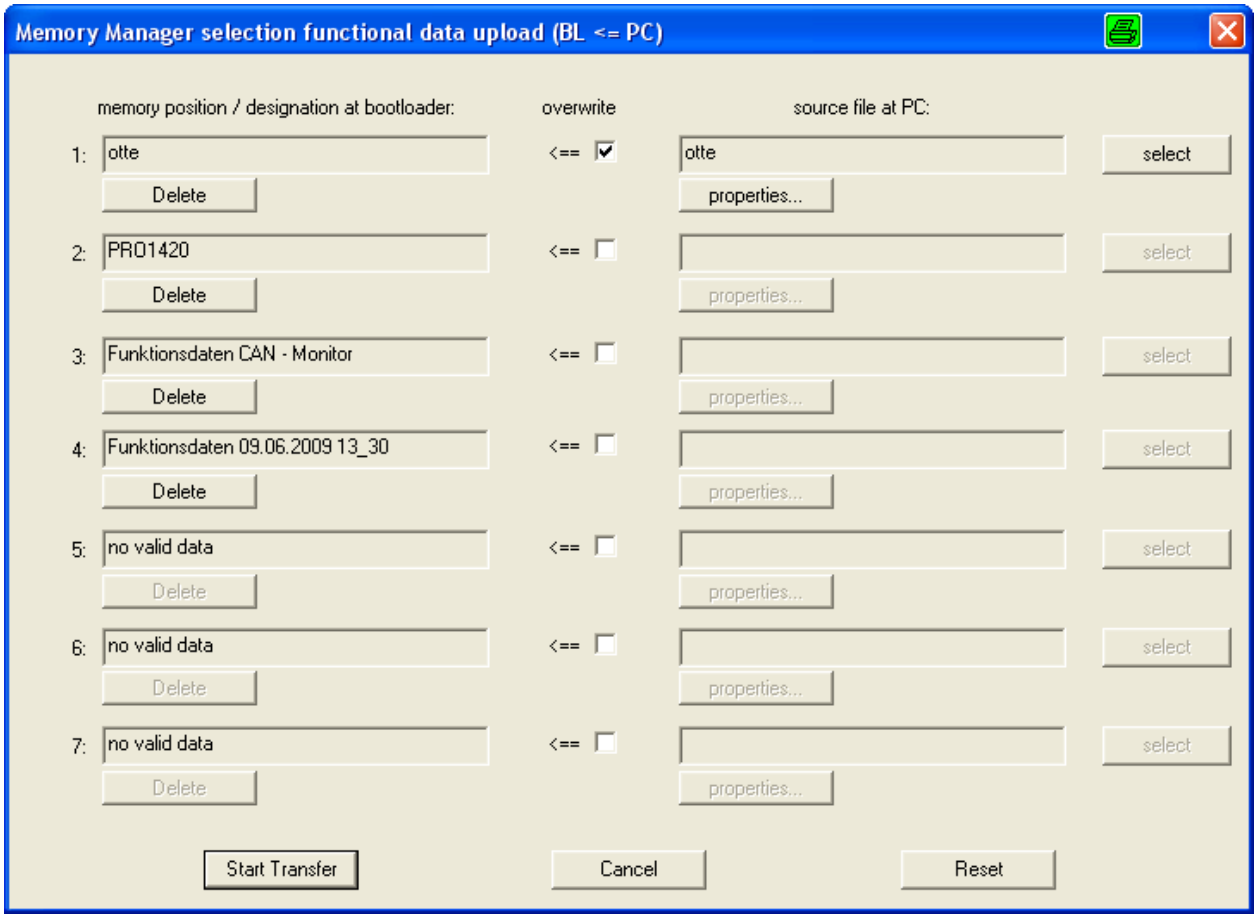
Functional data download (Bootloader→PC)

Firmware upload (PC→Bootloader)

The Bootloader has 7 memory positions for functional data and one memory position for the operating system. All memory positions can be used simultaneously!

Functional data upload (PC→Bootloader)

Transfers functional data (*.dat) from the PC to the Bootloader.

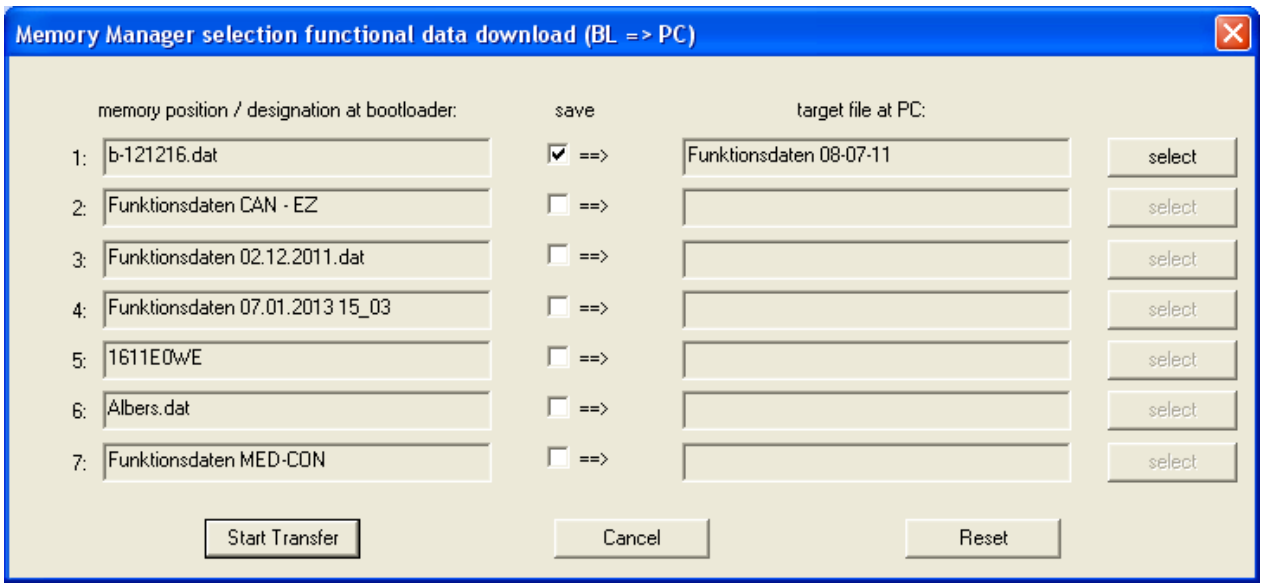


The left column shows the data that is currently stored in the Bootloader. Setting a tick in the "**overwrite**" column selects the functional data on the PC that will then be written to the corresponding memory position in the BL-NET.

Clicking "**Start Transfer"** loads the selected data into the Bootloader.

Functional data download (Bootloader→PC)

The functional data previously loaded from the controller into the Bootloader is stored on the PC.



The data stored in the Bootloader is shown in the left column. Setting a tick in the "**save**" field allows specification of the path and name of the file on the PC where the functional data is to be stored.

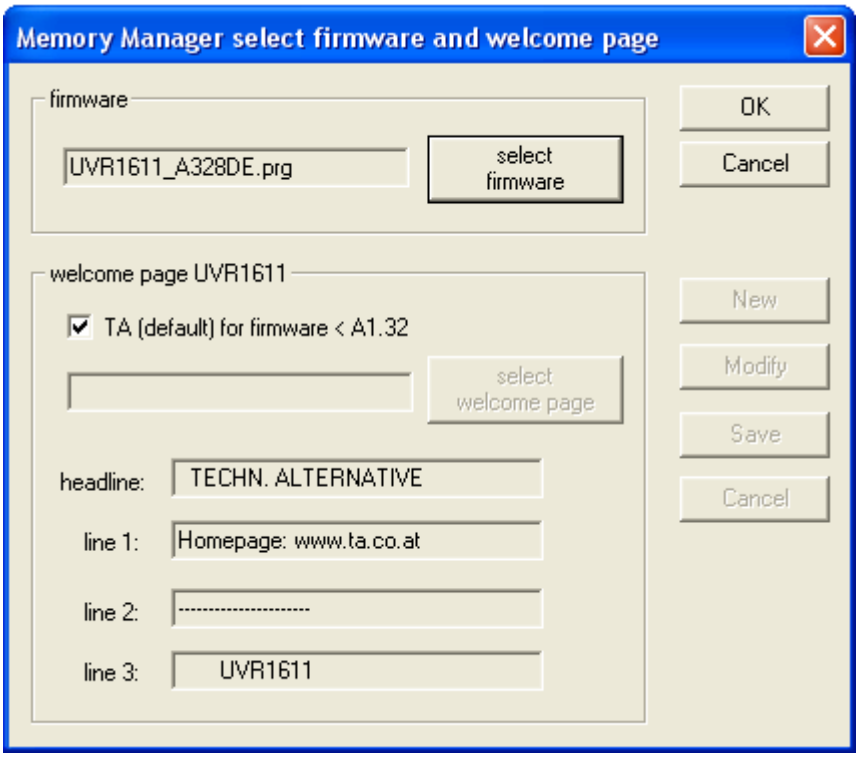
Clicking "**Start Transfer"** stores the selected data on the PC.

The functional data (*.dat) stored on the PC must be regarded as a backup copy and cannot be edited on the PC.

Using the ***TAPPS*** programming software an option exists to create and print out a *.txt file from the *.dat file containing a list of all the setting parameters used in programming (→see ***TAPPS*** tutorial).

Operating system upload (PC→Bootloader)

Transfer of an operating system (UVR1611, CAN Monitor, CAN-I/O Module, Bus converter CAN-BC or Energy meter CAN-EZ) from the PC to the Bootloader. Since a common memory position is used for the operating system, the transfer overwrites the existing operating system stored in the BL-NET. The latest operating system at any point in time can be downloaded to a PC from our homepage http://www.ta.co.at.

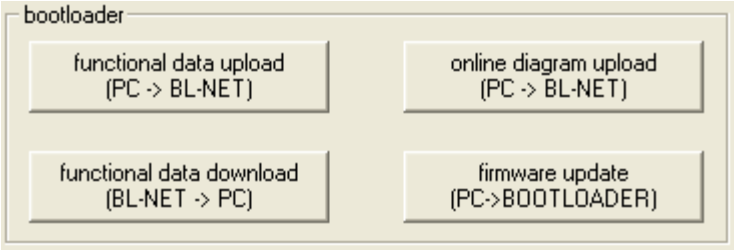


The desired operating system (*.prg) on the PC is selected with the "**select firmware"** button. When uploading an operating system for a UVR1611, a user-defined welcome page for the controller can also be defined. This greeting page can be created during creation of a function data record ("Export to the translator") using the programming software ***TAPPS***. If a welcome page is already defined in the controller functional data then this is retained and the welcome page specified when transferring the operating system is not adopted by the UVR1611.

Clicking "**OK"** starts the data transfer and stores the selected operating system on the Bootloader.

Transfer of Bootloader data

The right part of the ***Memory Manager*** is responsible for the transfer of Bootloader data:



Functional data upload (PC ⇨ BL-NET)

Transfer of BL-NET functional data from the PC to the Bootloader.

The BL-NET configuration can be created directly on the device via web browser or using the software "F-Editor" on the PC.

Functional data download (BL-NET ⇨ PC)

The BL-NET Bootloader functional data is stored on the PC.

Online diagram upload (PC ⇨ BL-NET)

Transfer of the files for the BL-NET online diagram from the PC to the Bootloader. After selecting the file type (*.gif or *.html), the corresponding file can be selected and loaded into the Bootloader. **Both files** must be loaded sequentially. The files must not exceed the maximum permitted size of 196 kilobytes each.

More detailed information about the online schematic is given in the "**Online diagram**" chapter.

Operating system update (PC⇨Bootloader)

When updating a Bootloader from version 1.xx to 2.xx, all saved controller function data are lost. Therefore, before updating the operating system, it is necessary to backup the data stored on the Bootloader to the PC.

The latest BL-NET operating system (*.frm) can be downloaded from http://www.ta.co.at.
Observe the update instructions on our homepage!

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.

If the update is started in the ***Memory Manager***, the Bootloader first loads the program into the internal memory (progress bar in ***Memory Manager*** is full) and then the processor is written with the new operating system. This procedure is indicated by alternate flashing of both LEDs on the Bootloader.

This is followed by a restart and the Bootloader is then ready for operation again.

Troubleshooting

◆ The BL-NET Bootloader is not recognised by the ***Memory Manager*** **"Test IP"** function.

1. For communication via Ethernet/LAN, the Bootloader must be connected to the CAN bus or supplied with power via a 12V power adaptor (special accessory CAN-NT).
2. Make sure that the Bootloader is connected via Ethernet to the PC or LAN network. An existing Ethernet connection is indicated by a green LED in the oval window on the lower side of the Bootloader. A crossed network cable must be used for direct connection with a PC.
3. With a direct Ethernet connection between BL-NET and a PC, the PC must be assigned a fixed IP address. If the PC has a WLAN (wireless network), it must be ensured that the network related part of the IP address differs from the WLAN part.
4. Check the Ethernet configuration of the BL-NET (see chapter "***Connecting the BL-NET to a LAN network***") and note the IP address and TA port of the Bootloader.
5. Make sure that the IP address and TA port of the Bootloader are set in the ***Memory Manager*** setup.
6. Run "**Test IP**" again. Note the displayed port status.

   6.1. **`C.N.A.`**
   If the interface is already being used by another application, this must be ended in order to communicate with the Bootloader. Multiple applications cannot access the interface at the same time.

◆ The Bootloader is not recognised by the ***Memory Manager*** **"TEST COM"** function.

1. Make sure that the Bootloader is connected via USB to the PC.
2. In the Windows ***" Device manager "***, check that the USB driver was correctly installed ("Device manager " ⇨ " Ports " (COM und 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 Bootloader. Multiple applications cannot access the interface at the same time.
4. If no controller is connected to the BL NET, then a 9V battery must be used as the power supply or a 12V power pack (CAN-NT) connected.

Connecting the BL-NET to a LAN network

In case of intranets the IP address must be requested from the administrator. The following instruction is written for home networks.
Before connecting a BL-NET to a LAN network, it must first be configured **via the USB interface**:

1. The ***Winsol*** and/or ***Memory Manager*** program(s) must be installed on the PC.

2. Connect the Bootloader to the PC via USB. If the required USB driver is not installed on the PC, then this must be done now (see “**USB driver installation”**).

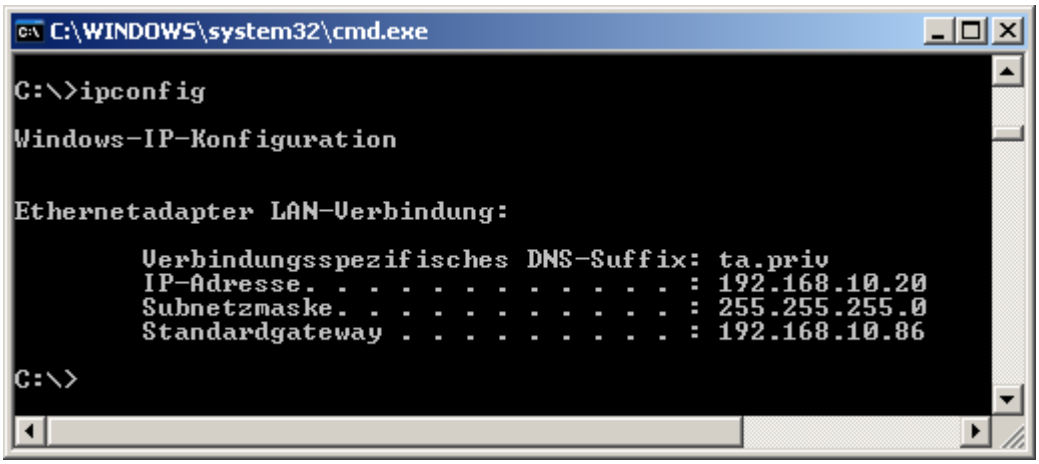
3. For Bootloader configuring, the Bootloader must be supplied with voltage via CAN bus, DL, 12V power pack (CAN-NT) or via an inserted battery.

4. Start one of the abovementioned programs and click "**TEST COM**" in the setup area. The program searches for the Bootloader at the (virtual) COM interfaces (COM 1 to COM 6).

5. If a BL-NET is found, the interface can be automatically adopted in the setup via "**Take over**" and the setting can be saved via "**Save**". If the software does not find a BL-NET then either the device does not have a power supply (see 3.) or the software of another USB device is preventing recognition. In this case, the software of the relevant device must be exited during the recognition process.

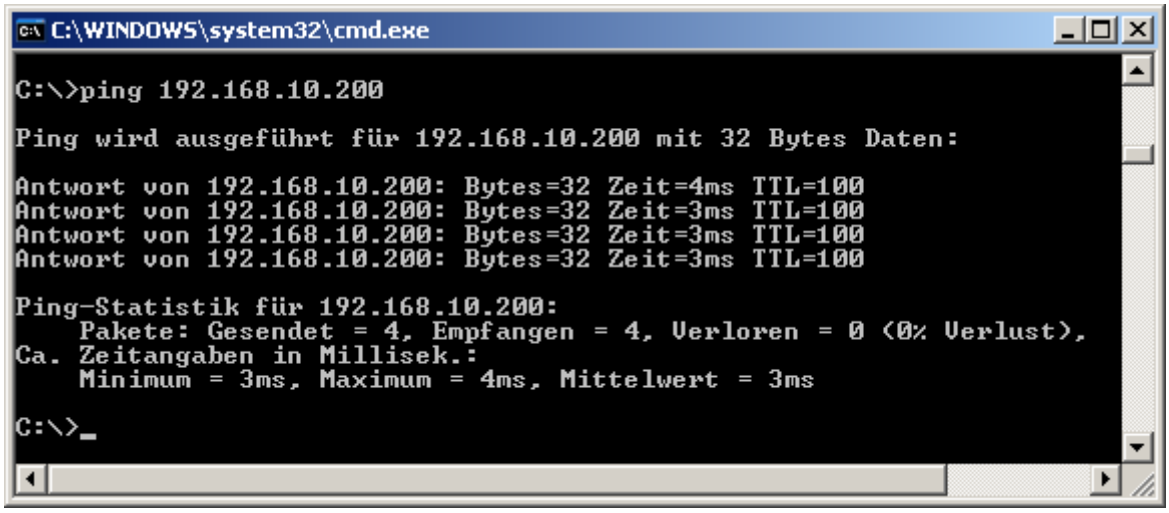
6. In Windows, start a command shell via Start → "Run" by entering "**cmd**".

7. Determine the network settings of the PC via the "**ipconfig**" command:



Note the IP address of the PC (e.g. 192.168.10.20) and the subnet mask of the LAN network (e.g. 255.255.255.0).
From the subnet mask and the IP address of the PC, it can be seen that all IP addresses in this network must begin with 192.168.10.xxx.

8. The Bootloader must be assigned an IP address that does not yet exist in the network. The "**ping**" command in the command shell can be used to check if (e.g.): the desired IP address 192.168.10.**200** is free**:**

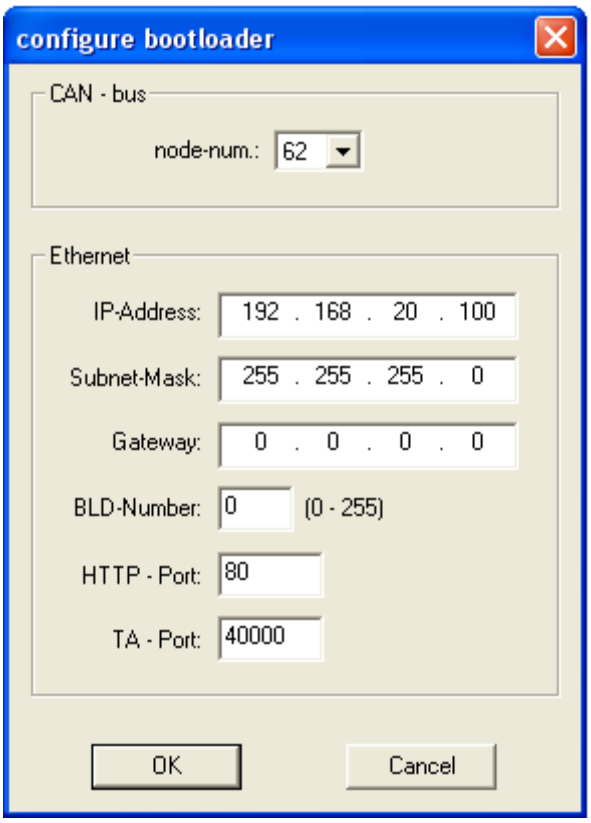


Since the "**ping**" command above received an answer, the IP address 192.168.10.**200** is already assigned to a device in the network and cannot be used for the BL-NET. A new attempt with the IP address 192.168.10.**210** is therefore started:

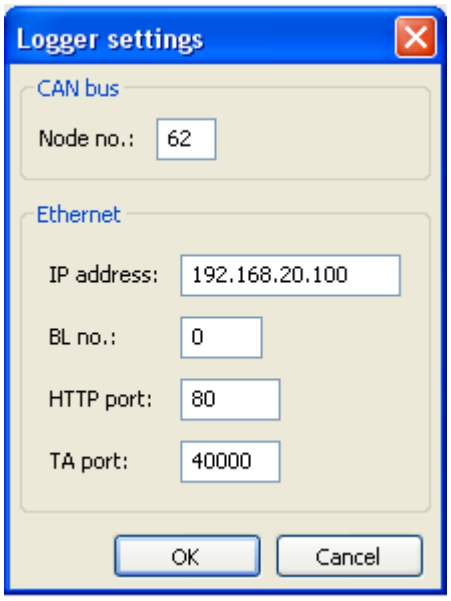
The IP address 192.168.10.**210** is not yet used (no answer to the "ping") and can thus be assigned to the BL-NET.

9. Configuration of the Ethernet interface of the BL NET takes place in ***Memory Manager*** in "**SETUP**" under "**Configure Bootloader**"; in ***Winsol*** the input mask can be found under (**Logger → Settings**):

Memory Manager:



Winsol:



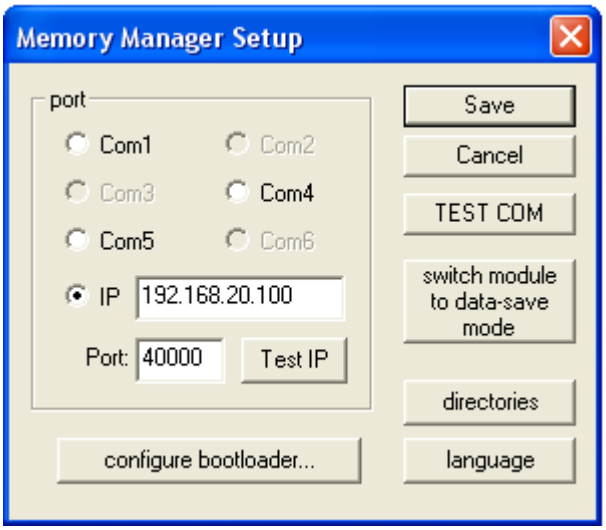
IP address:	The BL-NET is assigned the free IP address determined via "**ping**".
Subnet mask:	The subnet mask of the network is not used.
Gateway:	The gateway is not used.
BLD number:	If several Bootloaders are connected to the LAN network then each Bootloader must be assigned a different BLD number!
HTTP port	The port used to access the Bootloader via a browser can be set to any desired value (default is port 80)
TA port:	Communication between ***Winsol*** and ***Memory Manager*** with the BL-NET occurs via this port. It is recommended to leave this port at the factory setting of 40000.

Clicking "**OK**" transfers the settings to the Bootloader and this restarts with the changed configuration (IP address, etc.).

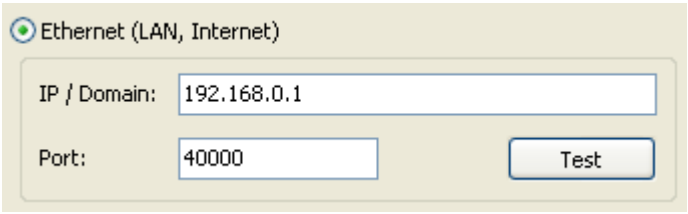
10. The Bootloader is now correctly configured for the network and can be integrated into the network. **When doing so, ensure that the Ethernet interface of the BL NET is only activated when a 12V power supply (CAN-NT) is available!**

11. After the Bootloader has been prepared, the PC software must also be configured with the correct IP address and corresponding port. Point 9 describes configuration of the device only. Since several Bootloaders can be connected in a LAN network, this information must be specified again in the software (***Winsol*** or ***Memory Manager)*** in order to address the correct BL-NET.

Memory Manager:

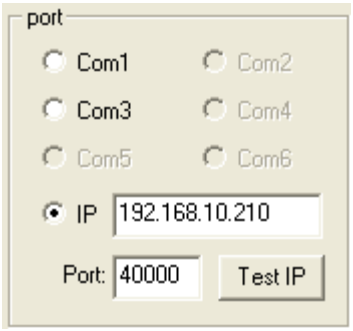


Winsol:
(Setup dialogue, 1st window)

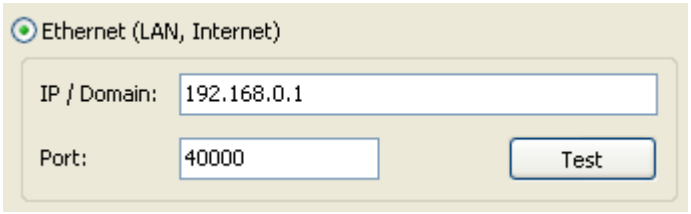


12. The Ethernet connection can then be checked via "**Test IP**". Access to the BL-NET via a browser (Opera, Internet Explorer, etc.) using the IP address is now possible, and thus also to the CAN network (UVR1611).

Memory Manager:



Winsol:
(Setup dialogue, 1st window)



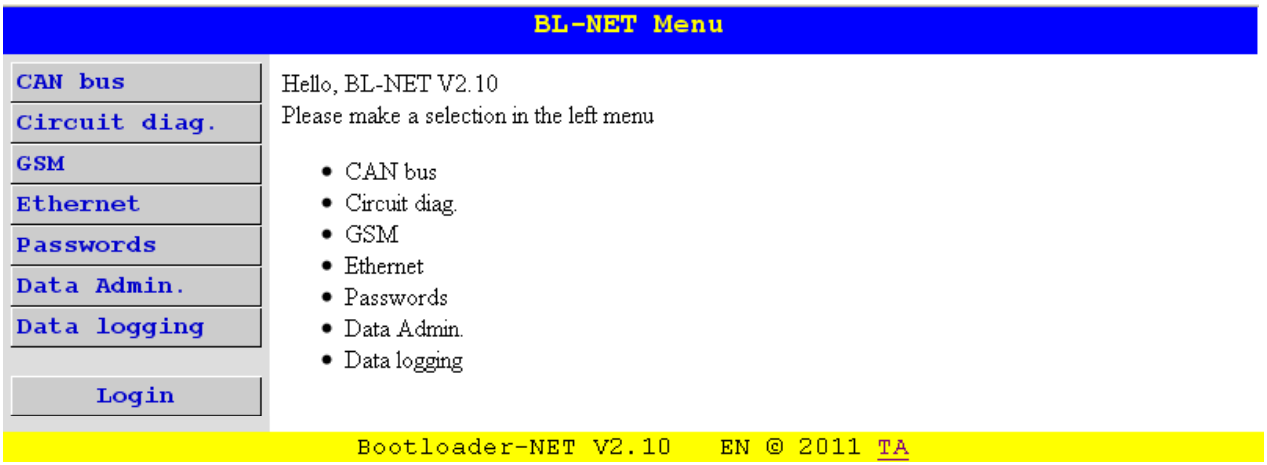
Warning! The IP address is not transferred when downgrading from version 2.19 to 1.43 and also when a new upgrade to version 2.19 is carried out. Hence a USB connection is essential!

Accessing the BL-NET via a browser

Any browser (Internet Explorer, Mozilla Firefox, Opera, etc.) can be used to access the BL-NET. By using the back function, the last **displayed** page is made visible, which may possibly no longer be displaying the latest values. To ensure that the latest values are displayed, the button "Refresh" in the menu views must always be used.

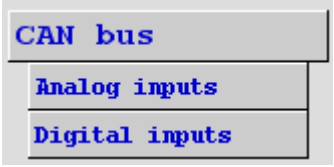
Accessing main menu page (BL-NET Menu)

Entering the IP address of the BL-NET into any browser will display the BL-NET main page.



By selecting one of the menu points on the left, the next described menu is accessed. The link "TA" at the bottom right opens the "Technische Alternative" homepage.
Menu points:

"**CAN bus**": The "*CAN bus*" menu shows all active devices (nodes) connected to the Bootloader via the CAN bus. Selecting a node allows direct access to the menu pages of the node.
If this menu point is selected, 2 sub-menus drop down:



Bootloader CAN network analog inputs

Bootloader CAN network digital inputs

"**Circuit diag.**": The Bootloader offers online visualisation, which provides a graphical representation of the current state of the system when viewed with a browser over the LAN or the Internet (see chapter „***Online diagram***“).

"**GSM** ": The status of BL-NET network inputs can be queried and the values for network outputs can be set via SMS. The "***GSM*** " menu allows configuration of each of 16 analog and 16 digital CAN network inputs/outputs of the BL-NET and GSM settings. Events can also be defined that cause the Bootloader to send an SMS and/or e-mail when they occur. A built in GSM module is essential for all these functions. **The GSM module has its own operating manual.**

"**Ethernet**": The Ethernet settings can also be changed using a browser. However, since an Ethernet connection to the Bootloader must already exist, configuration of the Ethernet settings during **first-time commissioning** via USB interface is essential.

"**Passwords**": To prevent unauthorised external access (Internet, Intranet, etc.) the BL-NET has a password system. **To ensure protected and safe access via the Internet, additional safety precautions at the router are absolutely necessary.**

"**Data Admin.**": ("Data administration") The BL-NET Bootloader allows the transfer of functional data or operating systems to devices in the CAN network (UVR1611, CAN monitor and CAN-I/O module) over Ethernet using a browser.

„Data logging": Display of the used memory capacity and specification of a percentage, the exceeding of which causes a text message or email to be sent (where a GSM module is fitted).

MENU Passwords

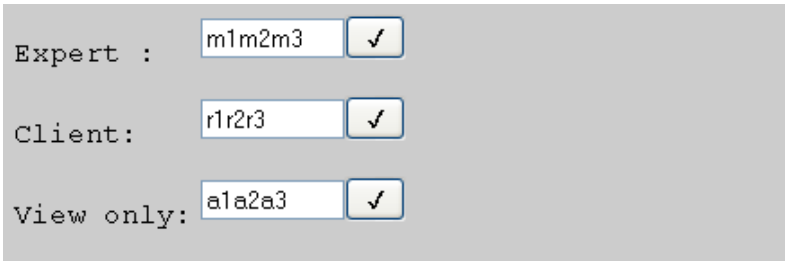
WARNING:

As long as no passwords have been defined, all persons knowing the IP address have unlimited access to the system, including all options for changing programs and settings!

No password is saved in the factory setting. If an expert password has been assigned, the other operating levels can also only be reached via passwords. If passwords are set, then when calling the main menu page the operating level must first be selected in the **Login** menu and the password entered.

If an incorrect password is entered or an unpermitted access made when calling a sub-menu the following message appears:

Access denied!!!



The save button must be pressed after entry of each password.

Password entry is case-sensitive and special characters are not permitted.

Operating levels:

„**Expert** ": Expert users can change all parameters and settings.

„**Client**": The user has the option of accessing the function overview at the controller and then changing parameters and times there.

„**View only**": The user has the only possibility to view the Online diagram. Setting the password "**12345**" allows access to Online diagram without password input.

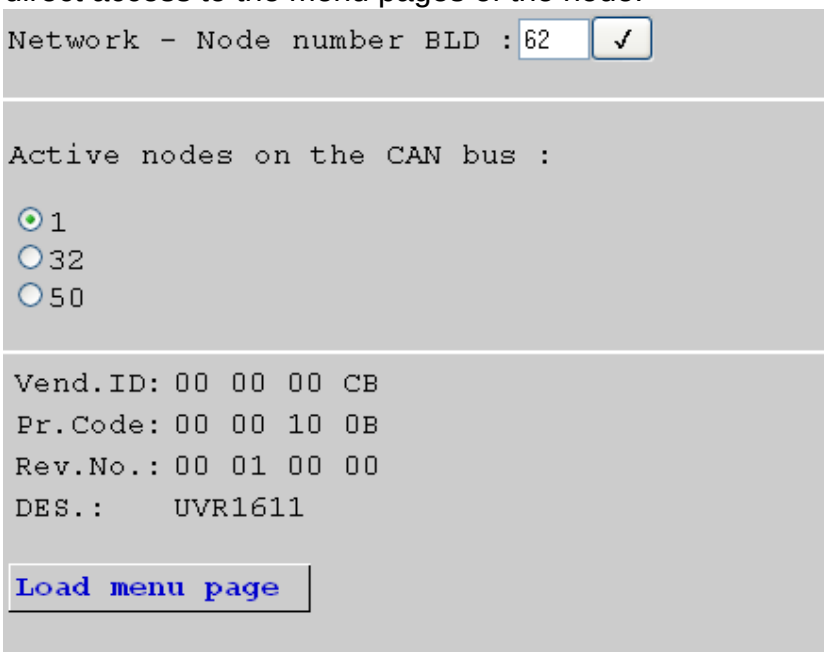
Accessing BL-NET via browser

When work with the BL-NET is finished, it is recommended to end the session via the logout button. The session is automatically ended after 2.5 minutes without communication. Re-entry is only possible through a renewed login.

If the browser is closed without clicking the logout button, then no other login can occur for the next 2.5 minutes!
Only one user can work on the Bootloader at any given time.

Menu CAN bus

The "***CAN bus***" menu shows all active devices (nodes) connected to the Bootloader via the CAN bus. Selecting a node and then executing the "Load menu page" command allows direct access to the menu pages of the node.



According to the illustration, the Bootloader is node 62 of the CAN network.

Nodes 1, 32 and 50 are active in the network.
Node 1 is selected, in this case an UVR1611.

Select : Select the desired active node, by clicking the button "**Load menu page**" to access the node.
The menu page of the device is then displayed.

Network - Node number BLD: This is where the Bootloader node number is changed (factory setting: 62). Enter and confirm the new number by clicking the save button.

Vend. ID: Manufacturer identification number (CB for Technische Alternative GmbH)

Pr.Code: Product code of the selected node (here for a UVR 1611)

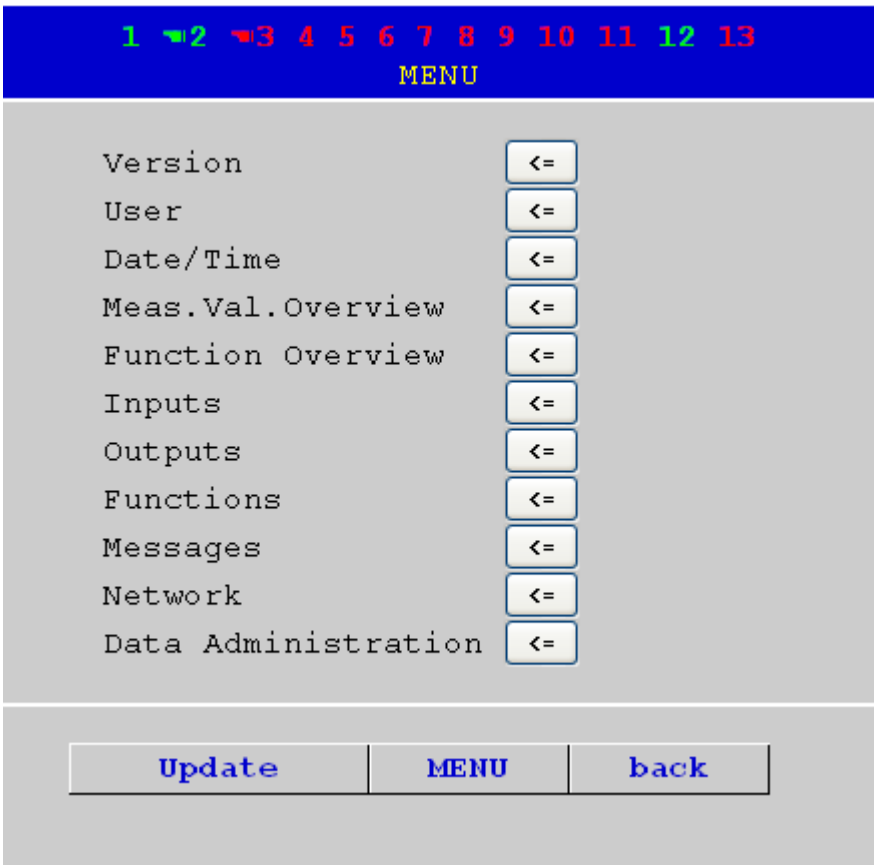
Rev.No.: Revision number

DES.: Node product designation

These data are fixed values specified by Technische Alternative GmbH and cannot be changed.
Access to the menu page of a CAN monitor is not possible.

UVR1611 menu page

Only the values current at the time of loading of the page are displayed. In order to display the actual (latest) values, the page must be updated.



As with the controller, the top line shows the status of the outputs:

Green: Output **on**
Red: Output **off**
The **hand symbol** means manual mode.

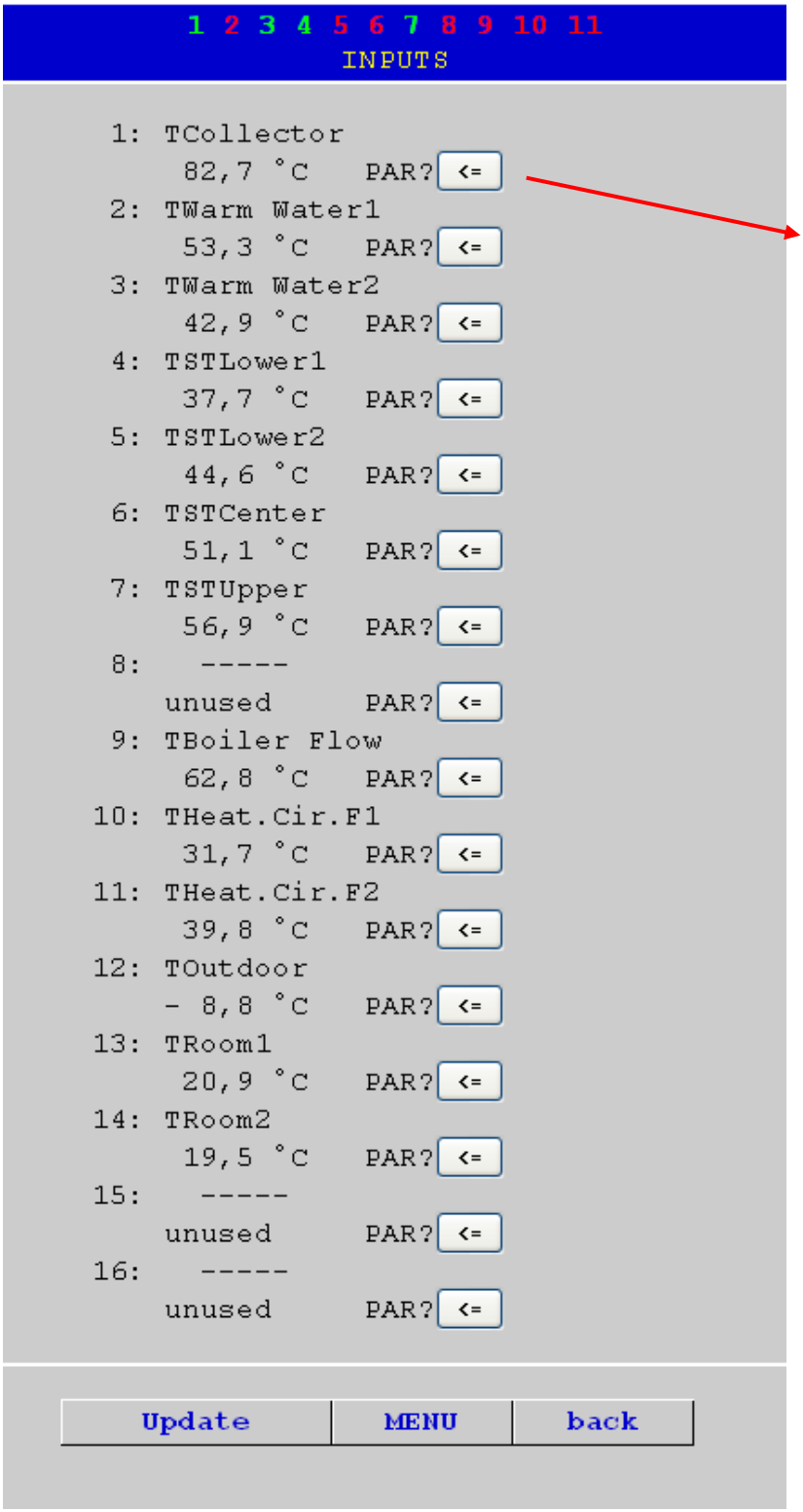
Clicking a link symbol <= accesses the corresponding selected sub-menu.

These buttons allow direct selection of the most important submenus. (Exception: menu "User").

Update	The actual values will be reloaded with this button.
MENU	Getting back to main menu of CAN device with „MENU“.
back	The **last displayed** page will be visible using the „back“ function. Perhaps it does not show actual values.

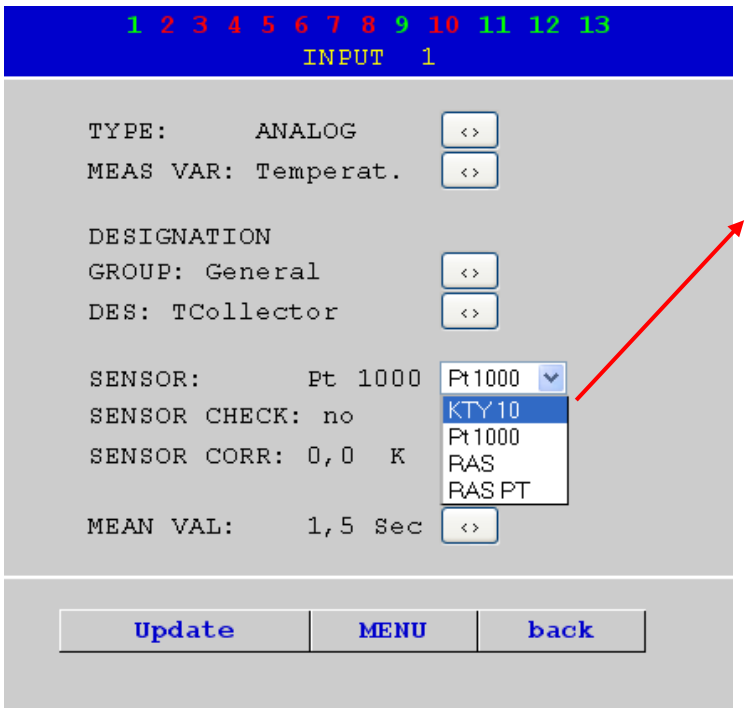
Navigating, parameterizing and configuring in sub-menus are made in the same way as at the controller itself. But it is not possible to insert or delete function modules. A manual adjustment of mixer outputs is not possible.

Example: Parameterizing input 1



After selection of the menu item "Inputs" this page is displayed, which has the same layout as in the controller.

By clicking the link symbol next to the desired input, the following display is brought up:

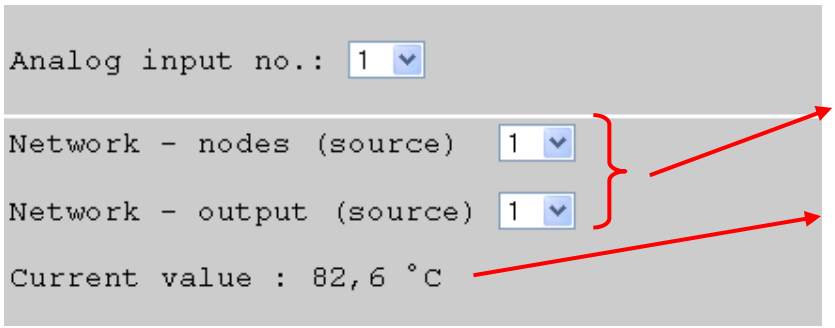


Clicking the link symbol of the corresponding parameter displays a selection list with the available adjustment parameters.

After making a selection (identifiable by colour highlighting) by mouse clicking, the new controller parameter is immediately transferred via the CAN-bus. The controller stores the parameter and then returns the corrected menu page, which is then redisplayed by the browser.

Sub-menu Analog inputs

In this sub-menu of the "CAN bus", the CAN network analog inputs of the Bootloader BL-NET are configured:



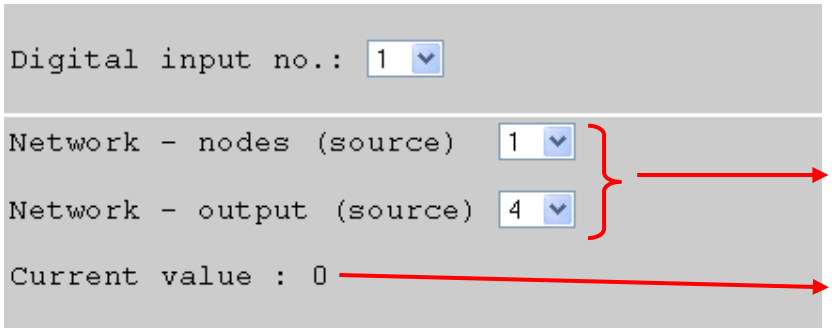
Example: Configuration CAN network input Analog 1:

Network node and Network output of the source

Current value (if there is no decimal point display or units, the Bootloader must be briefly disconnected from the CAN bus)

Sub-menu Digital Inputs

In this sub-menu of the "CAN bus", the CAN network digital inputs of the Bootloader BL-NET are configured:



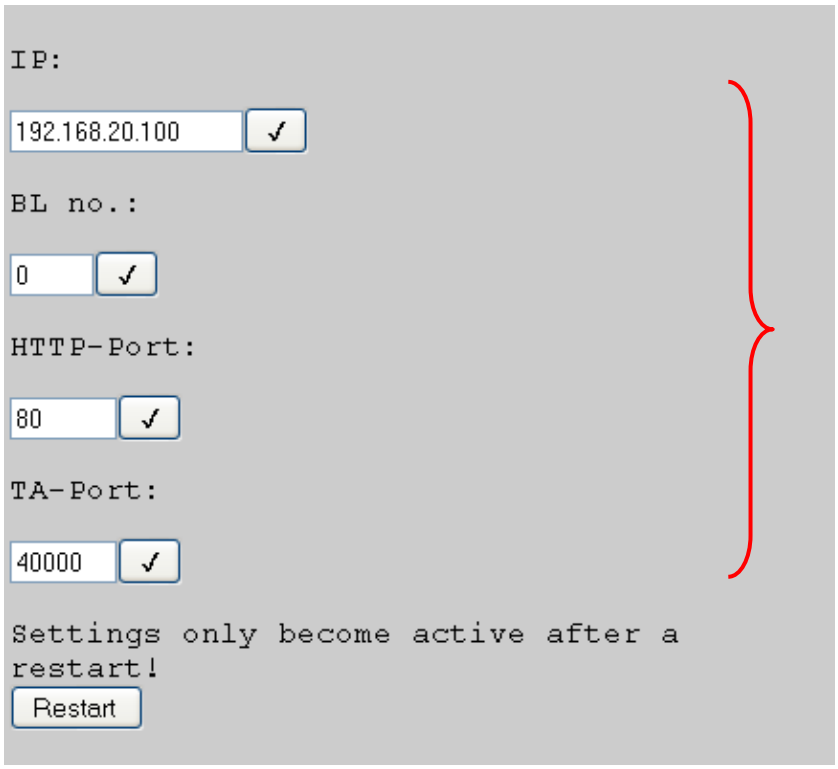
Example: Configuration CAN network input Digital 1:

Network node and Network output of the source

Current value (1 = ON, 0 = OFF)

MENU Ethernet

The Ethernet settings can also be changed using a browser. However, since an Ethernet connection to the Bootloader must already exist, configuration of the Ethernet settings via the USB interface during first-time commissioning is recommended. **See also the section "*Connecting the BL-NET to a LAN network*"**



Enter and confirm the new number by clicking the save button ✓

Changes do not take effect until the restart of the BL-NET!!!

NOTE: Setting of an IP address where the first three number combinations differ from the LAN network (here 192.168.20.xxx) or of an address which already exists in the network, means that it will no longer be possible to access the Bootloader **in this** network. New parameterisation of the Ethernet connection via a USB connection is required before normal Ethernet access is possible once more.

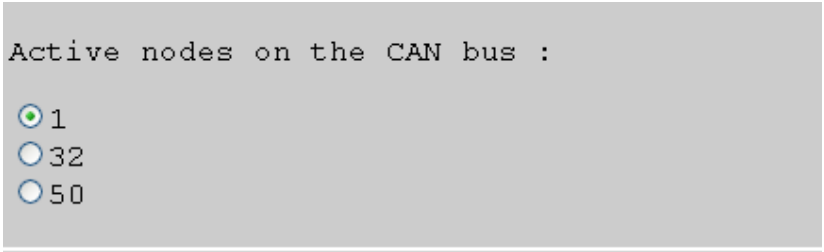
BL- no.:	If several Bootloaders are connected to the LAN network, each Bootloader must be allocated a different BL number!
HTTP-Port	The port, via which the Bootloader is accessed using the browser, can be freely set (default, port 80).
TA- Port:	***Winsol*** and ***Memory Manager*** communicate with BL-NET via this port. It is recommended that the setting for this port is left at the factory setting, 40000.
MAC-Address	02 50 C2 5C 60 xx (xx = BL-number)

MENU Data Admin. (Data administration)

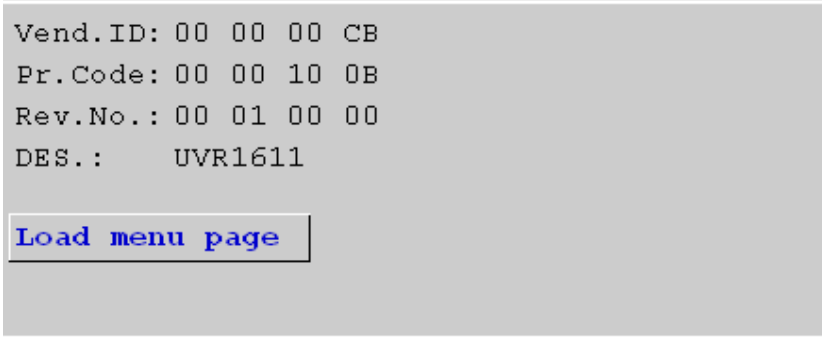
The BL-NET Bootloader allows the transfer of functional data or operating systems to devices in the CAN network (UVR1611, CAN Monitor and CAN-I/O Module and Bus converter CAN-BC) over Ethernet using a browser.

For security reasons, we recommend carrying out a local operating system update rather than via the Internet (remote maintenance). A transfer using the browser via the controller menu "Data Administration" should **not** be carried out.

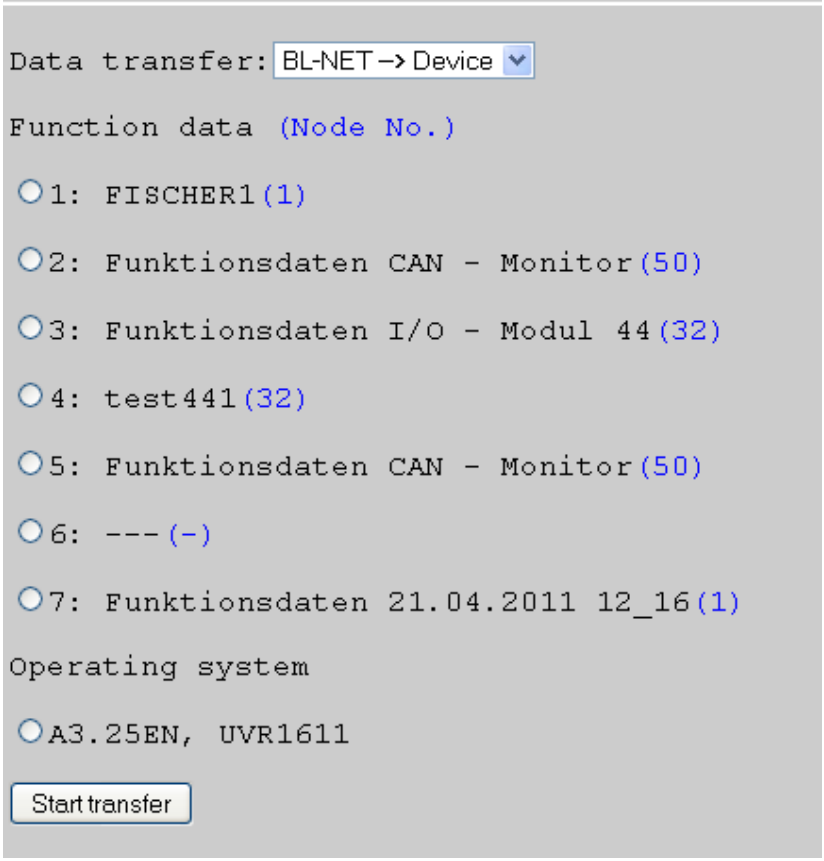
Page in browser: | **Selection process:**



Select the node with which the data transfer is to occur



Option for loading the node menu page



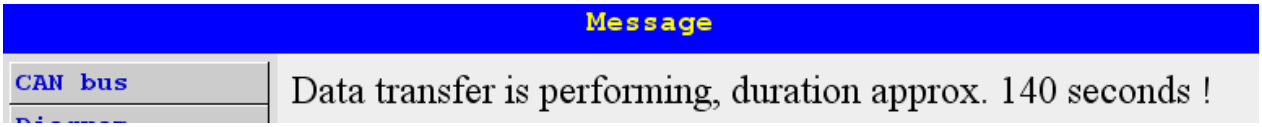
Select the transfer direction of the functional data

Select the memory position of the Function data. The name of the data is displayed next to the memory position number; in addition the node is given in brackets from the saved function data.
During a data upload (Device -> BL-NET) the data of the selected Bootloader memory location is overwritten, if any data was already stored there.

Operating system transfer

Start transfer

The following message appears once the transfer has started:

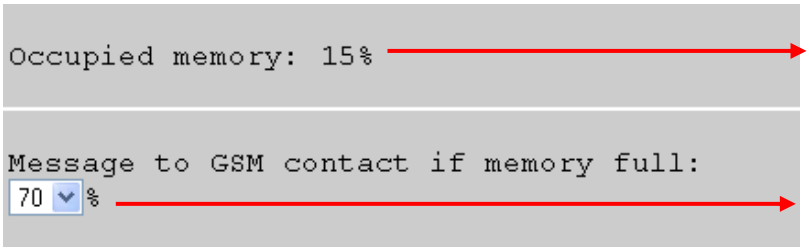


Function data require approx. 25s and operation systems approx. 140s transfer time. If the boot sector is also updated, the transfer time is longer and a browser message can also be generated, stating that the connection has failed.

Once the transfer is ended, the status of the transfer is automatically displayed in the browser ("…successful" or " Error during data transfer on the CAN bus ")

Once the transfer is complete, the page is displayed by pressing one of the buttons.
Note that, after the transfer, the controller is restarted and the node is not visible at the BL-NET for about 20 seconds

MENU Data logging



Display of memory used in percent

Setting of the percentage value, the exceeding of which results in a message to the GSM contacts, for which the option “data logging” in the Menu **GSM** has been selected (when a GSM module is fitted).

Data transfer BL-NET ⇔ UVR1611

Selection of the interface for the data transfer

CAN bus line

To transfer the data via CAN, all four CAN conductors
(H, L, +, ⊥) must be connected. The battery is unimportant here.

Key to CAN symbols:
H.....CAN high
L.....CAN low
+.....+12 volt
⊥.....Mass

Infrared interface

A cable is not required for infrared transfer, only a 9V battery is required. The infrared interface is primarily intended for service purposes. It is recommended that this only be used for transferring functional data! An operating system download requires the Bootloader to be held motionless on the controller for several minutes (**if this is not successful, transfers can then only be done using a cable**)!

Position of the BL-NET on the controller for infrared transfers:

- Upper edge of the BL-NET lies at the lower edge of the UVR display
- Display side edges are marked with →|**DISPLAYPOSITION UVR1611**|← on the BL-NET

NODE 63:

Data transfer of the operating system and functional data is always performed by the Bootloader using node 63 of the CAN network.
This special node number is used exclusively for these data transfers and must not be assigned to any device in the CAN network.
The device waiting for data transfer with the Bootloader automatically uses node number 63 for this period of time.

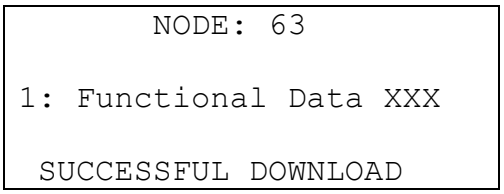
Data transfer procedure

The device that is to exchange data with the Bootloader must be prepared for the data transfer. Once the device is ready for communication, the data transfer is started by pressing the **START** button on the BL-NET.
When the START button is pressed, the green LED on the front of the BL-NET begins to flash rapidly. This indicates that the BL-NET is attempting to establish communication with the controller (no data is transferred at this point!).
If the red LED lights up cyclically during an infrared transfer then the battery voltage has reached a critical level and the battery must be replaced as soon as possible.

Functional data download (BL ⇒ UVR1611)

Data down- and upload to and from the controller are started at the controller. The Bootloader has 7 memory positions for functional data. These can be written with data from the controller or functional data from the PC (using the ***Memory Manager*** program). The functional data upload differs only in the selection of the transfer direction (CONTR. => BOOTLD.) and is not described here in detail.

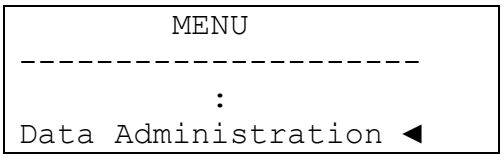
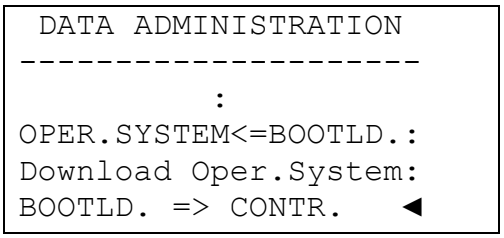
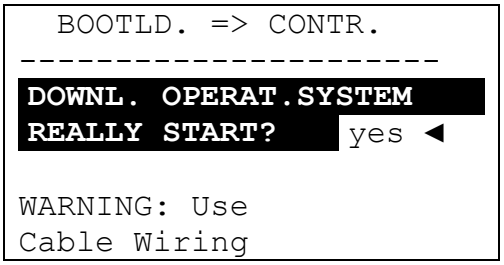
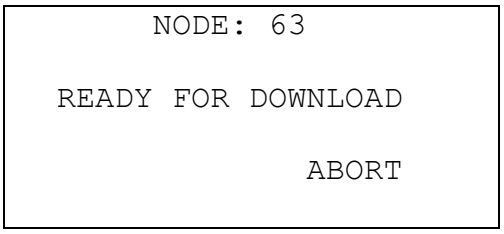
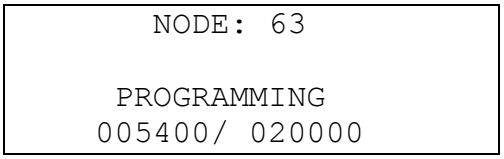
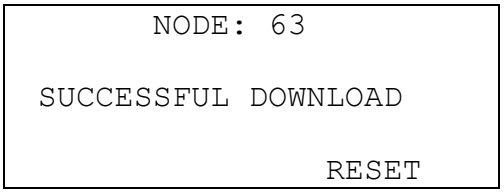
Controller view	Comment
MENU ---------- : Data Administration ◄	Select Data Administration in the main menu of the UVR1611 controller
DATA ADMINISTRATION ---------- : DATA <=> BOOTLOADER: Upload Data: CONTR. => BOOTLD. Download Data: BOOTLD. => CONTR. ◄	select Download Data: BOOTLD. => CONTR.
BOOTLD. => CONTR. ---------- DATA SOURCE: BOOTLD. Storage Point: 1 ◄ TARGET: Contr. Funct. Data Overwrite? yes Factory Settings Overwrite? no !!! CAUTION !!! ALL COUNTER STATES ARE LOST! DOWNLOAD DATA REALLY START? yes ◄	Select the desired storage point for the functional data at the BL-NET Overwrite the controller functional data? Adopt the functional data as the factory setting? The controller switches to transfer mode
NODE: 63 READY FOR DOWNLOAD ABORT	The controller is ready for the data transfer. When the **START** button on the Bootloader is pressed, the green LED begins flashing rapidly and the data transfer starts. **ABORT** = Last option for cancelling the data transfer (press right key)
NODE: 63 1: Functional Data XXX PROGRAMMING 000700 / 007FB0	The transfer is running Name of the functional data Progress display



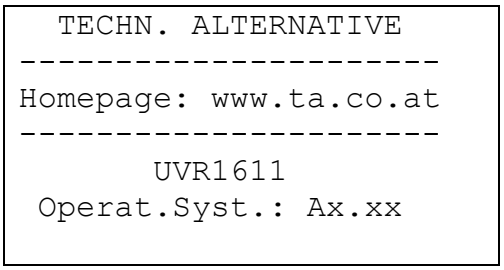
The functional data was successfully loaded into the controller.

Operating system download (BL ⇒ UVR1611)

The latest operating system versions can be downloaded from the homepage at www.ta.co.at. The Bootloader can only manage one operating system. This download contains the boot sector and operating system for the controller. The boot sector can be compared with the BIOS on a PC. The boot sector can also change for technical reasons. In this case, when updating an operating system the boot sector is loaded first and the download of the actual operating system is then automatically started after this. If the boot sector is the same then only the new operating system is loaded.

Controller view	Comment
	Select Data Administration in the main menu of the UVR1611 controller
	select Download Oper.System: BOOTLD. => CONTR.
	The controller switches to transfer mode A cable connection should normally be used for transferring the operating system!
	The controller is ready for the data transfer. When the START button on the Bootloader is pressed, the green LED begins flashing rapidly and the data transfer starts. **ABORT** = Last option for cancelling the data transfer (press right key)
	The transfer is running. Progress display
	The data was successfully transferred to the controller .

Data transfer



Note: if the boot sector and operating system are updated the steps 4 to 6 are repeated without the START button being pressed again

After the operating system update is finished, the start page is displayed on the controller.

Data transfer via Ethernet using a browser

With the BL-NET it is also possible to start the data transfer using any desired web browser. A precondition for this is that an Ethernet connection has already been set up (see chapter "Data Amin. (Data administration)").
Procedure:

a) Select "**Data Admin.**" (Data administration) in the BL-NET main menu
b) Select the node (the controller with which communication is to occur)
c) Select the transfer direction
d) Select the data (functional data or operating system)
e) Start the transfer

When the transfer is finished, an appropriate message is displayed in the browser ("…successful" or " Error during data transfer on the CAN bus ").

Troubleshooting data transfers

Operating system download (BL → UVR)
If an error occurs when transferring the operating system, after an automatic restart the controller continues to wait as "**NODE 63**" for the operating system data transfer to begin again ("**READY FOR DOWNLOAD**"). As long as the operating system has not been fully loaded into the UVR1611, the controller has no other functionality.
Pressing the START button on the Bootloader starts the data transfer again.
For this reason, an operating system update should not be carried out by remote maintenance for security reasons.

Functional data download (BL → UVR)
If an error occurs when downloading functional data, the controller automatically performs a total reset of the configuration. The "*Node No.*", "*Enable*" and "*Autooperat.*" network settings are not changed.
The data transfer of the functional data must be performed again.

WARNING! If a transfer fault occurs in a network with multiple devices, a data transfer to a different device must not be started until the fault is fixed!

In general, an operating system should only be updated when functions that are only contained in the newer operating system are required (Never change a running system!). Similar to PC BIOS updates, an operating system update always represents a certain small risk.

Online diagram

The Bootloader offers online visualisation that provides a graphical representation of the current state of the system when viewed with a browser over the LAN or the Internet.
This online diagram consists of a graphic file (e.g. hydraulic schematic) and the associated HTML file defining the parameters to be displayed.
The files (*.gif and *.html) can be stored in the Bootloader using the ***Memory Manager*** program (see chapter "**Transfer of Bootloader data**").

Creating a graphic for the online diagram

The graphic can be created using any desired graphics or drawing program, or with ***TAPPS 1.xx***, whereby the following points should be observed:

1. The graphic must be provided to the BL-NET in *.gif format. If no graphics program is available, simple graphics can also be created using ***TAPPS 1.xx***. Conversion of the file into the various formats can be simply carried out using the Windows accessories program "Paint". More demanding graphics can for example be created using the free graphics program "Inkscape" (download at http://inkscape.org/download/).
2. The file must not exceed the maximum size of 196 kilobytes! To reduce the loading time when displaying the online diagram, the graphic file should be kept as small as possible.

Creating the HTML file

A HTML file containing all information defining the appearance of the page is required for displaying the online diagram.
The HTML file can be created using the programming software ***TA-Designer*** of the CAN-TOUCH

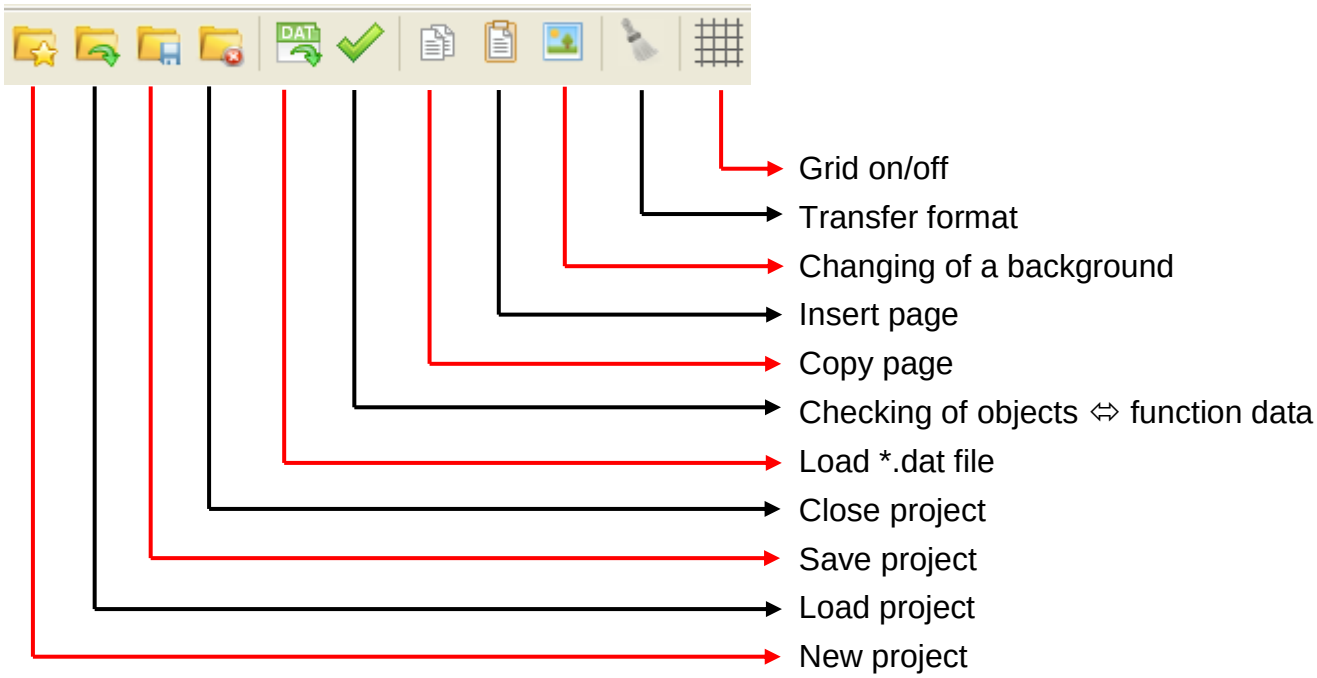
Programming with *TA-Designer* (from 1.08)

The program permits the simple programming of an online schematic. An *.html file is produced, which together with the *.gif graphic file can be loaded with the ***Memory Manager*** in the Bootloader BL-NET.
Usually the online schematic is created in a new project, it can however also be produced inside the CAN-TOUCH project.

Online diagram

Toolbar

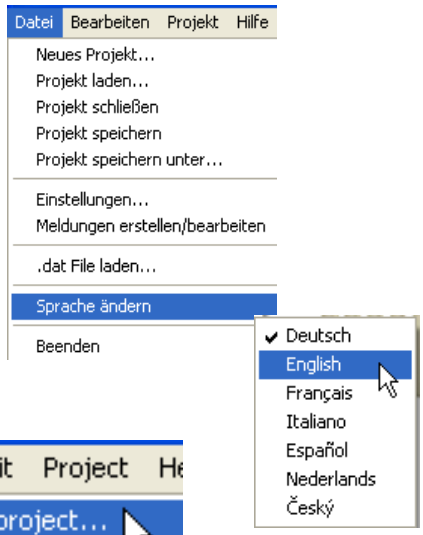
Frequently used actions can be started with a single mouse click on one of these icons.
These actions are described in the following chapters.



1. **Preparation**: Creation of the graphic in the ratio **4: 3 (1024 : 768 Pixel)** which is intended for the online schematic in ***.gif - format** (size: max. 196 Kilobyte) and provision of the function data (*.dat – file).

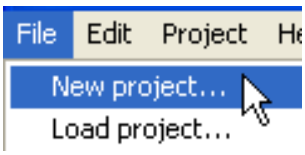
2. Start the program ***TA-Designer***

3. If necessary: Change language and restart program

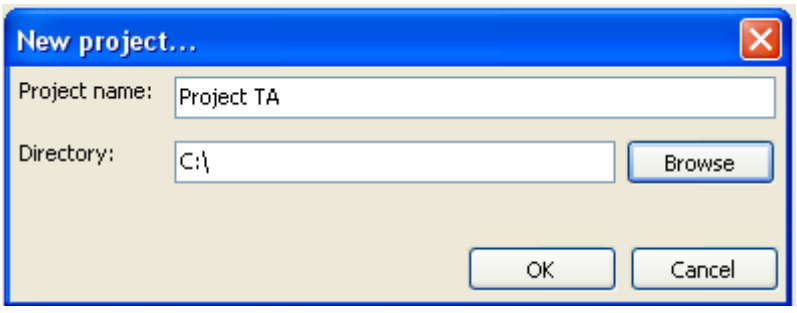


4. Select the menu "**File/New project..**"

Alternatively: Click the icon in the toolbar.

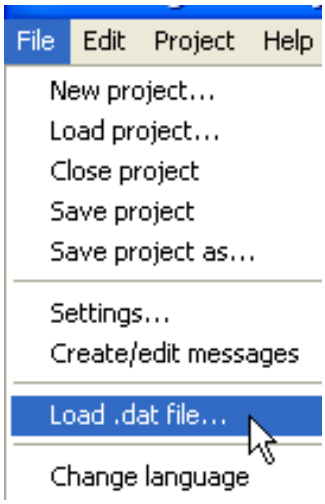


5. Select the project directory and enter the project name.
Example:



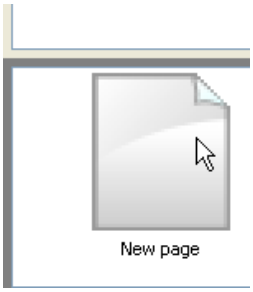
6. **Optional** (recommended for CAN bus devices): Selection of the function data (*dat - files). The *.dat files of the UVR1611 controller, the CAN-I/O module, CAN-BC and CAN-EZ can be loaded. One copy of the selected *.dat file is copied from the ***TA-Designer*** to a new folder *Project name*/TA-Designer.

Alternatively: Click the icon  in the toolbar.

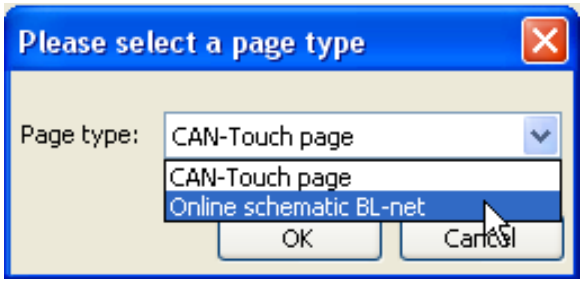


Warning: If functions are subsequently added to the controller or deleted resulting in a change to the function sequence, the project must be edited. Delete the original *.dat file, load the changed *.dat file, delete the values from the old functions, insert the values from the new functions.

7. Set up a **new page** by double clicking on "**New page**"
The following selection window appears:



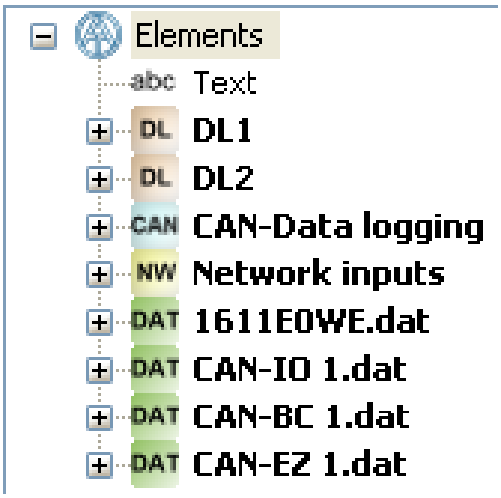
Confirm the "**Online schematic BL-net**" by pressing "**OK**"



8. ***.gif graphic selection**

9. **Insert the values** by drag&drop from the left selection search tree into the page and specify the properties.

In the "**Elements**" area, the following value groups are available:



	Values of data lines 1 and 2 (Data logging using the DL-bus)
	Value of the CAN data logging
	Network inputs of the **Bootloader BL-NET**
	Values from UVR1611 function data
	Values from the function data of a CAN I/O module
	Values from the function data of a CAN-BC
	Values from the function data of a CAN-EZ

Online diagram

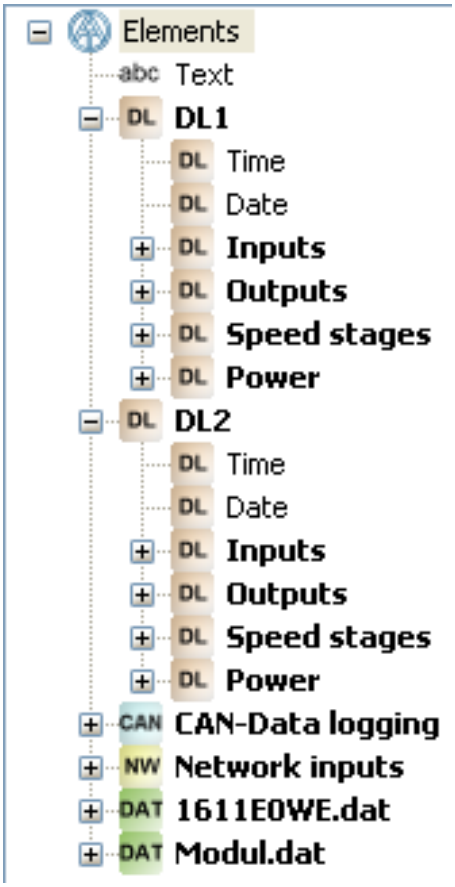
The values for the online schematic can be selected

1. from value groups DL1, DL2 or
2. CAN data logging or
3. from the network inputs of the BL-NET or
4. **directly from the function data (*.dat files).**

For CAN bus devices, preferably the 4th method (values directly from function data) should be applied because this has an easier and clearer structure.

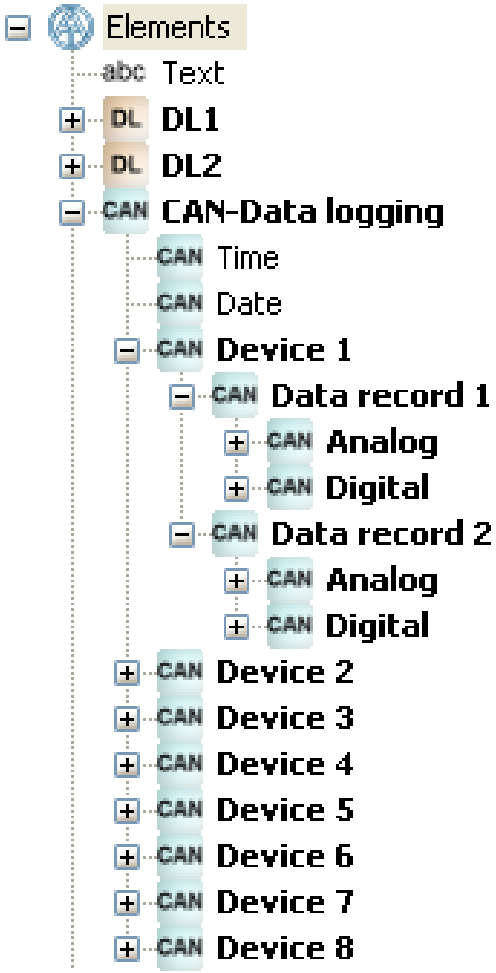
When using values from "DL1", “DL2” or “CAN data logging" it must be noted that **simultaneous** use of data from the DL bus and the CAN bus is not possible. The data logging method is specified (via DL-bus or CAN bus) in the ***Winsol*** program and thereby saved in the Bootloader.
The CAN network inputs to the BL-NET can be used by all methods.

Values from the DL-bus (DL1, DL2)
These values are fixed and cannot be changed. If with a UVR1611 controller the last query at output 14 (data link) was answered in their parameterizing with "yes" (**`NETW.IP.=>DL.: yes`**), then the area "DL2" contains the network inputs of the controller.



The values for the heat quantity counter are contained under "Power".

CAN bus values (CAN data logging)



There are 2 data records created in UVR1611 and CAN-EZ and only one data record in CAN-BC. In the ***Winsol*** program, a data record is allocated to each device and thereby saved in the boot loader.

In selecting the values for the online schematic, it must therefore be known, which data records are set in ***Winsol*** for each device.

The values in the data records are specified either using ***TAPPS***, **F-Editor** or directly at the controller. If they were not changed by programming using ***TAPPS***, then standard values are specified.

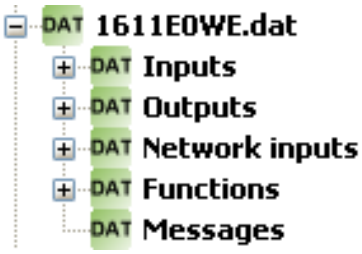
Network inputs of the Bootloader BL-NET

The network inputs are configured via the browser remote control in the Bootloader.

Online diagram

Values directly from the function data of a CAN bus device

Example: UVR1611

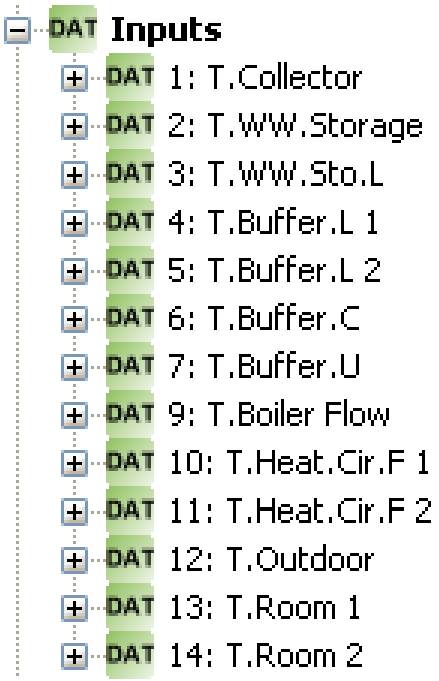


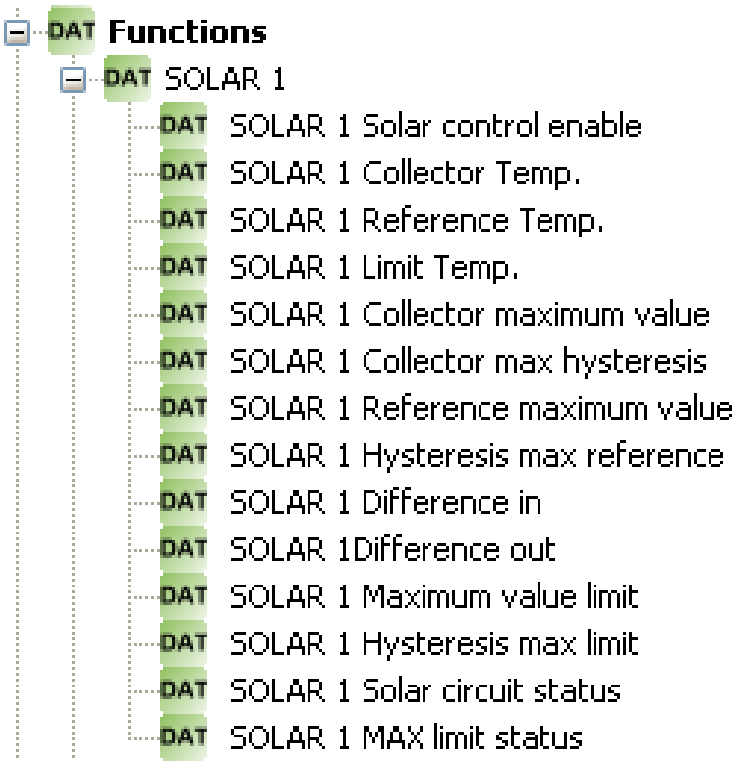
All values specified by the function data of a CAN bus device can be displayed.

If values from several CAN bus devices are to be displayed, the relevant CAN node numbers must be programmed into the individual *.dat files.

All programmed CAN bus devices must be connected to the CAN bus network, as otherwise timeout messages are displayed.

Examples: (inputs, solar function)





These are the same values as are also used when programming the CAN-TOUCH.

After the prior positioning of the value, the following display is visible: 

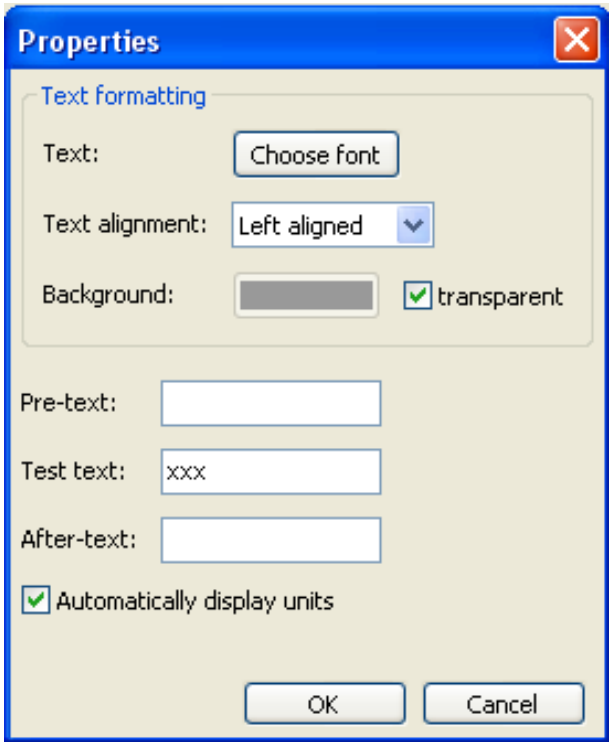
The frame indicates that the object is selected.

Clicking the left mouse key causes a non-selected object to be selected and highlighted with a frame. A selected object can now be edited.

10. Properties

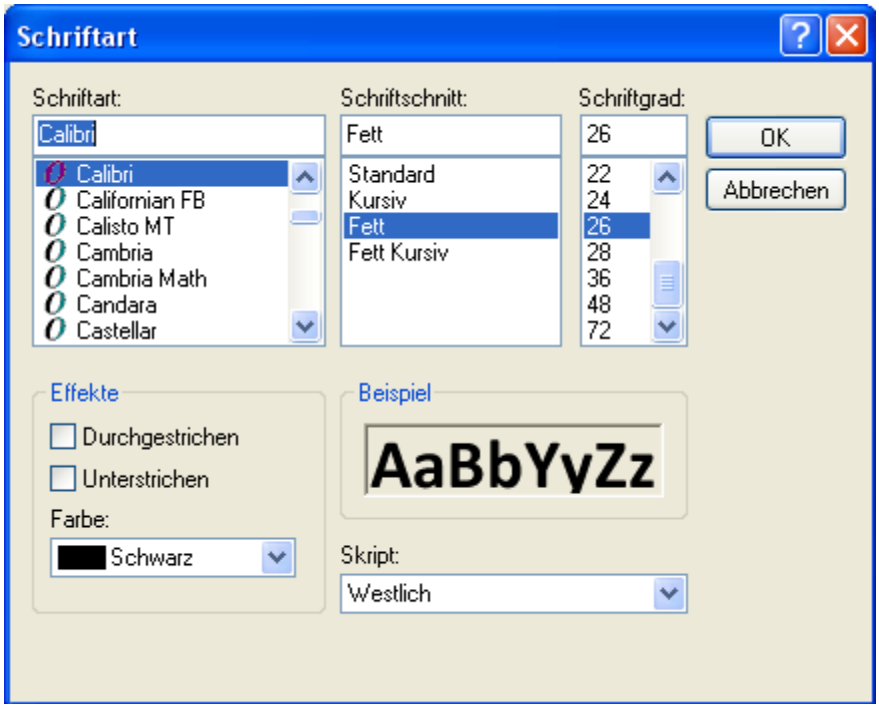
If a format is assigned to an object, then this format is stored for subsequent objects.

Double clicking the selected text field "**XXX**" or clicking "**Properties**" causes the window to appear:



The following **properties** are set in this window:

- **Font** Setting of the font type and colour in the following window:



The language in this window depends on the language setting in the PC operating system.

Online diagram

- **Left aligned/right aligned**
- **Background colour**
  Changing of the pre-set font and background colours:

Default setting: Font green, background transparent.
Clicking causes the font or background colour to be displayed in the selection field in which the desired colour can be set.
User-defined colours are also possible; these remain saved.
The language in this window depends on the language setting in the PC operating system.

- **Pre-text, Test text, After-text**
  Pre-text and **After-text** are visible in the online schematic. The **Test text** is used for simple positioning of the display in the graphic and is only displayed in the programming.
- Display with or without **automatic units**

Positioning of values

A selected value can be moved freely using the mouse or the keyboard cursor keys.

Clicking on the icon in the tool bar makes a 10 pixel grid visible.

The icon is thus highlighted in white:

The grid can be switched off by clicking on the icon one more time.

The grid can also be displayed temporarily with a click inside the diagram and by pressing and holding the Alt key on the keyboard.

The positions of all inserted objects are indicated with x/y coordinates.

The x-axis is horizontal, the y-axis vertical, the respective zero points are left or top.

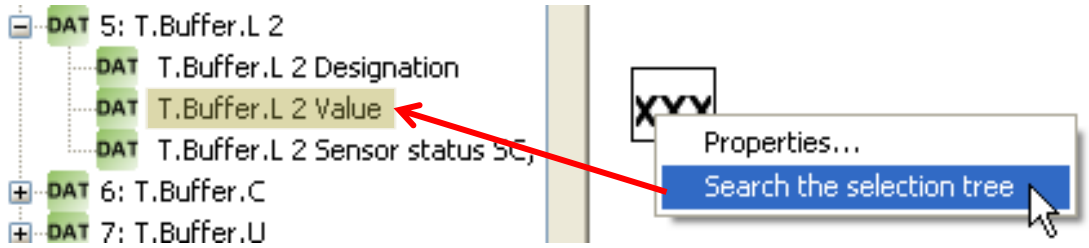
Specification of the coordinates is based on the alignment of the value (left-aligned, right-aligned or centred). For left-aligned values the top-left corner applies, for right-aligned values it is the bottom-right corner. For centred values, the coordinates of the middle of the top line are displayed.

With a displayed grid, the selected value can be moved across the grid in 5-pixel steps by moving the mouse.

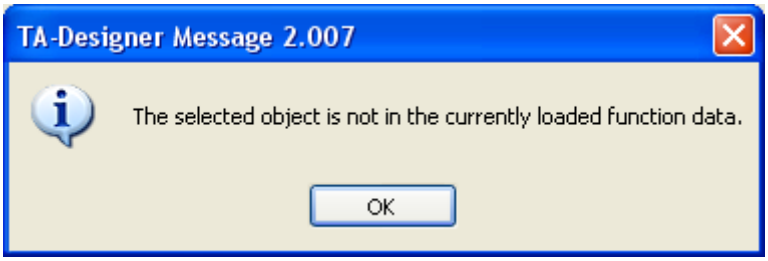
With a displayed grid, the value can be moved in individual pixel steps and hence positioned very accurately using the keyboard cursor keys.

Search the selection tree

This function allows the determination of the allocations of an object for the entry in the selection tree. This is sometimes helpful with especially comprehensive programming.

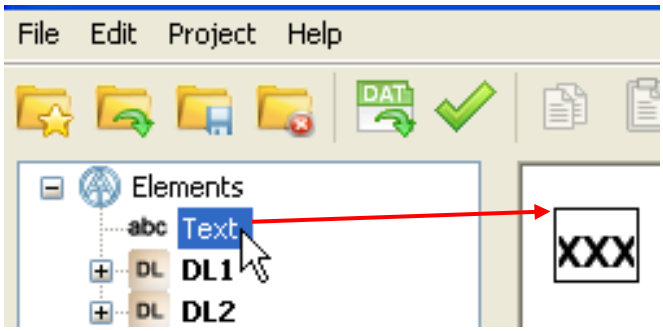


The selection is unfolded, if necessary and the entries in the selection are highlighted in colour.
If an object without reference to a loaded function file is selected the following message will be displayed:



11. Insertion of text items

The insertion of text items takes place by dragging the "Text" element in the search tree with the mouse button pressed down into the desired position in the graphic ("drag & drop").
A text item never has more than one row and can contain up to 32 text characters.



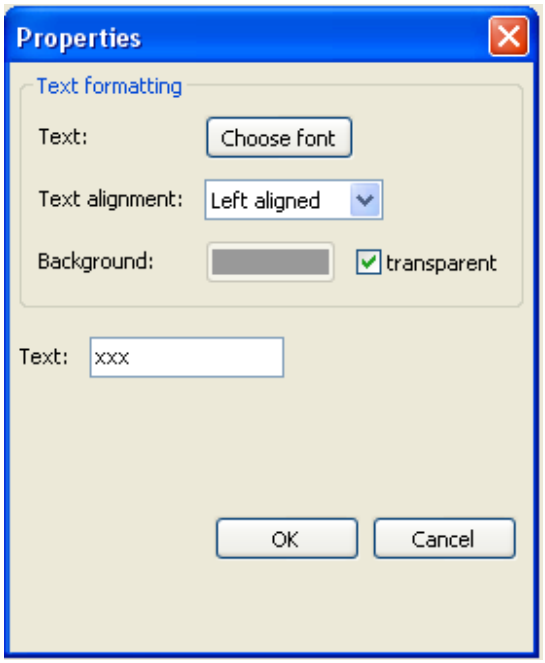
Clicking the left mouse key causes a non-selected object to be selected and highlighted with a frame. A selected object can now be edited.

Object with a frame = selected

Text properties

Specification of the text type, the text direction, the font colour, the background and entry of text.

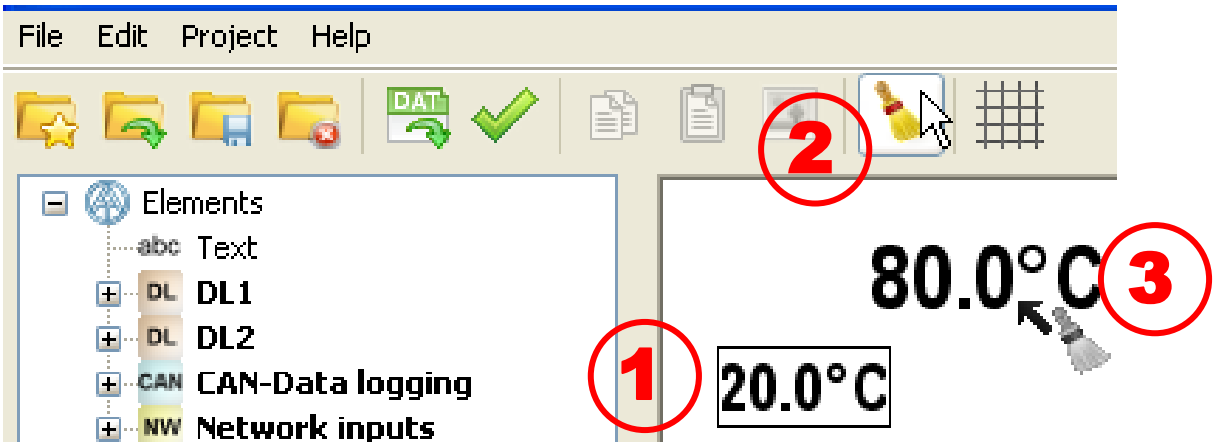
Double clicking the selected text field "**XXX**" or clicking „**Properties**“ causes the following window to appear:



In this window, the values of the following **Properties** are set analogously to setting Properties:

- **Font**
- **Left aligned/right aligned**
- **Background colour**
- **Text**

Transfer format

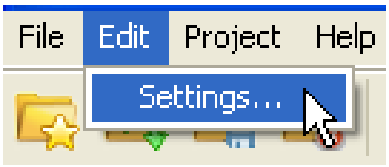


With ”**Transfer format**“ you can transfer the format of highlighted text to one or several other text passages:

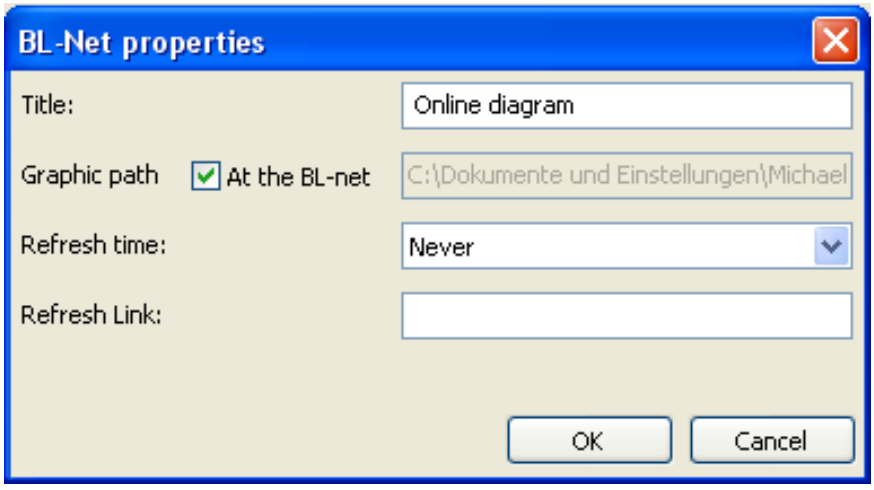
1. Highlight the text with the required format
2. A single mouse click on the  icon in the symbol bar initiates a format transfer to **one** other text. A double click on this icon transmits the format to **several** other text passages. The icon is highlighted in white if the function is activated: 
3. The cursor in the diagram changes its shape to  .Clicking on text accepts the format of the previously highlighted text for this text.
   If the format transfer for several texts has been selected then additional texts can now be formatted.

The function is quit with a click on the  icon, by pressing the Esc key or by clicking outside the diagram field.

12. Make settings for the online diagram (menu "**Edit/Settings...**")



The following settings can be made in the window:



Title: HTML title of the file (visible in the browser title bar)

Graphic path: "At the BL-net" is pre-set, however it is also possible to specify a storage location on a web server

Refresh time: Time interval settings for the updating of the current values (never or adjustable from 30 seconds to 60 minutes)

Refresh Link: Input option for a text for a link in the lower area of the online schematic with which an immediate updating of the values is made possible.

13. Testing function

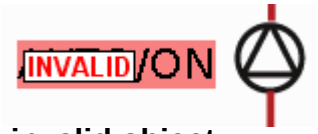
To complete project creation, the compliance of the inserted objects with the loaded function data (*.dat files) can be checked. The node number is also checked in doing that.

Clicking on the  icon in the tool bar starts testing.

The following message is displayed if the test was positive:

The respective testing results are displayed. If invalid objects are found there will be a message indicating the missing pages. All invalid objects and missing pages are marked.

Example:



invalid object

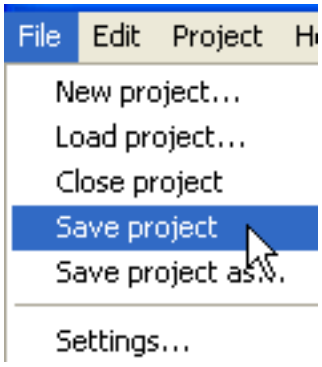
Online diagram_1024x768.gif

faulty pages

If a faulty project is to be saved or closed, there will be a prompt to check whether the project is to be saved despite the error.

14. **Save the programming** under "**File/Save project...**"; if all values are inserted in the graphic and the properties have been specified. Here an *html file is saved in the folder "**Onlineschema BLNet/SchemaX**" of the project folder and the *.gif graphic file saved in this folder.

Alternatively: Click the icon in the toolbar.



15. **Close the project**
Warning: Before closing the project it must be saved as otherwise all settings will be lost. If settings have been changed, a query is displayed to ask whether they should be saved.

16. Transfer of the *.html and *.gif tile using the ***Memory Manager*** program into the BL-NET Bootloader.

Factory settings

To load the BL-NET factory settings, the battery must first be removed and, when the CAN bus connection is plugged in, the START button on the Bootloader must be pressed and held pressed until only the green LED lights up.

The factory settings include the following parameters:

CAN bus:

Node No.:	62

Ethernet:

MAC-address	02 50 C2 5C 60 xx (xx = BL-number)
IP address:	192.168.0.1
BLD - No.:	0
HTTP port:	80
TA port:	40000

Passwords:

Expert	no password specified
Client	no password specified
View only	no password specified

Dimensions (W x H x D) 125 x 75 x 27 mm

EC- DECLARATION OF CONFORMITY

Document- Nr. / Date:	TA12014 / 19.11.2012
Company / Manufacturer:	Technische Alternative elektronische SteuerungsgerätegesmbH.
Address:	A- 3872 Amaliendorf, Langestraße 124

This declaration of conformity is issued under the sole responsibility of the manufacturer.

Product name:	BL-NET
Product brand:	Technische Alternative GmbH.
Product description:	Interface “Bootloader”

The object of the declaration described above is in conformity with Directives:

2006/95/EG	Low voltage standard
2004/108/EG	Electromagnetic compatibility
2011/65/EU	RoHS Restriction of the use of certain hazardous substances

Employed standards:

EN 60730-1: 2011	Automatic electrical controls for household and similar use – Part 1: General requirements
EN 61000-6-3: 2007 +A1: 2011	Electromagnetic compatibility (EMC) - Part 6-3: Generic standards - Emission standard for residential, commercial and light-industrial environments
EN 61000-6-2: 2005	Electromagnetic compatibility (EMC) - Part 6-2: Generic standards - Immunity for industrial environments

Position of CE - label: On packaging, manual and type label

CE

Issuer: Technische Alternative elektronische SteuerungsgerätegesmbH.
A- 3872 Amaliendorf, Langestraße 124

This declaration is submitted by

Kurt Fichtenbauer, General manager,
19.11.2012

This declaration certifies the agreement with the named standards, contains however no warranty of characteristics.
The security advices of included product documents are to be considered.

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. Processing is accelerated if an RMA number is applied for via our home page www.ta.co.at. 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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