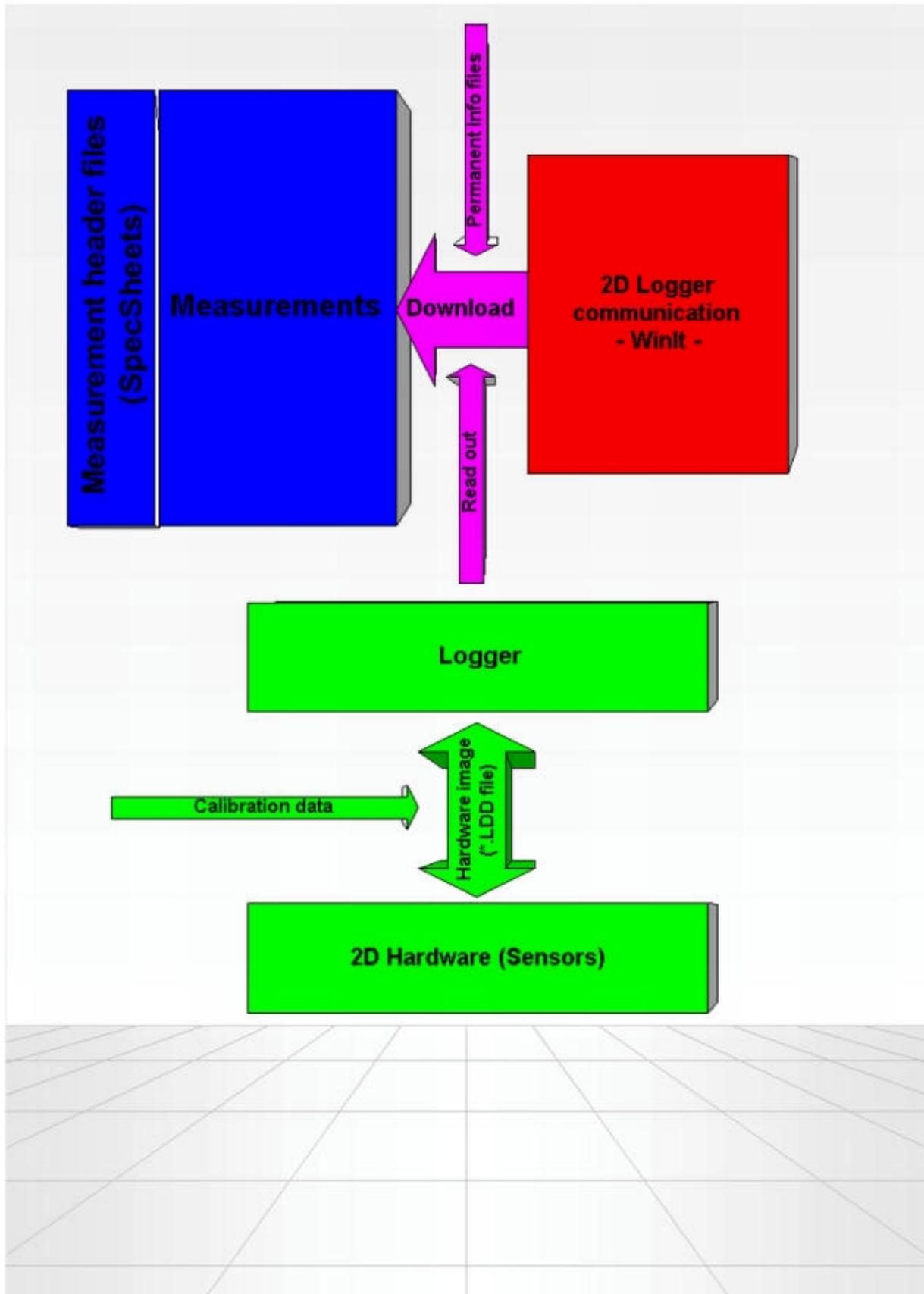


---

**Your NOTES:**



## Table of contents

<b>TABLE OF CONTENTS .....</b>	<b>4</b>
<b>1. INTRODUCTION .....</b>	<b>5</b>
1.1 WHAT TO DO WITH...?.....	5
1.2 SETTING MODE - AUTODOWNLOAD MODE .....	5
<b>2. ENSURE A FAULTLESS COMMUNICATION .....</b>	<b>6</b>
2.1 SETTING UP THE COMMUNICATION .....	6
2.1.1 <i>Automatic (at first start)</i> .....	6
2.1.2 <i>Manually</i> .....	7
2.1.2.1 <i>The options dialog</i> .....	7
<b>3. THE MAIN WINDOW .....</b>	<b>13</b>
3.1 TREE (ICONS AND THEIR MEANING).....	14
3.2 DETAIL INFORMATIONS FOR THE WINIT MAIN WINDOW .....	17
3.2.1 <i>Logger, Dashboard</i> .....	17
3.2.1.1 <i>Logger / The detail page General</i> .....	18
3.2.1.2 <i>Logger / The detail page Channels</i> .....	19
3.2.1.3 <i>Logger / The detail page Status</i> .....	20
3.2.1.4 <i>Logger / The detail page Memory</i> .....	21
3.2.1.5 <i>Logger / The detail page Version</i> .....	22
3.2.1.6 <i>Logger / The detail page Communication</i> .....	22
3.2.1.7 <i>Logger / The detail page Debug</i> .....	23
3.3 INTERFACE CAN .....	24
3.4 CHANNELS / CHANNELGROUP .....	26
3.4.1 <i>Channels: The page General</i> .....	28
3.4.2 <i>Channels: The page Analyse</i> .....	29
3.4.3 <i>Channels: The page Parameter</i> .....	31
3.4.4 <i>Channels: The page Additional</i> .....	33
3.5 TABLES.....	33
<b>4. THE MAIN MENU.....</b>	<b>35</b>
4.1 THE SUB-MENU ITEM FILE .....	35
4.2 THE SUB-MENU ITEM LOGGER .....	36
4.3 THE SUB-MENU ITEM GRAPHIC .....	37
4.3.1 <i>Example: Software Dashboard</i> .....	39
4.4 THE SUB-MENU ITEM CALIBRATION .....	41
4.5 THE SUB-MENU ITEM SPECIALS .....	42
4.6 THE SUB-MENU ITEM OPTIONS .....	44
4.7 THE SUB-MENU ITEM HELP .....	45
<b>5. THE TOOLBAR DEVICE .....</b>	<b>46</b>
<b>6. THE POP-UP MENU .....</b>	<b>47</b>
<b>7. DOWNLOADING DATA FROM SYSTEM .....</b>	<b>50</b>
7.1 NAMING OF THE MEASUREMENT.....	50
<b>8. SHORTCUT KEYS OVERVIEW .....</b>	<b>52</b>
<b>APPENDIX: GLOSSARY .....</b>	<b>53</b>

## 1. Introduction

WinIt is the communication tool of the 2D data-acquisition system. It's main purpose is the communication between a computer and the measuring-hardware.

### 1.1 What to do with...?

WinIt is designed for two main tasks.

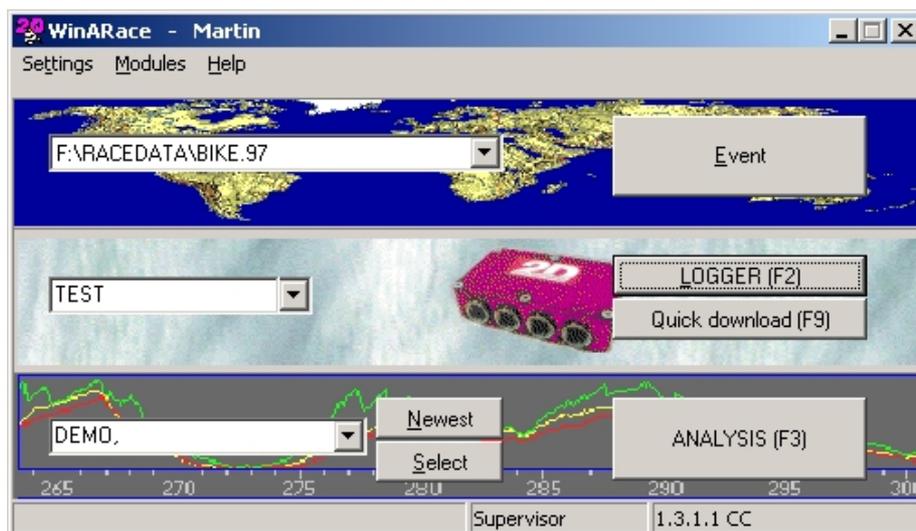
	The first is to set up the measuring-hardware like loggers, displays, CAN-nodes etc.
	The second is to download the recorded data from the hardware and to prepare it for the analysis.

### 1.2 Setting Mode - Autodownload Mode

WinIt can be used in two different modes: the Setting Mode and the Autodownload Mode.

	The setting mode is the default mode. It is used to set up the measuring-hardware. The setting of the devices is read via a communication port and displayed in a <a href="#">tree</a> (like the tree in the Windows-Explorer). The user may select any detail in the tree and manipulate the settings represented by the icons in the tree. (For detail see: Setting up a system)
	Whilst in autodownloadmode the software polls the selected communication ports looking for devices to download. If a device is connected, WinIt tries to download data from it at once.

The two different modes can be accessed by starting WinIt using two different buttons from the Front-End-Tool *WinARace*.



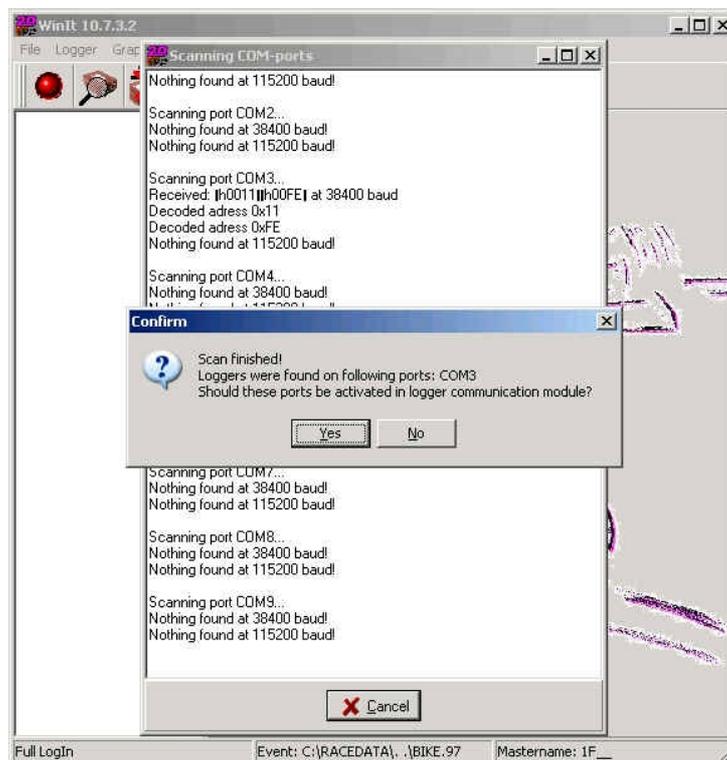
## 2. Ensure a faultless communication

### 2.1 Setting up the communication

Before using the system it is necessary to set up the communication between the computer and the logging device. This can be done either manually or automatically.

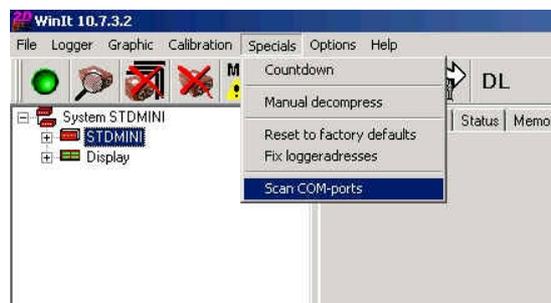
#### 2.1.1 Automatic (at first start)

When WinIt is started the very first time, it automatically tries to set up the communication. The software tries to open the serial ports COM 1 to COM 9 looking for 2D devices. If your system is connected and running, the devices will be found and you will be asked, if you want to activate the ports for the communication.



If you confirm this message clicking on <Yes>, the port is set and the software is ready to be used.

The scan of valid ports can be started at any time from the main menu.



## 2.1.2 Manually

 If you know which port you will use or if you want to manipulate other settings concerning the communication like the download speed, you may set up the communication manually.



Select Options / Settings from the main menu to start the dialog for the software-settings.

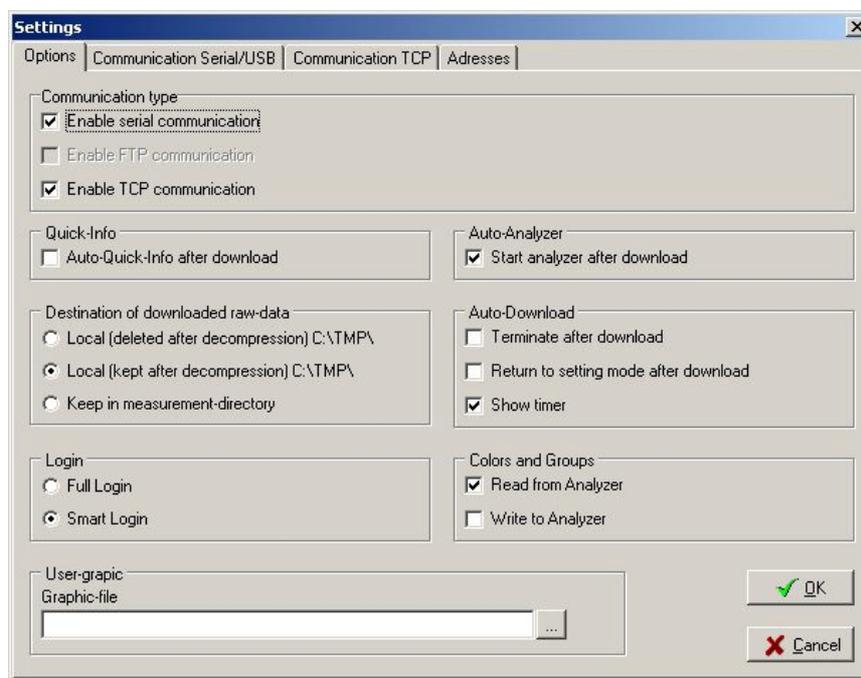
### 2.1.2.1 The options dialog

The settings-dialog of WinIt is divided in four pages:

- Options
- Communication Serial/USB
- Communication TCP
- Adresses

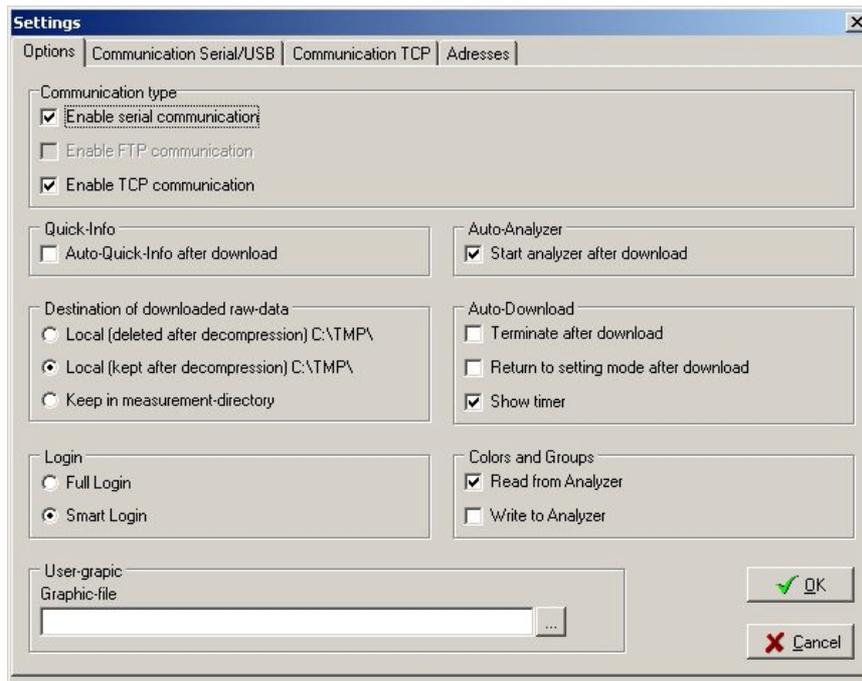


Not all pages are always visible, The pages "Communication Serial/USB" and "Communication TCP" are only visible, if the corresponding communication type is activated in the options page.



- **Options**

The first page of the setting-dialog summarizes the miscellaneous options of the program.



### **Communication type**

This box defines which kind of communication WinIt is using.

The first entry enables or disables the communication over serial cable (a 2D USB-cable is a serial cable too)

The second entry enables the communication over FTP. It is not possible to activate this option at the moment.

The last entry enables the communication over Ethernet using TCP/IP.

Enabling one of the options activates the correspondig options-page for the selected kind of communication.

### **Quick-Info**

If the field *Auto-Quick info after download* is checked, after each download a dialog opens, where the user may enter additional information to the measurement as a comment to the *SpecSheet* of the measurement.

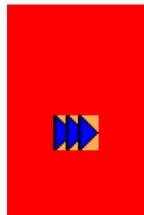
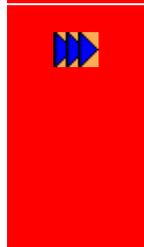
### **Auto-Analyzer**

Check "Start Analyzer after download", if you want to run the analysis software immediately after the download has finished.

### **Destination of downloaded raw-data Auto-Download**

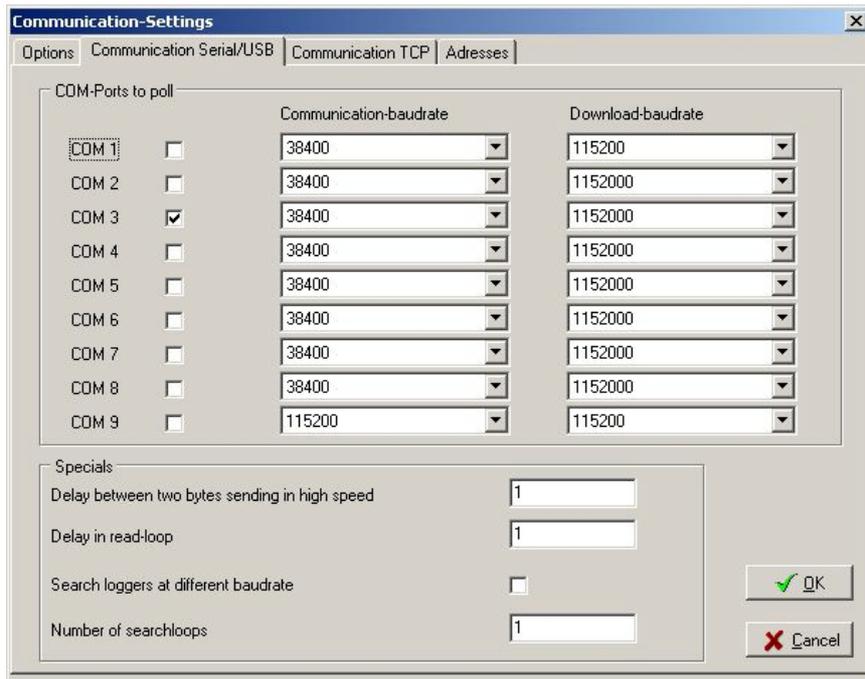
In this group it is defined where the raw data from the logger is stored after download. There are three possibilities:

- **Local temporary**  
 The files are downloaded to the temporary Race-directory (See WinaRace).  
 If the download and the decompression of the data is ok, the files are deleted after the creation of the measurement files for analysis.
- **Local keeping files**  
 The files are downloaded to the temporary Race-directory too, but they will not be deleted. The User has to empty the temporary directory manually.
- **Measurement directory**  
 The files are downloaded directly into the measurement directory and will not be deleted. This Option should not be used, if the measurement directory is located on a network drive.

	<p><b>Auto-Download</b></p> <p>The two checkboxes in this group define the behaviour of WinIt in autodownload mode. If "Return to setting mode after download" is checked, the program returns to setting mode after each download. Otherwise it will stay in autodownload mode looking for devices to download.</p> <p>If "Terminate after download" is checked, WinIt will terminate after a download is completed.</p>
	<p><b>Login</b></p> <p>WinIt has two different login modes:</p> <ul style="list-style-type: none"><li>• Full Login The setting of all found devices is read completely.</li><li>• Smart Login WinIt does only read the complete setting of a master logger, all other devices are only read partly. The channels and tables are only read when needed. This makes the login procedure faster for systems containing more than one device.</li></ul>
	<p><b>Groups and Colours</b></p> <p>To each channel a colour is assigned, this colour is used in the analysing software and in the <a href="#">Software Dashboard</a> of WinIt. A channel can be added to so called "groups". The <a href="#">tree</a> can show the channels sorted by this groups. It is possible to read the colours and groups of the channels from the analysis software. To do so, check <i>Read from Analyzer</i>. If you check <i>Write to Analyzer</i> the software writes changes in the colours or groups of channels back to the Analyzer.</p>
	<p><b>User-Graphic</b></p> <p>In the field "GraphicFile" the user may enter the filename of a graphic file. This graphic is shown in the main window if nothing is selected in the tree on the left side of the window.</p>

- **Communication Serial/USB**

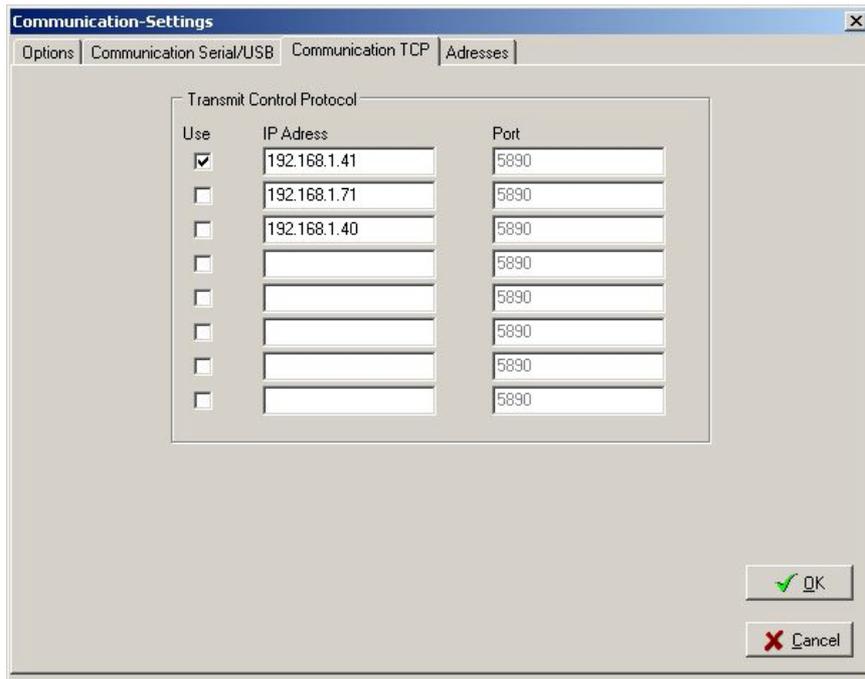
On the second page of the settings-dialog are all options for the communication over serial cable are available. (A 2D USB cable is a serial cable too)



- In the first group *COM-Ports to poll* there are nine lines. Each line represents one COM-port (from COM 1 up to COM 9). For each port three options are available. The first is, if the software should poll the port for logging devices. The port is used, if the box behind the port number is checked. It is possible to use more than one (up to nine) port at a time.
- The second option is the communication-baud rate. This is the speed in bit per second with which the devices and the computer send and receive commands. Only two different speed settings are possible:
- 38400 baud or 115200 baud. The default communication-baud rate is 38400. A new 2D device, connected via serial or USB-cable is always using this speed. It is possible to change the communication speed to 115200. To do so change the communication-baud rate AND check the field *Search loggers at different baud rate* in the group *Specials*.
- The last option for a single port is the download-baud rate. This is the speed in bit per second with which the stored data is downloaded from the logger. The maximum possible speed depends on the hardware represented by the port. For a normal serial port (RS232) the maximum speed is 115200. For a 2D USB High Speed port the download rate may be set to 1152000 (10 times faster than normal port). **With loggers of generation 6 1500000 baud are possible !**
- The second group on this page, named *Specials* contains settings, which normally should not be changed. Change the two delay-values only if instructed by an employee of 2D.
- If the checkbox *Search loggers at different baud rate* is checked, the software tries to find devices not only with the currently selected communication-rate but in the other. If a device is found with the speed, which is not selected for that port, the device is forced to change it's baud rate to the selected one.
- The last value *Number of search loops* should be 1 in most cases. If you have problems finding your devices because of a bad or noisy communication you may enter a higher value. The value represents the number of tries for finding a logger.

- **Communication TCP**

This page of the settings dialog summarizes all options for the communication over Ethernet using TCP/IP.



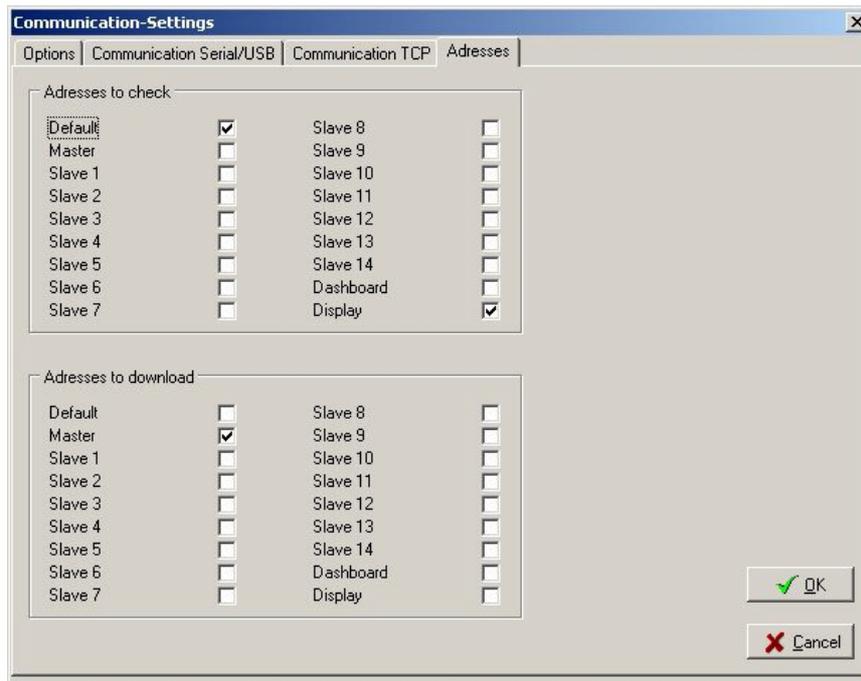
You may enter up to eight IP-adresses with a correspondig TCP-port (at the moment 5890 not changeable).

With the checkboxes in front of the IP- adresses the user may define, which of the IP-adresses should be polled for logging devices.

It is possible to use more than one adrese at a time.

- **Addresses**

On the fourth page of the settings-dialog you may change for which devices the software should look and which devices should be downloaded.



Each 2D device has an address out of: Master, Slave1 to Slave14, Dashboard or Display. The default address is a special address, because every 2D device will respond to commands written to their default address.

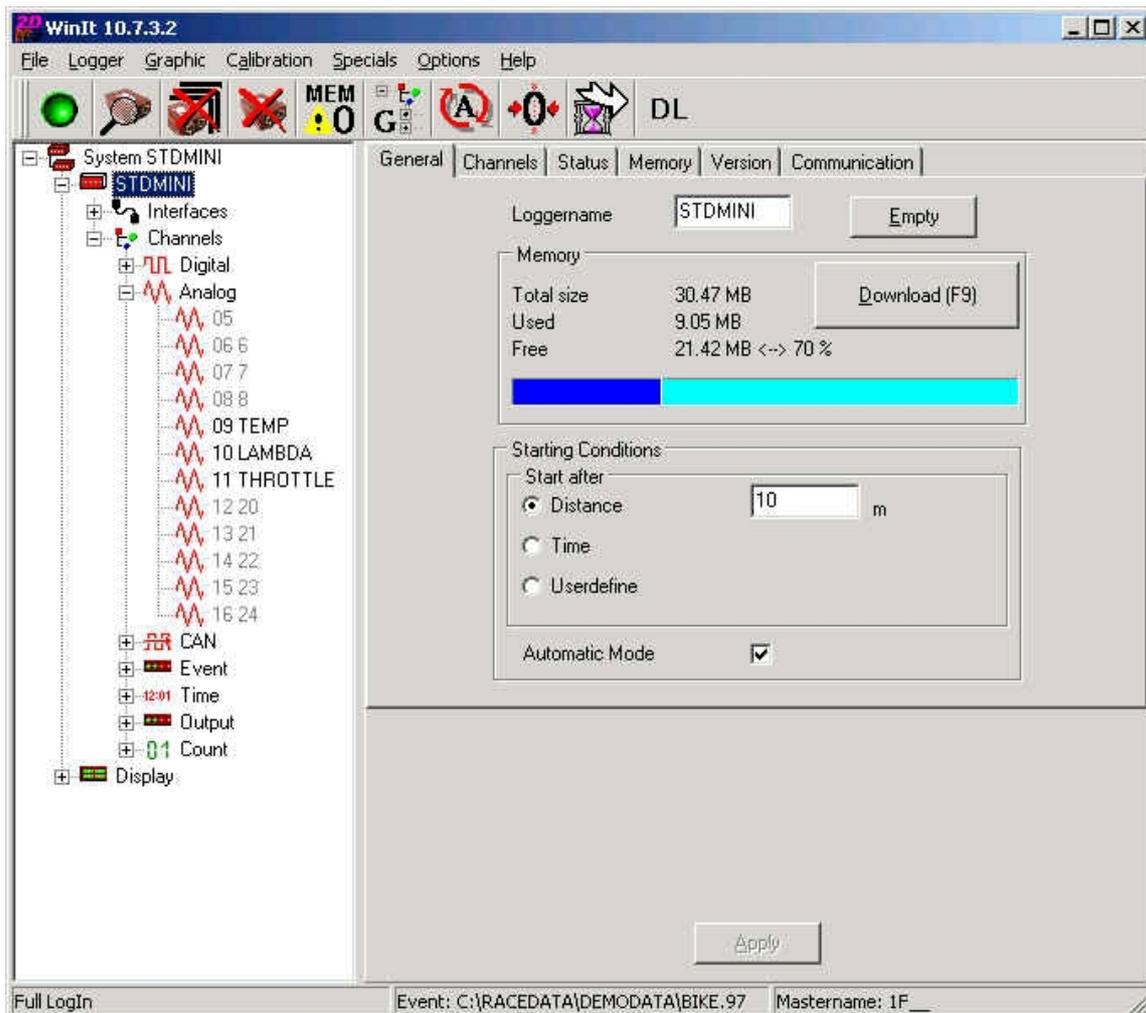
-  In the first group the user defines for which addresses WinIt should look in the login-procedure. If the address *Default* is set all connected devices will be found, so in this case it is not necessary to select another address. If you use a system of several 2D devices (which all have different addresses) and you do not want to read all devices in the login-procedure, uncheck the default address and select the address you want to read.
-  The second group defines the addresses which WinIt tries to download data from. Normally the recording device has the address "Master". The address "Default" should not be used and is only working if only one device is connected. Before the download is started the software checks to see if, for every selected download address, a device with that address is connected, and if not the download is aborted.

### 3. The Main window

The main window is divided in two parts.

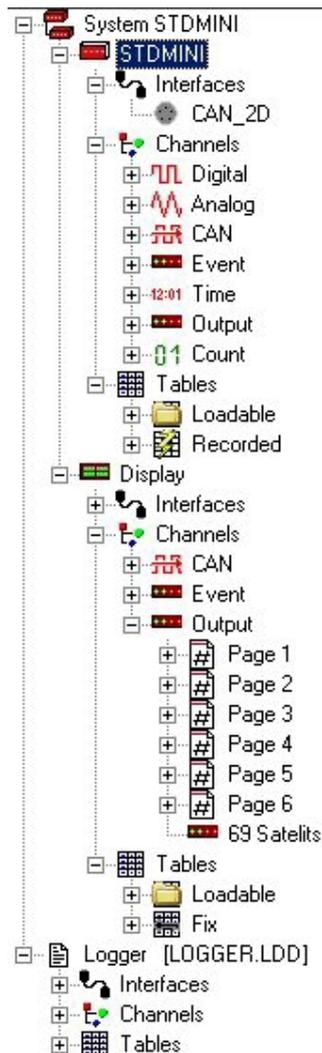
-  On the left is a tree view showing a graphical representation of a logging system in a Windows-Explorer style.
-  The right part of the window is used to show and manipulate the details of the item selected in the tree.

If nothing is selected a graphic is shown (either the 2D default graphic or the user defined graphic; [see options](#))



### 3.1 Tree (Icons and their meaning)

In the [tree view](#) WinIt shows a graphical representation of a logging system. Select an item in the tree to see the corresponding details on the right. Click on the "+" in front of an icon to expand it's sub tree. Closing the sub tree is done by clicking on a "-".



 This is a typical view of the [tree](#) showing a system of a logger and a display and a loaded logger file. In the following we list all icons that could appear, along with their meaning. The following icons may appear in the tree view, if a system is loaded. The icons representing channel types are used twice. All channels of a device are shown as sub tree of the channel-icon. They are grouped by their channel type. These groups are sub nodes of the channel-node and have an icon representing the channel type. All channels of the logger with the same channel type are shown as sub nodes from the groupnodes with the same icon. If a channel group is selected in the tree, the channels of this group are shown in a grid in the detail-part of the window.

- 

If more than one 2D device are connected to a logging system, this icon is used to represent the whole system. If a *system-node* is selected the settings of *the master logger* are shown in the detail part of the window. (See master)
- 

This icon represents a master logger. A master logger is a 2D logging device with the master address. Normally the master is the recording device. If this icon is selected the right part of the window shows information about the logger divided in several pages. Use this view to change the starting conditions, the sampling rate and the name of the logger. (See: Setting up a system)
- 

This icon represents a *slave logger*. A *slave logger* is a 2D device with any address but master. Normally a *slave logger* does not record data. The detail-information is the same as for master loggers except the starting conditions.
- 

A 2D dashboard is shown in the [tree](#) with this icon. A 2D dashboard is a freely programmable device used to show any measured data sent via CAN-bus. If this icon is selected the software shows the same information as for slave loggers plus an additional page with dashboard properties.
- 

This icon should never appear. It is used when WinIt receives an answer to his login-request, but is unable to read the setting of the device. No detail is shown.
- 

If WinIt loses the connection to a logger or display, the normal icon is replaced by this one. If such an icon is selected the same detail is shown like for the original icon.
- 

The setting of logger could be stored in a file. If you load such a file, it is shown in the [tree](#) with this icon. Since the file corresponds to a logger, the details shown are the same as for a logger.
- 

Most 2D devices have one or more interfaces. They are summarized under this icon. No detail information is shown.
- 

If you select this icon, you may see and change the settings of a serial interface of the logger.
- 

This sub-item of interfaces represents a CAN-interface. In the detail part of the window you can see and change the settings of the CAN interface of the logger.
- 

This icon represents all channels of a 2D device. If you select this icon, all channels of the device are shown in a grid.
- 

This icon is used for digital channels and the group of digital channels. If a single channel is selected all settings of this channel can be seen and changed in the detail section of the window. If the digital group is selected, all digital channels are shown in a grid.
- 

Analog channels and the group of analog channels use this icon.
- 

Some 2D logging devices have a CAN bus interface (CAN: Controller Area Network). Often electronic devices in a car or bike use this bus type to send and receive sensor data. The 2D device collects this information from the bus and stores it in a channel. These channels, which collect data from the CAN bus are represented by the CAN-In-icon.
- 

In some cases it would be useful not only to collect data from the CAN-bus but also to send data to the bus. This is done by CAN-Out channels represented by this icon.
- 

This icon represents an event channel. The difference between a normal and an event channel is the time of recording. The values of a normal channel are stored with equal time distance depending on the sampling rate of the channel. An event channel only stores it values, if a certain event occurs (when the channels receives a signal peak) such as a lap trigger.
- 

This icon is used for time channels. A time channel counts a time, like the runtime or the recording time of a logger.

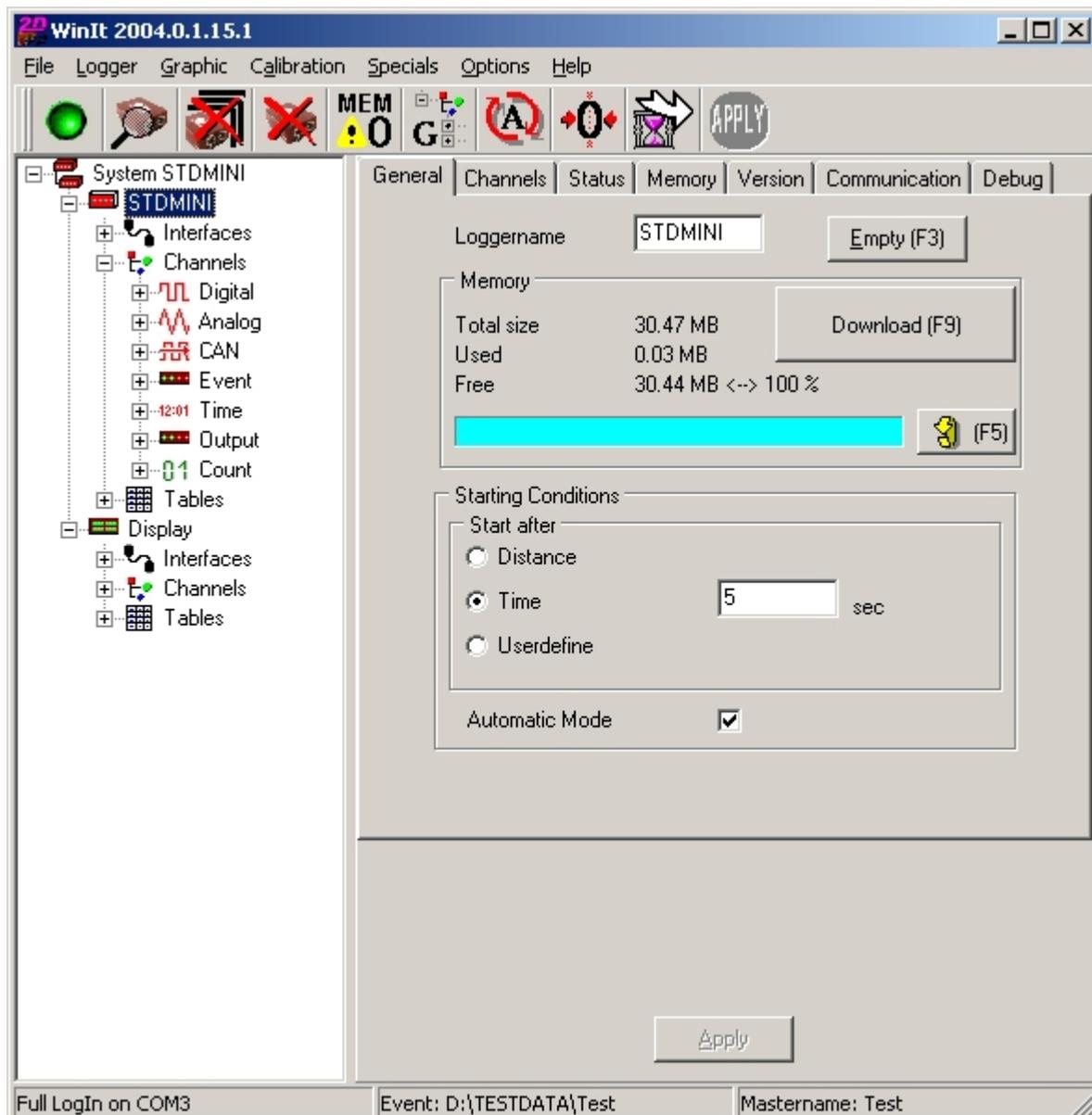
-  Output channels are shown with this icon. An output channel in a logger is a switching channel. That means it may either turn on or off a signal depending on the value of another channel. An output channel in a display is any channel shown on the display. (See setting a display)
-  This icon is used for counter channels. In a 2D logging device there exists at least one count channel for each digital channel. The first count channel 'counts' the first digital channel, the second the second and so on. 'Counts' means, if the first digital channel records the speed of the vehicle the first count channel gives the distance resulting from this speed.  
If the digital channel records the revolutions per minute, the count channel counts the revolutions.
-  This icon is used for calculated channels. The 2D system provides a program called CalcTool. With this tool it is possible to generate new channels out of the recorded ones. If you load the calibration file of a measurement the calculated channels are shown with this icon.
-  The information on a 2D display is separated in pages. The pages can be changed by pressing a button. The output channels of a display are organised in these pages. To make this visible, the output channels are grouped with this icon.
-  A 2D device may have or use tables.  
There are two kinds of tables. First the lapttime or sectiontime tables, these are empty at the beginning of a measurement and are filled by the logging device. When the software downloads a measurement, these tables are downloaded too.  
The second kind of tables are used to linearize values from sensors, that do not have a linear formula. These tables have to be in the logger or display before the measurement starts.
-  Recorded tables, like lapttime or sectiontime are shown with this icon.
-  This icon represents table which can be freely used by the user. The user may load and unload a table file for this kind of tables.
-  Some 2D devices come with tables which are in the device by firmware. These tables may be used to linearize channel values, but it is not possible to unload or overwrite these tables.

### 3.2 Detail informations for the WinIt main window

In the following we give a short description of the possible detail masks shown in the right part of the main window depending on the selection in the [tree](#). The masks may look different depending on the type of hardware you have represented. We give examples for all possible options.

#### 3.2.1 Logger, Dashboard

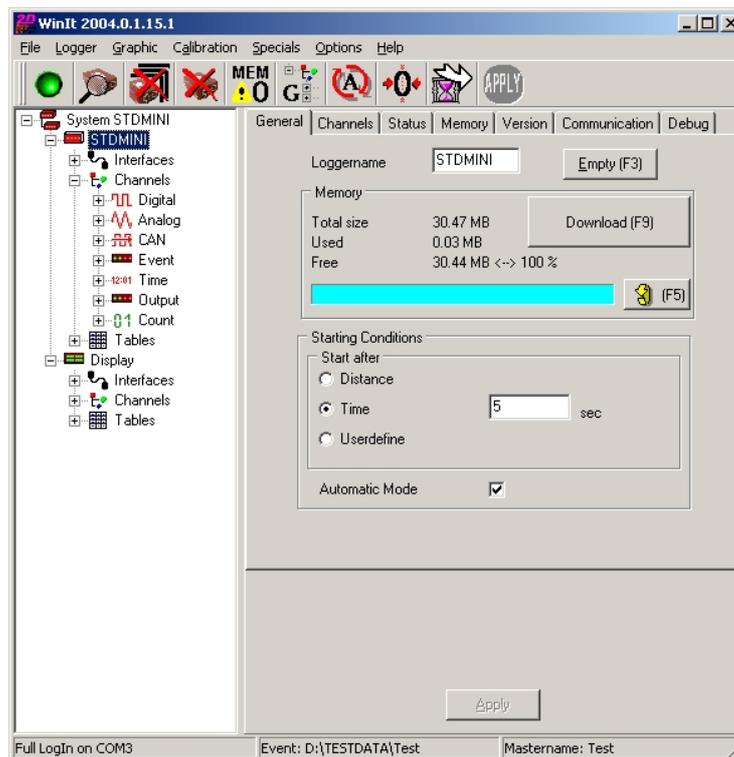
When WinIt finds a logging device during the login procedure a symbol is added to the [tree](#) and selected. The selection of the node makes the program show the detail mask for the logger.



The dialog is divided in seven pages: [General](#), [Channels](#), [Status](#), [Memory](#), [Version](#), [Communication](#).

### 3.2.1.1 Logger / The detail page General

The first page is the most important. It contains a button to download the data from the recording device. This button is only enabled if the device contains data. The memory size and the usage of the memory can be seen in the *Memory* - box. The other button *Empty* is used to clear the memory of a logger. The name of the logger is shown in the first edit field of the dialog. To change the name of the logger just overwrite the current name and send the change to the device by clicking on the button *Apply* on the bottom of the window.

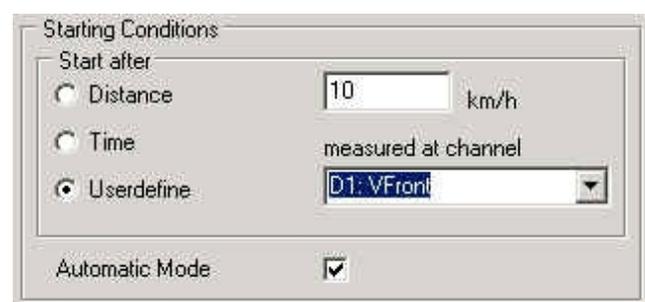


Another very important part of the first page is the box with the starting conditions of the logger. This box is only visible if a logger with the master address is shown. With the starting conditions the user can define under which conditions the logger would start to record data.

There are three possibilities to start the recording of a logger.

1. The first is to start after a certain distance. Click on *distance* and enter the distance in meter after which the device should start recording.
2. The second possibility is to start after a certain runtime of the logger. Click on *time* and enter the time in seconds after which the logger should start recording.

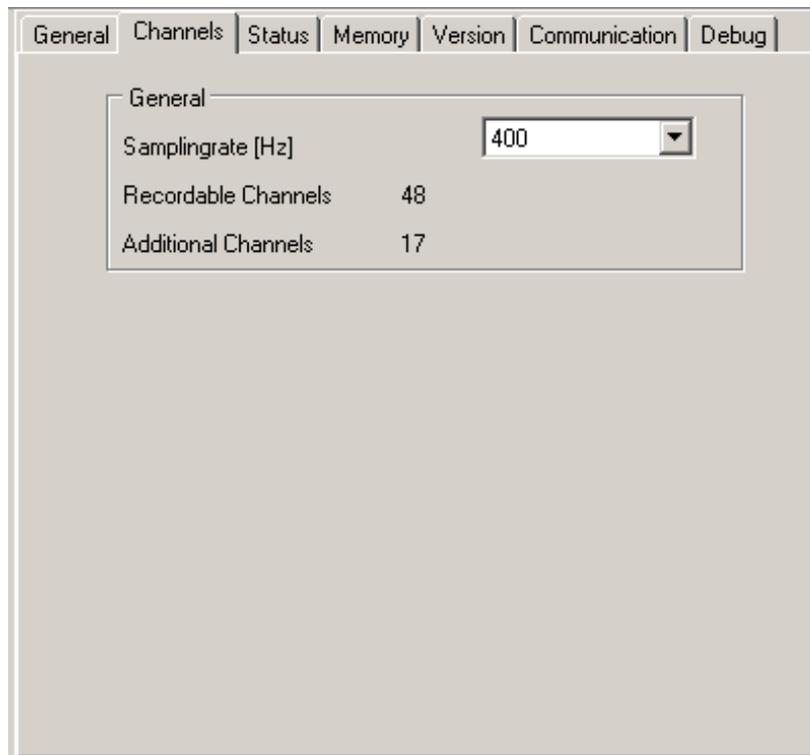
 The minimum time here is 5 seconds !



- The last option is to start depending on any channel. Click on *user define* and select a channel which should trigger the recording. Enter the starting value. The logger would start after the selected channel reaches the starting value.  
 In the above example the logger would start recording after the speed channel *VFront* reaches a value of 10 km/h. In the starting conditions is a checkbox *Automatic Mode*. If this box is checked the logger will only record, if the starting conditions meet and the logger receives either a speed or a RPM-signal (or both). That means, the logger will stop recording, if it receives no signal. If the box is not set, the logger will stop recording when the memory is full.

### 3.2.1.2 Logger / The detail page Channels

The second page of the dialog gives information about the number of channels and the maximum sampling rate of the logger.



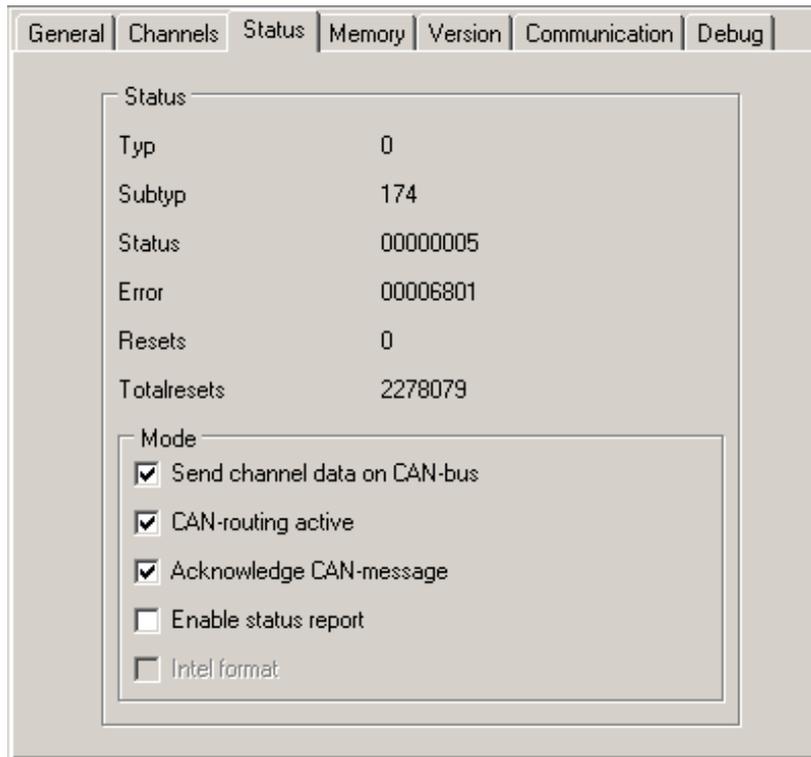
If you want to change the maximum sampling rate of the logger just select one in the box by clicking on the arrow on the right. Click *Apply* to send the change to the device. But keep in mind, the higher the sampling rates of the recorded channels, the shorter the maximum recording time of the logger.



Select the highest needed and lowest possible sampling rate !

### 3.2.1.3 Logger / The detail page Status

This page gives information about the status of the logger. These values normally are not of interest for the user, but in case of problems with your logging hardware this information could be helpful for the 2D support.



The group *Mode* contains several checkboxes which are not changeable by the user. If *Send channels on CAN-bus* is checked, the logger puts the values of recorded channels on the *CAN-bus*. This is necessary if the values should be shown on a *2D dashboard display*. If you find this box unchecked and you need the values to be put on the *CAN-bus*, call the 2D support.

The second box *CAN-routing active* has to be checked if your system consists of more than one device and the current device is the only one with a direct connection to the computer. If you find this box unchecked and you cannot access your whole system, even though it is properly connected via CAN, call the 2D support.

### 3.2.1.4 Logger / The detail page Memory

The fourth page of the dialog provides information about the memory of the logger.

General	Channels	Status	Memory	Version	Communication	Debug
Memory						
Aktual bank			1			
Pointer			91			
Error			0			
Stop-adress			32629			
Memory-runs			32			
Number of banks			974			
Banksize			32768			
Vectorsize			88 -> 5 vectors per sector			
Lost space in sector			14,06 %			
Max recordingtime			8:03:35 h			
Remaining time			8:03:05 h			

The most interesting values on this page are the maximum and remaining recording time. This time is dependant on the memory size and the sampling rate of the logger.

Another interesting value is the *Lost space in sector*. This is a percentage between 0 and 49 %. Due to the storing algorithm of the logger you might lose up to 49% of your memory.



The higher the difference in the sampling rates of the channels, the higher the loss of space !  
 Loggers of the generation 6 use an other storing algorithm. No memory is lost.

### 3.2.1.5 Logger / The detail page Version

On this page you see a summary of the *firmware version*. If you need to contact 2D support this information would be helpful.

General	Channels	Status	Memory	Version	Communication	Debug
Version						
Date	01/16/04					
Time	14:05:48					
Typ	0					
Serial	021BB825					
Software	93					
Quartz	18432000					
Hardwarenr.	0					
Revisionsnr.	0					
Bootsoftwrenr.	39					
Boot type	0					

### 3.2.1.6 Logger / The detail page Communication

This page provides information about the communication settings of the logger. The value of most interest is the logger address.

General	Channels	Status	Memory	Version	Communication	Debug
Communication						
Adress	0x11					
COM-Rate	38400					
DTX-Rate	38400					
Buffersize	247					
Possible COM-rates	38400, 57600, 115200, 144000, 192000, 230400, 288000, 576000, 1152000					

### 3.2.1.7 Logger / The detail page Debug

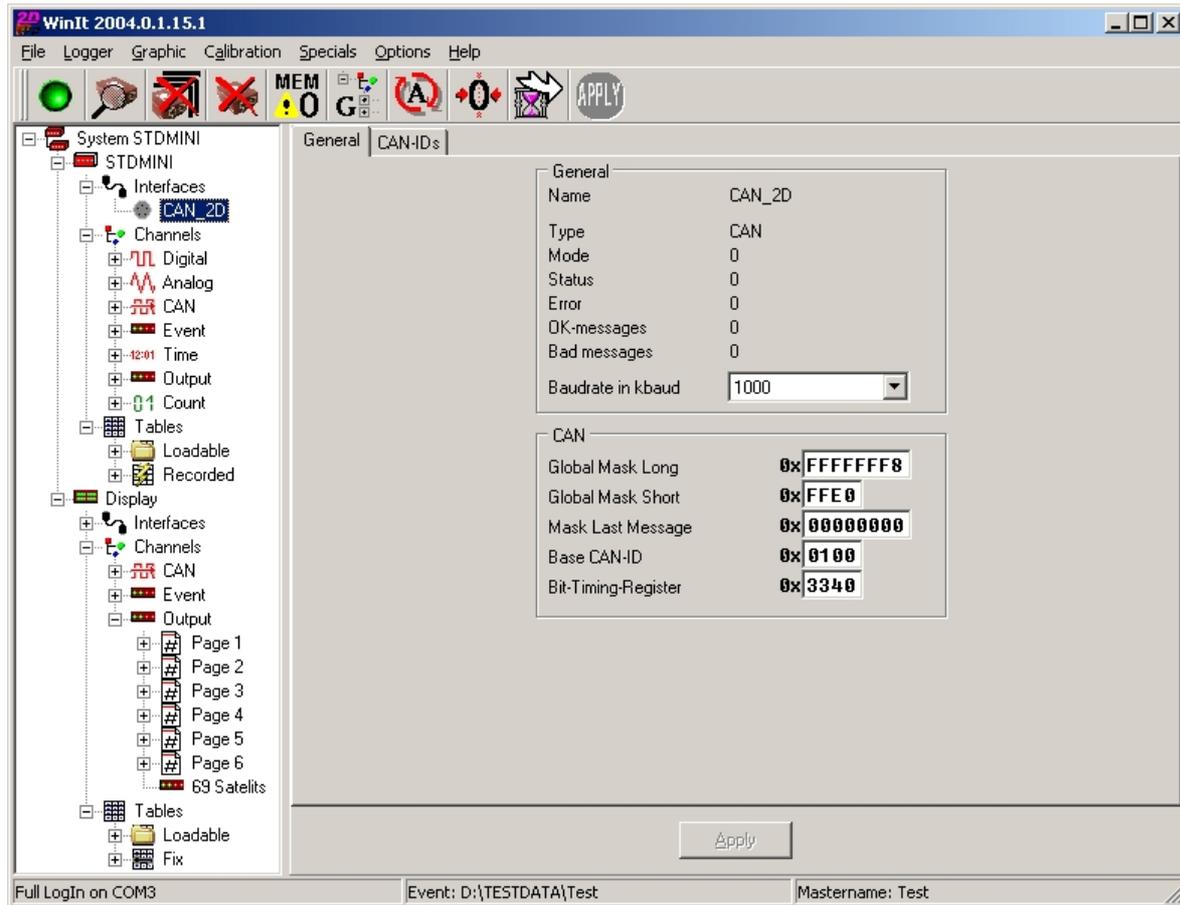


This page contains several hexadecimal values which may be of interest for the 2D support.

	Hex	Dez
1	00000000	0
2	00000000	0
3	00000019	25
4	00003700	14080
5	00000000	0
6	00000000	0
7	00000000	0
8	00000000	0

### 3.3 Interface CAN

If you select a CAN-interface in the [tree](#) WinIt will show the following dialog.



The detail information of the *CAN-interface* is divided in two pages. The first page provides general information about the *CAN-interface*. In the first group is a combo box with the baudrate of the *CAN-interface*. If you want to change this speed, click on the arrow on the right and select a speed from the list. Click on *Apply* so send the changes to the logger.

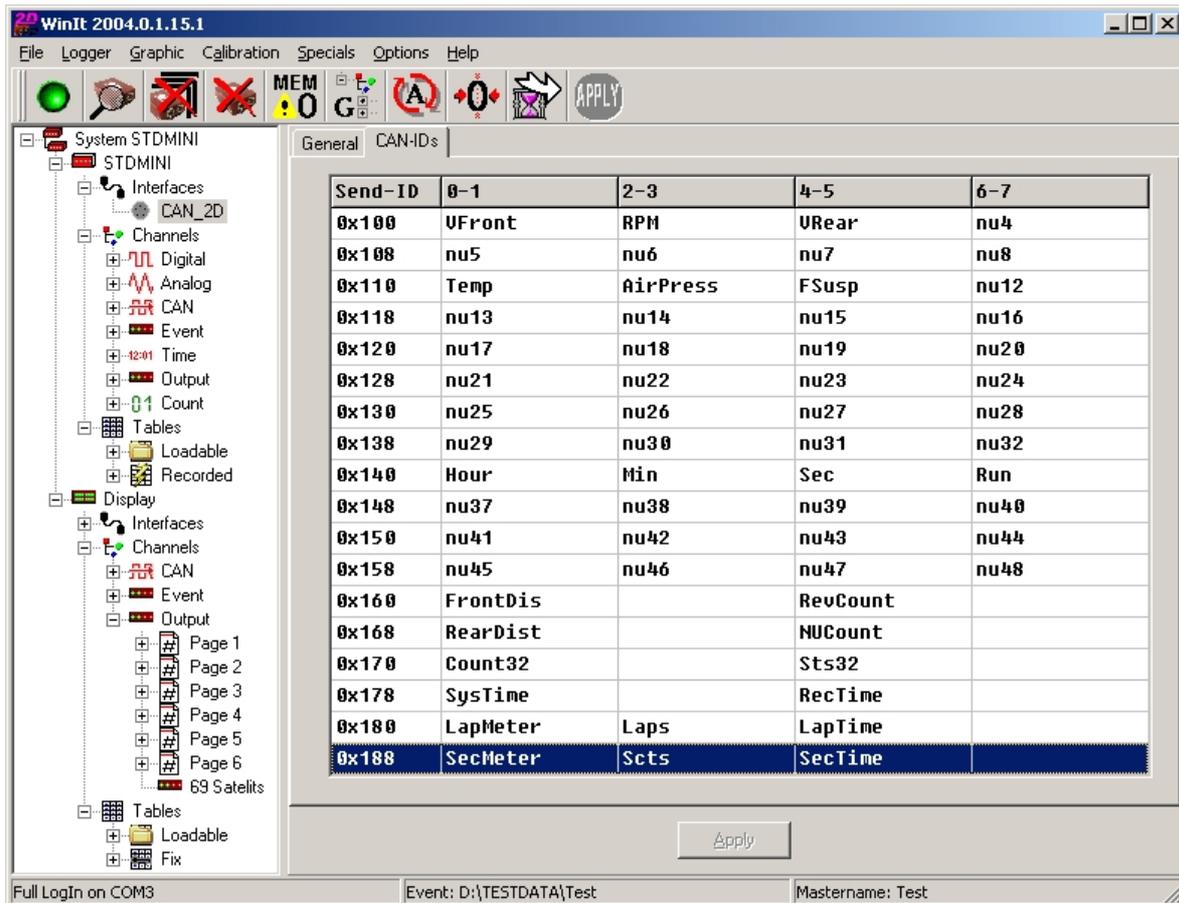


#### ATTENTION:

If you change the speed of the CAN-interface and your system consists of more than one device, connected via CAN, you might lose the connection to the rest of the system. The reason is that the rest of the system is read via CAN, but you changed speed of one CAN-interface but not of the rest of the system. Data could only be transferred via CAN if both, the sender and the receiver, use the same interface speed.

The values in the group *CAN* normally should not be changed except the *Base Can-ID*. A *CAN-ID* (ID for identifier) is a hexadecimal number. The base *CAN-ID* is the *CAN-ID* from which a logger creates the identifiers to put his measured values on the bus. With one *CAN-identifier* the data of two up to four channels could be put on the bus.

On the second page of the *CAN-interface* dialog you'll find a list of *CAN-ID*'s. These IDs are the IDs with which the logger puts his data on the bus. (See *CAN-send data in grid*) If you change the *base-CAN-ID* the logger will create a new list of *CAN-ID*'s based on this ID. If you want to change only one ID you can change it in the list.



### 3.4 Channels / Channelgroup

The detail part of the window will show a grid with all channels, if you select the "channels" node in the tree. If you select a channel group like digital or analog only the channels, which belong to this group will be shown in the grid. The grid gives a quick overview over the channels. If the system is online the current values of all recording channels can be seen.

Nr	Rec	Name	Samp1	Multipli	Digits	Offset	Value	Dimens	Circ.	Pulse	CAN-Port	ID-Send	FB-Send	Res-Send	
1	<input checked="" type="checkbox"/>	UFront	100	0,050	0	0,000	0,0	km/h	2000	6	-	100	0	16	
2	<input checked="" type="checkbox"/>	RPH	200	1,00	0	0,00	0	rpn	7500	9	-	100	2	16	
3	<input checked="" type="checkbox"/>	UBear	50	0,050	0	0,000		km/h	2777	1	-	100	4	16	
4	<input checked="" type="checkbox"/>	nu4	50	0,050	0	0,000			2777	1	-	100	6	16	
5	<input checked="" type="checkbox"/>	nu5	50	0,100	0	-62,409			5 U	1	-	108	0	13	
6	<input checked="" type="checkbox"/>	nu6	50	1,000	0	0,000			5 U	0	-	108	2	13	
7	<input checked="" type="checkbox"/>	nu7	50	0,002	0	0,000			5 U	1	-	108	4	13	
8	<input checked="" type="checkbox"/>	nu8	50	0,100	0	-62,407			5 U	0	-	108	6	13	
9	<input checked="" type="checkbox"/>	Temp	50	0,10	1764	-62,40	132,3 °C		5 U	0	-	110	0	12	
10	<input checked="" type="checkbox"/>	AirPress	50	0,0010	2199	0,5000	2,70 mBar		5 U	0	-	110	2	12	
11	<input checked="" type="checkbox"/>	FSusp	50	0,000	1942	344,430	344,4 mm		5 U	0	-	110	4	12	
12	<input checked="" type="checkbox"/>	Throttle	50	0,024	4094	-0,049	100,0 %		5 U	0	-	110	6	12	
13	<input checked="" type="checkbox"/>	nu13	50	1,000	0	0,000			5 U	0	-	118	0	12	
14	<input checked="" type="checkbox"/>	nu14	50	1,000	0	0,000			5 U	0	-	118	2	12	
15	<input checked="" type="checkbox"/>	nu15	50	1,000	0	0,000			5 U	0	-	118	4	12	
16	<input checked="" type="checkbox"/>	nu16	50	1,000	0	0,000			5 U	0	-	118	6	12	
17	<input checked="" type="checkbox"/>	nu17	50	1,000	0	0,000			-	-	-	CAN_2D	120	0	16
18	<input checked="" type="checkbox"/>	nu18	50	1,000	0	0,000			-	-	-	CAN_2D	120	2	16
19	<input checked="" type="checkbox"/>	nu19	50	1,000	0	0,000			-	-	-	CAN_2D	120	4	16
20	<input checked="" type="checkbox"/>	nu20	50	1,000	0	0,000			-	-	-	CAN_2D	120	6	16
21	<input checked="" type="checkbox"/>	nu21	50	1,000	0	0,000			-	-	-	CAN_2D	128	0	16
22	<input checked="" type="checkbox"/>	nu22	50	1,000	0	0,000			-	-	-	CAN_2D	128	2	16

In this example all columns are activated. It is possible to hide the columns for channel parameters and for CAN-send information ([see properties](#)).

The green arrow in the top row indicates the sorting of the grid. In this example the channels are sorted ascending by their number.

You might sort the grid by any column you like, just click on the header of the column. After the first click the sorting is changed to the column, ascending. If you click again at the same column the sorting will be changed to descending (and the direction of the arrow changes).

The sub sorting, if necessary, is done by the last selection. That means if you sort by sampling rate and several channels have the same sampling rate, your last sorting column was the channel name, the sub sorting is done by the channel name.

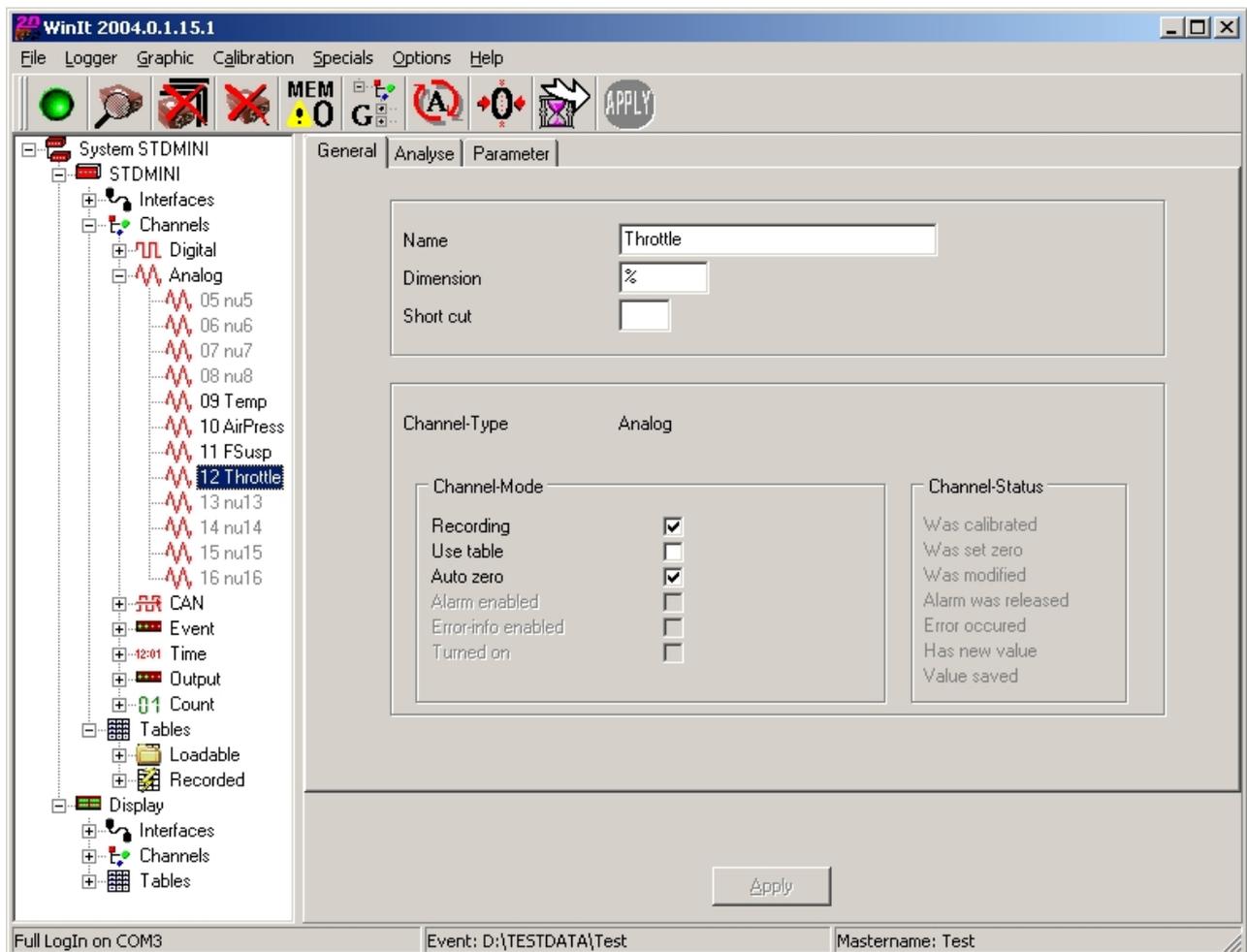
If you do not like the order of the columns in the grid, you may change it. Just click on the header of the column you want to move, keep the mouse button pressed, move the cursor to the position you want to move the column to and release the mouse button.



**But this change is only temporary. If you restart the program, the order of the columns is like before. To change the order permanently, select "properties" from the popup menu of the grid !**

In the example above you see that the background of some channels are grey and of the rest white. This should illustrate the user which channels are put together in one identifier on the bus. You can verify this with a look at the CAN-Send-info-columns, CAN-ID, CAN-FB and Res. The first four channels use the CAN-ID 0x100, the second four 0x108 and so on.

A double-click on a row in the grid will open a dialog with the settings of the corresponding channel. This dialog is the same as the details shown on the right part of the main window if a single channel is selected. In the following we give a description of this mask.

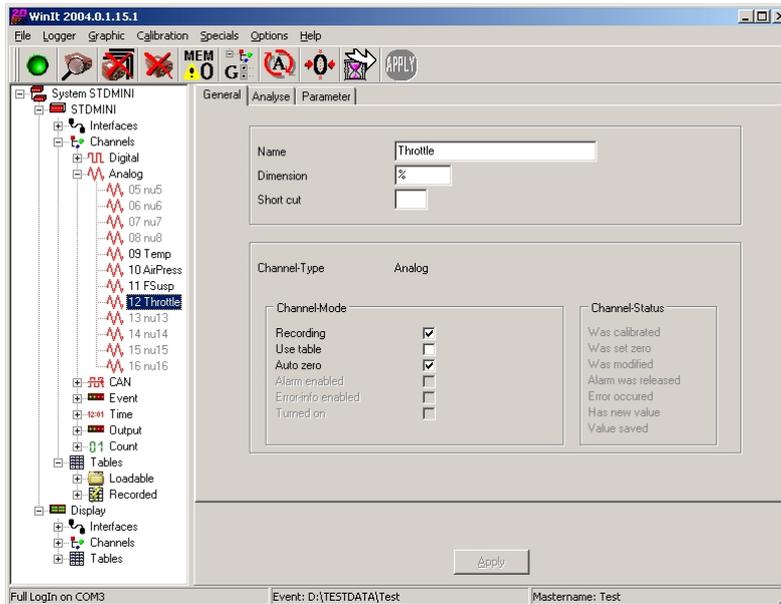


The dialog is divided in three pages: [General](#), [Analyse](#) and [Parameter](#).



2D dashboards have a special output channel, which is used to trigger the LEDs of the dashboard. When such a channel is selected in the tree, an [additional](#) page is shown.

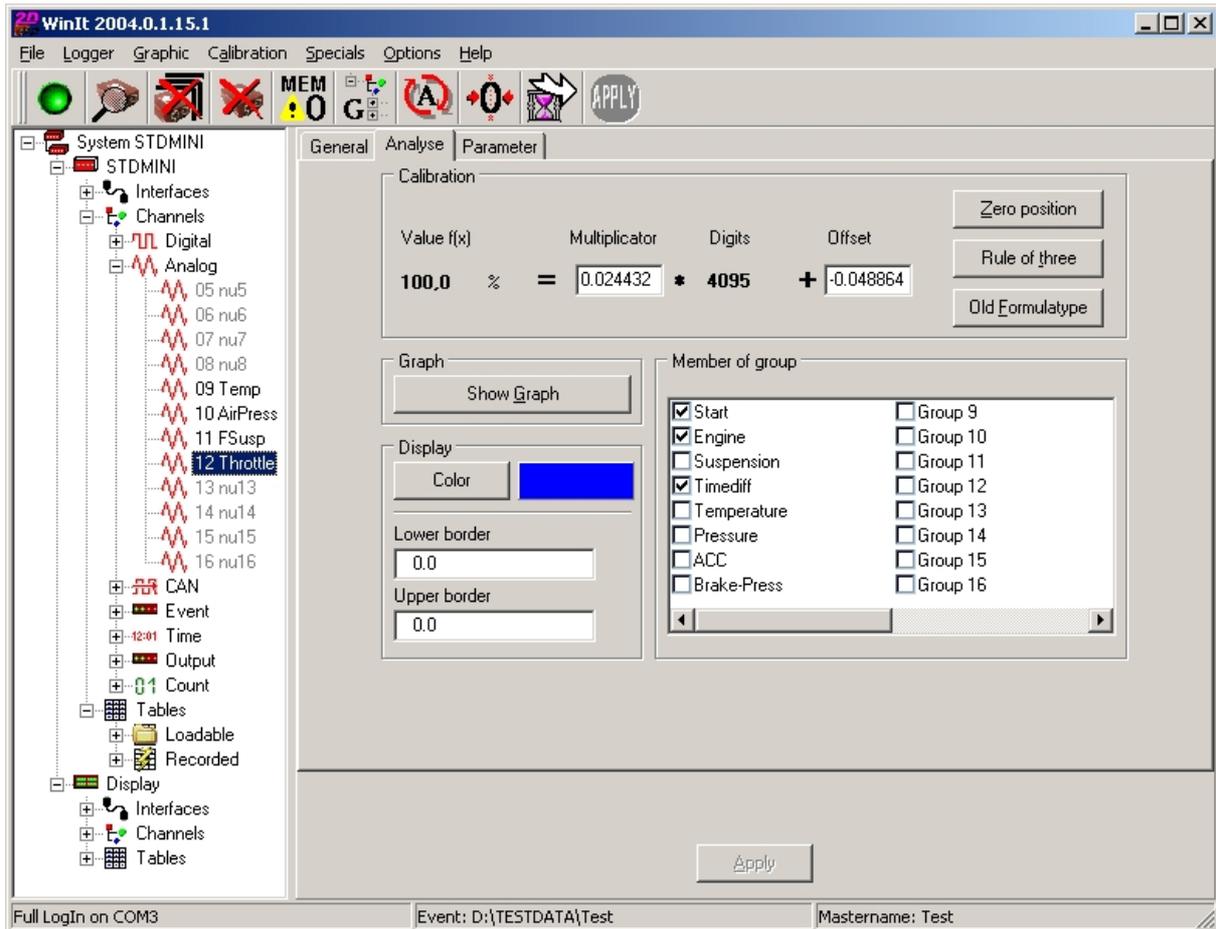
### 3.4.1 Channels: The page General



 <b>Channel Name</b>	On the first page of the dialog the user can change the name, dimension and shortcut of a channel. The shortcut is only used if the channels is shown on a 2D display. It is shown in front of the value on a display.
 <b>Channel Type</b>	In the second group you see the type of the selected channel. Depending on this type the checkboxes in the <i>Channel-Mode-group</i> are disabled. The checkboxes have the following function: <ul style="list-style-type: none"> <li>• <i>Recording</i> If this box is checked the logger will record this channel. (Same like record <i>in grid</i>)</li> <li>• <i>Use Table</i> Some sensors do not have a linear behaviour, like temperature sensors. For this channels it is necessary to linearize the values by using a table. 2D provides table files for all 2D non linear sensors.If you want to use a non linear sensor from an other company, you can create your own table files with the 2D <i>table editor TabEd</i>. After checking the box a combo box appears. Choose the table you want to use. If the table needed is not in the list, you have to select a loadable table in the tree, and load the table needed.</li> <li>• <i>Auto Zero</i> Some channels need to be set to zero before the measuring can begin. With a 2D display it is possible to send a command over the CAN-bus to set channels zero. In the moment when the command is sent from the display all channels with this flag set will change the offset of their formula to set the current value of the channel to zero.</li> <li>• <i>Alarm enabled</i> For some channels it is possible to check if the value is always between a lower and an upper limit. If the value leaves that range an alarm is shown on the display.</li> </ul>
 <b>Channel Status</b>	The last group on this page gives information about the current status of the channel.

If you change any value on this page, the *Apply-button* gets activated and the channel is shown in the tree with a bold and underlined font. Every part of the [tree](#) with bold and underlined font represents a part of the setting that was changed but not jet sent to the logger. After clicking on *Apply* normal font is used.

### 3.4.2 Channels: The page Analyse



The second page of the channel dialog is divided into three groups.

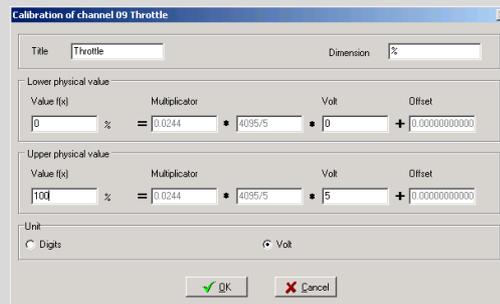
### Calibration

The *Calibration group* summarizes the functionality for the formula of a channel. A physical value measured with a 2D system is stored in so called digits. The system receives a voltage from the sensor (i.e. 0 V to 5 V). This voltage is transformed into a number by the logger. These numbers are called digits. The range of the numbers depend on the resolution of the channel. (i.e. 12 bit -> 0 to 4095) The formula is necessary to calculate the physical value from the recorded digits.

In Winlt two kinds of formulas are possible:

- **Old formula type:** Physical Value = (Multiplier / Divisor) \* (Digits - Offset)
- **New formula type:** Physical Value = Multiplier \* Digits + Offset

You can change the type of formula by clicking the button *Old Formula* or *New Formula*. An other button of the calibration-group is Rule of three. After clicking this button the following dialog appears.



With this dialog the formula of a channel can easily be calculated. Normally a sensor comes with a datasheet giving information about the measuring range of the sensor and the corresponding voltage output. Enter these values, click on OK and the formula of the channel is set.

Some sensors need to be set to zero before starting the measurement. Click on the button *Zero position* to set the value of the channel at the current sensor position to zero.

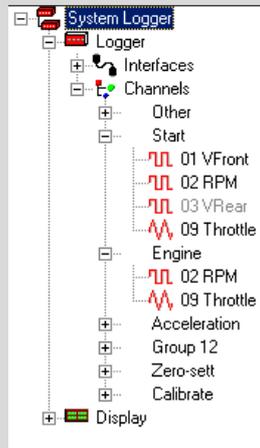
### Display

The *Display-group* contains values which influence the graphical representation of a channel. The color is used in the [Software Dashboard](#) and in the analysis software (if the option is set. See options) The lower and upper limits are used in the software dashboard too. This is the normal working range that should be displayed from a sensor. ([See Software Dashboard](#))

### Member of group

The last item of the analyse page of the channel dialog is a list with 32 *checkboxes*. Each checkbox represents a group. A channel could be member of 0 to 32 groups. To add a channel to a group check it's checkbox. But why using groups ?

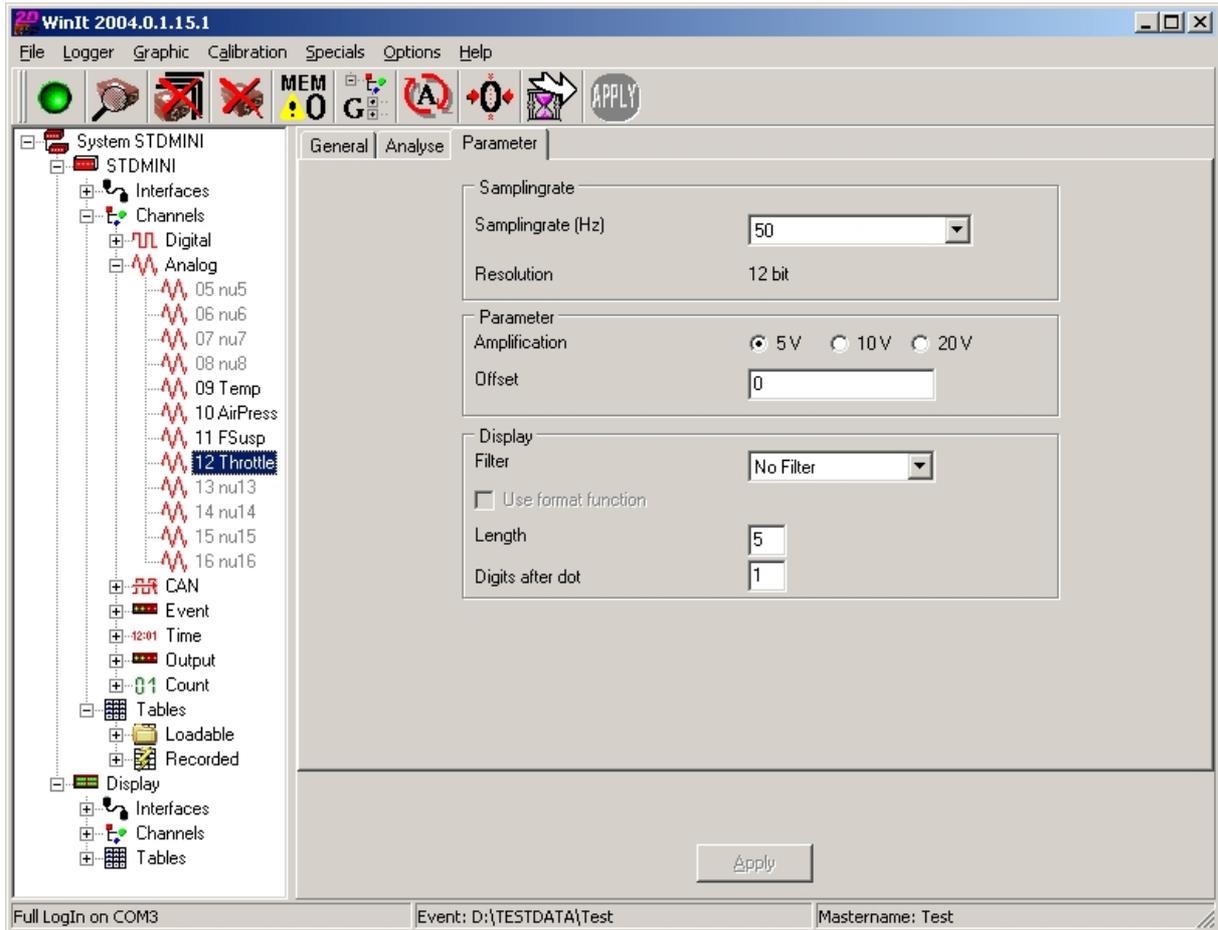
Winlt provides the possibility to sort the channels in the tree by their groups. In normal view the channels are sorted by their type (analog, digital,...). If you click on the "Group"-speed button (see Toolbar) or select *Show Groups* from the popup-menu, the views is changed to group view.



Channels that are members of more than one group are shown in each group. Channels that are not members of a group are shown under the node "Other" (if no such channels exists, this node is not shown).

### 3.4.3 Channels: The page Parameter

The last page of the channel dialog provides information about the parameters of a channel.



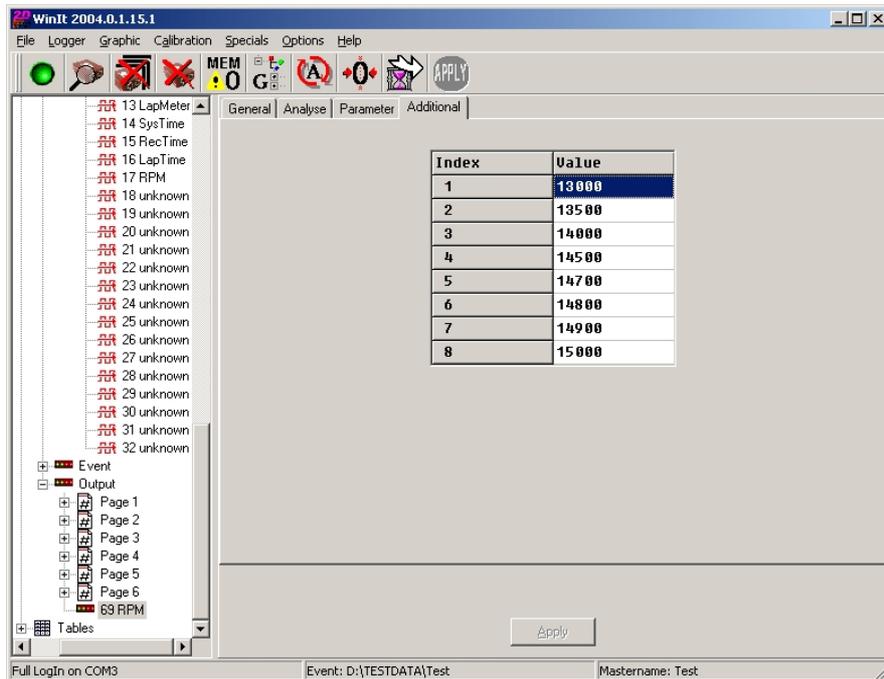
This page of the channel dialog is divided into three groups.

 <b>Sampling rate</b>	<p><b>The most important parameter of a channel is the sampling rate.</b> This value in hertz (1/sec) defines the frequency with which a sample is taken from the sensor. The higher the sampling rate the more memory is needed to store the data. Below the sampling rate you find the resolution of the channel.</p>				
	<p><b>The second group on this page is the parameter group.</b> A channel has zero to three different parameters. The number and the meaning of the parameters depends on the channel type.          In the following we give a description of the parameters for each channel type.</p>				
	<table border="1"> <tr> <td data-bbox="438 613 630 884"><b>Digital</b></td> <td data-bbox="630 613 1420 884"> <p><b>Circumference</b>                      If you use a digital channel to measure the speed of a vehicle, enter the circumference of the wheel, where the speed sensor is mounted.</p> <p><b>Pulses</b>                      Enter here the number of pulses for one complete turn of the wheel.  <i>If you measure a RPM-signal do not change the default setting of 7500 mm and 9 pulses !!!</i></p> </td> </tr> <tr> <td data-bbox="438 884 630 1075"><b>Analog</b></td> <td data-bbox="630 884 1420 1075"> <p><b>Amplification</b>                      you may select from three different amplifications: 5V, 10V and 20V.                      Select here the correct amplification depending on the output-voltage of your sensor.</p> <p><b>Offset</b></p> </td> </tr> </table>	<b>Digital</b>	<p><b>Circumference</b>                      If you use a digital channel to measure the speed of a vehicle, enter the circumference of the wheel, where the speed sensor is mounted.</p> <p><b>Pulses</b>                      Enter here the number of pulses for one complete turn of the wheel.  <i>If you measure a RPM-signal do not change the default setting of 7500 mm and 9 pulses !!!</i></p>	<b>Analog</b>	<p><b>Amplification</b>                      you may select from three different amplifications: 5V, 10V and 20V.                      Select here the correct amplification depending on the output-voltage of your sensor.</p> <p><b>Offset</b></p>
<b>Digital</b>	<p><b>Circumference</b>                      If you use a digital channel to measure the speed of a vehicle, enter the circumference of the wheel, where the speed sensor is mounted.</p> <p><b>Pulses</b>                      Enter here the number of pulses for one complete turn of the wheel.  <i>If you measure a RPM-signal do not change the default setting of 7500 mm and 9 pulses !!!</i></p>				
<b>Analog</b>	<p><b>Amplification</b>                      you may select from three different amplifications: 5V, 10V and 20V.                      Select here the correct amplification depending on the output-voltage of your sensor.</p> <p><b>Offset</b></p>				
 <b>Parameter</b>	<table border="1"> <tr> <td data-bbox="438 1075 630 1288"><b>CAN</b></td> <td data-bbox="630 1075 1420 1288"> <p><b>ID</b>                      Enter here the CAN-identifier of the data you want to catch from the CAN-bus.</p> <p><b>Data</b>                      A CAN-packet contains eight byte of data. Click on the number on the bar to select one or more byte from the packet.</p> </td> </tr> </table>	<b>CAN</b>	<p><b>ID</b>                      Enter here the CAN-identifier of the data you want to catch from the CAN-bus.</p> <p><b>Data</b>                      A CAN-packet contains eight byte of data. Click on the number on the bar to select one or more byte from the packet.</p>		
<b>CAN</b>	<p><b>ID</b>                      Enter here the CAN-identifier of the data you want to catch from the CAN-bus.</p> <p><b>Data</b>                      A CAN-packet contains eight byte of data. Click on the number on the bar to select one or more byte from the packet.</p>				
	<table border="1"> <tr> <td data-bbox="438 1288 630 1467"><b>Event</b></td> <td data-bbox="630 1288 1420 1467"> <p><b>Timeout</b>                      This value defines a time for which the channel does not recognize a new event.                      The unit of this value is ticks. If the logger has a main sampling rate of 400 Hz one tick is 1/400 s.</p> </td> </tr> </table>	<b>Event</b>	<p><b>Timeout</b>                      This value defines a time for which the channel does not recognize a new event.                      The unit of this value is ticks. If the logger has a main sampling rate of 400 Hz one tick is 1/400 s.</p>		
<b>Event</b>	<p><b>Timeout</b>                      This value defines a time for which the channel does not recognize a new event.                      The unit of this value is ticks. If the logger has a main sampling rate of 400 Hz one tick is 1/400 s.</p>				
	<table border="1"> <tr> <td data-bbox="438 1467 630 1691"><b>Output</b></td> <td data-bbox="630 1467 1420 1691"> <p><b>Channel-number</b>                      An output channel switches a signal depending on the value of another channel. Select here the channel, that should trigger the output channel.</p> <p><b>Turn on at</b>                      Enter here the physical value at which the output channel should toggle the signal.</p> </td> </tr> </table>	<b>Output</b>	<p><b>Channel-number</b>                      An output channel switches a signal depending on the value of another channel. Select here the channel, that should trigger the output channel.</p> <p><b>Turn on at</b>                      Enter here the physical value at which the output channel should toggle the signal.</p>		
<b>Output</b>	<p><b>Channel-number</b>                      An output channel switches a signal depending on the value of another channel. Select here the channel, that should trigger the output channel.</p> <p><b>Turn on at</b>                      Enter here the physical value at which the output channel should toggle the signal.</p>				
	<table border="1"> <tr> <td data-bbox="438 1691 630 2020"><b>Count</b></td> <td data-bbox="630 1691 1420 2020"> <p><b>Counted channel</b>                      A count channels summarises the values of a digital channel. In this field you see, which channel is counted by the current counter channel.</p> </td> </tr> </table>	<b>Count</b>	<p><b>Counted channel</b>                      A count channels summarises the values of a digital channel. In this field you see, which channel is counted by the current counter channel.</p>		
<b>Count</b>	<p><b>Counted channel</b>                      A count channels summarises the values of a digital channel. In this field you see, which channel is counted by the current counter channel.</p>				
 <b>Display</b>	<p><b>The last group on this page is the <i>Display-page</i>.</b>          You may select a filter for channels of a display. This values does not have an effect on loggers. Important are the two values <i>Length</i> and <i>Digits after dot</i>. These two values define how the physical value of the channel is shown in the software. If you see in the grid or the channel dialog something like "***.***" the reason is, that the number is to large to fit in the given format. Enter a higher number for the length !</p>				

### 3.4.4 Channels: The page Additional

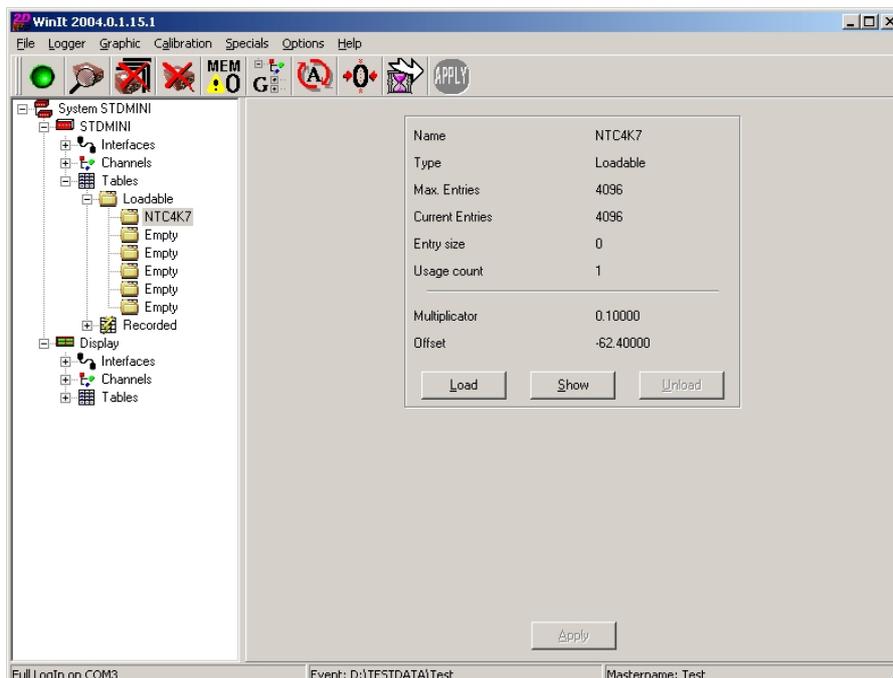


2D dashboards have a special output channel, which is used to trigger the LEDs of the dashboard. When such a channel is selected in the tree, an additional page is shown.



### 3.5 Tables

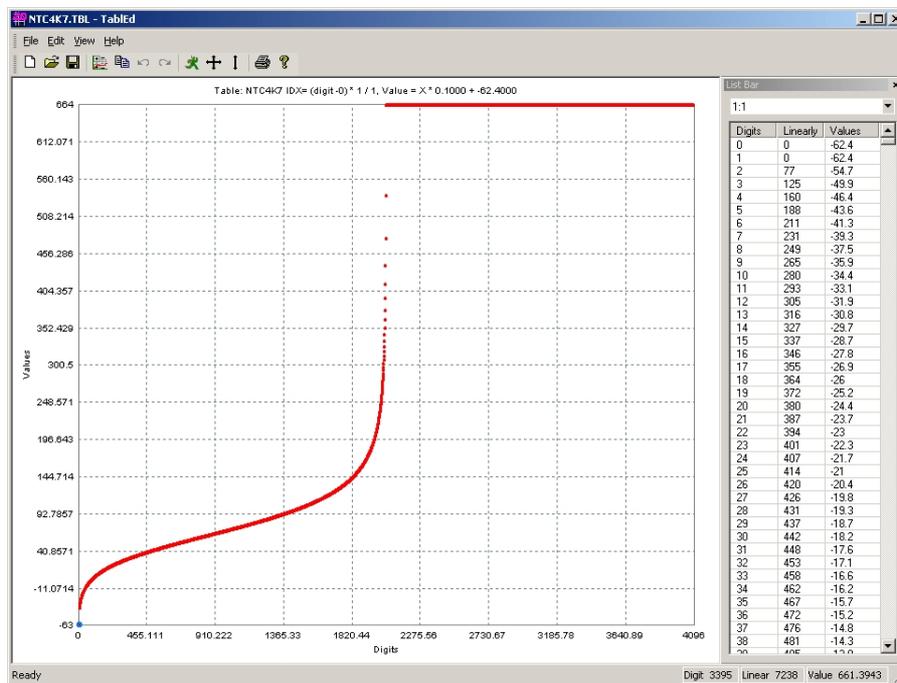
When a table is selected in the tree you see the following detail:



In the box you see some information about the table. The most important is the usage count. When a loadable table is selected, the "Load" button is active. Use this button to load a table you want on that position. If the table is in use by any channel, these channels are shown and you will be asked if you are sure what you are doing. With a click on "Show" the content of a table is shown. If a loadable table is selected clicking on "Show" starts the 2D Table-Editor with the table.



This example shows the table NTC4K7 in the Table Editor.



In Case a recorded table is selected the recorded values are shown in a dialog:

Lap	Laptime
1	1.57 sec
2	9.64 sec
3	9.55 sec
4	9.77 sec

OK

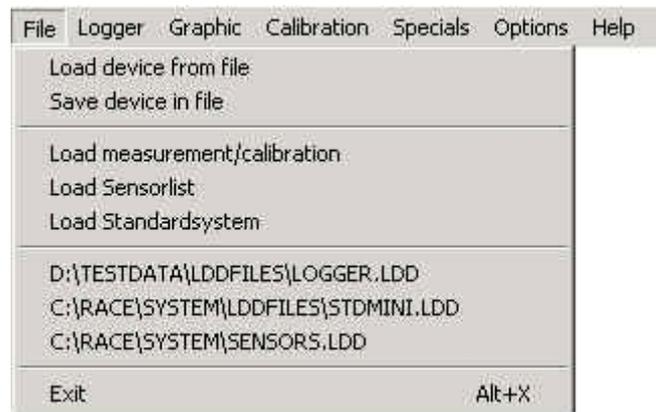
In this example a laptime table with four laptimes is shown.

## 4. The main menu

This chapter is a step-by-step introduction to the main menu of WinIt.

### 4.1 The sub-menu item File

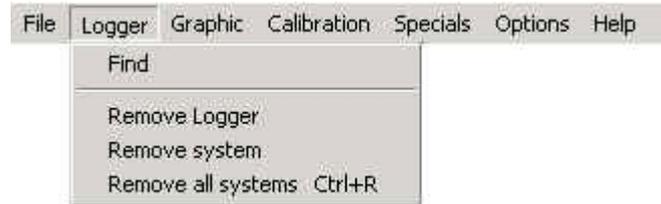
After clicking on the first item *File* of the main menu the following sub-menu appears:



- **Load device from file**  
Use this item to load a previously saved setting. A file select dialog is opened. When it is opened the first time the dialog shows the contents of the default setting directory (Which is located in your data directory). When you open the dialog the second time the directory is that one you used last. After the selection of a file WinIt adds a node in the [tree](#) with the file icon. The sub nodes depend on the stored data. The filename is inserted at the top of the file history.
- **Save device in file**  
Select this item to save the setting of a 2D device in a file. A file dialog is shown. The initial directory is the default setting directory. Select a filename or enter a new one and click on *OK*. The filename is inserted at the top of the file history.
- **Load measurement / calibration**  
With this menu item the user can load the calibration of a measurement. The calibration is loaded like a normal logger, but it only contains channel-information. You may change the formula and other values of the channels, what will have direct influence the drawing of channels in the analysis software.
- **Load sensor list**  
2D provides a file with predefined channels for the 2D sensors. After a click on this menu item a new node with the file-icon is added with sub nodes for each predefined channel. The names of the channels are the names of the 2D sensors. If you want to set a channel the first time, using a 2D sensor you might select the sensor from this list and copy it on your channel.
- **Load Standard system**  
2D provides some setting files for standard loggers as examples for setting files. With this menu item you can select from these files.
- **Exit**  
The last menu item terminates the software. Above this item you see the history list of the previously used files. Clicking on one of the filenames loads the file.

## 4.2 The sub-menu item Logger

The menu item *Logger* opens the following sub-menu.



- **Find**  
The first item makes Winlt check all activated ports for 2D devices. If something is found, the setting is read and the devices are drawn in the [tree](#).
- **Remove Logger**  
Select this menu item to remove a device from the [tree](#). You can unload a file or a connected device.
- **Remove system**  
A system contains more than one device, which are all connected on one port. Normally one device is connected to the PC through a COM-port. The rest of the system is only connected over CAN with this device. With this menu item you remove a whole system from the [tree](#).

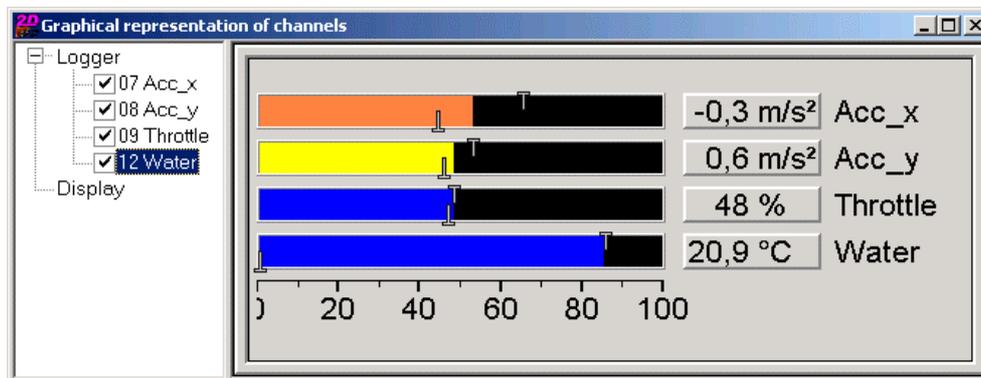
### 4.3 The sub-menu item Graphic

Under the menu item *Graphic* all functions to visualize channel-values are summarized.



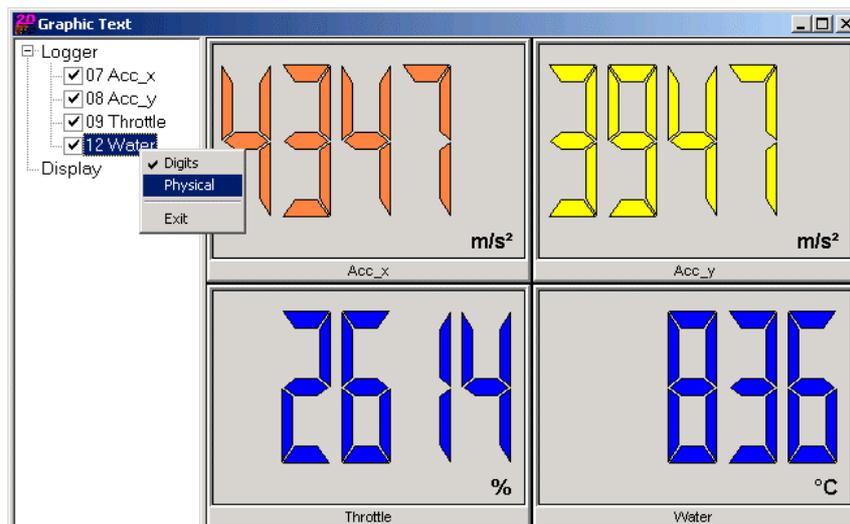
- **Graphic**

The first sub-item *Graphic* opens a dialog which is divided in two parts. On the right is a [tree](#) containing all recording channels from the current system. To activate a channel check it in the [tree](#). For each checked channel one graphical bar appears in the right part of the window. The bars are painted in the color of the channel.



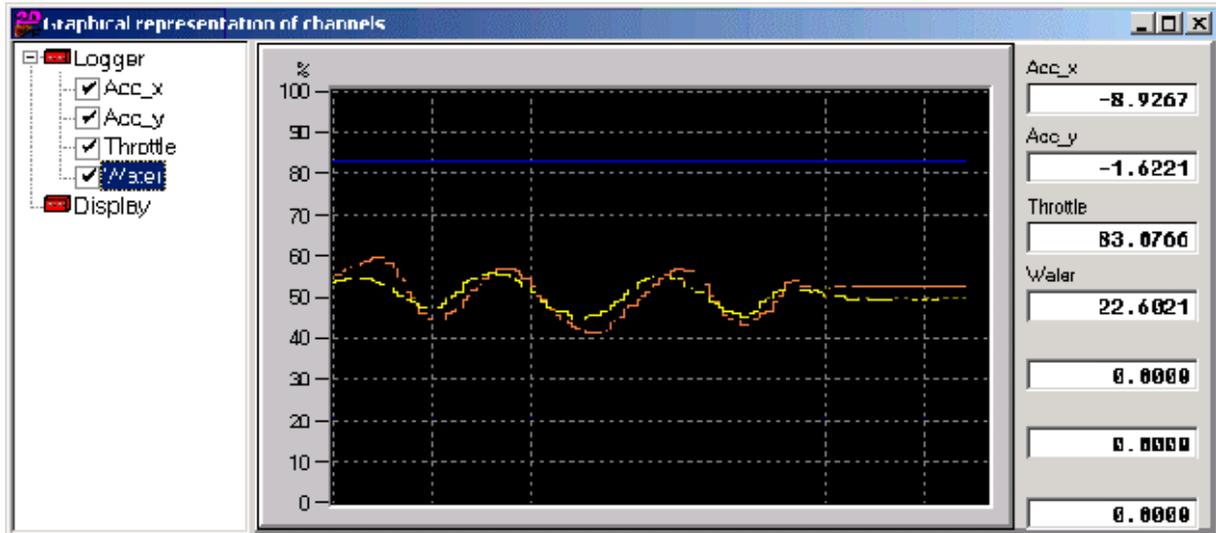
- **Text**

With the menu item *Text* you have the possibility to visualize channel values with 7 segment display instruments. You can either see the values in digits the real physical value. The view can be changed with the popup-menu.



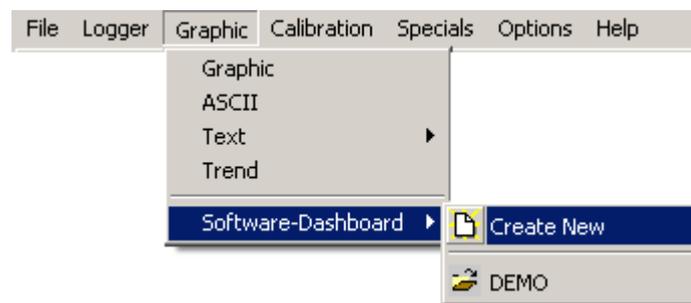
- **Trend**

*Graphic / Trend* opens an oscilloscope like graphic. In the tree on the left you can activate up to eight channels, that should be drawn. Each channel is drawn in it's color. If you move the mouse over the graph in the values of the channels at the mouse position are shown in the fields on the right.



- **Software-Dashboard**

If you select *Graphic / Software-Dashboard* from the main menu a submenu opens (A logger has to be selected in the [tree](#)). This submenu has one entry for each previously saved software-dashboard. Just click on one to load and show it. If you want to start with a new empty sheet select the first item *Create New*.

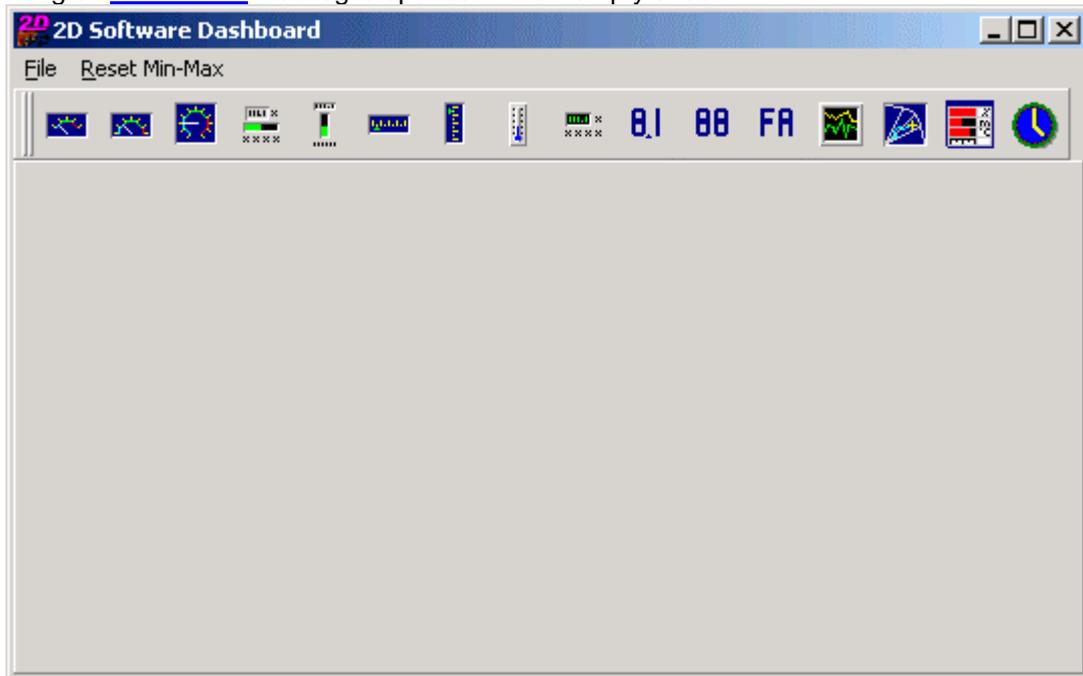


In the following we give a short introduction how to create a new *software dashboard*. After clicking on *Create New* a dialog is opened with an empty sheet.

### 4.3.1 Example: Software Dashboard

If you select *Graphic / Software-Dashboard* from the main menu a submenu opens (A logger has to be selected in the [tree](#)). This submenu has one entry for each previously saved software-dashboard.

- Just click on one to load and show it. If you want to start with a new empty sheet select the first item [Create new](#).
- In the following we give a short introduction how to create a new software dashboard. After clicking on [Create new](#) a dialog is opened with an empty sheet.



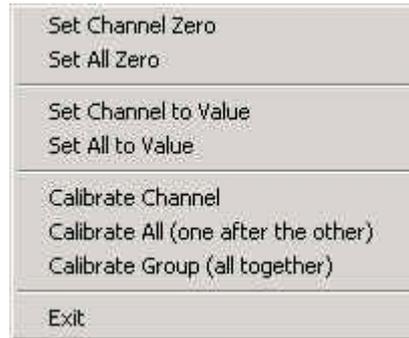
- On the top of the window is a toolbar with 16 icons. Each represents one type of instrument. The instruments are placed on the sheet by drag and drop. Click on an icon, keep the mouse button pressed move to the position where the instrument should appear and release the mouse button. A dialog is opened where you have to enter the properties of the instrument. Some instruments show two channels, their property-dialog has two sets of the fields of single channel instruments. The property-dialog is the same for all single channel instruments, but not all values are used for all instruments.

- The first thing you have to do is to select a channel from the list. After the selection WinIt fills the other fields with values from the channel setting.

<b>Digits from / Digits to</b>	These values define the range in digits which should be shown with the instrument. If you change this values WinIt changes automatically the values in the fields <i>Value from</i> or <i>Value to</i> , which define the range of the instrument in physical values.
<b>Limit from / Limit to</b>	Some of the instruments have the ability to check the values if they are in a defined range. If the value leaves the range the instruments starts to blink red. Enter in this fields the range in physical values in which the signal is OK.
<b>Draw names</b>	If this checkbox is disabled the instrument is painted without a name in its border.
<b>Name 1 / Name 2</b>	The names written in these fields are shown in bottom of the instrument.
<b>Unit</b>	This field receives the dimension that should be shown with the physical value.
<b>Value format</b>	Enter here a format string to define how the physical value is drawn. Every character in the format string is used for a <i>digit</i> of the resulting number-string. A "#"-character is replaced by a space if this <i>digit</i> is not used for the number. A "0"-character is replaced by a 0. That means '####0.00' will show " 0.00" if the value is zero. '#####.##' will only show " ." for zero, what makes no sense. The character before and all behind a dot should be '0'.
<b>Value from / Value to</b>	Enter here the range that the instrument should show. Example: You have a channel measuring the temperature of water. The sensor has a range from -200 to +200 °C. But as you know, water (at least liquid) has a temperature from 0 to 100 °C. So it would be good to reduce the range of the instrument to 0 up to 100 °C. If you have entered the lower and upper border in the display-group on the analyse-page of the channel the range is filled in automatically.

## 4.4 The sub-menu item Calibration

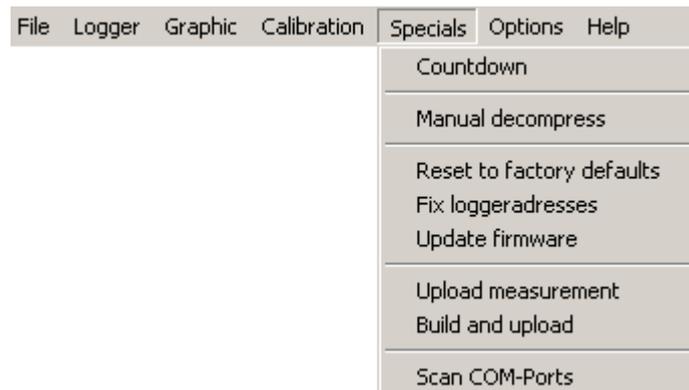
The fourth item in the main menu is "*Calibration*". That means the manual calibration of channels. The dialog looks the same as the normal graphic-dialog. (See [Graphic / Graphic](#)) The difference is that, when you place the mouse over the channel to be calibrated and right-click the mouse, a Pop-up menu appears on the right part of the window. The selected channel is highlighted.



- **Set Channel Zero**  
Use this function to set the value of the selected channel to zero at the current sensor position. The offset of the formula is changed.
- **Set All Zero**  
This function sets all values of the activated channels to zero at their current sensor position.
- **Set Channel to Value**  
These function are the same like the zero-setting with the difference, that WinIt asks for the value to set the channel to.
- **Set All to Value**  
These function are the same like the zero-setting with the difference, that WinIt asks for the value to set the channel to.
- **Calibrate channel**  
This function is used to calibrate a channel by two defined sensor positions. The software prompts you to move the sensor of the current channel to the minimum position. After clicking *OK* WinIt samples the channel for several seconds and builds an average value. Then you have to move the sensor to it's maximum position. Click on *OK* and WinIt starts to sample again. Now the rule of three dialog is opened with the two sensor positions entered in the digits-field. Enter now the physical values for this positions.
- **Calibrate All (one after the other)**  
This function is the same like above, but all channels are calibrated one after the other.
- **Calibrate Group (all together)**  
With this function you can sample all channels at one time. The rule-of-three dialog is shown for each channel.

## 4.5 The sub-menu item Specials

The fifth menu item, *Specials*, summarizes functions that did not fit to any other menu item.

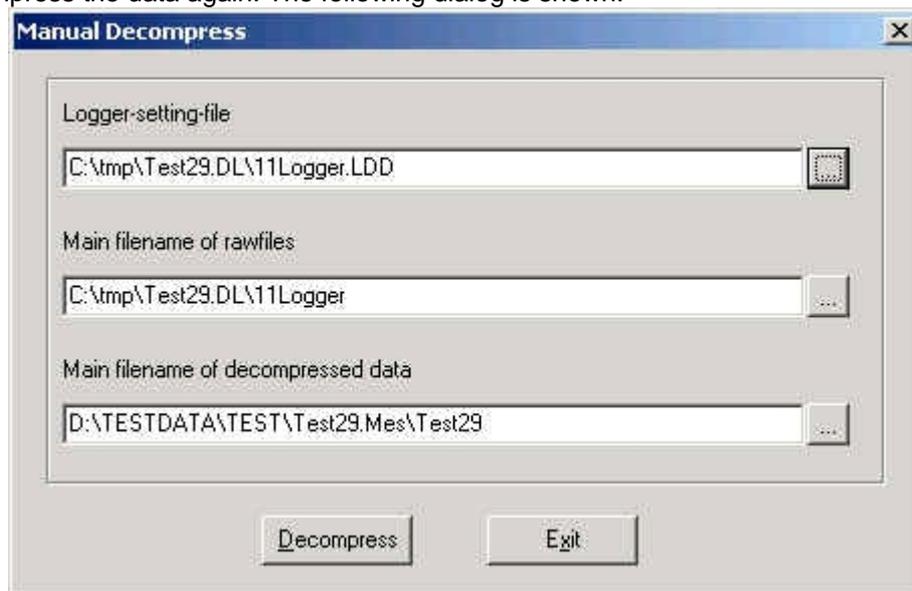


- **Countdown**

Select this menu item to start a dialog with a *countdown-timer*. The *timer* starts with a *countdown-time* of 60 minutes. To change the time double-click on the dialog and enter the new time. If you close the *timer* and reopen it, the *timer* continues.

- **Manual decompress**

The data in the logging device is raw data, which has to be decompressed and divided into channel files. In the download procedure the raw data is collected from the logger and stored as raw files on the hard disk. After the last data block was transmitted, WinIt starts to decompress the raw data to channel files which are stored in the measurement directory. If something goes wrong, i.e. the measurement directory is located on a network that is not available, it might be necessary to decompress the data again. The following dialog is shown.



You have to select the setting file, which is stored in the download directory. A click on the first button opens a file dialog. It's current directory is the directory where WinIt stores it's raw data (see options). Open the download directory from the measurement you want to decompress again and select the setting file (\*.LDD) which is located in this directory. After the selection WinIt fills automatically the other two fields depending on your event-settings. Now you can click on "Decompress" and the decompress is started.

- 
- **Reset to factory defaults**  
This function sets a device to factory defaults. **Recorded data is lost !** The setting of the device is stored in a file and the file is loaded automatically. The user does not lose his settings.
  - **Fix loggeraddress**  
Each 2D device of one system has to have a unique address.  
Any command sent always contains the address of the device that should react. If more than one device has the same address, they would all answer at the same time and the PC would not be able to decode the answer. If WinIt recognizes that an address is not unique it tries to solve this problem by changing the address of one device. With this function the user has the possibility to change the addresses manually.
  - **Update firmware**  
For professional users only - please contact the 2D support
  - **Upload measurement**  
For professional users only - please contact the 2D support
  - **Build and upload**  
For professional users only - please contact the 2D support
  - **Scan COM-Ports**  
Use this function to make WinIt detect the COM-Port at which a 2D device is connected. ([See Setting up the communication](#))

## 4.6 The sub-menu item Options

The menu item *Options* opens the following sub-menu.



The first three items are switches, that can be on or off.

- **Poll communication ports**

With this item it is possible to deactivate the communication of WinIt. If the polling is activated and a system connected, WinIt checks once a second, if a device is still connected. If not the icon in the tree is changed. A second thing that depend on the polling is the update of channel values. When polling is active and a channel or a group of channels is selected in the tree, WinIt receives the current values of the channels and shows them either in the grid or the channel dialog. With Polling inactive the values are not updated.

- **Auto-Update**

The memory usage shown by WinIt is the usage at the moment of the login procedure. If the device is still recording the memory usage is not updated. When this function is enabled, the software checks once a second the memory usage of the device and updates the memory bar.



**Attention:**

Since sending the memory usage to the pc takes a little time the logging device might loose some channel values if the logger does not have enough time. That is the case when the logger is working with a high base sampling rate and a lot of channels are recorded at high speed !

- **Auto-Download**

This menu item is used to change from setting mode to [autodownload mode](#). (See [introduction](#)) While in *autodownload mode*, WinIt periodically checks all active ports for 2D devices. If devices are found, the download starts immediately.

- **Language**

WinIt uses the same language as *WinARace*. If you want to change the language only for WinIt and only temporary you can uses this submenu.

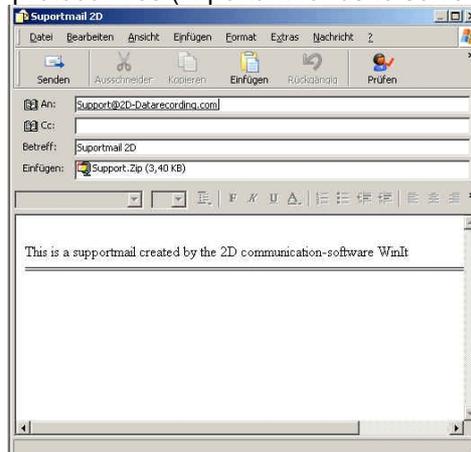
- **Settings**

Starts the options-dialog of WinIt as described in [Setting up the communication manually](#).

## 4.7 The sub-menu item Help

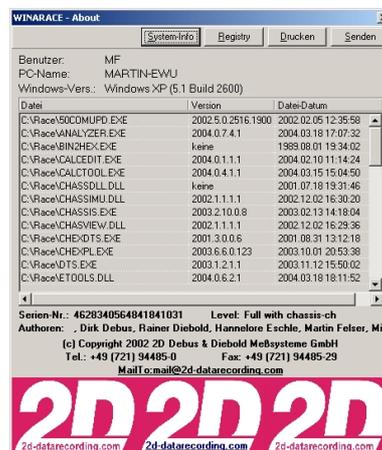


- **Help**  
Starts the context sensitive help module of WinIt (shortcut key <F1>).
- **Keyboard-commands**  
Show you a complete table of the WinIt shortcut keys (start of the help module and show you the corresponding page).
- **What's new**  
Give you a complete overview of the software changes of WinIt over all software revisions. (start of the help module and show you the corresponding page).
- **Send supportmail to 2D**  
With this menu item you can contact quick and easy the 2D support. At the email attachment you will get automatically some protocol files (important for us to solve your WinIt problems).



Please note: You need a correct working email account !

- **About**  
Get version informations of all 2D software modules (printable !)



## 5. The Toolbar device

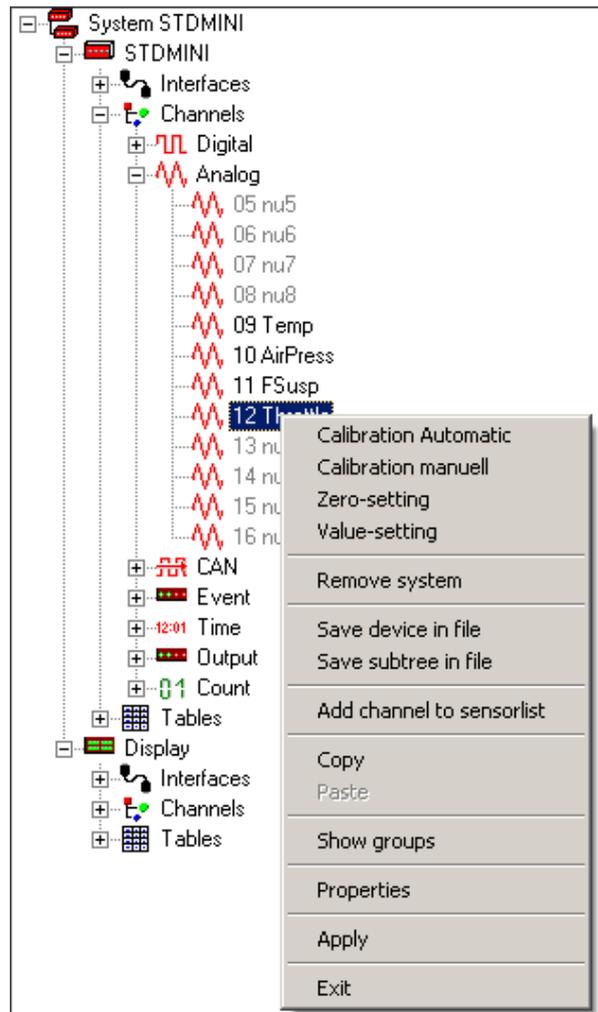
In this chapter we give a description of the toolbar and it's buttons.



	<p>The first tool button activates or deactivates the communication. (See main menu options) The color of the button indicates the current state. A green button means the polling is active and a red one means it is inactive.</p>
	<p>A click on this button starts the search routine. Use this to make WinIt read a newly connected system.</p>
	<p>This button unloads all devices and files, but the software tries to find and read devices afterwards.  <b>Attention: You will lose changes to the settings if the changes were not already sent to the devices!</b></p>
	<p>With this button only the currently selected device or file is unloaded. <b>Attention: Changes to the settings of the device are lost !</b></p>
	<p>Click on this button to clear the memory of the currently selected device.  <b>Attention: All recorded data will be lost!</b></p>
	<p>Use this button to toggle between <i>normal</i> and <i>group view</i>. In normal view the channels are sorted in the tree by their type. In group view they are sorted by their group membership.</p>
	<p>This button turns the <i>auto - update mode</i> on or off. In <i>auto -update mode</i> the usage of memory is read and updated periodically. (<a href="#">See Mainmenu / Options AutoUpdate</a>)</p>
	<p>With this button you can send the auto-zero command to all devices of the selected system. If a device receives this command all channels with the auto-zero flag are set to zero. (See: Channel-dialog)</p>
	<p>With this button you can toggle between full login and smart login. In full login the complete setting of all connected devices is read. The smart login only reads the complete setting of the master logger. Other devices are only read partially. The rest, for example the channels, are read only when needed. You can see this in the tree. A partially read logger has a sub-node for channels. But this sub-node has no "+", which means no sub-nodes. If you click on the channel node, the cursor changes to an hourglass and the channels are read. After several seconds the cursor becomes normal and the "+" appears in front of the channel node. For large systems the smart login could save time.</p>
	<p><b>This button is only active if something is changed on a loaded or connected logger. Clicking the button makes WinIt write the changes to the device or file.</b></p>

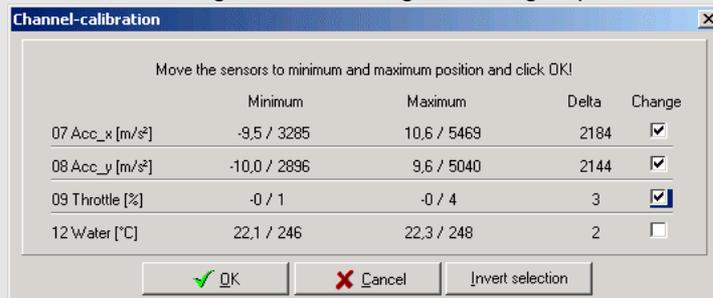
## 6. The Pop-up Menu

Another way to access functions of WinIt is the Pop-up menu which appears after a mouse right-click on the [tree](#). Some items of the menu are only visible if a certain type of node is selected.



**Calibration automatic**

This menu item gives access to a second method of calibrating channels, the automatic calibration. You can use it to calibrate a single channel or a group of channels. That depends on the selection in the tree. The following example shows the calibration dialog with the analog channel group selected.



The calibration dialog is opened with all recording channels from the selected analog group. The software samples the channels for minimum and maximum values. You must move the sensors to define minimum and maximum positions. For each channel you see one line in the dialog. At the end of the line is a checkbox *Change*. The button *invert selection* checks all unchecked checkboxes and vice-versa. After a click on *OK* for each channel with that box checked, a rule of three dialog is opened with the found minimum and maximum positions.



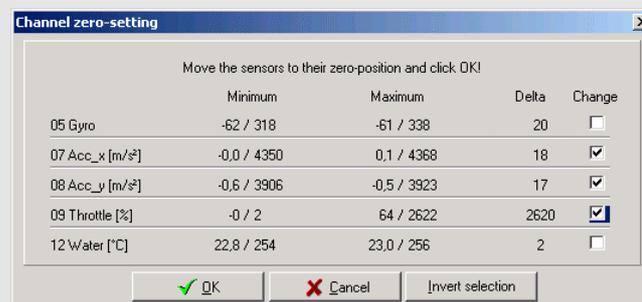
Now enter the physical values corresponding to the minimum and maximum digit values and click *OK*. Now this sensor is calibrated.

**Calibration manual**

Starts the same calibration dialog as the calibration available from the main menu. ([See: Mainmenu / Calibration](#))

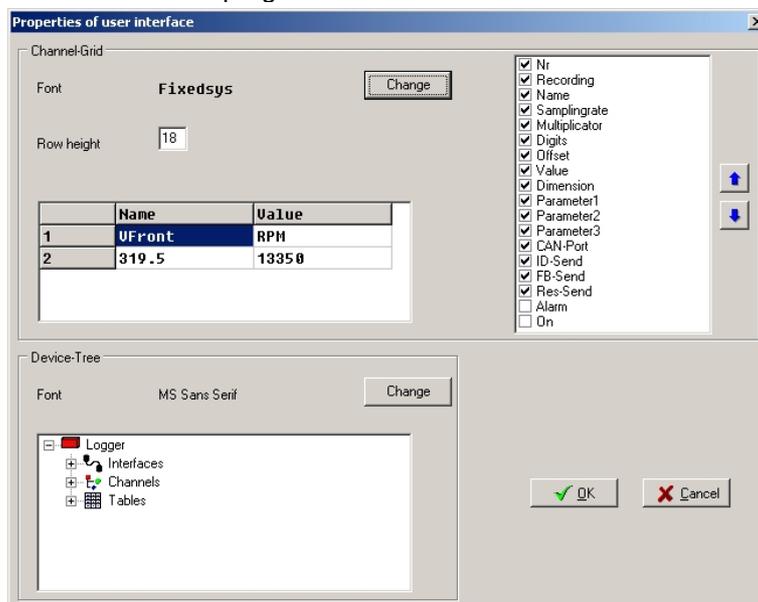
**Zero-setting**

With this function you can set one or more channels to zero by moving the sensor to its zero-position. After selecting this menu item a dialog appears that looks similar to the automatic calibration.



The behaviour is the same as in the automatic calibration, Winlt samples the channels to find minimum and maximum values. Check the *Change* checkbox behind the channel name to manipulate the formula of the channels. The software uses either the minimum or the maximum value, depending on the formula, to recalculate the offset in the formula.

<b>Value-Setting</b>	This menu item provides a function to set the physical value of a channel to a certain value at the current sensor position. Only the offset of the formula is changed.
<b>Remove system</b>	Unloads the currently selected system. <a href="#">See Mainmenu/Logger/ Remove System</a>
<b>Save device in file</b>	Stores the setting of the currently selected device in a file. ( <a href="#">See Mainmenu / File / Save device in file</a> )
<b>Save sub-tree in file</b>	Stores a part of a setting in a file, depending on the selection in the tree. Only the data of the selected node and it's sub-nodes is stored. If the selected node is a logger-node, the saved setting contains a whole logger setting. If only a channel is selected, the saved setting contains only one single channel.
<b>Add channel to sensor list</b>	The 2D software comes with a predefined setting file which contains a list of channels with typical settings for 2D sensors. This file should help the user to set up his system by copying the predefined channels to his logger setting. This menu item gives you the possibility to add the channels you defined to this sensor list. If you have to create another setting, you can copy your channel from the sensor list to your new setting.
<b>Copy</b>	With this menu item the current selection of the tree is copied to the Windows clipboard. Use it to copy and paste settings or parts of settings. If you select copy on a single channel, only the channel is stored in the clipboard. If the selected node in the tree is a logger-node the complete setting is stored.
<b>Paste</b>	Use this menu item to paste the previously copied data from the tree. Use it to copy and paste settings or parts of settings. It is not necessary that the source and destination nodes are from the same type.
<b>Show groups</b>	Toggle between normal and group view. <a href="#">See Toolbar / Groupview</a>
<b>Exit</b>	Starts a dialog to customize the appearance of the tree and the grid. Refer the figure below. The dialog is divided in two parts. The first group is used to change the properties of the channel grid, the second for the device tree. By clicking on the "Change"-button you can select the font you want to use for the tree and the grid. The default fonts are: Grid: Fixedsys, size 9 Tree: MS Sans Serif, size 8. With the field "Row height" you can customize the height of a row in the grid. The box on the right is used to define which columns should be shown in the channel grid. The order can be change by selecting a line of the box and moving it up or down with the arrow buttons besides the box.



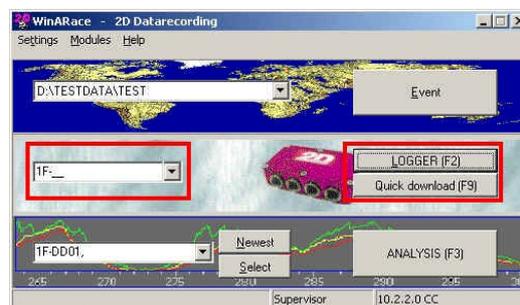
## 7. Downloading data from system

There are two possibilities to start the download of the data. The first and faster one is to start WinIt in autodownloadmode ([See setting mode / autodownloadmode](#)) by pressing the key <F9> in the front-end-tool [WinaRace](#). The second possibility is to press the key <F9> in WinIt while running in setting mode.

The first thing WinIt does after the download process started is to check the download addresses. The software tries to determine if for each address marked as a download address in the communication options ([See options](#)) a device with that address is connected. If not, a message is shown and the download terminated.

After the address-check WinIt creates the name and the directory of the new measurement. These depend on the settings in the main window of WinaRace.

### 7.1 Naming of the measurement



The second combo box (left of the button *Logger*) contains the *mastername* for the creation of new measurements. When WinIt creates a new measurement the name is built from this *mastername*. If the *mastername* does not contain wildcard-characters (the underscore "\_") the name of a new measurement is built by adding two characters for a number (00 to 99) to the *mastername*. WinIt takes the first number that does not exist.

#### Example:

Mastername is *WarmUp* and it is the second measurement with this *mastername* in this *event*. The resulting name of the new measurement is *WarmUp02*, because *WarmUp01* already existed.

If you download the data of more than one vehicle, it would be helpful, if you could see to which vehicle a measurement belongs. For this we provide the possibility to use wildcard-characters. The wildcard-character is the underscore ("\_"). Each underscore in the mastername is replaced by a character from the *loggername* beginning at the end. That means one underscore is replaced by the last character of the *loggername*, two underscores by the last two characters and so on.

#### Example:

The mastername is *1F-\_\_*, we have two vehicles to download, one *loggername* is *Log\_DD* and the other *Log\_MH* where the last two characters are the initials of the names of the drivers. It is the first measurement with this mastername.

WinIt creates a measurement with the name *1F\_DD01*. The two underscores are replaced by the last two characters of the *loggername* ("DD") and the number "01" is added. For the other vehicle the measurement receives the name *1F-MH01*.

"Date\_" is a special mastername. It is used to create measurement names containing information about the date, the measurement was downloaded. The software replaces the part "Date" of the mastername by the month and day at which the measurement was created. The format is MMDD, that means the first two characters are replaced by the month and the next two by the day.

### Example:

If the master name "Car\_" is selected and only one logger is used, the name "A" is assigned to the logger and the first measurement name will be "Car-A01".

The mastername "Date\_" is selected and a second logger is used. The logger received the name "B". Today is the 14.04. The resulting measurement name for the first download is "0414-B01".

After the creation of the new measurement directory the real download is started. WinIt shows following dialog to indicate the download progress.



The dialog provides information about the download process. In the first line you can see the current download speed and the current port. The second line shows the current block and the maximum number of blocks. In the fourth line you can see the estimated remaining download time.

If the option *Auto quickinfo after download* is set in the options ([See Options](#)), after the download of the last block a dialog appears where the user can add additional information to this measurement as a comment in the *SpecSheet-file*.

Information about the download itself and the current weather conditions are added to the *SpecSheet* automatically.

The last thing to do with the logger is to clear its memory.

Since the download of the raw data is finished now and the logger is no more needed to be connected a window appears with the message: *Ready to drive*. The recording system now can be unplugged. It is now ready for the next measurement.

But WinIt has not finished the last measurement. The raw data has to be prepared for the analysis.

A new progress bar is shown while WinIt decompresses the data.

After the decompression WinIt starts the *2D Calculation Tool*, which linearizes all channels using tables.

If the option *Start Analyzer after download* is set ([See Options](#)) WinIt starts the analysing software with the new data.

## 8. Shortcut keys overview

Shortcut	Action
<F2> or <CTRL + G>	Toggle between normal and group-tree display
<F4>	Read rest of logger Settings of all loggers, which are not already read complete. Only available if smart login is selected.
<F5> or <CTRL + L>	Refresh of logger setting (used memory, etc. same as <F1> in DOS-software)
<F6> or <CTRL + R>	Remove all systems and start search for loggers again
<F7> or <ALT + Z>	Zero setting of one or more channels depending on selection
<F8> or <ALT + C>	Calibration of one or more channels depending on selection
<F9>	Start of download followed by decompression of data
<CTRL + C> or <CTRL + INSERT>	Copy actual node in tree
<F6> or <CTRL + F>	Find loggers
<CTRL + I>	Toggles display of channel parameters on and off.
<CTRL + P>	Toggles display of channel CAN send info on and off.
<ALT + Q>	Insert quick-info in HED-file of last download
<CTRL + V> or <SHIFT + INSERT>	Paste copied node at actual position in tree
<ALT + X>	Terminate program
<CTRL + ALT + D>	Activate / Deactivate memory dump
<ENTER>	Pressed on channel grid, the channel dialog with the selected channel is opened
<DEL>	Pressed on a logger in the tree deletes this logger. Pressed on a system in the tree deletes this system.

## Appendix: Glossary

Expression	Explanation
Automatic Mode	Define if the <i>Datalogger</i> will interrupt the recording if neither a rpm or a speed signal incoming even the starting conditions reached or not.
BAUD	Bits / Second (rate of transfer)
COM – Port	Abbreviation for "Communication Port" Defines the port you communicate with the <i>Datalogger</i> .
Communication Baudrate	The speed in bits per second (Baud) at which the PC and the <i>Datalogger</i> pass commands to each other.
Create measurements hybrid	Define if data should additionally be saved in old DOS - structure. Only at the new 2D data structure (for each measurement a single directory with the extension "MES". You can also create "hybrid" data in order to further analyse Windows data under MS-DOS ! - Files with the extension "PAR".
Datalogger	"Black Box" to save the arrival sensor signals.
Digits	Direct value from the sensor before recalculating the physical value from the corresponding formula file. A sensor supply a voltage value at the entry of the <i>Datalogger</i> . A analog - digital converter transforms this voltage in a digital integer value - the digits.
Download	Reading operation of the measurement values from the <i>Datalogger</i> .
Download Baudrate	The speed in bits per second (Baud) at which data from the <i>Datalogger</i> is transferred to your computer
Drag & Drop	Quick and easy programming of the <i>Datalogger</i> via the standard windows "drag and drop" method of single channels, channel groups or complete settings. Corresponds the shortcut keys: <Ctrl + C> and <Ctrl + V>
RPM	Rounds per minute
Calibration	Some sensors have a fixed calibration or use a fixed table function and need no calibration. The calibration has the following function: it gives the software the necessary information about the measurement limits of a sensor – you could say a minimum- \ maximum investigation. The table below shows which sensors need to be calibrated:
LDD File (Logger Definition Datei)	All settings of the connected 2D hardware were saved into this file. Used in the program Winlt to adjust the <i>Datalogger</i> at different measurement adjustments.
Starting conditions	Set the starting parameters at which the <i>Datalogger</i> begins recording data. The Starting condition can be subdivided into: <ul style="list-style-type: none"> <li>• Distance</li> <li>• Time</li> <li>• User define</li> </ul>
USB (Universal Serial Bus)	Communication port at your PC which make a transfer rate of 2MBaud possible.