

User manual
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NGA WinControl

akrobit® software gmbh - <http://www.akrobit.de>



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Introduction

The Concept

Thank you for purchasing the NGA WinControl program. The programming functions, namely: device programming, the ability to summarise, display and work with your data, and calibration enable you to connect your measuring devices to your computer and to manage them more effectively. DDE and OLE standard support allows the integration of different applications with this data acquisition program.

The modular structure of the program allows you to configure your own individual program variant containing the options which are relevant for you. Please note that some of the functions described in this manual might not be supported by your current program version. However, you can extend your software functions by releasing additional options at any time.

This program has been designed with a standard Windows user interface in mind, guaranteeing quick and easy use. The help system (accessed by pressing F1) provides immediate help or information should you require it.

Those who prefer to read the following information on paper rather than on the computer screen should find this manual very useful. The following section entitled "The NGA WinControl Manual" is intended to maximise your use of this manual.

The NGA WinControl Manual

If you wish to develop a full understanding of all program functions, we recommend that you read chapters two to five. This manual begins by describing the program's main window and then goes on to explain all program functions in more detail. This should help develop your knowledge and understanding of the program.

For those who are familiar (Windows) users a full description may be somewhat repetitive. A more effective and completely sufficient method of learning how to use the program is to simply look up the topics that you want to know more about. Of particular interest are the chapters "NGA WinControl Outline", "NGA WinControl Windows" and "The NGA WinControl Menus".

The chapter "NGA WinControl Outline" is designed to provide sufficient information for "experts" to develop a sufficient knowledge of how the program works and how to use it.

We too are often plagued by the laborious task of reading a manual and for this reason we have developed chapter five of this manual entitled "How do I...". This is a quick reference chapter which describes many of the program's functions. All the information in this manual is contained in the NGA WinControl help system which means that program information is always at your fingertips should you need it.

In order to optimise your use of this manual, we have applied particular conventions throughout. The table below explains these conventions:

Convention	Meaning
Courier	Directory names, File names, Acronyms.
<i>Italics</i>	Commands, Buttons and text that you need to enter or select.
< >	A character that appears in these brackets represents a key symbol, letter or description.
<Key 1 + Key 2>	The keys one and two must be pressed simultaneously.
<Key 1, Key 2>	The keys one and two must be pressed one after the other.
STARTING!	Tips on starting an action.

Tip! Please note, that there are some parts not translated in English language. Please contact us, to get a newer version of user manual.

NGA WinControl Outline

Installation and starting the program

System Requirements NGA WinControl requires an IBM-compatible computer with Windows 98 or higher, at least 32MB of RAM and a maximum of 3 MB free hard disk space. A mouse is not required but is recommended.

Installation Before installing this program you should make a backup copy of the original program disks. Once you have done this, install the program using this copy. Remember to store the original and the backup in a safe place as with all diskettes. In order to install NGA WinControl on your computer, use the installation program SETUP on the program disk.

- Place the disk in disk drive a (b)
- Start Windows and select File/Run in the Program Manager
- Enter a:\setup.exe (b:\setup.exe)
- Enter the information requested during installation

Program Start Following installation, NGA WinControl can be started like any other Windows program. You can either start the program from the Windows Program Manager, by double clicking with the left mouse button on the program icon, or by entering the source directory and then NGA.exe under File/Run in the Program Manager.

Registration If the dialogue “NGA WinControl Licence Information” appears after starting the programme, your licence has not been registered. The term of an unregistered version is limited to a maximum of 30 days. The time left of that term is given under “Remaining Trial Time”.

In order to license the acquired software, simply click on the internet address indicated under “Registration” in the “NGA WinControl Licence Information” dialogue box. In the site that will appear, enter your information into the form and click on “send”.

Once we have received and checked your details, we will send you your release code. After entering the code into the respective field in the “NGA WinControl Licence Information” dialogue, the limitation to the term will be cleared.

Of course you can also contact us by phone or fax. You can find our numbers in the “Help / Info” as well as in the “NGA WinControl Licence Information” dialogue.

If you want to register now, click on <http://www.akrobit.de/nga/register.htm>

Copy Protection NGA WinControl can also be operated with a hardlock (dongle), in which case the software needn't be released by an unlock code. Dongles are available for various ports (serial/parallel, USB, ISA, PCI).

The dongle solution is especially recommended if the same software is applied on several computers (e.g. laptop and desktop pc).

Upgrade The standard version of NGA WinControl can be extended by individual optional functions (timed saving, modem connections, Ethernet connections and alarm functions) or changed into the professional version (all optional functions are available).

In order to do this, use the button “Upgrade” in the “Help / Info” dialogue. This will take you to the “NGA WinControl Licence Information” dialogue. The procedure of activating the additional functions or the upgrade to the professional version is the same as for registration.

ReadMe.wri Changes or additions to NGA WinControl made after the printing of this manual will be documented in the README.WRI file.

NGA WinControl Key Points

Introduction

Supported Channels Using NGA WinControl and Windows, you can control as many channels per measuring device as desired (within the limitations of your hardware). NGA THERM and ALMEMO measuring devices are supported by this program. Channels will be automatically recognized and listed once a connection between your devices and the computer has been established. The interval between measurements can be varied according to your requirements.

In addition to the measurement values of NGA measuring devices, data can be captured and processed via multi-function cards from the company Data Translation. The channels of the multi-function cards are recognized and listed up automatically as soon as the cards or the respective sub-systems have been activated. Read-in of values from the multi-function cards and the NGA measuring devices takes place with the same scan rate.

Programming Using NGA WinControl, sensors and devices can be programmed. The programming can be saved in a file and restored whenever required.

Data Logger If you wish to use a measuring device as a data logger, then the software lets you download data from a device’s memory, display the data as a line diagram and then save it. The respective parameters for this can be set in a dialogue box and programmed using NGA WinControl.

Modem If it is necessary to read data from a remote location, this can be done using a modem.

Connections by Ether net As an option, NGA WinControl enables you to carry out communication with the NGA measurement system via the computer network (a TCP/IP address) instead of a serial interface.

NGA WinControl as Data Server In the server operating mode of NGA WinControl, captured data can be passed on to up to 200 clients. A WinControl server can be accessed via network (intranet or internet).

Remote Access via WinControl In the remote operating mode of NGA WinControl, measurement values captured by the NGA WinControl server can be taken over and processed with all available functions.

<i>Data Display</i>	Data can be displayed numerically, in the form of a bar graph, data table, X/Y and/or line diagram. It is also possible to display one or more channels simultaneously in the different viewing forms mentioned above.
<i>Saving Data</i>	There are different possibilities for archiving data: Auto Saving on the hard disk; saving as a line diagram or in a data table; or simply as numerical values.
<i>Interference Log</i>	Any values that exceed the set limits or sensor errors will temporarily be displayed in a table or on a line diagram (cf.: Channel List). This display feature means that any interference that occurs whilst using the program will be visible to the user. Interference can be distinguished by distinct breaks in the line of a graph. It is also possible to log any interference in the channel list window.
<i>Analysis and Evaluation</i>	Using the calculation channels, it is possible to analyze your data in both on and offline modes. Two measuring cursors are used to examine and evaluate – with the help of the integrated statistics function – the curves of the line diagrams. It is also possible to transfer your data using DDE transfer, to copy the information to the clipboard or to save the data in different formats.
<i>Alarms</i>	An alarm can arise from both measured and calculated data. Special events and actions can be assigned to such an alarm (for example, starting another application). These events and actions are dependent on program settings.
<i>Printing</i>	You can create technical documentation of your data by printing out diagrams, tables and the channel list together with correction values. These printouts can be viewed prior to printing, using the “Print Preview” command. All printers and plotters with Windows drivers are supported.
<i>Documentation</i>	To help you create documents related to the data that NGA WinControl can store, line diagrams can be imported into text documents either using OLE or by copying the information to the clipboard.
<i>Operating System</i>	NGA WinControl will operate under Windows NT 4.0 and Windows 98/2000/ME.
<i>Offline Operation</i>	NGA WinControl can be used simultaneously in On and Offline mode.
<i>Program Use</i>	Keyboard shortcuts and the toolbar enable fast access to the most important program functions. Important information and advice appears in the status bar.

The Program Windows

<i>Channels</i>	<p>Once you have established a connection between your computer and the measuring devices, by entering or selecting the appropriate information in the “COM Port Settings” dialogue box, then a “Channel List” window should appear. This window contains a list of all connected and programmed channels as well as calculation channels.</p> <p>If the channels of the multi-function cards are activated via the function <i>Programming/Data Translation Sub-Systems</i>, they are displayed in the channel list as well.</p> <p>In the dialogue box “Channel List/Channel Properties” you can change the channel settings. The “Channel List” window is always open and cannot be closed.</p>
<i>Data Display</i>	The numerical display of data appears in the Value Display window. The “Channel List Properties” dialogue box allows you to select the channels that should be displayed. You can open as many windows of this type as you wish and display them simultaneously.

Bar Graph This is one graphical method of displaying data. The bar graph window lets you display a single channel or a group of them. The basic characteristics of a bar graph are: automatic monitoring of limits, the labeling of limits and the display of minimum and maximum values. In the “Bar Graph Properties” dialogue box, you can select the channels to be displayed. You can open as many bar graphs as you wish and display them simultaneously. Each window can display all channels that are available to the system.

Line Diagram Another graphical method of measurement display is the line diagram. In contrast to the numerical data display and bar graph, the data for a line diagram is buffered in the computer’s memory. This data can be saved as a file either during or after polling and subsequently used for DDE transfer or with another application (for example, a spreadsheet program). Like the other program windows, the “Line Diagram Properties” dialogue box allows you to set the properties of such a diagram and the channels that are displayed in it.

You can open as many line diagrams as you wish and display them simultaneously. Each diagram can display as many channels as you want with a maximum of four different y-axes. It is also possible to display the data in a table or as an X/Y diagram at any time.

X/Y Diagram Whereas a line diagram always plots a measurement over time, the X/Y diagram can be used to plot against other axes. Like the data for a line diagram, that of the X/Y diagram is buffered in the computer’s memory. This data can be saved as a file either during or after polling and subsequently used for DDE transfer or with another application (for example, a spreadsheet program). Like the other program windows, the “X/Y Diagram Properties” dialogue box allows you to set the properties of such a diagram and the channels that are displayed in it.

You can open as many X/Y diagrams as you wish and display them simultaneously. Each window can display all channels that are available to the system with up to four different axes. It is also possible to display data in a table or as a line diagram at any time.

Data Table This displays data in a table and also buffers it in the computer’s memory. This data can be saved as a file either during or after polling and subsequently used for DDE transfer or with another application (for example, a spreadsheet program). Like the other program windows, the “Table Properties” dialogue box allows you to set the properties of such a diagram and the channels that are displayed in it. You can open as many tables as you wish and display them simultaneously. Each table can display all channels that are available to the system. It is also possible to display the data in a line or X/Y diagram at any time.

File Summary If a file is saved using the commands *Data/AutoSave* or *Data/Download from Device Memory*, then this file will be displayed in a file summary window when you use the *Open* command. The text in this window provides you with important information, such as the time the data was recorded and which channels were recorded. To create a new line diagram, data table or X/Y diagram from the information displayed in an active file summary window, use the commands *Data/New Line Diagram*, *Data/New Data Table* or *Data/New X/Y Diagram*. In order to change the way you view your data, select from one of the following: *View/View as Line Diagram*, *View/View as Data Table* and *View/View as X/Y Diagram*. You can open as many windows of this type as you wish and display them simultaneously.

Project drawings NGA WinControl features the option to display the measurement structure in a particular window. Graphics (bitmaps), text boxes and the captured data can be displayed in data fields (only number and frame) at any random position.

To create a project drawing, execute the menu function *Data / New Project drawing*.

The dialogue box “Properties of the Project drawing” will appear, and you stipulate the size of the image and decide whether you want to use a grid as a drawing aid. This dialogue box can be called at any time to make changes to the properties of the project drawing.

After confirming with *OK*, an empty window will appear, in which you can now display the desired elements (data fields, text fields and bitmaps). This can be done with the help of the functions in the menus *Objects*, *Edit* and *View* as well as a context-sensitive menu. The menu *Object* is only visible when the project drawing is activated.

Any number of objects of every type can be integrated into one project drawing, and any number of project drawings can be active in the program simultaneously. Among others, this feature can be used to display both overall and partial views of a project at the same time.

Once created, a project drawing can be saved and reloaded in file format. When loading a project drawing from memory, choose the file type "NGW Project drawings" (*.amb) in the standard dialogue.

Setting Properties

Every window that is opened in NGA WinControl is defined by its corresponding properties dialogue box. Using this dialogue box, you can set the relevant properties for each window.

STARTING! The properties dialogue box can be called up by:

- Opening a new window
- Selecting View/Properties
- Double clicking in the current window with the left mouse button
- Clicking once on the right mouse button in the current window and selecting the "Properties" menu item.
- Pressing <ENTER>

On and Offline Calculations - Calculation Channels

The mathematical functions allow for the calculation of physical sizes (values) from polled data.

Using the calculation channels, data can be processed and displayed both on and offline. Calculation channels can take on two forms, depending on their definition. These are global and local channels.

Global calculation channels If you wish to make a calculation channel available to the entire system, then you should define it using the "Channel List/Channel Properties" dialogue box. Once this dialogue box has been opened (by activating the channel list window and giving the View/Properties command) you should select the "Calculation Channels" window.

STARTING! Other ways of giving this command are:

- By double clicking with the left mouse button in the current channel window
- By clicking once with the right mouse button in the active window and selecting the *Calculation Channels* command from the context menu
- By pressing <ENTER> when the "Calculation Channels" window is activated, or
- By giving the command Programming/Calculation Channels

Local calculation channels If you just want a calculation channel to be made available to a specific data set (for example, a diagram or data table), then you should define the channel using the *Edit/Add Calculation Channel* command. This command is only available when the specific data set is active (that is, as an X/Y diagram, a line diagram or a data table).

STARTING! Another way of giving this command is:

- By clicking once with the right mouse button in the active window and selecting the *Calculation Channels* command from the context menu

Measuring Cursors / Statistics Function

Two measuring cursors are available as an additional analysis function of the program, and are used to examine and evaluate – with the help of the integrated statistics function – the measurement curves of the line diagrams. These measuring cursors are available for all active line diagrams (also simultaneously) both on and offline.

In order to analyse the course of a curve, the data file is opened and displayed in the view form "Line Diagram". The menu *View* as well as the context-sensitive menu can use the function "Cursors" to activate and deactivate the measuring cursors.

Activated cursors are shown as two vertical lines in the diagram, and a table in the bottom part of the line diagram window shows the data of all lines below the cursors.

Furthermore, the integrated statistics function calculates the following values for each curve in the line diagram:

- Difference between the two data below the cursor
- Minimum, maximum and average of the area within the cursors
- Difference between minimum and maximum

These values will be listed in the chart, too.

The ratio between the size of the line diagram and the statistics table can be determined individually. If the mouse pointer is moved over the line between diagram and table, its form will change and the line can be moved while pressing the left mouse button. The size of the line diagram will be adapted and the table will be shown complete or with a vertical bar.

Printing

The following options are available for printing:

- Direct print of diagram and statistics table
- Direct print of statistics table
- Copying of diagram or statistics table, e. g. into text documents or spreadsheets.

NGA WinControl Server

In the server operation mode of NGA WinControl, captured data can be passed on to up to 200 clients. The WinControl server can be accessed as desired via the network (intranet or internet).

Several users or applications can thus access the values of a measurement system, and data can be provided to the respective application without having an impact on each other.

- For example the following applications are available:
- Multiple Access to Measurement Device
- Integration into other Applications
- Remote Access
- Extended Data Export
- Separate Capturing and Evaluation
- External Online Evaluation

Additional External Entries

In addition to the measurement values of NGA measuring devices, data can be captured and processed via multi-function cards from the company Data Translation. The channels of the multi-function cards are recognized and entered into the channel list automatically as soon as the cards or the respective sub-systems have been activated.

Measurement values are captured in the same measurement cycle as the values of NGA devices and can be processed in the same way (display in various forms, integration into calculation channels, alarm management, etc.).

The following Data Translation card families are supported: DT 300, DT 330, DT 340, DT 3000, DT 3010, DT 7101 and DT 7102. Provided support by hardware and card driver, several cards can be supported at the same time.

Analogue Inlets A card can contain one or more A/C sub-systems that can be programmed independently. NGA WinControl supports all existing sub-systems.

The user can select for each sub-system:

- If the measurement values of the sub-system are to be integrated into NGA WinControl
- If the sub-system is to be operated with differential or single-ended inlets
- Which input voltage is to be selected (e.g. 0-10V or –10-10V)

Each sub-system contains a number of channels. The following settings can be made for each channel:

- Description of the channel
- Multiplying Factor (if the card contains an adjustable multiplier)
- Scaling

Digital Inlets A card can contain one or more digital I/O sub-systems that can be programmed independently. NGA WinControl supports all existing sub-systems.

The user can select for each sub-system if the measurement values of the sub-system are to be integrated into NGA WinControl.

Each sub-system contains a number of channels. An individual description can be chosen for each channel.

Context-Sensitive Menus

Due to the different properties and functions of the program's windows, there are different menu functions for each window. As a result, the menu may change depending on the active window. The most effective method of displaying the most important functions at a glance are context menus. These menus can be opened by clicking with the right mouse button in the desired window.

Windows Compatibility

DDE

If you have more than one program running simultaneously in the Windows environment, for example data acquisition and a spreadsheet program, then data can be transferred between these programs without having to save the data in a file or copy it to the clipboard. This means that you can use your spreadsheet program to immediately analyse your most recently acquired data. This is also possible whilst data acquisition is active.

OLE

A combination of word processing and data acquisition is recommended particularly for the logging of repetitive measurements. Using OLE, you can insert a line diagram into text document. In doing so, the user can access NGA WinControl functions from within the text editor. (cf.: "...insert a WinControl diagram into a text document." [on page 97](#)).

A further option of automated logging is to transfer data online into a prepared Excel document during the measurement cycle. This option can be used, for example, to feed updated data into existing macros.

Quick Introduction

The "First Steps" should help you to gain a first understanding of the program's main functions. The "First Steps with NGA WinControl" online assistant is designed to assist you when starting with the program. If you prefer working with this manual, the information provided by the online assistant is also contained in the section "The First Steps".

The First Steps Assistant

This assistant provides you with online help on working with NGA WinControl. Depending on the program settings, it is possible to start the assistant automatically when the program is started. Alternatively, it can be activated using the *Help/First Steps* menu command or by pressing <F2>.

To obtain help on a specific topic, select one of the topics from the list (found on the left) by clicking on it once with the left mouse button.

Links have been inserted into explanatory texts, in a different color from the actual text. These links are either connected to similar topics in the Help program or open a dialogue box in direct relation to the respective topic.

If you do not want the assistant to appear when starting the program, deactivate the check box in the lower half of the assistant's window. Clicking on *Close* will exit the assistant.

Warning!

For correct operation, the Internet explorer 3.0 or higher (recommended: at least 5.5) has to be installed.

The First Steps

*Connecting a
measuring de-
vice*

Connect your THERM or ALMEMO measuring device to a free serial port on your computer (COM1 to COM9) and set the baud rate for the measuring device (for example, 9600 baud). Using the *Settings/COM Port* menu command, open the COM port dialogue box and enter the same settings (COM port and baud rate). Confirm these entries by clicking on OK. If the settings are correct, the dialogue box will close and shortly afterwards a list will appear displaying the channels of the connected device(s).

*Simulating a
measuring de-
vice*

If you are working with the demo version of NGA WinControl and do not have any measuring devices available, it is possible to simulate such a connection. To do so, open the COM port dialogue box by using the *Settings/COM Port* menu command and select a free port (COM1 to COM9). Activate the "Simulation" check box in the lower portion of this dialogue box and then confirm it by clicking on OK. If the settings are correct, the dialogue box will close and shortly afterwards a list will appear displaying the channels of the connected device(s).

<i>Channel selection</i>	<p>Open a dialogue in the menu <i>Settings/Channel selection</i> to select which secondary channels (temperature, pressure, flow, rough data) you would like to process.</p> <p>As new channels will be added when these values are selected and channels are deleted when values are unselected, the settings for AutoSave and alarms should be checked after executing such changes to make sure that all channels are included into the selected actions.</p>
<i>Creating a data file</i>	<p>In order to create a file to save your measured data, select AutoSave from the “Data” menu or press F8. In the dialogue box that appears, select the channel(s) whose data you wish to save (to do so, hold down the <CTRL> key and click in the list with the left mouse button). By clicking on the Start button, a dialogue box will appear for the file. In the field “File name”, enter the name that you want to give to the data file and then click on OK to confirm this name and close the dialogue box. Once polling starts, all data for the selected channel(s) will be saved under the given file name.</p>
<i>Polling</i>	<p>To start reading the data from the connected measuring device(s), you need to start polling. This is done by using the Polling command from the “Data” menu or by pressing F12. It is possible that the “AutoSave” dialogue box will appear at this point, it depends on the program settings. (cf. “Creating a data file”). If you do not wish to save the data, click on Cancel. The current sampling rate should appear in the status bar (field dt:...). This rate can be altered by using the <i>Settings/Sampling Rate</i> command or by using the <CTRL+R> keyboard combination. The polled data can be viewed in value display mode, as a bar graph, in a data table and as a line and X/Y diagram.</p>
<i>New value display</i>	<p>By using the Data/New Value Display command or by clicking on the toolbar icon with the left mouse button, a numerical data display window will be opened. In the “Value Display Properties” dialogue box, you can select the channel that you wish to display. This is done by clicking on the desired channel from the list with the left mouse button. You should then confirm your selection by clicking on OK. The resulting display can be repositioned and resized according to your requirements. During polling, the most recent data will appear in this display (cf. topic “Polling”).</p>
<i>New bar graph</i>	<p>The Data/New Bar Graph command or F6 will open a bar graph. In the “Bar Graph Properties” dialogue box, you can select the channel(s) that you wish to display on the bar graph. To do so, select the channel(s) from the list and activate the check box next to the channel description. Confirm your selection by clicking on OK. The resulting display can be repositioned and resized according to your requirements. During polling, the most recent data will appear in this display (cf. topic “Polling”). If you press <ENTER> when this window is active, the dialogue box will reappear.</p>
<i>New line diagram</i>	<p>The Data/New Line Diagram command or F5 will open a line diagram. In the “Line Diagram Properties” dialogue box, you can select the channel(s) that you wish to display on the line diagram. To do so, select the channel(s) from the list and activate the check box next to the channel description. Confirm your selection by clicking on OK. The resulting display can be repositioned and resized according to your requirements. If you press <ENTER> when this window is active, the dialogue box will reappear.</p>
<i>Changing a line diagram</i>	<p>To change the properties of a line diagram, you should open its properties dialogue box. If the line diagram window is currently active, this can be done by pressing <ENTER>. In order to change the line colours, select the appropriate channel from the list and then the desired colour from the list of colours. To display the limit values for a channel, select it from the list and then activate the “Show Limits” check box. If you wish to assign a channel to another y-axis then select the channel from the list and click on the desired y-axis. To display gridlines on this diagram, activate the “Show Gridlines” check box.</p>

<i>Saving a line diagram</i>	To save a line diagram, the line diagram window needs to be active (this can be done by clicking in the window with the left mouse button), then use the File/Save As command. In the resulting dialogue box enter a file name in the file name field and select the drive and directory that you want the file to be saved to and in.
<i>Copying a line diagram</i>	It is possible to insert a NGA WinControl line diagram into a text document. To do so, activate the line diagram window within NGA WinControl (done by clicking in the window with the left mouse button) and then give the Edit/Copy command. Start your text or word processing program and then position the cursor at the point where you would like to insert the diagram. Within this program use the Edit/Insert command.
<i>New X/Y diagram</i>	The Data/New X/Y Diagram command or F11 will open an X/Y diagram. In the "X/Y Diagram Properties" dialogue box, you can select the channel(s) that you wish to display on the X/Y diagram. From the list, you need to select a channel for the x-axis and at least one for the y-axis. The latter is done by activating the check box for the desired channel. Additional settings can be made in the same way as for a line diagram. Confirm your selections by clicking on OK. The resulting display can be repositioned and resized according to your requirements. If you press <ENTER> when this window is active, the dialogue box will reappear.
<i>Alarm and event list</i>	<p>Open a dialogue in the menu <i>Settings/Alarm</i> to make all alarm settings. The settings are divided into categories listed on register cards:</p> <ul style="list-style-type: none"> · On the register card "Alarm" the user can determine whether alarms are to be triggered in the first place. All other settings are only effective if this option has been activated. · On the register card "Alarm reactions" the user can activate the option "Entry into event list" to display alarms and status reports on screen. · On the register card "Reminder" the user can set the period > 0 to suppress alarm messages for a certain period of time if an on-screen confirmation has taken place but the alarm situation prevails.
<i>Stop polling</i>	To stop polling use the Data/Polling command, press F12 or click on the red Start/Stop button on the far left of the toolbar. By doing so, "dt:STOP" will appear in one of the status bar fields. To stop saving the data (see "Creating a data file"), use the Data/AutoSave command and click on Stop.
<i>Viewing a data file</i>	Using the File/Open command you can view a data file. Depending on the program settings either a line diagram, an X/Y diagram, a data table or a text window containing the most important file information will be opened. Using the View/View as... command you can choose how the data is viewed. Each view can be adjusted as desired by using its respective properties dialogue box.
<i>Warning!</i>	Deleting a channel from a diagram will result in it being deleted from the data file.

NGA WinControl Windows

The Main Window

The main window is the framework for all NGA WinControl operations. All program specific tasks operate within this window, which can be minimised and run as a background task. All program tasks can be started using the menu commands. NGA WinControl only displays the commands that can be carried out.

This naturally varies according to many different factors. To increase the ease and speed of operating the program, the most frequently used commands and program functions are displayed as icons in the toolbar.

Alternatively, you can use the keyboard shortcuts that are listed throughout this manual. The status bar at the bottom of this window provides the user with important information and assistance. Each toolbar carries a brief description of its function and detailed help is available through the program's help system.

Once you have started the program, the channel window and any other windows that were still open when you last exited the program will appear. If the "First Steps Assistant" has been deactivated, the "COM Port Settings" dialogue box will also appear.









The Channel Window

Channels

All measuring devices will be displayed in the "Channel" window once they have been detected and a connection has been established. If the channels of the multi-function cards are activated via the function *Programming/Data Translation Sub-Systems*, they are displayed in the channel list as well.

The displayed list contains the following elements: Status, Comment, Device, Channel, Range, Sensor, Limits, correction values (Factor und Offset), indications of use of NO or NOx as well as Version Number and Status History.

In the column „Status“ the current status of a channel is described. Following symbols are used:

- Limit excess ( )
- Sensor error ()
- Data status maintenance requirement ()
- Data status function control ()
- Data status error ()
- Auto Save ()
- Avaraging while Auto Save ()

- Waiting for start of time controlled Auto Save (📅)

The respective symbols only appear at the time when the corresponding state is in progress.

In the column „Status Hist.“ all alerts are displayed which presently occurred. Following symbols are used:

- Limit excess (+)
- Sensor error (!)
- Data status maintenance requirement (🛠)
- Data status function control (⚙)
- Data status error (!)

The symbols remain even when the faults are disappeared. With the *Reset Status Hist.* button in the “Channel List Properties” dialogue box the display can be cleared.

Furthermore, all calculation channels defined as virtual channels will be listed.

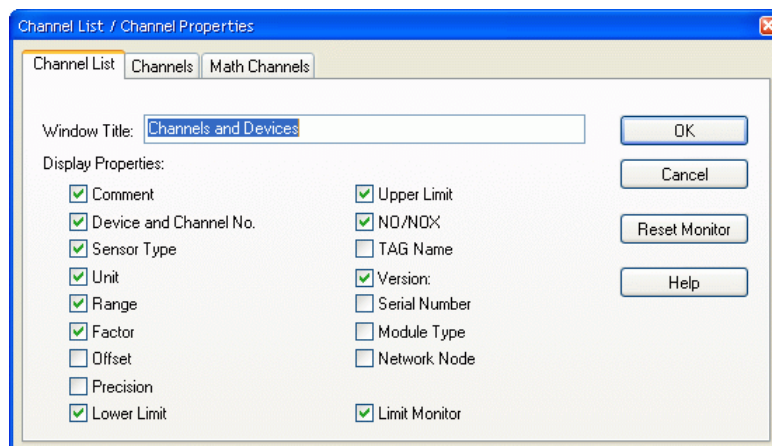
This window is always open whilst the program is running and the list will be updated if any devices are added or removed. In addition, all virtual calculation channels will appear in the list.

Channel List/Channel Properties

Using the “Channel List/Channel Properties” dialogue box you can alter the properties of this window, the definition of the calculation channels and program the physical channels.

Depending on which settings are to be made, you can bring the desired register card of the dialogue into the foreground by clicking with the left mouse button on the corresponding index-tab.

Channel List Properties



The “Channel List” window allows you to select the information that should be displayed in the channel list. This is done using the check boxes that appear in this window. They can be activated and deactivated by clicking on the appropriate box with the left mouse button.

If the “Limit Monitor” check box is active, then any interference that occurs during polling will be displayed. This display remains even if the interference has stopped. The “Reset Monitor” button will clear the display. Error values will temporarily be displayed in the first line of the Channel List.

The “Window Title” field lets the user enter a new name for the window.

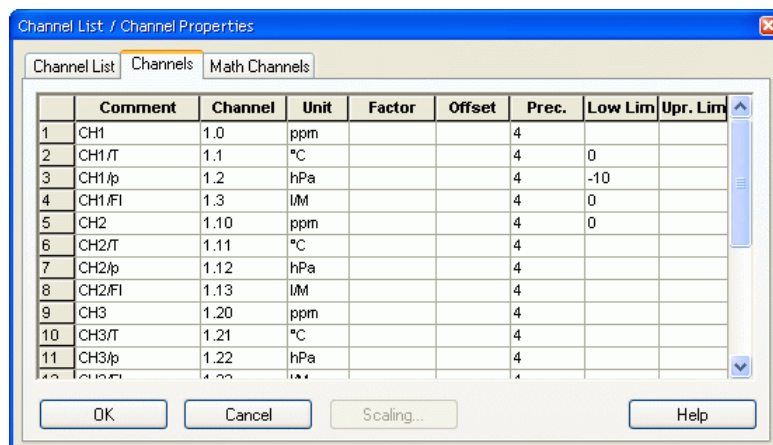
By clicking on *OK* the current settings will be confirmed and applied. *Cancel* closes this window and uses the original program settings. *Help* starts the help system with this piece of text.

Channel Properties

The “Channels” window allows the programming of individual channels. Part of the table from the channel window is available in order to achieve this.

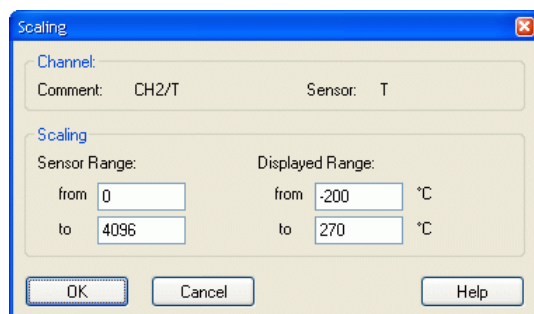
This table contains the unchangeable element “Channel” and the changeable elements “Comment”, “Unit”, “Factor”, “Precision”, “Lower Limit” and “Upper Limit”.

In order to program a setting, click on the corresponding table element and enter the desired value. A character string of between one and 13 characters can be entered as comment.



Scaling:

The correction values Factor and Offset can be calculated automatically via the function *Scaling*. Enter the values for the measurement area (voltage range at A/D inlet) and the display area (physical value range of the sensor) into the dialogue “Scaling”.



The correction values Factor and Offset will be calculated after entry of values and confirmation with *OK* and will automatically be entered into the entry fields of the properties dialogue of the channel.

Useful Hints!

The corrected value is calculated with the following formula:

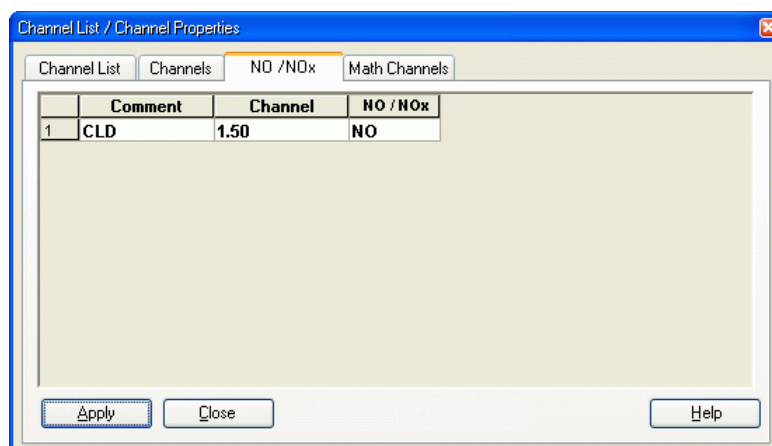
$$\text{Corrected Value} = \text{Measured Value} * \text{Factor} + \text{Offset}$$

Apply / Close the dialogue box:

By clicking on *OK* all entries in this dialogue box will be confirmed. By clicking on *Cancel*, the changes will not be applied and the values in the dialogue box will be reset to their original values. Clicking on *Help* will start the help system with this piece of text.

Changing between NO and NOx

If a measurement device (e.g. CLD) allows for switching between NO and NOx, the active choice will be displayed in the corresponding column in the channel list. For changing, please use the register card "NO/NOx" in the dialogue box "Channel List / Channel Properties". This features a list with all those channels that can be switched.



Select from the list in the column NO/NOx. This list appears after a single click with the left mouse button first into the table and then on the arrow that will appear.

Calculation Channels Properties

Using the "Calculation Channels" window you can define any global calculation channels. For this purpose the following options are available:

Channel:

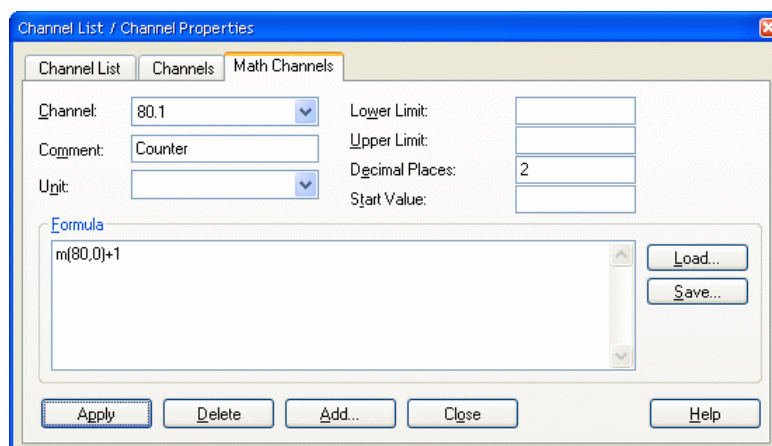
By clicking once with the left mouse button on the channels that are displayed, a list of all existing calculation channels will be opened. To select the desired channel from the list, click on it with the left mouse button. Having done this, all settings for the channel will appear in their appropriate fields in this window.

Tip!

By double clicking on a calculation channel in the channel list window with the left mouse button, the properties window will be opened for the selected calculation channel.

Comment:

Like the device channels, the calculation channels can have comments added to them (maximum 10 characters). These comments appear next to the channel number to help identify the data that this particular channel is measuring.



Unit:

A unit for the value to be calculated can be entered into this field (3 characters).

Lower/Upper Limit:

Enter the desired limit values in the appropriate field boxes. A full stop should be used as the decimal separator.

Decimal Places:

The number in this field determines how many decimal places should be shown for the calculated value. Regardless of the number of decimal places entered in this field, the calculation is correct to six decimal places.

Formula:

This field contains the formula you wish to calculate. Please note the formula guidelines (cf.: "Formulae" [on page 108](#)).

It is possible to save a formula and to use it again later on. To do so, use the Save and Load buttons that appear in this window. By clicking once on one of these buttons with the left mouse button, the standard dialogue box for saving and loading data will appear. If you wish to save a formula, then enter a file name. Alternatively, if you want to load a file then you should click on its name. Both actions are confirmed by clicking on OK. Standard editing functions apply for editing the formula in this window.

Apply:

Clicking once on this button with the left mouse button will confirm all information provided in the fields of this dialogue box and the calculation channel will be assigned these values. The result of the calculations will be made available as if it had been polled using a physical channel.

Delete:

By clicking once with the left mouse button on the *Delete* button, the displayed calculation channel will be deleted.

Add:

By using the *Add* button, you can add new calculation channels to the channel list. In the resulting dialogue box "Add Calculation Channel" it is necessary to enter the calculation channel number.

Warning!

The program automatically prefixes the numbers that have been entered here. This is done to prevent the same channel number from being assigned to other physical channels.

Close the dialogue

Close will close the dialogue box and *Help* starts the help system with this piece of text.

The Value Display

The "Value Display" lets you display your data in numerical format. The display consists of a value and measurement unit. The channel name, (number and comment) appears in the title bar of the window.)

For numerical display of the data, you can use the table as well as the window type "Value Display". This display contains both value and unit. If the values exceed the limit, they will be displayed in red, if they are below the limits, they will be displayed in blue.

If only one channel is selected for display, the name of the channel (number and / or comment) will automatically be shown on the title bar of the window. If more than one channel is selected, their names are displayed above their respective values and units.

This window can be resized and repositioned within the NGA WinControl main window. You can open and simultaneously display as many windows as you want. The “Value Display Properties” dialogue box allows you to select the channel that should be displayed in this format.

*Value Display
Properties Dia-
logue Box*

This dialogue box contains a list of all available channels. You can open a “Value Display” window for any channel. Any number of channels can be selected per window. This can be done either by clicking once with the left mouse button on the desired channels and confirming this with *OK* or simply by double clicking with the left mouse button on the desired channel, to select one channel only.

To remove channels from the display, click once on the selected entry with the left mouse button.

An individual window title can be set for value displays in the field “Window Title”. The character string entered here is used as the title of the current value display. If no information is entered, the software will use the standard settings, i.e. the text “Channel Display XY” (e.g. Channel Display 5) for several channels or “Device number.Channel number – Channel Comment” (e.g. 0.5 – Lab).

The window title will be saved in the configuration and restored when loading.

Warning!

Window titles cannot be empty. If the title that has been entered consists only of blanks, the default title will be used.

Close the dialogue box:

By clicking on *Cancel* a value display will not be opened. If the dialogue box for the existing display is opened, then this display will show the original channel. Clicking on *Help* will start the help system with this piece of text.

STARTING!

A new value display can be created by:

- Selecting Data/New Value Display
- Pressing <F7>
- Clicking once with the left mouse button on the “New Value Display” icon in the toolbar.

The Bar Graph

With the bar graph option, you can display data in the form of a single bar graph or as a group of them.

The basic characteristics of a bar graph are: the automatic monitoring of limits, the labeling of limits and the display of lower and upper limit values.

You can open as many bar graphs as you wish and display them simultaneously. Every channel that is available to the system can be displayed in the form of a bar graph.

*Bar Graph Prop-
erties Dialogue
Box*

In the “Bar Graph Properties” dialogue box, you can select the channels to be displayed and their format. For this purpose, the following options are available:

Window Title:

In this field you can enter a name for the bar graph.

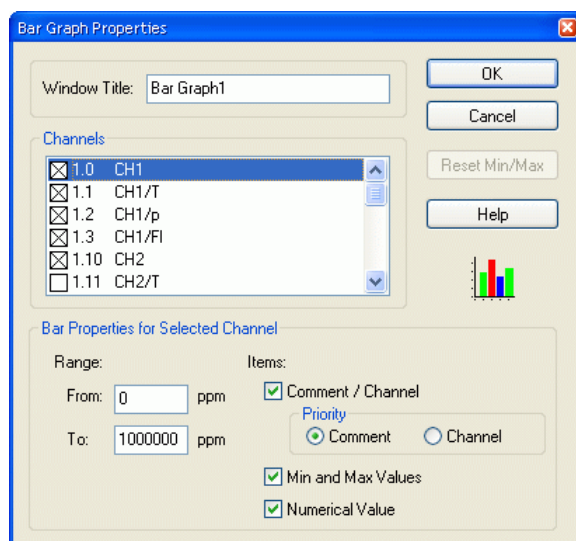
Channels:

You can display as many channels on a bar graph as are available to your system. Selecting a channel to be displayed is done by activating the check box on the left of the list box entries.

Bar properties for selected channel

Range:

The “From” and “To” values set the range of the graph. These fields contain default values for any newly selected channel and can be changed as you like.



Items:

- Comment/Channel - Determines whether the channel comment will be displayed over each individual bar in a bar graph.
- Min. and Max. Values - If this option is selected, then a small bar will appear next to the main bar. This smaller bar shows the range covered by the polled data.
- Numerical Values - The current value will be displayed in numerical format in the lower half of the bar graph.

All available options can be activated or deactivated by clicking once with the left mouse button on the appropriate check box.

Reset Min/Max.:

If you have decided to display the lower and upper limits and later wish to reset them, then you can do so by opening the “Bar Graph Properties” dialogue and clicking once with the left mouse button on the *Reset Min/Max* button.

Accept Changes / Close Dialogue Box:

By clicking on *OK* all entries in this dialogue box will be confirmed and a bar graph with the selected properties will be opened. By clicking on *Cancel*, the graph will not be displayed and the values in the dialogue box will be reset to their original values. Clicking on *Help* will start the help system with this piece of text.

STARTING!

A new bar graph can be created by

- Using the command *Data/New Bar Graph*
- Pressing <F6>
- Clicking once with the left mouse button on the “New Bar Graph” icon in the toolbar.

Printing

To print a bar graph:

- Activate the graph to be printed
- Select *File/Print* or
- Click once with the left mouse button on the Print icon in the toolbar

The Line Diagram

On a line diagram you can display as many different measurement channels as you like. For this purpose you can access up to four y-axes over any chosen time scale. Like the other diagrams and graphs, you can set the characteristics and the channels to be displayed for a line diagram in the dialogue box “Line Diagram Properties”.

In comparison to the value display and bar graph, the data for a line diagram is stored in the memory of your computer which means that you can save this data at any time either during or after polling. It also lets you copy the information to the clipboard and then transfer it into another program, for example, a word processor.

The menu function *View / Cursors* is used to activate two measuring cursors to examine and evaluate – with the help of the integrated statistics function – the measurement curves of the line diagrams.

You can open as many line diagrams as you wish and display them simultaneously. It is possible to display the data of a line diagram in a table at any time. To do so, use the *View/View as Data Table* command or open the context menu within a line diagram by clicking with the right mouse button and select *Table*. Using the *View/View as X/Y Diagram* command or the context menu function *X/Y Diagram* it is also possible to display measured data in an X/Y diagram.

Line Diagram Properties Dia- logue Box

Select the desired channels in the properties dialogue of the line diagram and determine the presentation of the diagram.

Depending on which settings are to be made, you can bring the desired register card of the dialogue into the foreground by clicking once with the left mouse button.

Register Card “Channels”

On the register card “Channels” you can select the desired channels and diagram characteristics from the following:

Channels:

You can display as many channels on a line diagram as are available to your system. A channel to be displayed is selected by activating the check box on the left of the list box entries.

Color:

The color list displays all colors that can be displayed on a line diagram. Having selected the desired channel you can select the color of your choice by clicking once with the left mouse button on the desired color. These settings can be changed at any time.

Line Type:

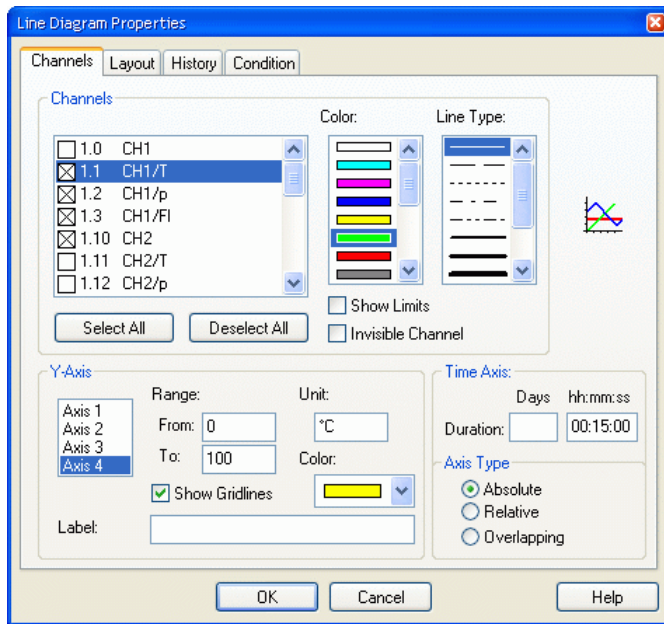
This list shows all different types of line that can be displayed on a line diagram. Having selected the desired channel you can then select the line type by clicking once with the left mouse button on your choice. This characteristic can be changed at any time including during polling.

Show Limits:

By clicking with the left mouse button on this check box and activating it, the limit values of the chosen channel will be displayed on the diagram.

Invisible Channel:

This option allows for individual measurement series of one data set to be hidden.



Select the desired channel from the list (single click on the entry with the left mouse button) and activate the option “Invisible Channel” by clicking once with the left mouse button into the control box left of the text.

The display of this channel will then be suppressed in the diagram. This setting is of course available for each channel and for more than one channel at a time.

Y-Axis:

Selecting a channel will automatically set defaults for all y-axis properties. These characteristics can be changed at any time.

Designating a Y-Axis for a Channel:

To designate a y-axis for a channel, first select the channel from the list by clicking on it with the left mouse button. Your selection will then be highlighted in color. Then simply select the y-axis on which you wish to display the newly selected channel by clicking on it with the left mouse button.

Range:

The “From” and “To” values set the range of the diagram. These fields contain default values for any newly selected channel and can be changed as you like.

Unit:

A change to the unit is only necessary if the selected channel should show a different unit. To make such a change, enter the new unit in the correct field.

Show Gridlines:

If this option is activated (done by clicking in the check box with the left mouse button) then gridlines will appear on your line diagrams. This option is generally recommended. You should activate it for only one y-axis.

Color:

In order to easily determine which curve belongs to which y-axis, the axis can be labelled in the same colour as the line.

Label:

A text for detailed description of the respective axis can be entered into the field “Label”. This text will then be shown next to the corresponding axis in the diagram, tilted by 90°.

Time Axis:

By entering hour and minute values in the corresponding fields, you can set the time range that is displayed on a line graph. These values can be changed at any time.

Display:

If the option "Absolute" is selected, the measurement data will be displayed for the absolute time.

If you wish to display the time relative to the start of the line diagram, then activate the "Relative" check box.

A further modus displays data that result from pooling of files, together with their time of origin. To operate in this modus, select the option "Overlapping".

This function enables a direct comparison between two characteristic curves that were recorded at different times.

Warning! Pooled characteristic curves with the same channel number always have the same line characteristics.

Accept Changes / Close Dialogue Box:

By clicking on *OK* all entries in this dialogue box will be confirmed and the corresponding line diagram will be opened. By clicking on *Cancel*, the diagram will not be displayed and the values in the dialogue box will be reset to their original values. Clicking on *Help* will start the help system with this piece of text.

Register Card „Condition“ Transfer of data into tables, line and XY diagrams can depend on measurement and calculation values. The respective settings can be made in the properties dialog, in the register card "Condition":

As per the standard settings, all data will be transferred. Alternatively, a reference channel can be selected and a condition (higher than / lower than) and a limit value set. Data is only transferred into the table or diagram if this condition is met.

Data is only transferred into the table or diagram if this condition is met. All hardware channels and global calculation channels can be used as reference channels. Transfer or non-transfer always refers to data of an entire measurement cycle.

Attention! Local calculation channels in tables or diagrams only continue to calculate if data have been transferred into the table or diagram in the current cycle. Table or diagram-specific averaging is also based on actually transferred data.

Accept Changes / Close Dialogue Box:

By clicking on *OK* all entries in this dialogue box will be confirmed and the corresponding line diagram will be opened. By clicking on *Cancel*, the diagram will not be displayed and the values in the dialogue box will be reset to their original values. Clicking on *Help* will start the help system with this piece of text.

Register Card "Layout" On the Register Card "Layout" you can select the desired comments, legends and labels from the following:

Comment:

In the "Comment" box you can enter a name for the diagram which relates to the data that is to be displayed. These comments, which can contain any number of characters, will be displayed in the title bar of the diagram window. If this diagram is saved, then these comments will be saved with the file.

Labelling above / below:

Additional text for description of the diagram can be entered into these fields. This text will then appear in one line above or below the graphical presentation.

Legend:

By selecting "Show" in this area, a legend will appear on your diagram. This option can be activated by clicking with the left mouse button on the check box.

Accept Changes / Close Dialogue Box:

By clicking on *OK* all entries in this dialogue box will be confirmed and the corresponding line diagram will be opened. By clicking on *Cancel*, the diagram will not be displayed and the values in the dialogue box will be reset to their original values. Clicking on *Help* will start the help system with this piece of text.

Register Card "History"

The AMR WinControl server has a sample buffer (ring buffer) based on files.

These buffered data can be inserted into new line diagrams. All properties dialogs of these types of display have an additional register card, "History", which is available when a new diagram is created.

Choose the option "Do not apply data from history" (default) in order to create a diagram as usual. Choose "Apply all existing data from history" in order to take over all data in the buffer that refer to the channels selected in the register card "Channels" into the diagram. The latter option also fetches data from the buffers, provided they are within the given period of time.

After the data have been taken over from the buffer into the diagram, the current values are added as usual as soon as the value poll has been activated.

Accept Changes / Close Dialogue Box:

By clicking on *OK* all entries in this dialogue box will be confirmed and the corresponding line diagram will be opened. By clicking on *Cancel*, the diagram will not be displayed and the values in the dialogue box will be reset to their original values. Clicking on *Help* will start the help system with this piece of text.

Zooming with the mouse

Within a line diagram it is possible to zoom in on a section of the diagram. There are two methods of doing this. You can either use the diagram's properties dialogue box to change the diagram's axes or you can select the area you wish to zoom in on with the mouse. To do so, hold down the left mouse button and pull the mouse pointer over the area that you wish to zoom in on.

The *View/Undo Zoom* command will effectively zoom out and display the diagram with the range settings that were active prior to using the mouse zooming function.

Warning! !

The zoom function using the mouse cannot be carried out whilst data is recorded into a line diagram.

STARTING!

A new line diagram can be created by:

- Selecting Data/New Line Diagram
- Pressing <F5>
- Clicking once with the left mouse button on the "New Line Diagram" icon in the toolbar

Printing

To print a line diagram:

- Activate the diagram to be printed
- Select *File/Print* or
- Click once with the left mouse button on the Print icon in the toolbar

Local calculation channels

If you want to display a calculation channel as part of a data set (i.e., a local calculation channel), or you wish to carry out calculations using data that has already been recorded, then you should active the "Add Calculation Channel" dialogue box by entering the command *Edit/Add Calculation Channel*.

In this dialogue box you should enter the channel number, any comments for the channel, the unit, limit values and the number of decimal places that should be displayed. You can

also enter any formula that should be used to calculate a value (cf: "Formulae" on page 108).

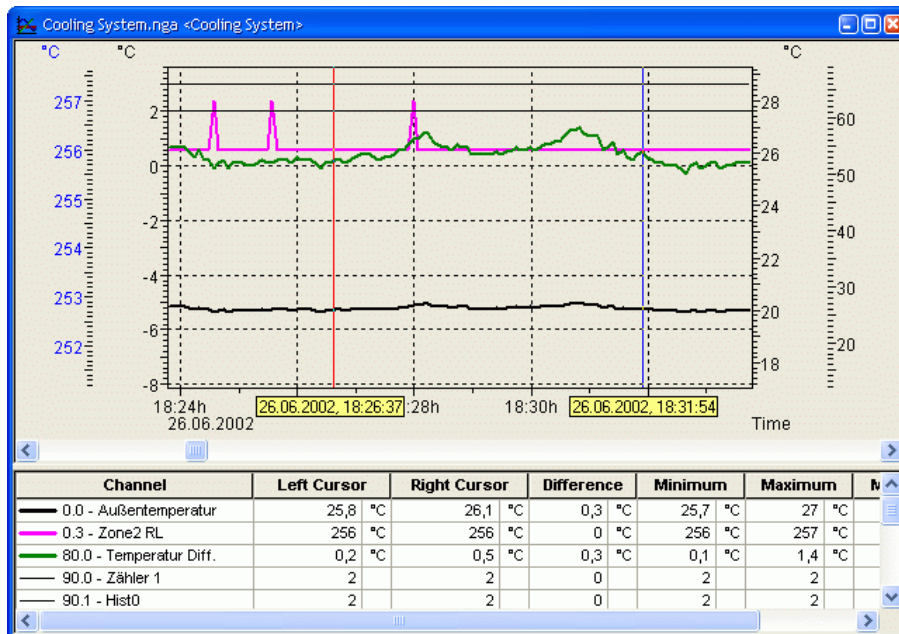
You can use as many calculation channels for a data set as you wish.

Documentation

In order to insert a line diagram into a Windows text editor, copy the line diagram that you wish to insert to the clipboard with *Edit/Copy* (<Ctrl + C>). You can now insert this diagram where you want in your text with *Edit/Insert* (<Ctrl + V>).

Measuring cursors / Statistics Function

In order to analyse the course of a curve, open the data file and start the view "line diagram" (function *View / Display as Line Diagram*). The menu *View* and the context-sensitive menu will then provide the function "*Cursors*" which activates and deactivates the measuring cursors.



Activated cursors are shown as two vertical lines in the diagram and a table in the bottom part of the line diagram window shows the data of all lines below the cursors.

Furthermore, the integrated statistics function calculates the following values for each curve in the line diagram:

- Difference between the two values below the cursors
- Minimum, maximum and average of the area within the cursors
- Difference between minimum and maximum
- Deviations from the standard.

These values will be listed in the table, too.

Properties of the statistics chart

In the properties dialogue of the statistics chart you can set which columns are or are not to be visible, and a zoom factor (50% ... 130%) can be set for the printout. The standard zoom factor of 80% makes sure that the statistics chart fits exactly on an A4 page, portrait format, with 10mm margin on both sides, automatic column width and all columns activated as visible. However, this only works out with a small font.

A user-defined layout with exactly defined properties and high legibility can be created for the statistics chart by manual adaptation of zoom factor, margins, and column widths and / or hiding of columns.

Choose the function *Properties* in the context menu to open the properties dialogue of the statistics chart.

Useful hints! The properties of the statistics chart are saved in the value file, so that they appear again when the file is opened. However, files saved in this way are not compatible to older versions of the program and cannot be read by these. In order to view or edit such files with older programs, all columns have to be visible and the zoom factor set at 80%. If the file is saved now, it can be opened by older program versions.

Useful hints! The ratio between the size of the line diagram and the statistics table can be determined individually. If the mouse pointer is moved over the line between diagram and table, its form will change and the line can be moved while pressing the left mouse button. The size of the line diagram will be adapted and the table will be shown complete or with a vertical bar.

Printing The following options are available for printing:

- Direct print of diagram and statistics table
- Direct print of statistics table (one mouse click into the table)
- Copying of diagram or statistics table, e. g. into text documents or spreadsheets.

The X/Y Diagram

In an X/Y diagram it is possible to display the dependency of up to four physical dimensions against another one. For this purpose there are four y-axes and an x-axis that can be defined as desired. Like the other diagrams and graphs, you can set the characteristics and the channels to be displayed on an X/Y diagram in the dialogue box "X/Y Diagram Properties".

Like the line diagram, all data for an X/Y diagram is buffered in the computer's memory. This data can be saved as a file either during or after polling and subsequently used for DDE transfer to say a spreadsheet program or copied to the clipboard and inserted into a text file.

You can open as many X/Y diagrams as you wish and display them simultaneously. It is also possible to display the data in a table or as a line diagram at any time. To do so, use one of the following commands: *View/View as Data Table* or *View/View as Line Diagram*. Alternatively, you can use the context menus (opened by clicking on the right mouse button in an active diagram) and select from one of the different views.

"X/Y Diagram Properties" Dialogue Box Select the desired channels in the properties dialogue of the XY diagram and determine the display of the diagram.

Depending on which settings are to be made, you can bring the desired register card of the dialogue into the foreground by clicking once with the left mouse button.

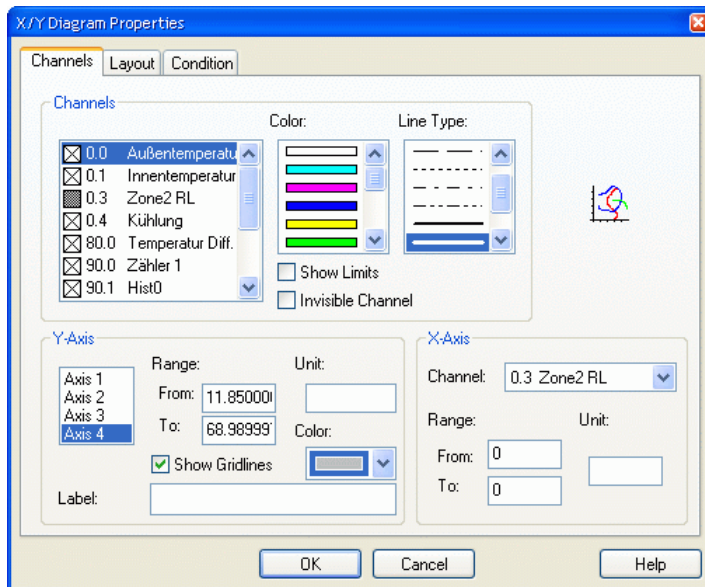
Register Card "Channels" On the register card "Channels" you can select the desired channels and diagram characteristics from the following:

Channels:

You can display as many channels in an X/Y diagram as are available to your system. A channel to be displayed is selected by activating the check box on the left of the list box entries.

Colour:

The colour list displays all the colours that can be displayed on a line diagram. Having selected the desired channel you can select the colour of your choice by clicking on the desired colour once with the left mouse button. These settings can be changed at any time.



Line Type:

This list shows all different types of line that can be displayed on a line diagram. Having selected the desired channel you can then select the line type by clicking on your choice once with the left mouse button. This characteristic can be changed at any time, including during polling.

Show Limits:

By clicking with the left mouse button on this check box and activating it, the limit values of the chosen channel will be displayed on the diagram.

Invisible Channel:

This option allows for individual measurements series of one data set to be hidden.

Select the desired channel from the list (single click on the entry with the left mouse button) and activate the option "Invisible Channel" by clicking once with the left mouse button into the control box left of the text.

The display of this channel will then be suppressed in the diagram. This setting is of course available for each channel and for more than one channel at a time.

Y-Axis:

Selecting a channel will automatically set defaults for all the y-axis properties. These characteristics can be changed at any time.

Designating a Y-Axis for a Channel:

To designate a y-axis for a channel, first select the channel from the list by clicking on it with the left mouse button. Your selection will then be highlighted in colour. Simply select the y-axis on which you wish to display the newly selected channel by clicking on it with the left mouse button.

Range:

The "From" and "To" values set the range of the diagram. These fields contain default values for any newly selected channel and can be changed as you like.

Unit:

A change to the unit is only necessary if the selected channel should show a different unit. To make such a change, enter the new unit in the correct field.

Show Gridlines:

If this option is activated (done by clicking in the check box with the left mouse button) then gridlines will appear on your X/Y diagrams. This option is generally recommended. You should activate it for only one y-axis.

Colour:

In order to easily determine which curve belongs to which y-axis, the axis can be labelled in the same colour as the line.

Label:

A text for detailed description of the respective axis can be entered into the field "Label". This text will then be shown next to the corresponding axis in the diagram, tilted by 90°.

X-Axis:

In this area of the dialogue box you should select the channel to be used on the x-axis. To select a channel click on the list (on the right next to the "Channel" heading) with the left mouse button and select the desired channel from the list.

The entries for the range and the measurement unit for the x-axis operate in the same manner as the y-axis.

Warning!

If you select a channel that already appears on the y-axis, an error message will appear. It is then possible to alter your choice of channels for the x and y-axis.

Accept Changes / Close Dialogue Box:

By clicking on *OK* all entries in this dialogue box will be confirmed and the corresponding X/Y diagram will be opened. By clicking on *Cancel*, the diagram will not be displayed and the values in the dialogue box will be reset to their original values. Clicking on *Help* will start the help system with this piece of text.

Register Card „Layout“

On the register card "Layout" you can select the desired comments, legend and labels from the following:

Comment:

In the "Comment" box you can enter a name for the diagram which relates to the data that is to be displayed. These comments, which can contain any number of characters, will be displayed in the title bar of the diagram window. If this diagram is saved, then these comments will be saved with the file.

Labelling above / below:

Additional text for description of the diagram can be entered into these fields. This text will then appear in one line above or below the graphical presentation.

Legend:

By selecting "Show" in this area, a legend will appear on you diagram. This option can be activated by clicking on the check box with the left mouse button.

Accept Changes / Close Dialogue Box:

By clicking on *OK* all entries in this dialogue box will be confirmed and the corresponding line diagram will be opened. By clicking on *Cancel*, the diagram will not be displayed and the values in the dialogue box will be reset to their original values. Clicking on *Help* will start the help system with this piece of text.

Register Card "History"

The AMR WinControl server has a sample buffer (ring buffer) based on files.

These buffered data can be inserted into new XY diagrams. All properties dialogs of these types of display have an additional register card, "History", which is available when a new diagram is created.

Choose the option "Do not apply data from history" (default) in order to create a diagram as usual. Choose "Apply all existing data from history" in order to take over all data in the buffer

that refer to the channels selected in the register card "Channels" into the diagram. The latter option also fetches data from the buffers, provided they are within the given period of time.

After the data have been taken over from the buffer into the diagram, the current values are added as usual as soon as the value poll has been activated.

Accept Changes / Close Dialogue Box:

By clicking on *OK* all entries in this dialogue box will be confirmed and the corresponding line diagram will be opened. By clicking on *Cancel*, the diagram will not be displayed and the values in the dialogue box will be reset to their original values. Clicking on *Help* will start the help system with this piece of text.

*Register Card
„Condition“*

Transfer of data into tables, line and XY diagrams can depend on measurement and calculation values. The respective settings can be made in the properties dialog, in the register card "Condition":

As per the standard settings, all data will be transferred. Alternatively, a reference channel can be selected and a condition (higher than / lower than) and a limit value set. Data is only transferred into the table or diagram if this condition is met.

Data is only transferred into the table or diagram if this condition is met. All hardware channels and global calculation channels can be used as reference channels. Transfer or non-transfer always refers to data of an entire measurement cycle.

Attention!

Local calculation channels in tables or diagrams only continue to calculate if data have been transferred into the table or diagram in the current cycle. Table or diagram-specific averaging is also based on actually transferred data.

Accept Changes / Close Dialogue Box:

By clicking on *OK* all entries in this dialogue box will be confirmed and the corresponding line diagram will be opened. By clicking on *Cancel*, the diagram will not be displayed and the values in the dialogue box will be reset to their original values. Clicking on *Help* will start the help system with this piece of text.

*Local calculation
channels*

If you want to display a calculation channel as part of a data set (i.e., a local calculation channel), or wish to carry out calculations using data that has already been recorded, active the "Add Calculation Channel" dialogue box by entering the command *Edit/Add Calculation Channel*.

In this dialogue box you should enter the channel number, any comments for the channel, the unit, limit values and the number of decimal places that should be displayed. You can also enter any formula that should be used to calculate a value (cf: "Formulae" [on page 108](#)).

You can use as many calculation channels for a data set as you like.

*Zooming with
the mouse*

Within an X/Y diagram it is possible to zoom in on a section of the diagram. There are two methods of doing this. You can either use the diagram's properties dialogue box to change the diagram's axes or you can select the area you wish to zoom in on with the mouse. To do so, hold down the left mouse button and pull the mouse pointer over the area that you wish to zoom in on.

The *View/Undo Zoom* command will effectively zoom out and display the diagram with the range settings that were active prior to using the mouse zooming function.

Warning!

The zoom function using the mouse cannot be carried out whilst data is being recorded into a line diagram.

STARTING! A new X/Y diagram can be created by:

- Selecting Data/New X/Y Diagram
- Pressing <F11>

Clicking once with the left mouse button on the “New X/Y Diagram” icon in the toolbar

Printing To print an X/Y diagram:

- Activate the diagram to be printed
- Select *File/Print* or
- Click once with the left mouse button on the Print icon in the toolbar.

The Data Table

You can display as many different channels in a data table as you wish. In addition to the channels and their corresponding descriptions, it is also possible to display the “Number”, “Date” and “Time” of the samples. Like the other diagrams and graphs, you can set the characteristics and the channels to be displayed in the dialogue box “Data Table Properties”.

Like the line and X/Y diagrams, the data table is buffered in your computer’s memory, which means that you can save this data at any time either during or after polling. It also allows for DDE transfer and/or lets you copy the information to the clipboard and then transfer it into another program, for example, a text editor.

You can open as many data tables as you wish and display them simultaneously. It is also possible to display the polled data as a line or X/Y diagram at any time. To do so, use the *View/View as Line Diagram* or *View/View as X/Y Diagram* commands or open the context menu within the diagram by clicking with the right mouse button and select *View as Line Diagram* or *View as X/Y Diagram*.

Marking data

The following marks can be made in the column “Unit” for data, for which a special status was detected:

error:	#
maintenance requirement:	&
function control:	\$

The identification is shown after the unit. Depending of the device status, combinations are possible.

If data is copied from the table into the clipboard, the unit columns are taken over completely with marks.

For ASCII exports, units are displayed in the head of the file. Therefore, a new column is created for the identifications after each data column. These columns will remain empty as long as no marks have been set.

Data Table Properties Dialogue Box

In the dialogue box “Data Table Properties” you can select the desired channels and table characteristics on the following register cards:

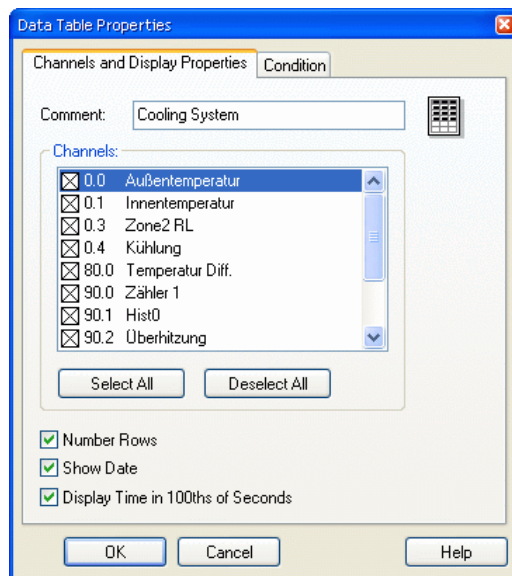
*Register Card
Channels and
view*

Comment:

In the "Comment" box you can enter a name for the table which relates to the data that is to be displayed. These comments, which can contain any number of characters, will be displayed in the title bar of the data table window. If this table is saved, then these comments will be saved with the file.

Channels:

You can display as many channels in a data table as are available to your system. A channel to be displayed is selected by activating the check box on the left of the list box entries.



Number Rows:

If this option is activated, a column will appear which sequentially assigns a number to each row of data.

Show Date:

If this option is activated, a column will appear in the data table, which displays the date that each value was measured on.

Display time in hundredth seconds

Activate this option in order to display data which is captured with a frequency above 1 Hz with a corresponding time mark.

Accept Changes / Close Dialogue Box:

By clicking on *OK* all entries in this dialogue box will be confirmed and the corresponding data table will be opened. By clicking on *Cancel*, the table will not be displayed and the values in the dialogue box will be reset to their original values. Clicking on *Help* will start the help system with this piece of text.

*Register Card
"History"*

The AMR WinControl server has a sample buffer (ring buffer) based on files.

These buffered data can be inserted into new charts. All properties dialogs of these types of display have an additional register card, "History", which is available when a new chart is created.

Choose the option "Do not apply data from history" (default) in order to create a chart as usual. Choose "Apply all existing data from history" in order to take over all data in the buffer

that refer to the channels selected in the register card "Channels" into the chart. The latter option also fetches data from the buffers, provided they are within the given period of time.

After the data have been taken over from the buffer into the chart, the current values are added as usual as soon as the value poll has been activated.

Accept Changes / Close Dialog Box:

By clicking on *OK* all entries in this dialog box will be confirmed and the corresponding data table will be opened. By clicking on *Cancel*, the table will not be displayed and the values in the dialog box will be reset to their original values. Clicking on *Help* will start the help system with this piece of text.

*Register Card
„Condition“*

Transfer of data into tables, line and XY diagrams can depend on measurement and calculation values. The respective settings can be made in the properties dialog, in the register card "Condition":

As per the standard settings, all data will be transferred. Alternatively, a reference channel can be selected and a condition (higher than / lower than) and a limit value set. Data is only transferred into the table or diagram if this condition is met.

Data is only transferred into the table or diagram if this condition is met. All hardware channels and global calculation channels can be used as reference channels. Transfer or non-transfer always refers to data of an entire measurement cycle.

Attention!

Local calculation channels in tables or diagrams only continue to calculate if data have been transferred into the table or diagram in the current cycle. Table or diagram-specific averaging is also based on actually transferred data.

Accept Changes / Close Dialogue Box:

By clicking on *OK* all entries in this dialogue box will be confirmed and the corresponding data table will be opened. By clicking on *Cancel*, the table will not be displayed and the values in the dialogue box will be reset to their original values. Clicking on *Help* will start the help system with this piece of text.

*Local calculation
channels*

If you want to display a calculation channel as part of a data set (i.e., a local calculation channel), or to wish to carry out calculations using data that has already been recorded, activate the "Add Calculation Channel" dialogue box by entering the command *Edit/Add Calculation Channel*.

In this dialogue box you should enter the channel number, any comments for the channel, the unit, limit values and the number of decimal places that should be displayed. You can also enter any formula that should be used to calculate a value (cf.: "Formulae" [on page 108](#)).

You can use as many calculation channels for a data set as you like.

STARTING!

A new data table can be created by:

- Selecting Data/New Data Table
- Pressing <F10>
- Clicking once with the left mouse button on the "New Data Table" icon in the toolbar

Printing

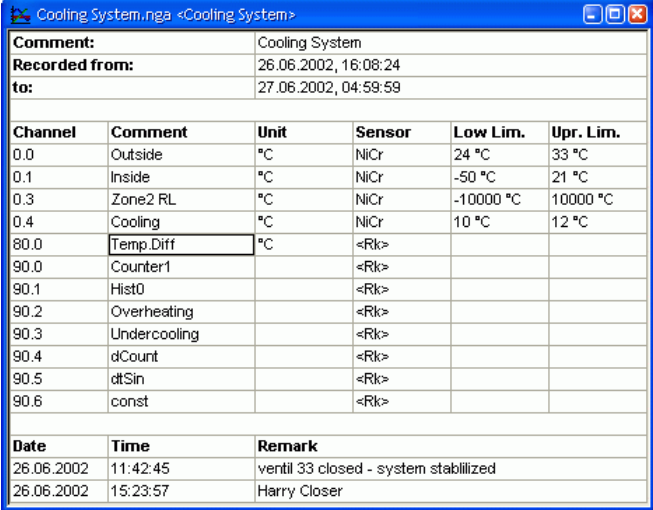
To print a data table:

- Activate the diagram to be printed
- Select *File/Print* or
- Click once with the left mouse button on the Print icon in the toolbar.

The File Summary Window

If a file has been saved using the commands *Data/AutoSave* or *Data/Download from Device Memory* then this file will be opened in a file summary window. This window contains important information about the file, for example, details of when the data was recorded and the channel descriptions.

Unless the “Open file as a line diagram if possible” option is active (found under Settings/Others) all saved files including line diagrams will be opened in a file summary window.



Channel	Comment	Unit	Sensor	Low Lim.	Upr. Lim.
0.0	Outside	°C	NiCr	24 °C	33 °C
0.1	Inside	°C	NiCr	-50 °C	21 °C
0.3	Zone2 RL	°C	NiCr	-10000 °C	10000 °C
0.4	Cooling	°C	NiCr	10 °C	12 °C
80.0	Temp.Diff	°C	<Rk>		
90.0	Counter1		<Rk>		
90.1	Hist0		<Rk>		
90.2	Overheating		<Rk>		
90.3	Undercooling		<Rk>		
90.4	dCount		<Rk>		
90.5	dtSin		<Rk>		
90.6	const		<Rk>		

Date	Time	Remark
26.06.2002	11:42:45	ventil 33 closed - system stabilized
26.06.2002	15:23:57	Harry Closer

Creating a new line diagram

In order to create a new line diagram with the data from a file summary window, select *Data/New Line Diagram* or open the context menu within the file summary window by clicking with the right mouse button and select *New Line Diagram*.

The “Line Diagram Properties” dialogue box that appears contains all the previously saved diagram properties. If you click on *OK*, these properties will be used to create a line diagram. Using this information, it is also possible to create as many different line diagrams as you like, which can then be saved under different file names.

Creating a new X/Y diagram

In order to create a new X/Y diagram with the data from a file summary window, select *Data/New X/Y Diagram* or open the context menu within the file summary window by clicking with the right mouse button and select *New X/Y Diagram*.

The “X/Y Diagram Properties” dialogue box that appears contains all the previously saved diagram properties. If you click on *OK*, these properties will be used to create an X/Y diagram. Using this information, it is also possible to create as many different X/Y diagrams as you like, which can then be saved under different file names.

Creating a new data table

In order to create a new data table with the data from a file summary window, select *Data/New Data Table* or open the context menu within the file summary window by clicking with the right mouse button and select *New Data Table*.

The “Data Table Properties” dialogue box that appears contains all the previously saved table properties. If you click on *OK*, these properties will be used to create a data table. Using this information, it is also possible to create as many different data tables as you like, which can then be saved under different file names.

Changing the Viewing Mode

If you wish to change the viewing mode for the data contained in a file summary window then you can choose from one of the following: *View/View as Line Diagram*, *View/View as X/Y Diagram*, or *View/View as Data Table*. All of these views can be selected using the context menu within the file summary window. To open this menu, click in the file summary window with the right mouse button.

The properties dialogue box contains some preset settings. These settings can be changed or left as they are and confirmed with OK. The properties dialogue box will only appear if some important information required to configure the diagram or table is missing. Otherwise, the window will immediately display the newly selected view. It is, however, always possible to change the display's properties by opening up the corresponding properties dialogue box.

Warning!

Changing the viewing mode of a diagram or table may open the properties dialogue box for the new diagram or table. You can use this dialogue box to alter the display settings for the new view. However, if you delete a channel from the new view, the data for this channel will be lost. To isolate the different channels, use the *New Line Diagram*, *New X/Y Diagram* and *New Data Table* commands.

The Project Drawing Window

NGA WinControl features the option to display the measurement structure in a particular window. Graphics (bitmaps), text boxes and the captured data can be displayed in value fields (number and frame).

Graphics (bitmaps), text boxes and the captured data can be represented in data fields (only number and frame) at any random position.

To create a project drawing, execute the menu function *Data / New Project drawing*.

Any number of project drawings can be active simultaneously. Among others, this feature can be used to present both overall and partial views of a project at the same time.

Dialogue "Project drawing Properties"

The dialogue box "Project drawing Properties" will appear, and you can stipulate the size of the image and decide whether you want to use a grid as a drawing aid. This dialogue box can be called at any time to make changes to the properties of the project drawing.

After confirming with *OK*, an empty window will appear, in which you can now display the desired elements (value fields, text fields and bitmaps). This can be done with the help of the functions in the menus *Objects*, *Edit* and *View* as well as a context-sensitive menu. The menu *Object* is only visible when the project drawing is activated.

Any number of objects of every type can be integrated into one project drawing, and any number of project drawings can be active in the program simultaneously. Among others, this feature can be used to present both overall and partial views of a project at the same time.

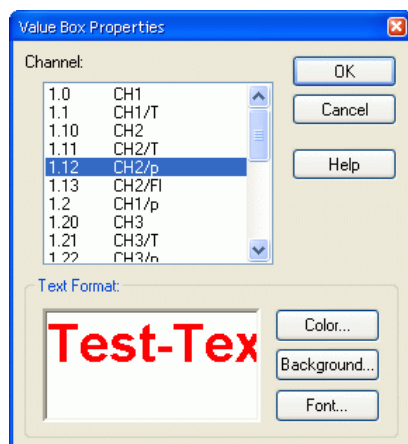
Once created, a project drawing can be saved and reloaded in file format. When loading a project drawing from memory, choose the file type "NGW Project drawings" (*.amb) in the standard dialogue.

Positioning

All three object types (value field, text field and bitmap) are positioned by selecting the desired object with the left mouse button and moving the pointer while holding the button down. In order to select several options simultaneously, click on these objects with the left mouse button while pressing the Shift key. To select all objects, you can use the functions *Select All* in the menu *Objects* and in the context menu.

Furthermore, objects can be positioned with the menu functions *Object/s to the background*, *Object/s to the foreground*, *Align object/lower edge*, *Align object/upper edge*, *Align object/left edge*, *Align object/right edge*.

Value Fields The function *New Value Field* opens the dialogue “Value Box Properties”. You can choose the desired channel from the list of channels in the system. Each display can contain a channel. Font, text and background colour are selected in the respective dialogue, which can be opened by clicking on the corresponding button with the left mouse button.



Warning! The size of the value field is determined by the font selected. Should this not result in the desired size, a graphic (e.g. rectangle) in the desired size can be placed below the value field. If this graphic has the same colour as the background of the value field, both objects together look like one.

Text Fields A text field in the project drawing is defined via the function *Objects / New Text Field*. The dialogue “Text Field Properties” will appear and you enter the desired text in the field “Text”. Font, text and background colour are selected in the respective dialogue, which can be opened by clicking on the corresponding button with the left mouse button.

Bitmaps The function *Objects / New Bitmap* is used to load a graphic. After execution of this function, a standard file dialogue will appear, in which the desired graphic is selected as a bmp file and loaded after confirmation with *OK*. The size of the image can be varied by clicking and dragging. Select the object and move the mouse pointer to one of the corners, so that the symbol changes into a double arrow. Then press the left mouse button and move the pointer to maximize or minimize the object.

The Event List and the Calibration List

The Event List

An event list can be created for all alarm situations. That means that if this function is activated, the beginning and the end of a disturbance will be entered into a special list (window) in case of an alarm.

This list can be saved (automatically) with the corresponding measurement values. A special export function is also available.

Entry of Alarm Situations The following events are saved in the event list:

- Violation of upper limit
- Violation of lower limit
- Rupture of a detector
- Channel failures (e.g. breakdown of a device)

The beginning (and the end) of each alarm situation are entered into the event list.

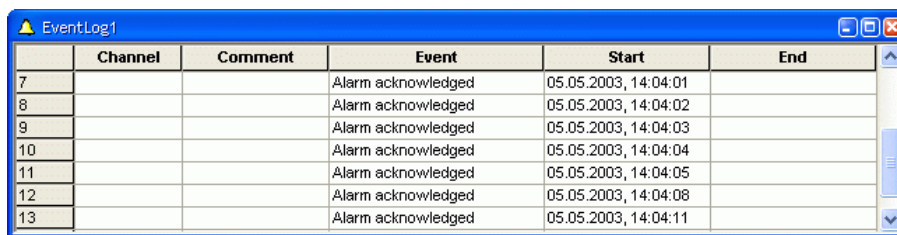
Entry of Status Reports The entry of an individual status report into the event list consists of the following elements:

- Date / Time (start)
- Type of report ("error", " maintenance requirement " or "function control")
- Individual report as per code (Namur status variables)
- Date / Time (end)

Entry of Additional Information In order to facilitate the evaluation of alarm situations, the following events have been defined and are shown in the event list:

- Start Value Request
- Alarm Treatment Turned off
- Stop Value Request
- Alarm Treatment Turned on
- Change to Offline Mode
- Change to Online Mode

Useful Hints! These entries are only added to an open event list, as they provide additional information about possible events.



	Channel	Comment	Event	Start	End
7			Alarm acknowledged	05.05.2003, 14:04:01	
8			Alarm acknowledged	05.05.2003, 14:04:02	
9			Alarm acknowledged	05.05.2003, 14:04:03	
10			Alarm acknowledged	05.05.2003, 14:04:04	
11			Alarm acknowledged	05.05.2003, 14:04:05	
12			Alarm acknowledged	05.05.2003, 14:04:08	
13			Alarm acknowledged	05.05.2003, 14:04:11	

Removal of Entries When AutoSave is active and dayfiles are generated, the event list might contain a multitude of entries, resulting in less clearer view. It is therefore possible, when generating a new file and after saving the event list, to have those entries removed from the event list that have a fixed beginning and end and can be considered as settled or that are of solely informative character, e.g. "Alarm Confirmed". Thus the current event list only contains entries related to the corresponding daily file or that were up-to-date at the time.

Should you not wish to use this function, you can define this in the initialization file

amr32.ini:

[Settings]

ReduceEventList=0

To reactivate the function:

[Settings]

ReduceEventList=1

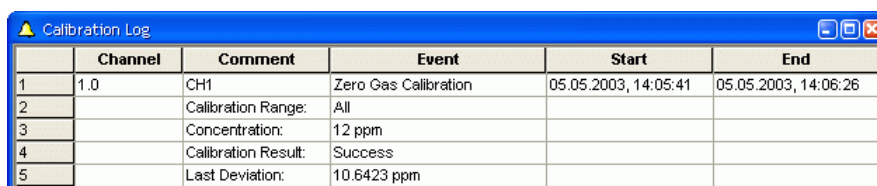
Headlines For easier allocation of event logs, the headline „from *BEGINNING* to *END*“ are entered for printing and exporting.

Empty Event List In order to ensure continuous reconstruction of events for measurements over an extended period of time, the message "No Events Occurred" is saved in the event list if there is not event to be listed. That can be the case, for example, if all events have been dealt with (cf. "Removal of Entries") and the event list is empty.

The Calibration List

Content This separate list contains detailed information to calibration of the connected system. If a calibration process is identified all related entries will be entered into this list. The time stamps within the calibration list are identical to the corresponding entries in the event list.

A complete entry of a calibration is shown in the following figure.



	Channel	Comment	Event	Start	End
1	1.0	CH1	Zero Gas Calibration	05.05.2003, 14:05:41	05.05.2003, 14:06:26
2		Calibration Range:	All		
3		Concentration:	12 ppm		
4		Calibration Result:	Success		
5		Last Deviation:	10.6423 ppm		

If no calibration list is displayed when starting the calibration process a window with a new list will automatically be created.

Manual Saving The calibration list can be saved manually at any time. In order to do this choose the function *File/Export...* In the standard dialogue box that appears when giving this command, you can select the desired file name, drive and directory location.

Automatical Saving Saving of the calibration list can also be connected to "AutoSave" of measurement data by ticking the box "AutoSave calibration list" in the "AutoSave" dialogue. Unless a calibration list has already been created, the system will automatically create one and mark it "No calibration executed" when closing the dialogue with *OK*. This remark will be deleted, if the first entry for a calibration will be done.

The calibration list is saved every time, if a data file is closed by "Auto Save" function (e.g. daily files) under the same name as the data file but with the extension ".cal.txt" instead of ".nga" in order to facilitate allocation of data at a later time.

Useful Hints! After automatical saving of the calibration list, all calibration information that has been processed entirely (starting and ending time stamp) will be deleted from the list on screen for a clearer view. Should deleting of entries not be desired, the entry `ReduceCalibList = 0` in the section `[Settings]` of the file `nga.ini` can be used to deactivate automatic deleting of calibration information.

File Format Calibration logs are saved by rows in ASCII format. One row in the ASCII file corresponds to a row in the table on screen. Columns are separated by the list separator set in the system. For figures, the system will use the set decimal separator. Separators can be set in system settings (date, time, language and regional settings). For details please refer to the operating system manual.

The NGA WinControl Menus

The File Menu

Open

With this command you can open an existing file. In the standard dialogue box that appears when giving this command, you can select the desired file, file type, drive and directory location.

If a file has been saved with the *Data/AutoSave* or *Data/Download from Device Memory* commands, this file will be opened in a file summary window. This window contains important information about the file, for example, details of when the data was recorded and the channel description.

In order to create a new line diagram or a new data table from a file summary, use the *Data/New Line Diagram* or *Data/New Data Table* commands. The properties dialogue box that appears contains all the previously saved diagram or table properties. If you just click on OK, the new line diagram or data table will use the saved properties.

If you wish to display saved data in any other format, you should choose from one of the following commands: *View/View as Line Diagram*, *View/View as Data Table*, or *View/View as Summary*. These commands can also be given using the context menu within the file summary window, which can be opened by clicking on it with the right mouse button when the window is active.

NGA WinControl lists the four most recently opened files. If you wish to open one of these files then just click on the file name listed in the latter portion of the File menu.

If you wish to create a new data table, line diagram, bar graph or numerical value display, you can do so by selecting the appropriate command from the Data menu.

Open Icon To open a file more quickly, use the “Open” icon that appears in the toolbar.

Standard dialogue box In the standard dialogue box you can select from the following options when opening a file:

File name:

Enter the file name that you wish to operate with or select one from the list. The files that are displayed in this list are dependent on the file type given in the field of the same name. If you wish to open files with a certain extension then enter this extension in the file name field in the normal manner (e.g., *.xxx, where ‘xxx’ represents the three letter file extension) and then press ENTER.

File Type

Select the file type that you wish to display in the file name list.

All files (*.*) - Lists all files in the chosen directory.

Data files (*.NGA) - Lists all data files in the chosen directory with the .NGA extension.
Excel connection parameter (*.amx) – Lists all files which have saved connection parameters of online Excel connections in the current drive with the file extension .AMX.
NGA project drawings (*.amb) – Lists all project drawings in the current drive with the file extension .AMB

Drives:

Select the drive on which the desired files can be found.

Directory:

Select the directory that the desired files can be found in.

Close

With the “Close” command you can close the current diagram. If you have made changes to the diagram since you last saved it, you will be asked if you want to save the changes before closing. If you close a data file without saving then you will lose all the changes that have been made since the file was last saved.

Warning!

When closing a file, NGA WinControl only asks you whether you want to save changes if this was stipulated in the dialogue “Settings Others”.

System Menu of the Document

You can also close the active document by selecting the command *Close* from the document’s system menu.

Save

With this command, you can save your samples. Using the “Save As” command means you can enter a new file name and path for the data. When you save data for the first time, NGA WinControl will open this dialogue box. If you wish to change the name or path of a file, then you should use the “Save As” command.

Save Icon

To save a file more quickly using the previously given name and path, click on the “Save” icon in the toolbar.

File Format

Select Data/Export in order to save the data in another file format for example, as a spreadsheet.

Save As

If you use this command then the standard “Save As” dialogue box will appear in which you can select a name and path for a file.

Save Icon

To save a file more quickly using the previously given name and path, click on the “Save” icon in the toolbar.

File Format

Select Data/Export in order to save the data in another file format ,for example as a spreadsheet.

Save Part

The function *File/Save Part* offers the possibility to save a certain time frame of the data files in a new file. Starting this function opens the dialogue “Save Part”.

Dialogue Save Part

The channels desired to be saved and the desired time frame can be determined with the following dialogue options:

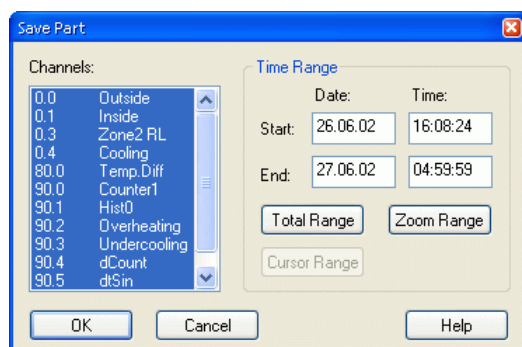
Channels to be saved

Select the channels whose data you wish to save separately.

Time Frame

The entries date and time for beginning and end stipulate the time frame within which values are to be saved.

By clicking on the button *All Parts*, the values of the first and last measurement of the respective file are entered into the date and time fields. By clicking on the button *Zoom Area*, the values of the first and last measurement of the last indicated zoom area are entered into the date and time fields. By clicking on the button *Cursor Area*, the values of the first and last measurement in the area limited by the cursors are entered into the date and time fields.



Warning!

The button cursor area can only be used when this function is executed for a file in cursor view mode.

Tip!

If an area was selected in the table view mode of the active data file, the beginning and end of this time frame will automatically be suggested as the beginning and end of the part to be saved when the function *File / Save Part* is called. In this case, the button *Select* is available instead of the button *Zoom Area*.

Accept Changes / Close Dialogue Box:

Pressing *OK* means that all values are accepted and a standard file dialogue is opened. After the file name and directory have been entered and confirmed with *OK*, the selected area will be saved in a file.

Cancel closes the dialogue without accepting any changes and saving a new file, *Help* starts the help system with this piece of text.

Import

Using this command it is possible to import data that has been saved in a pre-defined NGA text format and to work with this data. If you use this command, then a dialogue box will open.

In this dialogue box you should enter the name of the file, its type, and the source drive and directory.

Export

In order to save data in another file format (spreadsheet, ASCII, FAMOS) or in Dynamic Data Exchange (DDE) format so that the data can be used by another program, select *File/Export*. The resulting dialogue box allows you to save the data in any of the above-

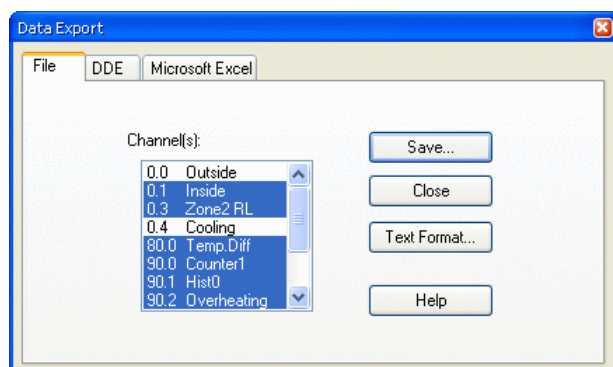
mentioned formats. Depending on how you wish to export your data, you can bring the respective window to the front by clicking on it with the left mouse button.

File Export On the “File” window you can make all the settings for the desired file format. The following options are available:

Channel(s):

In this field, you should select the channels whose data should be exported. This can be done by:

- Clicking with the left mouse button on the channel(s) that you wish to save
- Selecting a range of channels from the list (from channel x to y). To do this, hold down the <SHIFT> key at the same time as clicking with the left mouse button on the first and last channel in the desired range
- -Selecting single channels. To do this, hold down the <CTRL> key at the same time as clicking once with the left mouse button on the desired channels.



Text Format:

In the “Text Format” dialogue box, you can select which information (for example, the comment and the date and time) should appear if you export a file in ASCII text format.

Save:

By clicking on the “Save” button, a standard dialogue box will appear in which you can select the file name, type and directory that the file should be saved under.

Close will close the dialogue box and *Help* starts the help system with this piece of text.

Text Format Dialogue Box

If you wish to export data into an ASCII text file, you can use this dialogue box to set the file format properties for this file. The following options are available:

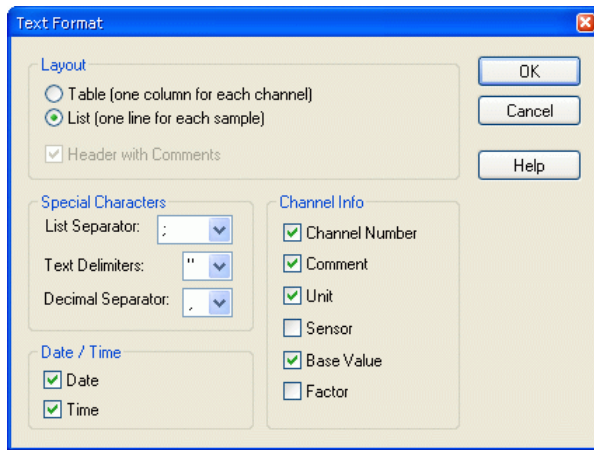
Arranging data

The option “Tiling all values of one measuring time” chooses the compact ASCII format. The option “Individual line for each value” stipulates formats that are interesting e.g. for the export into data bases (e.g. DBase).

All options that are not relevant for the selected format are shown in grey and cannot be activated.

Symbols

Here you can stipulate the desired symbols for field dividers, field limitation and decimals. Select the symbol from the lists (click on the arrow right of the corresponding entry field with the left mouse button) or enter the symbol directly into the respective entry field.



Time of the data

Activating or deactivating the options Date and Time stipulates whether they are to be transferred into the ASCII files. In order to do this, click on the control box left of the respective text with the left mouse button.

Channel information

For the format "Individual line for each value", the listed parameters can be transferred into the export file in addition to the data. In order to do this, click on the control box left of the respective text with the left mouse button.

Accept Changes / Close Dialogue Box:

Clicking on OK will accept all the settings in this dialogue box. Clicking on Cancel will close the "Text Format" dialogue box and ignore all the changes that you made. Clicking on Help will start the help system with this text.

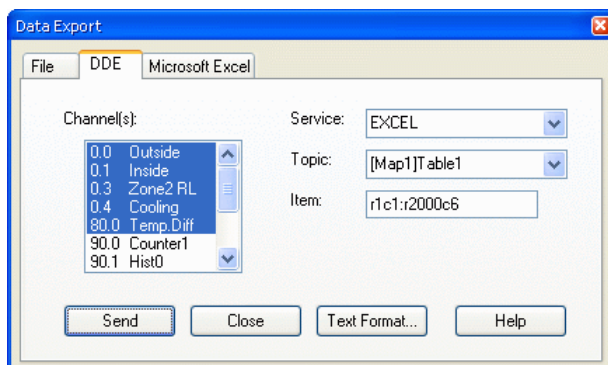
Export Data via DDE

In the "DDE" window, you can make all necessary settings to export a file via DDE to another Windows application. The following options are available:

Channel(s):

Here you can select the channel and corresponding data to be exported. This can be done by:

- Clicking on the channel that you wish to save with the left mouse button
- Selecting a range of channels from the list (from channel x to y). To do this, hold down the <SHIFT> key at the same time as clicking on the first and last channel in the desired range with the left mouse button
- Selecting multiple channels. To do this, hold down the <CTRL> key at the same time as clicking once on the desired channels with the left mouse button.



Having done this, the following options need to be set:

Please note: Service/Topic/Item: These options must be entered according to the application that will receive the data. Please refer to your documentation.

Service:	Normally the name of the application that the data should be exported to
Topic:	Generally the document in which the data should appear
Item:	Usually the area of the document in which the data should appear

As an example the settings for DDE data transfer to Excel could read as follows:

Service:	Excel
Topic:	Chart 1 (or Excel 5.0 (Workbook 1) Chart 1)
Item:	Row 1 Column 1:Row 100 Column 3 (The first and second columns are for the date and time)

These entries depend on the application. NGA WinControl can display lists of available services and topics. To select from the available services and topics, you can look at a list of them by clicking once on the arrow next to the entry field with the left mouse button.

When working with Quatro Pro the settings are as follows:

Service:	QPW
Topic:	qpw-directory\sub-directory 1
Item:	a1 (with QPW the range will automatically be defined, starting with a1)

Send:

When you click on this button, NGA WinControl attempts to establish a DDE connection with the selected service and then send the data to it. A message box will inform you whether or not this process was successful.

Close will close the dialogue box and *Help* starts the help system with this piece of text.

Warning! When transferring files to a spreadsheet via DDE, the date and time of the data will be sent to the first two columns. You might need to reformat these columns to show the data in date/time format

Microsoft Excel In the "DDE" window, you can make all necessary settings to copy data in an Excel sheet. The following options are available:

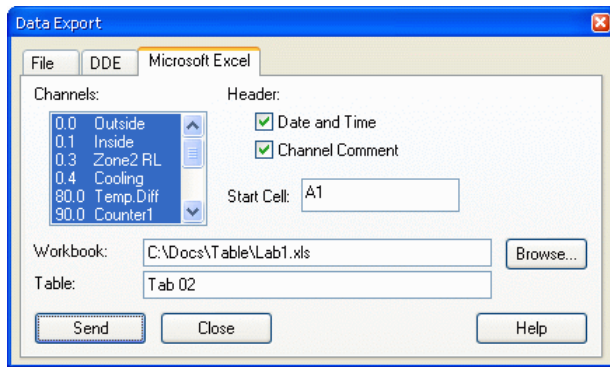
Channel(s):

Here you can select the channel and corresponding data to be exported. This can be done by:

- Clicking on the channel that you wish to save with the left mouse button
- Selecting a range of channels from the list (from channel x to y). To do this, hold down the <SHIFT> key at the same time as clicking on the first and last channel in the desired range with the left mouse button
- Selecting multiple channels. To do this hold, down the <CTRL> key at the same time as clicking once on the desired channels with the left mouse button.

Header

If date and time as well as the value comment are to be transferred as well, activate these options by one click in the option fields left of the respective text with the left mouse button.



Start cell

In this field, the first cell of the table into which the values are to be exported is stipulated.

Workbook

The field "Workbook" stipulates the name of the file into which the values are to be exported. If this file does not exist, it will automatically be created. You can open a standard file dialogue by clicking on *Browse* in order to find an existing Excel file.

Table

In this field you stipulate the name of the table into which the values are to be exported.

With the command *Send* you export the data of the selected channels, with *Close* you close the dialogue, *Help* starts the help system with this piece of text.

Export Event list

Besides the data, the user can also save the event list, generated in case of an alarm, in the form of an ASCII file. When the event list is activated, this can be done via the function *File / Export*. When this function is called, a standard file dialogue will appear into which the desired name and directory for the file to be saved can be entered.

Tip!

If the function *Save Automatically* is activated, the event list can also be saved automatically. To achieve this, the option "Save event list automatically" must be activated in the dialogue "Save Automatically". Click on the option field left of the text with the left mouse button.

Merge

Using this command it is possible to merge data files that have been created using NGA WinControl. You can merge files whose data was recorded at the same and/or different times.

To do so, open one of the files that you wish to merge (the viewing mode is irrelevant) and then use the *File/Merge* command or the *Merge* command found in the context menu (activated by clicking in the window with the right mouse button). Once you have done this, a standard file dialogue box will appear, from which you can select one or more files to be merged with the one that you opened previously. Confirm your selection with *OK*.

As it is common under Windows, multiple selection is made by selecting file entries (with the left mouse button) while holding the <Shift> key for one area or holding the <STRG> key for individual files.

Warning!

The resulting file will display a time range that is calculated using the sum of both files; this also applies to the ranges of the y-axes. The newly created merged file will have the same name as the output file. This means that if you use the *File/Save* command, the original file will be overwritten. It is therefore recommended that when using *Merge*, you also use the *File/Save as* command.

If you attempt to merge files that contain the same channels and/or channel numbers with data from different sensors, an error message will appear and the process will be cancelled.

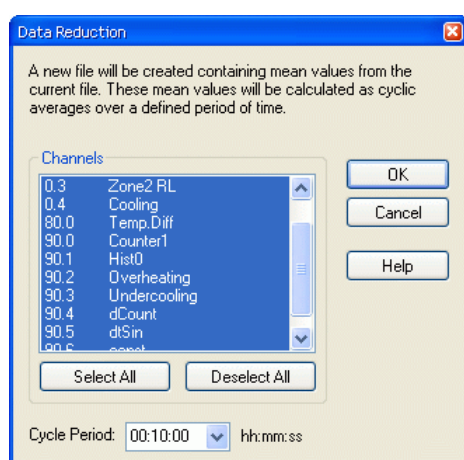
Data Reduction

The function *File / Data Reduction* was introduced for the evaluation and reduction of saved data. This function is used to receive cyclical messages on time. As usual, this function is only available when the set of data that it can be applied to is displayed in the active window.

Tip! The advantage of cyclical messages on time versus cyclical messages via a number of values is that a precise average for the required time period can be calculated even if there is no constant number of values for this period.

Dialogue “Data Reduction”

After calling the function *File / Data Reduction*, the dialogue “Data Reduction” will appear, in which a cycle time can be selected during which cyclical averages are calculated. A new file is created, containing all channels chosen from the list of the original file and whose data are the calculated cyclical averages.



As usual, all NGA WinControl display and edit options are available for such a file.

Print Preview

This command lets you preview bar graphs, line diagrams, X/Y diagrams, data tables and the channel list before printing. By clicking on the Close button you will be returned to the main program window without printing. Clicking on Print will send the information to your printer for printing.

If the function *File / Print Preview* is called for a line diagram that does not show the entire time frame, first of all a dialogue will appear in which you can choose whether you would like to be shown the currently displayed section of the active line diagram on one page or the total file on several pages in the preview. Depending on your choice, the respective page or pages will be shown. For a preview of several pages, the size of the time frame on each page corresponds to the size of the time frame of the line diagram that was active at the time of calling.

Print

This command controls printing. Before using this command you need to have installed a Windows printer. If this printer is not set up as a standard printer, then you need to select it from within this program.

Information regarding the installation of printers can be found in your Windows documentation. Further information on selecting a printer can be found in the “File/Printer Setup” section.

Print Icon To print the channel list, a line diagram or a bar graph you can click on the “Print” icon. This will print the active window within NGA WinControl using the current print settings.

Print Dialogue Box In this dialogue box you can set various parameters for printing. The following options are available:

Printer:

This field shows the name of the current printer and its connection to the computer.

Print Range:

In this field you can select the pages to be printed.

All - This will tell the printer to print all pages (this is only relevant when printing channel lists)

Pages - In this field you can enter a range of pages that you wish to print.

Number of Copies:

In this field you can enter the number of copies that should be printed.

Collate copies:

If you are printing multiple copies of a document, then activating this check box will make NGA WinControl sort the copies that you print.

Setup:

It is possible to change the printer setting and its connection to your computer. See “Print Setup” for details on how to do this.

Print Quality:

This lets you select the print quality.

Print Values between Cursors

Starting from the position of the two cursors, the function *File / Print Values between Cursors* generates a table for a line diagram, which contains the values of the area between the cursor positions for each channel of the displayed file. The number of values is limited to 100 per channel, beginning at the left cursor position.

Dialogue “Selection of Channels to be Printed” In the dialogue “Selection of Channels to be Printed” you can determine whether all or only a selection of the channels in the file are to be displayed or printed in the table view mode. The print of the table contains the comment and the number of the channels as well as the date of the print. Furthermore, a one-line comment can be entered for the table. The comment of the data file is used as default setting.

Dialogue “Print Data” The button *Continue* opens the dialogue “Print Data”, where the table to be printed can be viewed. After confirmation with *OK*, the standard print dialogue is opened and printing is carried out as usual.

Warning! This function is only available for line diagrams with cursor view mode.

Page Setup

Margins can be adjusted individually for printing of diagrams and lists. To do this, call the function *File / Page Setup*. In the dialogue that opens you can change margins. Values are in mm and allow a range between 10 and 50. Entered values are saved with *OK*. The margins are set for the print of all WinControl objects.

Print Setup

Selecting this command will display a list of the printers that are installed on your system. In the “Print Setup” dialogue box you can set a printer as the default printer and access other print and printer options.

Print Setup Dialogue Box

In this dialogue box you can select various parameters from the following:

Default Printer:

This displays the name and port connection of the default printer.

Specific Printer:

To operate with a different printer, click with the left mouse button on the arrow to the right of the printer field to display a list of available printers. NGA WinControl will only display printers that have been installed using the Windows installation program or Windows Control Panel. You can find more information regarding the installation of printers in your Windows documentation.

Orientation:

This allows you to set the paper orientation. You can choose between portrait or landscape. To make a selection, click once on the option button next to your choice with the left mouse button.

Paper:

In this field you can set the paper size and source. To change the settings, click on the arrows that appear next to the appropriate option.

Options:

This allows you to control the print settings for the printer. The options vary according to the printer driver that is installed. Information about the selected printer can be obtained by clicking on the *Options* button and then the *Help* button.

Network:

This connects your computer to a network printer. This option is only available if your computer is connected to a network. Information about the network printer can be obtained by clicking on the *Network* button and then the *Help* button.

File Name List

The list of up to four file names that appears in the lower part of the “File” menu enables the user to quickly load a recently accessed file (line diagrams and data tables). To do so, either select the corresponding number or click on the file name.

Load Configuration

Using this command it is possible to load a program configuration. It is, however, necessary to have previously saved such a configuration using the *File/Save Configuration* command. Providing the measuring device connections to your computer are identical to the setup that you were using when you saved the configuration, it will be possible to poll data using all your previous settings without having to manually re-enter any settings.

Giving this command will call up a standard file dialogue box in which you should enter the configuration's file name, source drive and its directory.

Save Configuration

Using this command it is possible to save a program configuration. This command can be found under the “File” menu. Using the *File/Load Configuration* command it is possible to load a saved configuration at a later stage. Providing the measuring device connections to

your computer are identical when loading the saved configuration, it will be possible to poll the data using all your previous settings without having to manually re-enter any settings.

Giving this command will call up a standard file dialogue box in which you should enter a file name for the configuration, its file type and the destination drive and directory.

Load Calculation Channels

Both the global calculation channels contained in the channel list and the local calculation channels contained in the data files can be saved as lists in a file (*File / Save Calculation Channels*). If required, a saved list can be loaded in one step, so that the calculation channels need not be re-defined with saved formulae.

In order to load previously saved calculation channels into a channel list, activate the channel list and call the function *File / Load Calculation Channels*. Select the requested file in the standard file dialogue that will appear and confirm with *OK*. The calculation channels defined in the file will then be entered into the channel list. If the channel list already contains a calculation channel with the same number as defined in the file, you will be asked whether you would like to replace the existing channel.

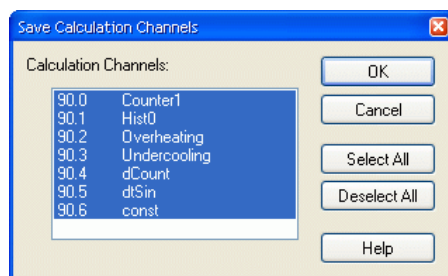
Warning!

The global calculation channels of the channel list which have been saved in a file cannot be loaded as local calculation channels into a data file and vice versa!

Save Calculation Channels

Both the global calculation channels contained in the channel list and the local calculation channels contained in the data files can be saved as lists in a file. If required, a saved list can be loaded in one step (*File / Load Calculation Channels*), so that the calculation channels need not be re-defined with saved formulae.

In order to save the list of global calculation channels, activate the channel list and select the function *File / Save Calculation Channels*. The dialogue "Save Calculation Channels" will appear, in which you can choose from the list of existing calculation channels. After confirmation with *OK*, a standard file dialogue will appear, in which you select a directory, enter a file name and confirm with *OK*. The selected calculation channels will be saved as a list in a file with the file extension "mth".



In order to save a list of local calculation channels, activate the requested data file and execute the function *File / Save Calculation Channels*.

Warning!

As the global calculation channels of a channel list which have been saved into a file cannot be loaded into a data file as local calculation channels and vice versa, they should be clearly identified when entering the file name.

Save As Template

The display properties of NGA WinControl measurement data files can be saved into a separate file format. These files are called “Templates”.

When the data file is activated, call the menu function *File / Save As Template*. A standard file dialogue will appear, in which you can choose the directory, enter the file name and save the display properties of the selected data file as a template in a file with the file extension “amv”.

Use Template

Display properties that have been saved as templates (*File / Save As Template*) can be used for an existing NGA WinControl data file. The existing data file will then be displayed with the properties of the template.

When the data file is activated, call the menu function *File / Use Template*. A standard file dialogue will appear, in which you can choose the desired template. After confirmation with *OK*, the display properties of the selected template are entered into the existing data file and the values are displayed according to these properties.

Tip! The tool bar features the button *Use Template*. One click on this button with the left mouse button will show a list of all templates saved in the directory of NGA WinControl. Select the desired template from this list or open the standard file dialogue via the entry “Browse” in order to find the requested template in a different directory.

Exit

The *File/Exit* command will close all current windows and then exit NGA WinControl. If any of the current windows have been changed since they were last saved, then you will be asked if you want to save these changes before exiting. With *Settings/Others*, you can prevent this prompt from appearing. NGA WinControl will then exit without any prompts and will discard all your changes.

Other ways of closing NGA WinControl are:

- By double clicking with the left mouse button on the system menu or
- By using the <ALT+F4> keyboard shortcut.

The Edit Menu

Commands that are listed in the “Edit” menu will only be made available when a line diagram, X/Y diagram, data table or file summary window is active.

Copy

If you use this command, the contents of the active window will be copied to the clipboard as a line or X/Y diagram. You can insert the line or X/Y diagram into another program using the *Edit/Paste* command within that program.

Cut

Moves the selected text from the active window into the intermediate memory.

Paste

Inserts the content of the intermediate memory into the active window.

Delete

Deletes selected text and graphical elements (objects).

Undo

This command is used to undo the command that was carried out last.

Redo

Repeats the command / action that was last carried out.

Select all

Selects all texts and graphics (all objects) in the active window.

Add Calculation Channel

If you just want to display a calculation channel as part of a line diagram or data table (i.e., a local calculation channel), then you can define its properties by entering the command *Edit/Add Calculation Channel*.

*Add Calculation
Channel Dialogue
Box*

Using this dialogue box you can define the properties for a calculation channel using the data of the active window. The following options are available in this dialogue box.

Channel:

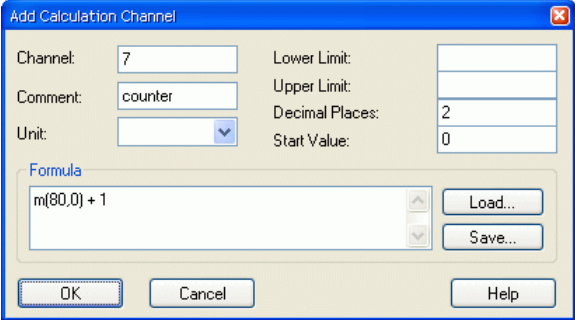
You should enter the number of the new calculation channel in this field.

Warning!

The NGA WinControl program automatically prefixes the number that you enter in this field with "90". This is to prevent the same channel number from being assigned twice.

Comment:

Like the other NGA device channels, calculation channels can have comments added to them (maximum 10 characters). These comments appear next to the channel number to help identify the type of measurements being made on it.



Unit:

A unit for the value to be calculated can be entered into this field (3 characters).

Lower/Upper Limit

Enter the desired limit values in the appropriate field boxes. A decimal point should be used as the decimal separator.

Decimal Places:

The number in this field determines how many decimal places should be shown for the calculated value. Regardless of the number of decimal places entered in this field, the calculation is correct to six decimal places.

Formula:

This field contains any formula you wish to use in calculations. Please note the formula guidelines (cf.: "Formulae" on page 108).

It is possible to save a formula and to use it again later on. To do so, use the Save and Load buttons that appear in this window. By clicking once on one of these buttons with the left mouse button, the standard dialogue box for saving and loading data will appear. If you wish to save a formula, enter a file name. Alternatively, if you want to load a file, click on its name. Both actions can be confirmed by clicking on *OK*.

Standard editing functions apply for editing formula in this window.

Accept Changes / Close Dialogue Box:

By clicking on *OK* with the left mouse button the values that appear in the "Add Calculation Channel" dialogue box will be accepted and entered into the current data set. NGA WinControl will then apply the values and formula entered in this dialogue box to the current samples. These settings will also be applied to any new samples. The results of such calculations will appear in the active diagram.

To display the data in a line or X/Y diagram, use the properties dialogue box that should appear after confirming your entries with *OK*. The corresponding dialogue box can be used to assign an axis to the channel and make other settings.

Clicking on *Cancel* will close the „Add Calculation Channel“ dialogue box without further effect. Clicking on *Help* will start the help system with this text.

STARTING!

Other ways of selecting this command are:

- By clicking once in the diagram window with the right mouse button and selecting *Add Calculation Channels* from the context menu

Deleting a local calculation channel

To delete a local calculation channel from a diagram, open the properties dialogue box for the diagram or data table in which it appears and deselect the channel in the channel list.

Calculation Channel Properties

If you wish to check or change the properties of a local calculation channel, then you should open the corresponding dialogue box using the *Edit/Calculation Channel Properties* command.

Calculation Channel Properties Dialogue Box

Using this dialogue box you can change and/or add comments, units and limit values to the selected calculation channel(s). To select a calculation channel, click on it with the left mouse button under the "Channel" heading. In the list box that appears, click on the desired channel.

If you wish to alter the number of decimal places and/or change the formula then you must redefine the channel. To do so, delete the old calculation channel from the data set and select the *Add Calculation Channel* command. You should then set the properties for this channel.

To delete a local calculation channel from a data set, open the properties dialogue box for the diagram or data table in which it appears and deselect the channel in the channel list.

The View Menu

The commands that appear in this menu let you control how your data is displayed. Please note that each item listed in this menu only appears if it can be applied to the window that is active at the time.

Properties

The *View/Properties* command will open up the properties dialogue box for the currently active window allowing you to change its settings.

STARTING!

Other ways of giving this command are:

- By double clicking in the window with the left mouse button
- By clicking once in the window with the right mouse button and selecting the Properties command from the context menu or
- By pressing <ENTER>

Remarks

Remarks can be added to each data file for detailed documentation. One option is to add “free” remarks, i.e. without reference to a time point. Another option is to add remarks with a time stamp, e.g. remarks on measurement progression. For this type of remarks, the time axis of the line diagrams is marked according to the time stamps.

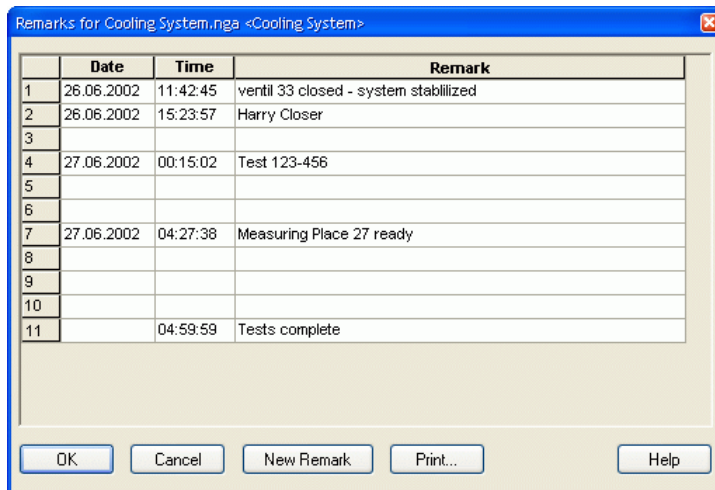
Naturally, the remarks are saved together with the file they relate to and are available at any time.

Remarks are added to a data file with the menu function *View / Remarks*. The desired remark can be entered in the dialogue box that opens. This dialogue can also be opened via the context-sensitive menu of the respective view mode of the data file.

“Remarks” Dia- logue Box

Time-related Entries

For time-related entries, click on the button *New Remark* with the left mouse button. The table is extended by one row, which already contains the current date and time. You can enter your text into the column “Remarks”. Press *OK* to save this remark, and a mark will appear automatically on the time axis of the line diagrams.



Entries without time reference

In order to make an entry without time reference, you can either delete date and time or insert a row into the table.

To do this, mark one row of the table by clicking on the first element in a row with the left mouse button and then use the key <Insert>. Should the table not contain any entries, mark the head of the table before inserting.

The button *Print* is used to print the entire table.

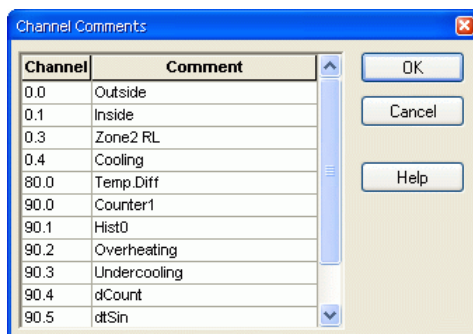
Accept Changes / Close Dialogue Box:

Clicking on OK will accept all the settings in this dialogue box. Clicking on Cancel will close the "Remarks" dialogue box and ignore all the changes that you made. Clicking on Help will start the help system with this text.

Channel Comments

If no comments were or could be agreed for the measurement curves, the function *View / Channel Comments* can be used to add comments. Existing comments can be edited via this function.

«Channel Comments» Dialogue Box



The dialogue "Channel Comments" contains a table with all channels contained in the data file and their comments (there may be no entry). Changes can be made in this table and saved with *OK*.

This function is only available for saved files (offline), as otherwise these changes would be immediately replaced with the comment entered in the device.

View as Line Diagram

This command will display your data as a line diagram. If there is important information missing to create the line diagram, then the properties dialogue box will appear. Enter the appropriate settings in this dialogue box and confirm them with *OK*, the line diagram will then be displayed using these settings. It is also possible to change these properties at a later stage by calling up the properties dialogue box.

View as Data Table

This command will display your data in a table. If there is important information missing to create the data table, then the properties dialogue box will appear. Enter the appropriate settings in this dialogue box and confirm them with *OK*, the data table will then be displayed using these settings. It is also possible to change these properties at a later stage by calling up the properties dialogue box.

View as X/Y Diagram

This command will display your data in an X/Y diagram. If there is important information missing to create the X/Y diagram, then the properties dialogue box will appear. Enter the appropriate settings in this dialogue box and confirm them with *OK*, the X/Y diagram will then be displayed using these settings. It is also possible to change these properties at a later stage by calling up the properties dialogue box.

View as Summary

This command will display your data in a summary window.

Cursors

In order to analyse the course of a curve in a line diagram, two cursors can be activated via the function *View / Cursors*.

Activated cursors are shown as two vertical lines in the diagram, and a table in the bottom part of the line diagram window shows the data of all lines below the cursors.

Furthermore, the integrated statistics function calculates the following values for each curve in the line diagram:

- Difference between the two values below the cursor
- Minimum, maximum, average and standard deviation of the area within the cursors

These values will be listed in the table as well.

Repeated calling of this function deactivates the cursors.

This function is also available in the context-sensitive menu of the respective diagram.

Show all

The function *View / Show All* is used to switch between partial view of a line or XY diagram and total view. This function is also available in the context-sensitive menu of the respective diagram.

Undo Zoom

Having used the mouse zoom function on a line or X/Y diagram, this command effectively zooms out and returns your view to the x and y-axis ranges that were in effect prior to using the mouse zooming function.

The Data Menu

The commands that appear in this menu let you control polling and the displaying/saving of data.

Polling

With *Data/Polling* you can start and stop the polling of data. Before starting polling, you can make all settings you want. You can also then start and stop polling at a defined time.

When polling is stopped, the “dt” field in the status bar reads “dt:STOP”. When polling is enabled this field displays the sampling rate.

STARTING!

Other ways of giving this command are by:

- Clicking on the red Start/Stop icon in the toolbar with the left mouse button
- Pressing <F9>

New Line Diagram

This command will open a new line diagram. The “Line Diagram Properties” dialogue box will appear, which gives you control over the diagram’s properties. When you have entered the properties for your diagram, just click on *OK* and a new line diagram will appear.

Useful hints!

To create a new line diagram with the properties of a template, use the split icon in the tool bar.

As usual, a dialogue for the creation of a new line diagram is opened when clicking on the left part which shows a diagram.

Clicking on the right part of the icon (triangle) will open a menu which lists all templates available in the program directory or any defined directory (see also “Creating line diagrams from a template” [on page 107](#)).

STARTING!

Other ways of giving this command are:

- Clicking once on the “Line Diagram” icon in the toolbar with the left mouse button
- By pressing <F5>

New Bar Graph

This command will open a new bar graph. The “Bar Graph Properties” dialogue box will appear, which gives you control over the graph’s properties. When you have entered the properties for your graphs, just click on *OK* and a new bar graph will appear.

- STARTING!** Other ways of giving this command are by:
- Clicking once on the “Bar Graph” icon in the toolbar with the left mouse button
 - Pressing <F6>

New Value Display

This command will open a new value display. The “Value Display Properties” dialogue box will appear, which gives you control over the display’s properties. When you have entered the properties for the display, just click on *OK* and a new value display will appear.

- STARTING!** Other ways of giving this command are by:
- Clicking once on the “New Value Display” icon in the toolbar with the left mouse button
 - Pressing <F7>

New Data Table

This command will open a new data table. The “Data Table Properties” dialogue box will appear, which gives you control over the table’s properties. When you have entered the properties for the table, just click on *OK* and a new data table will appear.

- STARTING!** Other ways of giving this command are by:
- Clicking once on the “New Data Table” icon in the toolbar with the left mouse button
 - Pressing <F10>

New X/Y Diagram

This command will open a new X/Y diagram. The “X/Y Diagram Properties” dialogue box will appear, which gives you control over the diagram’s properties. When you have entered the properties for the X/Y diagram, just click on *OK* and a new X/Y Diagram will appear.

- STARTING!** Other ways of giving this command are by:
- Clicking once on the “New X/Y Diagram” icon in the toolbar with the left mouse button
 - Pressing <F11>

New Excel Connection

In addition to the possibility to export data to MS Excel in blocks both offline and during the measurement, data can also be transferred online during the measurement cycle.

When calling the function *Data / New Excel Connection*, you will, as usual, first be asked for the properties of the object “New Excel Connection” and, after entering the corresponding data, a window will be opened which contains information on the status of the connection.

As with all data objects of NGA WinControl, any number of windows of the type “Excel Connection” can be opened (i.e. several Excel connections can transfer values simultaneously), with the allocation of channels being freely defined. Of course, as with all other objects, only a limited number is advisable.

- Dialogue “Excel Connection Properties”* The dialogue “Excel Connection Properties” is used for settings of the following topics:
- Channels

The channels requested for transfer can be selected by a single mouse click on the corresponding list entry.

Type of Transfer

You can determine whether the data is to be transferred into Excel continuously or whether the values should always be entered into the same cells (as instant values).

Header

This is where you stipulate whether the data shall be transferred together with time, date and channel comments or not.

Workbook

In the field "Workbook" you can stipulate the Excel workbook (file) into which the values are to be transferred. If this file does not exist, it will automatically be created. The button *Browse* opens a standard file dialogue to search and select a certain file on the hard disk.

Table

The field "Table" defines the requested table within the stipulated workbook. If the table does not exist, it will automatically be created.

Start Cell

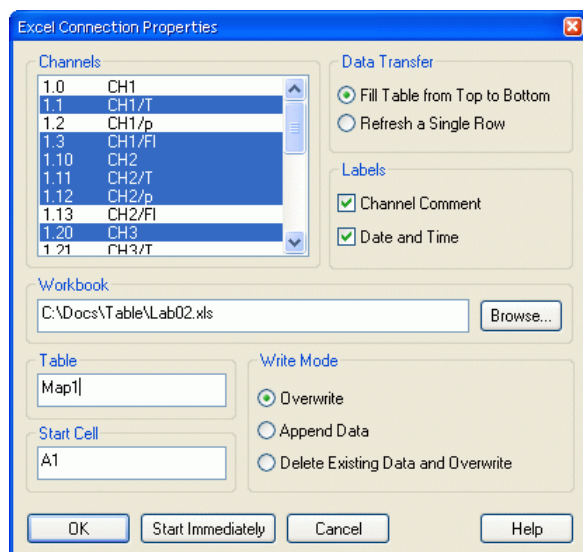
This is where you indicate the position for the values to be entered into the table.

Access Method

In this field you can determine how to process data that might already have been saved into an existing file. The following options are available:

Insert / replace data: Beginning at the start cell, all existing entries are replaced by new data; entries in other cells remain unchanged.

- Attach data: The new data is added to the document after the last row containing data. Existing entries remain unchanged.
- Delete / replace data: All existing entries in the target table are deleted. New data is entered from the start cell.



Accept Changes / Close Dialogue Box:

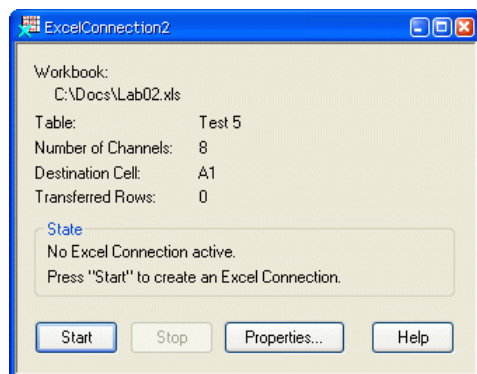
After confirmation with *OK*, the window "Excel Connection" will appear, showing information about this connection. The data is not transferred yet. To transfer data during a measurement, click *Start* in the window "Excel Connection". If you click on the button *Start Now*, data is transferred to Excel during the measurement, after confirmation of properties and opening of the window.

Clicking on *Cancel* will close the dialogue box and use the original settings. Clicking on *Help* will start the help system with this piece of text.

Window "Excel Connection"

The window "Excel Connection" shows some information on the connection. The "Status" area verbally describes the current status of the connection.

Start and *Stop* activate and interrupt the Excel connection. *Properties* opens the properties dialogue for this connection. Note that the properties dialogue can only be opened while transfer is interrupted. *Help* shows this piece of text.



Warning!

If the user intervenes into the data transfer process to Excel (opening of dialogues), the transfer is stopped (the OLE server interrupts its service). As NGA WinControl continues to store data and buffers them until transfer can continue, an increasing memory volume is required, depending on the measurement rate and the channels to be transferred. It is therefore advisable not to carry out the following commands, or, if need be, carry them out rapidly or in several steps so as not to endanger the data transfer and the operation of the computer in general:

- Open file
- Close file
- Arrange window
- Rename table
- Start wizards (e.g. diagram wizard)
- Lengthy editing of cells

Warning!

The online data transfer is only available in connection with MS Excel Version 97 and later.

New Project Drawing

NGA WinControl features the option to display the measurement structure in special windows (project drawings). Graphics (bitmaps), text fields and the captured data can be displayed in data fields (only number and frame) at any random position.

Create project drawing

In order to create a project drawing, click on the menu function *Data / New Project Drawing*.

The dialogue "Project Drawing Properties" will appear, in which you determine the size of the drawing and decide whether you want to use a grid to facilitate drawing.

Accept Changes / Close Dialogue Box:

After confirming your entries with *OK*, an empty window will appear. This window can be used to display the desired elements (value fields, text fields and bitmaps). To do this, use the functions of the menus *Objects*, *Edit* and *View* as well as a context-sensitive menu. The menu *Objects* is only visible when the project drawing is activated.

AutoSave

To automatically save data to the hard disk of your computer, whenever polling is enabled, use the command *Data/AutoSave*. In the resulting dialogue box you should select the chan-

nels from which the data should be saved. Click on *Start* and enter a file name for the data to be stored under.

To save using a different file name, repeat the above process using a new file name.

As a reminder of which channel's data is being written to your hard disk, a small hard disk symbol appears in the channel list next to those channels.

If in *Options/Other* the "Write to file when polling is enabled" check box is active, then the AutoSave dialogue box will open whenever you start polling for the first time you.

AutoSave Dialogue Box

This dialogue box contains the follow elements: Comment, Channels, Start, Cancel, and Help. These elements have the following functions:

Comment:

In the "Comment" box you can enter a comment which relates to the data that is to be saved. This comment, which can contain as many characters as you like, will be displayed when you open the file.

Channels to Save:

After opening the dialogue, all channels that are available in the system for entering into the measurement data file are listed in the table "Channels to Save". Select from this table all channels whose values are to be saved by clicking, with the left mouse button, on the control box left of the channel description. In order to select all channels, select the first column of the table and click on *Select All*. In order to deselect all channels, also select the first column of the table and click on *Deselect All*.

In order to select a column of the table, move the mouse pointer to the top row of this column so that it changes into an arrow that points vertically down. Click once with the left mouse button to select the column. In order to undo the selecting of a column, click once, with the left mouse button, into any element of the table (except top row).

Save only averages

In order to stipulate that, instead of the data, cyclical averages are to be saved for a channel, click on the control box in the column "Average" with the left mouse button. After selecting the column "Average", you can use the buttons *Select All* and *Deselect All* to select or deselect the function average of all channels.

Warning!

Cyclical averages of a channel can only be saved if this channel was selected for automatic storage (selected control box in the left column).

Number of Samples to Calculate Average

In this field you can stipulate the number of values for which an average is to be created. The number of values is the same for all channels selected for average and can range from 1 to 100.

Automatically save Event List

In order to automatically save an event list, generated in case of alarm, in the form of an ASCII file, activate the option "Automatically save Event List". Click into the option field left of the text, with the left mouse button, so that this field is selected.

The event list is then saved in the same directory and with the same name (but with the extension .txt) as the data file.

Convert file after closing

If the data files generated by automatic saving are to be processed in WK1 or ASCII format, you can stipulate that after saving the file is automatically converted into the desired format.

In this case, the original file can be maintained or not. Choose the requested conversion from the list in the lower part of the dialogue (click on the small button right of the text with the left mouse button and select the requested entry by one click with the left mouse button).

Start:

In this field, you can decide if the data should be saved immediately or on a certain day and/or at a certain time. Simply click once on *Immediately* or *By Timer* with the left mouse button.

If the “By Timer” option has been selected, then the input fields Date, Time and Duration (Days, hh:mm) which previously appeared in grey will appear in black. This means that you can now enter data into these fields.

	Channel	Average
<input checked="" type="checkbox"/>	1.0 CH1	<input type="checkbox"/>
<input checked="" type="checkbox"/>	1.1 CH1/T	<input type="checkbox"/>
<input checked="" type="checkbox"/>	1.2 CH1/p	<input type="checkbox"/>
<input checked="" type="checkbox"/>	1.3 CH1/FI	<input type="checkbox"/>
<input checked="" type="checkbox"/>	1.10 CH2	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	1.11 CH2/T	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	1.12 CH2/p	<input checked="" type="checkbox"/>

If the “By Timer” option appears in grey and cannot be selected, this means that it is not supported by the program version that you are running. Please contact your dealer or the program authors.

Entries for setting the timer

Start Date:

In this field you should enter the date that you want to start the “AutoSave” function on. If you do not enter a date in this field then only the entry in the “Time” field will be used. This will result in a new file being automatically created as soon as this time is reached regardless of what day it is. If “AutoSave” has been stopped by the user and/or the “Duration” period has passed when the “Start Time” is reached again, the program will automatically start saving new data.

Start Time:

AutoSave will start recording the samples to a file when your system clock reaches the time shown in this input field.

Duration:

In this field you can enter a period of duration for the “AutoSave” function, which determines for how long your system will save the polled data. Entries in the “Days” field must be whole numbers, you cannot for example, enter half days. It is possible to combine both “Days” and “hours and minutes” settings. Furthermore, you can also enter more than 24 hours in the “hh:mm” field.

Repeat Immediately After Expiration

In order to save values into a new file, immediately after expiration of a file and before reaching the next starting point, activate this function by clicking into the control box left of this text with the left mouse button.

Tip! When files with a duration of 24 hours or a multiple of that are saved automatically, it is recommended to activate the option "Repeat Immediately After Expiration".

File names are allocated automatically. They are formed according to the following principle, depending on date and time of creation: yymmdd-hhmmxx. The variable "xx" is a counter for the (theoretical) case that several files are created at exactly the same time.

This function is only relevant if the duration is indicated to be shorter than 24 hours and if no start and end dates have been entered.

Start:

By clicking once with the left mouse button on the start button a dialogue box will appear in which you can enter a file name and select the directory to store the data in. Confirm the entries in this dialogue box by clicking on *OK*.

If the "By Timer" option has been selected, then you will be requested to enter the destination directory in which the file should be saved. The file name will be generated automatically, using the date and a number.

Close:

If AutoSave is already active when opening this dialogue, then the start button will change to read "Stop". Clicking on this button will cancel the AutoSave and close the file that the data was being stored in.

Sampling Rate:

By clicking on this button the Sampling Rate dialogue box will appear. In this box you can set the rate at which readings are sampled.

Close Dialogue Box:

If the dialogue "Automatical Saving" is called when recording of data is not activated, you can close the dialogue box with *Cancel* without effecting any changes.

If the dialogue "Automatical Saving" is called while data is being recorded, the button "Close" will appear instead of the button "Cancel". *Close* closes the dialogue and continues the recording unchanged. *Help* starts the help system with this piece of text.

STARTING! Other ways of giving this command are by:

- Clicking once on the "Hard Drive" icon in the toolbar with the left mouse button
- Pressing <F8>
-

Averaging

This mode does not directly save the data but the arithmetical average of n values. The variable n can be stipulated by the user for all diagrams, ranging from 1 to 100.

In order to do this, call the menu function *Data / Averaging* (when line or XY diagram or table are active). In the dialogue "Averaging" that will appear, stipulate the number of values for which you want the average to be calculated.

You can choose from the channel list those for which only averages are to be saved. Click on the respective control box left of the desired channel with the left mouse button.

Accept Changes / Close Dialogue Box:

OK confirms your settings and starts the averaging. *Cancel* does not start averaging or, if the dialogue was opened for averaging that had already been started, the previous settings remain unchanged.

Delete Samples

This command allows you to delete all the data that is displayed in a diagram or data table without losing the settings in the properties dialogue box. This makes it quick and easy to reuse the properties settings for a new polling session.

Warning!

If this command is used on data that has been saved and the *File/Save* command is given afterwards, then the previously saved data will be lost. To avoid such a loss use the *File/Save As...* command in association with the *Delete Diagram/Table Properties* command to create a new file.

The Programming Menu

Edit Device Configuration

With this command it is possible to edit the channel programming values. Giving this command will open the "Properties for Channel List/Channels" with the 'Channels' window at the front. Using this window, it is possible to change the channel settings and programming. A complete description of this dialogue box can be found in the Channel List/Channel Properties section [on page 20](#).

Calculation Channels

The mathematical functions of the program allow for the calculation of physical sizes (values) from polled data.

Global calculation channels

If a calculation channel should be available to the whole system, then you should define it using the "Calculation Channels" window which can be found in the "Channel List/Channel Properties" dialogue box ([cf.: on page 20](#)). To open this dialogue box, use the *Programming/Calculation Channels* command.

STARTING!

Other ways of giving this command are:

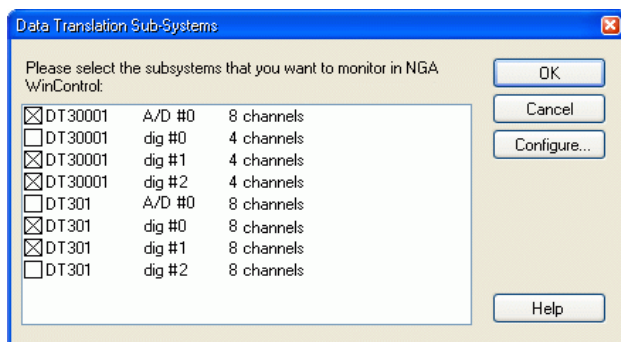
- By double clicking in the active channel window with the left mouse button and selecting the "Calculation Channels" window
- By clicking once in the channel list window with the right mouse button and selecting *Calculation Channel* from the context menu
- By activating the channel list window, pressing <ENTER> and selecting the "Calculation Channel" window
- By giving the *View/Properties* command within the channel list window and selecting the "Calculation Channels" window

Data Translation Sub-Systems

This function will open the dialogue "Data Translation Sub-Systems", where you can make the configuration for additional external inlets of the multi-function cards.

Dialogue "Data Translation Sub-Systems"

After calling the function *Programming/Data Translation Sub-Systems*, this dialogue will appear, listing up the recognized sub-systems of multi-function card(s) installed. Analogue and digital inlets are possible sub-systems.



Each line consists of a control box for activating / deactivating the sub-system, the card name, the name of the sub-system and the number of channels.

After activating the respective sub-systems, the channels are recognized automatically and entered into the channel list, automatically generating a comment for the respective channel from the card name, the name of the sub-system and the channel number.

Warning!

The default name allocated to cards by Data Translation contains ten or more digits. Since the software limits the name to a maximum of thirteen digits, users have to ensure that the name of the card does not consist of more than eight digits. The default card name can be changed via the "DT Open Layers Data Acquisition Control Panel". This software tool is part of the delivery scope of the cards.

Click on the button *Configuration...* to open up the dialogue "Configuration of an A/D Sub-System". The dialogue is opened for the A/D sub-system that is selected when clicking on the button (single click, with the left mouse button, into the line of the sub-system).

Accept Changes / Close Dialogue Box:

Click *OK* to save all settings, *Cancel* to close the dialogue and save the original settings. Clicking on *Help* will take you to this text.

Dialogue "Configuration of an A/D Sub-system"

The configuration of the A/D sub-system that is selected when opening the dialogue can be made in this dialogue. The following settings can be made:

Measurement Area

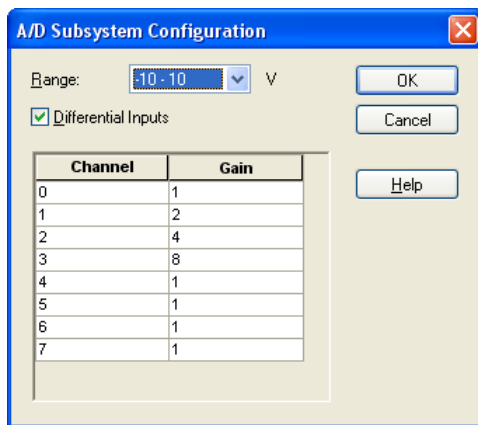
Depending on the card properties, you can select the voltage range with which measurements are to be made at the analogue inlets. Selection is made by opening the list and selecting the requested entry by mouse-click.

Differential Inlets

If this option is activated, measurements are made with differential inlets. If it is not active, single-ended inlets will be used. The number of channels available will be halved in the operation mode "Differential Inlets".

Channel/Multiplication

Depending on the card properties, you can determine a multiplication factor for each channel in this list. A possible factor can be selected from a foldout list in the respective entry field.



Accept Changes / Close Dialogue Box:

Click *OK* to save all settings, *Cancel* to close the dialogue and save the original settings. Clicking on *Help* will take you to this text.

Calibration

Calibration of NGA measurement devices can be carried out via the menu function *Programming / Calibration*. The “Zero gas calibration” and the “Span gas calibration” are supported. The “Calibration” dialogue box features one register card for each calibration type, which contains specific information for each type and where special changes can be made.

Before calibration, the settings for range, valve position and pumps should be checked and, if required, amended. Also, the calibration channel is to be selected. These settings apply for each calibration type.

Warning!

Not every function or setting is supported by each device. Consequently, functions might not be able to be carried out (grey menu entry) and / or information might not be displayed.

Tip!

Please consider the calibration instructions and descriptions of your measuring device!

Reset Calibration Deviations

The calibration of a device can be reset to a defined default status via the button *Reset Calibration Deviation*. This function will reset the calibration deviations for both the zero gas correction and the test gas correction. A security request is made before execution of this function.

Procedure Status / Actual Measure

These sections show the current status of the calibration, the current values and the present valve and pump positions.

Start Calibration / Close Dialogue Box:

Start Calibration starts the calibration with the current settings. During the calibration process, the button changes its function into *Stop Calibration*, clicking on which will stop the calibration process. In order to apply the current settings without starting the calibration process, use the button *Apply Settings*. The button *Close* closes the dialogue box, *Help* will show this text.

*Range, Valve
Position and
Pumps*

Range

Choose the function *Range* to select the active range (for calibration). You can also determine calibration for all ranges. The current settings are shown in the register cards “Zero gas calibration” and “Span gas calibration”.

Valve Position

Choose the function *Valve Position* to set the requested valve position. The current settings are shown in the register cards "Zero gas calibration" and "Span gas calibration".

Pumps

Choose the function *Pumps* to set the pump position requested for calibration. The current settings are shown in the register cards "Zero gas calibration" and "Span gas calibration".

Zero Gas Calibration Dialogue Box

Settings

All settings required for zero gas calibration are made in the register card "Zero Gas Calibration".

The screenshot shows the 'Calibration' dialog box with the 'Zero Gas Calibration' tab selected. The 'Channel' is set to '1.0 - CH1'. The 'Concentration' is 12 ppm and 'Max. Deviation' is 5%. The 'Check Calibration Deviation' checkbox is checked. The 'Calibration Type' is set to 'All Ranges'. The 'Last Calibration' section shows a date of 13:05:05 May 05, 2003, with a 'Success' result. The 'Current Values' section shows a concentration of 12.13 ppm, flow of 0 l/min, temperature of 62.9 °C, pressure of 1013 hPa, valve position of Standby, and pumps 1 + 2. Buttons at the bottom include 'Start Calibration', 'Apply Settings', 'Close', and 'Help'.

Enter the desired value and the tolerances. In order to activate or deactivate the monitoring of tolerances, click, with the left mouse button, in to the option field left from the text. Determine under "Calibration Procedure" whether calibration shall be carried out only for the active range or for all ranges.

Last Calibration

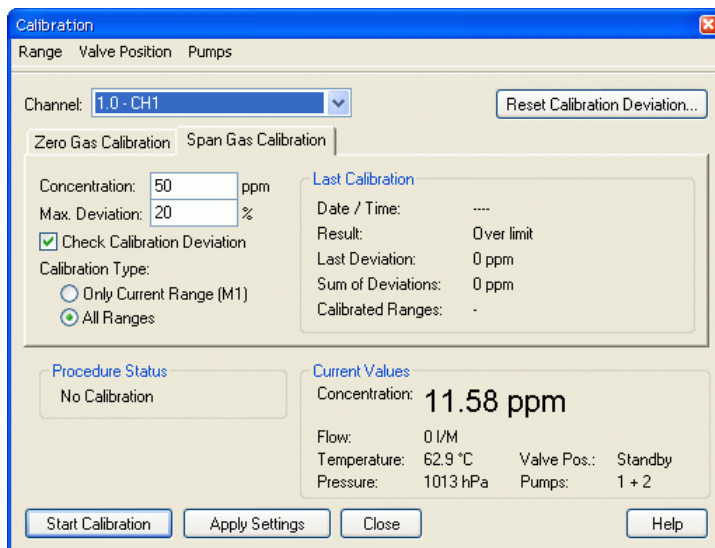
The section "Last Calibration" shows the data of the last calibration saved in the device.

Span Gas Calibration Dialogue Box

Settings

All settings required for span gas calibration are made in the register card "Span Gas Calibration".

Enter the desired value and the tolerances. In order to activate or deactivate the monitoring of tolerances, click, with the left mouse button, in to the option field left from the text. Determine under "Calibration Procedure" whether calibration shall be carried out only for the active range or for all ranges.



Last Calibration

The section "Last Calibration" shows the data of the last calibration saved in the device.

Time

NGA WinControl enables you to program date and time of a connected device with the current values of the PC's internal clock. The function *Programming / Time* is available for this purpose. When calling the function, the current PC time will be set in the device and a corresponding message will appear on screen.

Display Status Report

The function *Programming / Display Status Report* is used to show details of internal messages "function control" "error status" and "maintenance requirement" reports in one window. The values are automatically loaded from the device when opening the window.

If the window "Status Report" is active, an updating function can be triggered via the button *Update*. Push on the button *Print* to print out the entire content of the window.

Warning!

Please consider the description of possible error messages in your device manual!

End Dialogue:

Close will close the dialogue, press *Help* to show this text.

Define Constants

Constants can be defined to be accessed in the calculation channels. To do so, start the dialogue "Define Constants" under the menu item *Programming / Define Constants*.

"Define Constants" Dialogue Box

All constants currently defined are listed in this dialogue in alphabetical order.

In order to add a new constant, click on *Add Constant...* with your left mouse button and enter your data into the new line that will be created. Alternatively, select a line by clicking onto the field with the relevant line number and then press the button <Insert> (<Ins>).

In order to delete one or more constants, select the line(s) as described above and press the button <Delete> ().

Please note that the dialogue can only be closed if all lines contain a valid pair of constant name and value, and no name has been allocated twice. Completely empty lines are considered to be valid characters and are always ignored.

Name Conventions

Combinations of figures and letters are permitted to form names, with the first character having to be a letter. Symbols and vowel mutations are not permitted. A name can consist of up to 20 characters. Constant names have to be unique, i.e. each name can only be used once per configuration.

Please note that a distinction is made between upper and lower case letters, which enables you to use, e. g. symbols out of common formulae, as constant names ($p \rightarrow$ pressure, $P \rightarrow$ performance).

Values

The value is expected to be given in the form of a decimal number, however, full numbers are permitted. Values range between $-1.7E308$ and $+1.7E308$, with a maximum of 15 precise digits.

Administration

The constant values are saved in `nga.ini` as well as in the user-defined file when saving the configuration. After loading the configuration the constants are restored. Constants that had been defined when loading a configuration are overwritten by the constants to be loaded.

Referencing in Calculation Channels

The function **const** is available for use of constants in calculation channels. Its syntax is:
`const ("Constant Name")`

When calculating the value, the current constant value is returned. If the constant `"Constant Name"` is not defined, the complete printout containing the formula `const ("Constant Name")` will become invalid, resulting in the respective calculation channel adopting the status "Ruptured Detector".

Example:

Given the constant chart in the above picture, the formula is defined for the calculation channel 80.0.

```
const("p")      returns 1200
const("P")      leads to ruptured detector, as P was not defined
const("U") * const („I“)  returns 6
```

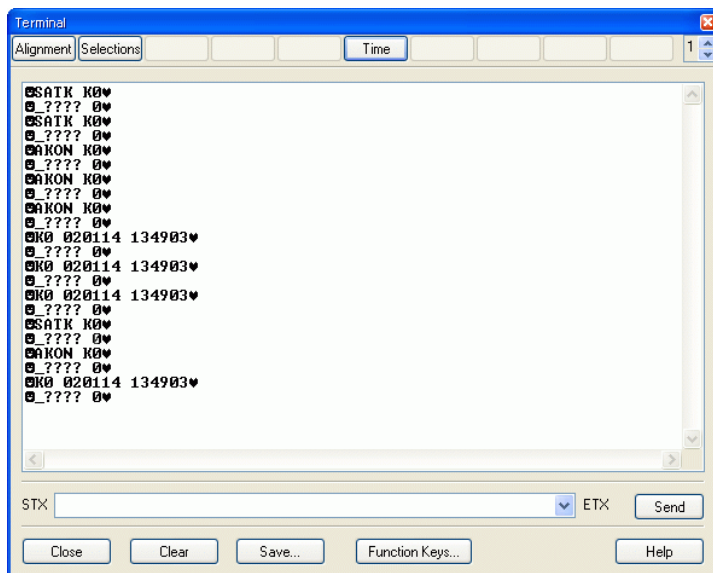
Useful Hints!

If the values of the constants are changed during a measurement run, the changes will only be effective for calculations from that time, whereas data calculated up to that time will be maintained. This is of special interest for long-time measurements, since framework conditions that change at irregular intervals can be integrated into the capturing of data.

Terminal

The menu function *Programming / Terminal Window* features the option to communicate with the measuring devices on ASCII level. Executing this function interrupts the communication of the program with the measuring devices, and commands can be entered via the keyboard.

Below the text window, a special entry field can be used to determine whether the frame STX – ETX is to be applied when entering commands or not. After entering the actual command, the entire sequence is transferred to the device by one single mouse click (left mouse button) on the button *Send*.



Warning!

Only those symbols will appear in the window that are returned by the addressed measuring device. Consequently, if no symbols appear in the window even though they were entered via the keyboard or button, this means that the device does not react.

The text shown in the window can be selected and copied into the intermediate storage by pressing <CTRL+C. It can then be processed further. Also, the contents of the entire window can be saved in a file via the button *Save*. After one single click with the left mouse button, a standard file dialogue will appear into which drive, directory and file name can be determined.

Furthermore, the terminal window has 10 freely allocatable buttons. Functions can be allocated on four levels, so that each button can be allocated four times. To the right of the function keys there is a switch with which to choose the desired level.

In order to allocate the keys, click on the button “Function Keys...” to open the configuration dialogue.

Close Dialogue Box:

The button *Clear* deletes the contents of the entire window, *Close* closes the terminal window and continues the communication between the program and the measuring device(s). *Help* will show this piece of text.

*“User Defined
Function Keys”
Dialogue Box*

You can set the level whose allocation is to be changed with the buttons in the group “Key Level”.

The key order in the chart is from top to bottom, as shown in the terminal window from left to right. Enter the text to be displayed by the buttons in the terminal window in the column “Designation”. The column “Command Line” contains the commands which are to be sent when the button is activated via the interface to the connected devices.

If the symbol "&" is entered in front of a letter or a number in the button designation, this symbol will be underlined on the button and the button is activated with the key combination `<ALT> + [symbol]` as if by mouse click.

Warning!

Please consider that each symbol can be used as a key grammalogue only once for each key level in order to ensure its functionality. Furthermore, the symbol & should be used only once for each button. The characters “B”, “L”, “S”, “F”, and “H” should not be used as they are already allocated to other buttons in the terminal window.

Helpful Hints!

If only a description has been allocated to a button, but no command line, the button will display the description but be deactivated. If, however, only a command line is entered, but no description, the button will remain empty, but pushing on it will trigger the transfer of the command line to the devices.

The Settings Menu

COM Port

This command opens the “COM Port Settings” dialogue box. In this dialogue box you can control the settings necessary for connecting a measuring device to your computer. These settings are: Offline/Online, COM Port, Baud Rate, Number of Devices (network version) and where applicable, Modem Connections.

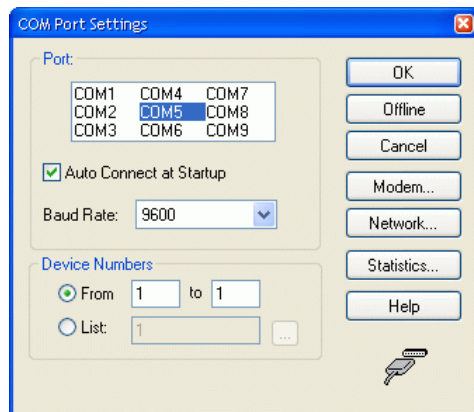
To connect the device with the COM-Port **it is necessary to use a “Zero Modem Cable” and a Gender Changer**. Please also attend hints in the section “Layout of serial connector of MLT” [on page 114](#) and “Layout of serial connector of BINOS E” [on page 115](#). Refer to the pictures below for assignment.

COM Port Settings Dialogue Box

In this dialogue box the following settings can be made:

Port:

From the list of COM ports you can select the one that your measuring device is attached to.



Auto Connect at Startup:

If this check box is active then NGA WinControl will automatically use the previously used COM port when it is started. In this case, the “COM Port Settings” dialogue box will not appear.

Baud Rate:

The default baud rate is 9600. If you wish to change this value, select one from the list which is accessed by clicking once on the arrow to the right of the baud rate field with the left mouse button.

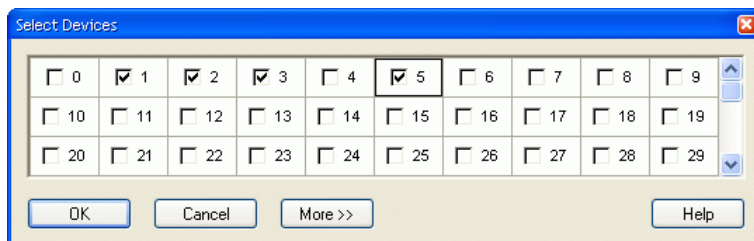
No. of Connected Devices:

If you are working with more than one device, enter the number of networked devices in this field. You can either enter an address area or any list of devices.

Dialogue "Select
Devices"

In order to work with a selective list of devices, choose the option "List". In the entry field, the desired device addresses can be separated by a semicolon or linked with a hyphen for an area "from-to".

For a better overview, you can click on the button right of the entry field to open the dialogue "Select Devices".



In this dialogue, you can activate and deactivate the respective devices by one single click into the option field left of the corresponding number with the left mouse button.

In order to address one single device, enter the number of this device in both entry fields. To address a group of the network, enter the first and last device number of that group.

Tip!

Device addresses can be added or deleted in the course of the measurement. The polling of the respective devices will be automatically adapted.

It is only possible to address more than one device with a version of NGA WinControl that supports bus operation.

Offline:

If you just want to use NGA WinControl for processing existing data then you should select *Offline*. If at any time you wish to work in online mode, you can do so by selecting a COM port (double click on it with the left mouse button to activate it and switch the program into online mode). It is also possible to process data whilst in online mode.

Modem:

Clicking on this button will open the "Modem Settings" dialogue box which enables you to connect to a remote measuring device.

Network:

The button *Network* opens a dialogue in which you can enter the IP address and a TCP port to be used for the connection to a measurement system.

Warning!

An NGA measurement system can only be addressed via TCP/IP protocol with an RS232 LAN adapter connected to the measurement system.

Statistics:

Clicking on this button will open the "COM Port Statistics" dialogue box which displays any communication errors.

Offline:

If you just want to use NGA WinControl for processing existing data then you should select *Offline*. If at any time you wish to work in online mode, you can do so by selecting a COM port (double click on it with the left mouse button to activate it and switch the program into online mode). It is also possible to process data whilst in online mode.

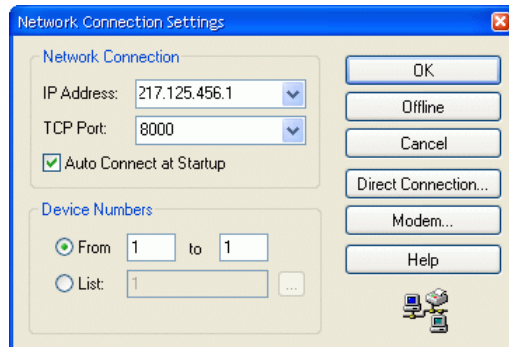
Accept Changes / Close Dialogue Box:

Clicking on *OK* will accept all the settings and the dialogue box will be closed. Clicking on *Cancel* will close the dialogue box and use the original settings. Clicking on *Help* will start the help system with this piece of text.

- STARTING!**
- Automatic on starting the program
 - Using the command *Settings/COM Port*
 - By clicking on the "COM Port" icon in the toolbar

**Network Settings
Dialogue Box**

NGA WinControl features the option to communicate with the NGA measurement system via a TCP/IP address instead of a serial interface.



In this dialogue you can enter the IP address and a TCP port to build up the connection. Furthermore, the numbers of the connected measuring devices can be determined. Instead of the IP address you can also use a corresponding symbolic address, e.g. as defined in the file hosts.

Warning! The IP address as well as the TCP port must correspond to the settings of the RS232 LAN adapter connected to the measurement system. Another requirement is the installation of the network protocol WIN98 / NT / 2000, TCP/IP.

After completion of the connection, the functions of the NGA WinControl software are available as usual.

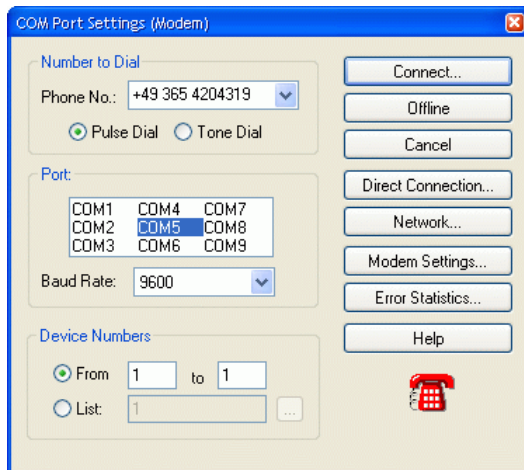
Close Dialogue Box:

Cancel will close the dialogue without changing the original settings. The button *Interface* will take you back to the dialogue in which you can determine a direct connection between the computer and the measuring device. The button *Modem* opens the dialogue "Modem Settings" which enables the addressing of the measuring device via modem. *Help* will show this piece of text.

**Modem Proper-
ties Dialogue Box**

Using this dialogue box you can make all necessary settings for establishing a modem connection to a remote measuring device.

A prerequisite of using the modem functions of the NGA WinControl software is that a modem is connected to the measuring device at the remote site and that this modem is specially configured to operate with the measuring device. The following settings can be made:



Number to Dial:

In the field "Phone. No.:" enter the full number for your modem to dial. This should be the number of the second modem that is connected to the measuring device at its remote location. In addition to the telephone number, you should choose between pulse and tone dialling.

Port:

Click on the COM port that the local modem is connected to. You should also select the correct baud rate for your modem, by clicking on the number in the "Baud Rate" field and choose from one of the listed rates.

No. of Connected Devices:

If you are working with more than one device then enter the number of networked devices in this field.

It is only possible to address more than one device with a version of NGA WinControl that supports bus operation.

Offline:

If you wish to close your modem connection, click on the Offline button with the left mouse button.

Error Statistics:

Clicking on this button will open the "COM Port Statistics" dialogue box which will display any communication errors.

Modem Settings

The button *Modem Settings* opens a dialogue in which you can enter a special initializing sequence for the modem in use.

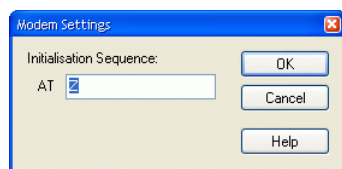
Accept Changes / Close Dialogue Box:

By clicking on *Connect* all your settings will be accepted, your modem will attempt to establish a connection and the dialogue box will be closed. Whilst your modem is attempting to connect to the remote site, the "Establishing Modem Connection" dialogue box will appear. This dialogue box displays any initialisation codes and displays your modem's connection status. If you fail to connect to the remote site, close this dialogue box with Cancel, correct the problem and then try to re-establish a connection using the Connect button.

Cancel will close the dialogue without changing the original settings. The button *Interface* will take you back to the dialogue in which you can determine a direct connection between the computer and the measuring device. The button *Network* opens the dialogue in which you can enter the IP address and TCP port for the connection to a measurement system. *Help* will show this piece of text.

Modem Settings Dialogue Box

If your modem cannot be initialized with the AT command “Z” or additional AT commands are required, then you should enter these in the AT field.



Accept Changes / Close Dialogue Box:

Clicking on OK will accept the entries in this field and the dialogue box will be closed. Clicking on Cancel will close the dialogue box and return the modem settings to their original values. Clicking on the Help button will display this text.

Clicking the Cancel button on the “Modem Properties” dialogue box will close the dialogue box and return all the properties to their original values. Clicking on the Direct Connection button will open the dialogue box used for making a direct connection between computer and measuring device. Clicking on Help will display this text.

COM Port Statistics Dialogue Box

This dialogue box lists the type and frequency of any communication errors. If the overrun error frequently occurs, then the use of buffered COM ports is recommended. By clicking on Reset Counters all values in this dialogue box will be reset to zero. By clicking on Cancel this dialogue box will be closed. Clicking on Help will start the help system with this piece of text.

If any communication errors occur whilst working with NGA WinControl, then an icon will automatically appear in the toolbar which allows you to quickly access the above dialogue box.

Sampling Rate

This command will open the “Sampling Rate” dialogue box and display the current sampling rate.

Sampling Rate Dialogue Box

The sampling rate field that appears in this dialogue box displays the rate at which sampling is currently occurring in minutes and seconds (mm:ss). If you wish to change the sampling rate then just enter the new rate in mm:ss format.

Helpful Hints!

Besides the concentration values, additional values and device parameters (e.g. Namur status variables, optional parameters) can be read in each measurement cycle.

Use the function *Settings/Channel Selection* to determine which values and which parameters are to be processed.

Helpful Hints!

NGA WinControl will evaluate the error status byte sent by the device with each acknowledgement. If this byte changes, the error status will be checked and evaluated in the following measurement cycle.

Warning! It is possible to enter a sampling rate that is shorter than the system can actually realise. If this is the case, the program and system will start the next sample as soon as the previous one has been processed.

Accept Changes / Close Dialogue Box:

Clicking on OK will accept all the settings in this dialogue box. Clicking on Cancel will close the "Sampling Rate" dialogue box and ignore all the changes that you made. Clicking on Help will start the help system with this text.

Settings/Channel Selection

Besides the concentration values, additional values and device parameters (e.g. Namur status variables, optional parameters) can be read in each measurement cycle.

Use the function *Settings/Channel Selection* to determine which values and which parameters are to be processed.

If the processing of rough data is set it will take place to concentrated values additionally.

For processing of additional parameters you can determine whether the values for temperature, pressure or through flow are to be processed or not.

Toolbar, ToolTips and the Status Bar

With these commands you can toggle the display of each of these items.

Toolbar The toolbar appears under the menu headings and is made up of a number of small icons which enable faster access to some of the main NGA WinControl commands. By clicking once on the appropriate icon with the left mouse button, the respective command will be carried out. The icons are as follows:



Start/Stop of the Channel Polling



Open a New Line Diagram



Open a New Bar Graph



Open a New Value Display



Open a New Data Table



Open a New X/Y Diagram



Open a New Project Drawing



Open a New Excel Connection



Open a File





Save a File







AutoSave (to hard disk)







Use Template (Display of values with templates that have been created and saved earlier)

-  Copy a line diagram or the channel list to the clipboard
-  Export data using DDE transfer

-  Activate or deactivate the NGA WinControl alarm function

-  Open the properties dialogue box for the current window
-  Open the Sampling Rate Dialogue Box
-  Open the COM Port Settings Dialogue Box

-  Print Preview
-  Print the current window
-  Print screen
-  Toggles between the mouse and help pointer

ToolTips If this function is active then a brief description will appear when you leave the mouse pointer over an icon in the toolbar list. This function is active when a tick is visible next to the words “ToolTips”.

Status Bar The status bar that appears at the bottom of the program window contains either five or six different fields, depending on the program status. This bar provides you with information on important program settings. Reading from left to right, these are as follows:

- A short piece of text that displays information prior to execution about the currently selected menu command or icon. When nothing is highlighted this field displays “F1 for Help, F2 for First Steps”.
- If data is being saved using Data/AutoSave then the directory and file name for this data will be displayed in the next field. This information is not displayed if AutoSave is not activated.
- The next field displays the active COM port and its baud rate.
- The next field displays the sampling rate. If polling is active then the value is counted down.
- The last two fields display the current system date and time. At the very right, a red and a green LED display provide information on the communication with the measuring devices. The red LED flashes when NGA WinControl is sending a command, the green LED flashes when the device replies.

Alarm

The program can be individually configured to react to limit values being exceeded and sensor errors. The Settings/Alarm command will open the “Alarm Settings” dialogue box.

Possible errors:

- Values above or below limits
- Broken detector
- Loss of channels (e.g. device failure)

*Alarm Settings
Dialogue Box*

A number of alarm reactions can be determined in the dialogue “Alarm Settings“. Six register cards are available for the various settings.

Accept Changes / Close Dialogue Box:

Clicking on OK will accept all settings in this dialogue box. Clicking on Cancel will close the “Alarm Settings“ dialogue box and ignore all the changes that you made. Clicking on Help will start the help system with this text.

*Register Card
“Alarm ON/OFF“*

On this register card you can determine whether you want an alarm to be triggered at all. Activate or deactivate the program’s alarm reactions by one single click with the left mouse button into the control box left of the text “Trigger Alarm“.

Tip!

The tool bar features the button *Alarm* . One click on this button with the left mouse button will activate or deactivate the alarm functions of NGA WinControl.

*Register Card
“Alarm Reactions“*

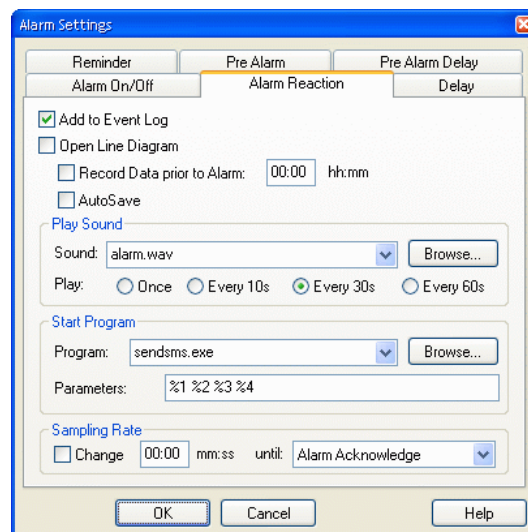
On this register card you can choose the program’s alarm functions from the following options:

Add to Event List:

Activate this check box option if you want the computer to create a list of all alarms that have been sounded.

Open a Line Diagram:

If this option is activated, then a line diagram will be opened in the event of an alarm for the corresponding channel. This line diagram will be used to display all further samples recorded by this channel.



Record data prior to alarm:

If you wish to record and display the data that was polled prior to an alarm in a line diagram, then you should activate this option. In the „hh:mm“ field, you should enter a time period prior to an alarm, that should be displayed in the line diagram. The recording of such data can only be stopped by the user.

AutoSave:

If this option is activated, then the measured data for the line diagram will be saved to the hard drive in the event of an alarm. If this option is not activated, then the data will only be stored in the computer’s memory.

Play an Alarm:

If you would like an acoustic alarm to sound then you should enter the drive, path and name of a “.wav” file in the “Sound” field. Normally, such files can be found in the “Windows” directory, as these files are standard for various systems sounds/events. Clicking on Browse will open a file dialogue box, which you can use to help you find a “.wav” file. Once you have

found such a file, click on OK to enter its path into the “Sound” field. It is also possible to use other “.wav” files. By clicking on the appropriate option field you can determine how often the alarm is sounded.

Start a Program:

If you wish to start another program when an alarm is sounded, then you should enter the drive, path and file name of that program in the “Program” field. Clicking on *Browse* will open a file dialogue box, which you can use to help you find the program file.

In the field “Call Parameters” you can enter call parameters for the program to be called in case of alarm. For example, the parameter “C:\Alarm.txt” means for the program `c:\windows\notepad.exe` that in case of alarm Notepad will open and display the file `c:\alarm`.

In addition, macros can be entered for call parameters and will be expanded as follows in case of alarm:

Macro	Expansion to	Example
%1	Channel	0.2
%2	Comment	Inside Temperature
%3	Event	Limit Exceeded
%4	Time of Alarm	24.9.1999, 14:32:00

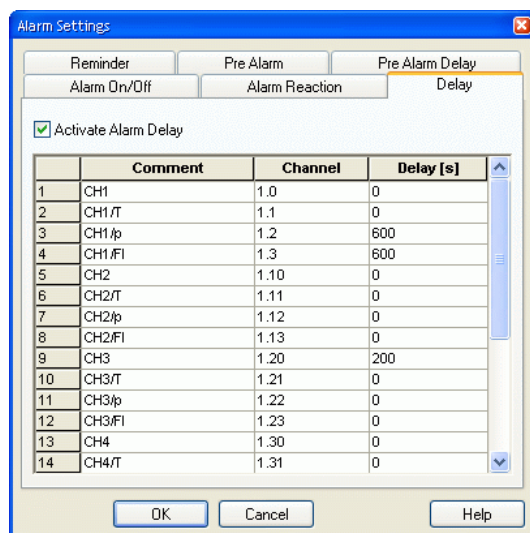
In case of alarm (e.g. Channel 0.2 has exceeded limit) the call parameters „%1 %2 %3 %4“ would be transferred to the program to be called as “0.2 inside temperature limit exceeded 24.9.1999, 14:32:00“

Measurement Cycle:

This is where you can determine that in case of alarm measurements shall take another cycle than stipulated under *Settings / Measurement Cycle*. Activate this function by clicking, with the left mouse button, into the control box in the section “Measurement Cycle” and enter the desired value into the entry field. In case of alarm (until the alarm has been confirmed), this cycle will be applied, otherwise the cycle stipulated under *Settings / Measurement Cycle*.

Register Card “Delay”

A separate delay can be set for each channel. That means, an alarm is only triggered if an alarm situation persists for a time defined with the delay. The delay is applied to the triggering of an alarm and to all reactions defined on the register card “Alarm Reactions”.



In order to enter the delay times, call the function *Settings / Alarm*. The dialogue “Alarm Settings” features the register card “Delay”. To generally activate or deactivate the alarm delay,

click with the left mouse button into the option field left of the text “Activate Alarm Delay”. The table displayed contains all channels listed in the system (including the global calculation channels). An individual delay time can be entered for each channel in the column “Delay(s)”. The time unit is seconds.

*Register Card
“PreAlarm”*

For certain applications it might be interesting to be notified as soon as the values approach the limits. For this purpose, a pre-alarm function was introduced: For each channel, a deviation from the limits can be entered which will trigger an alarm when it is exceeded.

To generally activate or deactivate the prealarm, click with the left mouse button into the option field left of the text “Activate PreAlarm”. The table displayed contains all channels listed in the system (including the global calculation channels). An individual distance can be entered for each channel in the column “Limit Dist.”. The distance unit is the unit of each channel.

	Comment	Channel	Limit Dist.	Unit
1	CH1	1.0	2	ppm
2	CH1/T	1.1	2	°C
3	CH1/p	1.2	2	hPa
4	CH1/Fl	1.3	2	l/M
5	CH2	1.10	2	ppm
6	CH2/T	1.11	2	°C
7	CH2/p	1.12	2	hPa
8	CH2/Fl	1.13	2	l/M
9	CH3	1.20	2	ppm
10	CH3/T	1.21	2	°C

The triggering of a pre alarm can be signalled additionally by a sound or starting a program. The required entries are the same as for an alarm (cf.: „Register Card “Alarm Reactions”” on page 81).

*Register Card
“PreAlarm Delay”*

A separate delay can be set for each prealarm. That means, a prealarm is only triggered if a prealarm situation persists for a time defined with the delay. The delay is applied to the triggering of an alarm and to all reactions defined on the register card “PreAlarm Reactions”.

In order to enter the delay times, call the function *Settings / Alarm*. The dialogue “Alarm Settings” features the register card “PreAlarm Delay”. To generally activate or deactivate the prealarm delay, click with the left mouse button into the option field left of the text “Activate PreAlarm Delay”. The table displayed contains all channels listed in the system (including the global calculation channels). An individual delay time can be entered for each channel in the column “Delay(s)”. The time unit is seconds.

*Register Card
“Reminder”*

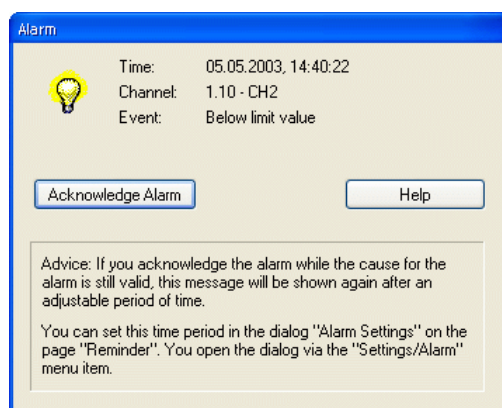
It is the function of a reminder to prevent an alarm from ending any optical or acoustical signalling regardless of whether the alarm situation still persists or not.

If this entry has not been made or the time given to be zero seconds, the alarm will be triggered immediately after it has been confirmed, provided the alarm situation still persists.

If a time other than zero is entered into the register card “Reminder”, the alarm is triggered again after that amount of time, provided its cause has not been removed.

Alarm Dialogue Box

If the alarm is activated and an alarm situation occurs during a measurement, a message will be shown on the screen.



This message contains the time of the alarm, the channel that triggered the alarm as well as the event. The button *Acknowledge Alarm* will close the dialogue, *Help* will show this text.

Warning!

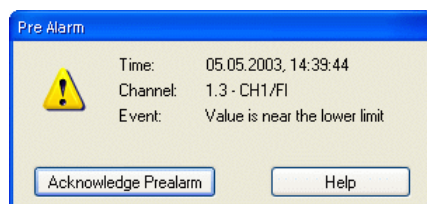
If an alarm is acknowledged while the situation which had triggered it persists, the alarm message will re-appear immediately after acknowledgement.

Warning!

If a delayed alarm has been activated for the situation which triggered the alarm, the alarm message will only re-appear after expiration of the set delay time, even if the alarm situation still persists.

PreAlarm Dialogue Box

If the prealarm is activated and an pre alarm situation occurs during a measurement, a message will be shown on the screen.



This message contains the time of the prealarm, the channel that triggered the prealarm as well as the event. The button *Acknowledge Alarm* will close the dialogue, *Help* will show this text.

Warning!

If an prealarm is acknowledged while the situation which had triggered it persists, the alarm message will re-appear immediately after acknowledgement.

Warning!

If a delayed prealarm has been activated for the situation which triggered the prealarm, the prealarm message will only re-appear after expiration of the set delay time, even if the prealarm situation still persists.

Size of Data Buffer

The function of a data buffer that can be individually adjusted is available for the display forms line diagram, XY diagram and table.

The size of the data buffer is determined via the menu function *Settings / Size of Data Buffer*. In the dialogue “Maximum Size of Data Buffer” you can enter the desired value. The default value is 2 MB.

After confirmation and closing of the dialogue, this value is applied for all display forms (line diagram, XY diagram, table). The stipulated buffer is available to each existing line diagram, XY diagram and table.

This limitation does not influence the function “ Save Automatically”.

If a data buffer has reached its capacity, each new value that is entered will replace the oldest value in the buffer.

Warning!

Once the buffer size has been set, it can only be changed after:
Starting the program
Stopping the measurement and releasing the data

Once the buffer size has been set, it will automatically be available to the program after each start and can be used or changed according to requirements.

Others

With this command you can alter the way the program works and some of its settings. The selections that you make here will take effect as soon as you click on OK.

*Other Settings
Dialogue Box*

In this dialogue box the following options are available for controlling the program:

“Write to file when polling is enabled”

When this option is active you will be prompted to select the channel(s) to be saved and to give the data a file name for saving.

“Prompt before closing an unsaved diagram”

When this option is active you will be asked if you really want to close a line, X/Y diagram, data table or file summary window without saving the changes that have been made. If this setting is not active then all changes will be lost.

“Automatically continue polling after a power failure”

If this option is activated, the program will automatically start polling again after your system has been reset following a power failure using the settings prior to the power failure.

To automatically restart NGA WinControl when starting Windows, the NGA WinControl icon must appear in the Windows “Startup” group. If this is not already the case, then you should copy the NGA WinControl icon to the “Startup” group. One method of copying this icon is to click on it with the left mouse button and hold the button down, at the same time, press and hold <CTRL> and drag the icon into the “Startup” group.

In addition to this, the AutoConnect at Startup option in the “COM Port Settings” dialogue box should be activated. To activate this check box, click on it with the left mouse button.

“Warning when closing a diagram without saving”

When this function is activated, you will be asked when closing a set of data (line diagram, table or file outline) whether you want to save changes. If this function is not selected, changes will not be saved when a window is closed.

“Grey background for diagrams”

When this option is active all diagram backgrounds will be grey. If this setting is not active then the program will use the background color defined in the system settings. You can deactivate this setting to get a better display quality on monochrome LCD displays.

“Do not print file names of diagrams”

Line and XY diagrams can be printed without the file name. Activate or deactivate this option as required.

“Correct printout of vertical diagram labels”

If your printer incorrectly places vertical diagram labels, then activating this option should correct this problem.

“Extended relative display of line diagrams”

In order to meet certain DIN standards, the relative display of line diagrams was extended so that labelling of the time axis can begin with a day “zero”. Activate the option “Begin relative display of the line diagram with day 0”.

“Flashing start key”

You can determine whether you want the start / stop key in the toolbar (for starting or stopping a measurement) to flash or not. To activate or deactivate this function, click into the control box left of the text “Start key is flashing during measurement”.

The Window Menu

With the commands Window/Tile Horizontally and Window/Cascade you can display all active windows. You should use these commands to bring a previously hidden window to the front or to re-organise the windows on screen.

The command Window/Arrange Icons will arrange any windows that have been minimised at the bottom of the program window.

A list of all currently open windows appears in the lower portion of the Window menu. Selecting on one of these will activate it.

The Help Menu

Help/Contents

The command Help/Contents displays the contents of the NGA WinControl help system. It provides you with information related to using the program, examples of NGA WinControl functions and technical support.

You can return to the NGA WinControl contents page at any time, by clicking on the “Contents” button.

Help/How to use Help

Using the command Help/How to use Help, the standard Windows help file will be displayed describing how to use a help system.

The First Steps Assistant

The First Steps Assistant can be called via the function Help / First Steps. The assistant will give online explanation of the first steps for your work with NGA WinControl. You can also call the assistant by pressing <F2>.

Help/Info

The information dialogue of the function *Help/Info* shows detailed information on the program version as well as ways of contacting the program developers. Furthermore, it shows the operating system and the versions of various DLLs.

NGA WinControl Server

Server Operation

Functioning

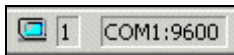
In the server operation mode of NGA WinControl, captured data can be passed on to up to 200 clients. The WinControl server can be accessed as desired via the network (intranet or internet).

Several users or applications can thus access the values of a measurement system, and data can be provided to the respective application without having an impact on each other.

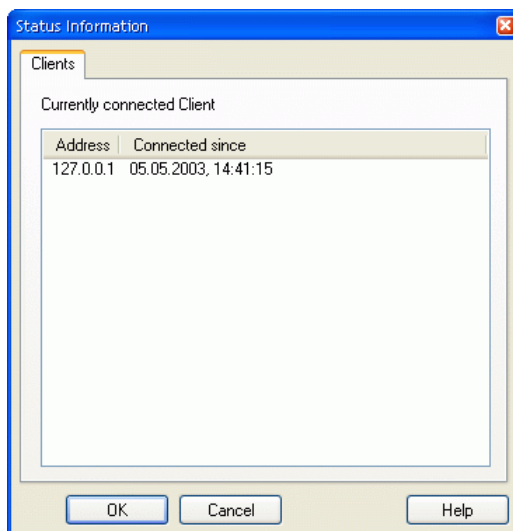
The interface via which the server can be accessed is described under "Server Interface" [on page 89](#).

Display of Clients Connected to the Server

As soon as the first client has connected to the WinControl server, a small graphic will appear left of the status line, featuring a number.



This number is the number of clients connected at the moment. Double clicking on the picture or the number, with the left mouse button, will open a dialog that lists up all clients connected at the moment:



Logfile of Connections

If the entry `ServerLog=1` is found in section `[Settings]` of the initializing file `nga.ini`, the server writes an ASCII file `Server.log` in which build-up and canceling of all client connections are noted with indication of time.

Protocol

The client communicates with the server via ASCII protocol. The syntax is described under "Commands" [on page 90](#).

Sample History

The AMR WinControl server has a value buffer (ring buffer) based on files. For each channel, a temporary file is created in the temporary directory of the operating system, each of which can take up to 3,600 channels as per presetting.

This presetting can be adapted in the initializing file `amr32.ini` by entering `SampleDiskBufferSize = Number of values to be buffered` in the section `[Settings]`.

Example:

```
[Settings]
SampleDiskBufferSize = 7200
```

This means that data can be buffered for two hours in a measurement cycle of one second.

The buffer is preserved if the program is not shut down properly. For example, after a computer crash or breakdown of electricity. If the program is shut down correctly, the temporary files in the value buffer are deleted.

- | | |
|-------------------|--|
| <i>Warning!</i> | The value buffer is only activated if the program can operate as value server (at least one client is active). |
| <i>Global Use</i> | If AMR WinControl operates as server, the sample history can be polled at any time for any channel via the command <code>GetSampleHistory(Channel[,Channel][,..])</code> . In contrast to <code>NotifySamples</code> , e.g., the history is not subscribed for, but only transferred once <code>GetSampleHistory</code> must be called again for later access. |
| <i>Local Use</i> | Buffered data can be inserted into new line or XY diagrams as well as charts. All properties dialogues of these types of display have an additional register card, "History", which is available when a new diagram or chart is created. |

Server Interface

Functioning

The WinControl server receives instructions via a TCP port. These instructions are interpreted and executed in order of reception. With the help of commands available at the time another program can

- find out which channels there are
- be informed about changes to the existing channels
- be informed about additional or removed channels
- receive measurement values

<i>Instructions</i>	An instruction consists of a command, an open bracket “(”, an optional list of parameters as well as a closed bracket “)”. Individual instructions are separated by semicolon “;”.
<i>Whitespace</i>	Blanks, tabs and ends of lines are called <i>Whitespace</i> . Whitespace may occur between individual syntactic elements and is ignored.
<i>Case Sensitivity</i>	The instruction interpreter is case sensitive.
<i>Replies from the Server</i>	The server replies to each instruction, first of all with a CR/LF pair, then the name of the command in process, followed by a colon “:” and a blank. An optional list of parameters may follow. A semi-colon and another CR/LF pair complete the reply.
<i>Channel Lists</i>	A channel is clearly defined by the device and channel number, with the first digits being connected by a decimal point in WinControl, e.g. “1.15” for channel 15 of device 1. Channel lists are lists of 0 or more channels separated by commas, e.g. “1.15”, “1.0,1.1,1.2” or “” for an empty channel list.
<i>Character Strings</i>	Character strings are a series of characters in inverted commas. A back slash “\” precedes a symbol. The following symbols have been defined:

String	Meaning
\\	\
\;	;
\"	"

Settings

The entry `TcpPort` = requested port number can be made in the section [Settings] in the initializing file `nga.ini`. If this entry does not exist, the port number 10013 will be used. If the network uses firewalls, the administrator in charge may have to free a `TcpPort`.

Commands

The following commands are available in order to enable any number of clients to access the NGA value server:

<code>GetChannelList</code>	Channels in the server are sent to the client.
<code>NotifyChannelList</code>	If channels are removed from or added to the server, the complete channel list is sent to the client.
<code>NotifyChannels</code>	The client is informed of changes to the channel lists.
<code>NotifySamples</code>	The client is informed of values of the channel lists.
<code>GetSampleHistory</code>	The sample history can be polled at any time for any channel. In contrast to <code>NotifySamples</code> , e.g., the history is not subscribed for, but only transferred once <code>GetSampleHistory</code> must be called again for later access.

All commands are case-sensitive. A semi-colon completes each command. The reply to all command consists of:

- Repetition of command
- Colon
- Blank
- Open bracket
- Replies

- Closed bracket
- Semi-colon

GetChannelList

Syntax: `GetChannelList()`

Parameter: none

Reply: `GetChannelList(Channel List);`

The *Channel List* consists of *Channel Information* separated by commas.

Channel Information consists of:

- Open bracket
- Device number
- Point
- Channel number
- Comma
- Inverted comma
- Channel comment
- Inverted comma
- Comma
- Inverted Comma
- Channel Unit
- Inverted Comma
- Closed bracket

Example of channel information: `(0.0, "Problem 01", "°C")`

Example of a complete reply: `GetChannelList: ((0.0, "Problem 01", "°C"), (0.1, "beginning routine", "°C"));`

Description: The channel number, comment and unit of all channels in the server system, including the global calculation channels, are delivered.

Application: The evaluation of the reply can be used, for example, to insert parameters (channel numbers) correctly for further commands (e.g. value request).

NotifyChannelList

Syntax: `NotifyChannelList(true | false)`

Parameter: `true | false`

Reply: `NotifyChannelList(Channel lists);`

Description: If the parameter is `true`, the complete channel list will be transferred in the reply (like in `GetChannels()`). Furthermore, the client subscribes to the channel list, which means that whenever changes are made to the channel list, the reply with the updated data will be sent to the client. If the parameter is `false`, the client ends his subscription, i.e. future changes are not transferred. In this case no reply is sent!

Application: e.g. capturing of disappeared and / or new channels etc.

NotifyChannels

Syntax: `NotifyChannels([Channel][, Channel][, ...])`

Parameter: any number of (or no) channels, separated by commas

Reply: `NotifyChannels(Channel list);`

One *Channel* consists of:

- Device number
- Point
- Channel number

Description: A channel list is generated which contains the current information of channels transferred as parameters. Comment and unit are empty (""") for non-existing channels. In addition, the client subscribes to a notification of all changes to comment or unit to the respective channels. Whenever changes are made, the channel information of all channels that the client has subscribed to will be transferred!

Each new `NotifyChannels` deletes all previous subscriptions. If `NotifyChannels` is sent without parameters, all subscriptions are deleted. In this case no reply is sent from the server. Deleting or adding of channels is not taken into consideration, but subscriptions can be made for channels that do not or do not yet exist. The client is then informed of changes as soon as the channel is registered at the server.

Application possibilities: Updating of channel information

NotifySamples

Syntax: `NotifySamples([Channel][, Channel][, ...])`

Parameter: any number of (or no) Channels, separated by commas.

Reply: `NotifyChannels(Value list);`

A *Value List* consists of:

- Date
- Blank
- Time
- Comma
- Values, separated by commas (decimal points are used within the values)

The date is displayed as follows:

- Day 2-digit
- Dot
- Month 2-digit
- Dot
- Year 4-digit

The time is displayed in the following format (24-hour-system):

- Hour 2-digit
- Colon
- Minute 2-digit
- Colon
- Second 2-digit
- Dot
- Milli seconds 3-digit

The values are issued in the order the corresponding channels were transferred as parameters, i.e. if the parameter was 0.0,0.1,80.0, the first value in the reply will be channel 0.0, the second channel 0.1 and the last 80.0. If the parameter was 0.1,80.0,0.0, the first value will be channel 0.1, the second channel 80.0 and the last 0.0.

Description: A subscription is made for the values of all channels transferred. A reply is made as soon as a measurement cycle has been finished on the server. The values of the measurement cycle are then sent in the reply. Each new call of "NotifySamples" will delete all previous subscriptions.

If no value is available for a channel, no channel information is transferred, but the separating comma will be set for consistency of allocation.

Example:

Command: `NotifySamples(0.0, 0.1, 80.0);`

Reply: `NotifySamples(19.12.2001 15:00:56.023,12.2,,8);`

Meaning: On 19 December 2001 at 15:00:56 and 23 milli-seconds, the value 12.2 was measured at channel 0.0. No value was measured for channel 0.1 and the value 8 was measured at channel 80.0 (calculation channel).

Application: Value capturing

GetSampleHistory

Syntax: `GetSampleHistory (List)`

Parameter: *Channel List*

Reply: `GetChannelList: ([Value List])[, (Value List)][, ...];`

The reply always consists of the repetition of the command and a colon, followed by an open bracket. If no data is available, the reply is closed by brackets and a semi-colon. Otherwise, a variable number of value lists will be listed in brackets and separated by commas, with the reply being closed by a bracket and semi-colon.

Description: The sample history can be polled at any time for any channel. In contrast to `NotifySamples`, e.g., the history is not subscribed for, but only transferred once `GetSampleHistory` must be called again for later access.

Function: The buffered data referring to the channels listed in the *Channel List* are returned as follows: a value list of the channels transferred will be created for each time stamp available in the buffer and transferred to the client.

Application Examples

Multiple Access to Measurement Device

A research laboratory is positioned at a central location. NGA WinControl is used to read and archive current measurement values. Using [WinControl Client OCX](#), a web site is created on the internal web server to which all employees of the company have access and which displays current data.

Integration into other Applications

An existing, customer-specific capturing system is extended by gas concentration measurement. [NGA WinControl](#) is used for capturing and archiving the concentration data. The capturing system is extended in such a way that the concentration values are taken over directly from the WinControl Server.

Remote Access

A production process is monitored by means of NGA WinControl. In case of limit violations, NGA WinControl automatically sends an e-mail to the factory manager and Remote WinControl enables him to have immediate overview of current measurement data.

Extended Data Export

Using Microsoft Access and the [WinControl Client OCX](#), it is an easy thing to write all incoming values online into any database supported by Access.

Separate Capturing and Evaluation

A complex measurement system is spread all over the company's premises. NGA WinControl and com2ips are used to concentrate and archive all values in one single system. Remote WinControl is used at three further work stations in order to evaluate part of the overall data, depending on application.

External Online Evaluation

A separate evaluation software is developed for a complex special evaluation. The values are recorded by NGA WinControl and transferred online to the evaluation software via the WinControl server interface.

How do I...

...establish a connection to the measuring device(s).

In the “COM Port Settings” dialogue box you can choose to work online and thus establish a connection to your measuring device(s). Select the COM port that your measuring device is connected to and then set the appropriate baud rate. Clicking on OK will confirm the details in this dialogue box and NGA WinControl will then establish a connection (cf., COM Port [on page 74](#)).

STARTING!

- Automatic on starting the program
- Using the command Settings/COM Port
- By clicking on the “COM Port” icon in the toolbar

...set the sampling rate.

The desired sampling rate can be set in the “Sampling Rate” dialogue box.

STARTING!

- By using the command Settings/Sampling Rate
- By using the <CTRL + R> keyboard shortcut.

Warning!

It is possible to enter a sampling rate that is shorter than the system can actually realise. If this is the case, the program and system will start on the next sample as soon as the previous one has been processed.

...change the properties of the active window.

For most program windows in NGA WinControl there is a dialogue box which lets you change the properties of the window. This dialogue box will also appear when a new window is created. It is possible to alter these settings at any stage while using the program.

STARTING!

- Automatic on creating a new window
- By using the command Data/Properties
- By clicking on the “Properties” icon in the toolbar
- By double clicking in the appropriate window with the left mouse button
- By clicking once in the desired window with the right mouse button and selecting the Properties command from the context menu
- By pressing <ENTER> whilst the desired window is active

...create a new value display.

- By using the command Data/New Value Display
- By pressing <F7>
- By clicking on the “New Value Display” icon in the toolbar with the left mouse button

...create a new bar graph.

- By using the command Data/New Bar Graph
- By pressing <F6>
- By clicking on the “New Bar Graph” icon in the toolbar with the left mouse button.

...print a bar graph.

- By activating the bar graph to be printed and then
- By using the command File/Print or
- By clicking on the “Print” icon in the toolbar with the left mouse button

...create a new data table.

- By using the command Data/New Data Table
- By pressing <F10>
- By clicking on the “New Data Table” icon in the toolbar with the left mouse button

...print a data table.

- By activating the data table to be printed and then
- By using the command File/Print or
- By clicking on the “print” icon in the toolbar with the left mouse button

...create a new line diagram.

- By using the command Data/New Line Diagram
- By pressing <F5>
- By clicking once on the “New Line Diagram” icon in the toolbar with the left mouse button

...print a line diagram.

- By activating the line diagram to be printed and then
 - By using the command File/Print or
 - By clicking once on the “Print” icon in the toolbar with the left mouse button
- or:
- By activating the line diagram to be printed and then
 - By using the command Edit/Copy
 - By running your word processor and inserting the diagram into the document using the Edit/Paste command and then printing the document from the word processor

...print the channel list.

- By activating the channel list window and then
- By use the command File/Print or
- By clicking once on the “Print” icon in the toolbar with the left mouse button

...save data to a file.

Before starting polling use the Data/AutoSave command. In the resulting dialogue box all available channels will be highlighted for saving. If you only want to save a particular channel or channels then you can deselect those that you do not wish to save. By clicking on Start the settings in this dialogue box will be applied. Remember to select the directory to save the data in and to enter a file name for it. These entries should be confirmed by clicking on OK. The next time you open this dialogue box, the Start button will have been replaced with a Stop button. Data will be saved under the given file name until the user clicks on this button. If your computer crashes during polling and automatic saving, then you should find that the majority of the data will already have been saved and will therefore be unaffected by the crash (cf.: AutoSave [on page 63](#)). Additionally, any line diagrams and data tables can be saved as a file using the command File/Save (cf.: Save [on page 44](#)).

...load a saved data file.

Using the command File/Open you can open a saved data file. If this file has been saved using AutoSave or Data/Download from Device Memory, then the file will be opened in file summary format (cf.: Save [on page 44](#)). Otherwise, it will be displayed in the format that it appear when it was saved (i.e., line or X/Y diagram, data table or summary).

...insert a WinControl diagram into a text document.

Using MS-Word as an example the following describes how to insert NGA WinControl diagrams into a text document. In order to do so it is necessary to have the data displayed in a line diagram and copied to the clipboard (done using the Edit/Copy command).

The following steps need to be completed using your text editor:

- Ensure that the document in which a diagram is to be inserted is open, that a file is open and that the cursor is correctly positioned.
- Use the command Edit/Paste.
- The line diagram together with its settings will then be inserted into your document.

If you want to change the properties of an inserted diagram, you can do this as follows:

- By double clicking on the inserted diagram with the left mouse button. This will activate NGA WinControl.
- It will appear as if NGA WinControl is running which means that you can change the diagram characteristics.
- The required NGA WinControl commands and icons in the toolbar will be made available for this purpose.

By clicking on the text area in your text editor NGA WinControl will be closed and you can continue working with your word processor.

...control an ALMEMO network using the NGA WinControl.

- Ensure that all your measuring devices have a different address.
- Enter the number of measuring devices in the channels dialogue box.

...use the demo version.

When connected to a measuring device:

- Connect your THERM or ALMEMO measuring device to one of the free serial ports on your computer (COM1 - COM9) and set the baud rate for the device(s) (for example 9600)
- Enter the command Settings/COM Port and in the dialogue box that appears, select the same settings as those in the first step (i.e., channel and baud rate). Confirm your selection by clicking on OK.
- Remember to deactivate the "Simulation" check box in the lower part of this dialogue box.
- If the settings are correct, the dialogue box will be closed and the connected channels will appear in the NGA WinControl window.

To simulate a measuring device:

- Using the command Settings/COM Port select a free COM port (COM1 - COM9).
- Remember to check the "Simulation" check box in the lower part of the dialogue box. Confirm your selection by clicking on OK.
- If the settings are correct the dialogue box will be closed and the simulated channels will appear in the NGA WinControl window.

...automatically continue polling after power failure.

- Select the command Settings/Others and activate the "Automatically continue polling after power failure" option. To activate this option, click in the check box with the left mouse button.
- Open the "COM Port Settings" dialogue box and activate the "Auto Connect on Startup" option. To activate this option, click in the check box with the left mouse button.
- Copy the NGA WinControl icon from it's program group to the Windows "Startup" group. One method of copying this icon is to click on it with the left mouse button and hold the button down, at the same time, press and hold <CTRL> and drag the icon into the "Startup" group.
- Use the Data/AutoSave command to create a file to save the polled data to.
- Once the NGA WinControl program has been restarted after a power failure, all data will continue to be saved in the file named under "AutoSave".

...automatically create daily files.

- Select the command Data/AutoSave or press <F8>.
- Activate the "By Timer" option. The input fields Date, Time, and Duration (Days hh:mm) which previously appeared in grey should now appear in black. This means that the values are valid.
- Enter a "Start Date" for polling to begin on. If you do not enter a date in this field then only the entry in the "Time" field will be used. This will result in new data being automatically saved as soon as this time is reached. If the AutoSave has been stopped by the user and/or the "Duration" period has passed by when the "Start Time" is reached again, the program will automatically restart saving new data.
- When the "Start Time" is reached, your system will automatically start saving the data that is recorded.
- Enter a duration period for your system to automatically save polled data. Entries in the "Days" field must be integers, you cannot for example, enter half days. It is possible to combine both "Days" and "hours and minutes" settings. Furthermore, you can enter more than 24 hours in the "hh:mm" field.

...merge data files with one another.

- Open one of the files that you wish to merge (the viewing mode is irrelevant).
- Select the command File/Merge (either using the pull-down menu or the context menu, activated by clicking in the window with the right mouse button).
- The standard file dialogue box will appear and you can select a file to be merged with the one that you have already opened. Confirm your selection with OK.

...administer multiple program configurations.

If you have created a special workspace for certain data acquisition tasks, then it will automatically be saved when you exit the program. The next time you start the program this workspace will be used. If you then make changes to this workspace the earlier one will be lost.

However, it is possible to save a workspace so that you can reuse it later. The workspace is saved in a separate program configuration file. To save such a layout, select the File/Save Configuration command and enter the appropriate information (file name, destination drive and directory) in the standard file dialogue box that appears.

Using the File/Load Configuration file you can later restore your configuration.

...automatically load a specific configuration when starting the program.

If you frequently use multiple program configurations, it is recommended that you create a new program icon in the NGA WinControl program group or on your desktop for each configuration.

For each symbol, the program call can be connected to a certain initialising file.

To create new program icons, follow these steps:

- Copy the original program icon within the program group.
- Change the command line for the new program icon, so that it refers to your configuration file. To do so, activate the new program icon and select the Program Manager File/Properties command. This should open a dialogue box. After the text "NGA.exe" - Ini=name.ini, where "name" is the name of your configuration file. Once you have done this, confirm your entry by clicking on OK.

Now when you click on this new program icon, the program will start using the configuration file which you entered as name.ini. If this file does not exist, then it will automatically be created. When you close the NGA WinControl program the configuration will be saved to this file.

Please note that it is possible to have differently configured versions of the program running simultaneously.

...define a global calculation channel.

- Select the command Programming/Calculation Channels
- Use the "Calculation Channel" window dialogue, click on the Add button and define the new calculation channel using the channel number.
- Enter the appropriate settings and any formula that you wish to use (cf. "Calculation Channels Properties" [on page 22](#)).
- Click on Apply and your new calculation channel will be added to the channel list.

...define a local calculation channel.

- Activate the data set that you wish to define a local calculation channel for (i.e., a line, X/Y Diagram or data table).
- Select the command Edit/Add Calculation Channel.
- Set the properties and enter any formula for the local calculation channel in the "Add Calculation Channel" dialogue box (cf.: "Add Calculation Channel" [on page 55](#)).

... define counters, sums or averages throughout the measurement

- Carry out all steps required for agreeing a global or local calculation channel.
- If the formula uses the value of this calculation channel, the latest value of this channel will be returned.
- This way it is possible to add up a channel's data captured in each cycle.
- It is important to indicate a starting value. To do this, you can use the respective entry field in the dialogue "Calculation Channel Properties". When the measurement starts, the value of the calculation channel will be set at that starting value in order to obtain a defined status.

As an example, the following settings are advisable for the test:

$m(80, 0) + 1$	Setting of calculation channel 80.0 as single counter (1 is added with each cycle)
$m(80, 1) + m(80, 0)$	Setting of calculation channel 80.1 as the sum of the previous value and the new value of channel 80.0.
$\max(m(1, 0), m(80, 0))$	Maximum of all values from channel 1.0 throughout the measurement (the formula of calculation channel 80.0 is defined)

...establish a modem connection.

- Select the Settings/COM Port command and click on the Modem button in the dialogue box.
- Enter the number to be dialled, the COM port that your modem is connected to, its baud rate and, if necessary, any additional modem initialisation codes (accessed by clicking on the Modem Settings button).
- You must have a specially configured modem connected at the remote site (cf.: “Connecting a modem to a measuring device”).

... analyse a curve

- Open the data file and, if appropriate, switch to “Line Diagram” view.
- The function “Cursors” is available in the view menu and the context-sensitive menu. It is used to activate and deactivate two measuring cursors.

Activated cursors are shown as two vertical lines in the diagram, and a table in the bottom part of the line diagram window shows the data of all lines below the cursors.

Furthermore, the integrated statistics function calculates the following values for each curve in the line diagram:

- Difference between the two values below the cursors; Minimum, maximum, average and standard deviation of the area within the cursors. These values will be listed in the table as well.

The ratio between the size of the line diagram and the statistics table can be determined individually. If the mouse pointer is moved over the line between diagram and table, its form will change and the line can be moved while pressing the left mouse button.

The following options are available for printing:

Direct print of diagram and statistics table

Direct print of statistics table

Copying of diagram or statistics table via intermediate storage into e.g. text documents or spreadsheets.

... add or amend channel comments

- Activate the requested data set.
- Select the function *View / Channel Comments*. The dialogue “Channel Comments” will appear, which contains a table with all channels in the diagram and their comment (optional)
- All required changes can be made in this table and saved by confirming with OK.

This function is only available offline, as otherwise these changes would be immediately replaced with the comment entered in the device.

... save part of a data set

The function *File/Save Part* offers the possibility to save a certain time frame of a data set in a new file. Starting this function opens the dialogue “Save Part”.

The channels desired to be saved can be selected from the list and the desired time frame can be determined by entering date and time for beginning and end.

... display overlapping characteristic curves

This display mode is selected in the dialogue “Line Diagram Properties”, “Display”, option “overlapping”.

In this mode, data resulting from pooling of files is displayed with their time of origin. This function was integrated to enable the direct comparison of two characteristic curves in a diagram that were recorded at different times.

... add notes to a measurement data file

You can add notes to a data file via the function *View / Notes*. This function opens a dialogue into which the desired notes can be entered. This dialogue can also be opened via the context-sensitive menu in the respective view mode of the data file.

... export an event list

This is what you do to save an event list, generated in case of an alarm, in the form of an ASCII file: When the event list is activated, start the function *File / Export*. When this function is called, a standard file dialogue will appear into which the desired name and directory for the file to be saved can be entered.

... automatically save an event list

If the function *Save Automatically* is activated, the event list can also be saved automatically. To achieve this, the option “Save event list automatically” must be activated in the dialogue “Save Automatically”. Click with the left mouse button on the option field left of the text so that you can see a little x in this box.

The event list is then saved in the same directory and with the same name (but with the extension .txt) as the data file.

... save and use display properties

The display properties of NGA WinControl data files can be saved into a separate file format. These files are called "Templates".

When the data file is activated, call the menu function *File / Save As Template*. A standard file dialogue will appear, in which you can choose the directory, enter the file name and save the display properties of the selected data file as a template in a file with the file extension "amv".

Furthermore, display properties saved as templates can be used for existing WinControl measurement data files. The existing data file will then be displayed with the properties of the template.

When the data file is activated, call the menu function *File / Use Template*. A standard file dialogue will appear, in which you can choose the desired template. After confirmation with *OK*, the display properties of the selected template are entered into the existing data file and the values are displayed according to these properties.

... print line diagrams over several pages

In the active line diagram, select the time area to be displayed on every page (Line Diagram Properties). The print dialogue will appear after calling the function *File / Print*. In the section "Printing Area" you can choose between the options "All" or "Pages From To". After confirmation with *OK* either the entire file will be printed over several pages or only the pages selected, depending on your choice. The size of the time frame of every page corresponds to the size of the time frame of the line diagram which was active at the time of calling.

... transfer data to Excel online

For online data transfer to Excel you can use the function *Data / New Excel Connection*. When calling this function, you will first be asked (as usual) for the properties of the object "New Excel Connection", and after entering this information, a window will open which informs you about the status of the Excel connection (cf. "New Excel Connection" on page 61).

...transfer call parameters to a program to be started in case of alarm

NGA WinControl features the option to automatically call a program in case of alarm. The path to the desired program file is entered in the dialogue "Alarm Settings", on the register card "Alarm Reactions" into the field "Start a Program".

In the field "Call Parameters" you can enter call parameters for the program to be called in case of alarm. For example, the parameter "C:\Alarm.txt" means for the program

c:\windows\notepad.exe that in case of alarm Notepad will open and display the file c:\alarm.

In addition, macros can be entered for call parameters and will be expanded as follows in case of alarm:

Macro	Expansion to	Example
%1	Channel	0.2
%2	Comment	Inside Temperature
%3	Event	Limit Exceeded
%4	Time of Alarm	24.9.1999, 14:32:00

In case of alarm (e.g. Channel 0.2 has exceeded limit) the call parameters „%1 %2 %3 %4“ would be transferred to the program to be called as “0.2 inside temperature limit exceeded 24.9.1999, 14:32:00”

Example:

The database software DatBank captures new alarm entries into its database via the command `C:\DatBank\DatBank.exe append <Channel> <Comment> <Event> <Time>`.

In order to activate these entries via NGA WinControl, the following setting must be made:

In the field “Program”: c:\Datbank\Datbank.exe

In the field “Call Parameter”: append %1 %2 %3 %4

... create a project drawing

To create a project drawing, execute the menu function *Data / New Project Drawing*.

The dialogue box “Project Drawing Properties” will appear, and you stipulate the size of the image and decide whether you want to use a grid as a drawing aid. This dialogue box can be called at any time to make changes to the properties of the project drawing.

After confirming with *OK*, an empty window will appear, in which you can now display the desired elements. This can be done with the help of the functions in the menus *Objects*, *Edit* and *View* as well as a context-sensitive menu. The menu *Object* is only visible when the project drawing is activated.

The function *New Data Field* opens the dialogue “Data Field Properties”. You can choose the desired channel from the list of channels in the system. Each field can contain a channel. After choosing the channel, you can stipulate font, colour and background colour,

In the same way a text field is defined via the function *New Text Field*. Instead of choosing a channel, you now enter the desired text in the dialogue “Text Field Properties”.

A graphic can be loaded via the function *New Bitmap*. A standard file dialogue will appear, in which you can select the desired graphic as bmp file and load after confirmation with *OK*. The size of the graphic can be changed by clicking with the left mouse button and dragging the image.

All three types of objects are positioned by selecting the desired object (single mouse click with the left mouse button) and moving the mouse pointer while keeping the mouse button pressed.

... automatically store several files onto the hard disk per day

In order to automatically store several files onto the hard disk per day, the following steps are to be carried out after calling the function *Data / AutoSave* in the dialogue “AutoSave”:

- Selection of the start option “Timed”
- Stipulation of start time (do not enter date!)
- Stipulation of duration
- Activating of the option “Repeat immediately after expiration”

After the measurement has started, data file with the stipulated duration are automatically created. File names are allocated automatically. They are formed according to the following principle, depending on date and time of creation: yymmdd-hhmmxx. The variable “xx” is a counter for the (theoretical) case that several files are created at exactly the same time.

... create averages for definable time areas (e.g. daily or hourly averages)

The function *File / Data Reduction* was introduced for the evaluation and reduction of saved data.

After calling the function *File / Data Reduction*, the dialogue “Data Reduction” will appear, in which a cycle time can be selected during which cyclical averages are calculated. A new file is created, which contains all channels chosen from the list of the original file and whose data are the calculated cyclical averages.

This function is only available when the data set that it can be applied to is displayed in the active window.

... working with several instances of NGA WinControl

For administration of several (independent) measurement systems with one PC, NGA WinControl can be loaded on one PC more than once. The following functions are available for structured work with several instances of NGA WinControl:

Automatic Programme Numeration

The first instance of NGA WinControl works as usual, the second will automatically be given the title “NGA WinControl (2)”, the third will be “NGA WinControl (3)” etc. The numbering will continue until the last instance of NGA WinControl has been closed.

Automatic Administration of Initializing Files

Corresponding to the automatic generation of a title, the initializing file will be determined automatically, unless otherwise agreed when starting the programme. The second instance will use the file `nga_2.ini`, the third one the file `nga_3.ini` etc.

User-Defined Main Window Titles

It is possible to determine in the corresponding initializing file `nga.ini` or `nga_n.ini` which title is to be shown in the main window and thus in the task bar. Enter `Main Title="Desired Name"` in the section `[Settings]`. Empty names are not permitted. The name should not consist of more than 256 characters.

... define a default directory for data files

To save data files at the same location in the directory, enter `DefaultSavePath=Target Directory` into the initializing file `nga.ini` or another configuration file in the section `[Settings]`.

The *Target Directory* must be an existing directory, and the complete path must be entered.

Example:

[Settings]

`DefaultSavePath = C:\My Documents\ngafiles`

If the menu function "File\Save as..." or, for files that have not been saved, "File\Save" is called, a file dialogue with the *Target Directory* will appear, and the user only has to enter the file name.

OLE server registration in Windows 2000

In Windows 2000 and XP, stricter limitations have been implemented for users with simple user rights. As a consequence, an error message might be returned when updating the internal OLE server during NGA WinControl startup.

In order to suppress this message, the registration process can be deactivated. In the section `[Settings]` of the initializing file `nga.ini`, enter **RegisterOLEServer=0**. To activate registration, delete this entry or change it to **RegisterOLEServer=1**.

Useful hints!

Following installation (to be carried out by an administrator), the programme should be restarted under the administrator's account for correct installation of the OLE server. Then the above entry can be made into `nga.ini` and the program run with user rights.

Creating line diagrams from a template

New line diagrams can be created via a split icon in the tool bar.

As usual, a dialogue for the creation of a new line diagram is opened when clicking on the left part which shows a diagram.

Clicking on the right part of the icon (triangle) will open a menu which lists all templates available in the program directory or any defined directory (see below). If an entry is selected by mouse click, the program will create a new line diagram with the settings from the template, including channels. The property dialogue for line diagrams is only displayed if no template could be found in the respective directory.

In order to set a different source for the templates to be listed, enter `TemplatePath = target directory` into the section `[Settings]` of the file `nga.ini`. The target directory has to be entered as an absolute path, including drive.

Example

```
[Settings]
TemplatePath = C:\My Documents\NGA WinControl Data\Templates\
```

APPENDIX

Formulae

Numerical values

Integer and floating point decimal values are accepted. Floating point decimals may contain decimal points, but not decimal commas. "Pi" can also be used for numerical constants. Examples:

1 1.5 -0.567 4.578e-3

Operands

As well as the standard mathematical operands (+ - * /) you may also use exponentials using the "^" operand. Examples:

3 * 9 -5 2^ 16 17.5/(12.5-7)

Functions

All function names must appear in lower case letters. The following functions can be used:

abs(x)	Absolute value
sqrt(x)	Square root
sin(x)	Sine
cos(x)	Cosine
tan(x)	Tangent
cot(x)	Cotangent
arcsin(x)	Arc Sine
arccos(x)	Arc Cosine
arctan(x)	Arc Tangent
arccot(x)	Arc Cotangent
exp(x)	Exponential function
ln(x)	Logarithm, base e
lg(x)	Logarithm, base 10
sinh(x)	sinhHyperbolic Sine
cosh(x)	Hyperbolic Cosine
tanh(x)	Hyperbolic Tangent
int(x)	Integer of x
bin(x)	1 if greater than (>) 0. Otherwise 0 (zero)
rad(x)	Radian - Convert an angle from degrees to radians
min(x, y)	Minimum of x and y
max(x, y)	Maximum of x and y
If(Condition; then; else)	If the condition is fulfilled (true), the "then" value is returned, oth-

Condition1 and Condition2	erwise the "else" value. (cf. Conditional values) Returns the condition "true", if both Condition1 and Condition2 are "true", otherwise "false".
Condition1 or Condition2	Returns the condition "true", if either Condition 1 or Condition or both are "true", otherwise "false".
Not Condition1	Returns the reverse of Condition 1: if Condition 1 is "true", the value "false" is returned and vice versa.
extnear("File Name", x)	An external function (see below) is read from the file "File Name", consisting of value pairs (a, b) for which the following applies: $b = f(a)$. From these pairs the one with the minimum distance $ a-x $ and the corresponding value $f(a)$ is chosen.
extinter("File Name", x)	An external function (see below) is read from the file "File Name", consisting of value pairs (a, b) for which the following applies: $b = f(a)$. The value $y = f'(x)$ is returned, with f' resulting from a linear interpolation of the value pairs.
m(a, b) or m(b)	The value of the channel with the device number a (or 0) and the channel number b (see below "Values of other channels")
dt(a, b) or dt(b)	Numerical derivative ($\Delta x/\Delta t$) of the two latest values of channel a.b
h(a, b, n) or h(b, n)	History, n-latest value of the channel a.b. n=0 returns the latest, n=1 the last but one value etc.
mean_n(a, b, n) or mean_n(b, n)	Returns the floating average of the channel a.b for the last n values.
mean_t(a, b, t) or mean_t(b, t)	Returns the floating average of the channel a.b for the last t seconds.
S(a, b, t)	Returns the integral for the last t seconds of the channel a.b
sec(hh:mm:ss)	Converts time indicated in hours, minutes and seconds into seconds.
pid(a,b, V _P , V _i , V _D , t,)	Calculates the regulation variable y for the channel a.b with the proportional quota V _P , the integral quota V _I and the differential quota V _D based on the latest time period t.
time	The function <code>time()</code> supplies a figure which corresponds to the amount of seconds that have passed since midnight. The time is calculated based on the clock integrated in the PC, so that a new value is returned every second. Manipulations to the time setting have a direct effect on the value calculated by <code>time()</code> .
date	The function <code>date()</code> supplies a figure which corresponds to the amount of days that have passed since 1 January, 2000. The date is calculated based on the date set in the PC. A new value is returned every day. Changes to the date settings on the PC have an effect on the result given by <code>date()</code> .
days	The function <code>days(YYYY/MM/DD)</code> supplies the number of days between 1 January, 2000 and the date defined by YYYY/MM/DD. YYYY = Year, four digits between 2000 <= YYYY < 2037 MM = Month, one or two digits between 1 <= MM <= 12 DD = Day, one or two digits between 1 <= DD <= 31 If the values for year, month and day are outside the defined area, the calculation channel in which this function is used will be rendered invalid ("Rupture of detector").
alarmactive()	Returns the value TRUE in case of an alarm situation, regardless

of whether the user has confirmed an alarm. If no alarm situation prevails, the value FALSE will be returned.

If the alarm function has not been released, an invalid value will be returned (→ detector fraction) to indicate that this function cannot return a meaningful value.

alarmsuppressed()

If the user has confirmed an alarm but the reason for the alarm prevails, the alarm will continue to be active, but will be suppressed until the reminder period has elapsed. Suppressed alarms can be identified in calculation channels. The value TRUE is returned if an alarm is being suppressed. Otherwise the value FALSE will be returned.

If the alarm function has not been released, an invalid value will be returned (→ detector fraction) to indicate that this function cannot return a meaningful value.

Values of other Channels

It is possible to use values recorded by other channels using the pseudo-function “m(y)”, “m(x, y)”. Whereby “x” represents the device number (ALMEMO only) and “y”, the channel number. If no device number is given, then it will default to 0 (zero). Any expression can be used for device and channel numbers. For example, m(4/3) will be evaluated as m(1).

Calculation channels are capable of accessing the data of other calculation channels. This only functions for descending calculation channels. For example, a calculation channel that has been assigned channel number 110 can read data from a calculation channel with the channel number 100. However, channel 100 cannot read data from channel 110.

Recursions are possible: if the formula of a calculation channel accesses the value of this channel, that value is returned which the calculation last had. This way it is possible to define e.g. counters, sums or averages throughout the measurement. It is important that a starting value is given for recursive formulae. When the measurement starts, the value of the calculation channel is set to this start value in order to obtain a defined status.

When referencing non existent channels, no error message will be displayed. In addition, no values can be calculated.

External Functions

External functions are functions of the form $y = f(x)$, which are saved in the form of value pairs in ASCII files. The following applies for the file format:

- Each line contains a value pair.
- The rules for display of numbers in the file are the same as within the calculation channels themselves (cf. “Numerical Values”).
- For increased clarity, empty rows and comment rows are allowed. Comment rows begin with a semicolon (;) and may contain a maximum of 200 characters.
- Outside the defined area of this function, the value “invalid” will be returned.

For reasons of performance, each file is only loaded once into memory per measurement. That means that changes to ASCII file are only effective when the measurement is stopped and then continued.

Example:

Average of the channels 1 and 2:
 $(m(1) + m(2)) / 2$

Scaling of a value:
 $(m(2,6) - 30.5) * 19.7$

Minimum of two channels:
 $\min(m(0, 10), m(1, 10))$

Maximum of all values of a channel:
 $m(80, 0) + 1$: Counter: the formula of the calculation channel 80.0 is defined.

$m(80, 1) + m(80, 0)$ Stipulated for the calculation channel 80.1 as sum of the previous value and the new value of channel 80.0

$\max(m(1, 0), m(80, 0))$: Maximum of all values of channel 1.0 throughout the measurement (the formula of the calculation channel 80.0 is defined)

Condition:

If (valid(m(0,0)); m(0,0); 12): Returns the value of the channel 0.0 as long as it has a valid value, otherwise the value 12.

If (valid(m(0,1)) and valid(m(0,2)); if (m(0,2) > 0 or m(0,2) < 0; m(0,1) / m(0,2); 0); -1): If the channels m(0,1) and m(0,2) return valid values, it is tested whether the value of m(0,2) is unequal 0. If that is the case, the result m(0,1)/m(0,2) is returned, otherwise 0. Should only one of the two channels be invalid, the result -1 is returned. This example shows that the if function makes sure that only valid values are contained (here: avoid division by 0) and that this value can signal certain states: -1 if invalid channels are accessed, 0 if division by 0 was avoided.

Condition:

If (valid(m(0,1)); if (m(0,1) >= 0; sqrt(m(0,1)); -1); -2): If m(0,1) returns an invalid value, -2 is returned, if m(0,1) is negative, -1 is returned, and if m(0,1) is valid and positive, the square root is returned. The formula can also be formed the other way round: $\text{sqrt}(\text{if}(\text{valid}(m(0,1)); \text{if}(m(0,1) \geq 0; m(0,1); 0); 0)$. This is to avoid that the square root is formed from a negative number or an invalid channel, however, a status cannot be returned: if there is no positive, valid number behind m(0,1), 0 is taken.

Derivative:

The formula dt (1, 0) delivers a numerical approximate value for the first derivative of the value of the channel 1.0.

Example:

Value of channel 1.0 at the time t0 = 10:00:00 is 3,0

Value of channel 1.0 at the time t1 = 10:00:01 is 6,0

At the time t1, the calculation channel with the formula dt(1.0) returns the value

$$\frac{\Delta x}{\Delta t} = \frac{6-3}{1s} = 2.$$

Integral:

The numerical approximate value is formed for the integral over the last 3 seconds of the channel 1.0:

$$S(1, 0, 3)$$

If the last value of the channel 1.0 has the value 20 at the time t₀ and the value of 3 seconds before is 10, the calculation channel with the formula S(1,0,3) returns the value

$$\int_b^a \frac{(10+20)}{2} * 3 = 45 \text{ . at the time } t_0.$$

Warning! Only the actual values during this time interval can be used for calculations. That means that any value even only slightly outside this interval and thus the area below the curve between this value and the one that was last used cannot be considered!

Warning! The number of values within the given time interval must not exceed the value stipulated in the initialising file NGA32.ini under HistorySize (Section [Settings], default=100). These values would not be considered in the calculation. In that case, select a smaller time interval or increase the number of values allowed in the History.

Average over one minute (smoothing):

`mean_t(1, 1, 60)` or `mean_t(1, 1, sec(00:01:00))`:

Starting from the time of the current value, all values of the channel 1.1 received within the last 60 seconds are averaged.

Transferring larger time units into seconds:

This function is designed as a help function for such functions that expect indication of time in seconds. In order to avoid having to calculate "manually", the function `sec(...)` is available.

Hours to seconds: `sec(01:00:00)` returns 3600

Minutes to seconds: `sec(00:10:00)` returns 600

Of course, combinations are possible:

`sec(01:10:10)` returns 4210

`sec(00:01:10)` returns 70 etc.

Average of 7 values (smoothing):

`mean_n(1, 1, 7)` : Starting from the current value, the last seven values that have been received from channel 1.1 are averaged.

Provision of values of previous measurement cycles

This function is designed as a help function for formulae that require access to values of previous measurement cycles.

`h(2, 1, 4)` : For the channel 2.1 with the values 1, 2, 3, 4, 5, 6 this function returns the value 2.

External functions:

File format: A file with value pairs of external function looks as follows

;a comment, no more than 200 characters

;in the next row are the actual values

0.1, 2.3

2.0000, 79098.8888

2.0001, -34.9

5, 5

7, 7

;end of file

`extnear("F:\Daten\extern.dat", 2)` returns, for the above-mentioned sample file, the value 79098.8888. Any other value can replace the constant 2, as long as it returns a value, e.g. `extnear("F:\Daten\extern.dat", m(1))`

`extinter("F:\Daten\extern.dat", 6)` returns, for the above-mentioned sample file, the value 6.0. In this case, the constant 6 can also be replaced by any other value that returns a value, e.g. `extinter("F:\Daten\extern.dat", m(1,2) * m(2,4) / m(3,1))`

Calculation Function "pid": The function "pid" has been implemented for use in the calculation formulae. It represents a PID controller.

It is based on the following formula: $y = V_P \cdot x + (V_I \cdot \int_{t_0-t}^t x dx) + V_D \cdot \frac{dx}{dt}$

The syntax of the pid function for the calculation channels is:

pid (device, channel, V_P , V_I , V_D , t).

This is the connection between the formula and the pid function:

pid function	Formula	Explanation
<i>Device</i> = Device number	x	Controlled variable
<i>Channel</i> = Channel number		
V_P	V_P	Factor for proportional quota
V_I	V_I	Factor for integral quota
V_D	V_D	Factor for differential quota
t (in seconds)	t	Time period for integration / differentiation
Result	y	Regulation variable

Example:

pid(80,0, 0.12, 0.5, 4.2, 30) calculates the regulation variable y for channel 80.0 with $V_P=0.12$, $V_I = 0.5$ and $V_D = 4.2$ based on the last 30 seconds.

The function pid can be in a channel alone or can be joined in one formula with different values.

Date and Time **Task:** During a long-time measurement, relays have to be switched on at a certain date (31 July 2002). Automatic switch-off is not provided for.

Solution: A calculation channel (here: 80.7) is created with the following formula:

`if(date() >= days(2002/7/31); 1; -1)`

i.e.: if the current date is higher than or equal to 31 July 2002, the calculation channel 80.0 will return the value 1, otherwise (i.e. all days before 31 July 2002) the value -1.

Task: An output relay is to be switched on every day at a certain time (9:00:00) and switched off after a defined period of time (2 hours).

Solution: A calculation channel (here: 80.8) is created with the following formula:

`if(time() >= sec(9:00:00) and time() < sec(11:00:00); 1; -1)`

i.e.: as long as the current time is higher than 9:00:00 and lower than 11:00:00 (= 9:00 + 2 hours), the relay is switched on. Before and after that period of time, the relay will be switched off.

Warning! If an invalid date has been entered (e.g. 31 February 2001), the calculation will be based on the date that corresponds to the number of days in that year.

→ 31.02.2001 = 03.03.2001

→ 31.04.2002 = 01.05.2002

etc.

Useful Hints! The functions of date and time can be combined with each other and with other functions, e.g. `date() + 1`, in order to obtain a value for "the day after tomorrow". `sin(time())` is also possible, even though it probably won't be required.

It is not possible, however, to replace numbers in the functions `days` and `sec` by function calls. `sec(m(80,0):m(80,1):m(80,2))`, for example, would result in a syntax error while being entered.

Decimal Separators and Channel Descriptions

Please note that in the formulae, device number and channel number are separated by a **Comma**. Decimal separators are given as **Periods** in the formulae.

Connecting a modem to a measuring device

Once your computer has been connected to a modem it is also necessary to connect the measuring device to the second modem. To do so, you will require a null modem cable.

As it is not possible to configure a modem using the measuring device, you must do this with the computer. This configuration should then be saved.

Establish a connection to a measuring device

Connecting a Measurement Device to your PC

Make sure that your device is equipped with a serial interface and find out whether it is an RS232 or an RS485 interface.

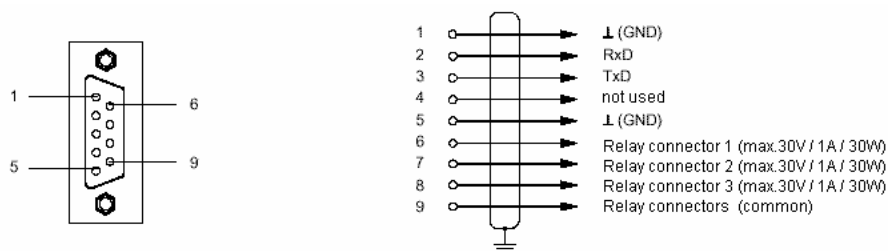
Please make sure that your PC has one free interface (RS232 or RS485, depending on your device). Use a peripheral interface adapter (RS485 \Rightarrow RS232) if your device operates with the RS485 and your PC with an RS232 interface.

If you want to connect a system with several devices, the use of the RS485 interface is compulsory. In this case you also have to make sure that each device is allocated a different device address. Follow the instructions in the device manuals.

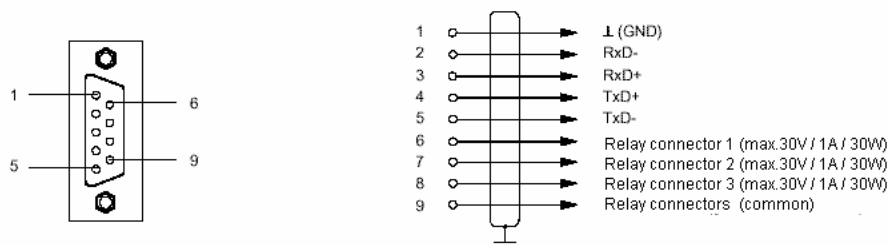
To connect the device with the COM-Port **it is necessary to use a “Zero Modem Cable” and a Gender Changer**. Please also attend hints in the section “Layout of serial connector of MLT” [on page 114](#) and “Layout of serial connector of BINOS E” [on page 115](#). Refer to the pictures below for assignment.

Please consider the connection instructions in your device manual, especially the EMV regulations!

Layout of serial connector of MLT

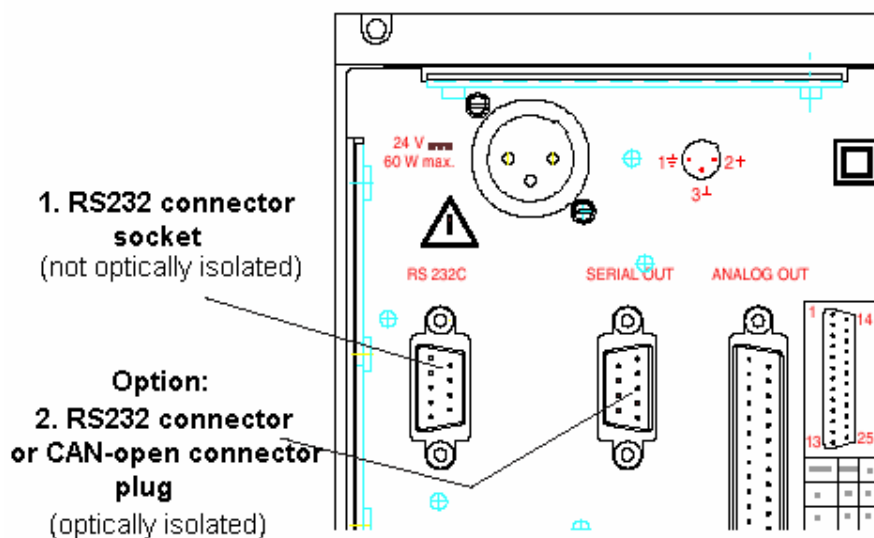


Socket Layout Relay Outputs / serial connector RS232 (Option SIO)

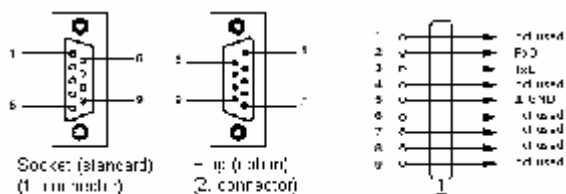


Socket Layout Relay Outputs / serial connector RS485 (Option SIO)

Layout of serial connector of BINOS E



Connection PC - BINOS[®] E (serial connector RS232)



Settings in NGA WinControl

Open the dialogue "Interface Settings".

Select the interface at which your device is connected to the PC.

Determine the baud rate for data transfer (default 19200).

Find out the hardware address of the device in use and enter it into the entry field device number (default 0 – 0).

Data formats of the Export Function

Text

The structure of the ASCII file to be exported can be configured individually. The button *Text Format* opens the dialogue "Text Format", in which you can determine the precise settings (positioning of values, field separators, decimals, comments, date/time, channel information) for the ASCII file.

Famos

If the format "Famos" is selected, files are exported in the Famos format version 3. The Famos format version 2 is available as an optional version. To activate it, enter "FamosFormat=0" in the section [settings] of the file `nga.ini`. After starting the program, the old format is available for export.

Lotus WK1 (Excel)

The format WK1 is available for the export of data into a spreadsheet program. This format can be read by all known spreadsheet programs (e.g. Excel, Quattro Pro, Lotus 123)

Binary

Choose this format to export data as pure binary data.

QS-STAT

If you select the format "QS-STAT", data is exported in a format that can be read by the software QS-STAT of the company Q-DAS GmbH, which is frequently used in the automobile industry.

DIAdem Format

If you select the format "DIadem", data is exported in a format that can be read by the software DIadem of the company GfS Aachen.

Glossary

Serial Number

In the dialogue "NGA WinControl License Information" in this field the serial number is shown. Please refer this number for registering software.

Max Evaluation Time

In the dialogue "NGA WinControl License Information" in this field the max evaluation time is shown.

Remaining Evaluation Time

In the dialogue "NGA WinControl License Information" in this field the remaining evaluation time is shown.

Unlock Code

Enter in the dialogue "NGA WinControl License Information" in this field the unlock code. Register the software, to get the unlock code.

Calculation Channels

Using the formula editor, you can define the settings for a calculation channel. The polled data can be calculated and displayed both on and offline. A calculation channel can be defined as global (that is it is available to the whole system) or as local (where it is only available in a certain diagram or table).

Context Menu

The most important functions that can be used within an active window can be accessed via the context menu. To open a context menu, click in the window with the right mouse button.

DDE

Dynamic Data Exchange: A method of data transfer that can transfer data from one Windows application to another without having to copy anything to the clipboard or having to save and reload a file.

Properties Dialogue Box

Nearly every NGA WinControl window has a properties dialogue box. In this dialogue box you can view and change a window's properties.

Channel List Window

A list of all channels that are available to your system. This list is made up of the following components: Comments, device, channel, unit, sensor type, limit values, correction values, plus the icons for showing limit excesses, sensor errors and the AutoSave function.