MANUAL

VAZ-SW-ACT32
AS-i Control Tools
from Version 4.6.7
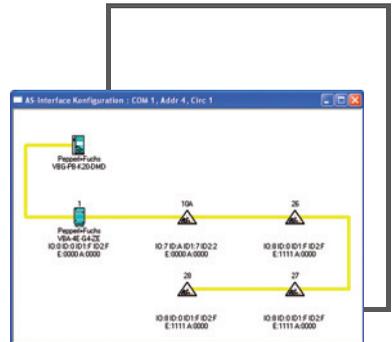
![PEPPERL+FUCHS]
SENSING YOUR NEEDS

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Contents

1 Explanation of symbols

STOP Warning	This symbol warns the user of possible danger. Not following this warning can lead to personal injury or death and/or destruction of the equipment.

⚠ Attention	Pay attention to passages marked with this symbol. Failure to observe the provided instructions could lead to personal injury or damage to equipment.

Note	This symbol draws the user's attention to important information.

1.1 Abbreviations

AS-i   AS-interface (actuator sensor interface)

ACT   AS-i Control Tools

LDS   List of Detected Slaves

LAS   List of Activated Slaves

LPS   List of Projected Slaves

LCS   List of Corrupted Slaves

2 Features

AS-i Control Tools is a Windows software for the comfortable commissioning of the AS-interface and the programming of AS-i Control with Instruction List (STEP 5®). The following features apply to AS-i Control Tools from Version 4.6.7:

General Information

- Now with full support of all features of the AS-i specification 3.0
- full downward compatibility to Pepperl+Fuchs Master of AS-i specification 2.0 and 2.1
- full support of AS-i Safety at Work
- operating system: Windows 2000, Windows XP, Windows NT4 and Windows Vista
- comprehensible operator guidance
- simple installation
- languages: English/German
- extensive help menu

AS-i Configuration Editor

- tool for putting AS-i into operation
- display of the actual configuration on the AS-interface (slave profiles in plain text)
- AS-i circuit can be displayed graphically with icons for AS-i Master and AS-i slaves

Complete diagnostics of AS-i circuit

- comparison of actual configuration with the projected configuration
- programming of slave addresses
- projecting of the actual configuration
- reading of inputs (digital and analogue)
- writing of outputs (digital and analogue)
- writing of parameters
- projecting of individual slaves
- reading and writing of strings, if slaves provide the corresponding functions

AS-i Instruction List Editor (IL)

- editor for the generation of AS-i Control programs as Instruction Lists (orientated to STEP 5®)
- download Instruction Lists
- AS-i Control program Syntax Check
- AS-i Control program start/stop

AS-i Instruction List Debugger, AS-i Instruction List Simulator

- graphic representation of inputs and outputs, timers, counters and flags. Additionally, process data can be overwritten by the user.
- testing tool for the AS-i Control program with a projected AS-i circuit (debugger)
- testing tool for the AS-i Control program without there actually being an AS-i circuit (simulator)

Complete diagnostics of AS-i Safety at Work circuit

- diagnostics of code sequences
- diagnostics of Safety Monitor
- status of Safety-Slaves
- status of release circuit

Other Functions

- AS-i Address Assistant
- advanced AS-i Diagnosis

3 First Steps

System Requirements
Installation of the Software ACT
Removing of previous versions of ACT
Registration of the software
Help
Building up the Communication with an AS-i Master
Putting AS-i into Operation
Working with AS-i Configuration files (*.acg)

3.1 System Requirements

For proper operation of AS-i Control Tools (from now on called "ACT" in this document) your system should meet at least the following requirements:

- Windows 2000, XP, NT4 or Vista
- PC with Pentium III processor or higher
- CD-ROM or DVD drive
- hard disk drive with 512 MB RAM and about 20 GB free space

3.2 Installation of the ACT Software

For the installation of the ACT software Windows must run on your computer. Put the installation disk into the CD-ROM or DVD drive and start the installation program **setup.exe** with the command **Execute**. The installation program leads you through all necessary inquiries and creates a new Windows program group, if desired.

If you use certain PC cards (AS-Interface PC2 Card bzw. AS-Imterface PC/104 Card) it may be possible that you have to confirm the activation of the drivers for this cards separately while installing ACT.

If there is an older version of ACT on your PC, you have to uninstall it before installing the new version. Alternatively you can install the new version into another directory. Please save the Registration Numbers before uninstalling the older version of ACT to reuse them later if necessary.

3.3 Removing of the ACT software

The removing of AS-i Control Tools is very simple and comfortable. Just open the devicemanager of your Windows operating system and activate the deinstallation program for ACT in the system control program.

⚠️ **Attention**

The deinstallation program for ACT removes the device list (file devlist.txt) which is created by the grafical AS-i Configuration editor. If you want to re-use this device list in the new version of ACT, you have to save the the file devlist.txt before deinstalling the old version. After installing the new version, copy the file into new program directory (this will overwrite the installed original file).
AS-i Configuration files (*.acg) won't be removed by the deinstallation program.

3.4 Registration of the Software

After installing the software you should enter your registration codes. Use the command **Registration** in the **Help** menu.

First Name:	Last Name:

Company:

Code for basic version:

Code for AS-Interface Control extension:

Code for Advanced AS-Interface Diagnosis

Help	Cancel	OK

The input of the corresponding codes allows the **licensing of the basis software** as well as the **enabling of AS-i Control functions** for programmes larger than 600 Bytes and the **use of extended AS-i diagnostics and interface functions**.

If your software CD does not include the registration codes, please contact the software producer to ask for the adequate codes.

Please save the Registration Numbers after installing ACT to reuse them later if necessary. If they get lost the codes have to be purchasede again.

After inserting the codes the software can be used with the extended functions.

ℹ️ **Note**

Without registration codes the diagnostics and interface functions and the extent of the AS-i Instruction Lists are available only with limited funtionality. But the functions that can be used have complete operability. If you do not registrate your copy of ACT during the installation the program reminds you at regular intervals.

3.5   Help

If you need help to a certain topic choose one of the help commands in the **Help** menu or use the **context help**.

(see toolbar ![help icon])

3.6   Building up the Communication with an AS-i Master

After the first start of AS-i Control Tools the software is in the offline mode. In the **Master** menu the entry **offline** is checked. In addition to that the title bar of the window **AS-i Configuration** shows the type of the AS-i Master and other communication parameters. While the software in in the offline mode, the title bar entry is **Offline**.

Building up the communication with a new AS-i Master

1. Connect an AS-i Master to your PC (connection to a serial interface, a Fildbus-interface or installation of an AS-i PC board).
2. Choose the command **New** in the **Master** menu.
3. Choose the protocol (**Standard**, **Modbus**, **Profibus** and so on).
4. Choose also the other communication parameters (e.g. serial interface or I/O-port etc., depending on the protocol).

Confirm with **OK**.

AS-i Control Tools now builds up the connection to the selected AS-i Master.

> ⚠ **Attention**
>
> *All changes of the AS-i data made with ACT are now carried out directly by the connected AS-i Master!*

3.7   Putting AS-i into Operation

If you want to put AS-i into operation, start the AS-i configuration editor with command **AS-i Configuration** in the **Master** menu. More informationen to the AS-i configuration editor can be found in the chapter **Master Menu** (see page 28).

3.8   Working With AS-i Configuration Files (*.acg)

Saving and Loading an AS-i Configuration

An AS-i configuration can be stored to an AS-i configuration file with the command **Save Configuration to File** in the **Master** menu. This way you can create an AS-i configuration offline and load and write it to the AS-i master later on with the command **Write Configuration to the AS-i Master**.

Copying an AS-i Configuration

If there are one or more equal or similar AS-i circuits in the plant, you can save the AS-i configuration to different files with the command **Save Configuration to File**.

Documentation of the Plant

The AS-i configuration files are readable text files with the suffix .acg. They can be opened with the command **Open** in the **File** menu and printed for documentation purposes.

4 AS-i Control Programs

AS-i Control programs are control programs that are processed in the AS-i Master. To execute certain functions the AS-i Master may have to be activated (see page 59). They are written in a syntax similar to STEP 5® (or in 8051-assembler). These AS-i Control programs written in instruction list or assembler have the file suffix *.asi.

With AS-i Control Tools you can execute, debug or simulate AS-i Control programs.

After the start the software is in **execute** mode. You can start the AS-i Control program stored in the AS-i Master (if there is a programm in the AS-i Master), stop it or upload it into a new editor window.

Changing to **debug** or **simulation** mode is only possible if there is an AS-i Control program in an editor window (use the command **Open AS-Interface Control Mainfile...** in the **File** menu). Change to another mode of operation by using the commands of the **Program Control** menu.

You can watch and partly change the AS-i process data with various monitor windows (see **Window** menu).

4.1 Creating an AS-i Control Program

New or existing AS-i Control programs can be edited in the **Open AS-Interface Control Mainfile...** editor window (**File** window). With the Ins key you can toggle between insert and overwrite mode.The **Edit** menu gives you an overview of the edit commands.

The syntax of this type of programs is described in the manual AS-i Control. Examples you can also find in the file folder **...\Samples\English** in the directory of **AS-i Control Tools**.

Note
*AS-i Control programs can be written in English or German syntax. Compiling an AS-i Control program with German syntax with the English version of AS-i Control Tools will cause syntax errors.The language of the syntax of the **AS-Interface Control Mainfile** can be defined for safety reasons: **[program:de]** or **[program:en]***

Note
*The file format of instruction list documents is plain ASCII. Therefore you can use the editor of your choice (or any word-processing program with ASCII import/export feature) to create or modify an AS-i Control program. Simply load it into the application with the **Open AS-Interface Control Mainfile...** command from the **File** menu afterwards.*
German umlaut and additional caharcters may cause problems of displaying because of the different symbol set of DOS and Windows and should be used only for comments.

4.2 AS-i Control Demo-Programs

There are several samples of AS-i Control programs in the subdirectory **AS-Interface Control Tools\Samples\English or ...\Deutsch**. You can use these demo-

programs to familiarize yourself with AS-i and the programming language. Further information can be obtained from the manual AS-i Control.

4.3 The First AS-i Control Program

Among others we have prepared the demo-file **First.asi** for you. It requires two AS-i Slaves with the profile 2I/2O (2 inputs / 2 outputs). This demo-program reads two inputs of two AS-i slaves and produces the result on the outputs of these AS-i slaves.

We'd like to invite you to go through this demo now to find out about the possibilities of different modes of operation (**Execute**, **Debug** and **Simulate**).

What shall I do?/What happens?	How do I have to proceed?
Please open the file **First.asi** in the directory **...\Samples\English**.	Click **File**, then **Open AS-Interface Control Mainfile**. Double-click the directory **...\Samples\English** and select the file **First.asi** from the file list by clicking on it. Press **OK**.
Now a document window which contains **First.asi** appears in the application window.	
Change to Simulate mode.	Click **Progam Control**, then **Simulate**.
AS-i Control Tools checks the syntax and consistence of the program and compiles the program.	Press **OK**.
Open the input monitor and the output monitor.	Click **Window**, then **Input Monitor**. Again click **Window**, then **Output Monitor**.
Now the input and output monitors appear overlapping in the application window.	
Arrange the windows next to each other.	Click **Window**, then **Tile**.
Start the simulation.	Click **Program Control**, then **Start**
The simulation is running now.	
Set input 3 of slave 1 (E1.3).	Click right on the respective slash in the input monitor.
Instead of the dot an X appears in the input monitor to indicate that the bit is set now. After that the simulation of **First.asi** sets output 1 of slave 1. This is displayed as an X at the respective spot in the output monitor.	

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What shall I do?/What happens?	How do I have to proceed?
You can do the same thing now for the other programmed inputs E1.2, E2.2 and E2.3, too. Of course you can also reset the inputs again simply by clicking the respective dot. The control program then resets the corresponding output.	
Stop the control program.	Click **Program Control**, then **Stop**

In the next step we want to build up and debug the AS-i circuit which we have only simulated so far.

What shall I do?/What happens?	How do I have to proceed?
Connect an AS-i Master to your PC.	
Set the options for the communication between PC and AS-i Master.	Building up the Communication with an AS-i Master (**Master...New...**, see page 25)
Switch to Debug mode.	Click **Program Control**, then **Debug**.
For that purpose the instruction list **First.asi** has to be active. If not, activate the window with the file **First.asi**.	Click the window **First.asi** or click **Window**, then the menu item **First.asi**.
AS-i Control Tools checks the syntax and consistence of the program and compiles the program.	Press **OK**.
Start the program.	Click **Program Control**, then **Start**
Now you can manipulate the inputs of your connected slaves. As a result the corresponding outputs will switch. The inputs and outputs are displayed in the monitor windows for control of their respective states.The user can also switch the inputs and outputs in the monitor windows. As soon as you change the states of a slave in this manner, it is displayed by an X in the row **User**. Now the inputs or outputs of these slaves can not be changed by the control program anymore, until you cancel this modification by clicking the corresponding X in the **User**-row.	
Stop the Control program.	Click **Program Control**, then **Stop**

In the last step we want to load the AS-i Control program into the AS-i Master and start and control it with AS-i Control Tools.

What shall I do?/What happens?	How do I have to proceed?
Switch to Execute mode.	Click **Program Control**, then **Execute**.
Load the control program **First.asi** to the AS-i Master.	Click **Program Control**, then **Write AS-Interface Control Mainfile to the AS-Interface Master...**
For that purpose the instruction list **First.asi** has to be active. If not, activate the window with the file **First.asi**.	Click the window **First.asi** or click **Window**, then the menu item **First.asi**.

What shall I do?/What happens?	How do I have to proceed?
AS-i Control Tools checks the syntax and consistence of the program and compiles the program. The program is loaded into the AS-i Master.	Click **OK**.
Start the program.	Click **Program Control**, then **Start**
As soon as the program is started you can manipulate the inputs of the slaves, after which the corresponding outputs will switch. Inputs and outputs can be supervised in the monitor windows. However, changing inputs or outputs is not possible in the execute mode.	

STOP

Warning

*As soon as the program is started you can manipulate the inputs of the slaves, after which the corresponding outputs will switch. Inputs and outputs can be supervised in the monitor windows. However, changing inputs or outputs is not possible in the **Execute** mode.*

5   File... Menu

```
New                              Ctrl+N
Open...                          Ctrl+O
Close
Save                             Ctrl+S
Save As...

Open AS-Interface Control Mainfile...

Print...                         Ctrl+P
Print Preview
Print Setup...

1 FIRST

Exit
```

5.1   File... New [Ctrl+N]

Use this command to create a new text file. Specify the type of file you want to create:

Instruction list (.asi)*

Files with the suffix asi, are AS-i Control programs.

AS-i Configuration (.acg)*

These files are generated by the command **Save Configuration to File...** in the Master menu. Generating this type of file by the command **New** is possible but is not normally meaningful.

5.2   File... Open... [Ctrl+O]

Use this command to open an existing document in a new window.

The following options allow you to specify which file to open:

File Name

Type or select the name of the file you want to open. This box lists files with the extension you selected in the **List Files of Type** box.

List Files of Type

Select the type of file you want to open:
• AS-i Control programs (Instruction list files) (*.asi)
• AS-i Configuration (*.acg)

Drives

Select the drive in which the file you want to open is stored.

Directories

Select the directory in which the file you want to open is stored.

Network

Choose this button to connect to a network location, assigning it a new drive letter.

You can open several documents at once. You can easily open one of the last four closed files with the **File 1, 2, 3, 4** command.

Use the **Window** menu to switch between open documents (Menu **Window** comand **1,2,...**, see page 57).

You can create new documents with the **New** command.

5.3   File... Close

Use this command to close all windows containing the active document. Before you close the document you are asked to save the changes. If you close a document without saving, you lose all changes made since the last time you saved it.

Before closing an untitled document, the **Save As** dialog is displayed and prompts you to name and save the document.

5.4   File... Save [Ctrl+S]

Use this command to save the active document under its current name and directory.

When you save a document for the first time, the **Save As** dialog is displayed so you can name your document. If you want to change the name and directory of an existing document before you save it, also choose the **Save As** command.

5.5   File... Save As...

Use this command to save and (re)name the active document. The **Save As** dialog is displayed so you can name your document.

The following options allow you to specify the name and location of the file you are about to save:

File Name

Type a new file name to save a document under a different name. Note the possibly restrictions of your operating system when you type in the file name. The file extension you specified in the **Save File As Type** box is automatically added.

Drives

Select the drive where you want to save the document.

Directories

Select the directory in which you want to save the document.

Network...

Choose this button to connect to a network location, assigning it a new drive letter.

To save a document under its existing name and directory, use the **Save** command.

5.6 File... Open AS-Interface Control Mainfile...

Use this command to open an existing instruction list document (*.asi) in a new window as the mainfile of an AS-i Control program.

As soon as you have opened an AS-i Control mainfile the items **Debug**, **Simulate**, **Write AS-Interface Control Mainfile to the AS-Interface Master...**, **Syntax Check** and **Compile** in the menu **Program Control** are available. All these items in the menu **Program Control** refer to the AS-i Control mainfile.

The items in teh dialogbox are the same as with the command **File... Open** and are described there.

5.7 File... Print... [Ctrl+D]
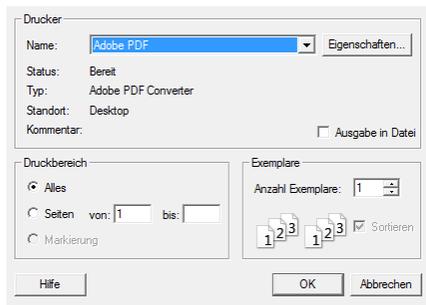
Use this command to print a document. In the Pop-Up window that opens you can select the printer that you want to use. You can also define the pressure range, the amount of copies and other settings concerning the printer.

5.8 File... Print Preview...

Use this command to display the active document as it will appear when printed. When you choose this command, the main window is replaced with a print preview window in which one or two pages are displayed in their printed format. The Print preview toolbar offers you the following options:

Print
Brings up the **Print** dialog to start a print job.

Next Page
Preview the next page.

Prev Page
Preview the previous page.

One Page/Two Page

Preview one or two pages at a time.

Zoom In

Take a closer look at the page.

Zoom Out

View the page to be printed from further away.

Close

Return from print preview to the editing window.

5.9 File... Print Setup...
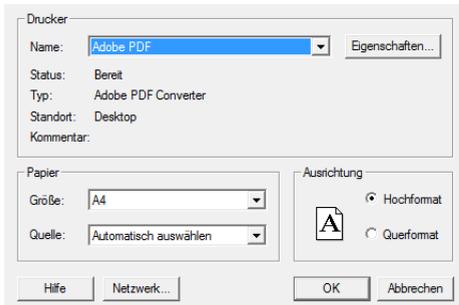
Use this command to select a printer and a printer connection. This command presents the Print Setup dialog, where you specify the printer and its settings. Here you can select the printer that you want to use. You can also define the paper size, the printing format (portrait or landscape format) and other settings concerning the printer.

5.10 File... 1, 2, 3, 4

Use the numbers and file names listed at the bottom of the **File** menu to open one of the last four documents you closed. Choose the number that corresponds with the document you want to open or click with the mouse on its name.

You can also use the New or Open command to create a document window.

5.11 File... Exit

Use this command to end your working session.

The application prompts you to save documents with unsaved changes.

6 Edit... Menu

Undo	Ctrl+Z
Cut	Ctrl+X
Copy	Ctrl+C
Paste	Ctrl+V
Delete	Del
Select all	Ctrl+A
Find...	Alt+F3
Find next	F3
Replace...	
Goto...	Ctrl+G

*The **Edit** menu only appears when a file is open whicht can be edited by ACT.*

Note

6.1 Edit... Undo [Ctrl+Z]

Use this command to reverse the last editing action.

6.2 Edit... Cut [Ctrl+X]

Use this command to remove the currently selected data from the document and put it in the clipboard. This command is only available if you have made a selection.

Cutting data to the clipboard replaces the contents stored there previously.

6.3 Edit... Copy [Ctrl+C]

Use this command to copy selected data into the clipboard. This command is only available if you have made a selection.

Copying data to the clipboard replaces the contents stored there previously.

6.4 Edit... Paste [Ctrl+Y]

Use this command to insert a copy of the clipboard contents at the insertion point. This command is unavailable if the clipboard is empty.

6.5 Edit... Delete [Del]

Use this command to delete the currently selected data. This command is only available if you have made a selection.

6.6 Edit... Select All [Ctrl+A]

Use this command to select the entire document contents for further edit operations.

6.7 Edit... Find... [Alt+F3]
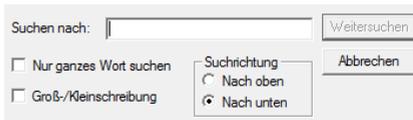
Use this command to find specific text within the document.

In the **Find** dialog you can specify the text, you want to search for and options for how to search:

Search for

Type in the text to search for.

Match Case checkbox

If you mark this checkbox, the string of the text field will only be found in case that the characters match exactly.

Direction

Specifies the direction (up or down) in which the document has to be searched for the string.

Find Next

Use this button to continue the search and to mark the next occurrence of the specified string.

You may repeat your last search with the **Find next** command.

6.8 Edit... Find Next [F3]

Use this command to repeat the last search initiated with the **Find** command.

6.9 Edit... Replace...
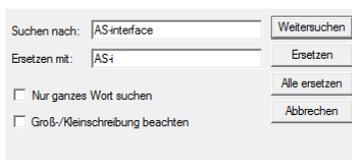
Use this command to find specific text within the active document and replace it with different text.

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The **Replace** dialog lets you specify the texts you want to search for and to replace with and some options:

Search text

Type in the text to search for.

Replace text

Type in the text to replace with. If you want to erase the **Search text**, don't fill in any text here.

Match Case checkbox

If you mark this checkbox, the string of the text field will only be found in case that the characters match exactly.

Find

Use this button to continue the search and to mark the next occurrence of the specified string.

Replace

Use this button to replace the text string found with the **Replace** string. After that, the next occurence of the search string will be searched for.

Replace All

Use this button to find all occurences of the **Search** string and replace them with the **Replace** string without user interaction.

6.10   Edit... Goto... [Ctrl+G]

Use this command to move the cursor to the beginning of the line specified in the **Goto Line** dialog. Type in the desired line number, which has to be at least 1 (first line). If the specified line number is bigger than the number of lines in the current document, the cursor jumps to the last line of the document.

7 Program Control... Menu
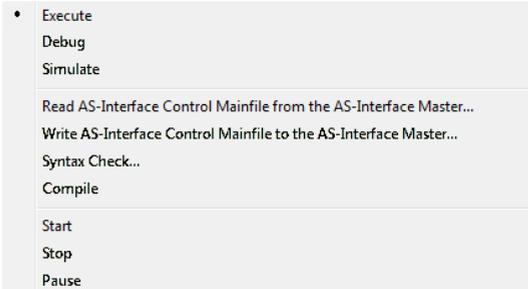
7.1 Program Control... Execute

Use this command to switch to **Execute** mode. Programs that are loaded into the AS-i Master can be run by the AS-i Master now, the PC being only used to start and stop the program.

Stopping the AS-i Control program can be done by the command **Stop** or the command **Pause**. Stopping the AS-i Control program with the command **Stop** deletes the AS-i outputs, stopping it with **Pause** stops the program as well, but the outputs stay as they were set by the AS-i Control program.

While in **Execute** mode, you can display the **Input Monitor**, **Output Monitor** and **Flag Monitor** windows. In contrast to **Debug** mode, you can only change the displayed values in the **flag monitor** window. There is one exception: If the AS-i control program in the AS-i Master is currently stopped, you may also modify the output states.

7.2 Program Control... Debug

Use this command to switch to **Debug** mode. You can only switch to **Debug** mode if an AS-i Control mainfile is open. Switching to **Debug** mode causes a syntax check and compiles the program of the active window.

Programs that are loaded to the master can now be run by the PC. Data is transferred to the AS-i system so that the system reacts as if it is running independently. The program can be started, stopped and paused by ACT.

While ACT is in **Debug** mode you can use the **Input Monitor**, **Output Monitor**, **Flag Monitor**, **Timer Monitor** and **Counter Monitor** windows.

> *The Options and Setup sections of the active control program are ignored as long as you work in the **Debug** mode.*

Note

> **Note**
>
> *Make sure to adjust the desired desktop environment (e.g. monitor windows) before you run a program in **Debug** mode. If you access any menu or a window frame during the program run, a watchdog timeout may occur which stops the AS-i Control programs.*

7.3 Program Control... Simulate

Use this command to switch to **Simulate** mode. You can only switch to **Simulate** mode if an AS-i Control mainfile is open. Switching to **Simulate** mode causes a syntax check and compiles the program of the active window.

The AS-i Control programs now runs completely in the PC. In contrast to **Debug** mode, data is not transferred to the AS-i system. The whole AS-i system is simulated by the PC instead. The program can be started, stopped and paused by ACT.

While AS-i Control Tools is in **Simulate** mode you can use the **Input Monitor**, **Output Monitor**, **Flag Monitor**, **Timer Monitor** and **Counter Monitor** windows.

> **Note**
>
> *The Options and Setup sections of the active control program are ignored as long as you work in the **Simulate** mode.*

7.4 Program Control... Read AS-Interface Control Mainfile from the AS-Interface Master...

Use this command to upload an AS-i Control program from the current AS-i Master into a new file window.

This command reads the AS-i Control program from the memory of the AS-i Master and transfers it (in assembler code) to a new file window. The new file window is generated automatically and gets the name IL plus its own number.

7.5 Program Control... Write AS-Interface Control Mainfile to the AS-Interface Master...

Use this command to download the active AS-i Control program into the current AS-i Master.

This command is only available if an AS-i Control mainfile is open.

After downloading, select **Start** to begin program execution.

7.6 Program Control... Syntax Check

Use this command to check the syntax and consistence of the active AS-i Control program.

This command is only available if an AS-i Control mainfile is open.

> ⃝
> Ⅱ
>
> **Note**
>
> *The syntax differs with the language (English/German). Only programs in the appropriate language will be recognized as valid programs.*

7.7   Program Control... Compile

In **Debug** and **Simulate** mode use this command to compile once again the AS-i Control program of the active file window.

This command is only available if an AS-i Control mainfile is open.

7.8   Program Control... Start

Use this command to start the AS-i Control program in the current AS-i Master.

7.9   Program Control... Stop

Use this command to stop the AS-i Control program in the current AS-i Master or to stop the debugging or simulation of the AS-i Control program, depending on the previously selected mode of operation. This command sets the AS-i Control program to its initial state, i.e. flags and outputs are deleted.

7.10   Program Control... Pause

In Execute mode this command stops the running AS-i Control program without deleting the outputs.

8 Master... Menu

```
New...
Identity...
✓ AS-i Configuration
AS-Interface Diagnosis
AS-Interface Fault Detector
AS-i Safety
Stainless Steel AS-i Safety Monitor
AS-Interface Address Assistant

Insert AS-Interface Slave...

Write Configuration to the AS-Interface Master...
Save Configuration to File...

0 Offline
✓ 1 Standard Protocol Bihl+Wiedemann: COM 5
```
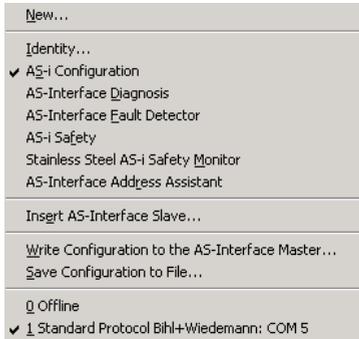
8.1 Master... New...

Use this command to build up the communication with an AS-i Master connected to your PC.

The following pop up window appears:

```
Protocol:  [                              ▼]    [  OK  ]
           RS232 Diagnostic Interface Stainless Steel Gateways  ▲   [ Cancel ]
           Allen Bradley AS-i Master/Scanner
           Ethernet Modbus TCP: via Ethernet                        [  Help  ]
           Stainless Steel AS-i/Ethernet IP Gateway: via Ethernet
           Modbus: RS232 or via RS232/RS485 converter
           Profibus: via mastersimulator or PG                  ▼
```
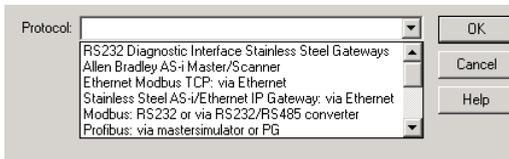
In the drop down list you can select the select the corresponding protocol from the following range:

```
Stainless Steel AS-i/Profibus Gateway
Profibus: via mastersimulator or PG
Stainless Steel AS-i/Modbus Gateway
Stainless Steel AS-i/Ethernet Gateway
Ethernet Modbus TCP: via Ethernet
Allen Bradley AS-i Master/Scanner
AS-i Profibus GW+Safety Monitor
DeviceNet: AS-i 2.1 via mastersimulator
DeviceNet: AS-i 2.0 via mastersimulator
CANOpen: via mastersimulator
AS-i PCI board
AS-i PCI 2 board
AS-Interface PC2
Modbus: RS232 or via RS232/RS485 converter
Standard Protocol Bihl+Wiedemann
Stainless Steel AS-i/Ethernet IP Gateway
```

After you have selected the corresponding protocol and pressed **OK**, another pop up window appears. Here you can select the corresponding Serial port and insert a Bus address and Baud rate, if necessary. You can also define the corresponding AS-i circuit, if the AS-i Master supports this function.
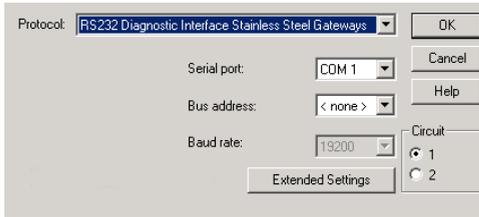
If there is already a communication to an AS-i Master use this command to change the communication parameters.

The communication parameters are stored for the next start of ACT. The software then tries to restore the connection to the most recently used AS-i Master.

8.2   Master... Identity...

Use this command to display identity and status information of the current master.

The AS-i master can also be controlled with this window. Beside the display of the most important AS-i Master flags, it is also possible to set some of these flags. The AS-i master can be switched between protected mode and configuration mode. Furthermore the AS-i Master can be set into the offline-phase. With this dialog you adjust the list of slave addresses that lead to a shut down of the AS-Interface in case of a config error.

If the AS-i Master is offline due to a config error, this dialog has to be selected to reset this list of slave adresses. After this reset the AS-i Master can exit the offline modus.

The list of slave adresses that make sure that the AS-i Master goes offline will be deleted when the AS-i Master is disconnected.

The Master... **Identity...** window is divided into the following areas:
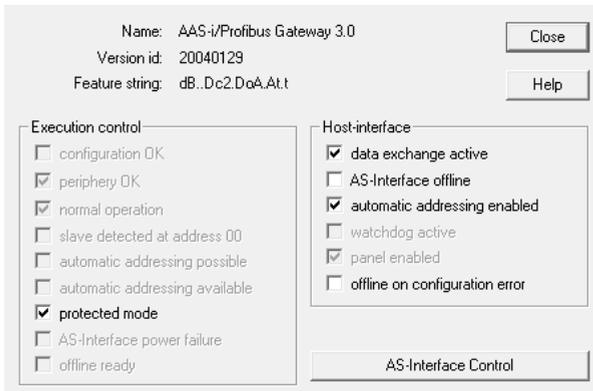
AS-Interface Control

This button displays the **AS-i Control properties** dialog. This dialog displays the AS-i Control properties. These settings can only be changed in the AS-i Control program (see manual "AS-i Control"). This button is only available if the connected AS-i Master has the AS-i Control feature:

Start

The command "start program" was sent from the host to the AS-i Master.

Ignore configuration error

If this bit is set, errors can occur as the program continues to run as slaves fail without appropriate measures being taken. If this bit is not set (factory default setting), the AS-i master stops the program when a configuration error on the AS-i circuit is detected.

Autostart

If this bit is set (factory default setting), the AS-i control program automatically starts up after powering on the AS-i master.

If this bit is not set, the 'Set' button on the front panel of the AS-i master must be pressed during power-up in order for the AS-i control program to start. The AS-i control program can of course also be started via software using the **Start** command in the **Program control** menu.

Map counters

If this bit is set, the contents of the first fifteen counters is mapped as a binary number to the marker bytes 96 to 125. This enables access to the counter contents so that you can determine when counters have reached a certain state.
If this bit is not set (factory default setting), the counter states are not mapped.

Input filter

Changes on the input data are only applied when the new input value has been stable for at least two AS-i cycles.

Synchronize AS-i Control program with AS-i cycle

Synchronizes the AS-i Control cycle with the AS-i cycle. (The AS-i Control cycle will increase to a minimum of 3 AS-i cycles.)

Control program active

The AS-i Control program in the AS-i Master is running.

Cycle time

The current and the maximum cycle time of an AS-i Control program cycle are displayed here in milliseconds. If the maximum value is exceeded because of an error (e.g. an endless loop) a program cycle time-out will occur.

8.3 Master... AS-i Configuration

Use this command to start the AS-i configuration editor.

The command **Grafical Display** in the **View** menu changes the display style of the AS-i configuration editor between textual and grafical display.

8.3.1 Master... AS-i Configuration Editor (Textual Display)

This window displays the AS-i configuration (master and slaves) textually.

Master

This group displays information about the current AS-i Master:

24V Power failure

The AS-Interface master's power supply failed. The AS-Interface master is powered by the AS-Interface power supply.

Earth Fault

If one AS-i-line has a short circuit to earth, an Earth Fault exists. This error restricts significantly the noise immunity of the AS-i-communication.

Periphery

• Periphery OK

This display is only available with an AS-i Master according to the AS-i specification 2.1. and higher.

Bus-address

Master's bus-address, if available.

Status

possible values:

• Configuration OK

• Configuration error

• Not in normal operation

• Off-line

• AS-i power failure

• Store configuration

If you store the configuration you can correct configuration errors. More information about the different status values you can find in following chapters.

Slaves

This group displays all currently detected slaves and the associated error status as follows:

Duplicate Address - 'a'

If two slaves in one AS-i-Circuit have the same address, a Duplicate Address is present. It is an error, because both concerned Slaves can not be addressed separately by the master anymove.

Conflicting Types - 'c'

The profile of the detected AS-i slave does not match to the one specified for the projected AS-i slave.

Detected Only - 'd'

There is no AS-i slave projected for this address, although the displayed AS-i slave has been detected.

Projected Only - 'p'

There is no AS-i slave detected for this address, although one has been projected.

Peripheral Fault - 'f'

(only available with an AS-i Master according to the AS-i specification 2.1 and higher)

The AS-i slave with this address has a peripheral fault.

The **Type** field contains the AS-i slave profile following the AS-i specification. To get more detailed information about the slaves, click on the **Type** field (next to the **Address** column) to open the **Slave configuration** dialog. A detailed description of the S**lave configuration** dialog you can find in the chapter **Slave Context Menu** (see page 31).

Show A/B-Slaves

Press this button to see the entries of the B-slaves resp. the A-slaves. This button is only available with an AS-i Master according to the AS-i specification 2.1 and higher.

8.3.2   Master... AS-i Configuration Editor (Grafical Display)
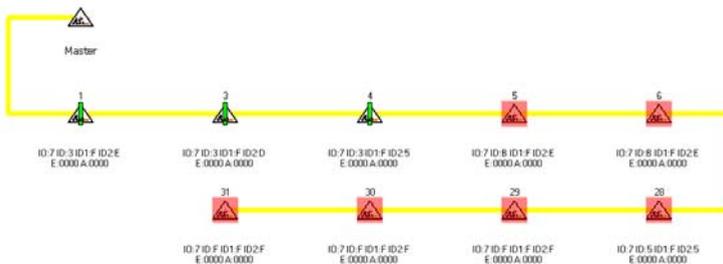
This window shows the AS-i configuration (master and slaves) grafically.

Use the command **Grafical Display** in the **View** menu to change the display style of the AS-i configuration editor between textual and grafical display (see also Configuration Editor with textual display).

The right mouse button opens context menus which contain different commands, depending wether the mouse is positioned on the AS-i master or on an AS-i slave.

Double-clicking the AS-i master icon opens the **Master Identity** dialog, double-clicking an AS-i slave icon opens the **Slave configuration** dialog.

8.3.2.1   Master Context Menu

Identity
Store Configuration
Configuration
Device Description
Insert AS-Interface Slave...
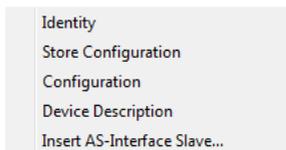
Identity

Opens the **Master Identity** dialog.

Store Configuration

This command stores the configuration data (IO, ID) of the AS-i slaves found on the AS-i line. This way configuration errors are fixed.

The configuration of the AS-i circuit is stored permanently in the AS-i Master.

Choose **OK** to continue and store the configuration into the AS-i Master.

Choose **Cancel** to leave the previous configuration unchanged.

Configuration
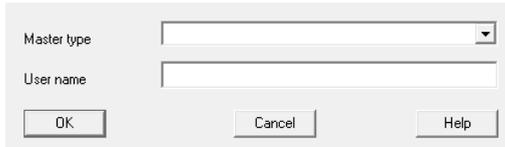
Opens the **Master configuration** dialog. This dialog makes possible the relation of a device description (including an icon) to the AS-i Master.

Device Description

Opens the **Device description** dialog. With this dialog device descriptions can be created. A detailed description of the **Device Description** dialog you can find in the chapter **Slave Context Menu** (see page 31).

Insert AS-i Slave

Opens the **Slave configuration** dialog with a free AS-i slave address.

To project an additional slave select the command **Insert AS-i Slave** in the **Master** context menu. The first free AS-i slave address will be used. Then select the profile of the slave to project.

8.3.2.2 Slave Context Menu

Configuration

Opens the **Slave configuration** dialog. The dialogbox **Slave Configuration** can contain (depending on the connected AS-i slave) the register tabs **Address**, **Configuration**, **Data** and **Parameter**, as well as **Analog Input** and **Analog Output**.
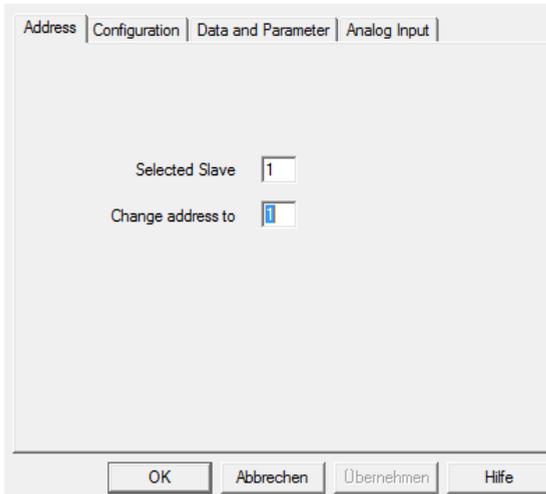
Slave Configuration... Address

> ⚠️ **Attention**
>
> *Note that all changes are performed as soon as you leave the edit-box for example by pressing the TAB-key, and not only when you press the OK-button.*

- **Selected Slave**

Address of currently selected slave.

- **Change address to**

To change the address of the selected slave, type in the desired address and either use the RETURN key to close the dialog, or, if you want to continue, use the TAB key to change to another dialog element.

The valid address range is from 0 to 31 or if a slave with extended addressing is connected, from 0 to 31A and 0 to 31B.

Data exchange with a slave with address 0 is not possible.

It is not possible to change the address of an AS-i slave if there is another slave with address zero connected to the same AS-i line.

Slave Configuration... Configuration

Tabs: Address | Configuration | Data and Parameter | Analog Input

IO/ID/ID1/ID2

Detected: 73FE — Analog-slave (7.3): 4 in
Projected: FFFF — (none)

Store detected slave

Peripheral fault ☐

Username: [   ]

Device Type: [▼]

OK | Abbrechen | Übernehmen | Hilfe

⚠ Attention

Note that all changes are performed as soon as you leave the edit-box (for example by pressing the TAB-key), and not only when you press the OK-button.

• **Detected**

Detected profile, hex-code and name.

• **Projected**

Projected profile, hex-code and name.

To change the projected profile, either type in the desired hex-code in the edit field, or select the desired profile in the drop down list.

To delete an AS-i slave from the configuration, type in the hex code FFFF in the edit field or choose the entry "none" in the drop down list beneath.

Profiles: Type in the profiles in the following format:

IO ID ID1 ID2

example: For IO=6, ID=A, ID1=C, ID2=3 type in: 6AC3.

If you have a standard slave (without 2.1 features), ID1 and ID2 each are "F".

• **Store detected slave**

Stores the current AS-i parameters as power-up parameters and the detected profile as projected profile.

33

- **Extended ID1**

This editbox is only available when slave address 0 is selected. If a slave with address 0 is connected to the AS-i line, you can change its extended ID code 1. This feature is only available with AS-i slaves and AS-i Masters according to the AS-i specification 2.1. and higher.
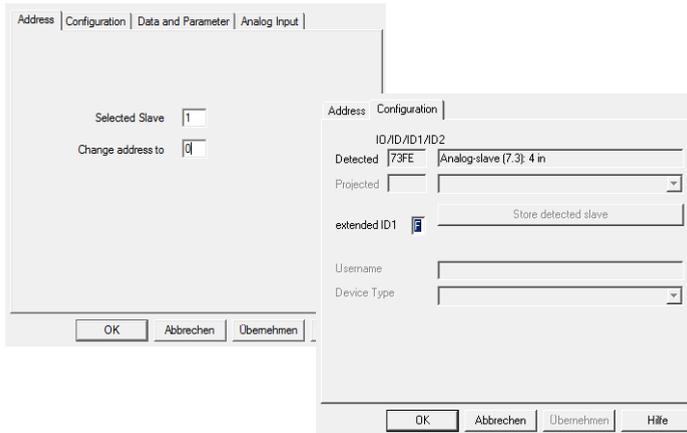
- **Peripheral Fault**

This checkbox displays if the AS-i slave has an error on its periphery. This feature is only available with AS-i slaves and AS-i Masters according to the AS-i specification 2.1. and higher.

- **Username**

Type in an up to 30 characters long text, e.g. function or position of the AS-i slave in the plant.

- **Device Type**

This list serves to relate a device description (including an icon) to an AS-i slave.

If no slave is projected yet, you can select an AS-i slave from this product list. This action then also projects the matching configuration codes.

Device descriptions can be created with the **Device description** dialog.

Slave Configuration... Data and Parameter

> ⚠ **Attention**
>
> *All actions in this dialog are performed "on-line", that means directly in the AS-i circuit. If, for instance, you click on an output bit, the output of the AS-i slave will be toggled immediately.*

- **Inputs**

Current input bits, if available.

- **Outputs**

Current output bits, if available.

- **Current Parameters**

Current parameter bits.

- **Power-up Parameters**

Power-up parameter bits.

Dialog Slave Configuration... Analog Input

This dialog shows the analog input data of 1 to 4 channels (depending on the slave). The data is displayed hexadecimal, decimal and grafically as a progress bar. This dialog is only available if an analog input slave is connected.

The scale of the progress bar can be adjusted by entering a minimum and a maximum value. These values can be typed in as decimal numbers and also as hexadecimal numbers by preceding a "0x".

Slave Configuration... Analog Output

Note that all changes of the sliders are performed immediately.

⚠ Attention

The changes of the edit boxes are executed as soon as you press the **Apply** or the **OK** button.

This dialog shows the analog output data of 1 to 4 channels (depending on the slave). The data can be entered hexadecimal, decimal or by dragging the slider. This dialog is only available if an analog output slave is connected.

The scale of the sliders can be adjusted by entering a minimum and a maximum value. These values can be typed in as decimal numbers and also as hexadecimal numbers by preceding a "0x".

Slave Configuration... String Transfer

This dialog servers to transfer ID-string, diagnostic string and parameter string of 7.4 slaves.

These strings are displayed as hex-bytes, separated with spaces,
e.g.: 01 23 45 67 89 AB CD EF...

Device Description...
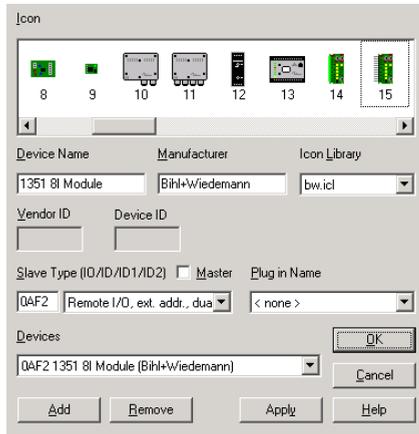
This dialog makes possible to create a list of device descriptions (device list). A complete device description contains of:

Icon, Device Name and Manufacturer

Enter this information in the appropriate edit boxes. The icon can be selected from the icon library (slaves.icl). If there are other icon libraries (*.icl) at your disposal, just copy these to the working directory of the software.

Choose the device type

AS-i Slave: enter IO and ID or select type from list. The check box **Master** shall not be selected.

AS-i Master: click the check box **Master**.

Plug-In-Name

If there are plug-ins available you can select one and associate it with the device. The additional plug-in page will appear if this device description is selected in the **Slave Configuration** dialog and an appropriate slave is connected to the AS-i circuit.

Add

This button relates the device description to the device type and adds it to the device list.

Remove

This button removes the selected entry of the device list.

Apply

This button applies the changes and updates the device list without closing the dialog box.

Now you can select the right description (including the icon) in the **Slave Configuration** dialog with the device type item.

The same procedure can be done for the AS-i Master with the command **Configuration** in the **Master** context menu.

8.3.2.3   Display of Configuration Errors

Depending on the current configuration of the AS-i Master and the detected slaves on the AS-interface the icons obtain an appropriate mark:

Conflicting Types (yellow exclamation mark)

The profile of the detected AS-i slave does not match to the one specified for the projected AS-i slave.

Detected Only (green exclamation mark)

There is no AS-i slave projected for this address, although the displayed AS-i slave has been detected.

Peripheral Fault (red exclamation mark)

This AS-i slave has a peripheral fault.

Projected Only (red shade)

There is no AS-i slave detected for this address, although one has been projected.

To get more detailed information about the slaves, choose the command **Configuration** in the **Slave** context menu. If you double click the slave icon with the left mouse button the dialogbox opens as well.

Duplicate Address (red exclamation mark)

If two slaves in one AS-i-Circuit have the same address, a Duplicate Address is present. It is an error, because both concerned Slaves can not be addressed separately by the master anymove.

Earth Fault (red exclamation mark)

If one AS-i-line has a short circuit to earth, an Earth Fault exists. This error restricts significantly the noise immunity of the AS-i-communication.

24V Power failure (red exclamation mark)

The AS-Interface master's power supply failed. The AS-Interface master is powered by the AS-Interface power supply.

Issue date - 28.7.2008

8.4 **Master... AS-i Diagnosis...**

List of Corrupted Slaves (LCS)

The AS-interface is a system with outstanding noise immunity. Sometimes, how-ever, momentary configuration errors may occur because of external influences. The advanced AS-i diagnosis helps to find and locate the causes for these mo-mentary configuration errors.

The AS-i masters with advanced diagnosis manage beside the list of projected slaves (LPS), the list of detected slaves (LDS) and the list of activated slaves (LAS) a forth list, the List of Corrupted Slaves (LCS). This LCS contains entries of all AS-i slaves which were responsible for at least one configuration error since powering up the AS-i master or since the last reading of the list. Momentary AS-i power failures are displayed in the LCS at the position of AS-i slave with address 0, which is marked as APF.

The LCS is read via the host interface - ISAbus for AS-i PC boards, serial interface or the respective fieldbus interface (PROFIBUS, INTERBUS, Modbus Plus etc.). Every read access deletes the LCS.

Reading the LCS enables the user to find out quickly, which AS-i slaves have caused configuration errors on the AS-interface, even if they happened only occa-sionally.

Red Point

A red point (•) behind the slave address indicates that one or more errors have been caused by this slave since the last read cycle.

Black Point

A black point (•) behind the slave address indicates that one or more erros has been caused by this slave since the AS-i Master is powered or since the last reset of the LCS.

Reset

This button deletes the LCS.

Protocol Analysis AS-Interface: Counters of Telegram Repetitions

Although AS-interface has data and power on the same cable, the system provides a high data integrity, because of in-built error checking. This high data integrity is reached now and then because corrupted telegrams are sent again. The AS-i master only releases a configuration error, when an AS-i slave has not sent a valid telegram within 6 master calls. This means as long as one of the first 6 slave telegrams is valid there won't be a configuration error on AS-i. So it can happen, that the AS-interface appears to work fine, but in reality the data transmission on the AS-i cable is corrupted, but not corrupted enough to release configuration errors.

For this reason the advanced diagnosis has a counter of telegram repetitions for each AS-i slave, which is increased everytime there is a corrupted data telegram. This makes possible to judge the quality of the AS-i network, even if only a few corrupted telegrams occured and the AS-i slave did not cause any configuration errors.

> *Please note that a small number of corrupted telegrams over a longer period of time is normal and is no reason to get alarmed.*

Note

Current

The number of errors since the last read cycle is displayed in the "Current" column red color. This entry will be overwritten by the next read cycle (approx. every 2 s).

Accum.

The total number of errors since the AS-i Master is powerded or since the last reset of the error counters is displayed.

Reset

This button deletes all counters.

The counter values are read via the host interface and will be deleted with every read access. The counter value is limited to 254. 255 means counter overflow.

The Error Counter enables the user to judge directly about the quality of the AS-i networks data transmission. For example AS-i slaves can be detected, which send frequently corrupted telegrams because of EMC disturbances, although on the AS-interface no configuration error occured.

Show A/B-Slaves

Press this button to see the entries of the B-slaves resp. the A-slaves. This button is only available with an AS-i Master according to the AS-i specification 2.1 and higher.

Deblock AS-i Diagnosis...

After installing the software the advanced AS-i diagnosis is blocked.

This dialog deblocks the AS-i diagnosis either for the current work session or permanently.

Please contact the software manufacturer to get the appropriate code.

8.5   Master... AS-i Fault Detector
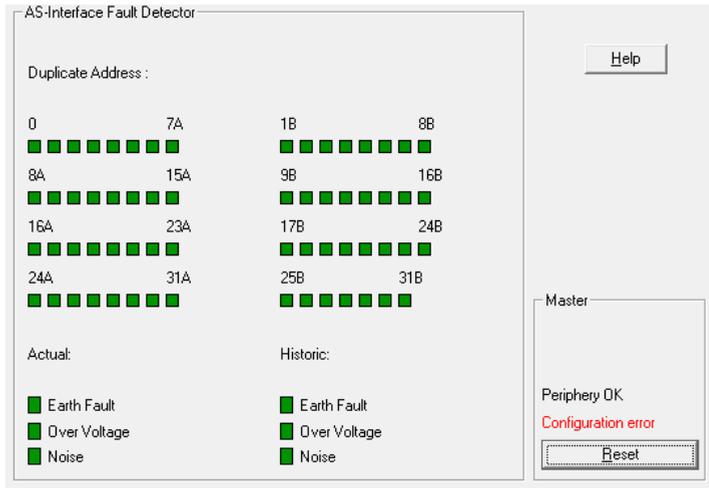
The AS-i Fault Detector permanently tests the system for the following dysfunctions/annoyances:

Duplicate Address

If two slaves in one AS-i-Circuit have the same address, a Duplicate Address is present. It is an error, because both concerned Slaves can not be addressed separately by the master anymove. Furthermore the master can not distinguish the responses of the Slaves, because their responses overlap. The behaviour of the system is extremely unstable.

> **Note**
>
> *Duplicate addresses can only be detected in the AS-i segment of the master. If both slaves that are involved in the duplicate address are mounted behind a repeater, dublicate address can not be detected.*

Earth Fault

If one AS-i-line has a short circuit to earth, an Earth Fault exists. This error restricts significantly the noise immunity of the AS-i-communication.

> *For recognition of earth faults the master must be grounded to the function earth.*

Note

Over Voltage

Over voltage means, that the electrical potential of the AS-i lines which is normally symmetrically to earth, is strongly shifted. Reason can be switching of strong consumers. Over voltage is normally not disturbing the AS-i communication but sensors may give faulty signals.

Noise

Recognition of the interference noise detects the AC voltages on AS-i, which are produces not by the AS-i-master or AS-i-slaves. These interference voltages can cause the telegram faults.

Frequent reasons are not sufficiently schielded frequency converters or misplaced AS-i cable.

The column

Actual

shows the actual condition of the system

Historic

shows errors that occured since the AS-i-masters was turned on respectively since the latest Reset.

Reset

clicking the **Reset** button removes the data about Historic.

8.6 Master... AS-i Safety
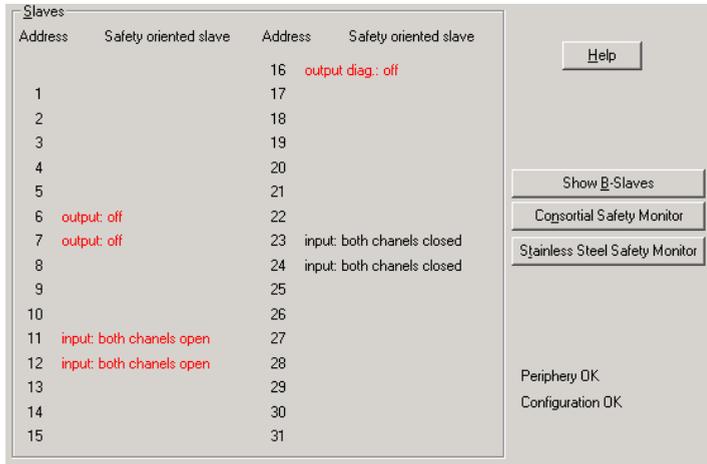
The AS-i Safety Monitor shows the state of each AS-i Safety slave connected to the AS-i circuit. Possible states are "OK" and "Released".

AS-i Safety Monitor

This button opens another dialog box that shows the diagnosis of the AS-i Safety Monitor:
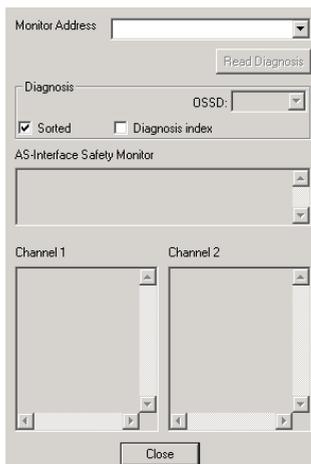
Monitor Address

Type in the AS-i address of the AS-i Safety Monitor so that the diagnosis can be read.

Read Diagnosis

Executes the command to read the AS-i Safety diagnosis in the AS-i Master. If this function fails (e.g. because the address of the AS-i Safety Monitor is wrong), the following fields remain empty.

• Monitor-Diagnosis

provides the actual state of the Safety-Monitor

• Last Diagnosis

provides the state of channel and the device colors at the time the relays of channel were switched off

OSSD

Channel number of output device

Diagnosis index

When reading the diagnosis you receive only devices that have been asigned a diagnosis index. The diagnosis index defines the sorting succession of displaying.

Sorted

If the monitor is switched to sorted mode, select this check box.

AS-i Safety Monitor

Contains the diagnosis data of the AS-i Safety Monitor.

Channel 1

Contains the diagnosis data of Channel 1 of the AS-i Safety Monitor.

Channel 2

Contains the diagnosis data of Channel 2 of the AS-i Safety Monitor.

Close

Closes the dialog box.

Significance of the colours in the Monitor-Diagnosis view

• green

Device is in the ON state (switched on)

• green flashing

Device is in the ON state (switched on), but already in the process of being switched to the OFF state, e.g. switch-off delay

• yellow

Device is ready, but is still waiting for another condition, e.g. local acknowledgement or start button

• yellow flashing

Time condition exceeded, action must be repeated, e.g. synchronisation time exceeded

• **red**

Device is in the OFF state (switched off)

• **red flashing**

The error lock is active, release by means of one of the following actions:

• Acknowledge with the service button

• Power OFF/ON

• AS-interface bus OFF/ON

• **grey**

No use of OSSD / no communication with the AS-interface slave

8.7 Master...Stainless Steel AS-i Safety Monitor

Contains the diagnosis data of the Stainless Steel AS-i Safety Monitor.
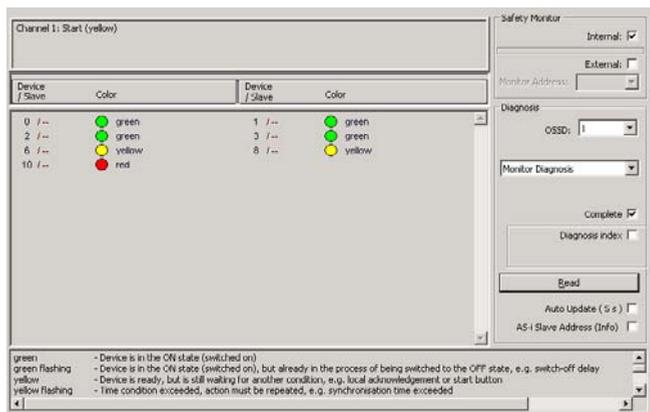
Internal

The internal AS-i Safety-Monitor.

External

The external AS-i Safety-Monitor.

Monitor address

Before reading the diagnosis, you have to choose the address of the external AS-i Safety-Monitor.

Diagnosis

• **Monitor-Diagnosis**

Provides the actual state of the Safety-Monitor.

- **Last Diagnosis**

Provides the state of channel and the device colors at the time the relays of channel were switched off.

OSSD

Channel number of output device.

Complete

When reading the diagnosis you receive all used devices.

Diagnosis index

When reading the diagnosis you receive only devices that have been asigned a diagnosis index. The diagnosis index defines the order in the display.

Selecting check box 0.. (default setting) will return ALL devices starting with 0 and upwards.

Selecting check box 32.. will return ALL devices according to the device index in the ASI-Monitor software starting with 32 and upwards.

Read

Updates the AS-i Safety diagnosis.

Auto Update (5 s)

Automatically updates the AS-i Safety diagnosis every five seconds.

AS-i Slave Address (Info)

Automatically reads the slave address info of all subdevices. Doubleclick on a device to get more information of the device.

Device / Slave

Device index and if applicable the address of the correspondent safety slave. Apears if **Complete** check box is selected.

Index / Slave

Diagnosis index and if applicable the address of the correspondent safety slave. Apears if **Diagnosis index** check box is selected.

Device from

Indicates the allocation of therespective device. Possible allocations are:

- Preprocessing
- Both circuits
- Circuit 1
- Circuit 2

Significance of the colours in the Monitor-Diagnosis view.

For information about the significance of the colours in the Monitor-Diagnosis view see page 44. For a graphic example see page 45.

8.8 Master... AS-Interface Address Assistant
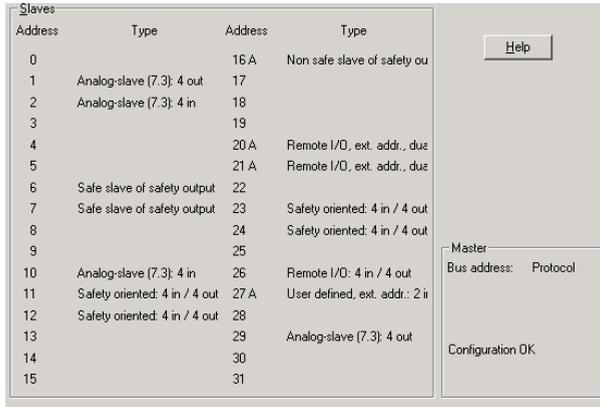
The AS-Interface Address Assistant serves to ease the configuration of an AS-i network. With the use of the AS-Interface Address Assistant an AS-i network can be configured without the help of any additional tools like a handheld addressing device.

1. Load the previously created AS-i Configuration file (*.acg) that includes all projected slaves, into the AS-i Master (command Write **Configuration to the AS-i Master** in the **Master** menu, Seite 48).

2. Start AS-Interface Address Assistant.

3. Now connect all new AS-i slaves (address 0) in turn (ascending addresses) to the AS-i line.

The next AS-i slave that has to be connected to the AS-i line is displayed in a different color.

The AS-Interface Address Assistant automatically changes the address of the connected slave from 0 to the assigned address. If the slave profile of the connected slave is different from the projected slave profile the address won't be changed.

AS-i configuration errors are displayed in the AS-Interface Address Assistant in the same way as the AS-i Configuration editor does.

8.9 Master... Insert AS-Interface Slave

Use this command to project an AS-i slave on a free AS-i slave address.

The **Slave Configuration** dialog (see page 33) will be opened. With this dialog the desired projection can be done.

To delete an AS-i slave from the configuration, type in the hex code FFFF in the **Projected** edit field of the **Slave Configuration** dialog or choose the entry **(none)** in the drop down list beneath.

8.10 Master... Write Configuration to the AS-Interface Master...

This command loads an AS-i configuration from a file into the AS-i configuration editor and writes it to the currently connected AS-i Master. The default file extension for AS-i configuration files is *.acg.

This command is just available if the configuration editor is open and active and can only be used, if the host interface (Profibus, Modbus, Ethernet etc) is inactive.

8.11 Master... Save Configuration to File...

This command is used to save the currently in the AS-i configuration editor displayed AS-i configuration to a file. The default file extension for AS-i configuration files is *.acg.

This command is only available if the configuration editor is open and active.

8.12 Master... 0 Offline

This command changes to the offline mode. In this mode the software communicates with a "virtual AS-i Master".

This mode serves to create an AS-i configuration without the need of a real AS-i Master connected to the PC.

8.13 Master... 1 [Most recently used Master]

This command changes the active communication to the most recently used AS-i Master, if available.

The menu entry gives a short description of the settings of the most recently used AS-i Master:

AS-i Masters with serial interface:
protocol, COM-port and bus-address (if available)

AS-i Masters as PC-boards:
protocol and bus-address

9 View... Menu
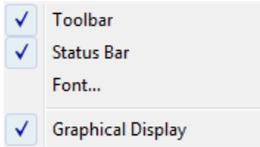
9.1 View... Toolbar

Use this command to display or hide the toolbar, which includes buttons for some of the most common commands of AS-i Control Tools, such as **File Open**. A tick appears next to the menu item when the toolbar is displayed.

The Toolbar

Click to...   **to...**

Tool-bar	*Menu-command*	*Description*
	File...	
	New	open a new file.
	Open	open an existing file.
	Safe	save the active file under its current name.
	Print	print the active file.

Edit...

	Cut	remove selected data and store it in the clip-board.

	Copy	copy selected data to the clipboard.

	Paste	insert the contents of the clipboard at the cursor location.

Master...

	Identity	show the Master identity dialog.

	AS-i Configuration	show the AS-i Configuration editor.

View...

	Graphical Display	enable or disable the graphical display of the AS-i Configuration editor.

(no menu)

	Context Help	show help for items that you select with the mouse pointer.

9.2 View... Statusbar

Use this command to display or hide the Status Bar, which describes the action to be executed by the selected menu item or depressed toolbar button, keyboard latch state and displays other information. A tick appears next to the menu item when the statusbar is displayed.

Statusbar

Press F1 to get Help		Execute: stopped	OVR	CAP	NUM	00012 \
Area:	A	B	C	D	E	F G

Actions and messages (area A)

Area A of the statusbar describes the action of the menu entries, when you select the items with the arrow keys or the mouse. This area also shows messages describing the actions of toolbar buttons as long as you keep them pressed. If you do not wish to execute the command, release the mouse button only when you have moved the mouse pointer away from the toolbar button.

Modes and States (area B)

Area B displays the current mode of operation and state of the AS-i Control program. The following modes of operation are possible: **Execute**, **Debug**, **Simulation**. The following states can occur: The **AS-i Control program runs**, is **stopped** or is **paused**.

Keyboard States (area C, D, E)

• OVR

The **Overwrite** key is latched down.

• CAP

The **Caps Lock** key is latched down.

• NUM

The **Number Lock** key is latched down.

Line Number (area F)

If the active window is an editor window, area F shows the line number, where the cursor is currently located.

Communication Indicator (area G)

In the rightmost corner there is an indicator for the data transmission to the AS-i Master. While communicating with the AS-i Master, the communication indicator keeps changing between displaying "| / - \" to produce a rotary visual effect.

If the connection to the AS-i Master breaks down, this rotation stops immediately. It is replaced by a red question mark (?) if the connection can not be reestablished.

9.3   View... Font...

Use this command to select the font for the current document window.

The following options allow you to specify the typeface, style and size of the font for use in the current document window:

Typeface

Select the typeface you want to use in the current document window.

Style

Select the style you want to use in the current document window.

Size

Select the size you want to use in the current document window.

Sample

This window is read-only and gives you an example of the current selection.

You can only change the font of an editor window.
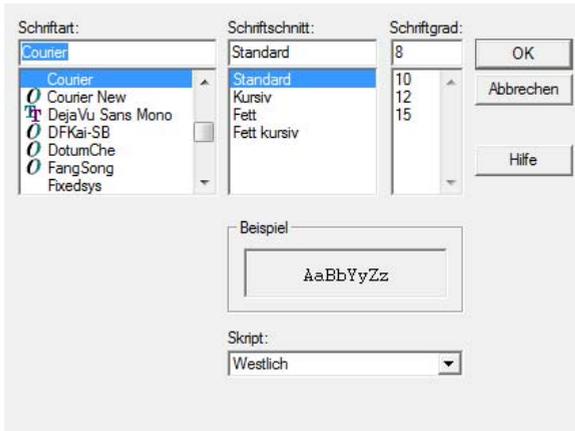
9.4 View... Grafical Display

Use this command to select the display style of the AS-i configuration editor.

Is this menu item checked the AS-i configuration editor is displayed grafically, otherwise it is displayed textually.

10 Window...Menu

10.1 Window... New Window

Use this command to open a new window with the same contents as the active window. You can open several document windows to display different parts or views of a document at the same time.

If you change the contents in one window, all other windows containing the same document reflect the changes. When you open a new window, it becomes the active window and is displayed on top of all other open windows.

10.2 Window... Cascade

Use this command to arrange open windows so that they overlap. The windows overlap one another and in general only the active window on top will be fully displayed.

10.3 Window... Tile

Use this command to arrange the opened windows side by side.

10.4 Window... Arrange Icons

Use this command to arrange the icons for minimized windows at the bottom of the main window. If there is an open document window at the bottom of the main window, then some or all of the icons may not be visible because they are underneath this document window.

10.5 Window...AS-i Configuration

Use this command to start the **AS-i Configuration** editor. For detailed description see page 28.

10.6 Monitor Windows

The monitor windows serve to control and modify AS-i data. The following monitor windows are available:

- **Input monitor**
- **Output monitor**
- **Flag monitor**
- **Timer monitor**
- **Counter monitor**

In **Execute** mode, you can open the **input monitor**, **output monitor** and **flag monitor** windows. Only in the **flag monitor** window modifying the bits is possible while the AS-i Control program is running. If the AS-i control program in the AS-i Master is currently stopped, you may also modify the output states.

In **Debug** and **Simulate** mode in all monitor windows data can be modified. However, data can be overwritten again by the results of the AS-i Control program.

Modifying Bits

To modify the bits, click on the appropriate bit position.

Modifying Values

Use the mouse to let a small box pop up for the 'Value' field, type in the desired value and press **ENTER** to close the box.

Inputs and outputs get a single-digit hexadecimal value, flag bytes are represented as double figures hexadecimal values.

The values for timers and counters have to be entered as decimal values and have a range from 0s to 40.95s for the timers and from 0 to 65535 for the counters.

10.6.1 Window... Input Monitor

Slv	3 2 1 0	Hex	User		Slv	3 2 1 0	Hex	User		Slv	3 2 1 0	Hex	User
01:	- - -	0	-		11:	- - - -	0	-		21:	- - - -	0	-
02:	- - - -	0	-		12:	- - - -	0	-		22:	- - - -	0	-
03:	- - - -	0	-		13:	- - - -	0	-		23:	X X X X	F	-
04:	- - - -	0	-		14:	- - - -	0	-		24:	X X X X	F	-
05:	- - - -	0	-		15:	- - - -	0	-		25:	- - - -	0	-
06:	- - - -	0	-		16:	X X - -	C	-		26:	X - - X	9	-
07:	- - - -	0	-		17:	- - - -	0	-		27:	- - - -	0	-
08:	- - - -	0	-		18:	- - - -	0	-		28:	- - - -	0	-
09:	- - - -	0	-		19:	- - - -	0	-		29:	- - - -	0	-
10:	- - - -	0	-		20:	- - - -	0	-		30:	- - - -	0	-
										31:	- - - -	0	-

B-Slaves

Slv	3 2 1 0	Hex	User		Slv	3 2 1 0	Hex	User		Slv	3 2 1 0	Hex	User
01:	- - - -	0	-		11:	- - - -	0	-		21:	- - - -	0	-
02:	- - - -	0	-		12:	- - - -	0	-		22:	- - - -	0	-
03:	- - - -	0	-		13:	- - - -	0	-		23:	- - - -	0	-
04:	- - - -	0	-		14:	- - - -	0	-		24:	- - - -	0	-
05:	- - - -	0	-		15:	X X - -	C	-		25:	- - - -	0	-
06:	- - - -	0	-		16:	- - - -	0	-		26:	- - - -	0	-
07:	- - - -	0	-		17:	- - - -	0	-		27:	- - - -	0	-
08:	- - - -	0	-		18:	- - - -	0	-		28:	- - - -	0	-
09:	- - - -	0	-		19:	- - - -	0	-		29:	- - - -	0	-
10:	- - - -	0	-		20:	- - - -	0	-		30:	- - - -	0	-
										31:	- - - -	0	-

This window shows the inputs of the AS-i slaves.

You can modify the input only in **Debug** and **Simulate** mode.

User

The **User** field indicates whether this address is currently under user control or not. In the former case the bit mask is operated by the user, while in the latter case it is operated by the AS-i Control program.

Modifying Bits

To modify the bits, you can either click on the appropriate bit position or use the mouse to let a small box pop up to enter the desired bit mask as a single digit value. The value has to be in the hexadecimal range (0-9 and A-F).

10.6.2   Window... Output Monitor

This window shows the outputs of the AS-i slaves.

You can modify the outputs only in **Debug** and **Simulate** mode.

In debug mode the outputs are set directly on the AS-i circuit. If you click on an output bit the output of the AS-i slave will toggle immediately.

Attention

User

The **User** field indicates whether this address is currently under user control or not. In the former case the bit mask is operated by the user, while in the latter case it is operated by the AS-i Control program.

Modifying Bits

To modify the bits, you can either click on the appropriate bit position or use the mouse to let a small box pop up to enter the desired bit mask as a single digit value. The value has to be in the hexadecimal range (0-9 and A-F).

10.6.3   Window... Flag Monitor

Nr	7 6 5 4 3 2 1 0	Hex	User	Nr	7 6 5 4 3 2 1 0	Hex	User	Nr	7 6 5 4 3 2 1 0	Hex	User	Nr	7 6 5 4 3 2 1 0	Hex	User
000:	- - - - - - - -	00	-	032:	- - - - - - - -	00	-	064:	- - - - - - - -	00	-	096:	- - - - - - - -	00	-
001:	- - - - - - - -	00	-	033:	- - - - - - - -	00	-	065:	- - - - - - - -	00	-	097:	- - - - - - - -	00	-
002:	X X X X X X X X	FF	-	034:	- - - - - - - -	00	-	066:	- - - - - - - -	00	-	098:	- - - - - - - -	00	-
003:	- X X X X X X X	7F	-	035:	- - - - - - - -	00	-	067:	- - - - - - - -	00	-	099:	- - - - - - - -	00	-
004:	- - - - - - - -	00	-	036:	- - - - - - - -	00	-	068:	- - - - - - - -	00	-	100:	- - - - - - - -	00	-
005:	- - - - - - - -	00	-	037:	- - - - - - - -	00	-	069:	- - - - - - - -	00	-	101:	- - - - - - - -	00	-
006:	- - - - - - - -	00	-	038:	- - - - - - - -	00	-	070:	- - - - - - - -	00	-	102:	- - - - - - - -	00	-
007:	- - - - - - - -	00	-	039:	- - - - - - - -	00	-	071:	- - - - - - - -	00	-	103:	- - - - - - - -	00	-
008:	- - - - - - - -	00	-	040:	- - - - - - - -	00	-	072:	- - - - - - - -	00	-	104:	- - - - - - - -	00	-
009:	- - - - - - - -	00	-	041:	- - - - - - - -	00	-	073:	- - - - - - - -	00	-	105:	- - - - - - - -	00	-
010:	- - - - - - - -	00	-	042:	- - - - - - - -	00	-	074:	- - - - - - - -	00	-	106:	- - - - - - - -	00	-
011:	- - - - - - - -	00	-	043:	- - - - - - - -	00	-	075:	- - - - - - - -	00	-	107:	- - - - - - - -	00	-
012:	- - - - - - - -	00	-	044:	- - - - - - - -	00	-	076:	- - - - - - - -	00	-	108:	- - - - - - - -	00	-
013:	- - - - - - - -	00	-	045:	- - - - - - - -	00	-	077:	- - - - - - - -	00	-	109:	- - - - - - - -	00	-
014:	- - - - - - - -	00	-	046:	- - - - - - - -	00	-	078:	- - - - - - - -	00	-	110:	- - - - - - - -	00	-
015:	- - - - - - - -	00	-	047:	- - - - - - - -	00	-	079:	- - - - - - - -	00	-	111:	- - - - - - - -	00	-
016:	- - - - - - - -	00	-	048:	- - - - - - - -	00	-	080:	- - - - - - - -	00	-	112:	- - - - - - - -	00	-
017:	- - - - - - - -	00	-	049:	- - - - - - - -	00	-	081:	- - - - - - - -	00	-	113:	- - - - - - - -	00	-
018:	- - - - - - - -	00	-	050:	- - - - - - - -	00	-	082:	- - - - - - - -	00	-	114:	- - - - - - - -	00	-
019:	- - - - - - - -	00	-	051:	- - - - - - - -	00	-	083:	- - - - - - - -	00	-	115:	- - - - - - - -	00	-
020:	- - - - - - - -	00	-	052:	- - - - - - - -	00	-	084:	- - - - - - - -	00	-	116:	- - - - - - - -	00	-
021:	- - - - - - - -	00	-	053:	- - - - - - - -	00	-	085:	- - - - - - - -	00	-	117:	- - - - - - - -	00	-
022:	- - - - - - - -	00	-	054:	- - - - - - - -	00	-	086:	- - - - - - - -	00	-	118:	- - - - - - - -	00	-
023:	- - - - - - - -	00	-	055:	- - - - - - - -	00	-	087:	- - - - - - - -	00	-	119:	- - - - - - - -	00	-
024:	- - - - - - - -	00	-	056:	- - - - - - - -	00	-	088:	- - - - - - - -	00	-	120:	- - - - - - - -	00	-
025:	- - - - - - - -	00	-	057:	- - - - - - - -	00	-	089:	- - - - - - - -	00	-	121:	- - - - - - - -	00	-
026:	- - - - - - - -	00	-	058:	- - - - - - - -	00	-	090:	- - - - - - - -	00	-	122:	- - - - - - - -	00	-
027:	- - - - - - - -	00	-	059:	- - - - - - - -	00	-	091:	- - - - - - - -	00	-	123:	- - - - - - - -	00	-
028:	- - - - - - - -	00	-	060:	- - - - - - - -	00	-	092:	- - - - - - - -	00	-	124:	- - - - - - - -	00	-
029:	- - - - - - - -	00	-	061:	- - - - - - - -	00	-	093:	- - - - - - - -	00	-	125:	- - - - - - - -	00	-
030:	- - - - - - - -	00	-	062:	- - - - - - - -	00	-	094:	- - - - - - - -	00	-	126:	- - - - - - - -	00	-
031:	- - - - - - - -	00	-	063:	- - - - - - - -	00	-	095:	- - - - - - - -	00	-	127:	- - - - - - - -	00	-

This window shows the flags of the AS-i Control program. You can modify the flags in all modes of operation.

User

The **User** field indicates whether this address is currently under user control or not. In the former case the bit mask is operated by the user, while in the latter case it is operated by the AS-i Control program.

Modifying Bits

To modify the bits, you can either click on the appropriate bit position or use the mouse to let a small box pop up to enter the desired bit mask as a single digit value. The value has to be in the hexadecimal range (0-9 and A-F).

10.6.4   Window... Timer Monitor

This window is only available in **Debug** and **Simulate** mode and shows the timers of the AS-i Control program.

Modifying Values

Use the mouse to let a small box pop up for the 'Value' field and type in the desired value between 0s and 40.95s.

10.6.5   Window... Counter Monitor

This window is only available in **Debug** and **Simulate** mode and shows the counters of the AS-i Control program.

Modifying Values

Use the mouse to let a small box pop up for the 'Value' field and type in the desired value between 0 and 65535.

10.6.6   Window... Analog Input Monitor

This window shows the hexadecimal input values of the analog AS-i slaves.

Slave	Byte	ch. 3	ch. 2	ch. 1	ch. 0	Slave	Byte	ch. 3	ch. 2	ch. 1	ch. 0
						16	120 - 127	7FFF	7FFF	7FFF	7FFF
1	000 - 007	7FFF	7FFF	7FFF	7FFF	17	128 - 135	7FFF	7FFF	7FFF	7FFF
2	008 - 015	0038	0000	0000	0000	18	136 - 143	7FFF	7FFF	7FFF	7FFF
3	016 - 023	7FFF	7FFF	7FFF	7FFF	19	144 - 151	7FFF	7FFF	7FFF	7FFF
4	024 - 031	7FFF	7FFF	7FFF	7FFF	20	152 - 159	7FFF	7FFF	7FFF	7FFF
5	032 - 039	7FFF	7FFF	7FFF	7FFF	21	160 - 167	7FFF	7FFF	7FFF	7FFF
6	040 - 047	7FFF	7FFF	7FFF	7FFF	22	168 - 175	7FFF	7FFF	7FFF	7FFF
7	048 - 055	7FFF	7FFF	7FFF	7FFF	23	176 - 183	7FFF	7FFF	7FFF	7FFF
8	056 - 063	7FFF	7FFF	7FFF	7FFF	24	184 - 191	7FFF	7FFF	7FFF	7FFF
9	064 - 071	7FFF	7FFF	7FFF	7FFF	25	192 - 199	7FFF	7FFF	7FFF	7FFF
10	072 - 079	0000	0000	0000	0000	26	200 - 207	7FFF	7FFF	7FFF	7FFF
11	080 - 087	7FFF	7FFF	7FFF	7FFF	27	208 - 215	7FFF	7FFF	7FFF	7FFF
12	088 - 095	7FFF	7FFF	7FFF	7FFF	28	216 - 223	7FFF	7FFF	7FFF	7FFF
13	096 - 103	7FFF	7FFF	7FFF	7FFF	29	224 - 231	7FFF	7FFF	7FFF	7FFF
14	104 - 111	7FFF	7FFF	7FFF	7FFF	30	232 - 239	7FFF	7FFF	7FFF	7FFF
15	112 - 119	7FFF	7FFF	7FFF	7FFF	31	240 - 247	7FFF	7FFF	7FFF	7FFF

10.7   Window... Output Log

This window shows a list of recent errors while operating the AS-i system with the AS-i Control Tools. The entries of the list are numbered and state the time when the error occured.

10.8   Window... 1, 2, ...

At the bottom of the Window menu a list of currently open document windows is displayed. A tick appears in front of the document name of the active window. Choose a document from this list to make its window active.

11   Help...Menu
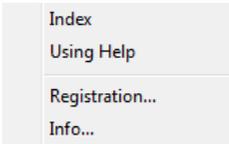
11.1   Help... Index
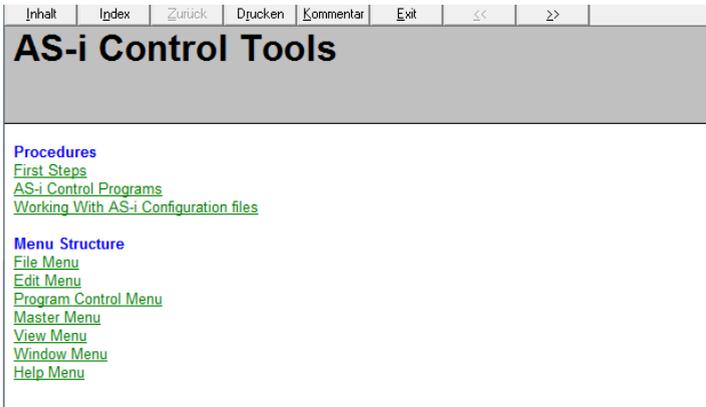
Use this command to display the opening screen of **Help**. From the opening screen, you can jump to step-by-step instructions for using the application.

Once you open Help, you can click the **Contents** button whenever you want to return to the opening screen.

 Click the **Back** button to return to the last help topic you looked at.

The **Search** button allows you to get information to a specific subject by typing in a keyword.

With the **Print** button you can print the corresponding help page.

Use the **Annotation** button to take notes to an help page and store them at the correspondig page. A stored note is displayed with a paper clip Symbol in the upper left corner of the page. Clicking the symbol opens the **Annotation** window where you can edit or delete the note.

Close the **Help** window with the **Exit** button.

With the buttons **<<** respectively **>>** you get to the recent / next help page.

11.2   Help... Using Help

Use this command for instructions about using help.

11.3   Help... Registration

After the installation the software is not licensed yet.

This dialog enables you to **license the basic software** and also to **deblock the AS-i Control functionality** (programs larger than 600 bytes) and the **advanced AS-i diagnosis** by entering the corresponding codes.

Type in your first name, your last name and the company name and also the code for the basic version of the software.

If your software CD does not include the registration codes, please contact the software producer to ask for the adequate codes.

11.4   Help... Info...

Use this command to display information about the installed version of the application (version number, copyright note and your personal registration data).

11.5   Context Help

Use the **Context Help** command to quickly obtain help on most aspects of ACT.

When you press the **Context Help** button of the toolbar, the mouse pointer changes to an arrow and question mark. Then click somewhere, such as another toolbar button to obtain help for the selected item.

With regard to the supply of products, the current issue of the following document is applicable: The General Terms of Delivery for Products and Services of the Electrical Industry, published by the Central Association of the Electrical Industry (Zentralverband Elektrotechnik und Elektroindustrie (ZVEI) e.V.) in its most recent version as well as the supplementary clause: "Expanded reservation of proprietorship"

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