DSV401 R3
(SMART VISION)

Device Management Tool
for Intelligent Field Instruments

User Manual

IM/DSV401

Device Management Tool
DSV401 R3(SMART VISION)

User Manual

Doc.-No. IM/DSV401
Issued: 12.05

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1 About this Manual

1.1 General Safety Information

Symbol	Meaning
	Warnings/cautions, which must be observed!

Please read this document carefully before commissioning!

For clarity reasons this document does not contain all detail information about this product and it does therefore not consider all conceivable operational conditions.

If you require further information or should you encounter problems that are not dealt with in detail here, please contact the manufacturer. We would like to emphasize that the contents of this manual are not a part of an earlier or existing agreement, warranty or a legal provision, nor are they intended to be an alteration thereof.

All liabilities on behalf of ABB Automation Products GmbH are listed in the purchase contract which also contains the complete and sole warranty terms. The contractual terms of warranty are not restricted or extended by any statements made in this document.

Only qualified and authorized personnel are permitted to commission this tool.

Furthermore, you must observe:
- The relevant safety precautions for setting up and operating electrical equipment, such as the Equipment Safety Law.
- The relevant norms such as DIN 31 000 / VDE 1000.
- The regulations and guidelines concerning explosion protection, provided that explosion protected devices are installed..

For this reason, you must be aware of the fact that improper use of this equipment can cause serious bodily injury and / or material damage.

The regulations, norms, guidelines and laws referred to this operating manual apply in the Federal Republic of Germany. When using the transmitter in other countries, observe the relevant national regulations.

The designations in this document and the shown or mentioned products are not specially marked concerning trademark right.

1.2 From installation to parameterization - a procedure in twelve steps

These brief instructions describe all necessary steps from DSV401 R3 (SMART VISION) installation over connection setup to DTM startup.

The example is based on a DTM with standard menu entries. Basically, the procedure will be the same for all other device types. However, the operating steps may need to be adapted to the respective case.

1 Check the hardware requirements (ch. 2.1, pg. 7).

2 Install DSV401 R3 (SMART VISION) (ch. 2.2, pg. 8).

3 If required, install additional DTMs (ch. 2.5, pg. 24).

This step is only necessary if the respective DTM has not yet been installed with the DSV401 R3 (SMART VISION) standard installation.

4 Install the communication interfaces / hardware (ch. 3.4, pg. 30).

5 Connect the device (ch. 3.5, pg. 31)

- HART (ch. 3.6, pg. 32 and ch. 3.7, pg. 33).
- PROFIBUS (ch. 3.8, pg. 34).
- FOUNDATION Fieldbus (ch. 3.9, pg. 35).

For details about the installation of ABB field devices and network components see the following website:

http://www.abb.com/instrumentation

6 Create a project (ch. 4.2, pg. 43).

Start DSV401 R3 (SMART VISION) and start the Project Editor via Project_Edit.
Left-click (with the mouse) on the first symbol of the project (left, Host: IBM PC).

Check: Is the appropriate communication interface available under "Host: IBM PC" (e.g. "PROFIBUS..." for a PROFIBUS device)?

If required select the appropriate communication interface from the device list on the right hand side, drag it to the left, and drop it on the Host.

Leave the Project Manager via Back to Project Manager

7 Find a bus device (ch. 4.11, pg. 93).

- HART (ch. 4.6.4, pg. 68).
- PROFIBUS (ch. 4.7.4, pg. 78).
- FOUNDATION Fieldbus (ch. 4.8.4, pg. 87).

Left-click with the mouse on the communication interface (e.g. "PROFIBUS C000: [1] ...").
Then right-click and Search Device.

Note: DSV401 R3 (SMART VISION) will search for all devices connected to that communication interface.

Check: Have all connected devices been found (listed in the CServer under bus devices)?

No device found:
Check the hardware connection (step 4).
Not all devices found:
Was the same bus address assigned to two nodes? Is the hardware connected properly (power supply?).

8 Note down the addresses of all bus devices found.

9 Implement the devices in the project (ch. 4.3.8, pg. 52).

Start the Project Editor via Project_Edit.
Left-click on the communication driver (e.g. "PROFIBUS C000: [1] ...") in the project.

Check: Is the required DTM listed in the device list?

If required, update the device list in the Project Manager (select Project Update Device List) or close DSV401 R3 (SMART VISION) and install the DTM (step 3).

Select the DTM from the device list, drag it to the communication driver in the project and drop it. Left-click on the device and Edit_Address / Name to set the (PROFIBUS) address (see step 8) of the device.
If necessary configure device via Edit_<device name>_Configure (ch. 4.3.10, pg. 52).
Project_Back to Project Manager to exit the Project Editor.

10 Connect the device (ch. 4.5.1, pg. 60).

Left-click on the device.
Right-click and Connect.

Note: The device entry in the project should be black and bold-faced. If it is displayed in red, a communication error has occurred.

If required repeat step 7 and check the addresses.
For details refer to: Diagnostics and Event List in the CServer.

11 Initialize / start the DTM (ch. 4.1.3, pg. 38)

Note: Some DTMs must be initialized before you can open their GUI. This step is only required for those DTMs.

Left-click on the device.
Right-click and More....
Dialog "Load data set" *Cancel* (not needed for this example).

12 Start the GUI.

Left-click on the device.
Right-click and Edit.

Note: The context menus and the GUI of the DTMs called by right-clicking on the device are device-specific.
Refer to the respective user manuals for details about the available commands (Edit, View, etc.)

The GUI can also be started without setting up a connection to the device. In this case, only offline parameters can be set and saved.

2 Installation and Program Start

2.1 PC / Notebook Requirements

Before installing DSV401 R3 (SMART VISION) make sure that the PC or the notebook matches the following requirements:

2.1.1 Minimum equipment

- Intel-Pentium III Processor 450 MHz or compatible.
- 256 MB RAM.
- 300 MB free hard drive space.
- MS Windows 2000 / XP.
- Microsoft Internet Explorer 5.0.
- Adobe Acrobat Reader (latest rev.)
- Unrestricted administrator authorization.

DSV401(SMART VISION) is released for MS-Windows 2000 and XP(Home / Professional) for a PC / Notebook installation (no server- / network installation).

2.1.2 Basic requirements for HART communication

DE-activate the FiFo-IC.

-> Start -> Settings -> Control Panel -> System -> Hardware -> Device Manager

->Ports -> Double-click on the concerned COM port -> Port Settings -> Advanced

-> unmark the check box for the FiFo buffer. Finally re-boot your computer

If necessary, please contact your system administrator to verify / change the device settings in question.

2.2 Installing DSV401 R3 (SMART VISION)

2.2.1 First installation

1. Carefully read 3KDE631114R3901_Supplement-Info-Tool_DSV4xx_SMART-VISION.pdf. If possible print it. The file may contain important information about changes or extensions.
2. Make sure that the PC / Notebook requirements (ch. 2.1, pg. 7) are met.
   We strongly recommend to run a defragmentation program on the selected drive where DSV401 R3 (SMART VISION) is installed before the installation starts.
3. Start Windows and log in with administrator rights. If Windows was running already close all Windows applications (programs).
4. Insert the DSV401 R3 (SMART VISION) CD.
5. Start the installation via the path:<CD-drive>:\Disk1\Setup.exe. Follow the set-up instructions.
6. Then follow the installation instructions.

For details refer to the following chapters:

2.2.2 Upgrading (loading a new software version)

Proceed as described for the first installation.

Existing projects will not be deleted and can be read by this new version later on.

2.2.3 Scope of installation DSV401 R3(SMART VISION), DTM & driver

The DSV401 R3(SMART VISION) setup installs also all ABB DTM/DMAs and your selected drivers, which are part of the CD / *.zip file.

The entire installation procedure takes up to 20 minutes!

Upon completion of the DSV401 R3 (SMART VISION) installation the setup of all DTM / DMA and drivers starts automatically.

Canceling this setup has no effect on the DSV401 R3 (SMART VISION) setup.

It is also possible to install non-ABB DTM individually later.

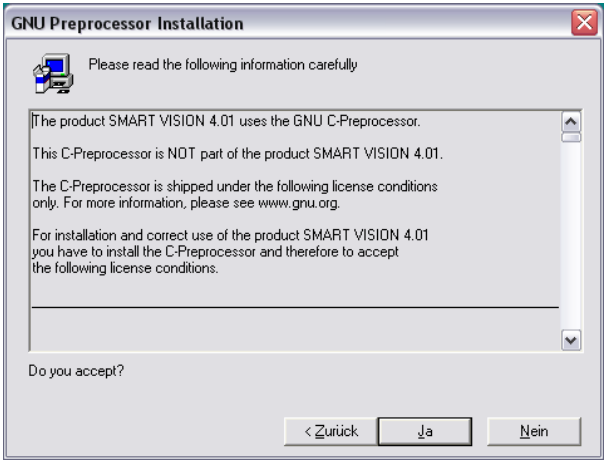
Some DTM setup assistants demand for a PC restart. If you want to install several DTMs you can (mostly) continue the setup procedure and re-boot the system once you are finished. However, booting your PC is important to activate the new settings. Do not forget the final booting!

2.2.4 Target Path / Program Folder

The DSV401 R3(SMART VISION) installation procedure usually overwrites a possibly existing, older version. If you want to use this older version (SMART VISION ≤ 3.99) in parallel to the new version, select a separate folder for DSV401 R3(SMART VISION). Furthermore rename the default installation folder (e. g. to "DSV401 R3(SMART VISION)").

Do not install two SMART VISION tools of rev 4.00 or higher on one PC in parallel!

2.2.5 GNU preprocessor installation



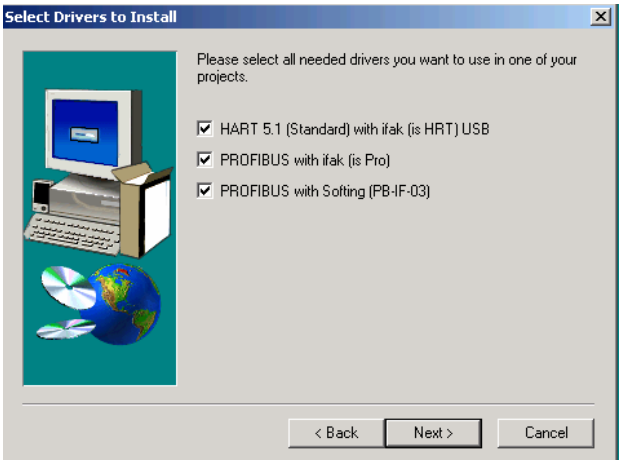
GNU Preprocessor Installation

DSV401 R3 (SMART VISION) uses GNU software to optimize the program code. We recommend to accept the license conditions, since there are no financial demands. The GNU software is required for a proper operation of the DSV401 R3 (SMART VISION) program.

2.2.6 Communication Driver / Install Default Project

Selection of a proper communication driver. An „n of 3“ selection is possible.

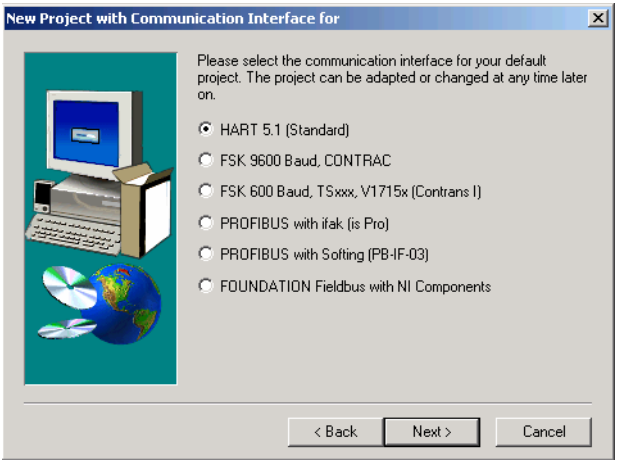
The procedure installs the standard HART RS 232C communication driver for ABB LKS- and FSK-Adapter!



Communication driver installation

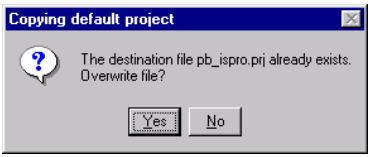
It is possible to install the communication driver separately or later.

Selection of a default-project. It contains the basic project settings. This allows to reduce the following editing effort.



Default project with appropriate communication drivers

The name of the default project depends on the selected communication interface and the project file may exist due to a previous installation.



Project already exists

Yes	The existing file will be replaced by the new default file. All changes made before to this project will be lost.
No	There will be no (new) default project. DSV401 R3 (SMART VISION) will use the previous file.

See also:

4.2.5 Change a project name 45

2.2.7 Configuration of Communication

The newly installed communication driver require a basic configuration before they are used by DSV401 R3(SMART VISION).

HART 5.1 (Standard) with ifak (is HRT) USB	Select Windows Start_ifak system_is HRT Multidriver _is HRT Configurator!

PROFIBUS with ifak (is Pro)	Select Windows Start_ifak system_is Pro Multidriver_is Pro Configurator!
PROFIBUS with Softing (PB-IF-03)	Select Windows Start_Programme_PROFIBUS _Runtime System_Driver Configuration!

Some drivers loose their setting when they are updated or reinstalled. This usually happens with communication drivers that support several hardware configurations. The respective driver/adapter needs to be reconfigured in this case:

Refer to the adapter manufacturers' manuals for configuration details.

2.2.8 DTM Installation

The ABB-DTM-installation is an automatic part of the DSV401 R3(SMART VISION) installation.

The following question may occur during a DTM update:

„Overwrite the write protected file?„

Confirm always with “Yes”.

2.2.9 Uninstall DSV401 R3 (SMART VISION)

To remove DSV401 R3 (SMART VISION) use the uninstall routines of the Windows operating system:

Start_Settings_Control Panel_Add/Remove Programs_Install/Uninstall.

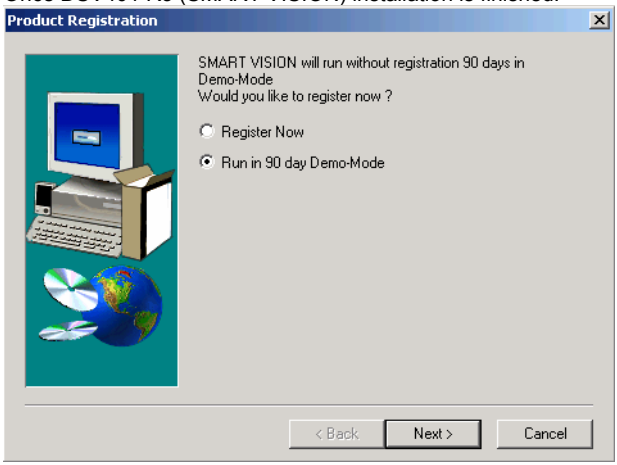
In any case begin with the de-installation of the DTMs (ch. 3.10.1, pg. 36).

1. Firstly uninstall all DTMs / DMAs (do not uninstall the „ABB DTM LIBRARY“), beginning with: 600T, ABB Engineer IT DTM*, Engineer IT DTM*, ABB Engineer IT DMA*, ABB DTM* and DTM*.
2. Then uninstall „ABB DSV4.01“
3. and finally “DTM Library Patch“ first, then "ABB DTM LIBRARY" and "SV4License".
4. Delete the related folder ..**SMART_VISION*.*** under <drive>:\Program Files\.
5. Reboot your computer!

2.3 Licensing

Start of the licensing procedure:

1. Once DSV401 R3 (SMART VISION) installation is finished:



2. Within the 90 day demo-mode:
   From DSV401 R3(SMART VISION) application

   Help_Register! opens the licensing dialog

   Alternatively open the dialog in MS Windows via
   Start_Programs_SMART VISION_Register!

3. After expiry of 90 days demo-mode:
   Only via MS Windows dialog
   Start_Programs_SMART VISION_Register!

2.3.1 Licensing procedure

The licensing procedure requires unrestricted administrator authorization for the user.
DSV401 R3 (SMART VISION) requires a valid license key for permanent use.

The licensing procedure assigns the protected software DSV401 R3 (SMART VISION) to a specific hardware (e.g. notebook, PC). Since usually the hardware is not yet known at the time when the software is delivered, the assignment is made when the software is installed. This creates a request key which uniquely assigns the software version to a specific hardware. In conjunction with the respective order the request key becomes a valid license key.

Due to this procedure, the license keys are not yet available in the installation phase. In these cases, the software will start up in demo mode (see ch. 2.3.6, pg. 19).

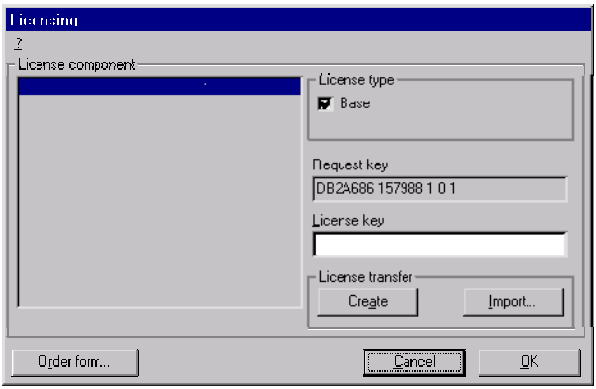
Licensing is possible at any time.(2.3.3, pg. 16)

2.3.2 Licensing dialog

The licensing dialog box is called:

- automatically at the end of the setup procedure
- from the Windows OS: Start_Program_SMART VISION_Register!
- from Windows via DSV401 R3(SMART VISION): Help_Register!
- via the buttons of the nag boxes in demo mode (ch. 2.3.6, pg. 19): *Register!*.

In the first two cases the dialog always refers to all license components (currently only for DSV401 R3(SMART VISION), in the last two cases only to the license component from which the dialog is started.



Licensing dialog box

License component

Select the component to be licensed from the left frame in the window. A license component is for example „ABB Automation Products SV4.01“ for DSV401 R3(SMART VISION) (see also ch. 2.3.5, pg. 19)
The license type, *the request* and *license key* and the license key transfer always refer to the selected component.
You can subsequently make the settings for several license components and then save/take over the changes or additions altogether (*Order form...* / *OK*).

License type

The license components always include a *Base* license type. It provides the basic functions and, if applicable, additional modules for extending the functions. Although these can be licensed separately, they also require a valid *Base* license type (valid license, or validation period of demo version not yet expired).

Already licensed
The functions coupled to this license type are available for an unlimited time.

Selected for licensing.
The appropriate license key can be ordered now (ch. 2.3.3, pg. 16).
The functions coupled to the license type are available when the appropriate license key is entered, or in demo mode, if the validation period is not yet expired (ch. 2.3.6, pg. 19).

Not licensed and not selected.
The functions of the license type can only be used as long as the validation period of the demo version (ch. 2.3.6, pg. 19) is not yet expired.

Description

Provides additional information about the selected license component. The button is only displayed when additional information for the license component is available, e.g. if several license types exist for a license component.

Request key

The request key cannot be edited. It is automatically created in the setup phase and is required for requesting the license key (ch. 2.3.3, pg. 16). The request key is made up of information about the used hardware and the component to be licensed.

License key

Enter the license key for the selected license component. Requesting a license key: Chapter 2.3.3, pg. 16.

Create

Creates a file with information for unambiguous identification of the PC hardware. The file is only needed if an already existing license is to be imported on the respective PC (see chapter 2.3.7, pg. 21).

Import / Export

Licenses can be imported from (*Import*) or exported to (*Export*) other PCs (see chapter 2.3.7, pg. 21).

Order form

Opens the order form. The button is only enabled when at least one license component has been selected for licensing (see *License type*). Ordering procedure: see chapter 2.3.3, pg. 16.

Cancel

All additions and changes regarding licensing are rejected. After cancellation the setup procedure is terminated properly, or is continued when called up again at a later time with the step prior to cancellation.

OK

All changes and additions regarding licensing, e.g. new license keys, are saved. The setup procedure is terminated properly, or is

continued when called up again at a later time with the step prior to calling up.

2.3.3 Requesting a license key

Refer to chapter 2.3.2, pg. 14 for details about steps 1 to 5.

1. Open the licensing dialog.
2. Select a license component.
3. Select the license types to be licensed.
4. If required repeat steps 2 and 3.
5. Call up the Order form... .

6. Enter customer data:

 Important: Read the instructions regarding the order number!

Enter (optionally):

Address	For new customers (no APR customer number available yet, see explanations below) this address may be used as invoicing address.
Phone, e-mail, ...	Help us to improve our service. When requesting the license key by e-mail we will send the key directly to that e-mail address.
Delivery address	Alternatively, the license key can be sent to the address specified here.

Product data / vendor

These product-specific data will be generated and entered automatically, based on the settings made in the licensing dialog.
This request may appear several times if you should order license keys for license components from different vendors. If required, separate orders / requests will be created.

ABB customer number	This number ensures that existing agreements can be considered directly. Improves and accelerates the handling of your order
ABB order confirmation number	There are several possibilities: ▪ A license has already been ordered with the CD, but no license key has been requested / delivered so far. In this case it is absolutely necessary to enter the order number (see back of the CD case). The license key will be delivered free of charge then. If you have several order numbers from one vendor please fill these in manually (in the print-out or in the

header of your e-mail), or order the licenses separately for each individual order.

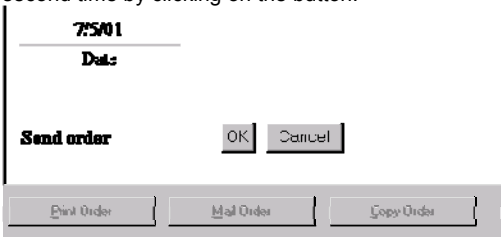
- No license ordered yet (= no order number on your CD case):
  Leave the field empty. When requesting the license key an order will be set off, with the specified conditions.
- Some licenses were already ordered earlier, some are to be ordered now:
  In this case it is absolutely necessary to enter the order number (see back of the CD case). The license keys for all license components/license types requested with the said order will be delivered free of charge.
  If you have several order numbers from one vendor please fill these in manually (in the printout or in the header of your e-mail), or order the licenses separately for each individual order.
  All other license requests (i.e. those for which no item exists in the said order) will be handled as orders.

Get the currently valid prices from your local ABB sales representative.

See the web site www.abb.com/instrumentation for license use and general conditions for software 3KDE631001R2501
→ Device Management and Fieldbus
→ Device Management Tool
→ Downloads

Product	Unambiguous product name for the license component.
Version	Product version.
Request key	Required to generate a unique license key coupled to the installation hardware.
Of company:	Provides the products specified under product data / vendor.

7. Send off the order / request. There are alternative ways to order:

Print Order	Please sign the printout legally binding and send it by mail or fax to the address printed on the order form. The standard printer of the operating system will be used.
Mail Order	Instead of signing you need to confirm the request / order a second time by clicking on the button.  The order will then be transmitted automatically as an plain text e-mail to the installed mail server. After this the following message should be displayed:  Exclusively use the following email address for the license request: mailto:Licensing.DEAPR@de.abb.com
Copy Order	Copies the ordering data into an empty text document (Microsoft editor). If the transmission to the mail server should fail or no printer is connected, it is also possible to transmit the file contents manually by using an alternative mail system.
By phone	Use the phone number specified under "From company". This way of ordering is recommended if licenses have already been ordered (and maybe even paid), the validity time of a demo version has expired, and a request by mail or e-mail would not arrive in due time.

Upon reception of your order we will send you a reception note and the license key. In case of a subsequent delivery (order has already been received, see explanations above) you will receive the license key free of charge.

2.3.4 Entering the license key

The license key has to be entered in the licensing dialog box (see ch. 2.3.2, pg. 14).

Every license key only fits for the specified hardware with which the request key was created and the respective license component.

See also:

2.3.2 Licensing dialog 14

2.3.5 Missing license component

Possible reasons for a missing license component (currently „ABB Automation Products SV4.01“ for DSV401 R3 (SMART VISION)) which is not included in the licensing dialog (see ch.2.3.2, pg. 14) are:

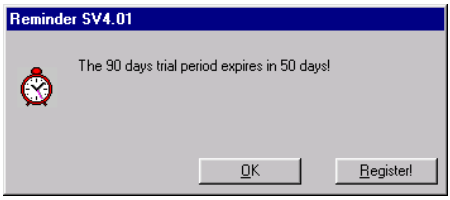
- The licensing dialog has been called from the menu of a license component, e.g. Help_Register! or from a user dialog related to this component.
  In these two cases only the information / interactions relevant for this specific component is displayed.
- The wanted component has not been installed. In this case the component is also missing in the license component list of the license dialog.
- The respective component cannot be licensed. Usually, the component is listed in the device list (see ch. 4.3.1, pg. 48) of DSV401 R3 (SMART VISION) then. Such a component is either already included in DSV401 R3 (SMART VISION), not license protected or does not require a license key.

2.3.6 Demo mode

You can test the license component (currently „ABB Automation Products SV4.01“ for DSV401 R3 (SMART VISION)) with its full functionality within an evaluation period of 90 days. The evaluation period begins at the first start of the license component. The demo mode is not yet activate only by installing the license component.

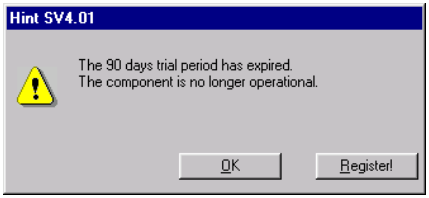
When running in demo mode, the license component will behave like a fully licensed version.

Between the 31st and 90th day of the evaluation period a "nag box" with a reminder indicating the remaining days will pop up upon each start of the license component, and you will be requested to register (= order a license). The same nag box will appear when an unlicensed function is called.



Nag box

Upon expiry of the 90 days evaluation period all license components (currently „ABB Automation Products SV4.01“ for DSV401 R3(SMART VISION)) that have not yet been licensed, or individual license types (i.e. functional extensions of a license component) will no longer be operational (except for the licensing module). Therefore, it is recommended to order the license key(s) directly upon reception of the license component(s).



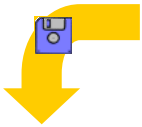
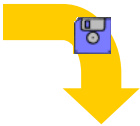
Evaluation period expired

The evaluation period counter cannot be reset. None of the following actions will reset the counter:

- Re-installation of the same license component.
- Resetting the date of the operating system.

2.3.7 License transfer

Transferring the license to another hardware (PC, notebook).

Step	Source system	Target system
Presupposition	The license component (ch. 2.3.2, pg. 14) has been installed properly, the licensing dialog (ch. 2.3.2, pg. 14) has been opened, and the license component (currently „ABB Automation Products SV4.01“ for DSV401 R3(SMART VISION)) has been selected. Note that the same version of the license component must exist on the source and target system.	
Initial situation	Already licensed.	Not yet licensed. (Can be run in demo mode.)
1. Create		*Create* generates a file with system information, for instance License. lf. This file is usually (default setting) saved under "C:\Programs\ Common files\ SV4Controls". Transfer the file (License.lf) to any directory of the source system.
2. Export	*Export* opens a file dialog window. Choose the file provided with step 1 (License.lf). *Open* (in file dialog window) writes the valid license to that file. Transfer the file (License.lf) back to the original directory of the target system.	
3. Import...		*Import* opens a file dialog window. Choose the file provided with step 2 (License.lf). *Open* imports the license.
Final situation	Not licensed. Not operational!	Licensed.

2.3.8 PC hardware failure / trouble shooting

Problem	Solution
Defective motherboard	1. Replace the motherboard of your PC or use a spare PC. Re-install the software. The software will be run in demo mode. (Only possible if no expired demo version exists on the 'spare' PC). 2. Request a new license key. Indicate all data of the 'old' order (order number, etc.). A new license key will be sent to you upon check of the ordering information and the new request key (on the basis of accommodation). The ID number of the defective motherboard (which is unique throughout the world) will be locked in our database, and no future orders nor services are possible for this number). Any misuse will be prosecuted.
Hard disk failure	1. Re-install the software on a spare hard disk on the same PC. The software will be run in demo mode. (Only possible if no expired demo version exists on the spare hard disk). 2. Request a new license key. Indicate all data of the 'old' order (order number, etc.). A new license key will be sent to you free of charge upon check of the ordering information and the new request key. (The motherboard ID which is unique throughout the world is also encoded in the newly created request key and, therefore, will be recognized automatically by the licensing department).
Hard disk is to be formatted	1. Export the license key (ch. 2.3.7, pg. 21). 2. Format the hard disk. 3. (Re)import the license key. If no spare PC should be available, proceed as described under "Hard disk failure".

2.4 Starting DSV401 R3(SMART VISION)

Did you boot your PC after installing SMART VISION? (Ch. 2.2.3, pg. 8)

Enter Start_Programs_SMART VISION_ SMART VISION 4.01 or double-click the DSV401 R3(SMART VISION) icon. The software will start with the last used project. When DSV401 R3(SMART VISION) is started for the first time, the default project defined in the installation phase pops up.

At the first start or for later installation of DTMs, it must singly declared to DSV401 R3(SMART VISION) which DTMs are installed (ch. 4.3.8, pg. 50).

2.5 Installation of additional DTMs

All DTMs (ch. 3.10.1, pg. 36) on your DSV401 R3 (SMART VISION) CD are installed automatically and are available in the corresponding device list once they are declared (ch. 4.3.1 pg. 48).

DTMs that are not yet available can be loaded as soon as they are published. Existing DTMs are actualized in the same way.

To do that please follow the set-up instructions of the DTM.

See also:

4.3.8 Add DTM to the device list 50

3 Introduction

3.1 Application Goal

DSV401 R3 (SMART VISION) is an intelligent software for handling all aspects of field instrument management with the standardized interface FDT 1.2.

It serves for the configuration, parameterization, calibration, commissioning, diagnostics, maintenance, documentation and administration of intelligent field instruments of various manufacturers.

See the brochure " Device Management Tool DSV4xx (SMART VISION)" for details.

You will find this brochure also on the program CD (see 50fb01be.pdf).

A single tool for all Instruments!

See also:

3.4 Communication Interface / Hardware..... 30

3.2 Main applications of DSV401 R3 (SMART VISION)

Targeted instruments: smart field instruments from different vendors.

- Online and offline configuration and parameterization of smart field instruments via parameterization windows.
- Multi-visual online display of instrument data (information concerning measurement values, diagnostics, configuration, parameterization, status).
- Device data storage in files.
- Planning and administration of device tags.
- Visual device overview as a copy of a plant device communications.
- Instrument maintenance.

3.3 Functionality / Special Features

3.3.1 Management

- Management of devices and device networks in projects.
- Definition of projects by means of a graphical interactive project editor.
- Definition and assignment of tag names in the project editor.
- Automatic allocation of tag names and addresses.
- Easy selection of instruments by simple clicking on the corresponding project entry.
- Instrument recognition via tag name or address.
- Simultaneous communication to several field instruments.
- Contrans I scan procedure to ascertain connected HART instruments.

3.3.2 Parameterization

- Online / offline configuration and parameterization of smart field instruments.
- Upload of device data = read parameterization and configuration information from the instrument.
- Download of device data = reload stored device data to the instrument.
- Detailed, specialized device data windows for complete parameterization of all integrated field instruments.
- Basic parameterization for all HART 5.1 compatible field instruments (HART Universal).
- Parameterization for PROFIBUS DPV1, PROFIBUS PA instruments via DTMs.
- Parameterization for FOUNDATION Fieldbus-H1 instruments via DMAs.

3.3.3 Online display of measuring and status information

- Numerical.
- Bargraph with limits.
- Trend recorder with scalable time axis.
- Instrument status with error report functions.
- With DTM (Ch.3.10.1, pg. 36) specific indicators.

3.3.4 Archiving

- Save instrument's parameterization data on a Windows compatible storage device (hard disk, CD-ROM...).
- Store project data.

3.3.5 Documentation

- Printing device data.
- Printing diagnostics information.
- Printing a DSV401 R3 (SMART VISION) project.

3.3.6 Miscellaneous

- Integrated hypertext help.
- Password protection, e.g. for the download of instrument data.
- Simultaneous use of COM interfaces and 4 PROFIBUS lines on one PC / notebook to connect field instruments.
- Integrated comment and note functions.
- User interface designed according to VDI/VDE 2187 rules.
- Support of “Nested Communication” for HART DTM under Remote IO-DTM and CommDTM.
- Simultaneous display of several measurement value windows, of data input / output or configuration windows.

3.4 Communication Interface / Hardware

This version of DSV401 R3 (SMART VISION) supports the following types of communication and protocols:

(For approved cards and extended options see additional information 3KDE631114R3901_Supplement-Info-Tool_DSV4xx_SMART-VISION.pdf in the internet under: http://www.abb.com/Instrumentation
→ Device Management and Fieldbus
→ Device Management Tool
→ Downloads)

3.4.1 HART 5.1 (Standard)

- Peer-to-peer via RS232C-FSK modem
- Peer-to-peer via RS232C-LKS adapter for positioners and TEUxxx.
- Peer-to-peer via USB-FSK modem
- FSK-Bus via RS 232C-FSK-modem to the ABB Contrans I-module carrier

3.4.2 FSK 9600 Baud

- Peer-to-peer via RS 232C-configuration cable to CONTRAC actuators
  (Some Contrac features require a higher baud rate, than HART 5.1(Standard) can offer (1200 Baud). The driver FSK 9600 Baud allows for max. 9600 Baud via RS232 and Contrac communication cable).

3.4.3 FSK 600 Baud

- Peer-to-peer via RS 232C/USB-FSK-Modem to TSx02.
- Peer-to-peer via RS 232C-LKS-adapter to ABB Contrans I modules

3.4.4 PROFIBUS

- PROFIBUS DP connection via USB adapter
- PROFIBUS DP connection via PCMCIA card
- PROFIBUS connection via ISA cards

3.4.5 FOUNDATION Fieldbus

- FOUNDATION Fieldbus-H1 connection via PCMCIA cards

3.5 Connect Devices

A detailed instruction for connecting (field) devices to the (field) bus or to the interface will be received from the respective suppliers of the technology and the respective user organizations.

See the DSV401 R3(SMART VISION) data sheet for detailed connection descriptions of the ABB adapters and modems.

See also:

3.6 LKS Adapter

3.6.1 General information

The LKS adapter allows the peer-to-peer connection to instruments with the corresponding local communication interface (LKS = **L**okale **K**ommunikations **S**chnittstelle).

3.6.2 Wiring

You can find instructions for the connection of the LKS adapter in the manuals of the corresponding instruments.

3.6.3 Procedure

LKS adapters are supported by the following communication interfaces:

- HART 5.1 (Standard) (ch. 4.6, pg. 64)
- FSK 600 Baud (ch. 4.9, pg. 91)

See also:

3.7 FSK Modem

3.7.1 General information

The FSK bus concept developed by ABB allows for the parameterization, commissioning and monitoring of a large number of intelligent field instruments via one central operator console. The FSK bus is based on the HART protocol, which is supported by a large number of the instruments currently available on the market. FSK stands for Frequency Shift Keying and is the physical transfer format of the HART protocol.

The aim of DSV401 R3(SMART VISION) is to make the management of field instruments connected to the FSK bus as easy as possible for the user.

3.7.2 Wiring

You can find instructions for the connection of the FSK modem in the manuals of the corresponding instruments and for Contrans I in the Catalogue.

For a proper communication with the connected field instruments it is necessary that all signal circuits are closed. The maximum output loads of the instruments may not exceed the ranges specified in the data sheets.

3.7.3 Procedure

FSK modems are supported by the following communication interfaces:

- HART 5.1 (Standard) (ch. 4.6, pg. 64)
- FSK 600 Baud (ch. 4.9, pg. 91)

See also:

3.8 PROFIBUS DP-Adapter

3.8.1 Function of PROFIBUS

You can find information concerning the functioning of PROFIBUS on the internet pages of the PROFIBUS International under http://www.profibus.com.

3.8.2 Wiring

For further details of the PROFIBUS adapter connection see the manual of the concerned device.

3.8.3 Procedure

PROFIBUS-adapter are supported by the communication interface:

- PROFIBUS (ch. 4.7, pg. 74)

See also:

3.9 FOUNDATION Fieldbus-H1 Adapter

3.9.1 Function of FOUNDATION Fieldbus

You can find information concerning the functioning of FOUNDATION Fieldbus on the internet pages of the Fieldbus FOUNDATION under http://www.fieldbus.org.

3.9.2 Wiring

For further details of the FOUNDATION Fieldbus adapter connection see the manual of the concerned device.

3.9.3 Procedure

FOUNDATION Fieldbus adapter are supported by the communication interface:

- FOUNDATION Fieldbus (ch. 4.8, pg. 82)

See also:

3.10 FDT Concept

The Field Device Tool (FDT) concept follows the idea to separate all device specific functions and information from the ones of the "Stand Alone Tool", engineering tool or control system by a standardized interface.

For further information about the FDT concept see the internet pages of the FDT-Group under http://www.fdt-jig.org.

The use of DSV401 R3(SMART VISION) offers the following advantages:

- Saving of time by interoperability of DSV401 R3(SMART VISION) and control systems.
- New device types are also loadable afterwards ("Plug and Play").
- Support of all device features.
- Standardized configuration of field instruments within the plant.
- Easy operating even of complex devices.
- Customized graphical user interface.
- Support of DTMs of any manufacturers.
- DSV401 R3(SMART VISION) supports the FDT 1.2 standard.

3.10.1 Device Type Manager (DTM)

The Device Type Manager (DTM) combines the functions and the information of a device type to a software module (Plug In). Due to the standardized FDT interface, DTMs are applicable to all FDT conform systems (FDT frame applications).

DTMs represent:

- Field instruments (typically) with various bus protocols
- CommDTM for various communication interfaces.
- DeviceDTM for various field devices with the same bus protocol (Basic / Universal).

4 Software Operation Method

4.1 Notes for the Operator

4.1.1 Visual guidance in DSV401 R3(SMART VISION) Help

Text example	Description / Meaning
Menu item	Narrow, blue characters. Menu and submenu are separated by "_". Example:
Help_Contents	Contents is part of the submenu of Help. In this connection file-card tabs are considered as menu items.
KEYS	Narrow gray bold capitals. "Key" refers to the PC keyboard.
Label text	Italic. Label of input fields and texts for function keys in dialog boxes.
Accentuation	Key information.
Hyperlink	Dark green underlined. The hyperlink guides to the referring chapter or section.
Hyperlink	Blue underlined. The hyperlink refers you to the respective internet page.

Symbol	Meaning
	Hints for operation via keyboard.
	Warnings/cautions, which must be observed!

4.1.2 Operating standards in DSV401 R3(SMART VISION)

Operation of DSV401 R3(SMART VISION) is based on the Windows standard.

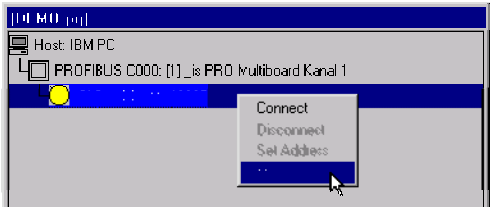
A basic requirement is that the operator is familiar with the general operation of Windows programs.

4.1.3 Different operation of integrated devices and DTMs

With this DSV401 R3(SMART VISION) version not only fully integrated device applications of earlier versions - e.g. most HART instruments - may be served but also DTMs (ch. 3.10.1, pg. 36) linked to the FDT Concept (ch. 3.10, pg. 36). This requires occasionally a different or even new procedure of operating. It is typical of DTMs that their graphical user interface (GUI) can be pushed out of the DSV401 R3(SMART VISION) window.

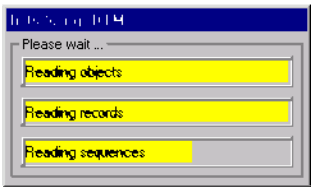
DTMs must be initialized before you can open their graphical user interface (GUI):

Only part of the device menu is shown before initialization.



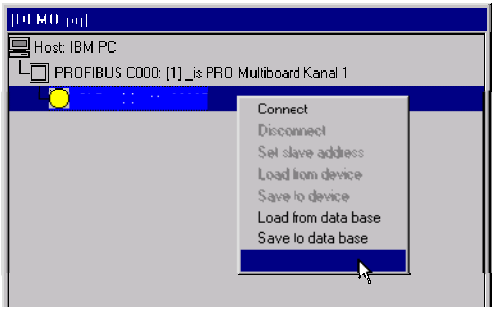
Context menu, DTM not initialized

Device_More... initializes the DTM.



Initializing DTM

And implicitly completes the menu.



Context menu, DTM initialized

See also:

4.1.8 Menu line..... 41

4.1.4 Keyboard operation

In addition to the mouse control all functions can be accessed by means of keyboard.

Activation of menus:	**ALT**
Selection of menu items:	**ARROWKEYS**
Confirmation:	**RETURN**
Selection lists:	Use the **ARROWKEYS** to select items from the list. The list remains closed (item is only changed if more than one element can be selected.)

It is also possible to use shortcuts (underlined characters in the menus). For details please refer to the corresponding Windows manuals.

4.1.5 Function keys

Function keys allow for quick access to often used functions. Therefore, the most important function keys (**F2**, **F3**, **F4**, **F5**, **F6**) are available as buttons directly under the main menu and give access via mouse also.

The function keys **F2**, **F3**, **F5** and **F6** are only available, if no DTM window is active.

Function keys

F1	Context sensitive DSV401 R3(SMART VISION) help (no button).
F2	The Project Manager (see ch. 4.4, pg. 57) becomes active.
F3	Opens / activates the analog monitor (see ch. 4.13, pg. 98) if the connection to the selected instrument was established before.
F4	Starts the context sensitive HART diagnostics (see ch. 4.15, pg. 104).
F5	Opens / activates the device data window (see ch. 4.14, pg. 102) of the field instrument selected in the project manager.
F6	Activates the next window. This way accesses to hidden windows.

4.1.6 Menus

The help always refers to the "active" DSV401 R3(SMART VISION) element. This can be the active window of a DTM (see ch. 3.10.1, pg. 36) or an element (e.g. instrument) in the Project Manager (ch. 4.4, pg. 57). Menu items which are displayed in gray are inactive. In this case a basic requirement is not met.

Example:	Diagnostics (of a field device) stays gray as long as there is no connection to the selected instrument.

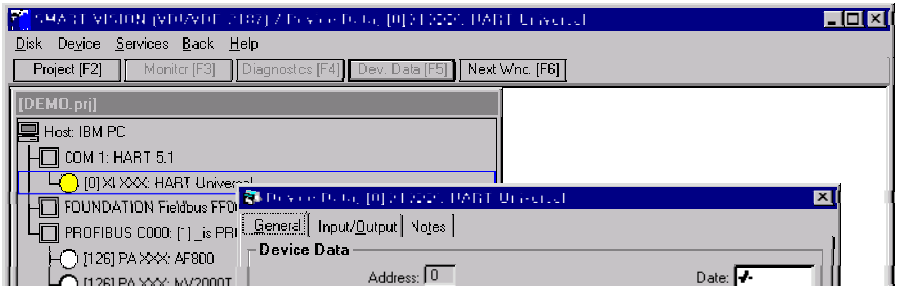
4.1.7 Help

Help menu

Contents	Chapter orientated Help. F1 has the same function.
Search For Help on...	Access to help topics via free text search or choice list.
Register!	Licensing dialog for DSV401 R3(SMART VISION) (ch. 2.3, pg. 13). Indicates which software modules (license components, license types) have already been licensed and permits licensing of additional components (currently only for DSV401 R3(SMART VISION).
About SMART VISION	Copyright, version and license number of this DSV401 R3(SMART VISION) license. The field for the license number stays empty if the program runs in demo mode (ch. 2.3.6, pg. 19). The complete licensing status is shown in Register!

4.1.8 Menu line

With integrated devices (see ch. 4.1.3, pg. 38) the main menu line is matched with the device specifications when the device data window is activated. Example:



Main menu line of the device data window of HART Universal

See also:

4.1.3 Different operation of integrated devices and DTMs..... 38

4.1.9 Help on field instruments

The description of parameters and the design of the specific input / output windows of field instruments are explained in the corresponding field instrument's manual. To access those specific help texts select the respective instrument first. Then use the function key **F1** or Help_Contents to display the instrument's help.

4.1.10 Device data window

Parameter fields with white background respectively without background pattern are input fields. These data may be written into the device. Fields with yellow background are reading fields. Changed data (input fields) appear blue underlined.

TAB	Step to the next input field.
SHIFT+TAB	Go to the previous input field.

4.1.11 Status line

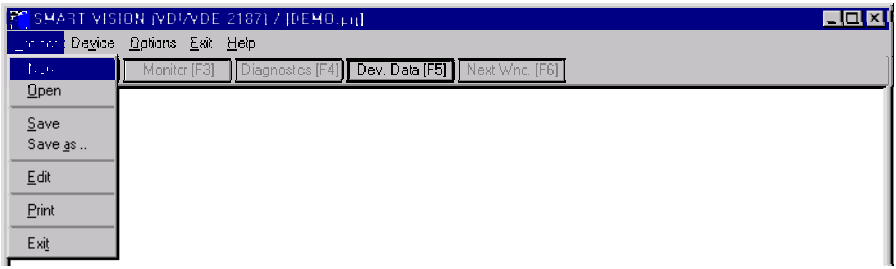
At the bottom of the device data window for an integrated device (see ch. 4.1.3, pg. 38) there is a status line.

It shows (other than the device-specific status lines of the DTMs, see chapter 3.10.1, pg. 36):

- The status of the connection to the device (connection / no connection).
- Whether upload data are displayed by the instrument (data loaded / no data loaded),
- The file name of the file in which the last information was saved (no file / <file name>).

4.2 Projects, Create

To create a project and to file, open, save and print existing projects, use the main menu, menu item Project.



Menu item Project

Projects are the representation of a plant network structure in DSV401 R3(SMART VISION) including the device data. They can be created and modified:

online - e.g. to change an existing plant, as well as

offline - which means without connection to the devices.

Modifying projects online offers the advantage to search for existing to integrate their connection data in the project.

See also:

4.5 Communication / CServer 60

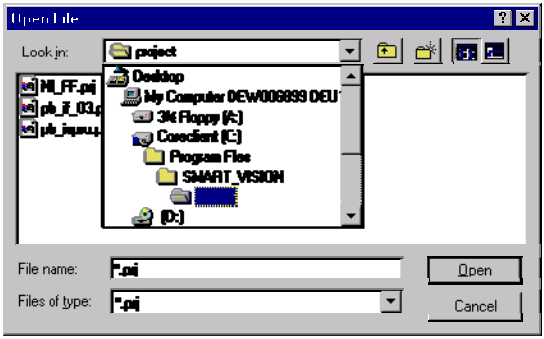
4.2.1 Create a new project

Project_New opens the selection-box for default projects. Default projects contain the most important settings, which reduce significantly the following project editing.

Selection default projects

4.2.2 Load an existing project

Project_Open starts the Windows file browser to open an existing project.



File browser

File name: Long file names are supported.

Filter: For DSV401 R3(SMART VISION) projects the filter is permanently set to **.prj*.

Search in: Basically, each directory may be selected. Default setting is the submenu "project" in the installation directory of DSV401 R3(SMART VISION).

4.2.3 Save a project

Project_Save — saves the current project with its already assigned file name. The existing file will be replaced without notice. If the project is stored for the first time to a file, the behavior is the same as of Project_Save as....

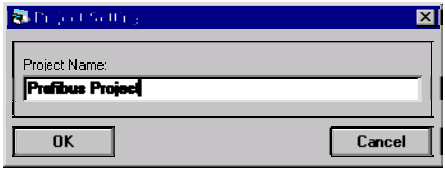
Project_Save as... — uses the same dialog as described for Project_Open. In this case the input field is used to assign a file name. An inadvertent replacement of an existing file will be prevented.

4.2.4 Edit a project

Project_Edit — starts the Project Editor (ch. 4.3, pg. 47) In the project editor the structure of a project may be changed. Before the switch-over to the project editor DSV401 R3(SMART VISION) disconnects all existing device connections - after a warning notice with the possibility to cancel - and closes all DSV401 R3(SMART VISION) or DTM windows in case they are still active.

4.2.5 Change a project name

1. Select "Host: IBM PC" in the Project Manager (see ch. 4.4, pg. 57).
2. Choose menu item Device_Set Project Name or F5
3. Type in the project name and terminate with *OK*.



Changing project name

4.2.6 Print a project

Project_Print — prints the present project name, the project file name and the network structure of the project

See also:

4.18 Printer settings 115

4.2.7 Close a project and DSV401 R3(SMART VISION)

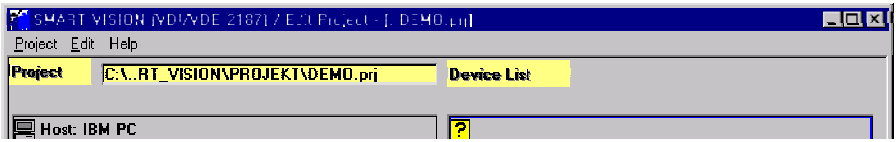
Project_Exit SMART VISION or Exit_Exit SMART VISION

closes DSV401 R3(SMART VISION). The program disconnects all existing device connections - after a warning notice with the possibility to cancel - and closes all DSV401 R3(SMART VISION) or DTM windows in case they are still active.

See also:

4.3 Project Editor

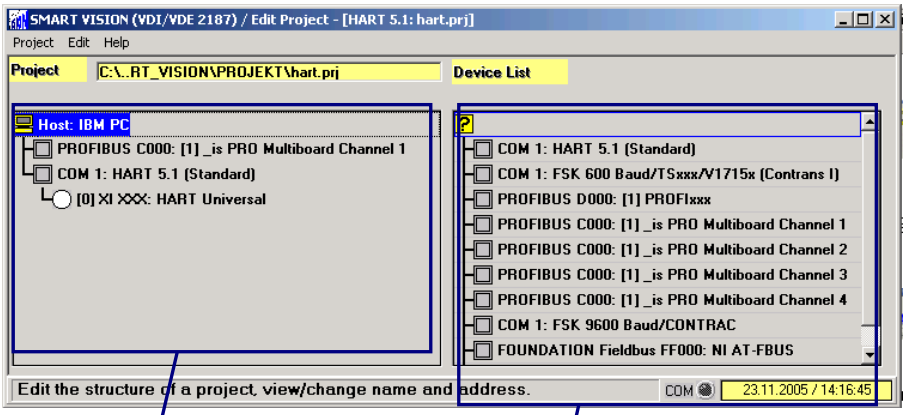
The project editor offers a graphical interactive configuration of the project structure. The editor is started via Project_Edit in the DSV401 R3(SMART VISION) main menu (ch. 4.2, pg. 43.) and refers always to the project displayed in the Project Manager (ch. 4.4, pg. 57). In addition, the file name of this project is displayed under the menu line beside "Project".



Project editor, menu line

Project_New, Project_Open..., Project_Save, Project_Save as Project_Print	are equivalent to those of the project menu (see ch. 4.2, pg. 43).
Project_Printer Configuration	is equivalent to Options_Printer Configuration in the Project Manager.
Projekt_Update Device Catalog	Select this menu item after the first installation of DSV401 R3(SMART VISION) or a new DTM / DMA. This updates the device list (ch. 4.3.8, pg. 50).
Project_Back to Project Manager	closes the Project Editor and activates the Project Manager (ch. 4.4, pg. 57). A message box offers to save changes to the project file. Irrespective of that, modifications will always be transferred to the Project Manager.

4.3.1 Device List



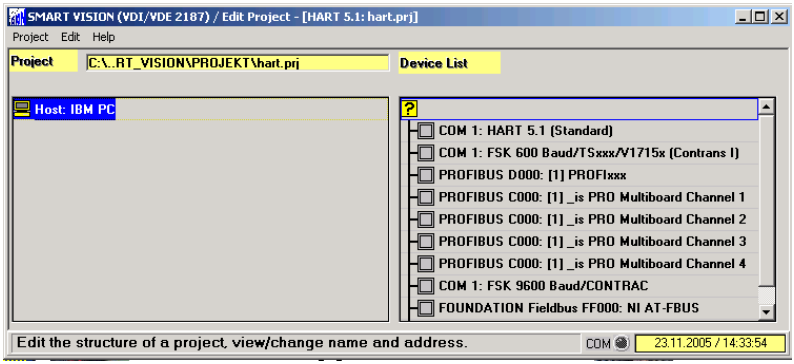
Device List host

The left side shows the project in the same structure as in the project manager.

On the right side a context sensitive device list is displayed.

Here all instruments are stated that can be connected to the element selected in the project (on the left side).

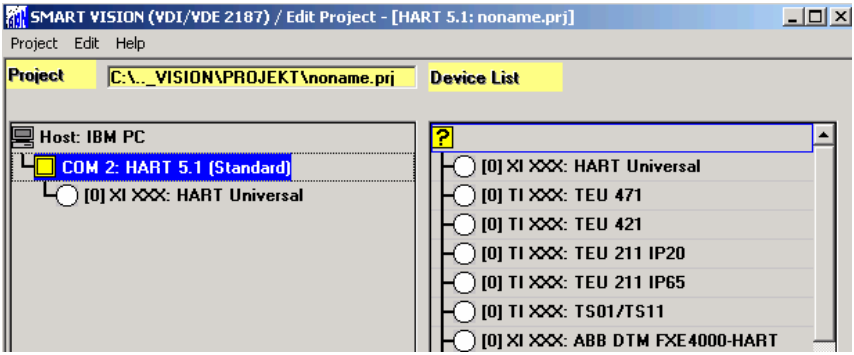
4.3.2 Device List – IBM PC



Device List IBM - PC

Each project supports up to 6 communication interfaces.

4.3.3 Device List - HART 5.1 (Standard)

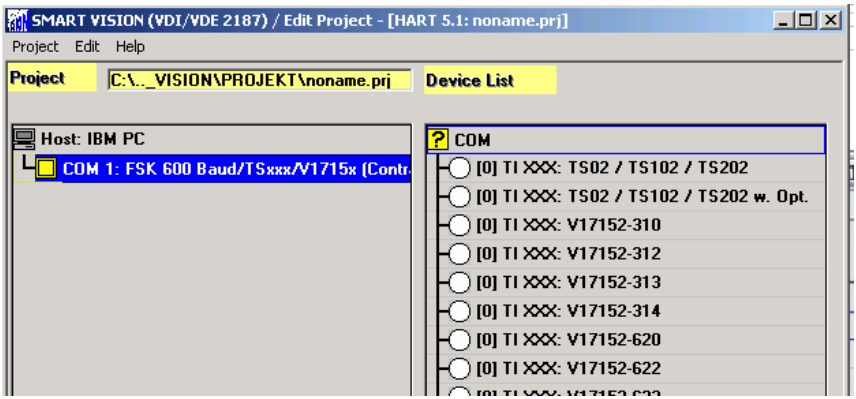


Device List HART 5.1 (Standard)

The HART device list contains integrated applications and later loadable DTMs. The handling corresponds basically to the handling of the other device lists.

Each HART-interface supports up to 255 HART-devices.

4.3.4 Device list – FSK 600 Baud/TSxxx/V1715x(Contrans I)

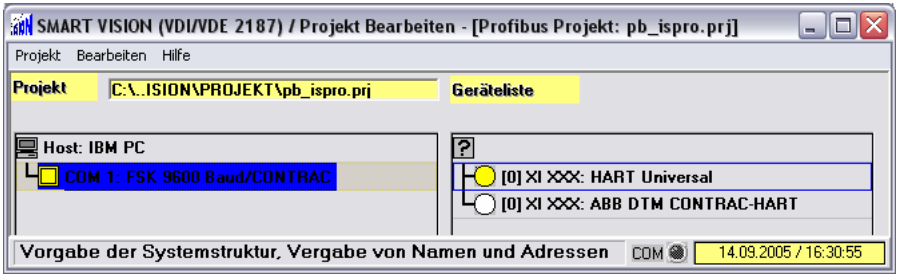


Device List FSK 600 Baud

The FSK- device list contains only integrated device applications. The handling corresponds to the handling of the other device lists.

Each FSK-interface supports up to 15 HART-devices.

4.3.5 Device List - FSK HART 9600 Baud/CONTRAC



The FSK- device list contains only integrated device applications. The handling corresponds to the handling of the other device lists.

Each FSK-interface supports up to 8 devices.

4.3.6 Device list PROFIBUS / FOUNDATION Fieldbus

The device lists for PROFIBUS and FOUNDATION Fieldbus contain only later loadable DTMs / DMAs (no integrated device applications). They can therefore be empty, depending on your installation. The handling corresponds to the handling of the other device lists.

Each PROFIBUS-interface supports up to 126 devices.

Each FOUNDATION Fieldbus-interface supports up to 31 devices.

4.3.7 Additional device lists

Since it is possible to load communication drivers into DSV401 R3(SMART VISION) at a later time via driver or CommDTMs, additional device lists may be generated.

See also:

3.10 FDT Concept 36

4.3.8 Add DTM to the device list

After the first start or in case of a later DTM installation DSV401 R3(SMART VISION) requires once the information, which DTMs have been installed and adds them automatically to the device list.

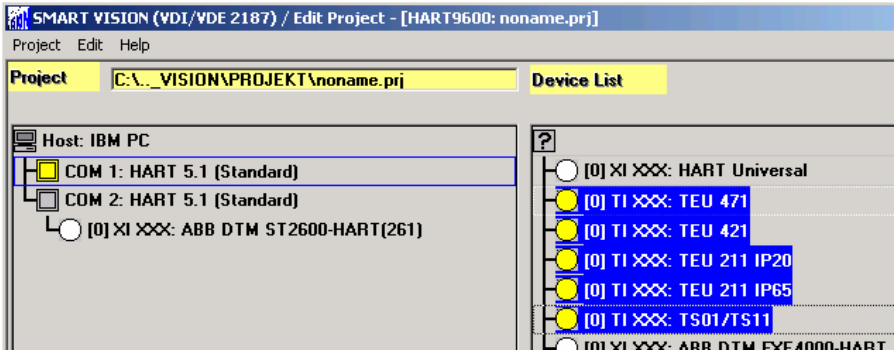
Under: Project_Edit_Update Device Catalog

4.3.9 Insert elements

The insertion of new elements / devices from the device list to the project is performed by "drag and drop" as explained below.

1. Select the project entry (left) where the additional element should be insert. The element's background turns blue and the according device list appears (right).
2. Mark the needed element in the device list (blue background), while keeping the left mouse button pressed and drag the element to the left to the place where it should be insert. If you want to select more than one element, just move the mouse vertically while keeping its left button pressed.
3. If the insertion is possible at the new location, the mouse pointer appears as an arrow. If a stop sign appears, the insertion is not possible at the chosen location. This procedure is dynamic and ends with the release of the mouse button.

The insertion is always blocked (stop sign or highlighted in red within the device list) if an element to be inserted does not fit the chosen place in the project, e.g. if the communication protocols are different. A PROFIBUS interface cannot be insert as an instrument at a HART 5.1 (Standard) interface. If several elements are selected, they are insert in the order displayed in the device list.



Insert elements

If the number of elements selected exceeds the possible number that can be inserted, e.g. more than 126 PROFIBUS devices, only the possible number is inserted (fan-in-limit). Those limits result from the instrument specifications. A message box informs about the limit and the elements, which could not be inserted, stay selected in the device list.

Do not click or select another menu item before the procedure is finished! Depending on the complexity of the chosen element / device and the available system resources the insertion may take up to several minutes.

4.3.10 Configure elements

Some devices / elements need to be configured after being inserted to the project. This is especially valid for complex DTM. While the configuration itself is completely device specific, access to it is always given via Edit_<device> (<device> stands for the devices name).

4.3.11 Move elements

1. Select all elements to be moved to a new position in the project.
2. Press and hold the **CTRL** key.
3. Use the **ARROWKEYS** (up / down) to move the elements to the new location.

It is possible to move elements across communication interfaces. Project entries that do not fit are skipped automatically and therefore, incorrect inserting is impossible.

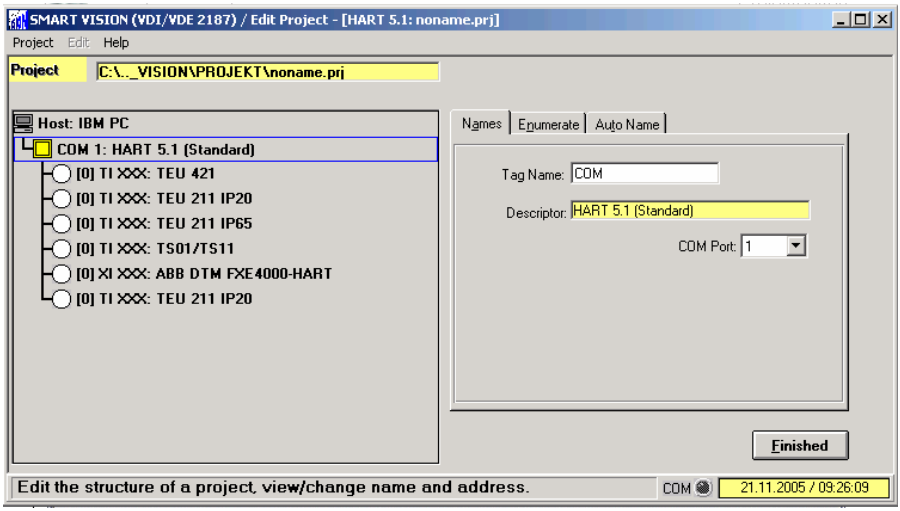
4.3.12 Delete elements

1. Select all project elements to be deleted.
2. Pressing the **DEL** key or Edit_Delete removes all selected elements. Sub-elements, like instruments connected to a “Remote I/O”, are deleted as well.

You cannot undo this procedure!

4.3.13 Names, addresses, channels (general)

Communication related instrument data, like address channels, vendor id, device id or tag names, can be modified via Edit_Address / Name. A file-card box with the functions needed replaces the device list in that case.



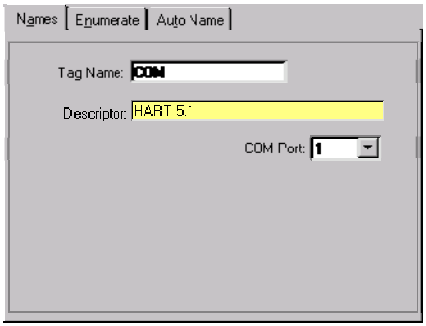
Change address and tag name

The file-cards Enumerate and Auto Name appear only, if the selected element supports these services. They also stay hidden as long as there are no elements connected to the selected COM interface for instance.

With a multiple selection the always function refers to the last most selected element.

The processing terminates always with *Finished*. The device list of the present selection is displayed again.

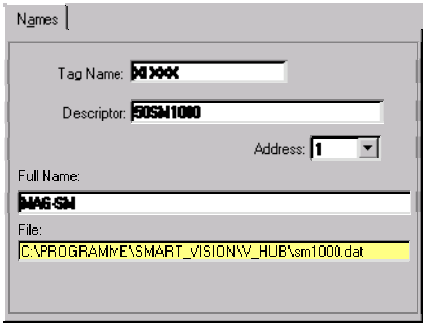
4.3.14 Change Names / Descriptor



Set name and descriptor

Tag Name: Shows as default setting the type of interface (COM, PROFIBUS,...) or device (FI XXX, PA XXX,...).

Descriptor: Shows the name (_is PRO Multiboard, ABB-DTM, TFX12-PA,...) of the selected element. The descriptor of communication servers / interfaces cannot be changed.



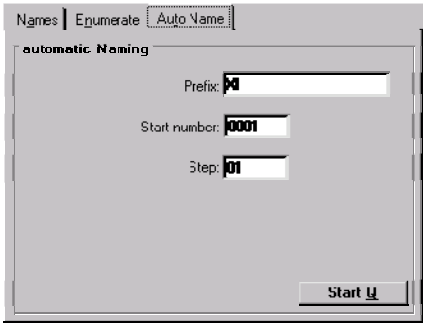
Set device

Full name: The name of the selected device.

File: The file name linked to the instrument's project entry. If no data has been saved before with this device or if there is no default file, than this field is not shown.

4.3.15 Automatic naming

Like the automatic allocation of addresses / channels, the name can be generated automatically for HART instruments and ABB multiplexer as a combination of a common "Prefix" and a continuing number.



Automatic naming

Prefix:	0..7 characters are possible. This "Prefix" becomes part of the name of all instruments linked to the selected project element.
Start number:	0..7 numbers are allowed.
Step:	The valid range is 0..99.

4.3.16 Set addresses

Depending on the selected device the address setting is done in Names under *COM Port:*, *Bus Address*, *Address*, ...

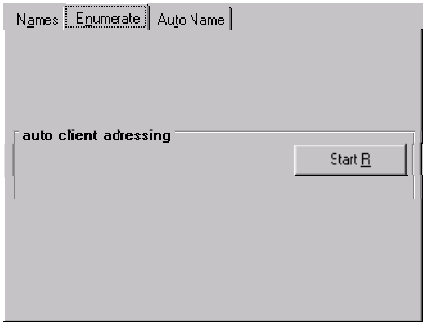
Valid ranges:

COM port	1..4.
HART	0..15.
TS 02 / 102 / 202	Not possible.
PROFIBUS CServer	0..125.
PROFIBUS DTM	0..126. Address 126 as default.
FOUNDATION Fieldbus	Not possible.

If the communication with the device is active (online), the addresses can be set in the Project Manager (ch. 4.4, pg. 57) alternatively.

4.3.17 Set addresses automatically / Enumerate devices

The service Enumerate is used to assign addresses or channels to HART instruments automatically. For this the parent element has to be selected in the project (e.g. HART 5.1 (Standard)).



HART addresses

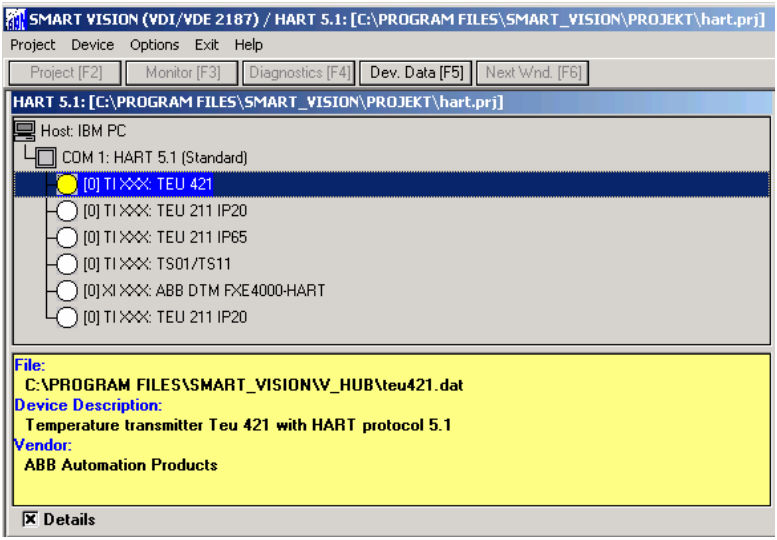
Start R The sub-elements of the HART interface are addressed in an ascending order, starting with address 0.

4.3.18 Keyboard operation

Jump between project and device list:	**TAB**
Selection of elements:	**ARROWKEYS**
Edit elements:	**ALT**. Then select appropriate menu item via **ARROWKEYS** or shortcut.
Quit the menu:	**ESC**

4.4 Project Manager

The project manager serves for the administration and commissioning of DSV401 R3(SMART VISION) projects. It shows the logical network structure of all field instruments connected to the PC's communication interfaces (COM ports, Fieldbus) and their communication status.



Project manager

After the start DSV401 R3(SMART VISION) displays the activated project manager with the lastly edited project. The activated project manager displays always the DSV410 R3(SMART VISION) main menu:

Main menu

All menu items, which refer to a concrete element of the project (e.g. Connect, Display and Diagnostics), are located as a submenu in Device. It is only available if a service is supported by the selected element.

See also:

4.3 Project Editor 47
4.5 Communication / CServer 60
4.15 Diagnostics 104

4.4.1 Context menu

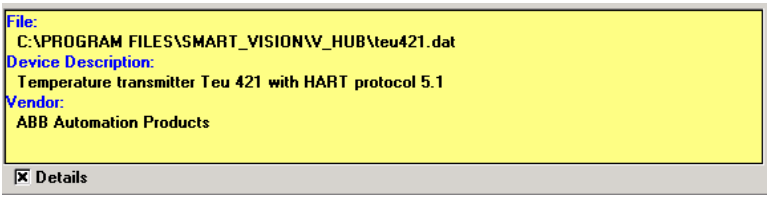
The context menu of each element is an operating alternative to the menu items in Device for the operator. It appears when clicking the right mouse button and always refers to the selected element.

4.4.2 Selecting element

You can use either the mouse or, alternatively, the **ARROWKEYS**.

4.4.3 Detail information

As an option detailed information to a selected element is available. After the start of DSV401 R3(SMART VISION) this information is deactivated at first. To activate it set the cross left of *Details*.



Detail information

Use **TAB** to get to the input field *Details*.
SPACE sets the cross.

4.4.4 Status of elements / field instruments

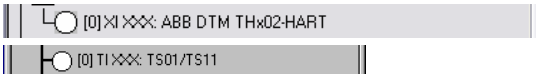
Normal:	[0] TI XXX: TS01/TS11	Text black
Selected:	[0] TI XXX: TS01/TS11	Text highlighted blue
Connected:	[0] TI XXX: TS01/TS11	Text black, bold
Failure:	[0] TI XXX: TS01/TS11	Text red, bold
Simulation:	[0] TI XXX: TS01/TS11	Text yellow, bold

Elements- / Field device status

4.4.5 Structure of project entry

The project entry of a field instrument is structured as follows (examples in brackets):

1. Address or channel number in square brackets ([0]),
2. Blank,
3. Communication name (XI XXX),
4. Colon and blank,
5. Device type (ABB DTM THx02-HART).



Structure of project entry

See also:

4.5 Communication / CServer

The communication to the devices depends on the chosen means of communication. It is set-up via the respective communication interfaces (Ch.3.4, Pg.30). The possible settings and functions are described in the following chapters:

Driver specific settings	Chapter
▪ FSK-Adapter (HART 5.1 (Standard))	4.6 CServer HART 64
▪ Confi-Cable (FSK 9600 Baud/CONTRAC)	4.6 CServer HART 64
▪ LKS-Adapter (Stellungsregler/TEUxxx)	4.6 CServer HART 64
▪ LKS-Adapter (FSK 600 Baud/BCI100)	4.9 Interface Settings 91
▪ FSK-Adapter (FSK 600 Baud/TSx02)	4.9 Interface Settings 91
▪ PROFIBUS	4.7 CServer PROFIBUS 74
▪ FOUNDATION Fieldbus	4.8 CServer FOUNDATION Fieldbus 82

In addition to the interface parameters the communication server (CServer) offers the following functions:

- Set-up connection.
- Diagnostics of the used means of communication and of the connection status.
- Set bus parameters.

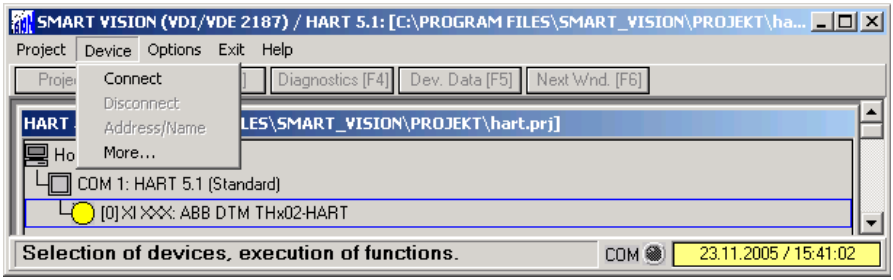
⚠ If DSV401 R3(SMART VISION) is used together with a Class 1 Master (e.g. 800xA, Symphony, …) on the same bus, it is mandatory to check the bus parameter setting made in the CServer prior to the first connection setup. Special attention must be paid to the master address (is it unique?) and to the target rotation time of the master class 1.

- Generation of event lists and protocols.
- Search Devices / Device List (see ch. 4.11, pg. 93).

4.5.1 Connect

The set-up of the connection takes place via Device_Connect.

⚠ If DSV401 R3(SMART VISION)is used together with a Class 1 Master (e.g. 800xA, Symphony) on the same bus, it is mandatory to check the bus parameter setting made in the CServer prior to the first connection setup. Special attention must be paid to the master address (is it unique?) and to the target rotation time of the master class 1.



Set-up connection

The selected device (field instrument, communication driver,...) is always connected.

If further sub-elements underlie the selected device, all these sub-elements are also connected. If some devices should not be connected, first connect all devices and then disconnect the respective instruments.

The communication via TS 02 exclusively peer-to-peer connections are approved.

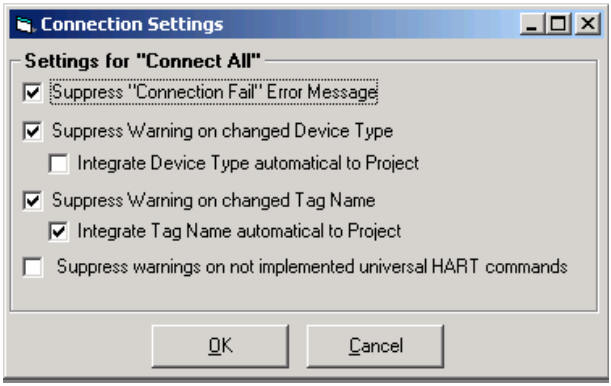
- In DSV401 R3(SMART VISION) the green COM-LED in the status line indicates a successfully established connection. In the project manager the entry for that device appears in bold letters.
- If a connection can not be established, the project entry for that instrument - or the instruments - appears in the project manager in red bold letters. The COM-LED in the status line is red.
- If there are several connections with different status, the status colors of the LED are alternating.

With HART instruments DSV401 R3(SMART VISION) constantly tries to (re-) establish failed connections.

4.5.2 Connection settings / message filter HART

With a large number of HART devices connected automatically, a large number of messages can appear and interfere with the set-up of the connection. As far as HART devices are concerned, these messages can be filtered and partly automatically worked through.

The settings can be accessed via the selection of the host or a HART communication interface (HART 5.1 (Standard), ...) and Device_Settings.



Connection settings

Connection Failed	All error messages concerning the set-up, like "device missing", are suppressed. The connection status of the individual instruments is indicated in the project manager (e.g. red bold letters.)
Changed Device type	The warning notice about a mismatch of the detected device type and the one configured in the project manager is suppressed (see also ch. 4.6.8, pg. 72).
Integrate device type	In case warnings regarding a mismatch of device types are suppressed, it can be defined that the detected device type is integrated automatically within the project.
Tag name	The warning about a mismatch of the detected tag name and the one configured in the project manager is suppressed (see also ch. 4.6.9, pg. 73).
Integrate tag name	In case warnings regarding a mismatch of tag names are suppressed, it can be defined that the detected tag name is integrated automatically within the project.
HART Universal Commands	The warning indicates no HART Universal commands have been implemented in the selected device.

As soon as one of the connection settings becomes active, the HART diagnostics (see ch. 4.15.2, pg. 104) is started automatically in case of an error / warning. The respective message is reported to the TESTDIAG.DGN file to assure that no error message or warning gets lost. The diagnostics window stays open after such an event.

If only a single instrument is connected, all filter options will be ignored and all error messages/warnings will come up directly.

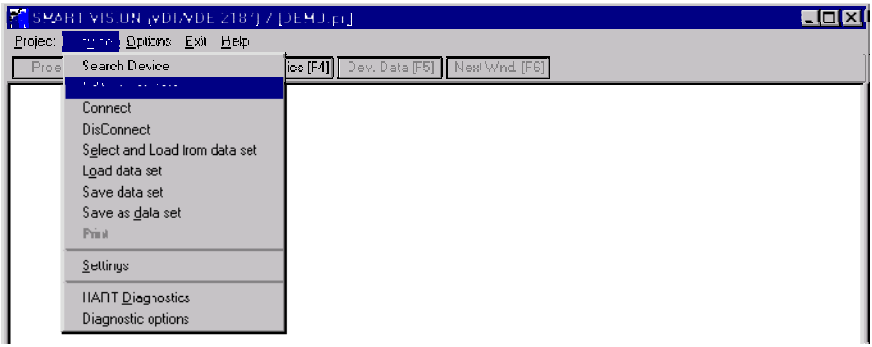
4.5.3 Disconnect

If a device selected in the project manager is connected - no matter whether the communication is disturbed or not -, the menu entry changes from Connect to Disconnect. Sub-elements of the selected device are disconnected as well.

See also:

4.6 CServer HART

All settings concerning HART communication are done via the CServer for HART. After the selection of the interface in the project manager, Device_Edit Server Data opens the CServer. The Cserver can also be started using the context menu.



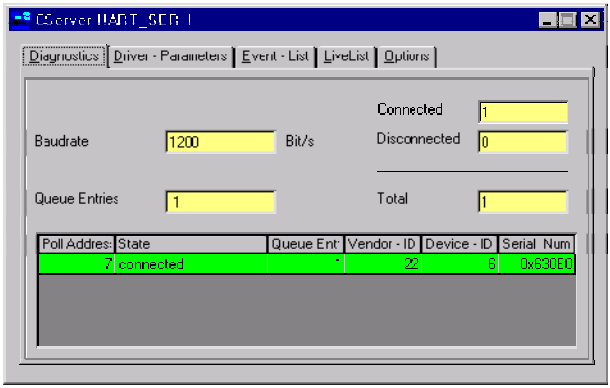
CServer HART, menu

The CServer for HART 5.1 (Standard) and for FSK 9600 Baud/CONTRAC are equivalent concerning their function, but differ concerning the settings (e.g. baud rate).

Search Device	Starts the CServer or fetches an already open CServer for display in the foreground, and updates the Live list (see ch. 4.6.4, pg. 68).
Edit Server Data	Starts the CServer, or fetches an already open CServer for display in the foreground and indicates the Diagnostics file card.
Connect and DisConnect	Is done for all sub-elements here. (See also: ch. 4.5.1, pg. 60)
Select and Load from data set	Any dataset saved before for this CServer can be loaded (see also Save as data set).
Load data set	The last dataset saved for this CServer is directly loaded (see Save data set).
Save data set	Saves the values currently set under BusParameters and Options. When the dataset is saved for the same time in the current project, a file name must be entered (see Save as data set).
Save as data set	Saves the values currently set under BusParameters and Options. An arbitrary file name can be used. However, it is recommended to use the file extension *.dat.
Print	Not yet implemented.
Settings	The report filters and settings for automatic connection setup of HART devices can be set here (see ch. 4.5.2, pg. 61).
HART Diagnostics	Starts the HART diagnostics (see ch. 4.15.2, pg. 104).
Diagnostic options	Report filter options for HART diagnostics and the diagnostic record, (see ch. 4.15.2, pg. 104).

See also:

4.6.1 Diagnostics



CServer HART, diagnostics

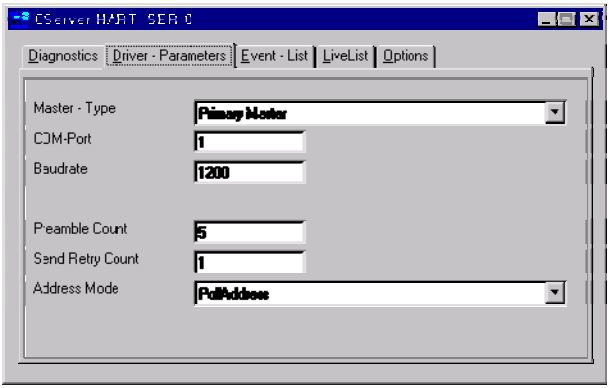
The diagnostics shows the complete and single connection status of the devices.

Baudrate	Transmission rate. Can principally be set under Driver Parameters.
Queue Entries	Number of not yet performed communication tasks, like reading or disconnecting (Services).
Connected	Number of successfully connected devices.
Disconnected	Number of found but not (no longer) successfully connected devices (see ch. 4.6.4, pg. 68). Disconnected devices will be removed from the list after a few seconds.
Total	Total number of all devices found.
Poll Address	Communication address of the device.
State	Communication status of the device. Special statuses: being connected, connected, being disconnected, disconnected.
Queue entries	Number of queue entries to be processed for the devices.
Vendor-ID	Vendor identification of the device.
Device-ID	Unique (throughout the world) designator of the device hardware.
Serial Number	Serial number of the device.

See also:

4.15.2 HART diagnostics 104

4.6.2 Parameters



CServer HART, parameter

Master - Type — Primary or Secondary.

COM-Port — Usually the physical COM interfaces of the PC or notebook have assigned interface numbers. The interfaces connected and existing in the PC are normally displayed in the operating system under "Control Panel" and "Ports". These interface numbers have to be identical with the interface numbers configured in the project. Naturally only the interfaces are available for DSV401 R3(SMART VISION) which are not yet used by other devices, e. g. by a printer

Baudrate — 1200 Bit/s for HART 5.1 (Standard) and 9600 Bit/s for FSK 9600 Baud/CONTRAC.

Preambles — Preambles synchronize the communication with the HART instruments. The need for preambles is device specific. According to the HART specification 5 preambles are used as standard. For HART 5.1 (Standard) this is the default setting for FSK 9600 Baud/CONTRAC the value is 20.
But some devices require for a uncomplicated communication different values. Therefore, DSV401 R3(SMART VISION)allows values between 2 and 20 preambles (according to HART). Entries out of this range are marked as an incorrect input (red). The set value is fixed for the selected interface. An increase of the number of preambles increases the error tolerance and slows down the speed of communication.

Send Retry

If malfunctions are present it can be sensible to increase the number of send retries. The attempt will be repeated correspondingly if the first fails.
The values 0 to 5 are allowed.

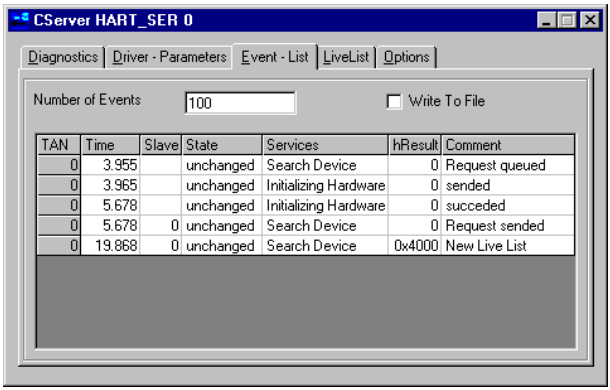
Address Mode

The addressing of HART instruments is principally possible via the poll address or via the tag name. The address or the address for the chosen address mode and interface has to be unique. Unequivocal tag names can be assigned via a peer-to-peer connection. Devices, which have not yet a tag name, can only be accessed via the address for the time being.
In some cases the communication is possible via the tag name only. Therefore the use of the ABB bus coupler Contrans I requires the switchover of the address mode to the tag name. The bus coupler transfers the name information from the master to all devices with the address 0 (ch. 3.7, pg. 33).

See also:

4.10 Set Address / Name 92

4.6.3 Events



CServer HART, events

The event list provides a protocol of the performed services and their result.

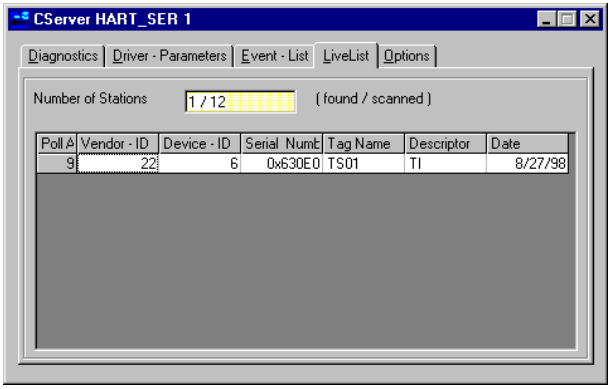
The list is intended to be used by bus specialists for troubleshooting and error debugging and is not required for normal operation.

Number

Limits the number of messages in the list. When exceeding the number, the oldest messages are deleted first. The limit does not affect the protocol file.

Write To File	Generates a log file (file ending .log) to the event list. The file is stored in the subdirectory …\SMART_VISON\cserver\com_hart\hart_ser\HartSer*.log. Use any standard editor like Notepad to read it. A warning of unintentional replacement can be activated under Options (ch. 4.6.6, pg. 71).
TAN	Trans Action Number. Unique ID number for Read and Write production services (else 0).
Time	Time since the CServer has been started, in milliseconds.
Slave-Address	Communication address of the device.
State	Communication status of the device in the bus device list. Possible states: unchanged, being connected, connected, being disconnected, disconnected.
Services	Type of job. Possible queue entries are: HW - Init, HW - Reset, Client Init, Client deleted, CSV Init, CSV Terminate, CSV Destroy, View Init, View Terminate, Connect, DisConnect, Abort, Read IO, Write IO, Search Device, ChangeSlaveAddress.
hResult	Processing result (0=OK, else error).
Comments	Comments, additional information.

4.6.4 Live list

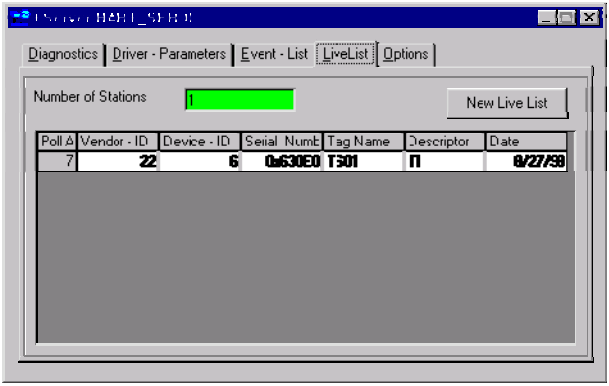


CServer HART, search devices

Number of Bus Devices	Number of devices connected to the bus.		
	Background color		Live list...
	White:	(Windows graphics element "window", standard setting)	…not yet determined since the program has been started.
	Yellow:		…being built.
	Green:		…is valid.
	Red:		…build aborted, with error.
New Live List	Searches for all devices connected to the bus. Updates the list, if already existing. Buttons can be hidden (see ch. 4.6.6, pg. 71.). Independent of the set address mode the devices are searched via the poll address. A connection is not set-up automatically. During the search the number of the already found instruments / addresses and scanned addresses is displayed.		
Poll Address	Communication address of the device.		
Vendor ID	Vendor identification of the device.		
Device ID	Unique (throughout the world) designator of the device hardware.		
Serial number	Serial number of the device.		
Tag Name	Communication name of the device. This designator is alternatively used by DSV401 R3(SMART VISION)for addressing.		
Description	Device description.		
Date	Date defined during parameterization.		

The found device data are not integrated automatically in the project to avoid that existing configurations are unintentionally replaced.

After the end of the search the number of the found addresses and the devices with their data are displayed. The button *New Live List* is activated again.

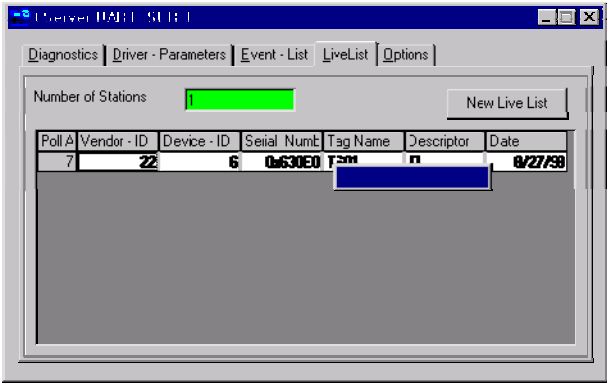


CServer HART, live list

4.6.5 Set address / name

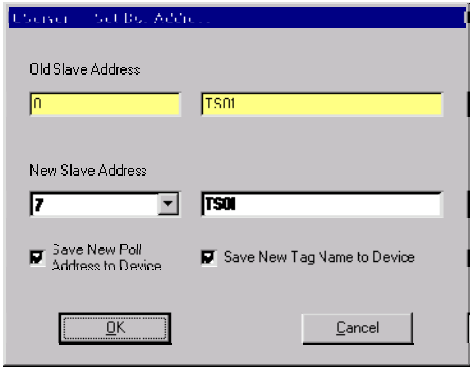
The address of a connected device can be set in the live list with clicking on the right mouse button and Set Slave Address. Therefore it is possible to change an address of a device which is not yet connected to the project (See also: ch. 4.10, pg. 92).

Actualize live list previously. An address changing of a device no longer connected is ignored.



CServer HART, set address

The address of active DSV401 R3(SMART VISION) stations is changed only via the driver parameters (ch. 4.6.2, pg. 66).



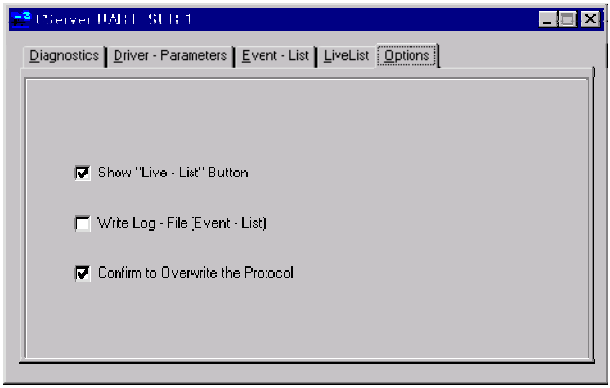
CServer HART, change address / name

New Poll Address — If checked off, the address entered in *New Slave Address* is written to the device with *OK*.

New Tag Name — If checked off, the name entered in *New Slave Address* is written to the device with *OK*.

If the service was started from the project manager for a connected device, the modification will also be integrated in the project.

4.6.6 Options



CServer HART, options

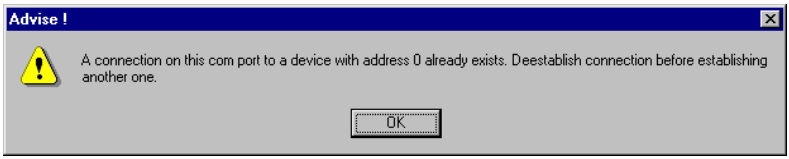
Show "Live-List" Button	Shows the button *New Live List* in Live List.
Log events	Permits to log the Events (ch. 4.6.3, pg. 67).
Overwrite the Protocol	Generates a warning if an already existing protocol would be replaced by an actualization. Only active after a re-start of the CServer-window. Note that no safety backup is available.
Requests not parallel?	Basically, HART CServers can process one queue entry per device (see also ch. 4.7.6 , pg. 81). However, the first HART Protocol will serialize the queue entries anyway. As a result, this option is not available here.

See also:

4.5 Communication / CServer 60
4.10 Set Address / Name 92

4.6.7 Device address not unique

The CServer accepts only unique addresses for establishing a connection. If the address is not unique, the following message appears:



Device address not unique

Choose an unequivocal address first, than connect the device once again.

4.6.8 Integrate device type

If DSV401 R3(SMART VISION) detects another device type as defined in the project when reading the device identifications, the following message appears:

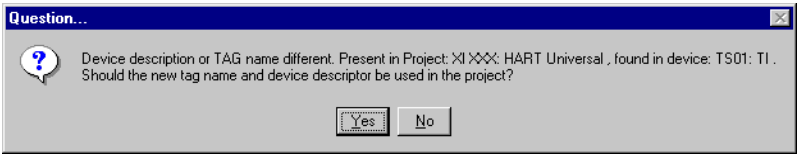
Different device type

This means that the device type is known and completely integrated in DSV401 R3(SMART VISION). Consequently for this device a device specific driver is available.

Yes	The integrated driver becomes active and the information is being integrated in the project.
No	The driver already assigned to this address in the project is used (usually HART UNIVERSAL, see ch. 4.12.1, pg. 94).

4.6.9 Integrate tag name / device description

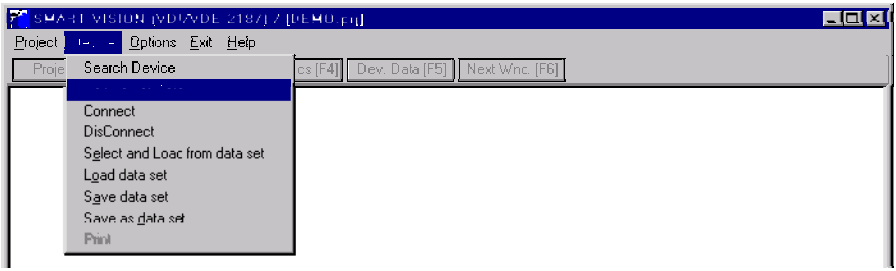
If another tag name and/or another device description than in the project stored is found, the following message appears:



Different tag name / device description

4.7 CServer PROFIBUS

All settings concerning PROFIBUS are done via the CServer for PROFIBUS. After the selection of the interface in the project manager, Device_Edit Server Data opens the CServer. Using the context menu is also possible.



CServer PROFIBUS, menu

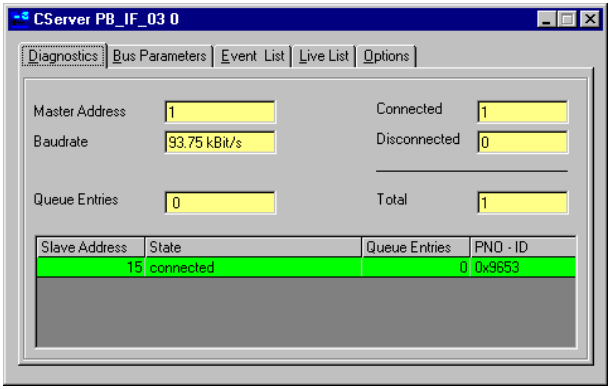
Function and operation of the CServer for PROFIxxx correspond to the function and operation for _is PRO Multiboard.

Search Device	Starts the CServer or fetches an already open CServer and displays it in the foreground, and updates the Live list (ch. 4.7.4, pg. 78).
Edit Server Data	Starts the CServer or fetches an already open CServer and displays it in the foreground, and displays the Diagnostics file card.
Connect and Disconnect	Is done for all sub-elements here. (See ch. 4.5.1, pg. 60)
Select and Load from data set	Any dataset saved before for this CServer can be loaded (see also Save as data set).
Load data set	The last dataset saved for this CServer is directly loaded (see Save data set).
Save data set	Saves the values currently set under BusParameters and Options. When the dataset is saved for the same time in the current project, a file name must be entered (see Save as data set).
Save as data set	Saves the values currently set under BusParameters and Options. An arbitrary file name can be used. However, it is recommended to use the file extension *.dat.
Print	Not yet implemented.

See also:

4.10 Set Address / Name 92
4.5 Communication / CServer 60
4.4 Project Manager 57

4.7.1 Diagnostics



CServer PROFIBUS, diagnostics

The diagnostics shows the complete and single connection status of the devices.

Bus Address — Communication designator of the local master.

Baudrate — Transmission rate of the bus system. Can be set under Bus Parameters (ch. 4.7.2, pg. 76).

Queue Entries — Number of not yet performed communication tasks, like reading or disconnecting (services).

Connected — Number of successfully connected devices.

Disconnected — Number of found but not (no longer) successfully connected devices (see ch. 4.7.4, pg. 78). Disconnected devices will be removed from the list after a few seconds.

Total — Total number of all found devices.

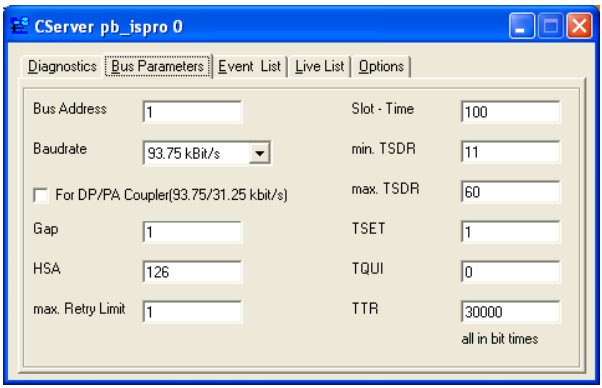
Slave Address — Communication designator for the device (current device address).

Status — Communication status of the device. Possible states are: being connected, connected, being disconnected, disconnected.

Queue Entries — Number of queue entries to be processed for this device.

PNO-ID — Unique device ID assigned by the German PROFIBUS International Organization (PI).

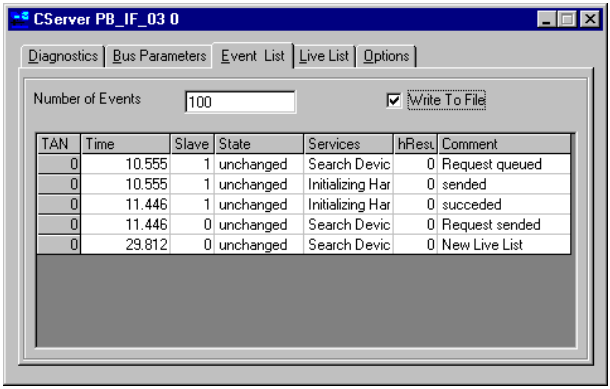
4.7.2 Parameters



CServer PROFIBUS, parameter

⚠ *Master Address*	Default setting is address 1. If DSV401 R3(SMART VISION) is used together with a Class 1 master , this address has to be changed in DSV401 R3(SMART VISION) (Class 2master) in general (typically an address > 1), thus it remains unequivocal.
Baudrate	Default setting is a baudrate of 93,75 kBit/s for a PROFIBUS DP line with a DP/PA Linking Device. If couplers, Linking Devices with variable DP-Baudrate or the plain PROFIBUS DP are used, it is important that the slowest device determines the baud rate.
DP/PA Coupler	Usually the appropriate parameters depend on the usage of a DP/PA segment coupler. The default setting of further parameters adjusts to this.
⚠ Further parameters	Although permitted, no settings are to be made here. If necessary, look at the PROFIBUS (ch. 3.8, pg. 34) specifications or at the internet sites of the German PROFIBUS International Organization (PI).

4.7.3 Events



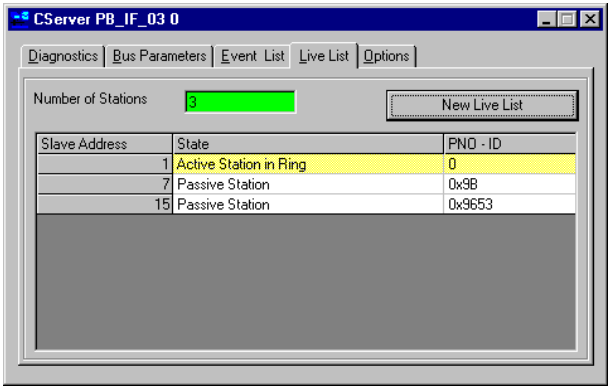
CServer PROFIBUS, events

The event list provides a protocol of the performed services and their result.

The list is intended to be used by bus specialists for troubleshooting and error debugging and is not needed for normal operation.

Number	Limits the number of messages in the list. When exceeding the number, the oldest messages are deleted first. The limit does not affect the protocol file.
Write To File	Generates a log file (file extension. *.log) in the event list. The file is saved in the sub-directory …\SMART_VISION\cserver\com_dpv1\pb_*\pb_*.log of the PROFIBUS CServers. It can be read with editors like Notepad. A warning of unintentional replacement can be activated under Options (ch. 4.7.6, pg. 81).
TAN	Trans Action Number. Unique ID number for Read and Write services (else 0).
Time	Time since the CServer has been started, in milliseconds.
Slave-Address	Communication designator of the device.
State	Communication status of the device in the live list. Possible states: unchanged, being connected, connected, being disconnected, disconnected.
Services	Type of queue entry. Possible queue entries are: HW - Init, HW - Reset, Client Init, Client deleted, CSV Init, CSV Terminate, CSV Destroy, View Init, View Terminate, Connect, DisConnect, Abort, Read IO, Write IO, Search Device, ChangeSlaveAddress.
hResult	Processing result (0=OK, else error).
Comment	Comments, additional information.

4.7.4 Live list



CServer PROFIBUS, live list

Number of Bus Devices

Number of devices connected to the bus.

Background color		Live list...
White:	(Windows graphics element "window", standard setting)	…not yet determined since the program has been started.
Yellow:		…being built.
Green:		…is valid.
Red:		…build aborted, with error.

New Live List

Searches for all devices connected to the bus. Updates the list, if already existing.
Button can be hidden (ch. 4.7.6, pg. 81).

Slave Address

Communication address of the device. Also master addresses.

State

Active station in the ring (Class 1 or Class 2 master) or passive station (=slave).

PNO-ID

Unique device ID, assigned by the PROFIBUS International Organisation (PI). For ABB devices an up-to-date list of PI-IDs assigned to the device types can be found in the supplemetary information: 3KDE631114R3901_Supplement-Info-Tool_DSV4xx_SMART-VISION.pdf:

www.abb.com/instrumentation

→ Device Management and Fieldbus

→ Device Management Tool

→ Downloads

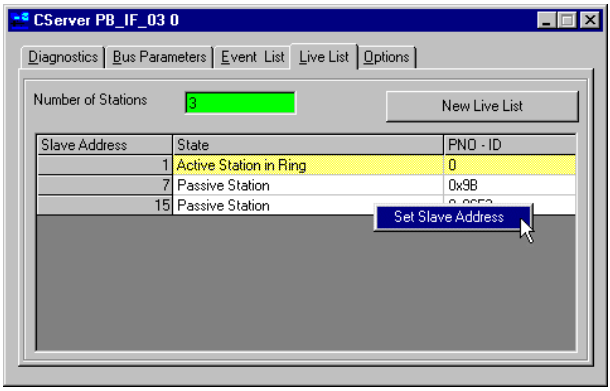
The found device data are not integrated automatically in the project to avoid that existing configurations are unintentionally replaced.

The found device data are not integrated automatically in the project to avoid that existing configurations are unintentionally replaced. If the address / the name of an already existing instrument has to be changed, first connect the device and than activate the modification service via Device_Address / Name in the Project Manager. In this case the CServer is not indicated.

4.7.5 Set address

The address of a connected device can be set in the live list with clicking on the right mouse button and Slave-Change Address. Consequently it is possible to change an address of a device which is not yet connected to the project.

Actualize live list previously. An address changing of a device no longer connected is ignored. In addition only this way a present list of the still available PROFIBUS addresses is guaranteed.

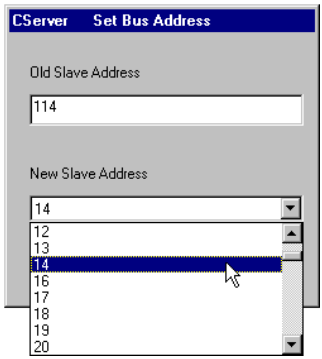


CServer PROFIBUS, set address

The address of active DSV401 R3(SMART VISION) stations is changed only via the bus parameters (ch. 4.7.2, pg. 76).

CServer PROFIBUS, address changing

All addresses between 0…125 not yet assigned to the bus are available:



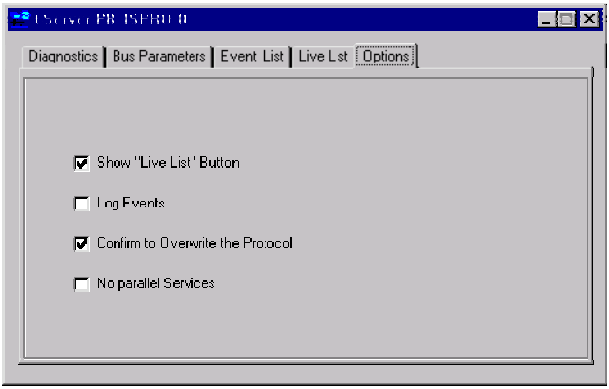
CServer PROFIBUS, available addresses

If the service is activated for a connected instrument via the project manager, the modification is also integrated in the project.

See also:

4.10 Set Address / Name 92

4.7.6 Options

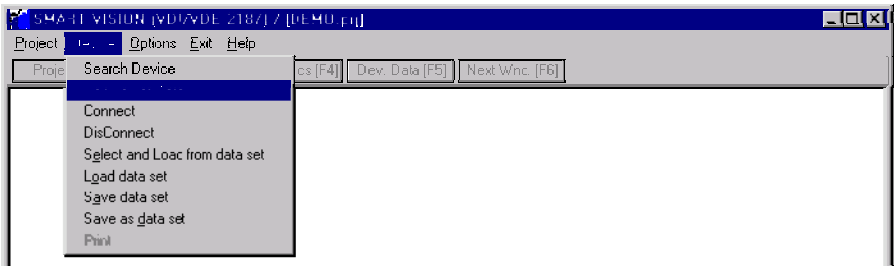


CServer PROFIBUS, options

Show "Live List" Button	Shows the button *New Live List* in Live List. If this option is disabled, the live list can only be updated via the Project Manager
Log events	Permits to log the Events (ch. 4.7.3, pg. 77).
Overwrite the Protocol	Generates a warning if an already existing protocol would be replaced by an update. Only active after a re-start of the Cserver window. Caution: there is no safety backup!
Requests not parallel	The CServer can process one queue entry per device at the time. In the example described in chapter 4.7.4, pg. 78 one queue entry can be processed for each of the two slaves (the third station is a local master). If the option is enabled, the CServer will not perform this optimization. All queue entries will then be processed sequentially (longer run time, but improved safety).

4.8 CServer FOUNDATION Fieldbus

All settings concerning FOUNDATION Fieldbus are done via the CServer for FOUNDATION Fieldbus. After the selection of the interface in the project manager, Device_Edit Server Data opens the CServer. The function can also be started via the context menu.

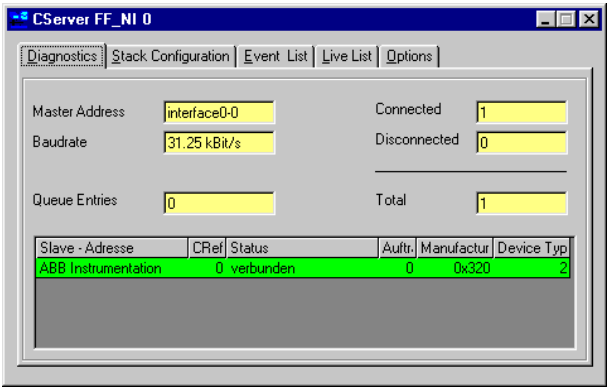


CServer FOUNDATION fieldbus, menu

Search Device	Starts the CServer or fetches an already open CServer and displays it in the foreground, and updates the Live list (ch. 4.8.4, pg. 87).
Edit Server Data	Starts the CServer or fetches an already open CServer and displays it in the foreground, and displays the Diagnostics file card.
Connect and Disconnect	Is done for all sub-elements here. (See also: ch. 4.5.1, pg. 60).
Select and Load from data set	Any dataset saved before for this CServer can be loaded (see Save as Data set).
Load data set	The last dataset saved for this CServer is directly loaded (see Save data set).
Save data set	Saves the values currently set under BusParameters and Options. When the dataset is saved for the same time in the current project, a file name must be entered (see Save as data set).
Save as data set	Saves the values currently set under BusParameters and Options. An arbitrary file name can be used. However, it is recommended to use the file extension *.dat.
Print	Not yet implemented.

See also:

4.8.1 Diagnostics



CServer FOUNDATION Fieldbus, diagnostics

The diagnostics shows the complete and single connection status of the devices.

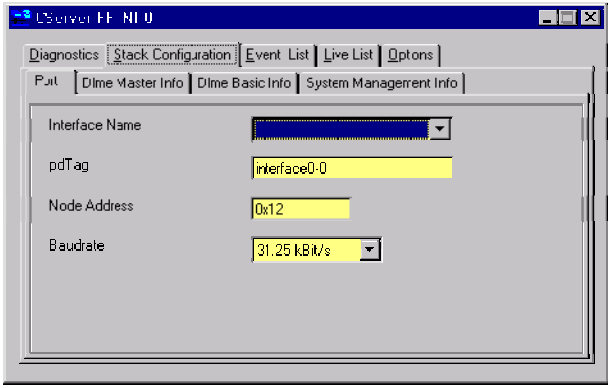
Bus Address	Communication address of the local master.
Baudrate	Transmission rate of the bus system (ch. 4.8.2, pg. 84).
Queue Entries	Number of not yet performed communication tasks, like Read from device or Disconnect (services).
Connected	Number of successfully connected devices.
Disconnected	Number of found but not (no longer) successfully connected devices (ch. 4.8.4, pg. 87). Disconnected devices will be removed from the list after a few seconds.
Total	Total number of all found devices.
Slave Address	Communication designator for the device (current device address).
CRef	Communication reference (unique for all devices, managed locally by the CServer.
Status	Communication status of the device. Possible states are: being connected, connected, being disconnected, disconnected.
Queue entries	Number of queue entries to be processed for this device.
Manufacturer	Resource Block Parameter MANUFAC_ID.
Device Type	Resource Block Parameter DEV_TYPE. The *Manufacturer* and *Device Type* form together the device identification.

4.8.2 Parameters/ Stack configuration

4.8.2.1 Port

Hardware access information for the FOUNDATION Fieldbus-H1 adapter.

In a PC up to 4 National Instruments FF-H1 cards with 2 interfaces each can be used.



CServer FOUNDATION Fieldbus, Port

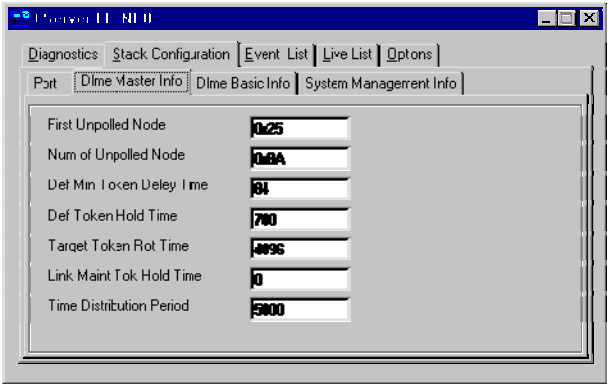
Interface Name	List of all available NI-FF-H1 interfaces. Here you can select the interface to be used. Note that the designators cannot be edited.
pdTag	Physical Device Tag of the local master. For information, only. Is read from the hardware.
Node Address	Station address of the master on the bus. For information, only. Is read from the hardware.
Baudrate	Transmission rate of the bus system. For information, only. FF-H1 only provides one baud rate.

4.8.2.2 Dlme Master- / Basic Info, System Management Info

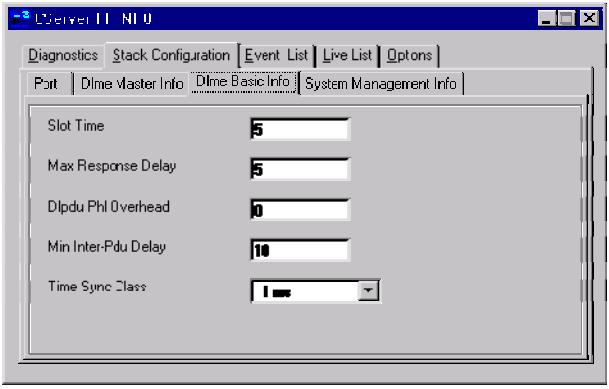
The file cards Dlme Master Info, Dlme Basic Info and System Management Info are used for configuring the local master.

 These parameters are reserved for service personnel!

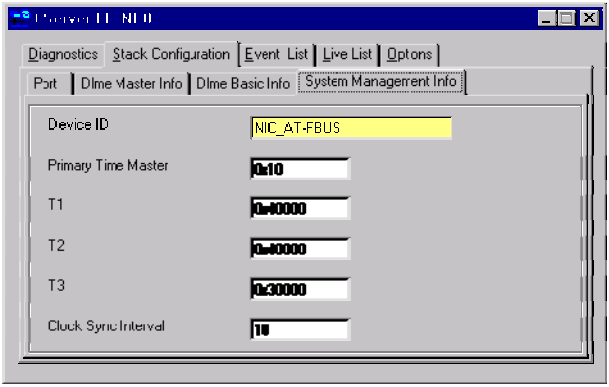
Their meaning and encoding are in accordance with the FOUNDATION Fieldbus-H1 specifications. Refer to the manual for the FOUNDATION Fieldbus-H1 adapters for details about the relevant parameters (NI-FBUS Communications Manager User Manual).



CServer FOUNDATION Fieldbus, Dlme Master Info

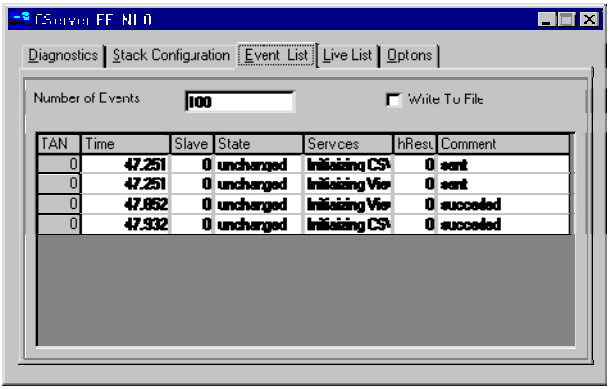


CServer FOUNDATION Fieldbus, Dlme Basic Info



CServer FOUNDATION Fieldbus, System Management Info

4.8.3 Events



CServer FOUNDATION Fieldbus, events

The event list provides a protocol of the performed services and their results.

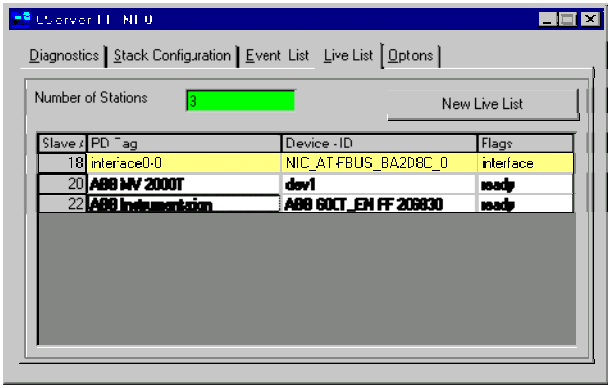
The list is intended to be used by bus specialists for troubleshooting and error debugging and is not needed for normal operation.

Number — Limits the number of messages in the list. When exceeding the number, the oldest messages are deleted first. The limit does not affect the protocol file.

Write To File — Generates a log file (file extension. *.log) in the event list. The file is saved in the sub directory …\SMART_VISION\cserver\com_ff\ff_ni\ff_*.log of the FOUNDA-

	TION Fieldbus CServer. The file can be read with editors like Notepad. A warning of unintentional replacement can be activated under Options (ch. 4.8.6, pg. 90).
TAN	Trans Action Number. Unique ID number for Read and Write services (else 0).
Time	Time since the CServer has been started, in milliseconds.
Slave-Address	Communication address of the device.
CRef	Communication reference (4.8.1, pg. 83).
State	Communication status of the device in the bus device list. Possible statuses: unchanged, being connected, connected, being disconnected, disconnected.
Services	Type of queue entry. Possible queue entries are: HW - Init, HW - Reset, Client Init, Client deleted, CSV Init, CSV Terminate, CSV Destroy, View Init, View Terminate, Connect, DisConnect, Abort, Read IO, Write IO, Search Device, ChangeSlaveAddress.
hResult	Processing result (0=OK, else error).
Comment	Comments, additional information.

4.8.4 Live list



CServer FOUNDATION Fieldbus, live list

Number of Bus devices	Number of devices connected to the bus.
	Background color — Live list...
	White: (Windows graphics element "window", standard setting) — …not yet determined since the program has been started.
	Yellow: — …being built.
	Green: — …is valid.
	Red: — …build aborted, with error.
New Live List	Searches for all devices connected to the bus. Updates the list, if already existing. Button can be hidden (ch. 4.8.6, pg. 90).
Slave Address	Communication address of the device. Also master addresses.
PD-Tag	Physical Device Tag. Communication designator of the device. DSV401 R3(SMART VISION) uses the designator for addressing the device. The PD Tag of the CServer must be equal to the Tag Name in the Project Editor.
Device ID	Unique (throughout the world) designator of the device hardware.
Flags	Describe the device type: OK, no reply, unknown interface.

The found device data are not integrated automatically in the project to avoid that existing configurations are unintentionally replaced.

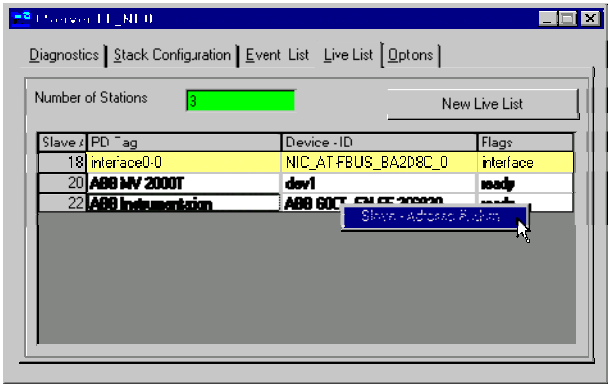
4.8.5 Set address

Communication designators (i.e. slave addresses) in the FOUNDATION Fieldbus are case-sensitive! They may have a max. length of 32 characters.

The address of a connected device can be set in the live list by clicking on the right mouse button and Slave-Change Address. Consequently it is possible to change an address of a device which is not yet connected to the project (see also ch. 4.10, pg. 92).

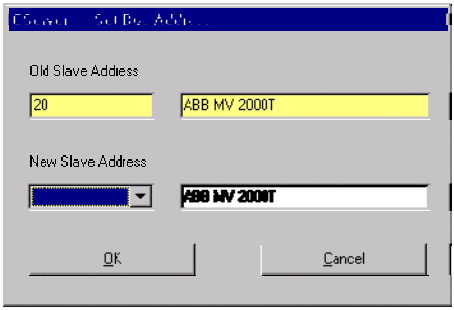
If the address / name of a device already existing in the project is to be changed, fist connect the device and then call the change service via Device-Change Address from the Project Manager (ch. 4.4, pg. 57). In this case the CServer does not pop up.

Update the live list before setting/changing an address. Address changes of a device that is no longer connected will be ignored. Moreover, this is the only way how you can ensure that the latest list with all FOUNDATION Fieldbus-H1 addresses that are still available is used.



CServer FOUNDATION Fieldbus, set address

The communication designator of active DSV401 R3(SMART VISION) station (local master) is changed only via the stack configuration (see ch. 4.8.2.1, pg. 84).



CServer FOUNDATION Fieldbus, address changing

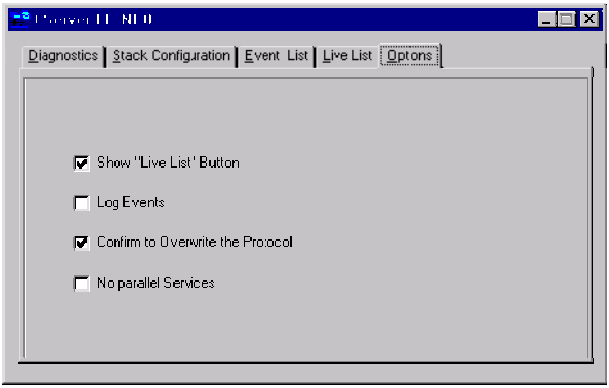
All addresses not yet assigned to the bus are available.

If the service is activated for a connected instrument via the project manager, the modification is also integrated in the project.

See also:

4.10 Set Address / Name 92

4.8.6 Options



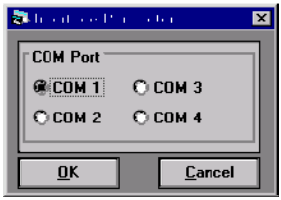
CServer FOUNDATION Fieldbus, options

Show "Live List" Button	Shows the button New Live List in Live List . If this option is disabled, the bus device can only be updated via the Project Manager.
Log events	Permits to log the Events (ch. 4.8.3, pg. 86).
Overwrite the Protocol	Generates a warning if an already existing protocol would be overwritten with an update. Only active after a re-start of the Cserver window. Note that no safety backup is available.
Requests not parallel	The CServer can process one queue entry per device at the time. In the example described in chapter 4.8.4, pg. 87) one queue entry can be processed for each of the two slaves (the third station is a local master). If the option is enabled, the CServer will not perform this optimization. All queue entries will then be processed sequentially (longer run time, but improved safety).

4.9 Interface Settings for FSK 600 Baud/TSxxx/V1715x (Contrans I)

COM port settings for FSK 600 Baud are changed via Device_COM Port Settings. The respective interface has to be selected in advance. This function can also be accessed via the context menu.

COM port settings



COM port settings FSK 600 Baud

4.10 Set Address / Name

When allocating address and name you have to distinguish between the following cases:

Case of application	Procedure
▪ Add a device to the project, or create a new project, respectively .	Select device in the Project Editor (Ch.4.3, pg. 47), then Edit_Name/Address.
▪ Change an address in the project , without modifying the device data (hardware / offline).	Select device in the Project Editor (Ch.4.3, pg. 47), then Edit_Name/ Address.
▪ Change an address in the project together with the one of the device (online).	Connect device, then Device_Address / Name or Device_Set Address. The further proceeding depends on the modification service of the respective CServer (see below).
▪ Change the address of the connected device which is not (yet) in the project.	Select the interface the device is connected to in the Project Manager (ch. 4.4, pg. 57), Device_Search Device. The further proceeding depends on the modification service of the respective CServer (see below).

The driver-specific procedure is explained in detail in the following chapters:

Modification service for CServer	Chapter
▪ HART 5.1 (Standard)	4.6.5 Set address / name ..... Pg. 70
▪ FSK 9600 Baud	4.6.5 Set address / name ..... Pg. 70
▪ PROFIBUS	4.7.5 Set address ..... Pg. 79
▪ FOUNDATION Fieldbus	4.8.5 Set address ..... Pg. 88

The modification service can also be accessed online via the context menu of the corresponding device.

4.11 Search Devices / Device List

The device search service searches for the devices connected to a (field)bus. It is provided by the respective communication driver / CServer. For further information see section live list in the corresponding chapters.

The search procedure is started via Search_Devices from the context menu of the corresponding means of communication, or via Device_Search Devices. The test result is displayed in the respective CServer as a live list. If such a list should already exist it will be overwritten. The test result depends on the existing entries in the project.

See also:

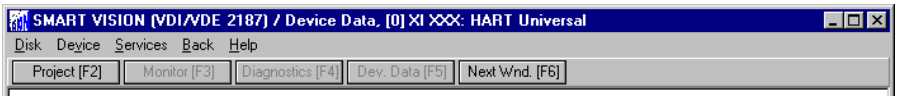
4.12 Device Type Recognition

Devices, which are neither integrated in DSV401 R3(SMART VISION) nor available as DTM yet, can usually be modified by Universal DTMs (HART Universal Module).

4.12.1 HART Universal Module

HART instruments, which have no DTM and are not integrated in DSV401 R3(SMART VISION) can be modified via the HART Universal Module in DSV401 R3(SMART VISION). To use this module, select HART Universal in the Device List (ch. 4.3.1, pg. 48).

With the start of the device data window the corresponding menu comes up. Select „HART Universal“ and then Device_Edit within the project manager.



Main menu device data HART Universal

Disk

_New	A new set of data for the selected device is generated in the storage device of the PC.
_Load from Disk	Device data stored in a file (*.DAT) are loaded from the storage device.
_Save to Disk	Current device data can be stored in a file (*.DAT). Since the device data windows can be opened even without a connection to the respective device, it is possible to access instrument data stored on the hard drive for examination, changing and saving it again under the same or another file name (offline configuration).

Device

_Load from Device	Present field instrument data are uploaded to the PC.
_Store into Device	Present device data in the PC are downloaded to the field instrument.
_Test Properties	Devices which are not fully integrated within DSV401 R3(SMART VISION) are tested for possibly available, additional HART commands (common practice), the results are stored and available again for the subsequent connections. This procedure can be understood as a learning process. (Only available for not fully integrated devices.)

Services

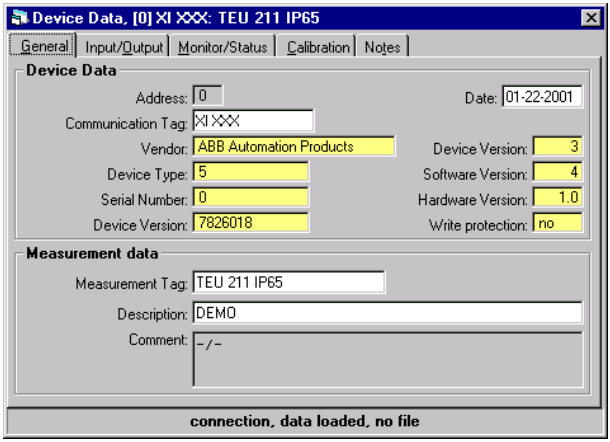
_Print	All existing device data of an active device data window (e.g. parameters) are printed clear text.
_Perform Device Reset	Resets device to default. (Only available for not fully integrated devices.)

Back

_Return to Main Menu — Returns to the project manager. The device data window remains active in the background.

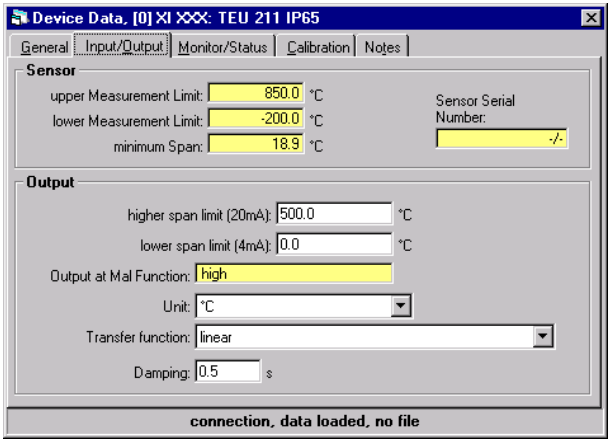
_Close and Return to Main Menu — Returns to the project manager and closes the device data window.

Help — See Notes for the Operator (ch. 4.1, pg. 38).

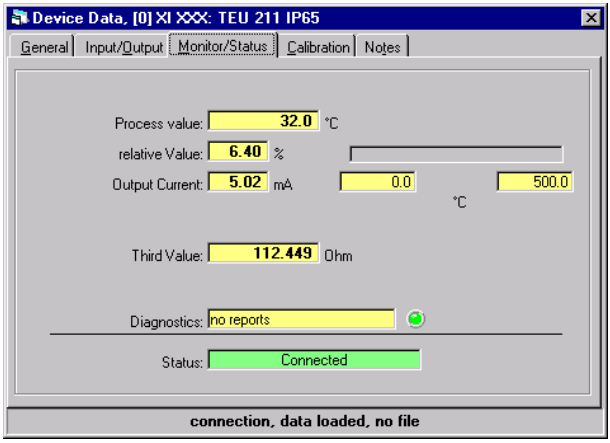


General field instrument information

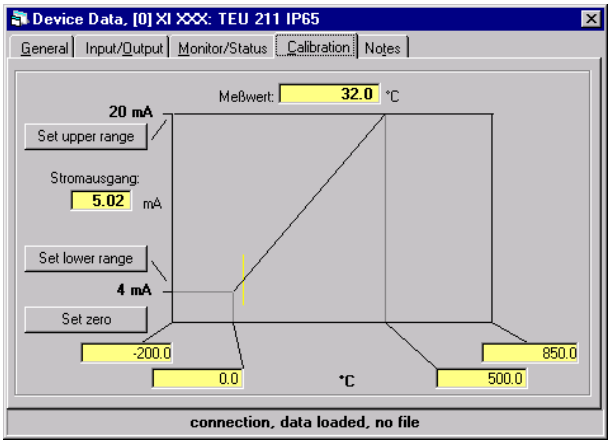
The terms *Communication Tag* and *Measurement Tag* correspond to those of the project entry. The field *Comment* allows to type in any text information.



Measurement ranges and corresponding mA output



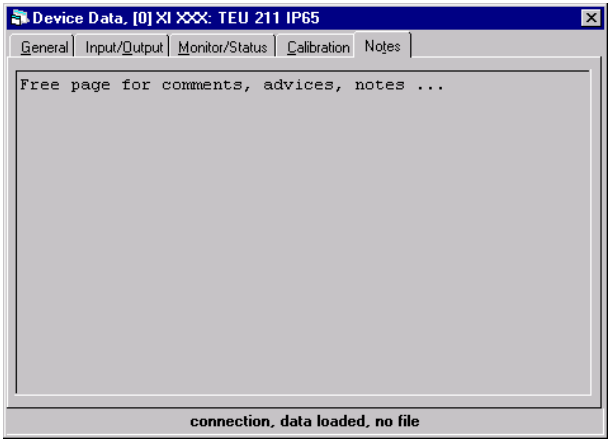
Display of several measurement values



Online calibration analog output

During operation the zero point of the device can be set directly as well as and the lower (belonging to 4 mA) and the upper (belonging to 20 mA) range of measurement. The changes are displayed instantly in the diagram including the present value in 3 modes:

1. As short vertical line in yellow.
2. As digital measurement value with engineering units.
3. As mA equivalent to the analog output.



Notes, comments, instructions

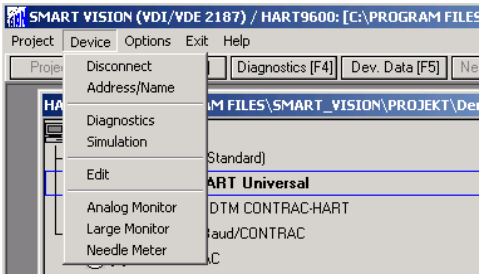
4.13 Display / Log Measurement Values

The following display contents and logs are available for certain devices and HART Universal, which are completely integrated in DSV401 R3(SMART VISION) (Ch. 4.1.3, p 38.).

Some DTMs (Ch. 3.10.1 p. 36) feature special displays and logs or they may be missing. See the corresponding online help for details. Contact the device manufacturer if necessary.

Measured values of a field instrument can only be displayed online. Therefore, the instrument must have the status "connected".

Which values are displayed and recorded, depends on the device type.

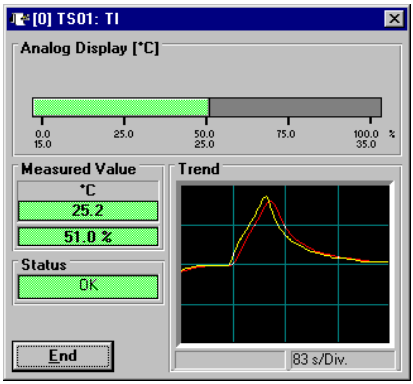


Menu Display

All values, including alarm limits, represent the present values of the selected instrument.

4.13.1 Display Values / Analog monitor

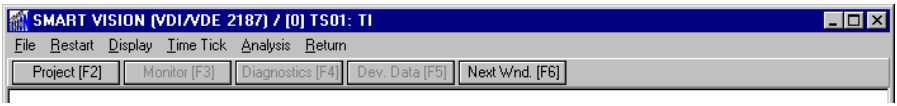
Firstly select the device in the project manager and then Device_Display in order to show the measured value.



Analog monitor

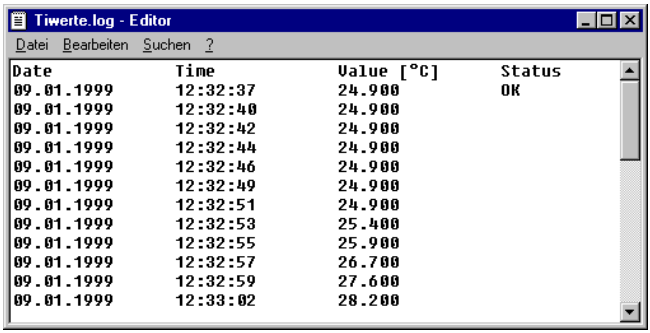
Analog Display	Bar graph with effective range, alarm limits and engineering units. The bar graph color indicates the violation of an effective range: Blue: Lower effective range violated. Green: No effective range violation. Red: Upper effective range violated.
Measured Value	Numeric value in % and engineering units.
Status	Short status of the respective instrument.
Trend	Trend of the measured value (red line) with variable time resolution. The present time resolution is displayed as time per division bottom right of the trend. If a moving average was activated, than it appears as additional yellow line.
End	Closes the display and the protocol (if active).

Along with the analog monitor the corresponding menu comes up:



Menu line analog monitor

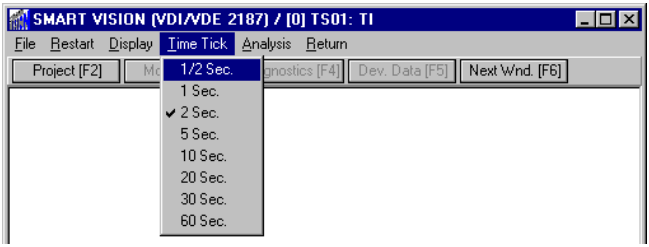
File_Open	Writes the measured values as a protocol in an ASCII file with the extension "log". By confirming the file name the current measured values are written to that file cyclically:



Date	Time	Value [°C]	Status
09.01.1999	12:32:37	24.900	OK
09.01.1999	12:32:40	24.900	
09.01.1999	12:32:42	24.900	
09.01.1999	12:32:44	24.900	
09.01.1999	12:32:46	24.900	
09.01.1999	12:32:49	24.900	
09.01.1999	12:32:51	24.900	
09.01.1999	12:32:53	25.400	
09.01.1999	12:32:55	25.900	
09.01.1999	12:32:57	26.700	
09.01.1999	12:32:59	27.600	
09.01.1999	12:33:02	28.200	

Measurement protocol

File_Close	Stops the protocol.
Restart_Do Restart	Clears the trend. This does not effect the protocol.
Display_Bar Graph	Activates / deactivates the bar graph, _Trend the trend display.
Time Tick	Changes the cycle time for the data acquisition. The trend is reset implicitly while the active protocol is continued.



Time tick for trend and protocol

Analysis

_None	Moving average and standard deviation become disabled.
_Moving Mean	The moving average is displayed as additional yellow line.
_Standard Deviation	In preparation.

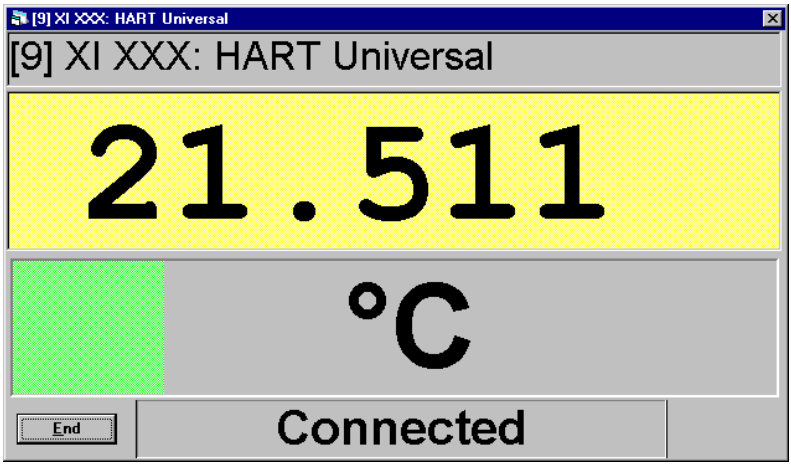
Return

_Return to Main Menu	Activates the project manager again.
_Close and Return to Main Menu	Activates the project manager and closes the analog monitor.

4.13.2 Large monitor / large digital indicator

Select Device_Large Monitor in the project manager in order to select the large monitor.

The large digital indicator makes it possible to obtain the exact value and the short status from a larger distance, for example during commissioning the plant.

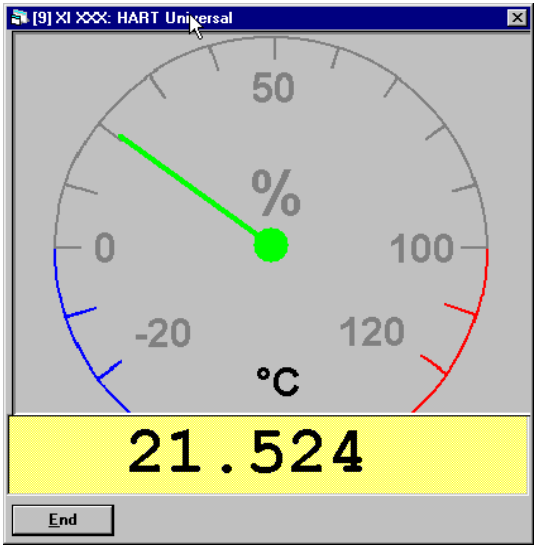


Large digital indicator

First line: Device address, communication tag and device type.
Second line: Measured value alphanumerical.
Third line: Bar graph of the measured value with engineering units.
Fourth line: Short status of the respective instrument.

4.13.3 Needle meter

Select Device_Needle Meter in the project manager in order to select the needle meter.



Needle meter

Needle: Measured value in percent (gray scale).
Digital display: Measured value with engineering unit (value and unit in black).

4.13.4 Log measurement values

See:

4.13.1 Display Values / Analog monitor 98

4.14 Device Data, Display / Modify

Display and modification of device data is performed in device data windows. These windows are principally opened in the Project Manager (ch. 4.4, pg. 57) via Device_Edit and they always refer to the instrument selected before. Which parameters of a device are accessible, depends on the device type, possibly on the connection status and on the access protection (ch. 4.17, pg. 112). This refers especially to DTMs (ch. 3.10.1, pg. 36). The procedure depending on the devices should be described in the help texts of the corresponding DTMs. If necessary, please contact the manufacturer of the respective device.

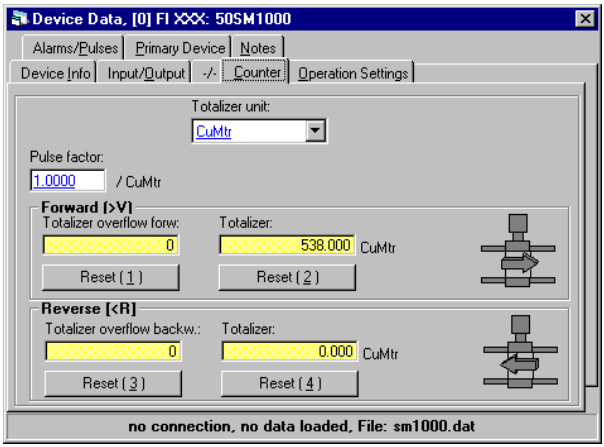
The field instrument modules respectively DTMs and their documentation are supplied by the corresponding manufacturer who is responsible for function and content.

See also:

4.17 Program Settings 112

4.14.1 Integrated field instruments

Depending on the device type the contents of the windows and the respective menus vary for instruments completely integrated in DSV401 R3(SMART VISION). The data are usually displayed as a file-card box with file-cards. In general, the possibilities for parameterization are greater than in HART Universal.



Integrated field instrument

This example shows the data window of a magnetic inductive flow meter. The contents and arrangement of the special data windows refer only to these instruments.

See also:

4.15 Diagnostics

A diagnostics can refer to a device or to the means of communication.

4.15.1 Diagnostic function of the communication drivers

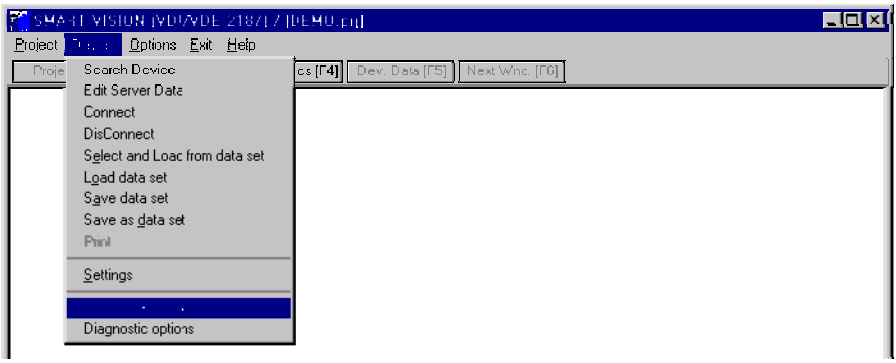
See:

Independent of the diagnostic function of the CServer a superior diagnostics for integrated HART instruments is available.

4.15.2 HART diagnostics

The HART diagnostics enables an overview of all operations performed with the connected field instruments.

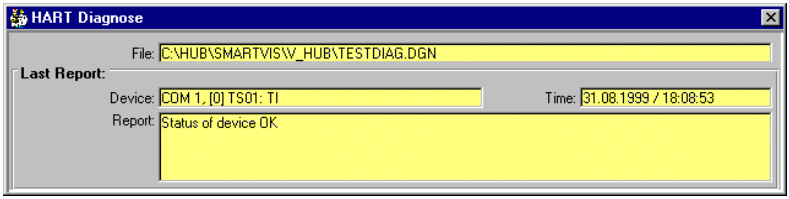
To start choose in the Project Manager a HART-compatible communication driver, e.g. HART 5.1 (Standard), and then Device_HART Diagnostics:



Start HART diagnostics

An automatic start will commence under certain conditions related to the communication set-up (ch. 4.5, pg. 60).

With the start of the diagnostics the related HART diagnostics window appears at bottom left in DSV401 R3(SMART VISION):



HART diagnostics

The diagnostics stays active in the background even if another window is selected. Termination is done by:

- Closing the diagnostics window.
- Changing the project (switch to the project editor).
- Termination of DSV401 R3(SMART VISION).

File: Each event is recorded automatically in the file TESTDIAG.DGN as clear text including date, time, communication ports / interfaces, device address and communication name as well as the tag. The file is stored in the directory shown using standard ASCII-format. Therefore, it is compatible to all standard word processing programs.

Device: The device the displayed report refers to.

Time: Date and time for the message displayed.

Report: In the diagnostics window up to 4 of the possible 8 messages per instrument are displayed. The file TESTDIAG.DGN always files all possible messages, if necessary up to 8 simultaneous messages. Critical messages are shown in red bold characters.

With the start of the diagnostics or if the HART diagnostics window is selected, the related menu line is activated:

Menu line of active HART Diagnostics

File

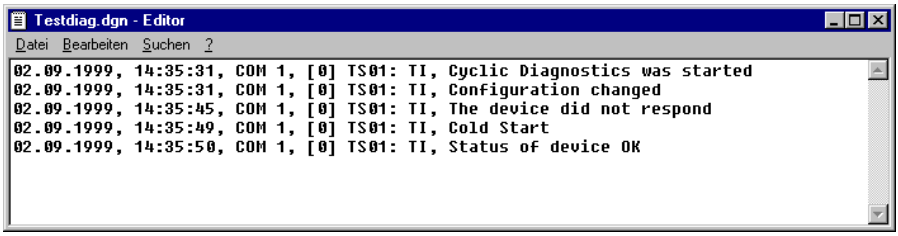
_Save As... Stores the current diagnostics information to a alternative file name, and continues to write all further diagnostics events into the newly created file until a new start. This is an important option since with each start of the HART diagnostics all information in the file TESTDIAG.DGN are deleted immediately.

_Display: Displays the file of the current diagnostics (provided that HART diagnostics was started).

Return

_Return to main menu — Activates the project manager. HART-Diagnostics stays open and runs in background.

_close and Return to main menu — Activates the project manager and closes the HART-Diagnostics.

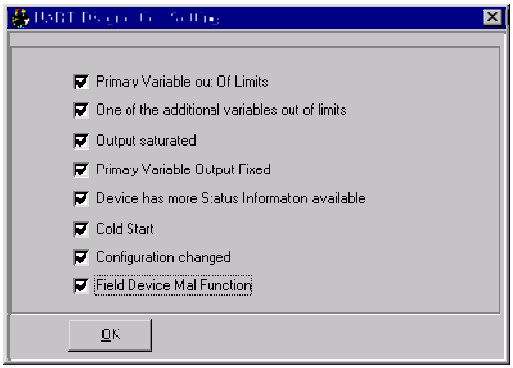


Contents of a diagnostics file

4.15.2.1 Suppress messages

Menu HART diagnostics, settings

Options_Settings — Defines which of the possible messages will be displayed and stored.



Settings HART diagnostics

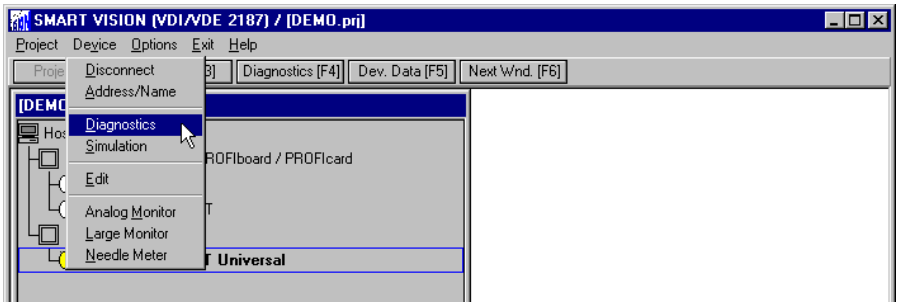
1. Primary variable out of limits.
2. One of the additional variables out of limits.
3. Output saturated.

4. Primary variable output fixed.
5. Device has more status information available. Further device specific diagnostics information can be accessed via the device specific diagnostics.
6. Cold start.
7. Configuration changed. A change in the instruments configuration was detected.
8. Field device malfunction.

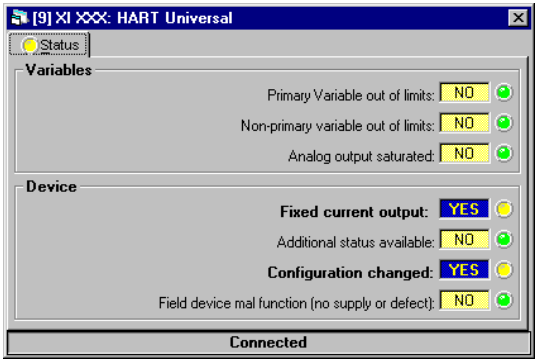
Messages related to the settings 1., 2., 3., 6., 7. and 8. appear in red bold characters, messages regarding 3. and 4. appear normal.

4.15.2.2 Device specific diagnostics HART Universal

Choose Device_Diagnostics after having selected the instrument (HART Universal) in the project manager in which the Diagnostics information is wanted:



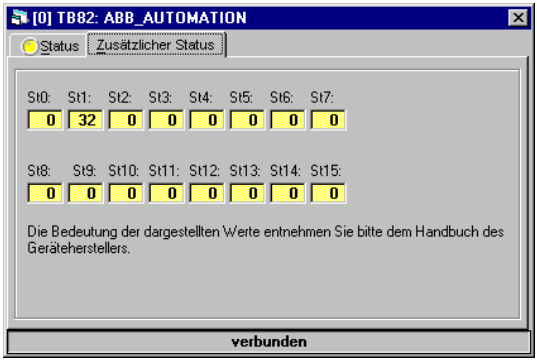
Start diagnostics HART Universal



Diagnostics data HART Universal

The normal status is indicated by NO on a yellow background and a green LED. A YES on a blue background and red LED indicates all other states, that is errors or additional statuses. A yellow LED indicates uncritical changes.

Primary variable out of limits	It comes to an error condition if the primary measurement value exceeds the limits (high / low).
Non-primary variable out of limits	It comes to an error condition if at least one of the additional measurement values exceeds the limits (high / low).
Analog output saturated	It comes to an error condition if the analog output exceeds 20 mA.
Fixed current output	If the current output is in manual mode meaning a simulation is carried out and no standard operation mode presented.
Additional status available	Indicates if additional statuses to those displayed in the diagnostics window are available.
Configuration changed	If the instrument detects a change in the configuration, it is displayed at this point.
Field device malfunction	Indicates whether a failure in the instruments electronic was detected or not.



Diagnostics HART Universal, additional status

Two additional, nameless status bits were defined in context with the HART specifications for all instruments. For the meaning of the bits (ST1, ...) please refer to the manual of the respective instrument manufacturer.

See also:

4.6.1 CServer HART, Diagnostics 65
4.7.1 CServer PROFIBUS, Diagnostics 75
4.8.1 CServer FOUNDATION Fieldbus, Diagnostics 83

4.15.3 Device-specific diagnostics

The device specific diagnostics is only possible online. The extent of this device specific diagnostics depends on the device type and manufacturer. You can find further details in the documentation / help of the corresponding device.

4.16 Simulation

For the commissioning or service applications - e.g. in connection with loop checks of the control system - a measurement value can be simulated, while the real process value is measured further on. Via the measurement value recording in DSV401 R3(SMART VISION) the process value can be observed, while the control system sees the simulated value.

Whether a device supports this mode and how to set for the device, can be found in the instructions of the corresponding manufacturers.

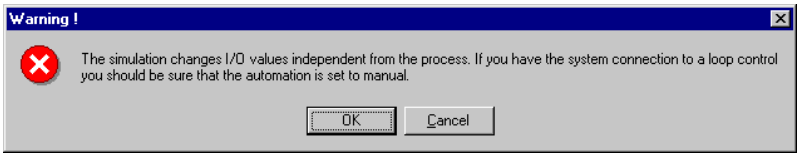
4.16.1 Simulation for integrated HART instruments

After selecting the device the mode is activated via Device_Simulation.

Back
_Close_and Return to the Main Menu — or *End* or closing the simulation window terminates this operation mode. The device is set back to automatic mode. At the output of the measurement device the mA value corresponding to the measurement value is shown again.

_Return to the Main Menu — The simulation stays active and the project manager comes up. With some instruments this simulation function can be activated additionally on a device data page.

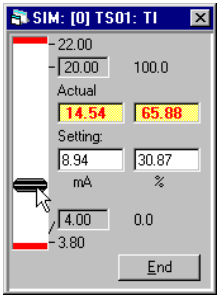
A warning message informs of the possible fundamental effects on the entire process:



Activating the simulation

OK — The selected instrument is switched-over to the manual operation mode. Independent of the measurement value the mA output of the measurement device can now be changed. Simultaneously the color of the tag name and of the description in the project manager turns yellow indicating that this instrument does not work in the normal operation mode any more.

Cancel — The switch-over is cancelled without any effects on the process.

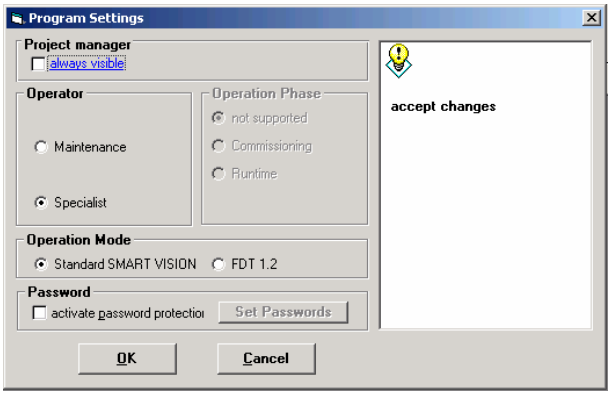


Setting of the mA output of a measurement device

Via slider or keyboard a value between 3.80 and 22.00 mA or -1.25 and 112.50 % can be entered in the fields under Setting:. The respectively not selected input field adjusts automatically to the new value.

4.17 Program Settings

Select Options_Settings in the project manager.



Program Settings

This windows uses the mouse-sensitive-mode. Moving the mouse cursor over an item displays the associated explanation on the right hand side.

Use the country settings of your MS Windows operating system in order to select your language. Select either German (Germany) or English (US). It becomes active after the next start of DSV401 R3(SMART VISION).

4.17.1 Project manager always visible

The project manager enables the central access to project information. Therefore, it is recommended to keep the project manager always visible (default). If the option *always visible* is not ticked, the project manager will only appear when all other DSV401 R3(SMART VISION) windows are closed (device data window e.g.).

This does not affect DTM windows.

4.17.2 Operating Mode – Standard SMART VISION

This mode supports 2 operator levels – no operation phases.

Operator level:

Maintenance	Allows for reading the data only. No password protection possible.
Specialist	Allows to read and to write the data. Password protection possible.

Exceptions can be recognized by the background color of the input field of the respective device (ch. 4.1, pg. 38).

4.17.3 Operation Mode – FDT 1.2

This mode supports 4 operator levels and 3 operator phases as specified in FDT 1.2.

Operator:

Observer	Allows for reading the data only. No password protection possible.
Operator	Allows for reading the data only. Password protection is possible.
Maintenance	Allows for reading the data only. Password protection is possible.
Project planning eng.	Allows to read / write / change the data. Password protection is possible.

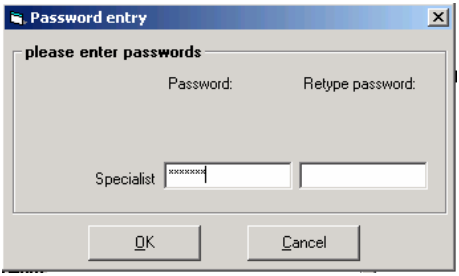
Operation Phase:

Not supported	Standard operation phase, in which all DTMs can be run.
Commissioning	Operation phase with full access to all DTM online functions during the commissioning phase.
Operation	Operation phase allows only for access to procedures which are not critical for the running process.

Exceptions can be recognized by the background color of the input field of the respective device (Ch. 4.1, p. 38).

4.17.4 Password protection

The operator level *Specialist / Operator / Maintenance(FDT1.2) / Project Planning Engineer* allows for changing of the operator level as well as the protection of the start of DSV401 R3(SMART VISION) using a password. To prevent the Observer operator from changing the operator mode, firstly activate the password protection and then the operator mode *Observer*. The password protection together with the operator mode *Specialist* completely locks the start of DSV401 R3(SMART VISION) until the correct password is entered.



Access protection

All settings concerning password and operator mode become active with the next start of DSV401 R3(SMART VISION).

Default setting is *Specialist* without protection.

4.18 Printer settings

In the Project Manager you can access via Options_Printer Configuration the standard Windows options for printer settings.

5 Appendix

5.1 Supplementary Information

- See 3KDE631114R3901_Supplement-Info-Tool_DSV4xx_SMART-VISION.pdf for information about the currently valid software version, approved PC-adapters / DTMs as well as known problems and restrictions:
  This file will be shown at the end of the installation procedure. Moreover it is part of the DSV401 R3(SMART VISION) installation folder and always up-to-date in the internet under: http://www.abb.com/Instrumentation
  → Device Management and Fieldbus
  → Device Management Tool
  → Downloads
- When DSV401 R3(SMART VISION) is active, the current software version number is displayed under the menu item Help_About SMART VISION. Moreover you can find it in your MS Windows operating system under START_Programme_SMART VISION_About...
- The list of field instruments being completely integrated in DSV401 R3(SMART VISION)and of the installed DTMs (ch. 3.10.1, pg. 36) can be found in the Device List (ch. 4.3, pg. 47) of the Project Editor (ch. 4.3.1, pg. 48).

5.2 Problem Solving

Problem	Possible cause	Clearing
HART communication: Connection set up not possible.	No physical connection to the device.	Check the connection from the PC to the modem/adapter, from the modem to the FSK bus and to the field instrument. Device faulty or no power supply?
	FiFo not deactivated	Make sure that the FiFo or the COM port is de-activated (see: under Windows_start_settings_control panel_....)
	Wrong COM-Port.	Set the COM port according to the Windows settings.
	HART-USB driver not configured.	Make sure that the USB adapter is implemented and configured (see under: Windows_Start_ifak System_is HRT Multidriver_is HRT Configurator)
	Wrong addressing mode.	Select addressing via tag name for FSK bus.
	FSK bus amplifier missing.	With Contrans I a separate FSK bus amplifier is needed.
	Address not unique.	Give a unique tag name to all devices in the FSK-bus.
	Analog circuit open.	It is essential for faultless communication that all signal circuits are closed.
	FSK-Bus polarity mixed up.	When using several Contrans I bus amplifiers, attention must be paid to the correct wiring.

Problem	Possible cause	Clearing
PROFIBUS-communication: connection not possible	no connection to the device	Check the connections from the PC to the adapter, from the adapter to PROFIBUS DP. Are the final resistors ok? Is the field device faulty or not fed u (PA via Linking Device)?
	wrong address / address conflict	Make sure that in the PROFIBUS line no address is given twice. This applies for the adapter and each field device.
	PROFIBUS-driver not configured	Make sure that the adapter is implemented and configured (see: Windows_Start_ifak System_is Pro Multidriver_is Pro Configurator or Programme_PROFIBUS_Runtime System_Driver Configuration).

See also:

5.4 Hotline 121
5.3 Contacts 120

5.3 Contacts

For information about DSV401 R3(SMART VISION), on the integrated field instruments or the DTMs/DMAs of ABB, please contact:

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63755 Alzenau	eMail	CCC-Support.DEAPR@de.abb.com
Germany	Internet	http://www.abb.com/Instrumentation

or your local ABB representative.

5.4 Hotline

In case of service please contact the ABB Automation Products Service Hotline:

+49 1805 / 123580 (0.12 € / Minute inside of Germany).

ABB has Sales & Customer Support expertise in over 100 countries worldwide.

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3KDE631114R4301

Printed in the Fed. Rep. of Germany
12.05
Specifications subject to change without notice