Polytron 7000FB Installation Manual FOUNDATION Fieldbus

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1 Scope

1.1 Purpose of Document

This document is a supplement of the installation manual with FOUNDATION Fieldbus specific items.

1.2 Applicable Documents

This document should be read in conjunction with the following documents:

Ref. Title	*File name*	*Version*
[1] NI-FBUS Configurator User Manual	Part Number 370514C-01	Feb. 2004
[2] FOUNDATION fieldbus Technical Specifications	FF-007	V6.0

Table 1-1 : Applicable Documents

2 FF Application Guide with NI-FBUS Configurator

2.1 Necessary equipment

You need following equipment to use the NI-FBUS Configurator:

- FOUNDATION Fieldbus instrument (DUT)
- FOUNDATION Fieldbus H1 interface card (e.g. National Instruments AT-FBUS, PCMCIA-FBUS, PCI-FBUS)
- Power Hub (e.g. Relcom Inc. FCS-PH-CC)
- PC or laptop with Configuration Software (e.g. NI-Configurator)

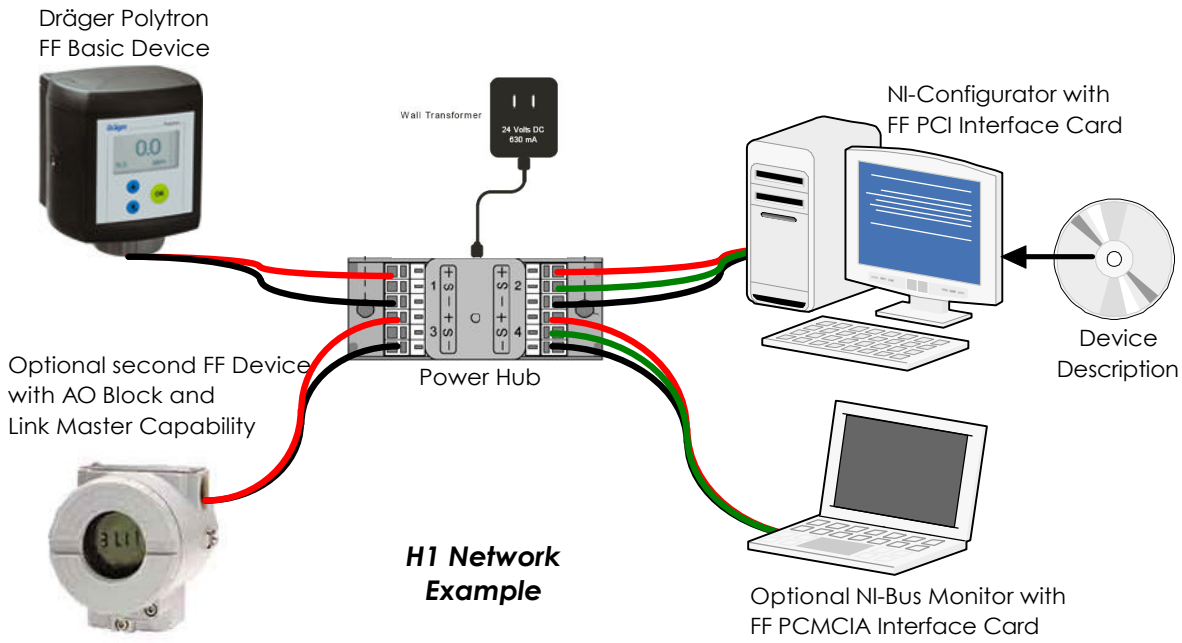

Figure 2-1 : Example Setup of FOUNDATION Fieldbus H1 Network

2.2 Overview

General - FOUNDATION fieldbus is an all-digital, serial, two-way communication system that serves as a Local Area Network (LAN) for factory/plant instrumentation and control devices. FOUNDATION fieldbus is designed to be compatible with the officially sanctioned SP50 standards project of the ISA (The International Society for Measurement and Control) and the specifications of the IEC (International Electrotechnical Committee). The FOUNDATION specification is based on the ISO/OSI layered communications model, and consists of three major functional components: the Physical Layer, the communication "stack," and the User Layer.

Network - H1 (31.25 kbit/s) interconnects “field” equipment such as sensors, actuators and I/O. HSE (100 Mbit/s) (High Speed Ethernet) provides integration of high speed controllers (such as PLCs), H1 subsystems (via a linking device), data servers and workstations.

Devices - There are two device type in the FOUNDATION fieldbus specification:

- Basic Device
- Link Master - Link Master devices are capable of becoming the Link Active Scheduler (LAS - The Link Active Scheduler controls and schedules the communication on the bus). Basic Devices do not have the capability to become the LAS

Terminal blocks - Terminal blocks can be the same terminal blocks as used for 4-20 mA. The terminal blocks typically provide multiple bus connections, such that a device can be wired to any set of bus terminals.

31.25 kbit/s Fieldbus Signaling - FOUNDATION Fieldbus is using the special physical layer according to the standard IEC 61158-2. Fieldbus signals are encoded using the well-known Manchester Biphase-L technique. The transmitting device delivers ±10 mA at 31.25 kbit/s into a 50 ohm equivalent load to create a 1.0 volt peak-to-peak voltage modulated on top of the direct current (DC) supply voltage. The DC supply voltage can range from 9 to 32 volts. However, for Intrinsically Safe (I.S.) applications, the allowed power supply voltage depends on the barrier rating. 31.25 kbit/s devices can be powered directly from the fieldbus and can operate on wiring previously used for 4-20 mA devices. The 31.25 kbit/s fieldbus also supports I.S. fieldbuses with bus powered devices. To accomplish this, an I.S. barrier is placed between the power supply in the safe area and the I.S. device in the hazardous area. To address Intrinsic Safety applications, the Fieldbus Foundation supports using either the traditional Entity model or the newer Fieldbus Intrinsically Safe Concept (FISCO). The mixing of the Entity model with the FISCO approach in the preparation of a system design is not recommended. The 31.25 kbit/s fieldbus allows stubs or “spurs”. The length of the fieldbus is determined by the communication rate, cable type, wire size, bus power option, and I.S. option.

Software - NI-FBUS Configurator is a Windows (2000/NT/XP) application that provides tools for complete configuration of FOUNDATION Fieldbus segments. NI-FBUS Configurator automatically detects devices when you connect them to fieldbus; and they go online. *Function Block Configuration* - You can automatically or manually configure device tags to meet your requirements. When connected to a fieldbus network or after loading an existing configuration from disk, NI-FBUS Configurator displays all the function blocks available within a device. NI-FBUS Configurator recognizes all standard blocks as well as any manufacturer-specific custom blocks found in a device and included in the device description. *Schedule Creation* - NI-FBUS Configurator automatically generates the optimal execution schedule for function blocks and communication between function blocks.
Other host systems (PLCs) are the Yokogawa CENTUM CS 3000, Emerson Delta V, ABB System 800xA or Freelance 800F, smar SYSTEM302 or Honeywell Experion.

Tools - The National Instruments NI-FBUS Monitor is a 32-bit Windows (2000/NT/XP) application used for monitoring of traffic on FOUNDATION Fieldbus networks. NI-FBUS Monitor uses an NI FBUS interface device to interface to an H1 network, and is useful for system diagnostics because with it you can selectively capture and view different types of data packets on Fieldbus.

2.3 Setup FOUNDATION Fieldbus Device Jumpers

The FOUNDATION Fieldbus device is equipped with two jumpers. One hardware jumper will be provided on fieldbus device to disable the simulate parameter. If this jumper is removed, then simulate parameters of all input and output blocks within a resource will be disabled. This jumper will be provided to prevent simulation from accidentally being enabled during plant operations. Adding this jumper to a device will force the Simulate Active attribute of the Block error parameter in the Resource Block to be set active.

The other hardware jumper activate write-locking, the write-lock jumper must be removed and the Hard Write Lock Supported bit in FEATURE_SEL must be set. When this is detected by the device, all writes to static and non-volatile parameters will be rejected by the device during this state. To deactivate write locking, since FEATURE_SEL is not writeable during write locking, the jumper must be set.

Refer to chapter 3.2 for diagnostic the status of the jumpers. In case of the Dräger Polytron device the jumpers are located at a Dongle slot on the interface board.

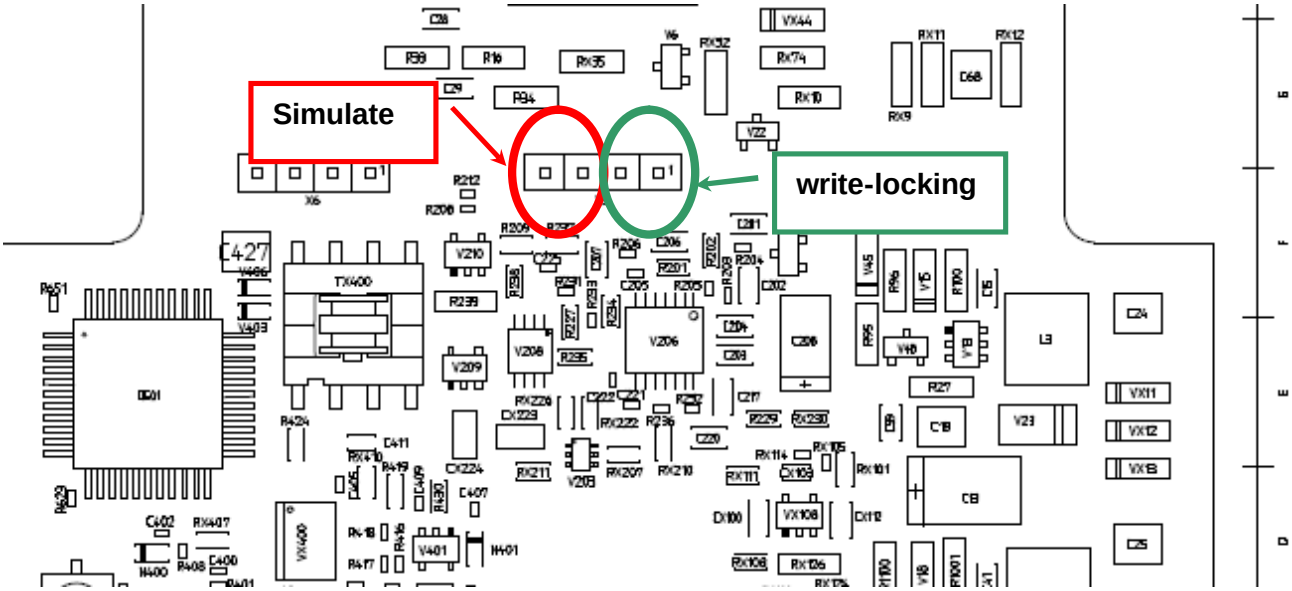

Figure 2-2 : FOUNDATION Fieldbus Jumpers

2.4 Setup the FOUNDATION Fieldbus interface card

You can use the FOUNDATION Fieldbus interface cards AT-FBUS or PCI-FBUS for desktop computers or PCMCIA-FBUS for laptop computers. After installing the card in the computer open the Interface Configuration Utility and add/configure the interface card according to the corresponding installation manual. Verify the interface card is configured for the usage as NI-FBUS.

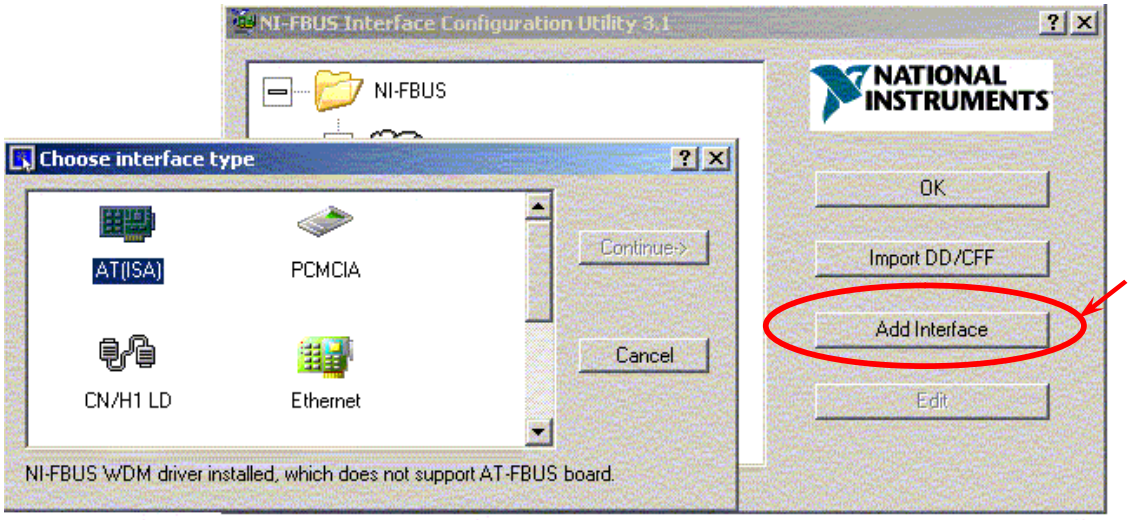

Figure 2-3: Set FOUNDATION Fieldbus Interface Card

It is possible that the interface card provide two ports. In this case one port should be at least enabled. For this purpose click on the board symbol with a right mouse click and enable the Port.

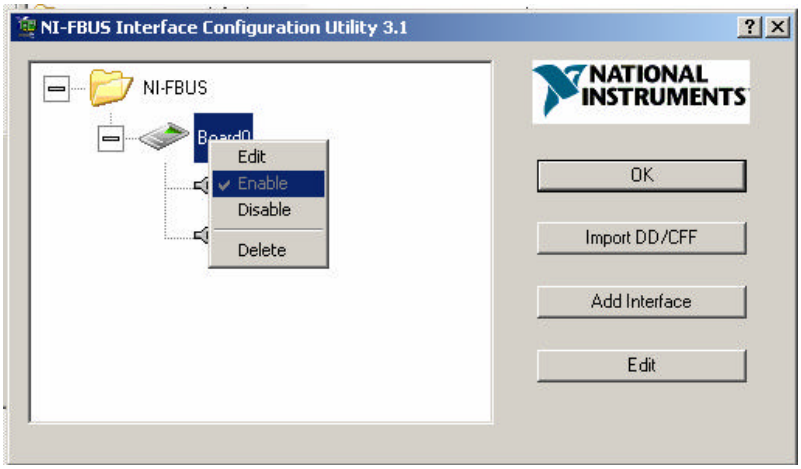

Figure 2-4 : Enable Ports

2.5 Import Device Description and Capabilities File

To define the device information, the FOUNDATION Fieldbus device is supplied with three device support files: Two Device Description Files (FFO and SYM) and one Capability File (CFF).
The DD provides information needed for a control system or host to understand the meaning of the data in the VFD including the human interface for functions such as calibration and diagnostics. Thus, the DD can be thought of as a “driver” for the device.

Click "Import DD/CFF" in the main window of the Interface Configuration Utility. An "Import DD/CFF" dialog box will prompt you to select your DD and CFF files. To import CFF file together with DD files, change the "Files of type" to "All Files(*.*)" and select the CFF file. The DD file of the same device must exist in the same folder with the DD file, -otherwise, an error will occur.

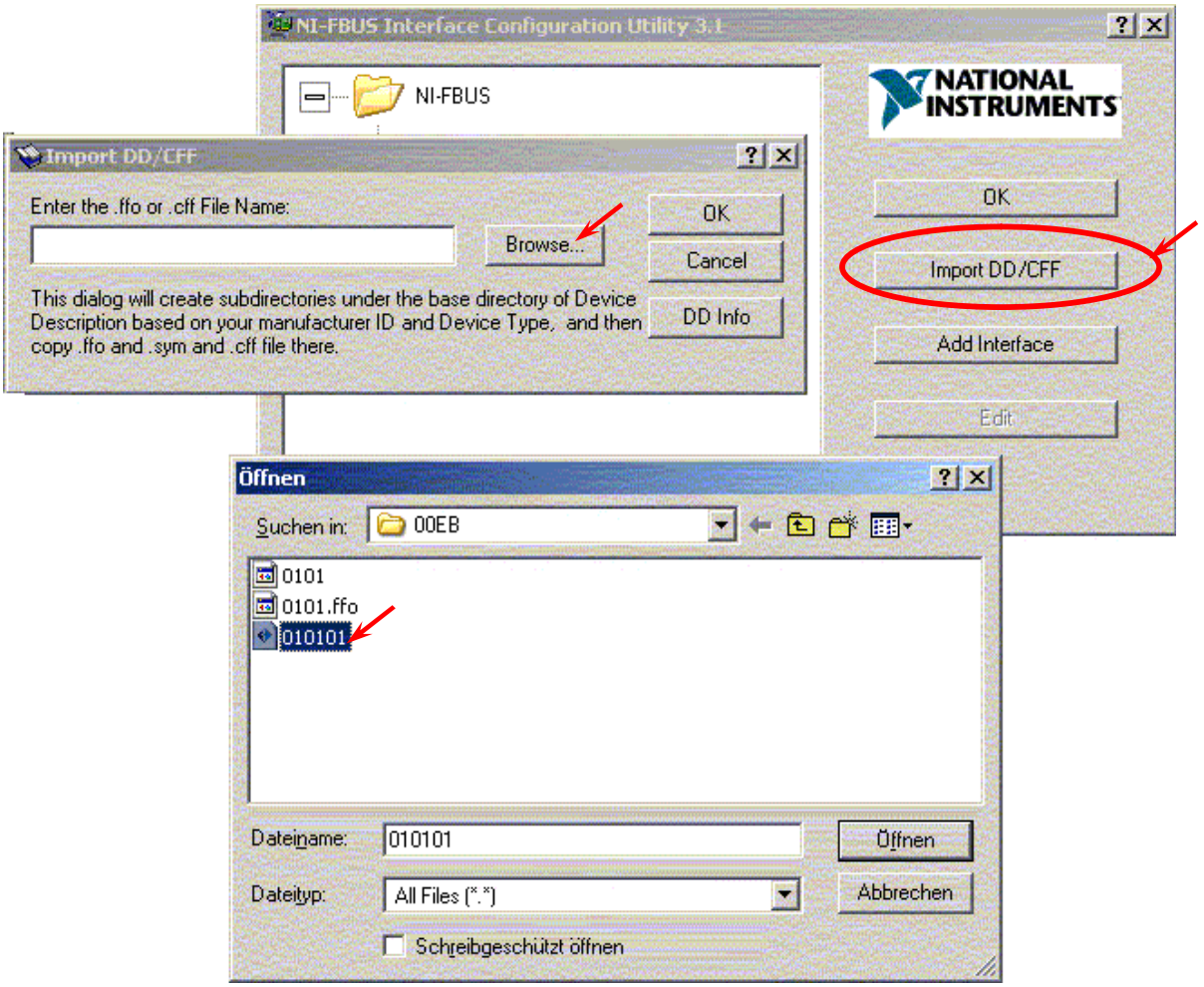

Figure 2-5: Import DD and CFF

2.6 Using the NI-FBUS Configurator

2.6.1 Create New Project

Select Start»Programs»National Instruments»NI-FBUS» NI-FBUS Configurator to start the NI-FBUS Configurator and when prompted, click Yes to start NIFB.EXE.
or
Select Start»Programs»National Instruments»NI-FBUS»NI-FBUS Communications Manager to start the NIFB process,then select Start»Programs»National Instruments»NI-FBUS»NI-

FBUS Configurator. Refer to your getting started manual for more information about the NIFB process.
When you start the NI-FBUS Configurator, the Start Up dialog box appears automatically. If you want to create a new project at any other time, select File»New.
In the Start Up dialog box, each configured interface will appear. Select the link(s) (ports on your Foundation Fieldbus interface) you want to include in your project in the Added Link(s) checklist. In this case select checkbox of interface 0-0.

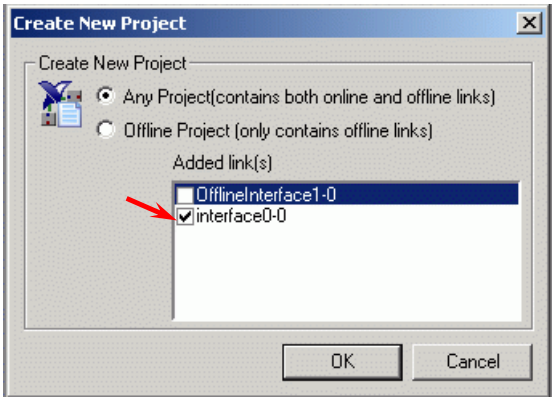

Figure 2-6 : NI-FBUS Configurator - Create New Project

The device will appear in the device tree if it is connected in the right way and has finished the power-up sequence.

Note: If the device is online for the first time or the device is reset (refer to chapter 3.3), it will appear with a temporary address. In this case the Link Master (NI-FBUS Configurator) tries to set a permanent address to the device. This process may take a few minutes or longer, because the device will be restarted several times.

Double click on the device node in the device type tree. In the right frame the device information will appear. The tag (PD_TAG) and the node address of device can be changed manually. Refer to chapters 2.6.2 and 2.6.3.

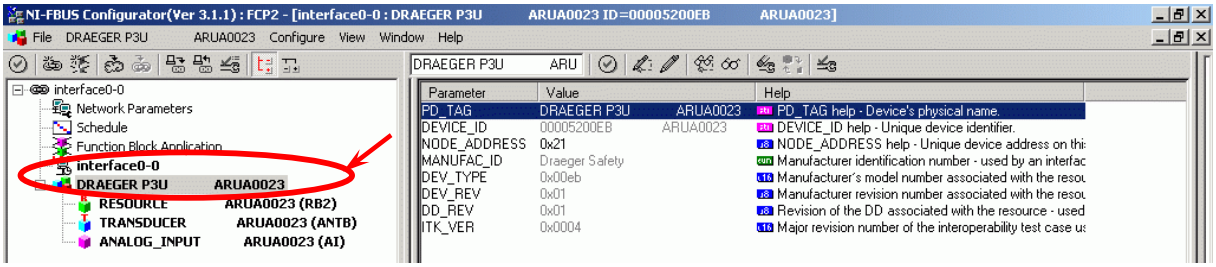

Figure 2-7 : NI-FBUS Configurator - Device Information

2.6.2 Change Tags

If you have multiple host machines, setting a device or block tag may affect how other host machines on an operating network access a device. There are three ways to change a tag.

- In the configuration tree, right-click the device or block whose tag you want to change and select Set Tag.
- Select the object menu item from the main menu bar and select Set Tag.
- Double-click the device or block in the configuration tree to launch the block configuration window. Then, click the Device Tag field in the block configuration window.

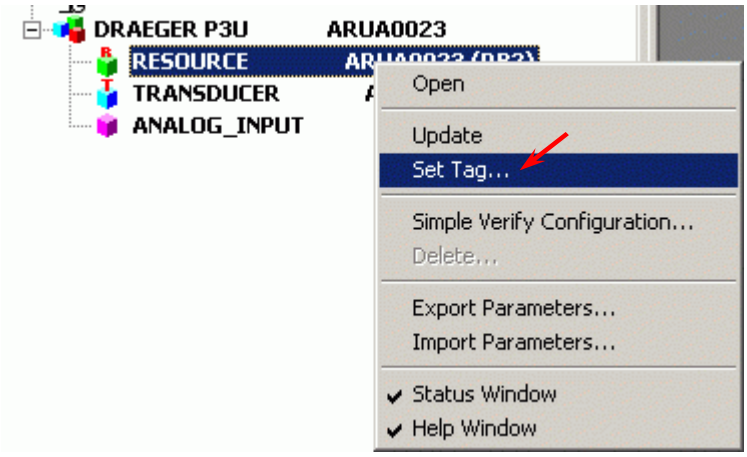

Figure 2-8 : NI-FBUS Configurator - Set Tag (Menu)

In the New Tag field, type the tag you want to assign. Make sure the Set to OOS Mode checkbox is selected. Be aware that when you set the device tag, the device loses all linkage and communication configuration information and loses control of the process. You should not change device tags after you have configured your process.
Click the Set button. The NI-FBUS Configurator sets the block or device to OOS mode before setting the new tag. If the device or block does not go to OOS mode, the NI-FBUS Configurator notifies you and you must determine whether to continue to set the tag. You should not try to set the tag without putting the device in OOS mode. Note It may take a few minutes for the tag to set.

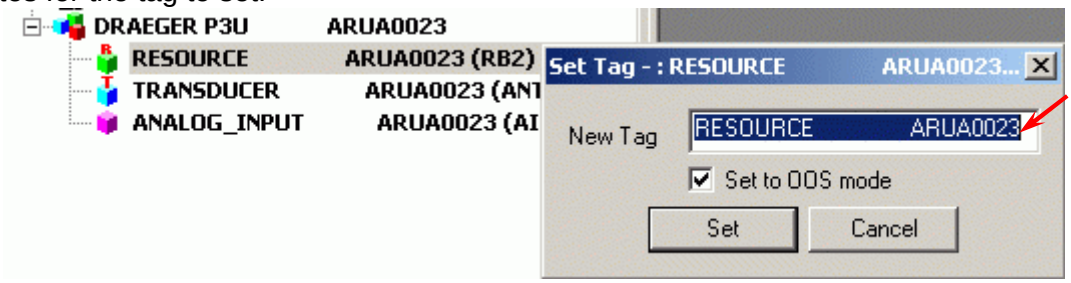

Figure 2-9 : NI-FBUS Configurator - Set Tag (Change)

2.6.3 Change Address

In the configuration tree, right-click the device whose address you want to set and select Set Address. The Set Address dialog box appears.
In the New Address field, select the desired address from the drop-down list, as shown in the following figure.

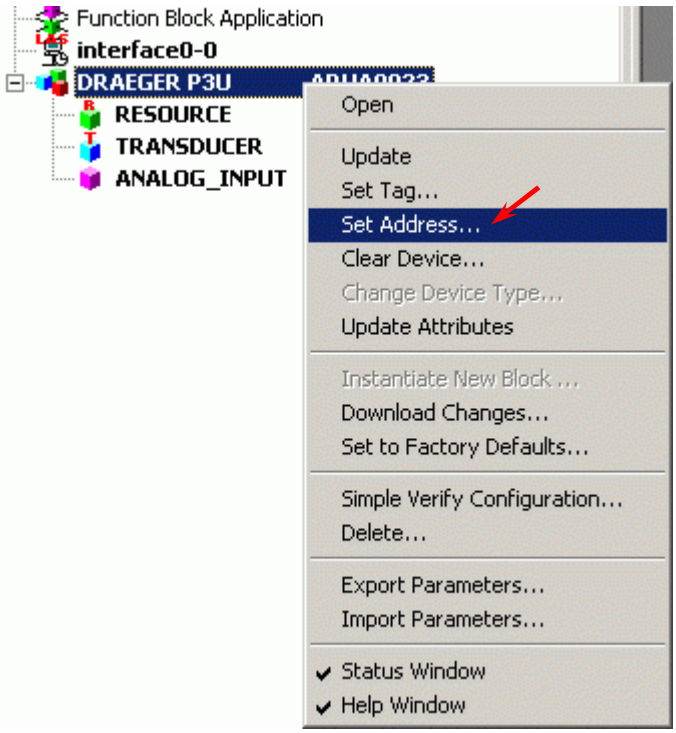

Figure 2-10 : NI-FBUS Configurator - Set Address (Menu)

Check the Set to OOS Mode checkbox. Doing so sets the block to out of service (OOS) mode, which prevents the device from operating in its current control system.
When you set the device address, the device loses all linkage and communication configuration information and loses control of the process. You should not change a device address after you have configured and are running your process. Click the Set button.

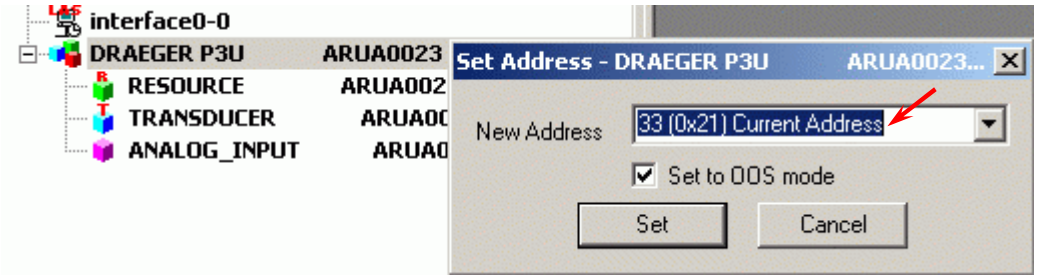

Figure 2-11 : NI-FBUS Configurator - Set Address (Change)

2.6.4 Change Block Mode

The operational modes for the blocks on the device are Automatic (Auto), and Out Of Service (OOS). The function block supports additionally the mode Manual (Man). There are two ways to change the target mode of a block.

- Double-click the block and select via the buttons the desired target mode.
- Double-click the block and select via the parameter *MODE_BLK.Target* in the tab *Process* the desired target mode.

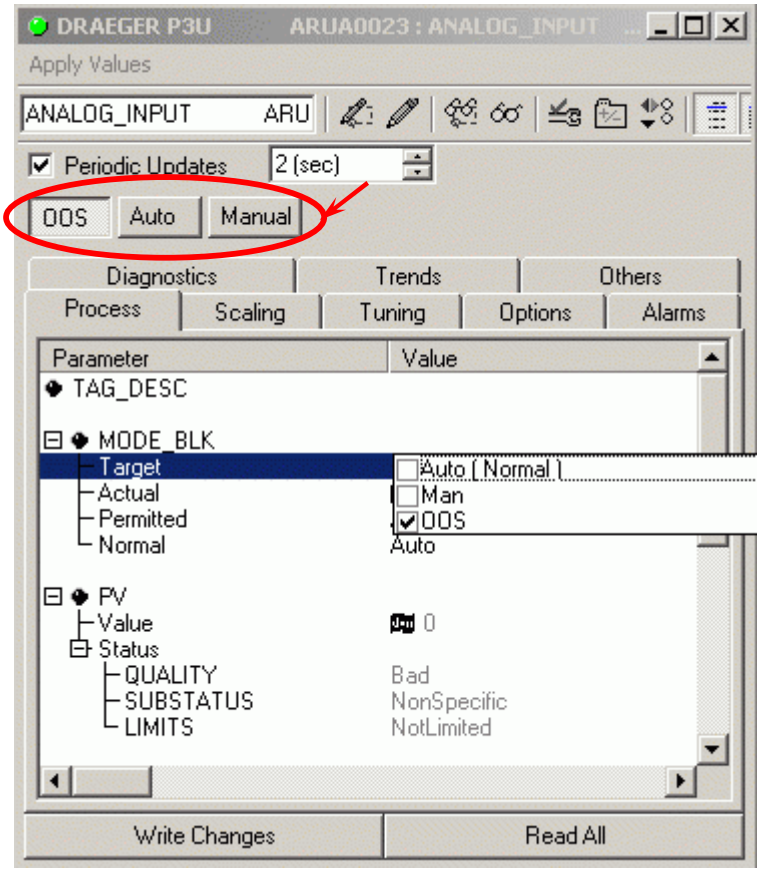

Figure 2-12 : NI-FBUS Configurator – Mode

Note : If the mode of the resource block is changed to Out-of-Service (O/S). In this state the actual mode of the transducer and function block in the resource will be forced to O/S mode.

2.6.5 Modify and write a parameter

Use the cursor to select the parameter value you want to change. In many cases, you can select the desired setting from a drop-down menu, or type in the new value. If a parameter value is greyed out, it is read-only and you cannot change it. After you change a parameter value, an asterisk (*) appears by the parameter name and the field turns yellow.

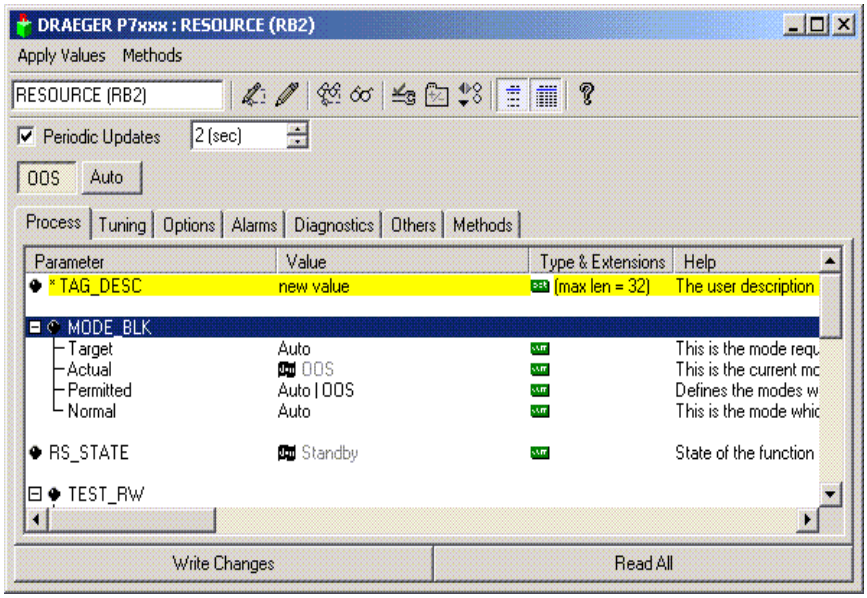

Figure 2-13 : Write parameters (1)

To make your changes effective immediately, click the Write/Save Changes button on the block configuration window toolbar. If the device accepts the new setting, the asterisk and yellow colour will clear. If the device does not accept the new setting, you are probably trying to write a setting that is invalid for your device.

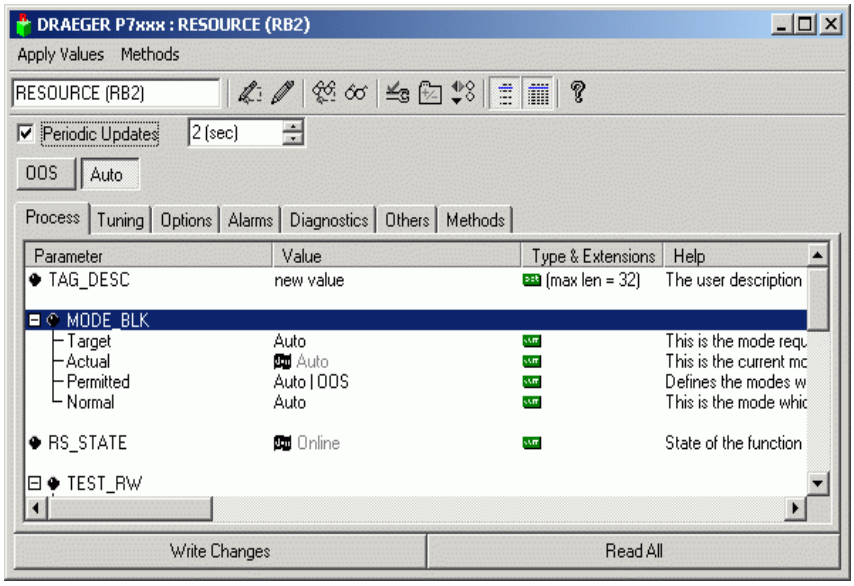

Figure 2-14 : Write parameters (2)

2.6.6 Configure the Transducer Block

The transducer block provide the main process value for the function block, in case of the Dräger Polytron the main process value is the gas concentration of the configured gas. Via

the transducer block the measured gas can be selected (by parameter GAS_INDEX or Method “Gas Selection”).

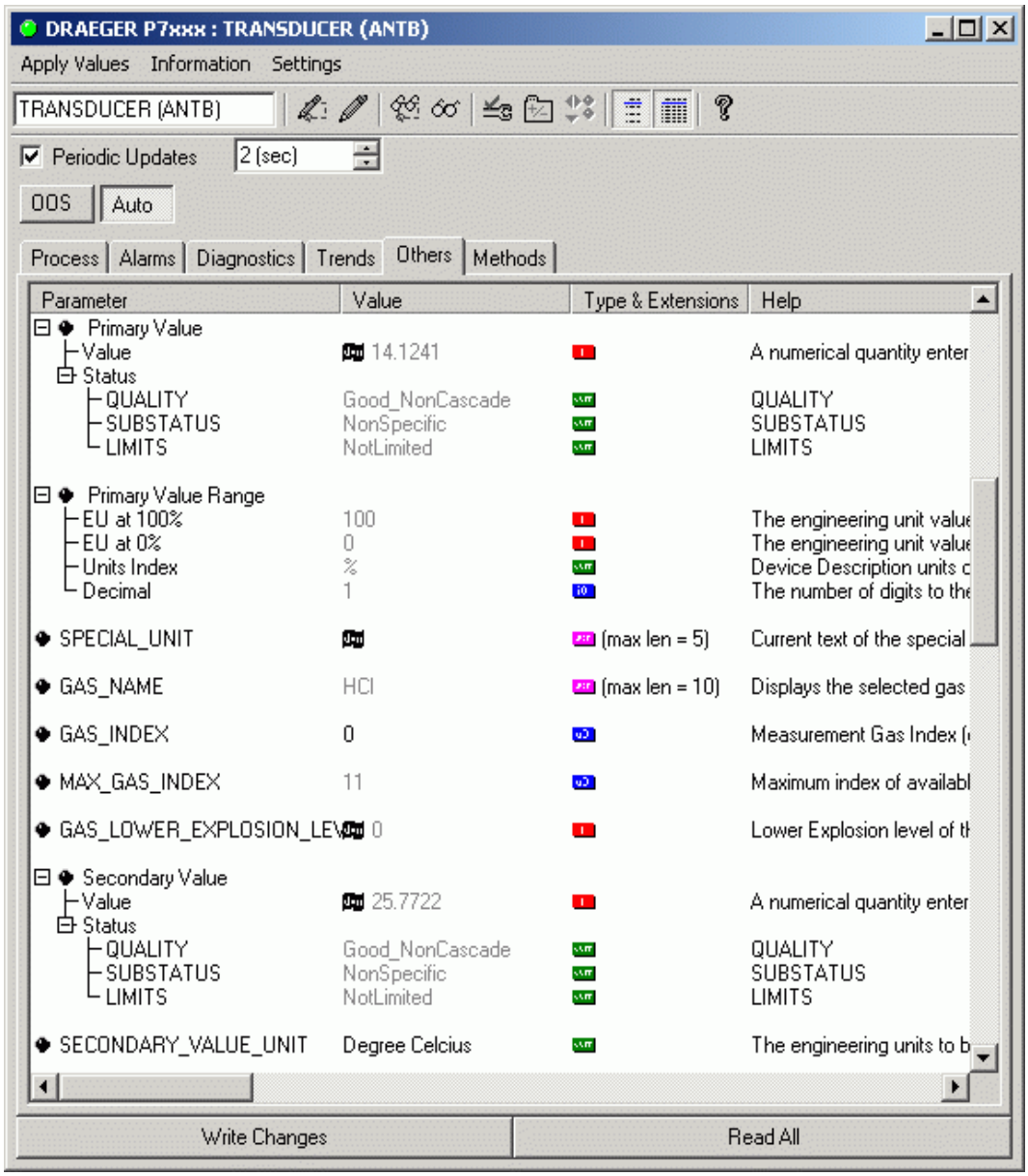

Figure 2-15 : Transducer Block - Others

2.6.7 Configure Function Block Application

The function block receive the sensor value from the transducer block and provide this for the whole plant application. Thereby the sensor value can be formatted and scaled by the function block.

Configure the Analog Input Function Block - There are two ways to open the block configuration window of a block:

- Double-click the name of the function block under the appropriate device in the configuration tree.
- Double-click a function block in the Function Block Application Editor window.

The block configuration window appears floating over the main window. A block configuration window is shown. You can change parameter settings either by clicking the desired field and typing the new value or by selecting the new value from a pull-down menu. Changing Parameter Settings from AI- Function block in following manner:

1. Set the target mode of AI Block into OOS mode. Verify only OOS is selected at MODE_BLK.Target.
2. Select the Process tab
3. Go to CHANNEL and choose “Gas Concentration”

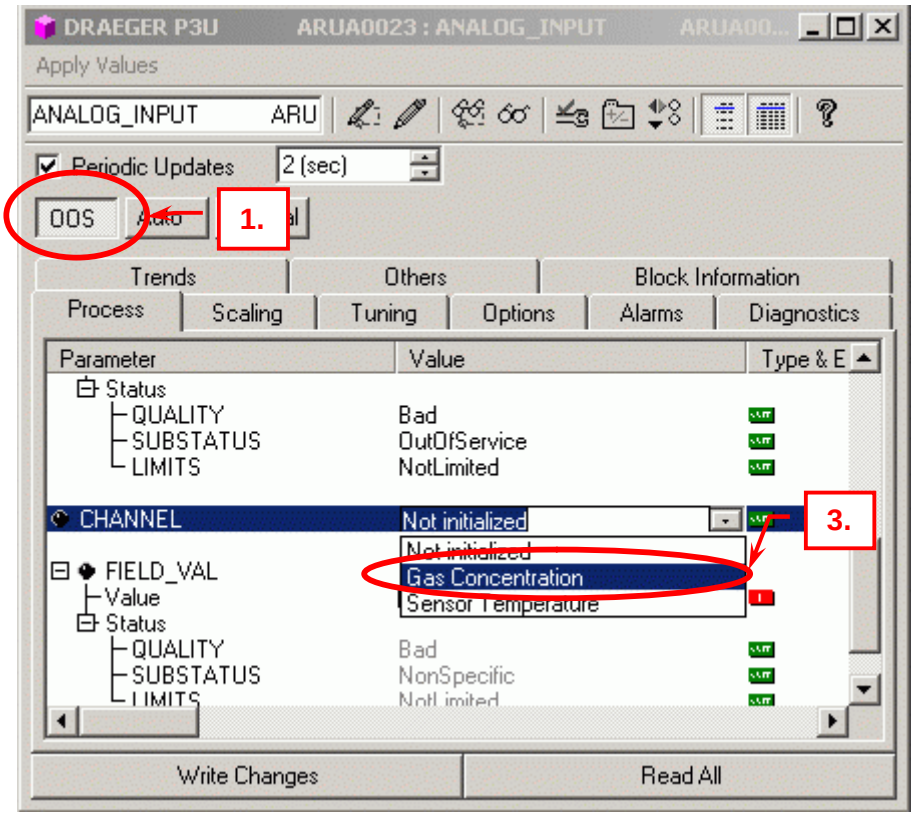

Figure 2-16 : Analog Input Function Block - Process Configuration

4. Select the Scaling tab
5. Go to L_TYPE and choose “Direct”
6. Go to XD_Scale and choose UNITS_INDEX to be “ppm”
7. Go to OUT_SCALE and choose UNITS_INDEX to be “ppm”
8. Set the 0% and 100% scale to be the same as the PRIMARY_VALUE_RANGE in the transducer block.
9. At least the Analog Input Function Block must be downloaded within in a schedule, refer to chapter 2.6.8 and 2.6.9. It is sufficient that the Analog Input Function Block is part of the Function Block Application.

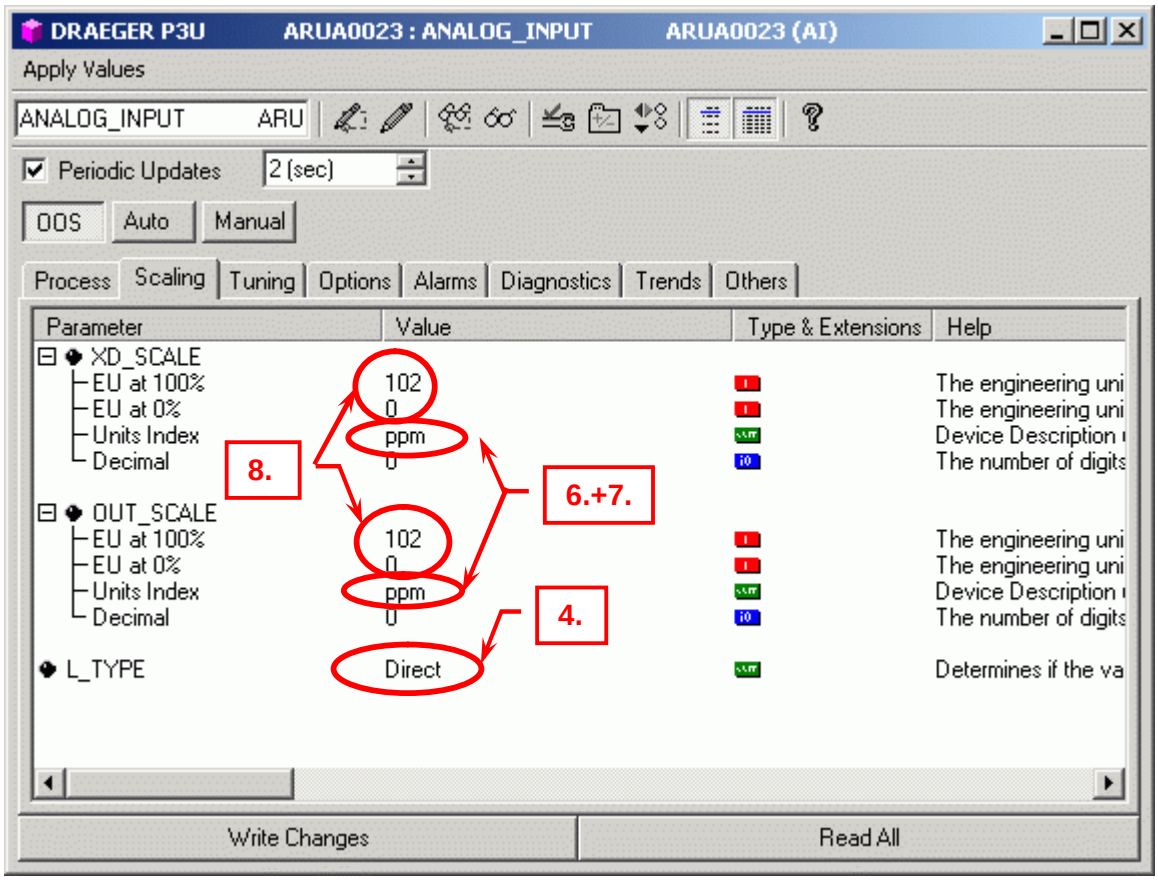

Figure 2-17 : Analog Input Function Block - Scaling Configuration (2)

Note: The decimal statement for display purposes is not used by the NI-FBUS Configurator.

10. Select the Diagnostic tab and verify the block error displays no “Block Configuration”, which means there is an error detected in the block configuration. Note: “Block Configuration” is also displayed if the Analog Input Function Block is not downloaded within a schedule, refer to item 9.
11. Put the AI Block back into Auto mode.

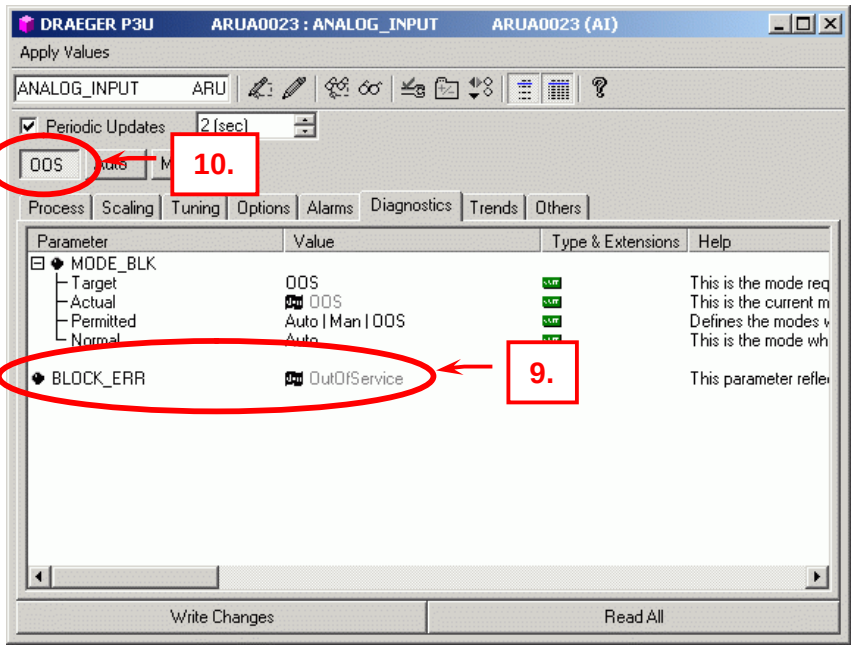

Figure 2-18 : Analog Input Function Block - Diagnostic

Now the OUT Value should display the gas concentration. The PV should be equal to the PRIMARY_VALUE of the transducer block and the FIELD_VAL displays the value that is calculated in percent.

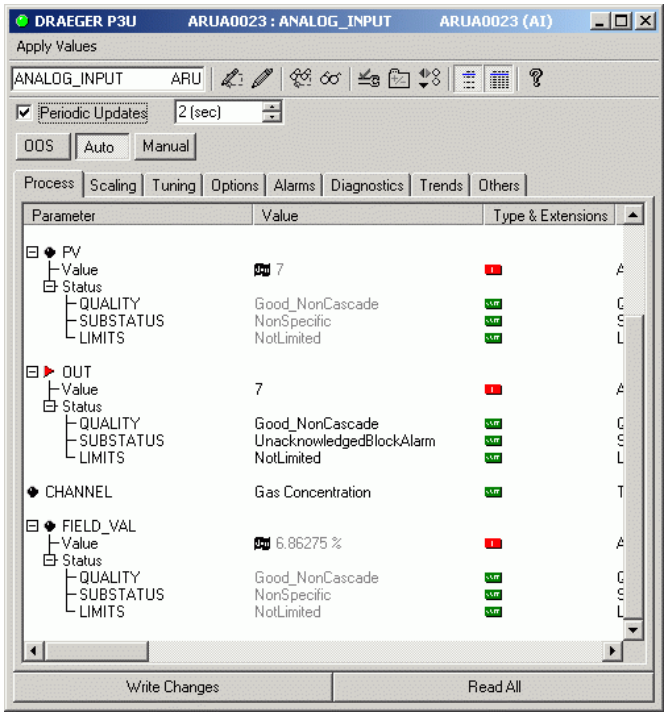

Figure 2-19 : Analog Input Function Block – Process Values

2.6.8 Create Function Block Application

To open the Function Block Application Editor window, double-click the Function Block Application icon in the configuration tree.

Add Blocks to the Function Block Application - Drag blocks from the device tree to the Function Block Application Editor until all the blocks you want to use are in the Function Block Application Editor. The following figure shows how the Function Block Application Editor looks with function blocks dragged onto it. In this example we use Analog Output Function Block from SMAR device.

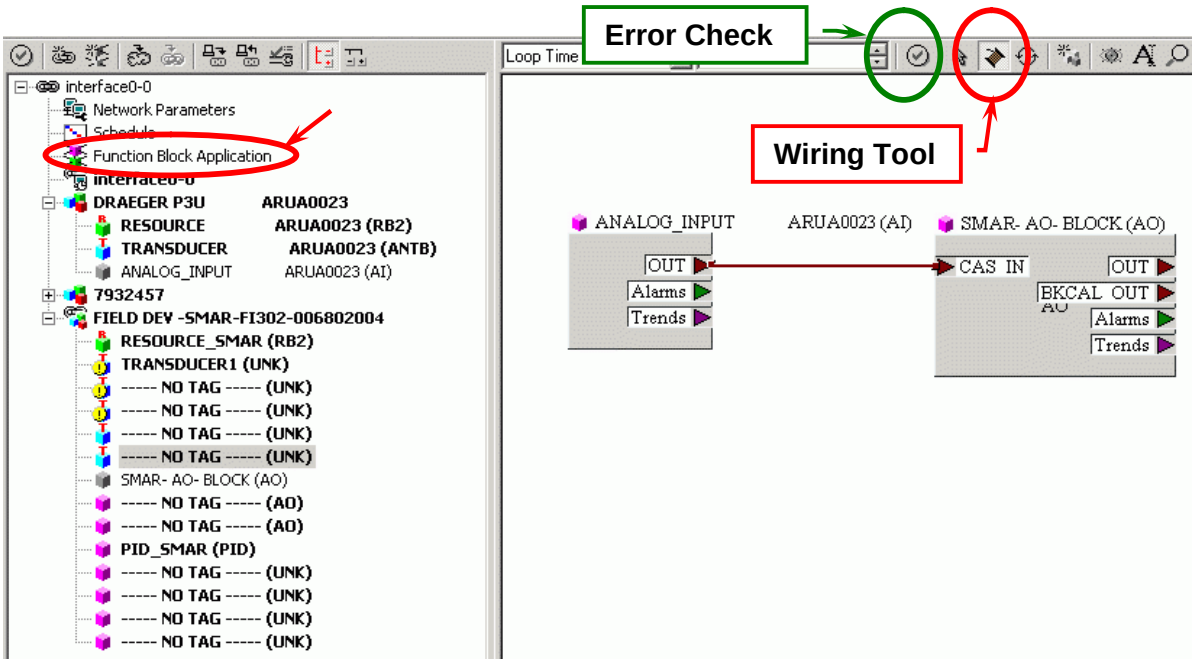

Figure 2-20 : Function Block Application

Connecting Blocks - To send data from one block to another, you must connect the outputs and inputs. You can wire blocks manually or use a template. The help window on the right side of the screen describes the input and output parameters and how they can be connected. To wire blocks manually, complete the following steps: Click the Wiring tool on the Function Block Application Editor toolbar. Click one terminal you want to connect. To tack down the wire at different points, click in the background of the Function Block Application Editor window. Click the terminal to which you want to wire.

Checking for Function Block Application Errors - Click the Check Project for Errors button in the Function Block Application Editor window to perform error checking, regenerate the schedule of the application, and remove bad wires.

View and Edit a Schedule - The NI-FBUS Configurator automatically determines the execution order and timing of the schedule based on your control strategy, network and device factors, and the loop execution rate you choose. The NI-FBUS Configurator also automatically optimises the schedule. The following figure shows how the NI-FBUS Configurator displays multiple loops in the schedule window.

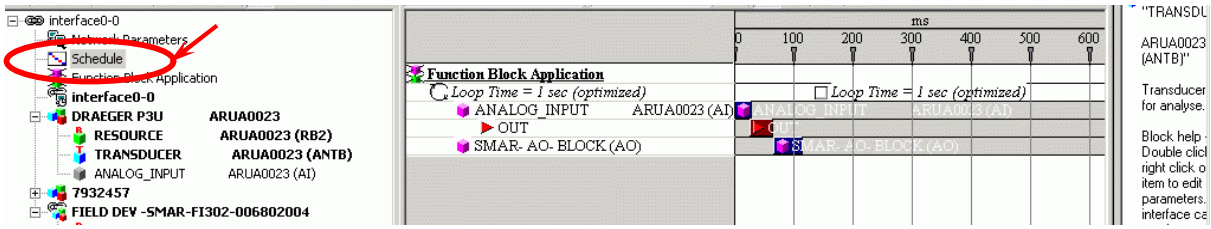

Figure 2-21 : Function Block Schedule

2.6.9 Download the Project Configuration

Before function blocks will execute on the device, the configuration must be downloaded to the devices. Function block linkages must be downloaded to allow dataflow from one block to another. Also, the schedules for function block execution and communication have not yet been provided to the devices. Complete the following steps to download your project configuration.

1. Click the Download Project button in the configuration tree toolbar or select Configure»Download Configuration. The Download Configuration dialog box appears.
2. Select the configuration object to download. (Can be greyed and read-only)
3. If you have not done so already, click the Link Masters button to set link masters to receive the primary Link Active Scheduler, the primary time master of the link, and the Link Active Schedule. The Network Parameters dialog box appears.

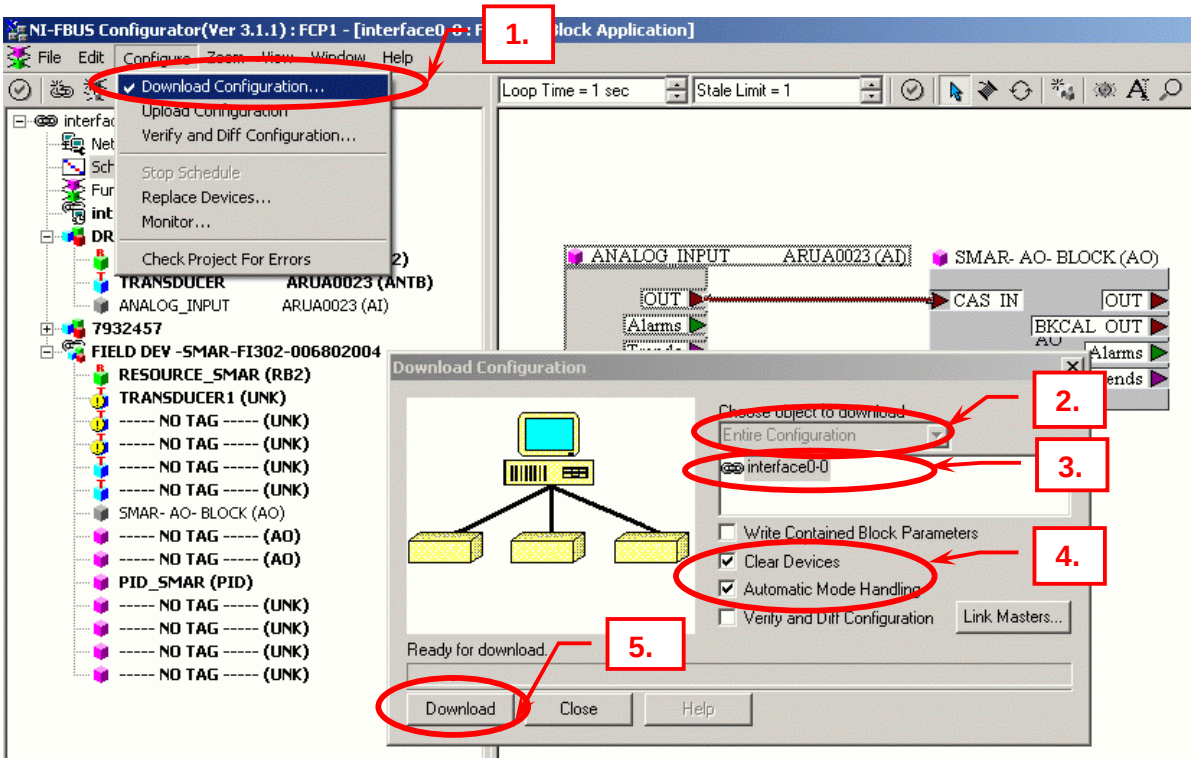

Figure 2-22 : Download the Project Configuration

4. (Optional) Check the appropriate checkboxes for the download options. Refer to the Download Options section for more information. In general, you **should** use Clear Devices and Automatic Mode Handling on all downloads.
5. To download your configuration changes to the network, click the Download button. The Download Status progress bar shows what percentage of the configuration is complete. While downloading, the NI-FBUS Configurator displays and updates the Download tab in the status window. It shows what device is currently being configured, its settings, and whether it was successfully configured.

2.6.10 Configure Alarms

You can configure the interface card to receive alarms generated by the blocks.

1. Drag the configuration tree icon for the interface to which you want to send the alarm to the Function Block Application Editor, if you have not done so already.
2. Either wire the Alarms output of the block that you want to generate an alarm to the device you want to receive the alarm, or check the Receive All Alarms box, if the device has

one. The following figure shows an example of a configured alarm. Download the new configuration, refer to chapter 2.6.9.

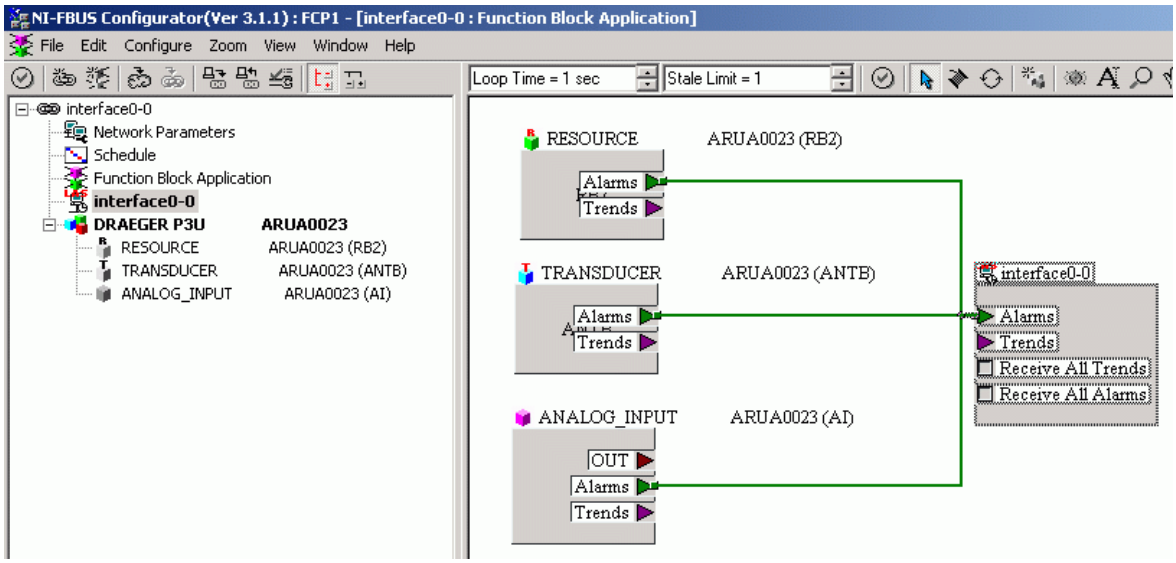

Figure 2-23 : Alarm Configuration

3. If necessary configure the alarm. For example we configure the limit alarms of the function block and the “relays” alarms of the transducer block.
4. Double-click the Analog Input function block, the block configuration window appears. In the block configuration window, click the Alarms tab to view or change alarm information, such as the high and low limits of an alarm condition, alarm priorities, and so on.

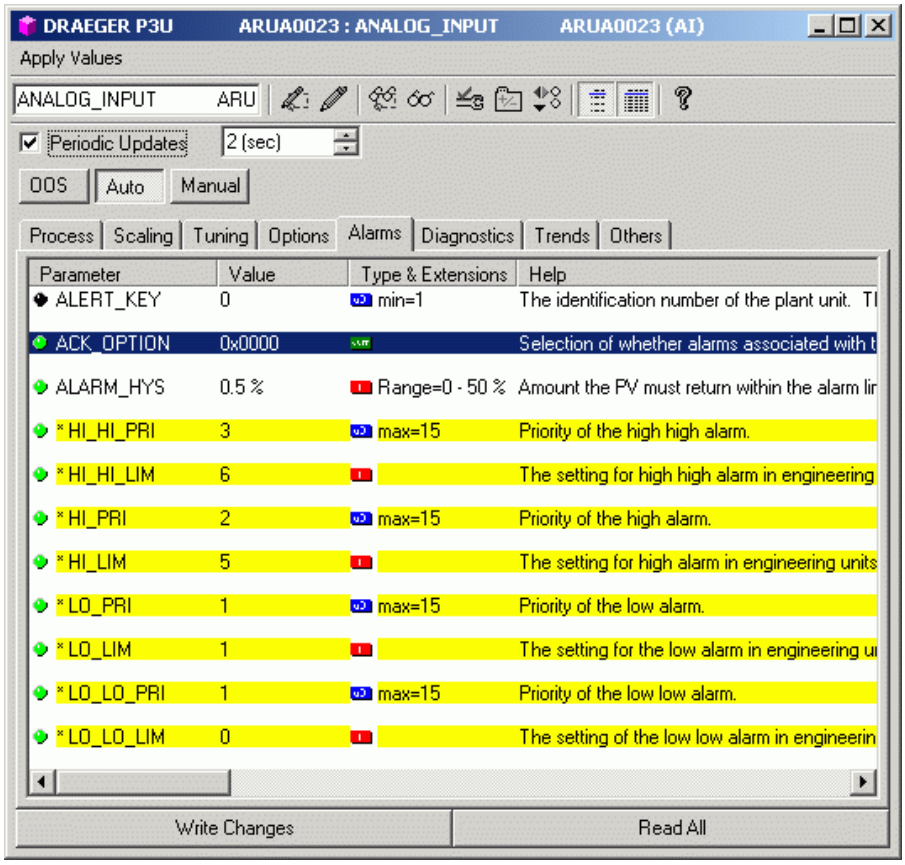

Figure 2-24 : Analog Input Function Block - Alarms

5. Double-click the Transducer block, the block configuration window appears. In the block configuration window, click the Alarms tab to view or change alarm information

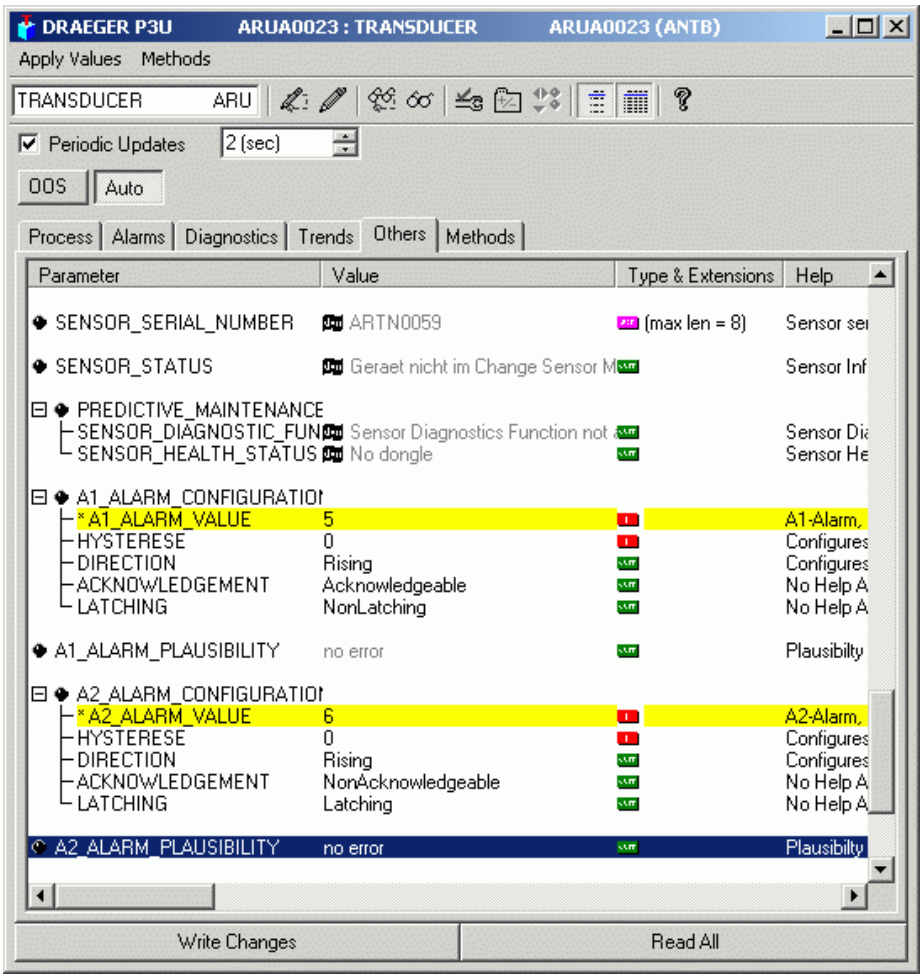

Figure 2-25 : Transduce Block - Device Specific Alarm Configuration

2.6.11 Monitor Alarms

The NI-FBUS alarm monitor utility lets you capture, view and acknowledge the alarm omitted by the device. You can run the NI-FBUS alarm monitor utility by selecting Start»Programs»National Instruments»NI-FBUS»NI-FBUS Alarm Monitor Utility.

- Click the Start Capture button on the toolbar, or select Run»Start to start the alarm monitor.
- When an alarm is captured, the Unacknowledged Alarms dialog box will appear. Click the Act button to acknowledge the selected alarm. Click Act All to acknowledge all of the alarms in the dialog box.
- You can automatically acknowledge the alarm by selecting Run»Auto Acknowledge or click the Auto Acknowledge button on the toolbar (if this option is checked, the Unacknowledged Alarms dialog box will not appear after an alarm is captured).
- Click the Reset Capture button on the toolbar, or select Run»Reset to clear currently captured alarms.
- Refer to NI-Configurator Manual to learn more about the NI-FBUS Alarm Monitor.

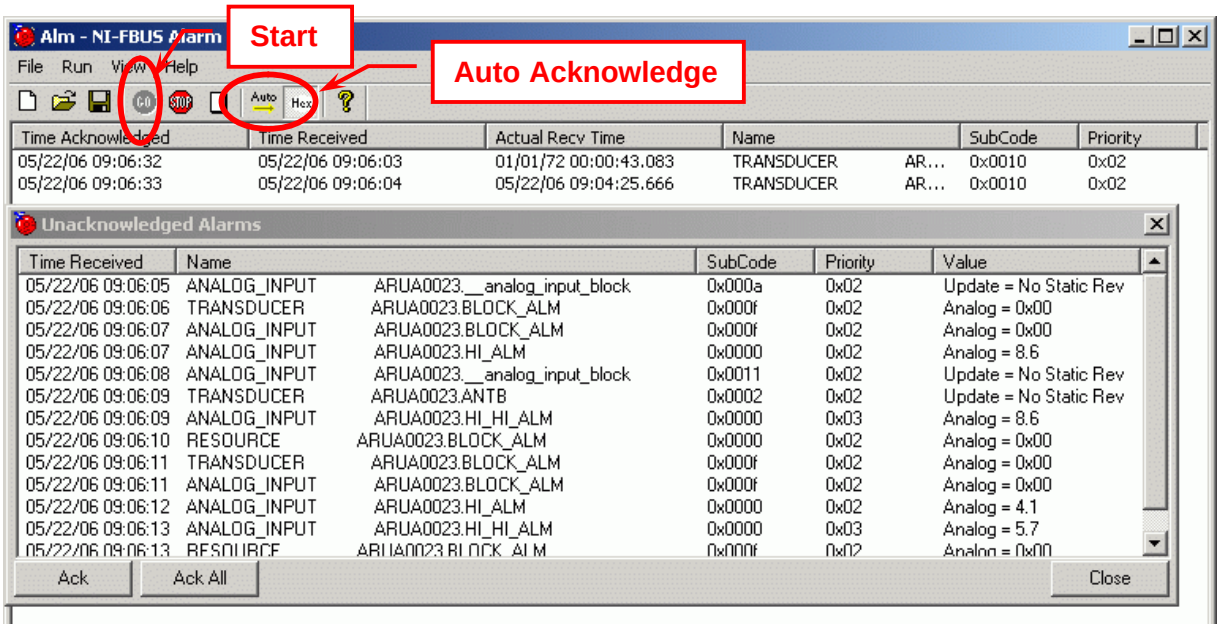

Figure 2-26 : NI-FBUS Alarm Monitor

Note : Sometimes the NI-FBUS Alarm Monitor does not receive the alarms and so it could be necessary to restart the whole NI application (Close and restart NI-Configurator and NI-Communication Manager). This should be a application problem.

2.6.12 Configure Trends

You can configure a device, such as an interface in a PC, to receive trends from function blocks.

1. Drag the configuration tree icon for the device or interface to which you want to send the trend to the Function Block Application Editor, if you have not done so already.
2. Either wire the Trends output of the block to the device you want to receive the trend, or check the Receive All Trends box, if the device has one. The following figure shows an example of a configured trend. Download the new configuration, refer to chapter 2.6.9.

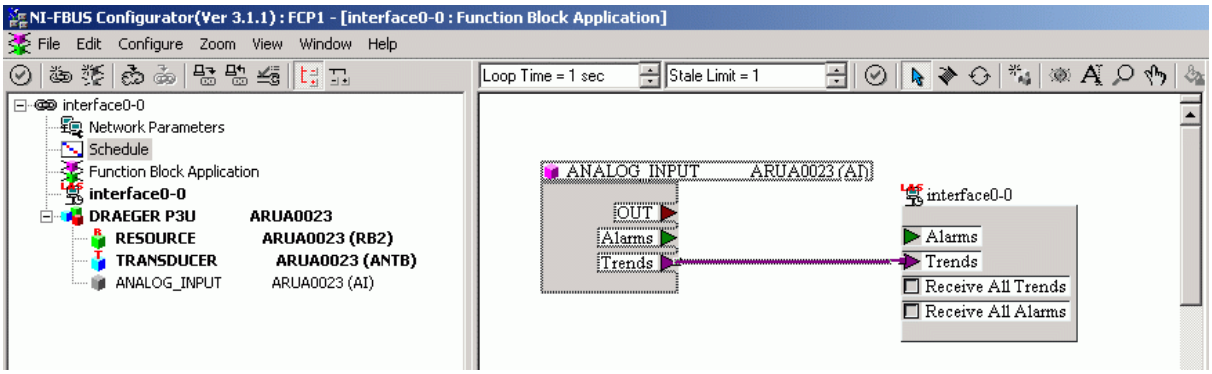

Figure 2-27 : Trend Configuration

3. Double-click the function block from which you want to send a trend. The block configuration window appears.
4. In the block configuration window, click the Trends tab.
5. Check the Trend column checkbox next to the parameter you want to trend.
6. Set the sample Interval of the trend in loops/sample. The interval should be a multiple of any loop macrocycle time in which this block is involved. For example, if the interval is 2 loops/sample, and the loop macrocycle time is 1 s, the trend will acquire a value every 2 s.
7. Set the Sample Type. Select Instant or Average from the Sample Type drop-down list. Instant trends the actual value. Average trends all samples.

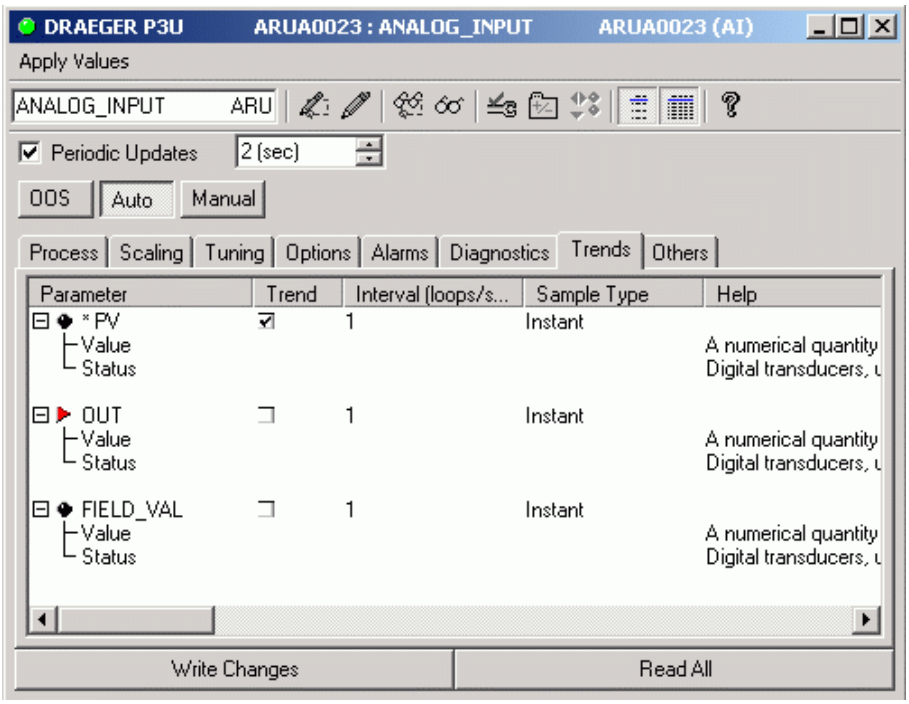

Figure 2-28 : Analog Input Function Block – Trends

Note: The Draeger P7xxx FF device only supports one trend. If more than one trend is enabled, the NI-Configurator will notify NIF_ERR_TREND_FULL.

2.6.13 Monitor Trends

The NI-FBUS trend monitor utility lets you capture and view the trends of parameters omitted by the device. You can run the NI-FBUS trend monitor utility by selecting Start»Programs»National Instruments»NI-FBUS»NI-FBUS Trend Monitor Utility.

- Click the Start Capture button on the toolbar, or select Run»Start to start monitoring the trends. When a trend is captured, a line is added into the screen view to trace the trend. An item is also added into the attribute view to give the parameter information and the line's attribute.
- In the screen view, click the top bottom item on the vertical axis to adjust vertical scope. Change the Elapsed Time edit box on the toolbar to adjust the visible time scope of screen view, which is the indication amount of the horizontal axis. Click the Autoscale button on the tool bar or select Run»Autoscale to reset the vertical axis to the default values.
- Click the Stop Capture button on the toolbar, or select Run»Stop to stop trend monitoring. Click the Reset Capture button on the toolbar, or select Run»Reset to clear the captured trends.
- Refer to NI-Configurator Manual to learn more about the NI-FBUS Trend Monitor.

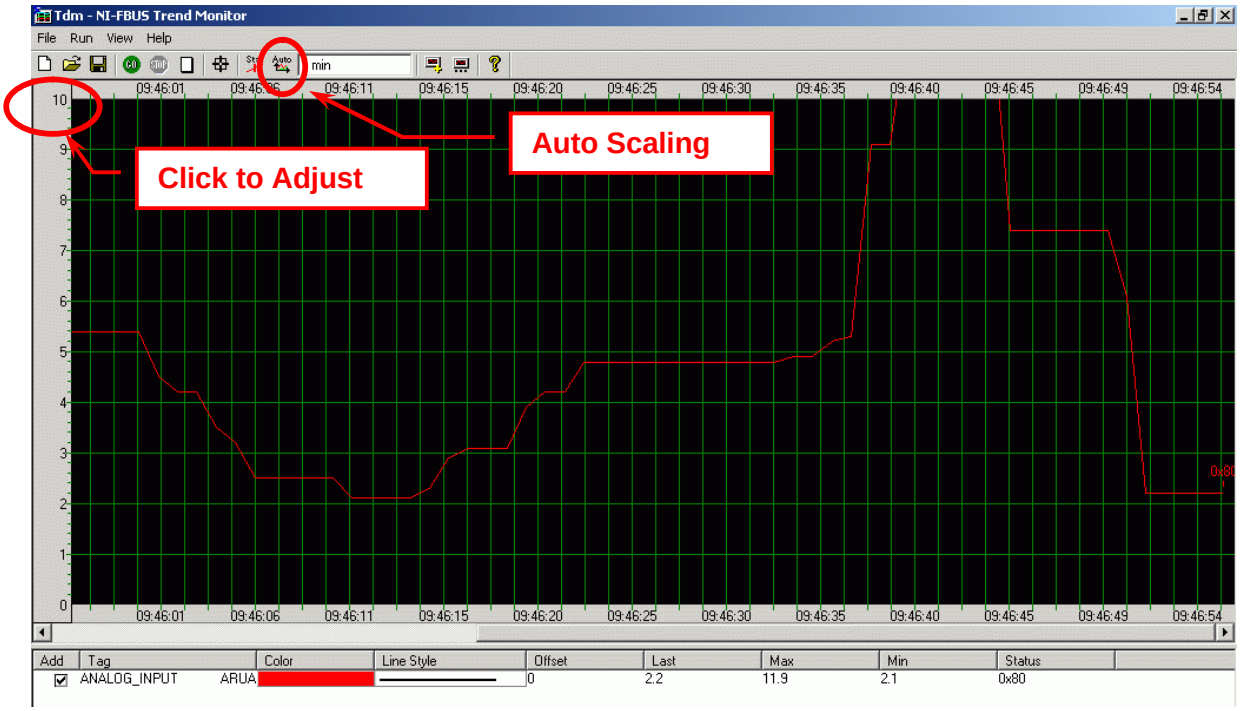

Figure 2-29 : NI-FBUS Trend Monitor

2.6.14 Offline Configuration

During creation of a new project select the Offline Configuration interface in place of the normal interface. You can add offline devices to the offline link by completing the following steps:

1. Select the Window»Device Type Window menu item if the device type window is not already shown.
2. Drag the offline device you want to add to the offline link from the device type tree in the left-hand window and drop it onto the active offline link of the configuration tree in the project window.

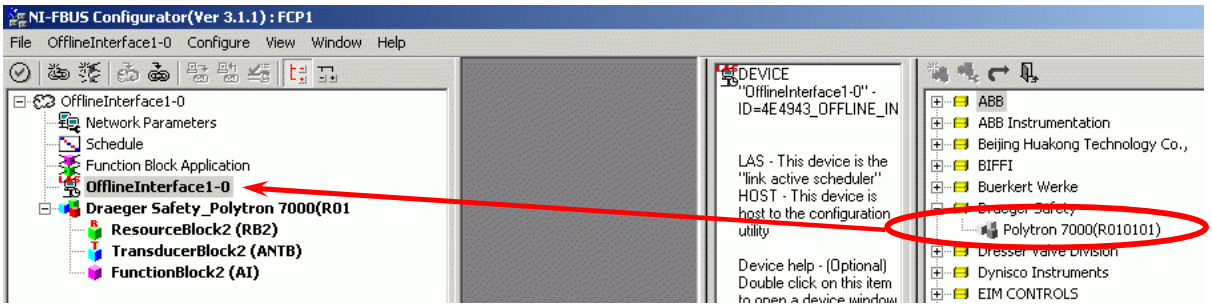

Figure 2-30 : NI-Configurator - Offline Configuration

Now the blocks and the Function Block Application can be configured. Save the complete offline project.
Additional the several block parameter values can be saved as “Default Configuration Parameter Values”. The following figures shows the part of a new configured function block. Amongst others the channel is changed to “Sensor temperature” (tab “Process”) and the scaling parameters are changed.

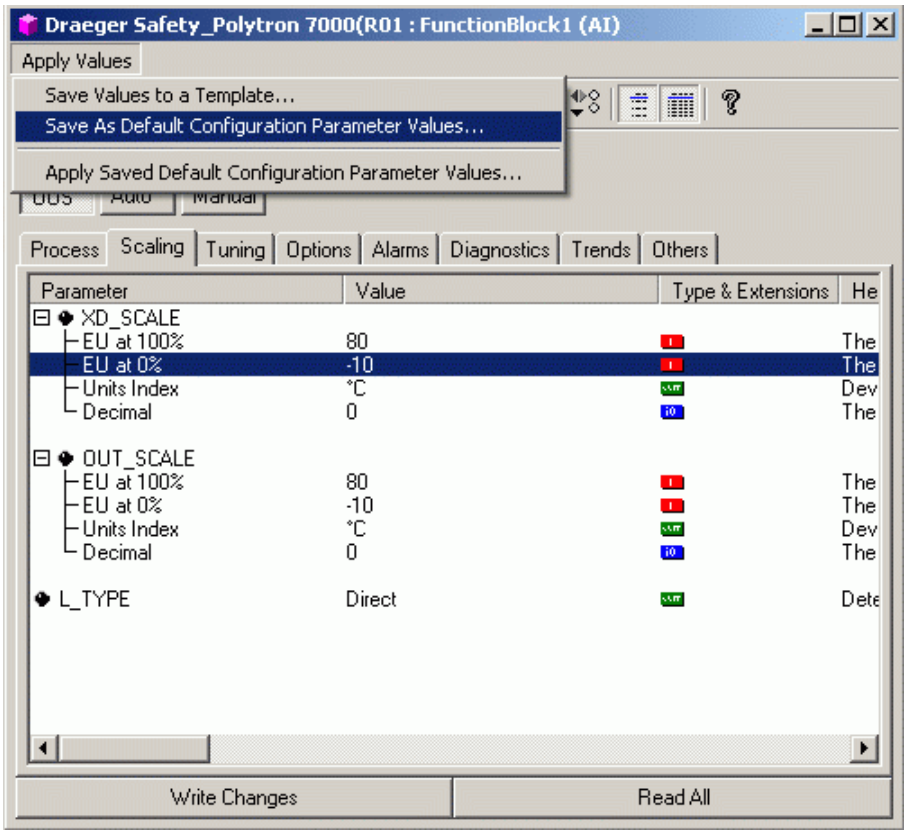

Figure 2-31 : Analog Input Function Bock - Offline Configuration

The other possibility to save parameter values for further configuration is to use the Import and Export functionality. For this purpose right-click the device in the configuration tree and select either export or import parameters.

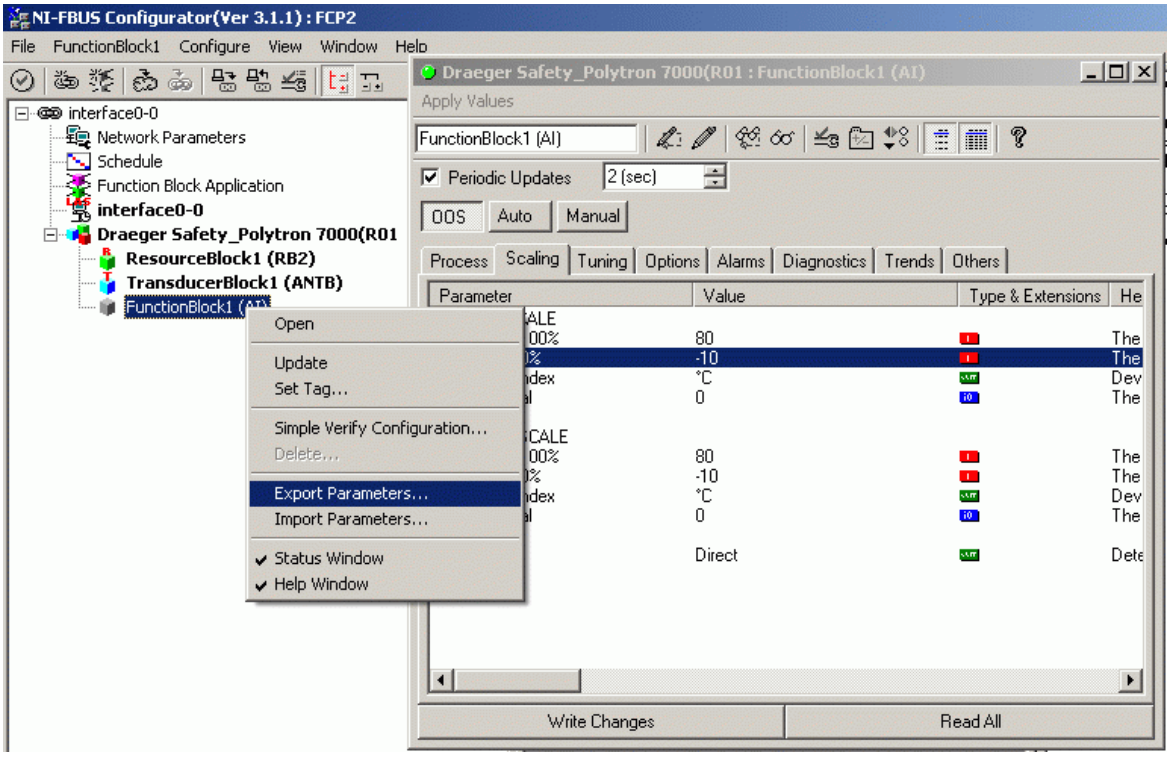

Figure 2-32 : Import or Export Parameter Values

Taking a link online moves an offline link to an online state. Generally, it occurs before you download the offline configuration to the field network.

1. Select the offline link and click the Take Online button on the toolbar, or right click the offline link and select Take Online.
2. In the Assign Devices dialog box, select the online link to which you want to connect in the Select Online Link combo-box.
3. After the online link loads completely, select the online device from the Device List window which will be assigned to the selected offline device.
4. Click within the Target Address column to select the address the selected online device will be assigned.
5. Click the Refresh Link button to completely reload the selected online link.
6. Select the Assign Network Parameters option to assign network parameters.

Note: The whole process may take a few minutes or longer.

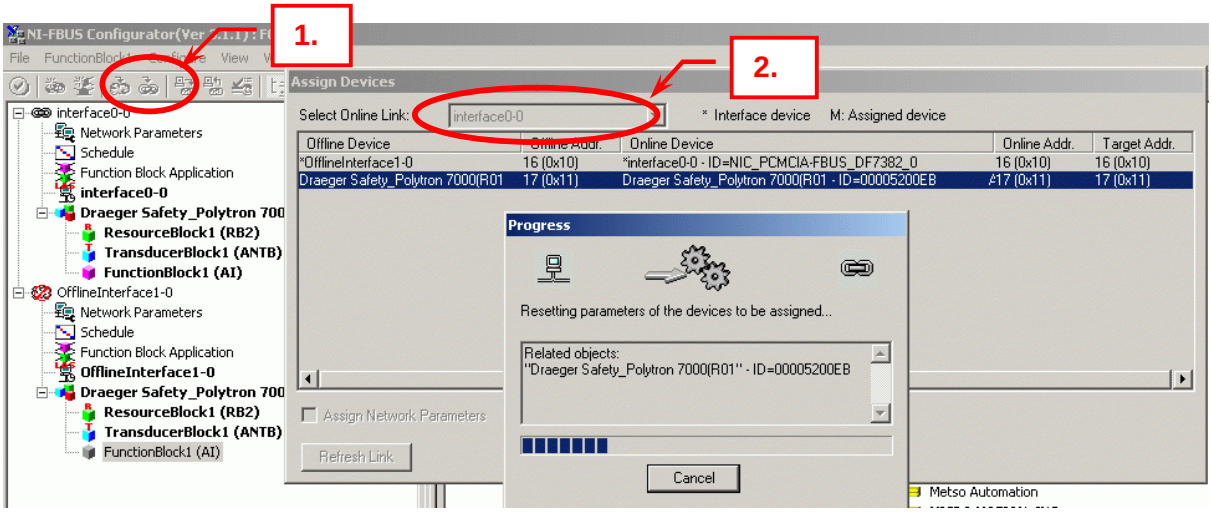

Figure 2-33 : Offline Configuration - Go Online

3 Diagnostics

3.1 Error Diagnostic

There are several parameters to verify if there is any error in the device. To get more information about the errors refer to the NI-Configurator Manual, FW-Requirements Error Mapping or to Fieldbus Specification.

3.1.1 Block Error

The block error parameter reflects the error status of hardware or software components associated with and directly impact the correct operation of a block.

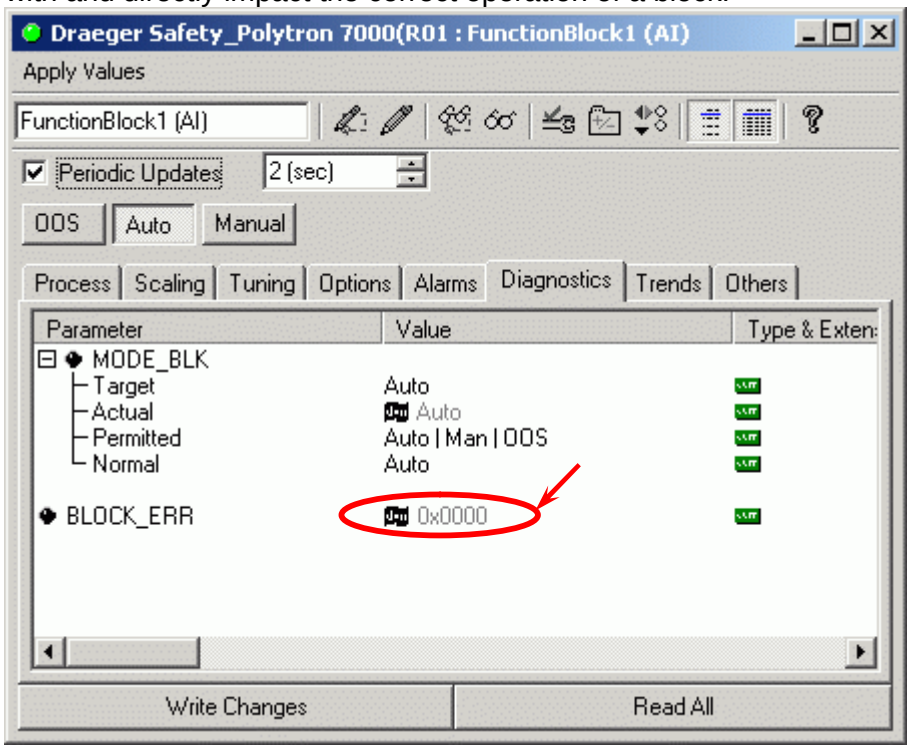

Figure 3-1 : Block Error

3.1.2 Transducer Block Error

The transducer block has an additional XD_ERROR parameter to verify the error status.

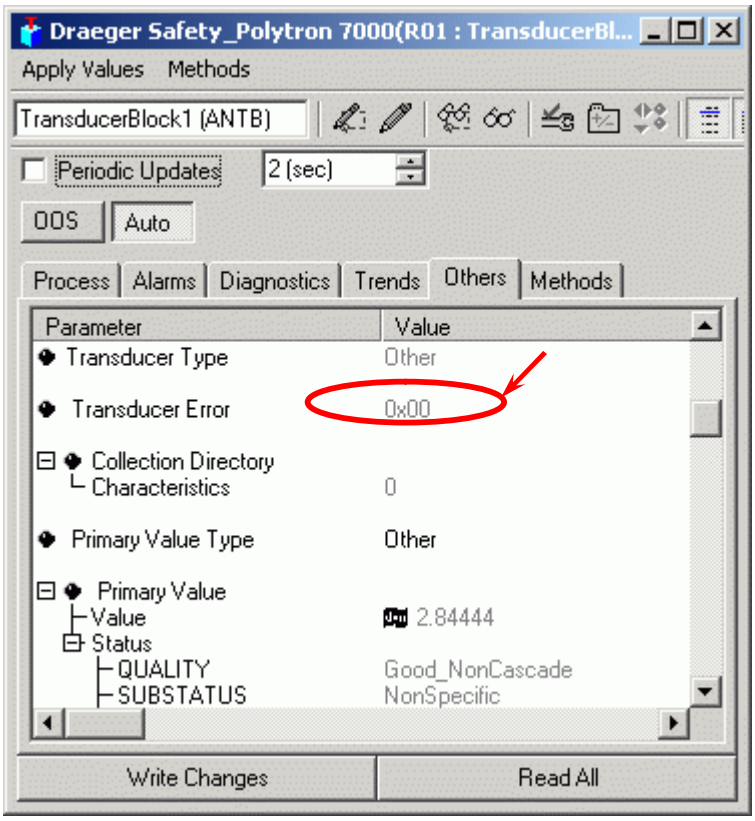

Figure 3-2 : Transducer Block - XD_ERROR

3.1.3 Device Specific

The resource block contains additional parameters for diagnostic. The fieldbus module status reflects the status of the fieldbus software modules. The device status parameter indicates if there is any error or warning in the Polytron or sensor module. There are additional parameters to show each value in the error matrix. Also the corresponding method can be used, to display the whole matrix.

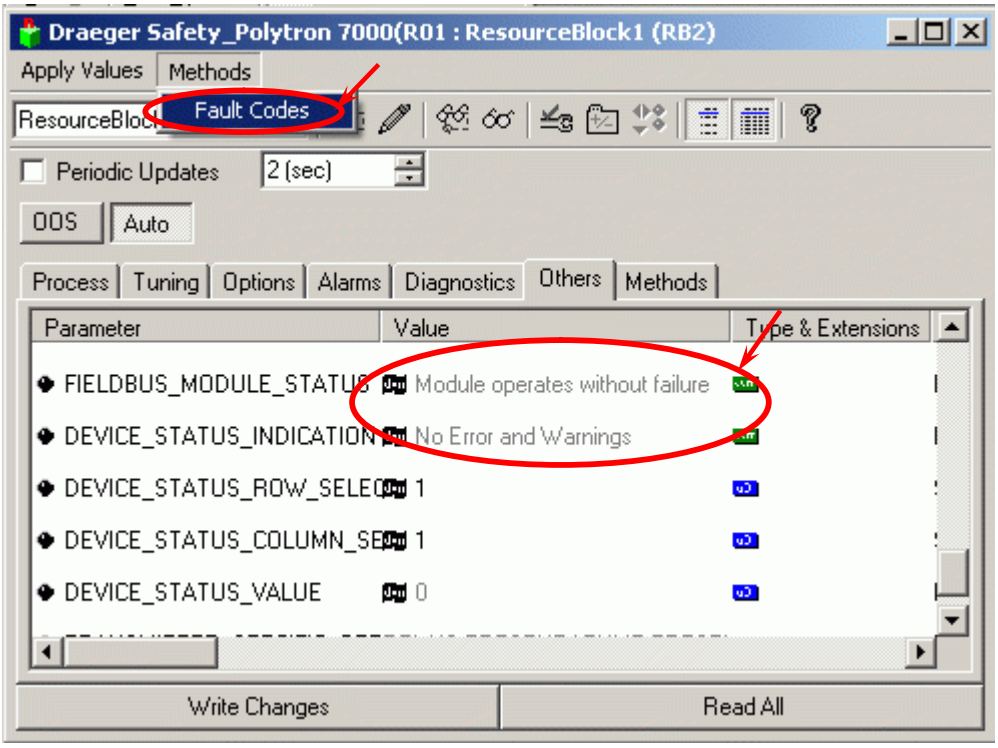

Figure 3-3 : Device Specific Error Diagnostic

3.2 Status of jumpers

If the simulation is active (Jumper is set) the BLOCK_ERR of the resource block displays “SimulationActive” otherwise and during normal operation the BLOCK error should display 0x0000. If the write protect is not active (Jumper is set) the WRITE_LOCK of the resource block displays “Not Locked” otherwise (Jumper is not set) and “Locked”.

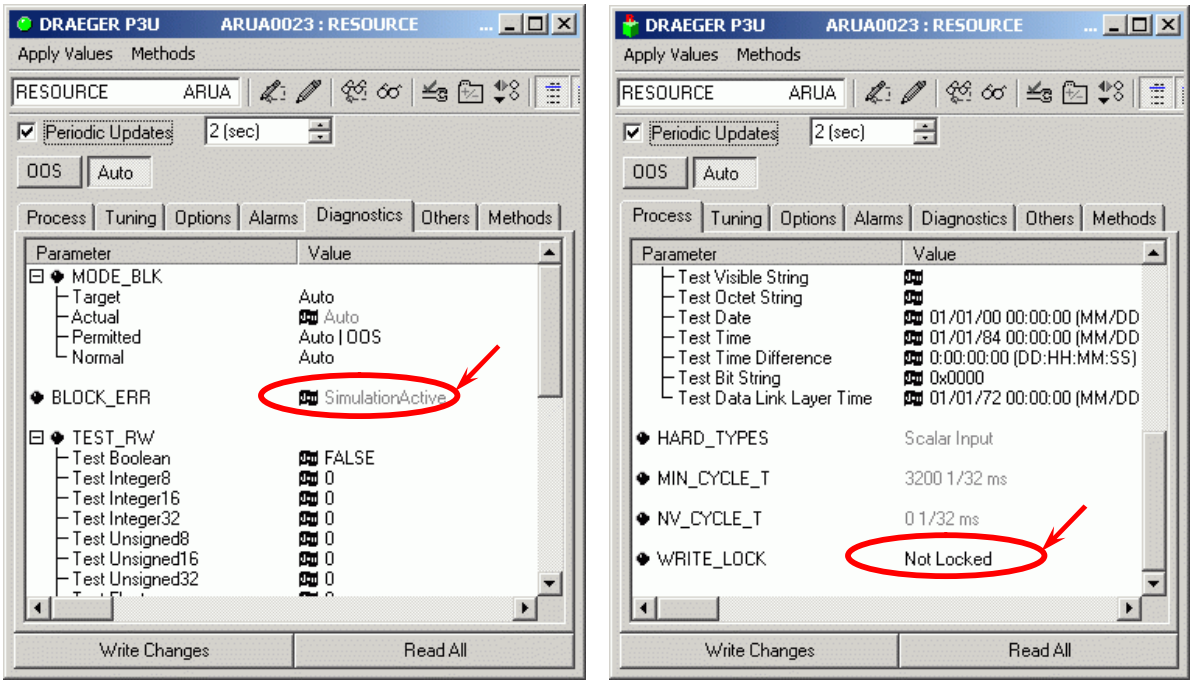

Figure 3-4 : Resource Block – Simulation and Write Protect Status

3.3 Restart device

You can do a software restart of a device on-board processor by double-clicking the device resource block. Under the Options tab, you should find a RESTART parameter. There are three entries in the list:

1. "Processor" will restart the processor. The device in the configuration tree will be marked with following symbol ⊘, because the device restarts and so the Master has lost the connection. An additional window appears with the message "NIF_ERR_OBSOLETE_DEVICE". After a short while the symbol should disappear the device should be reinitialised.
2. "Resource" will restart the resources of the device. This has no affect at the P7xxx device.
3. "Default" will reset the fieldbus specific parameters to the default values and delete a possible loaded schedule.

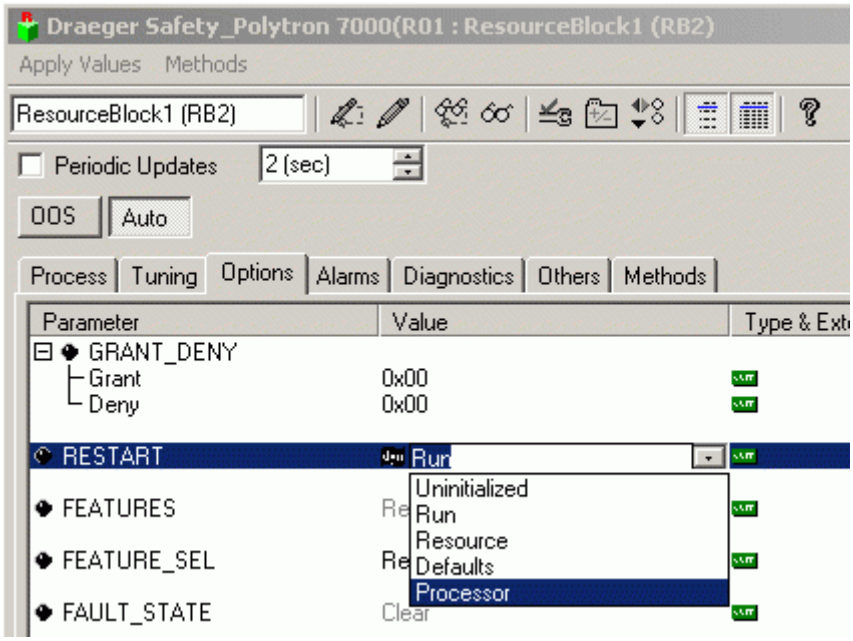

Figure 3-5 : Resource Block – Restart

For some reason's it might be useful to be able to clear the complete non volatile memory content. The device then starts-up with an none initialized non volatile memory and loads its default-configuration (include address and tags).

For this the device has a hidden RESTART parameter which is not available via the DD. To reset the non volatile memory proceed as follows:

1. Start the NI-FBUS Dialog Utility. Start»Programs»National Instruments»NI-BUS»NI-FBUS Dialog Utility.
2. Select first "Open Session" then "Expand All" from the "Actions-Menu"
3. Select the "RESOURCE" of the device
4. Right click the mouse and select "GetParamList" from the context menu
5. Select the "RESTART" parameter.
6. Select "Write" in the first window and "EditData" in the second windows
7. Set the value to "42"
8. "Write" the value

The error message “A communications failure has occurred” will appear”. This is ok because the processor has been reset. Close in a short while the NI-Communication Manager.

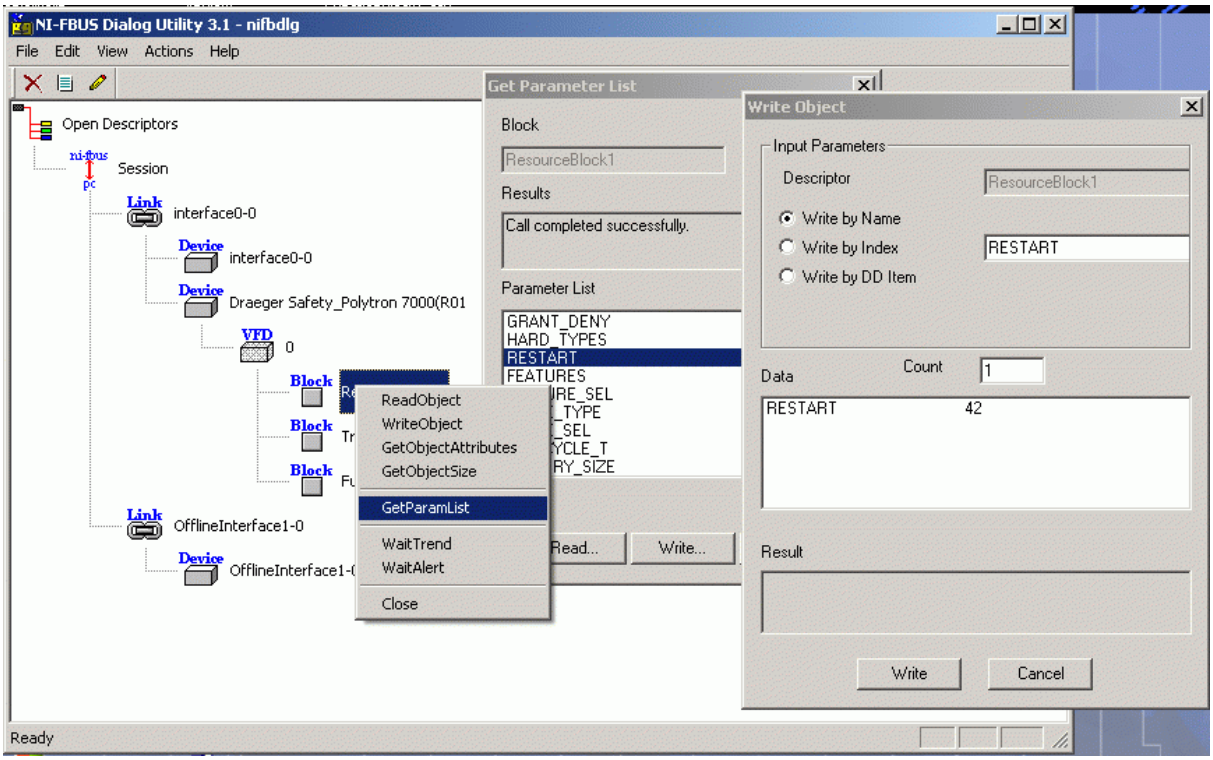

Figure 3-6 : Reset non volatile memory