

Digital I/O Flow Control

Data Format Converter



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Version 6.2.2
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Introduction

NeuroCheck Data Format Converter in general

A so called Data Format Converter (abbreviated DFC) is a communication driver that converts data that is generated in NeuroCheck into a format that is suitable to a certain kind of hardware or file and vice versa. For a detailed introduction of Data Format Converter and the communication flow see NeuroCheck User Manual (chapter data exchange).

Digital I/O Flow Control DFC

Along with the typical digital I/O DFC functionality (input/output signal, input/output data), the digital I/O flow control DFC has a really powerful feature. The flow control DFC allows to define a sequence. This sequence is a list of check routines which will be executed with automatic change of the check routines.

Use cases

The digital I/O flow control can be used to call a specific check routine several times (loop), or execute a special sequence of check routines. Because of the automatic change of the check routines, this digital I/O can reduce or even replace PLC programming.

Installation

NeuroCheck Digital I/O Flow Control Data Format Converter

For Installation of the NeuroCheck Digital I/O Flow Control Data Format Converter complete the following steps.

1. Make sure that you have copied the NeuroCheck Digital I/O Flow Control Data Format Converter into the NeuroCheck installation directory. The following files must be present in the NeuroCheck installation folder:

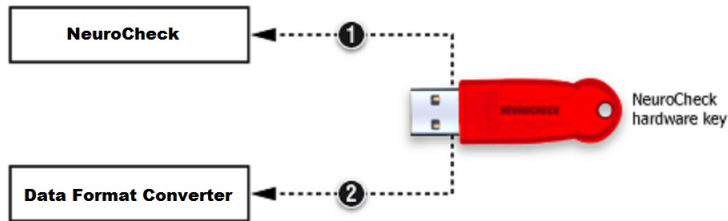
- NcFmtCnv.NeuroCheck.DigitalIoFlowControl.NET.dll
- NcFmtCnv.NeuroCheck.DigitalIoFlowControl.UI.NET.dll

If not, download and install the latest Data Format Converter update from <http://www.neurocheck.com>.

2. Configure the data format converter as new converter in NeuroCheck:
 - a. In NeuroCheck, open the Data Format Converter Manager (Menu **System | Data Format Converter Manager**)
 - b. Click **New ...** to start the NeuroCheck **Data Format Converter Wizard**.
 - c. Select option **Digital I/O** on the first page and continue.
 - d. On the second page, select **Digital I/O Flow Control** and continue.
 - e. Select the device the new converter is connected with and **Finish**.
 - f. Choose **Properties ...** to open the converter settings dialog and configure the settings for your application (see Converter Properties).
 - g. Close the properties dialog with **OK**.
3. Close the NeuroCheck **Data Format Converter Manager** with **OK**.

Licensing

This section describes the licensing mechanism for this NeuroCheck Data Format Converter.



1. Protection of NeuroCheck

NeuroCheck requires a valid license which is provided as hardware security key (dongle). You obtain the standard NeuroCheck license by purchasing the software from your local NeuroCheck dealer.

2. Protection of Digital I/O flow control Data Format Converter

In addition to the standard NeuroCheck license, also a license for the NeuroCheck **Digital I/O flow control Data Format Converter** is required. The protection of the Data Format Converter is stored as special flag in the same dongle as for the NeuroCheck license. The Data Format Converter allows a couple of read or write operations in demo mode, then a message box informs about the missing license. You have to confirm that message box before a new set of executions is possible.

In order to get the license for the digital I/O flow control Data Format Converter, please contact your local NeuroCheck partner. The license can be added to a standard NeuroCheck license by remote-programming of the dongle. The remote-programming works in the same way as a NeuroCheck update.

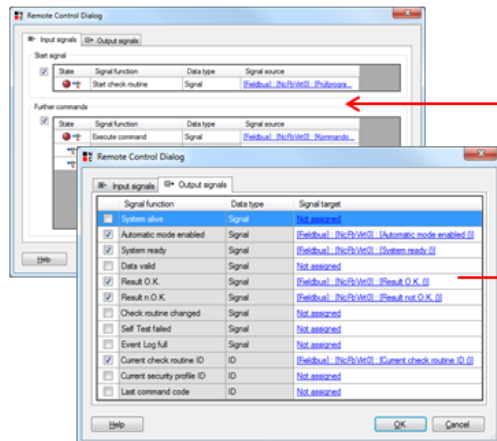
How to use

Configuration

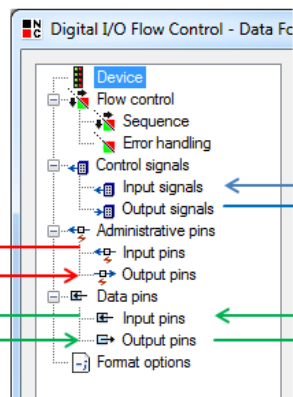
Connect the NeuroCheck remote control signals with the available digital I/O flow control signals. Additionally, connect the data pins in the NeuroCheck data register manager if needed.

After configuring the signals add some execution items to the sequence. For more details see [Flow Control Sequence](#). Switch NeuroCheck to automatic mode and start the sequence with digital I/O start signal.

NeuroCheck Remote Control



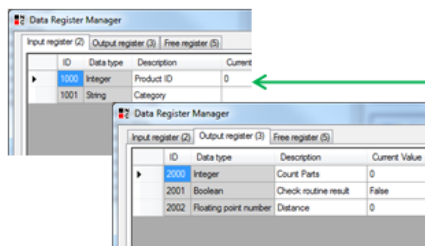
Digital I/O Data Format Converter



Digital I/O Device



NeuroCheck Data Register



Abort sequence signal

Next to the general digital I/O signals the digital I/O flow control DFC has a abort sequence signal. This signal can be set e.g. by the "Set Process Output Bit" check function in NeuroCheck. This signal effects that the sequence stops and waits for the next start signal.

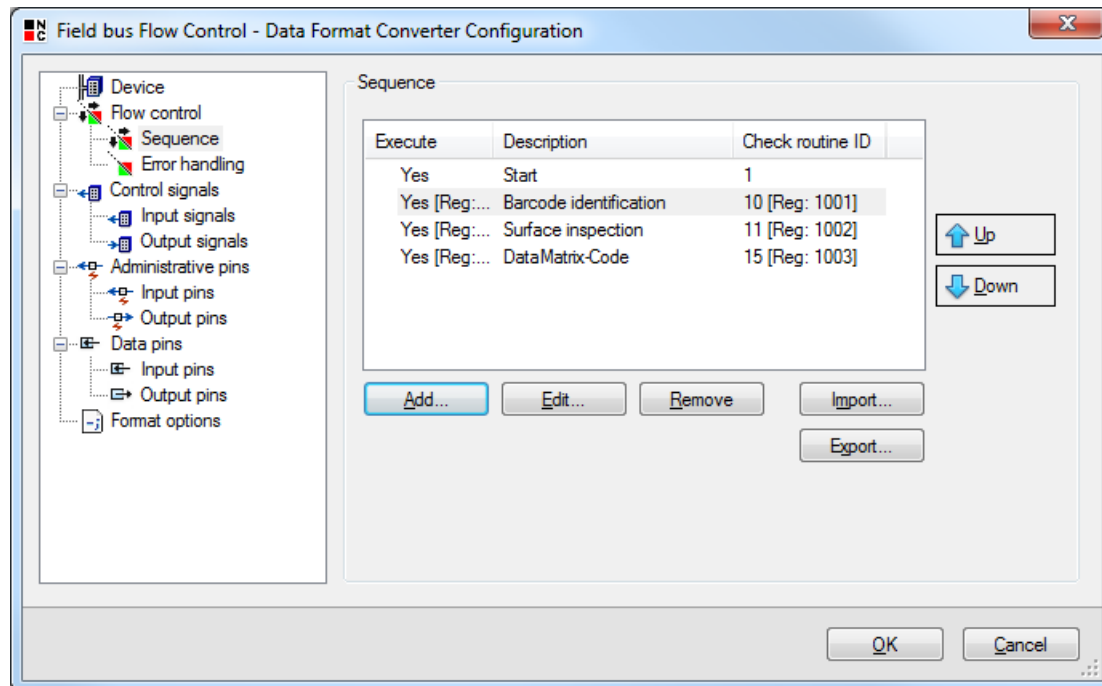
Converter Properties Dialog: Device

This page provides information about the device the converter is connected with.

Element	Description
Name	The name of the device.
Index	The index of the device within the list of devices of the category Fieldbus.
Bits	The number of input and output bit of the device.

Converter Properties Dialog: Flow Control Sequence

☑ Screenshot of Properties Dialog



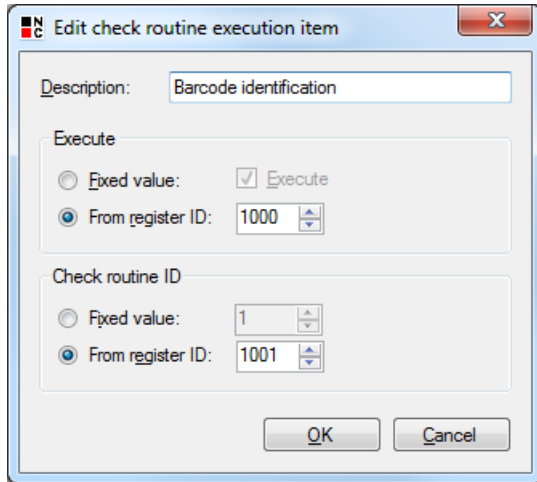
This page configures the flow control sequence. The sequence is a list of execution items which point to a check routine. This list will be executed from top to bottom, when the fieldbus flow control gets the start signal.

Element	Description
Sequence	Shows the list of configured execution items (check routines). Every execution item has three properties: <ul style="list-style-type: none"> • Execute: Indication whether this check routine shall be executed or not. • Description: User defined description for the execution item. • Check routine ID: Displays the ID of the check routine which will be executed.
Add ...	Click here to define manually a new execution item (check routine) and append it to the list.
Edit ...	Click here to open the dialog to edit the currently execution item.
Remove	Click here to remove the selected item from the list.
Import...	Imports a sequence list.
Export...	Saves the current list in a file.
Up	Click here to swap the currently selected execution item with the item above.
Down	Click here to swap the currently selected execution item with the item below.

Edit Execution Item Dialog

This dialog configures an execution item in the sequence. An execution item is a NeuroCheck check routine from the current project folder. An execution item has the following properties:

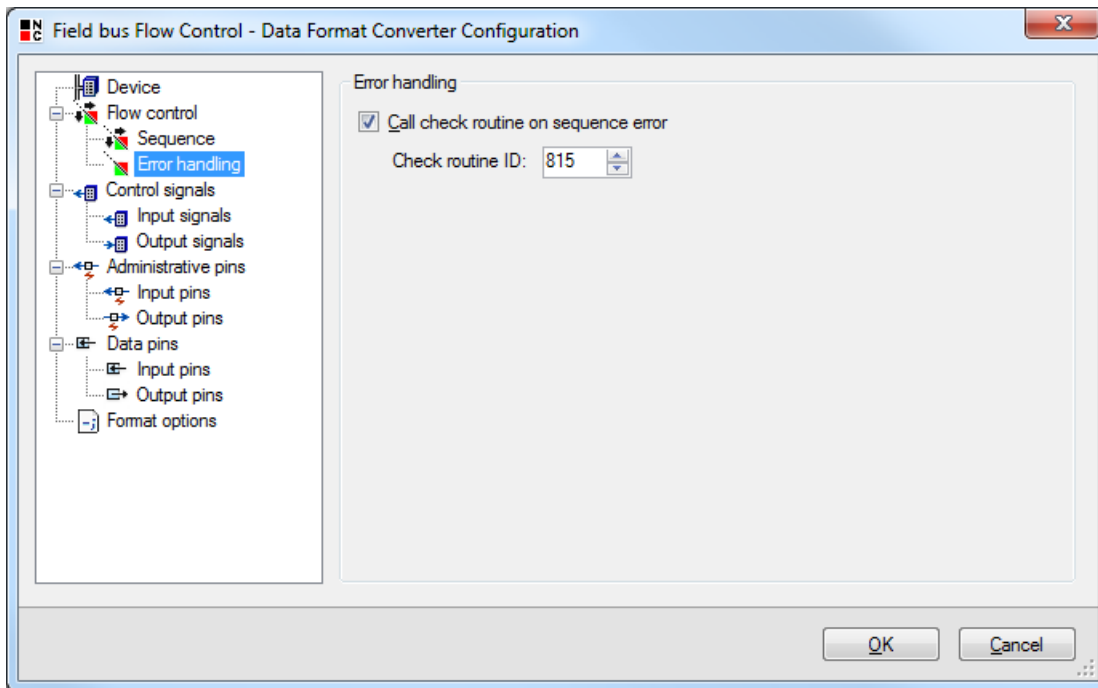
☑ [Screenshot of Dialog](#)



Element	Description
Description	The description of the execution item
Execute	Defines whether the item shall be executed or not. This indication can be read from a boolean register.
Check routine ID	Defines the check routine ID for the execution item. This value can be read from an integer register.

Converter Properties Dialog: Flow Control Error Handling

❏ Screenshot of Properties Dialog

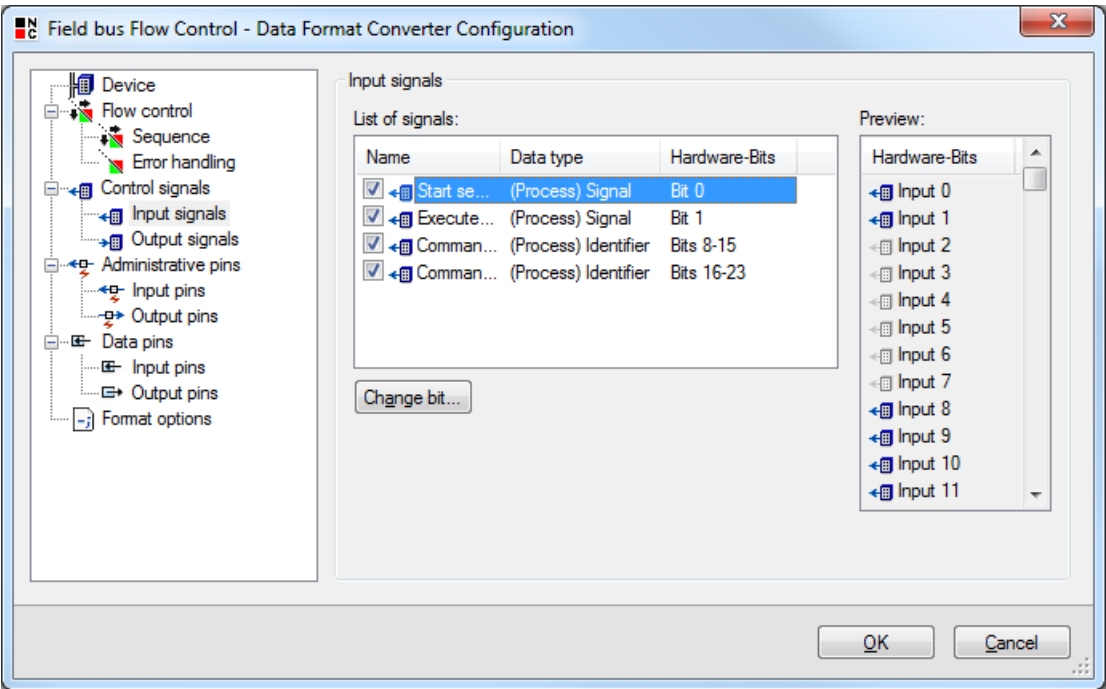


This page configures the error handling of the flow control. An flow control error is not meant to be a check routine error. A flow control error occurs e.g. when a check routine from the sequence could not be loaded. If the error handling is selected, the sequence will be continued after the execution of the "error check routine".

Element	Description
Call check routine on sequence error	Select or deselect to handle sequence errors.
Check routine ID	Defines the ID of the check routine which is loaded after an error occurs.

Converter Properties Dialog: Control Signals Input

☑ Screenshot of Properties Dialog

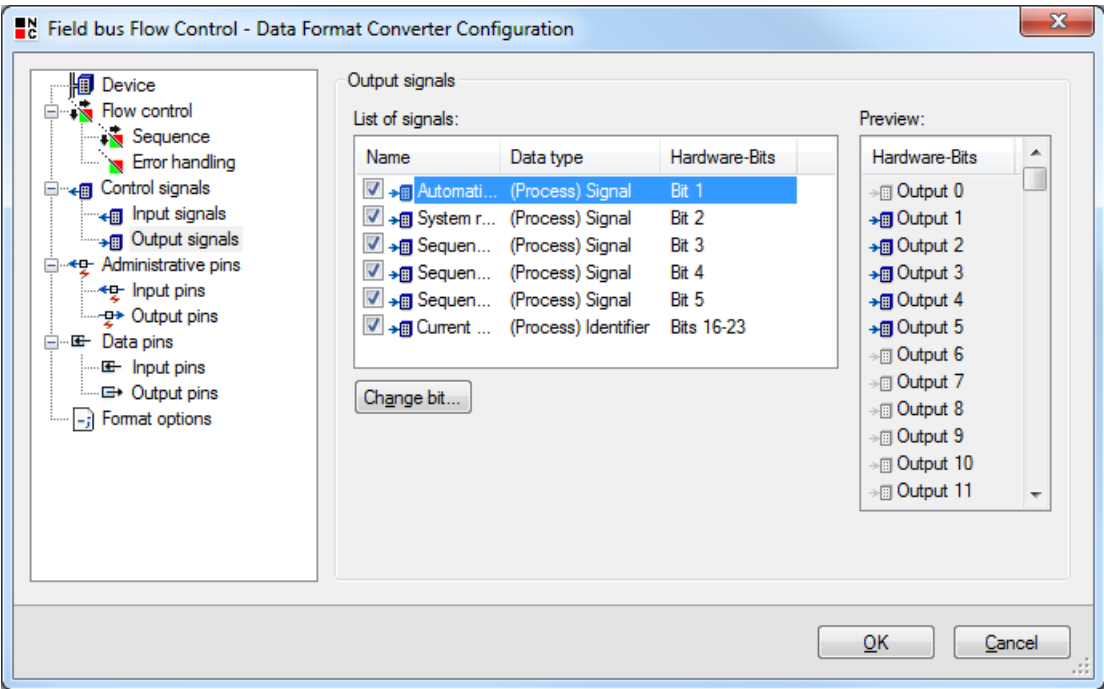


This page configures the input signals for reading from the connected fieldbus.

Element	Description
List of signals	<p>Shows the list of configured input signals for reading from fieldbus. The list shows the following columns:</p> <ul style="list-style-type: none">• Name: The name of the signal which is similar to the NeuroCheck input signal.• Hardware-Bits: The bit index(es) the signal is connected to the fieldbus. <p>The signals can be de-/selected to de-/activate its functionality.</p>
Change bit...	<p>Click here to show the signal configuration dialog to select the index(es) of the selected signal.</p> <p>☑ Screenshot of Dialog</p> <div></div>
Preview	<p>List of all available hardware bits (input) and an indication whether the index is connected or not.</p>

Converter Properties Dialog: Control Signals Output

[Screenshot of Properties Dialog](#)

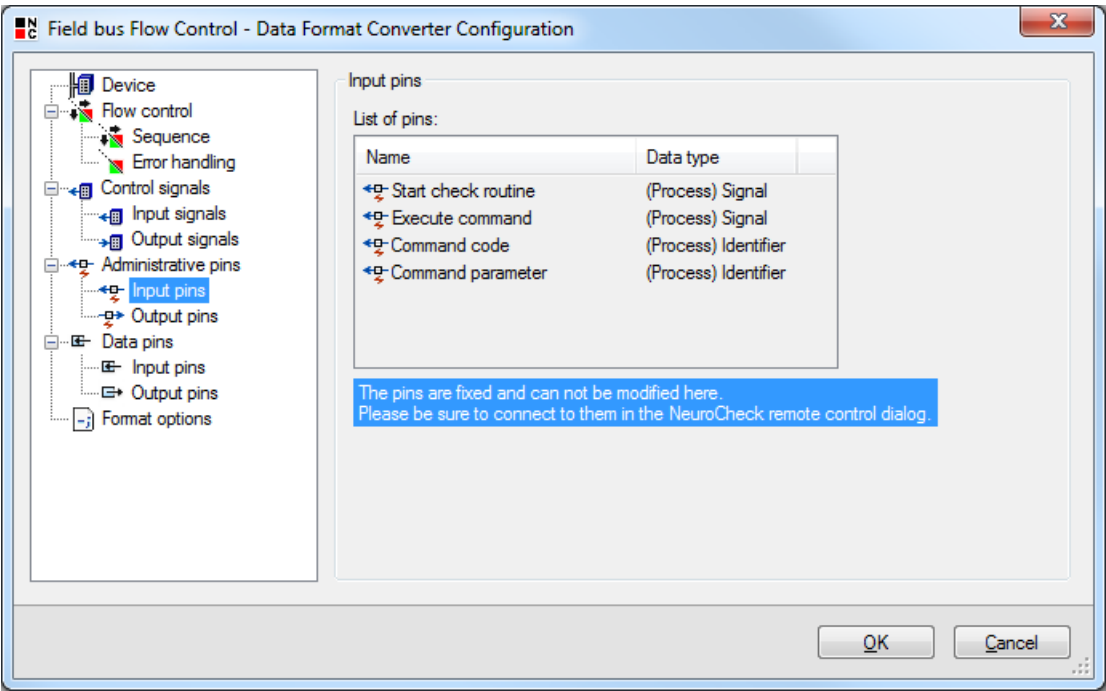


This page configures the output signals for writing to the connected fieldbus.

Element	Description
List of signals	<p>Shows the list of configured output signals for writing to fieldbus. The list shows the following columns:</p> <ul style="list-style-type: none">• Name: The name of the signal which is similar to the NeuroCheck output signal.• Hardware-Bits: The bit index(es) the signal is connected to the fieldbus. <p>The signals can be de-/selected to de-/activate its functionality.</p>
Change bit...	<p>Click here to show the signal configuration dialog to select the index(es) of the selected signal.</p> <p>Screenshot of Dialog</p>
Preview	<p>List of all available hardware bits (output) and an indication whether the index is connected or not.</p>

Converter Properties Dialog: Administrative Pins Input

☑ Screenshot of Properties Dialog

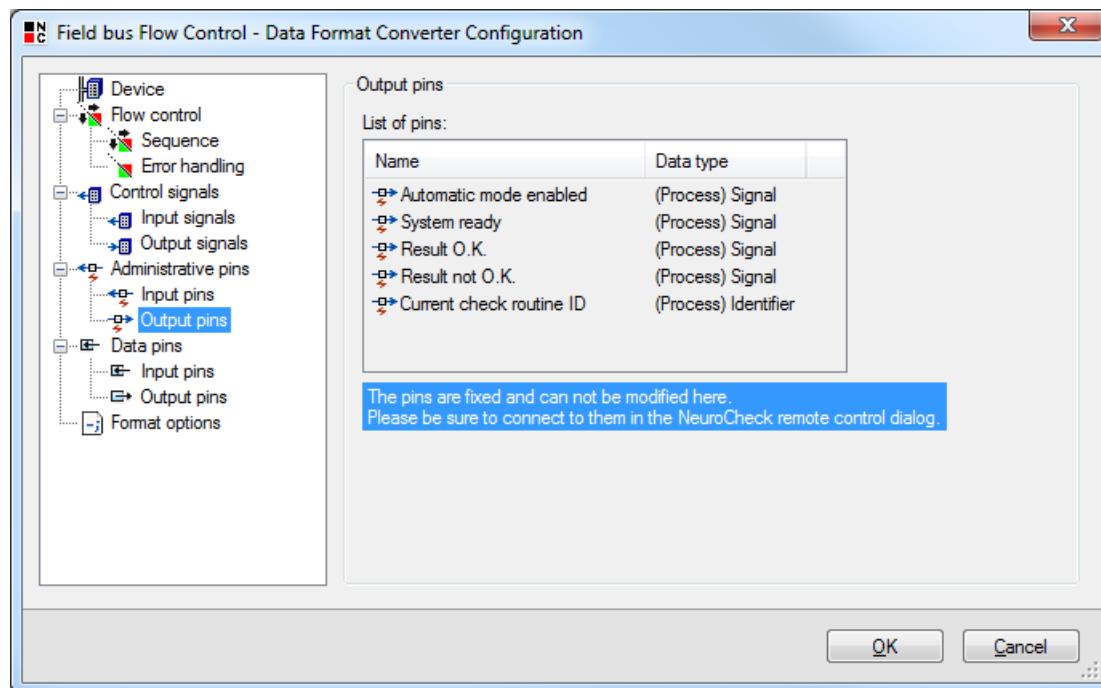


This page lists the NeuroCheck remote control input pins. For further details see NeuroCheck User Manual (chapter data exchange).

Element	Description
List of pins	<div>Shows the list of input pins for reading from fieldbus. These pins are connected to NeuroCheck and can not be modified here.</div> <div>Make sure these pins are connected to the NeuroCheck remote control.</div>

Converter Properties Dialog: Administrative Pins Output

☑ Screenshot of Properties Dialog

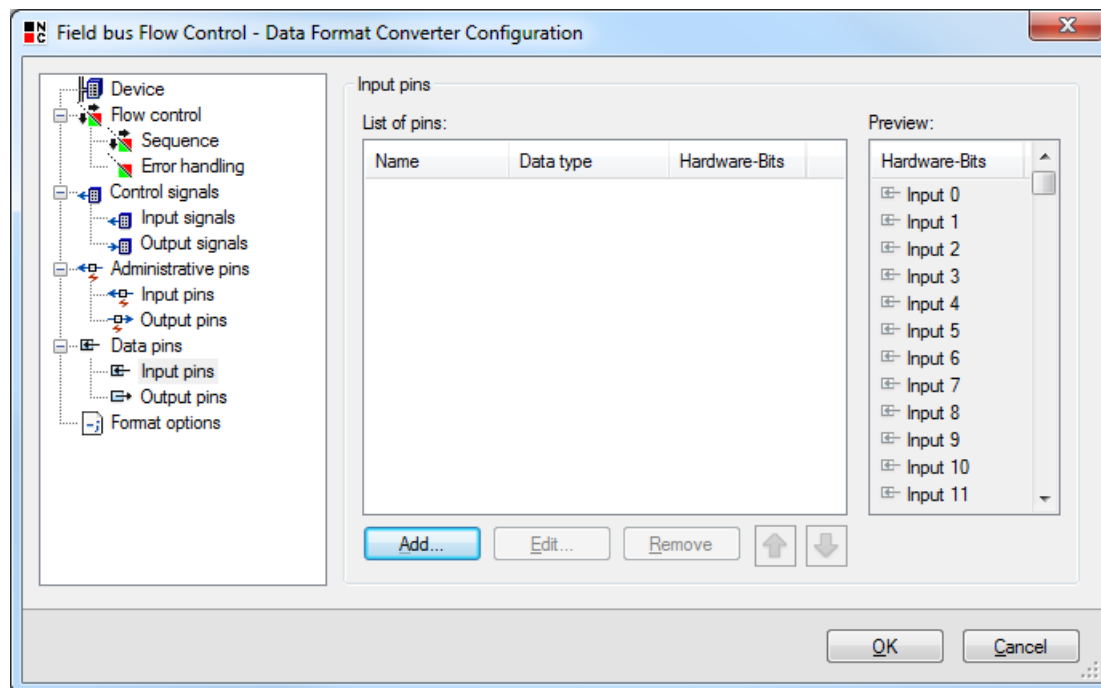


This page lists the NeuroCheck remote control output pins. For further details see NeuroCheck User Manual (chapter data exchange).

Element	Description
List of pins	Shows the list of output pins for writing to fieldbus. These pins are connected to NeuroCheck and can not be modified here. Make sure these pins are connected to the NeuroCheck remote control.

Converter Properties Dialog: Data Pins Input

☑ Screenshot of Properties Dialog



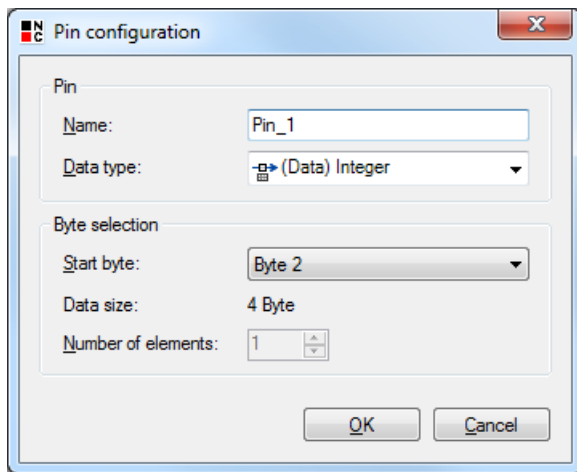
Next to the NeuroCheck control signals, the Fieldbus Flow Control is able to connect data and free signal pins from the fieldbus device to NeuroCheck. On this page you can configure the input data pins for reading from the connected fieldbus.

Element	Description
List of pins	Shows the list of configured input pins for reading from database. Use button Add or Add from table to insert new data pins. The list shows the following columns. <ul style="list-style-type: none"> • Pin name: The name of the pin. Using automatic pin construction the pin name is automatically generated from the column name of the table. If you edit the pin name manually keep in mind that the pin name must exactly match the column name in database. The column name must not have contain space characters. • Data type: The data type of the pin (Boolean, Floating point, Integer, String). • Hardware-Bits: Shows the bit(s) the pin uses.
Add ...	Click here to define manually a new pin in the Data Pin Dialog and append it to the list.
Edit ...	Click here to open the Data Pin Dialog to edit the currently selected pin manually.
Remove	Click here to remove the selected pin(s) from the list.
Up	Click here to swap the currently selected pin with the pin above.
Down	Click here to swap the currently selected pin with the pin below.
Preview	List of all available hardware bits (input) and an indication whether the index is connected or not.

Data Pin Dialog

With this dialog you can add data pins or edit selected pins. A data pins has the following properties:

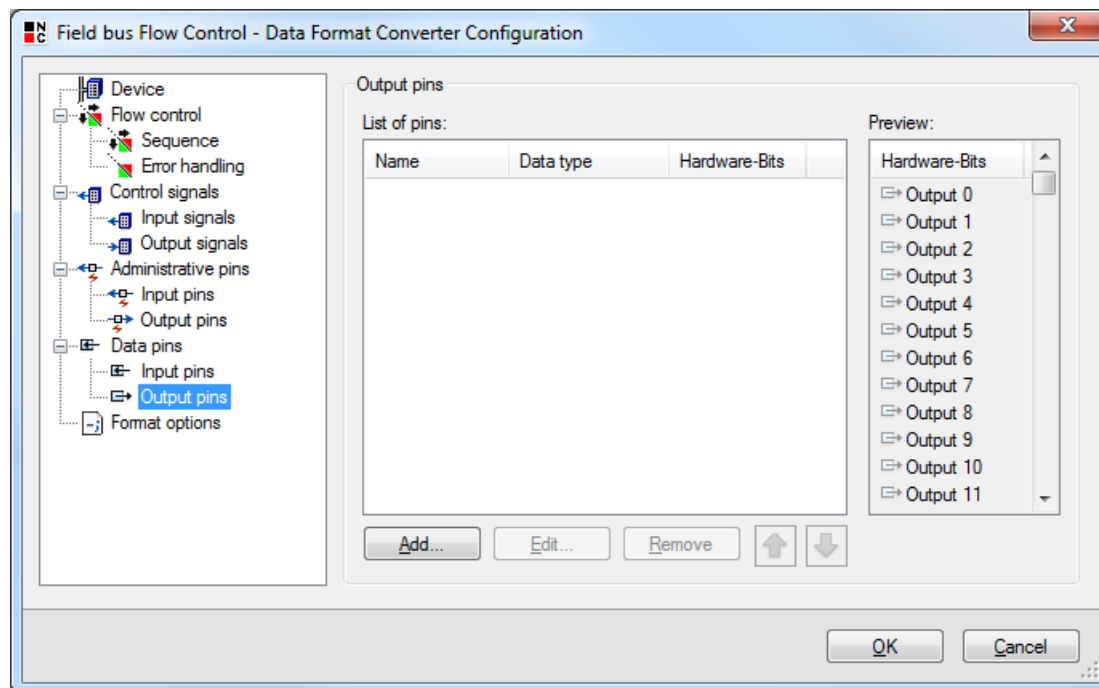
☑ Screenshot of Dialog



Element	Description
Name	The name of the data pin.
Data type	The data type of the pin (Free signal, Boolean, Floating point, Integer, String).
Start byte	Select the first byte the data pins uses.
Data size	Description of the data size the selected data type supports.
Number of bytes	Select the data size of the pin. Some data types have fixed sizes, some are configurable.

Converter Properties Dialog: Data Pins Output

☑ Screenshot of Properties Dialog



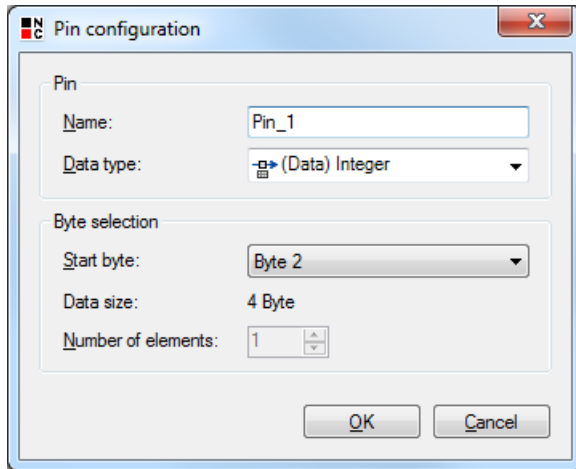
Next to the NeuroCheck control signals, the Fieldbus Flow Control is able to connect data and free signal pins from NeuroCheck to the fieldbus device. On this page you can configure the output data pins for writing to the connected fieldbus.

Element	Description
List of pins	Shows the list of configured input pins for reading from database. Use button Add or Add from table to insert new data pins. The list shows the following columns. <ul style="list-style-type: none"> • Pin name: The name of the pin. Using automatic pin construction the pin name is automatically generated from the column name of the table. If you edit the pin name manually keep in mind that the pin name must exactly match the column name in database. The column name must not have contain space characters. • Data type: The data type of the pin (Boolean, Floating point, Integer, String). • Hardware-Bits: Shows the bit(s) the pin uses.
Add ...	Click here to define manually a new pin in the Data Pin Dialog and append it to the list.
Edit ...	Click here to open the Data Pin Dialog to edit the currently selected pin manually.
Remove	Click here to remove the selected pin(s) from the list.
Up	Click here to swap the currently selected pin with the pin above.
Down	Click here to swap the currently selected pin with the pin below.
Preview	List of all available hardware bits (output) and an indication whether the index is connected or not.

Data Pin Dialog

With this dialog you can add data pins or edit selected pins. A data pins has the following properties:

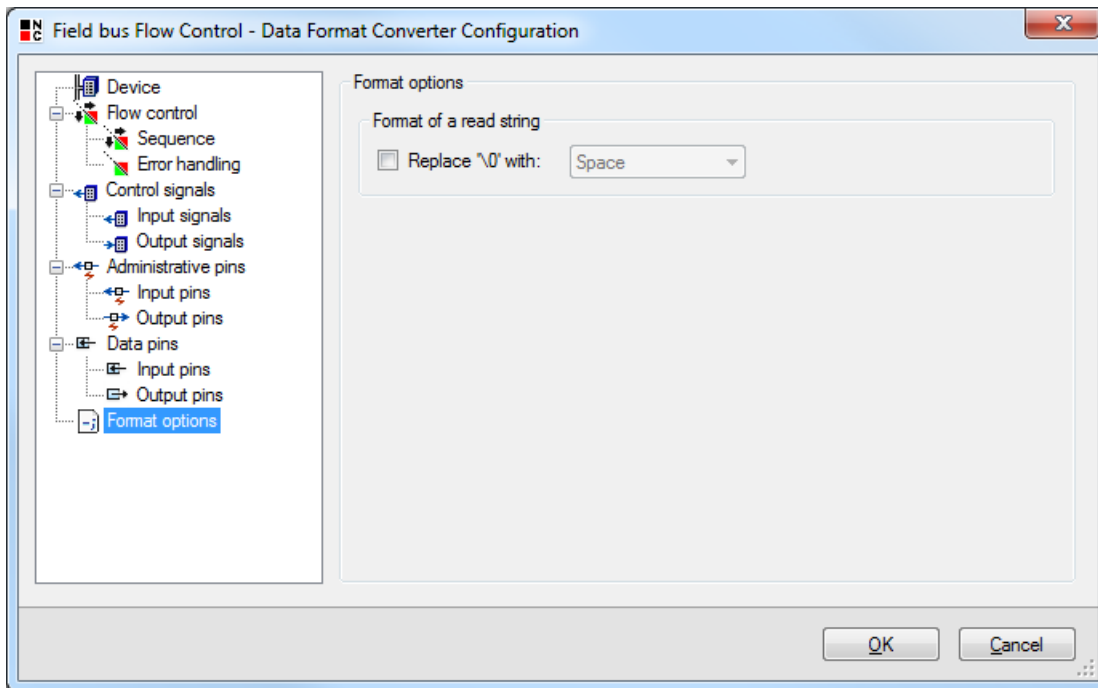
☑ Screenshot of Dialog



Element	Description
Name	The name of the data pin.
Data type	The data type of the pin (Free identifier, Free signal, Boolean, Floating point, Integer, String).
Start byte	Select the first byte the data pins uses.
Data size	Description of the data size the selected data type supports.
Number of bytes	Select the data size of the pin. Some data types have fixed sizes, some are configurable.

Converter Properties Dialog: Format Options

☑ Screenshot of Properties Dialog



This page configures the format options.

Element	Description
Replacement	Select or deselect to replace the "\0" character in a input string.
Replace character	Choose the replacing character.

Info Dialog

This dialog displays information about the NeuroCheck Digital I/O Flow Control Data Format Converter.

Element	Description
Description	The description of the Data Format Converter
File	The driver assembly name the Data Format Converter
Version	The version of the data format converter
Copyright	The copyright of the data format converter

Support Services

For technical support, please contact your local NeuroCheck partner or NeuroCheck GmbH:

Phone: +49 (0) 7146 - 89 56-40

E-Mail: support@neurocheck.com

Web: www.neurocheck.com

Before contacting us, please provide some important information about your system:

- **Information about your NeuroCheck installation and your PC setup:**

Use the NeuroCheck Diagnostics tool to check your installation and computer configuration.

The NeuroCheck Diagnostics is installed in the "Tools" folder within your NeuroCheck installation.

- **Log file information:**

Logging for NeuroCheck can be activated in **System > Software Settings > Diagnosis > Logging**.

