

User manual Vert-X EasyAdapt

Version 1.3 – February 2011



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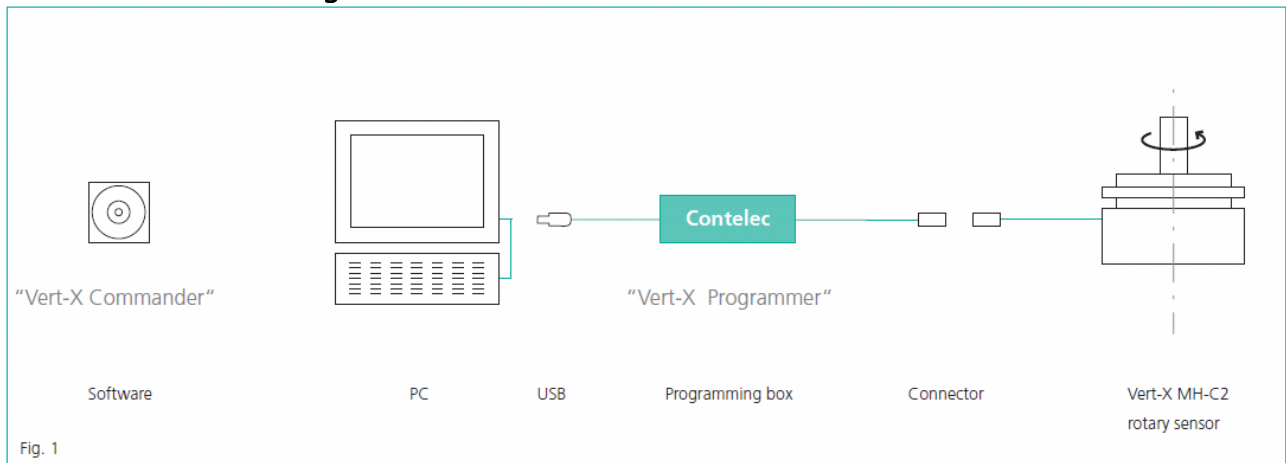
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1 Introduction

The Vert-X EasyAdapt, is a comprehensive tool for programming all programmable Contelec Vert-X products. The programmable rotary encoders are identifiable with the "P" in the third position in the third number sequence of the product code. (e.g. Vert-X 2201 836 22**P** 602)

The programmable Vert-X products always have a 6 lead wire cable or 6 individual lead wire connection. The connection diagram of the rotary encoder is shown in its instruction manual. Please note; incorrect wiring may cause permanent damage to the device.

1.1 Schematic drawing

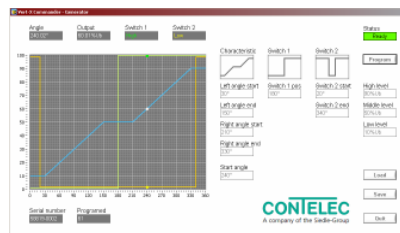


1.2 Content of the Vert-X EasyAdapt

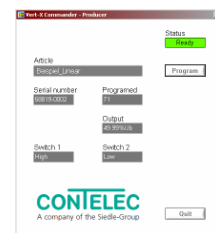
- 1x Vert-X Programmer
- 1x Vert-X Commander – Generator (Download)
- 1x Vert-X Commander – Producer (Download)
- 1x USB cable
- 1x Phoenix connector 2pole (24VDC supply)
- 1x Phoenix connector 8pole (Sensor-Interface)



Vert-X Programmer



Vert-X Commander – Generator



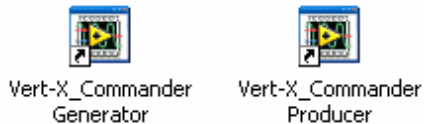
Vert-X Commander - Producer

1.3 Additionally you need

- A Windows-based PC (XP, Vista, or Windows7) with an USB port.
- 24VDC power supply (only for 24VDC Vert-X rotary encoders)

2 Installation

- 1.) Download the Vert-X Commander from our homepage:
www.contelec.ch/download/software/vert-x-commander/
(Username and Password can be found on the label of your Vert-X Programmer, respect case sensitivity)
- 2.) Install the Vert-X Commander by double clicking the exe-file.
Please ensure that you have the necessary rights on your computer to install software to your computer.
- 3.) Read the licence agreement and the readme file properly and confirm it.
- 4.) After a successful installation you will find the icons of the "Vert-X Commander Generator" and "Vert-X Commander Producer" on your desktop.

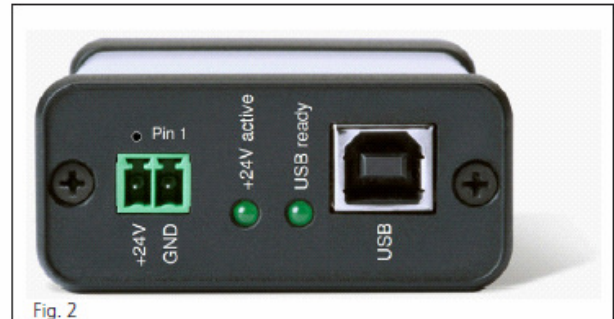
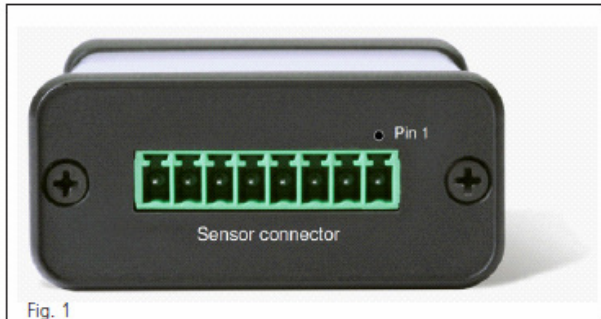


For further questions or support please contact:

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3 Vert-X Programmer

The Vert-X Programmer provides the hardware interface between the PC and the Vert-X MH-C2 rotary sensor. On the one hand, the device powers the sensor with the required voltage, and on the other hand it “translates” the information from the Vert-X Commander software to the Vert-X MH-C2 rotary sensor. The Vert-X Programmer itself is powered via a USB port and measures only 86 x 57x 26 mm (W/D/H).



3.1 Pin assignment of the sensor connector (Fig. 1)

| Connector pin | Short cut | Description |
|---------------|-----------|--------------------|
| 1 | 24VDC | Power supply 24VDC |
| 2 | 5VDC | Power supply 5VDC |
| 3 | GND | Ground |
| 4 | Out | Signal Output |
| 5 | SCLK | Serial clock |
| 6 | SEN | Serial enable |
| 7 | SIO | Serial data-IO |
| 8 | n.c. | not connected |

3.2 Power supply (Fig. 2):

3.2.1 You use a 5VDC Vert-X product

The Vert-X Programmer and the Vert-X rotary sensor are powered via USB port. No external 24VDC supply is necessary.

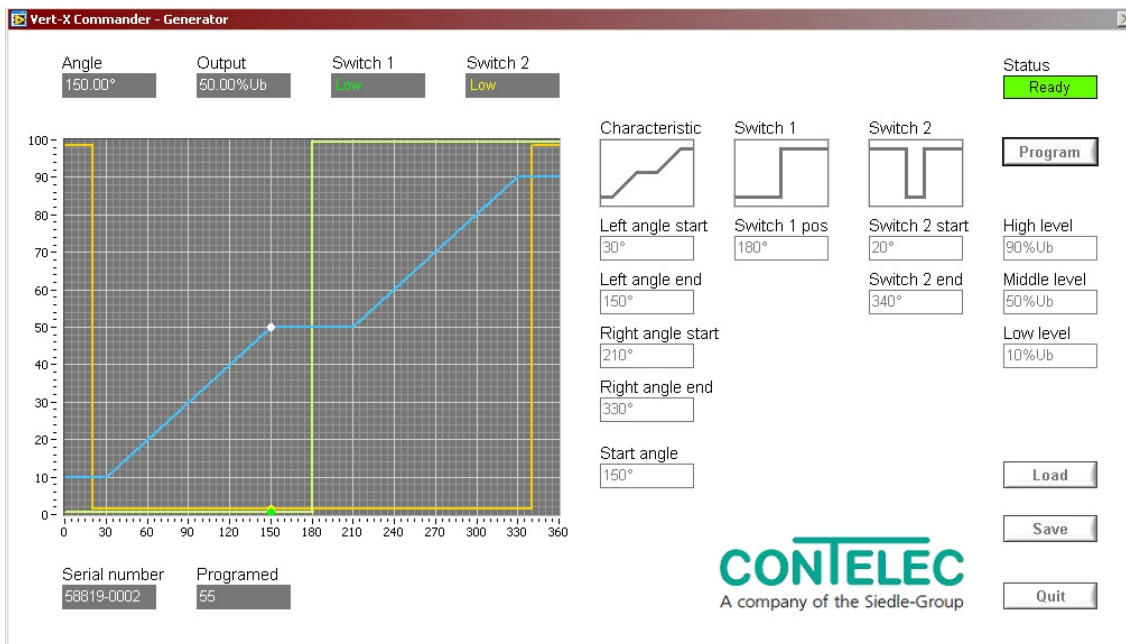
3.2.2 You use a 24VDC Vert-X product

The Vert-X Programmer is powered via USB port, the Vert-X rotary sensor via 24VDC power supply interface of the Vert-X Programmer. Connect according to fig.2. / Note: You need an external 24VDC power supply (not included).

3.3 Connection

- Connect the Vert-X Programmer to your computer with the USB cable.
- If you use a 24VDC Vert-X product connect your external 24VDC power supply with the 2 pole Phoenix connector to the Vert-X Programmer.
- Connect the Vert-X rotary sensor with the 8 pole Phoenix connector to the Vert-X Programmer (Pin assignment see 3.1).

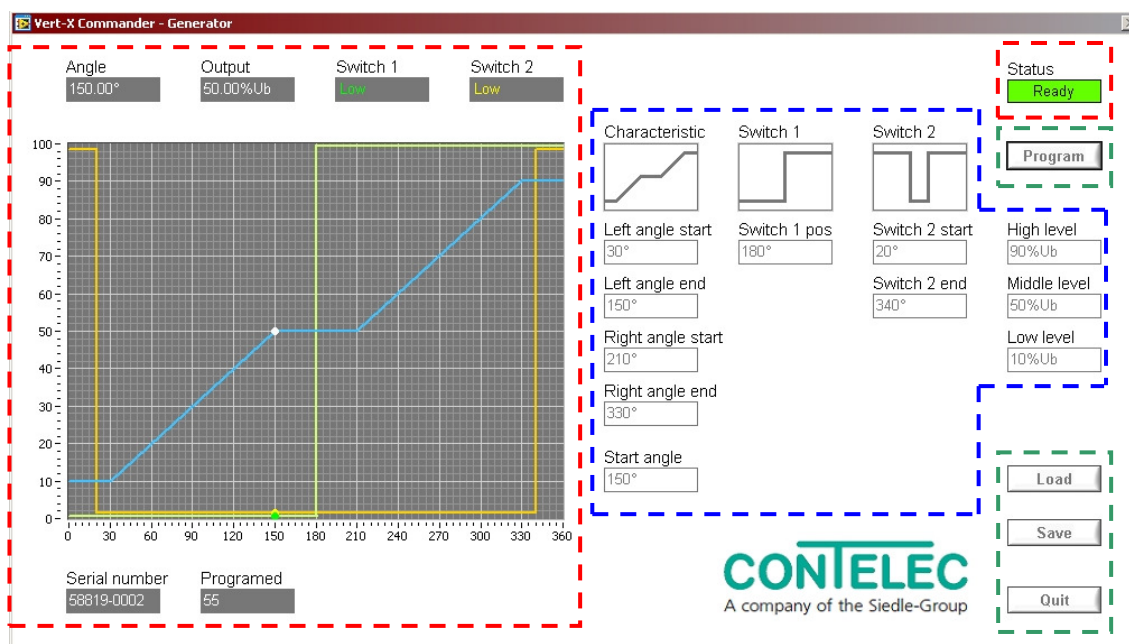
4 Vert-X Commander – Generator



The Vert-X Commander - Generator serves the particular needs of development and process engineering. The tool is simple to use and allows the operator to comfortably set the parameters of the Vert-X MH-C2 rotary sensor according to individual requirements. Once the parameters have been defined, the sensor can be directly programmed using the <<Program>> button. The programmed settings can then be examined using the integrated graphical display. If the characteristic curves and switching functions conform to the defined application requirements, the settings are saved via the <<Save>> function and a script file is automatically generated. Transmitted into the Vert-X Commander - Producer, the file is integrated directly into the production line and is available during manufacturing processes. Previously defined scripts can be loaded and modified using the <<Load>> function.




The Vert-X Commander – Generator desktop is split into three areas:

- Definition area red
- Visualisation area blue
- Operation area green



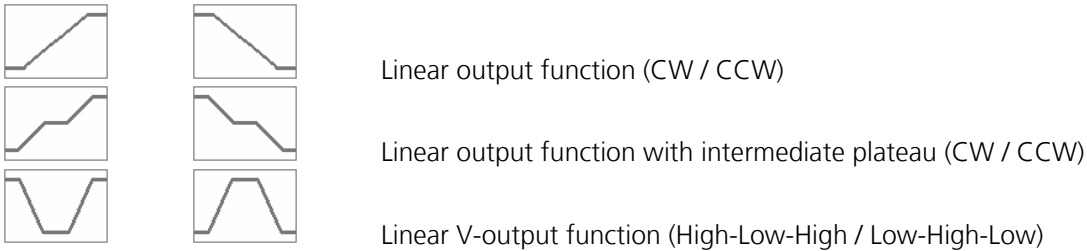
4.1 Definition

The definition area allows you to change the output characteristic and the two switch outputs.

| | | | |
|---|---|---|--|
| Characteristic  | Switch 1  | Switch 2  | |
| Left angle start <input type="text" value="30°"/> | Switch 1 pos <input type="text" value="180°"/> | Switch 2 start <input type="text" value="20°"/> | High level <input type="text" value="90%Ub"/> |
| Left angle end <input type="text" value="150°"/> | | Switch 2 end <input type="text" value="340°"/> | Middle level <input type="text" value="50%Ub"/> |
| Right angle start <input type="text" value="210°"/> | | | Low level <input type="text" value="10%Ub"/> |
| Right angle end <input type="text" value="330°"/> | | | |
| Start angle <input type="text" value="240°"/> | | | |

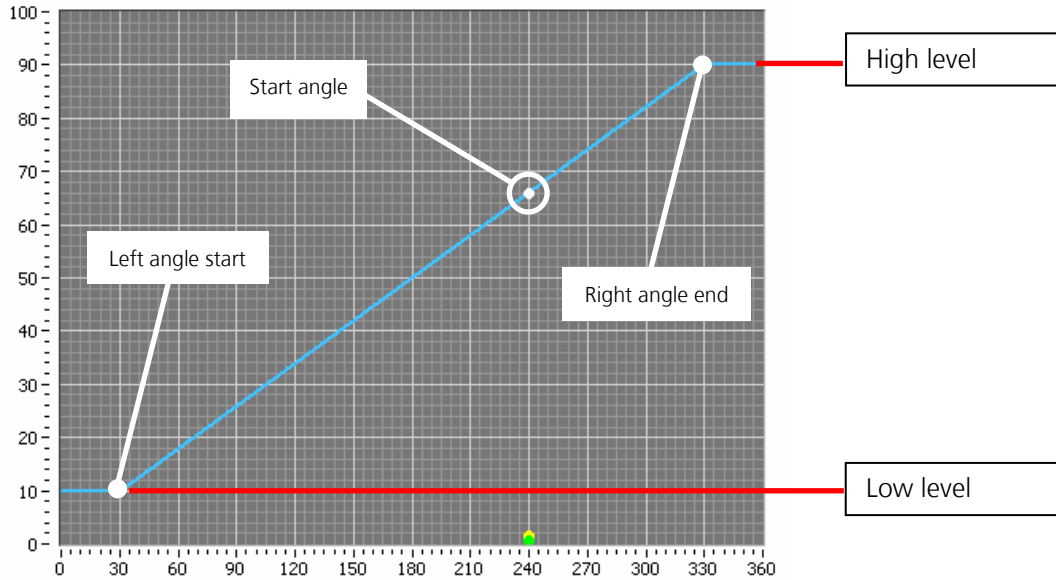
4.1.1 Characteristics

You can choose from the six default characteristics.



These six basic characteristics allow you to generate many different output signals. If your desired curve is not configurable do not hesitate to contact us (sales@contelec.ch), the programmable Vert-X products are not limited to these basic characteristics.

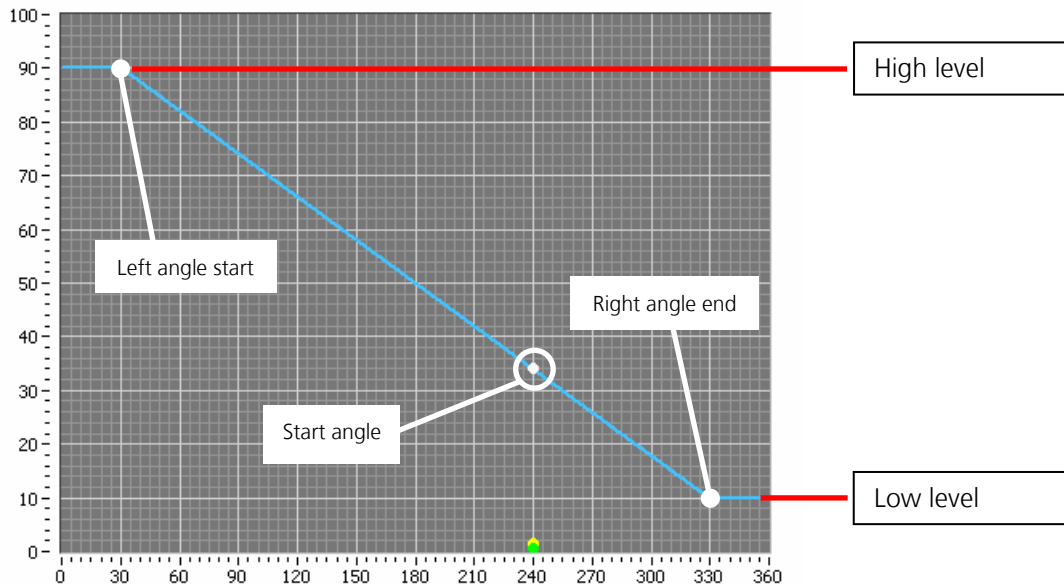
4.1.1.1 Linear output function (CW)



Parameters:

- Left angle start: Angle where the signal output starts to increase from low level
- Right angle end: Angle where the signal output achieve high level
- High level: Max. signal output value
- Low level: Min. signal output value
- Start angle: Signal output position after programming

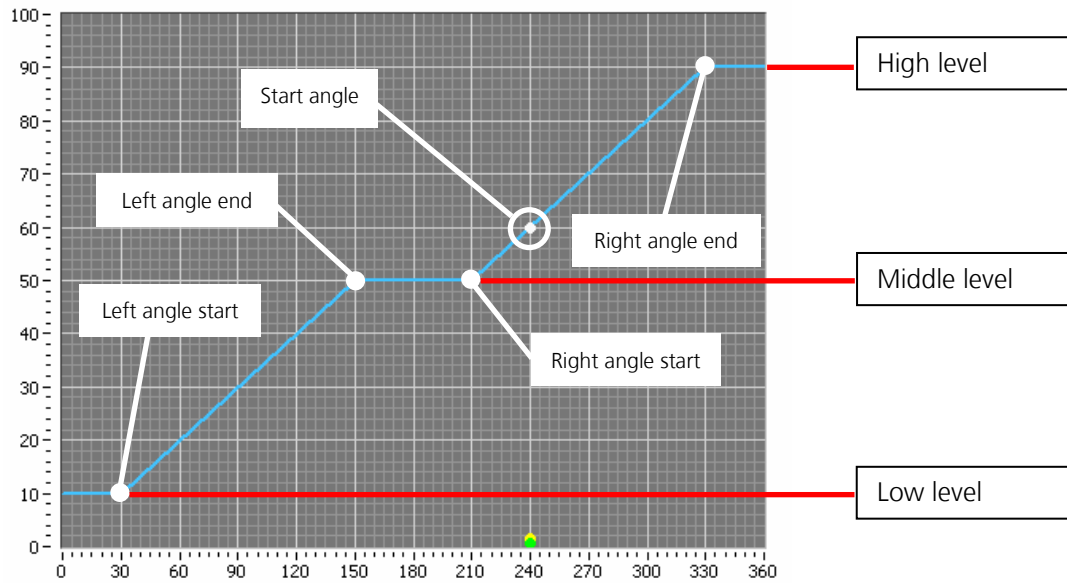
4.1.1.2 Linear output function (CCW)



Parameters:

- Left angle start: Angle where the signal output starts to decrease from high level
- Right angle end: Angle where the signal output achieve low level
- High level: Max. signal output value
- Low level: Min. signal output value
- Start angle: Signal output position after programming

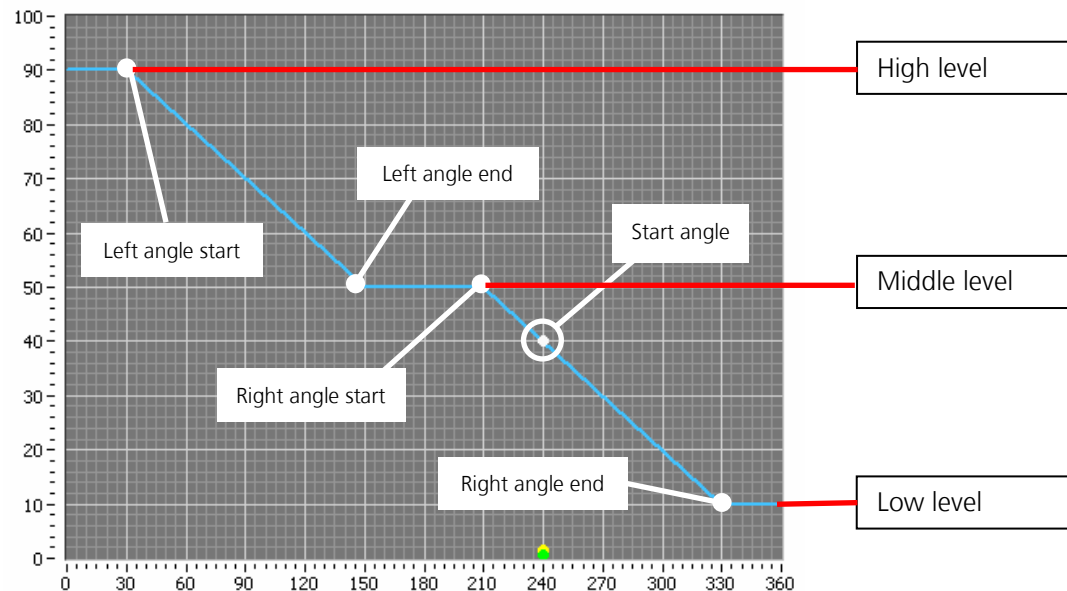
4.1.1.3 Linear output function with intermediate plateau (CW)



Parameters:

- Left angle start: Angle where the signal output starts to increase from low level
- Left angle end: Angle where the signal output achieve middle level
- Right angle start: Angle where the signal output starts to increase from middle level
- Right angle end: Angle where the signal output achieve high level
- High level: Max. signal output value
- Middle level: Signal output value of the intermediate plateau
- Low level: Min. signal output value
- Start angle: Signal output position after programming

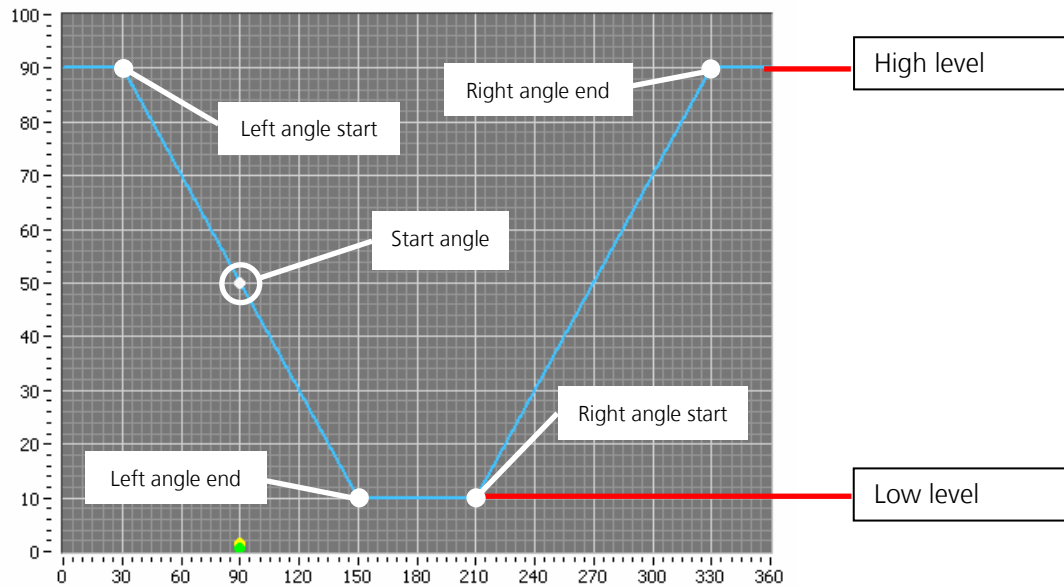
4.1.1.4 Linear output function with intermediate plateau (CCW)



Parameters:

- Left angle start: Angle where the signal output starts to decrease from high level
- Left angle end: Angle where the signal output achieve middle level
- Right angle start: Angle where the signal output starts to decrease from middle level
- Right angle end: Angle where the signal output achieve low level
- High level: Max. signal output value
- Middle level: Signal output value of the intermediate plateau
- Low level: Min. signal output value
- Start angle: Signal output position after programming

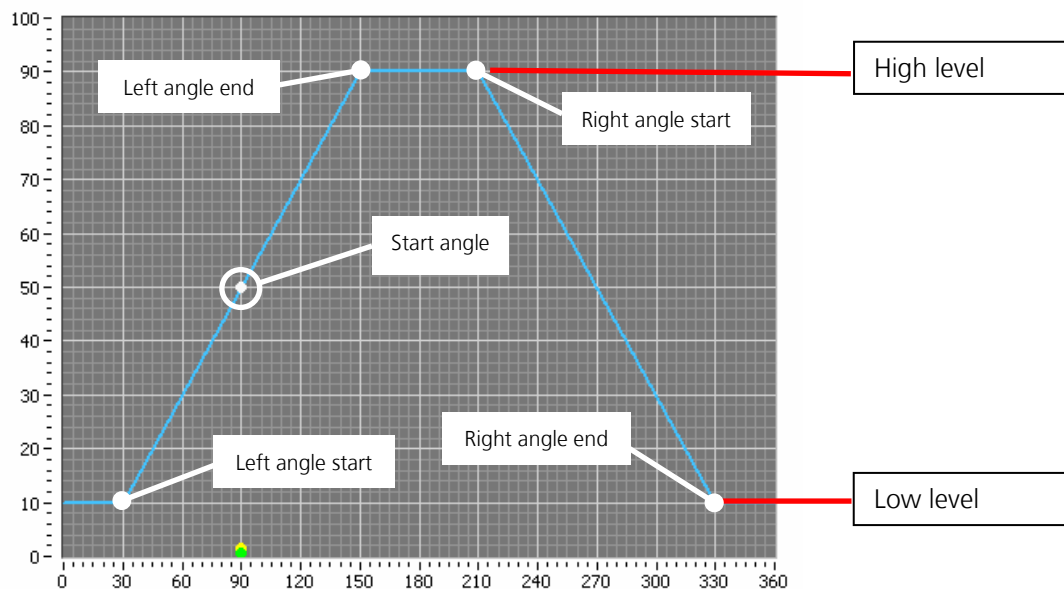
4.1.1.5 Linear V-output function (High-Low-High)



Parameters:

- Left angle start: Angle where the signal output starts to decrease from high level
- Left angle end: Angle where the signal output achieve low level
- Right angle start: Angle where the signal output starts to increase from low level
- Right angle end: Angle where the signal output achieve high level
- High level: Max. signal output value
- Low level: Min. signal output value
- Start angle: Signal output position after programming

4.1.1.6 Linear V-output function (Low-High-Low)



Parameters:

- Left angle start: Angle where the signal output starts to increase from low level
- Left angle end: Angle where the signal output achieve high level
- Right angle start: Angle where the signal output starts to decrease from high level
- Right angle end: Angle where the signal output achieve low level
- High level: Max. signal output value
- Low level: Min. signal output value
- Start angle: Signal output position after programming

4.1.2 Switch functions:

You can choose out of the four default characteristics.



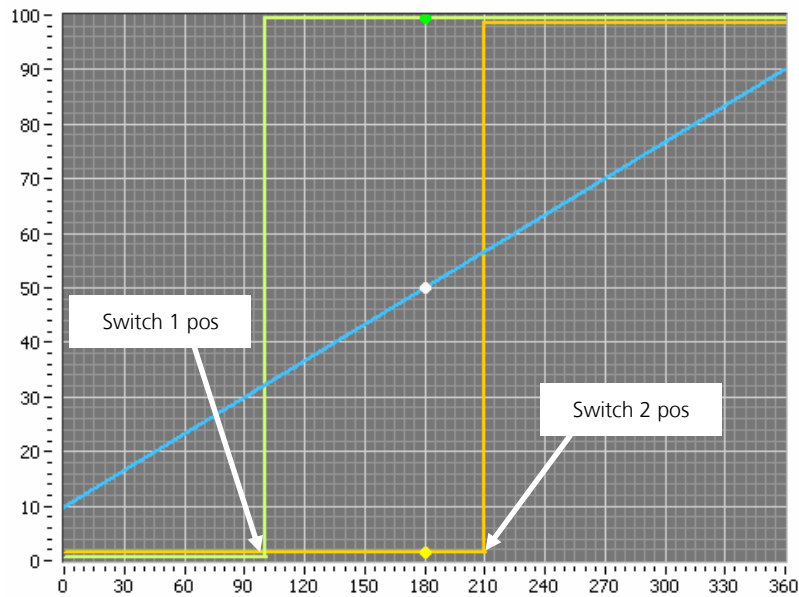
Switch step (Low-High / High-Low)



Switch pulse (Low-High-Low / High-Low-High)

With these basic characteristics you can generate simple switch outputs. If your desired switch function is not configurable do not hesitate to contact us (sales@contelec.ch), the programmable Vert-X products are not limited to these basic characteristics. They are able to handle switch functions with up to 127 pulses per turn.

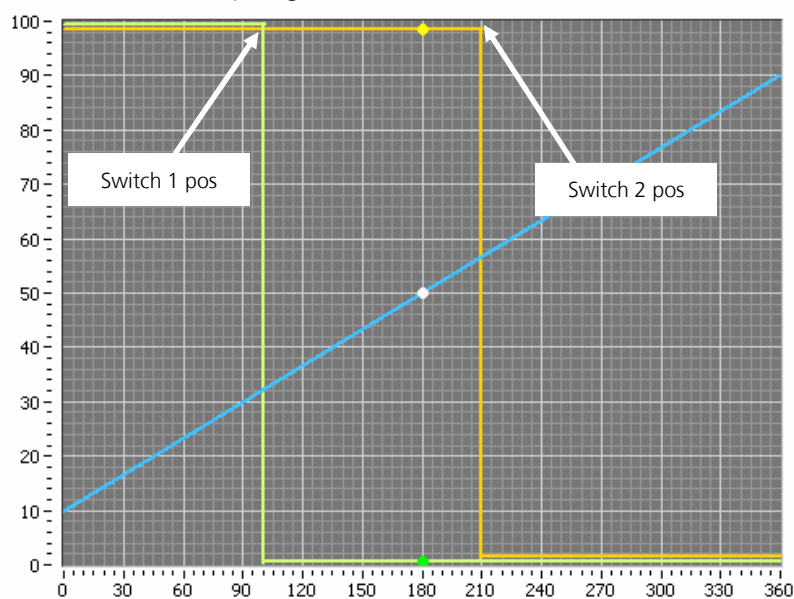
4.1.2.1 Switch step (Low-High)



Parameters:

- Switch 1 pos: Angle where the switch1 output changes from low to high
- Switch 2 pos: Angle where the switch2 output changes from low to high

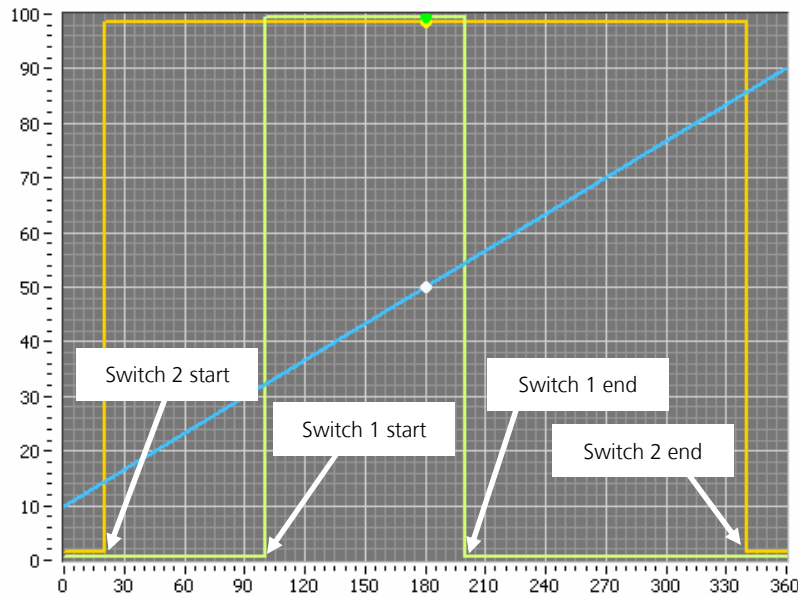
4.1.2.2 Switch step (High-Low)



Parameters:

- Switch 1 pos: Angle where the switch1 output changes from high to low
- Switch 2 pos: Angle where the switch2 output changes from high to low

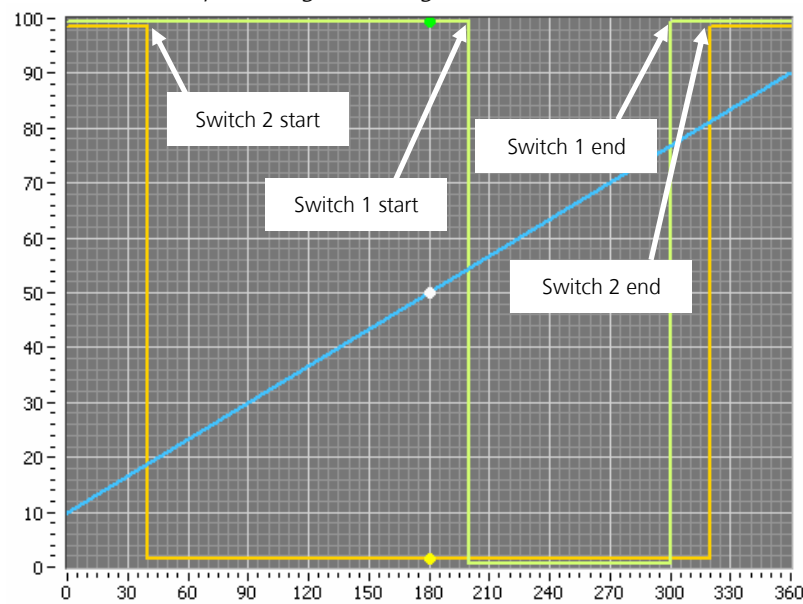
4.1.2.3 Switch pulse (Low-High-Low)



Parameters:

- Switch 1 start: Angle where the switch1 output changes from low to high
- Switch 1 end: Angle where the switch1 output changes from high to low
- Switch 2 start: Angle where the switch2 output changes from low to high
- Switch 2 end: Angle where the switch2 output changes from high to low

4.1.2.4 Switch pulse (High-Low-High)

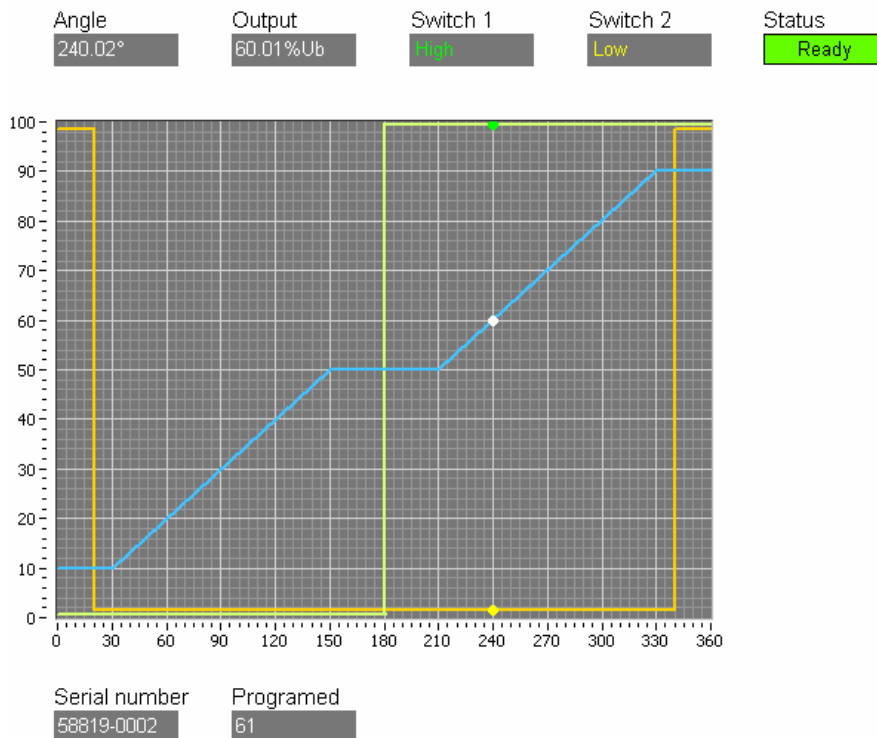


Parameters:

- Switch 1 start: Angle where the switch1 output changes from high to low
- Switch 1 end: Angle where the switch1 output changes from low to high
- Switch 2 start: Angle where the switch2 output changes from high to low
- Switch 2 end: Angle where the switch2 output changes from low to high

4.2 Visualisation

The visualisation area shows you information of the Vert-X rotary sensor and its programming.



4.2.1 Display

In addition to the output characteristic of the signal (blue), the switch1 (green) and the switch2 (orange) the current output position (white, green & orange dot) is also visible on the display. The output characteristics will be directly adapted on the display if you change the settings in the definition area (see 4.1). This makes it easy for you to configure the output characteristics of the Vert-X product.

4.2.2 Output information

- Angle: Calculated angle. / Note: The Vert-X sensor has always a voltage or a current on the output. The shown angle is only a theoretical, by the software calculated value.
- Output: Present signal output
- Switch 1: Present status of the switch 1 output
- Switch 2: Present status of the switch 2 output

4.2.3 Vert-X rotary sensor information

- Serial number: Unique number of each Vert-X rotary sensor
- Programmed: Number of programming cycles of this Vert-X rotary sensor
- Status: Present status of the Vert-X rotary sensor, three different states possible

4.2.3.1 Status "Ready"

- A programmable Vert-X rotary sensor is connected
- After programming = successful programming

4.2.3.2 Status "Programming"

- Programming of the Vert-X rotary sensor is in progress

4.2.3.3 Status "Searching"

- No programmable Vert-X rotary sensor is connected
- Programming is not successful = no working Vert-X rotary sensor is connected

4.3 Operation

Program

Load

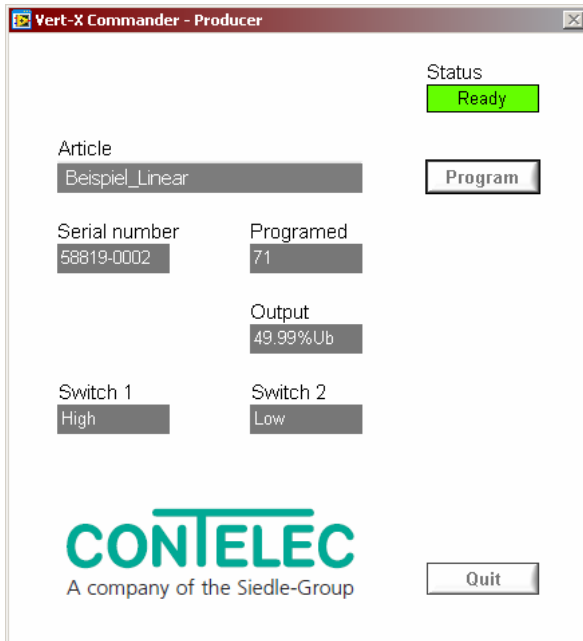
Save

Quit

4.3.1 Buttons

- Program (Enter): The present settings will be programmed into the connected Vert-X rotary sensor.
- Load: Open a default script file or one of your previous generated script files
- Save: Save the present setting as a script file
- Quit (Esc): Exit from the Vert-X Commander

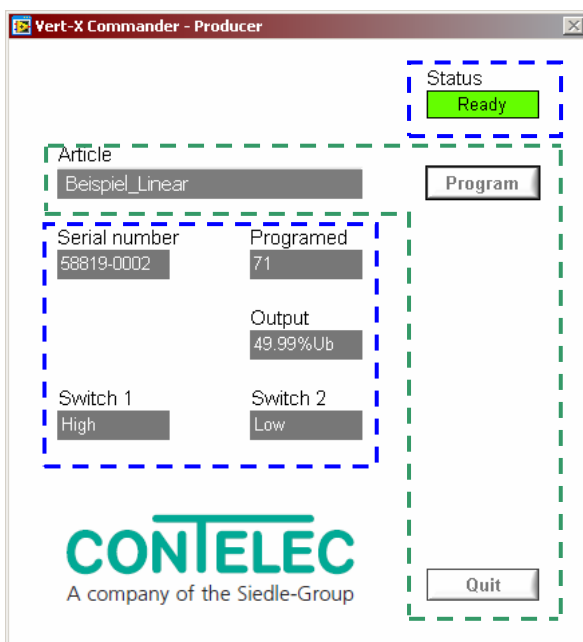
5 Vert-X Commander – Producer



The Vert-X Commander – Producer is tailored to production needs. This convenient tool allows for a quick and simple programming of the sensor, whereby the desired program is selected via a drop-down menu and activated. The sensors can then be programmed directly via the Program button. In order to avoid errors, there is no option to change sensor parameters. If a new program variation of the sensor is required, a new script file can easily be generated with the Vert-X Commander – Generator and transmitted directly into the Vert-X Commander – Producer.

The Vert-X Commander – Producer desktop can be partitioned into two areas:

- Visualisation area blue
- Operation area green



5.1 Visualisation

The visualisation area shows some basic information of the Vert-X rotary encoder.

| | | |
|-----------------------------|--------------------|-----------------|
| Serial number 68819-0002 | Programmed 71 | Status Ready |
| | Output 49.99%Ub | |
| Switch 1 High | Switch 2 Low | |

5.1.1 Output information

- Output: Present signal output
- Switch 1: Present status of the switch 1 output
- Switch 2: Present status of the switch 2 output

5.1.2 Vert-X rotary sensor information

- Serial number: Unique number of the connected Vert-X rotary sensor
- Programmed: Number of programming cycles of the connected Vert-X rotary sensor
- Status: Present status of the connected Vert-X rotary sensor, three different states possible.

5.1.2.1 Status "Ready"

- A programmable Vert-X rotary sensor is connected
- After programming = successful programming

5.1.2.2 Status "Programming"

- Programming of the Vert-X rotary sensor is in progress

5.1.2.3 Status "Searching"

- No programmable Vert-X rotary sensor is connected
- Programming is not successful = no working Vert-X rotary sensor is connected

5.2 Operation

| | |
|----------------------------|---------|
| Article Beispiel_Linear | Program |
| | Quit |

5.2.1 Buttons

- Article: All available scripts (articles) are listed in this roll-down menu and can be selected.
- Program (Enter): The present selected article with its settings will be programmed into the connected Vert-X rotary sensor
- Quit (Esc): Exit from the Vert-X Commander

5.3 Index position

Note: You have to ensure that the shaft of the Vert-X rotary sensor is aligned to your desired mechanical start angle.

6 Saving of the script files

The <<Save>> function in the Vert-X Commander – Generator accurately is a <<save as>> function. You have to define the file name of your parameter-file (e.g. your product article-no.) and you are able to choose the folder where you wish to save the file. (Please take a look on chapter 6.xx)

6.1 Default folder

The default path is:

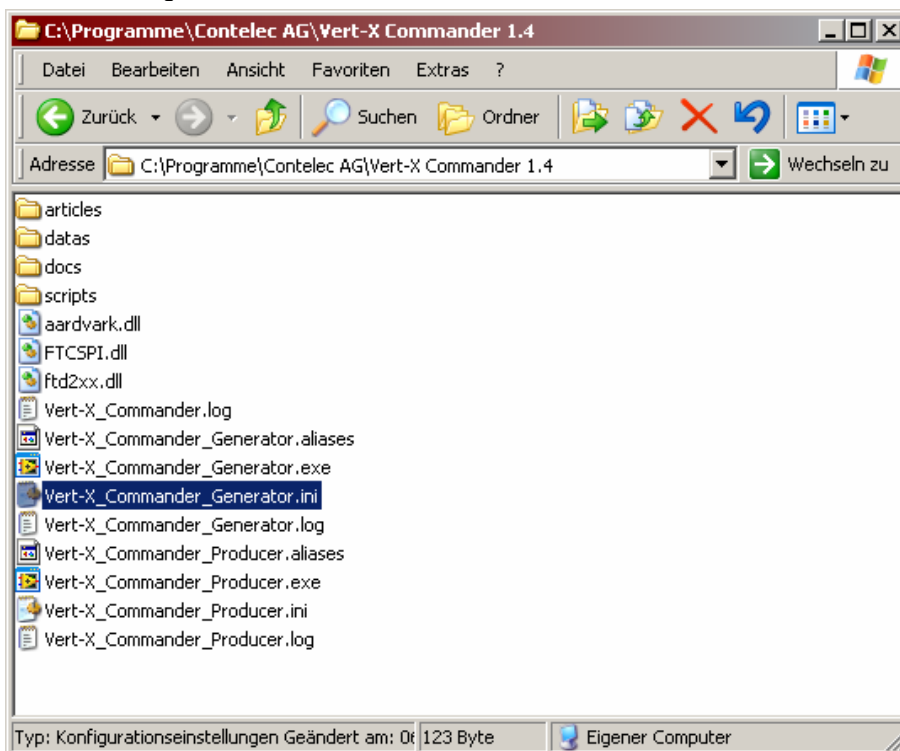


If you do not choose a different folder, the parameter-files which you generate in the Vert-X Commander – Generator will be saved in the default folder. All files which are saved in the default folder are listed in the article roll-down menu of the Vert-X Commander – Producer.

6.2 Change default folders

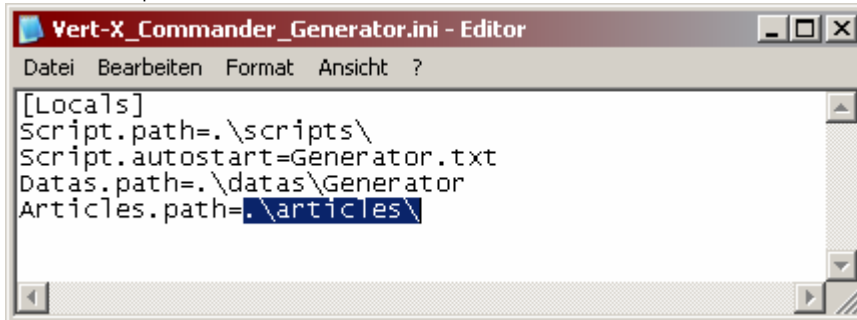
The default folders of the Vert-X Commander – Generator and Vert-X Commander – Producer can be changed in the corresponding ini-files.

6.2.1 Change default folder of the Vert-X Commander – Generator



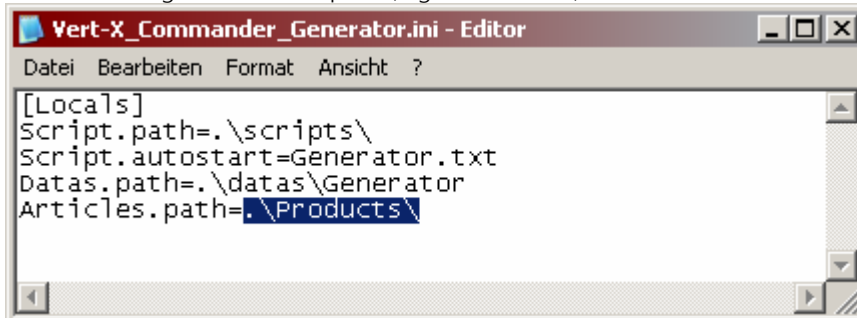
Open the ini-file with the text editor.

The default path is: .\articles\



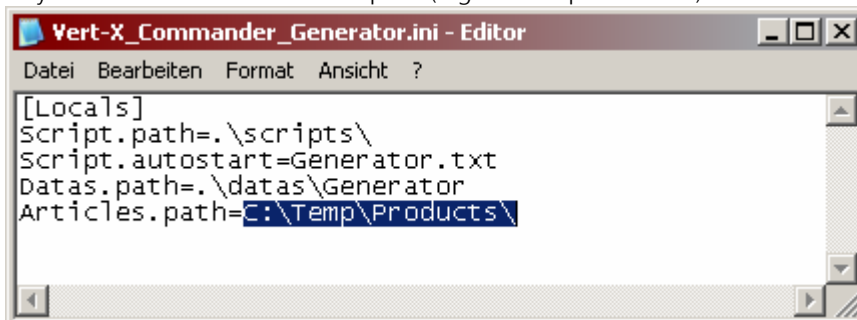
```
Vert-X_Commander_Generator.ini - Editor
Datei Bearbeiten Format Ansicht ?
[Local's]
Script.path=.\scripts\
Script.autostart=Generator.txt
Datas.path=.\datas\Generator
Articles.path=.\articles\
```

You can change the relative path (e.g. .\Products\)



```
Vert-X_Commander_Generator.ini - Editor
Datei Bearbeiten Format Ansicht ?
[Local's]
Script.path=.\scripts\
Script.autostart=Generator.txt
Datas.path=.\datas\Generator
Articles.path=.\Products\
```

or you can also use an absolute path (e.g. C:\Temp\Products\)



```
Vert-X_Commander_Generator.ini - Editor
Datei Bearbeiten Format Ansicht ?
[Local's]
Script.path=.\scripts\
Script.autostart=Generator.txt
Datas.path=.\datas\Generator
Articles.path=C:\Temp\Products\
```

6.2.1.1 Important notes

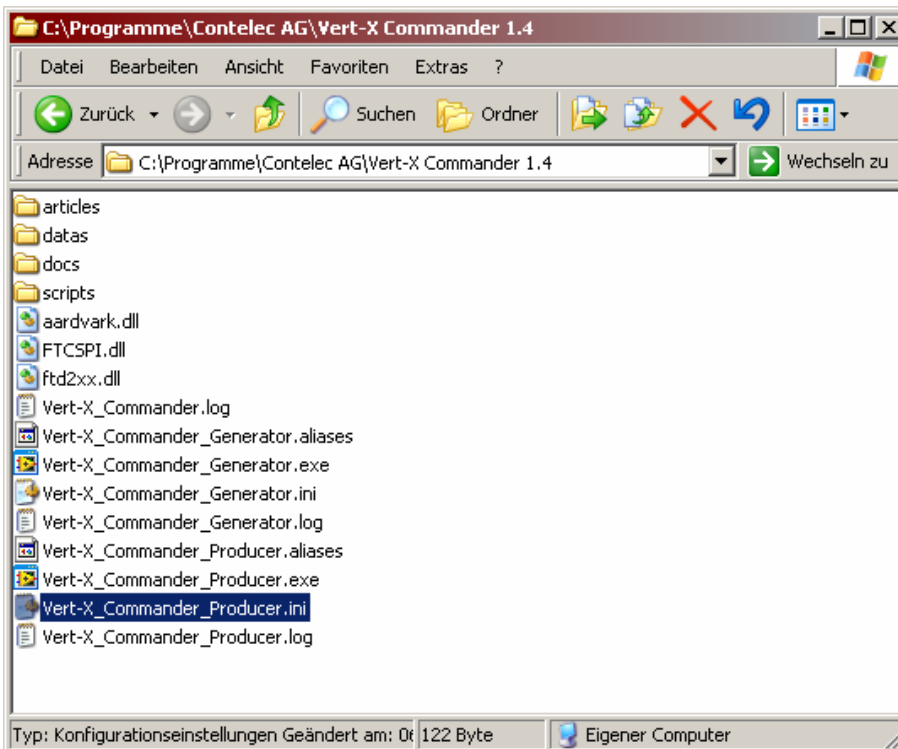
Use an existing path only, otherwise the files will eventually not be saved properly and you can not find them.

The change of the path will be valid after a restart of the Vert-X Commander – Generator.

If the default path of the Vert-X Commander – Generator is not identical to the default path of the Vert-X Commander – Producer, new generated parameter-files are not available in the Vert-X Commander – Producer.

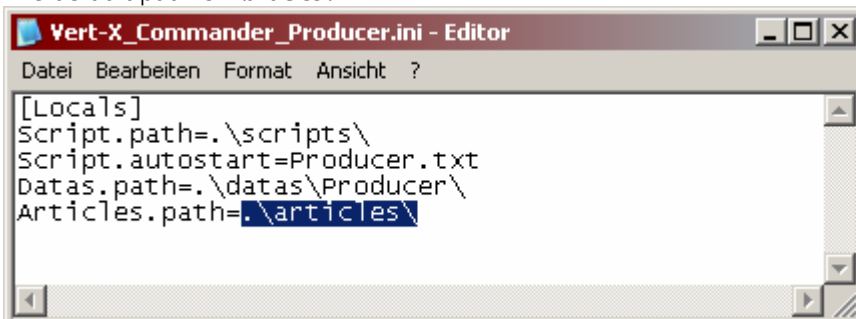
It is necessary to copy or move the files manually.

6.2.2 Change default folder of the Vert-X Commander – Producer



Open the ini-file with the text editor.

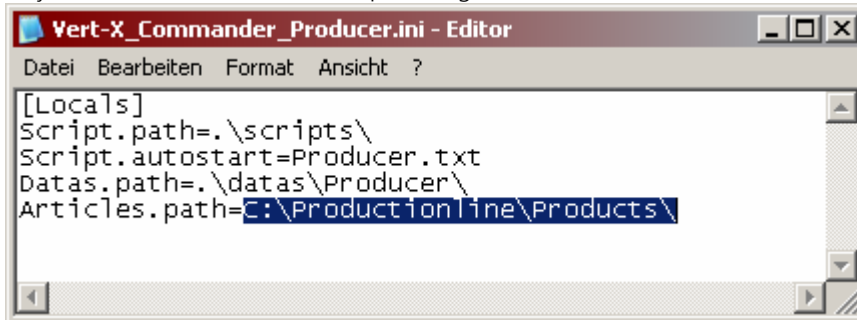
The default path is: .\articles\



You can change the relative path (e.g. .\Products\)



or you can also use an absolute path (e.g. C:\Productionline\Products)



6.2.2.1 Important notes

Only use an existing path, otherwise the files will eventually not be saved properly and you can not find them again.

The change of the path will be valid after a restart of the Vert-X Commander – Producer.

Only the files which are saved in the folder of the defined path are listed in the article roll-down menu of the Vert-X Commander – Producer.

If the default path of the Vert-X Commander – Generator is not identical to the default path of the Vert-X Commander – Producer, new generated parameter-files are not available in the Vert-X Commander – Producer. It is necessary to copy or move the files manually.

New parameter-files are visible in the article roll-down menu after restart of the Vert-X Commander – Producer.

7 Software license agreement

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