

## User manual Vert-X EasyAdapt

Version 1.3 – February 2011



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## Contents

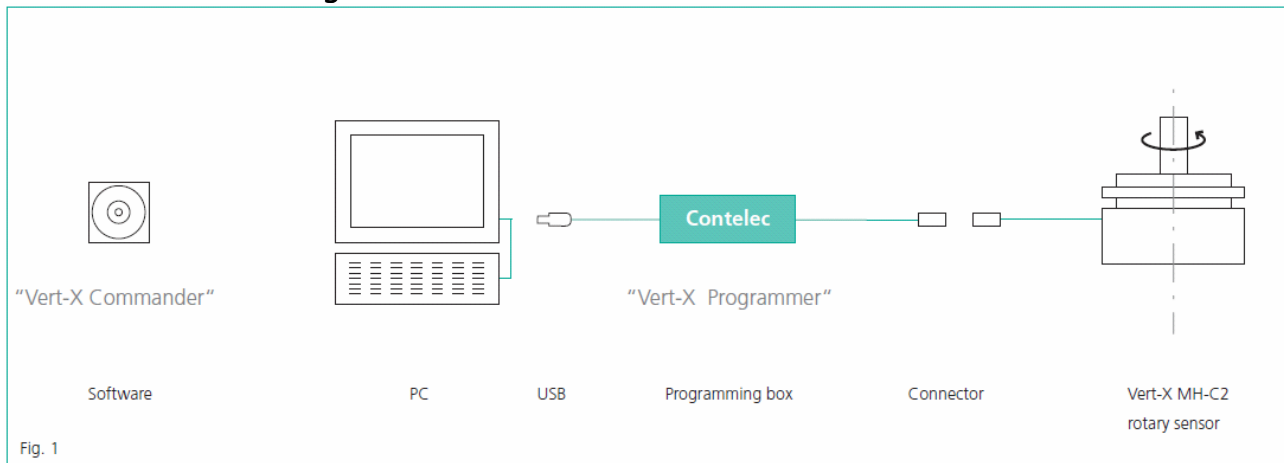
1	Introduction.....	3
1.1	Schematic drawing .....	3
1.2	Content of the Vert-X EasyAdapt.....	3
1.3	Additionally you need .....	3
2	Installation .....	4
3	Vert-X Programmer.....	5
3.1	Pin assignment of the sensor connector (Fig. 1) .....	5
3.2	Power supply (Fig. 2): .....	5
3.2.1	You use a 5VDC Vert-X product.....	5
3.2.2	You use a 24VDC Vert-X product.....	5
3.3	Connection.....	5
4	Vert-X Commander – Generator .....	6
4.1	Definition .....	7
4.1.1	Characteristics.....	7
4.1.1.1	Linear output function (CW) .....	8
4.1.1.2	Linear output function (CCW).....	8
4.1.1.3	Linear output function with intermediate plateau (CW) .....	9
4.1.1.4	Linear output function with intermediate plateau (CCW).....	9
4.1.1.5	Linear V-output function (High-Low-High) .....	10
4.1.1.6	Linear V-output function (Low-High-Low).....	10
4.1.2	Switch functions:.....	11
4.1.2.1	Switch step (Low-High).....	11
4.1.2.2	Switch step (High-Low).....	11
4.1.2.3	Switch pulse (Low-High-Low).....	12
4.1.2.4	Switch pulse (High-Low-High).....	12
4.2	Visualisation .....	13
4.2.1	Display .....	13
4.2.2	Output information .....	13
4.2.3	Vert-X rotary sensor information .....	13
4.2.3.1	Status “Ready” .....	13
4.2.3.2	Status “Programming” .....	13
4.2.3.3	Status “Searching” .....	13
4.3	Operation .....	14
4.3.1	Buttons .....	14
5	Vert-X Commander – Producer .....	15
5.1	Visualisation .....	16
5.1.1	Output information .....	16
5.1.2	Vert-X rotary sensor information .....	16
5.1.2.1	Status “Ready” .....	16
5.1.2.2	Status “Programming” .....	16
5.1.2.3	Status “Searching” .....	16
5.2	Operation .....	16
5.2.1	Buttons .....	16
5.3	Index position .....	16
6	Saving of the script files .....	17
6.1	Default folder .....	17
6.2	Change default folders .....	17
6.2.1	Change default folder of the Vert-X Commander – Generator .....	17
6.2.1.1	Important notes.....	18
6.2.2	Change default folder of the Vert-X Commander – Producer .....	19
6.2.2.1	Important notes.....	20
7	Software license agreement.....	21
7.1	License grant, Rights and Duties of the Licensee .....	21
7.2	Limited Warranty .....	21
7.3	Duration of the contract .....	21
7.4	Applicable Law .....	21
7.5	Place of Jurisdiction .....	21

## 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

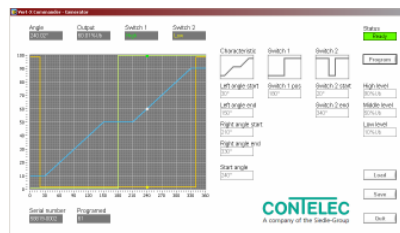


### 1.2 Content of the Vert-X EasyAdapt

- 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/](http://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.



Vert-X\_Commander  
Generator



Vert-X\_Commander  
Producer

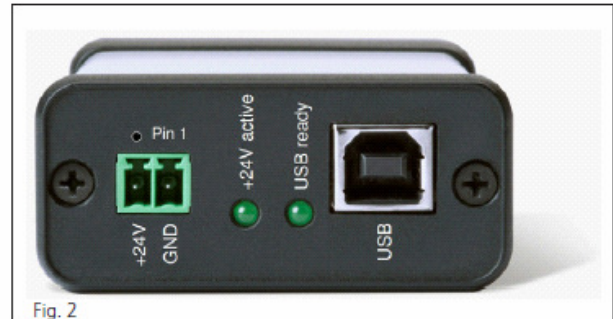
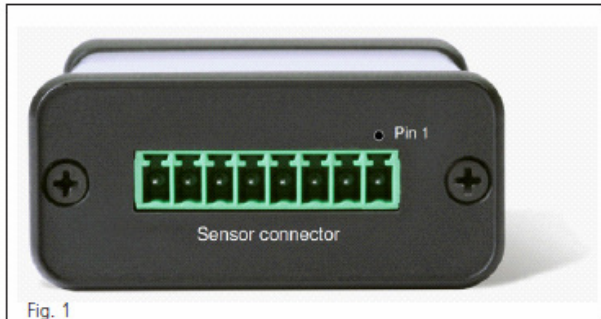
For further questions or support please contact:

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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.

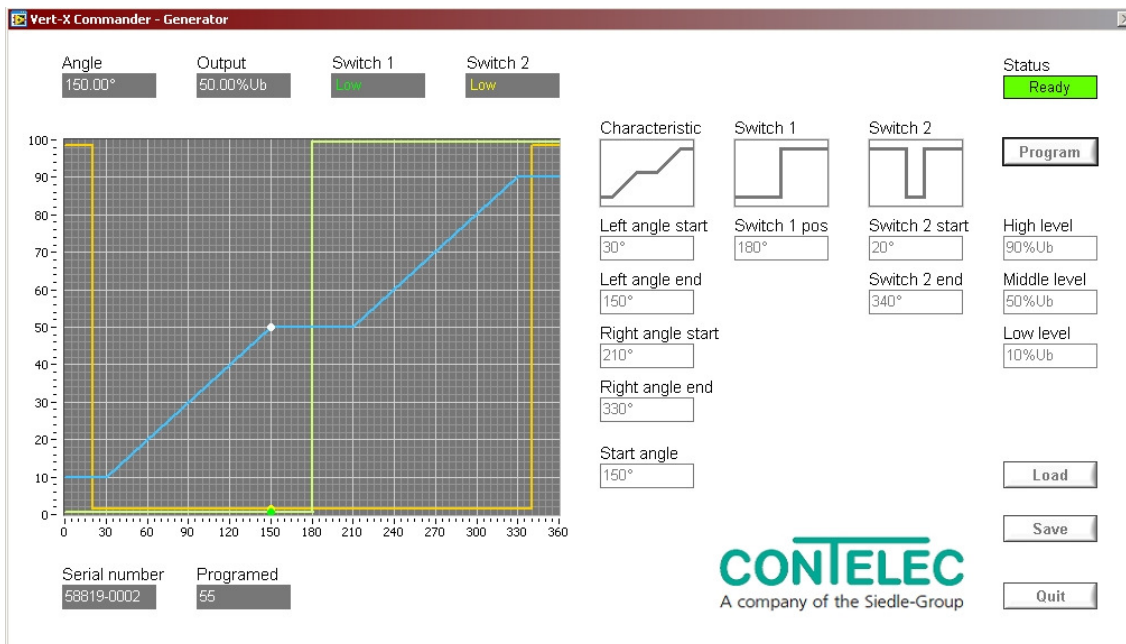
##### 3.2.2 You use a 24VDC Vert-X product

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).

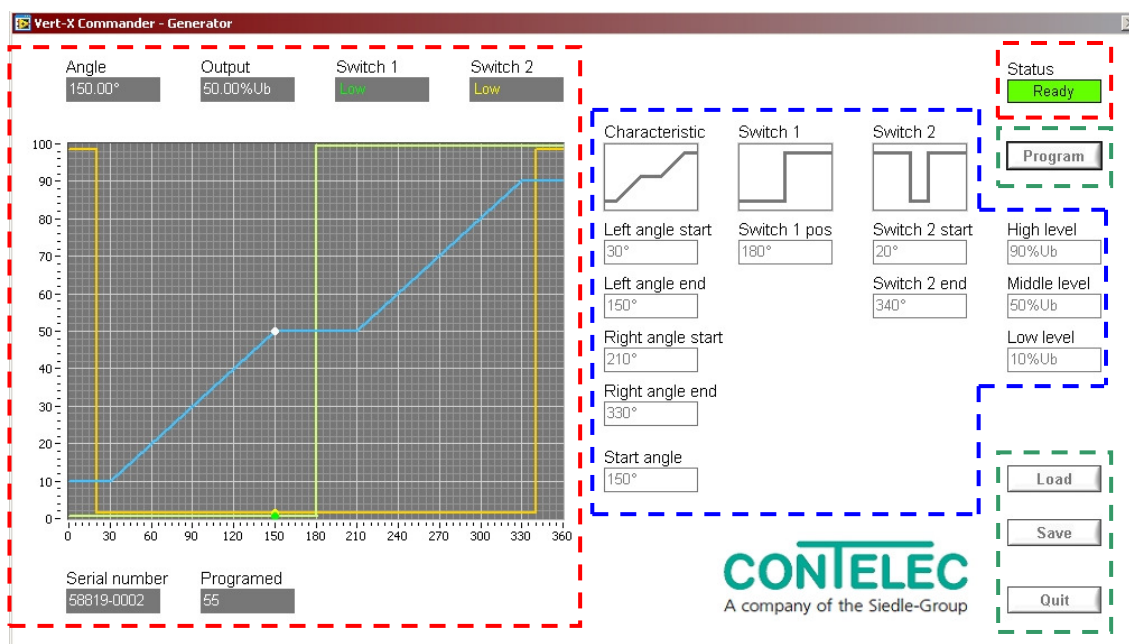
## 4 Vert-X Commander – Generator



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

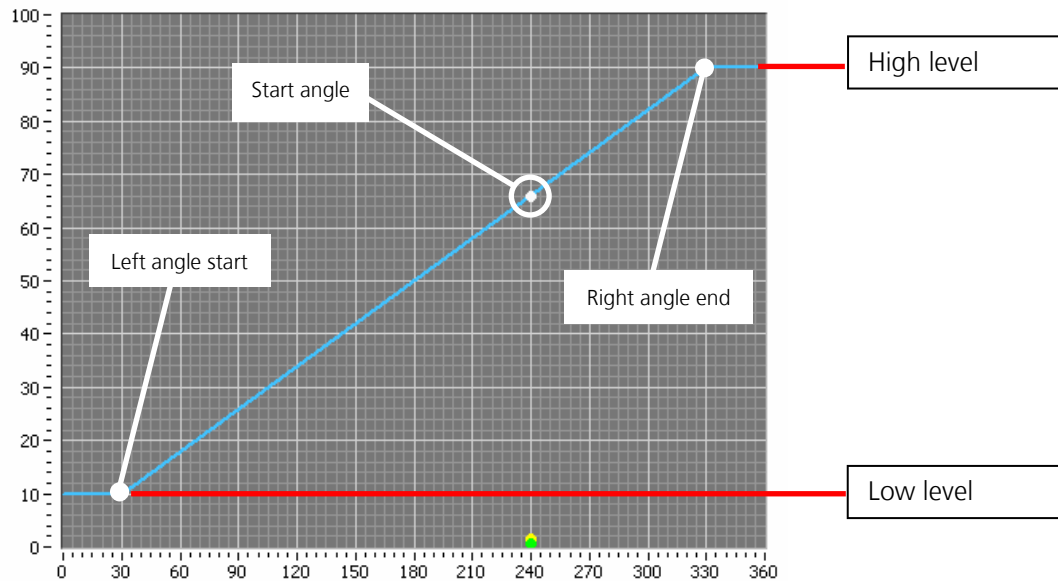
You can choose from the six default characteristics.

		Linear output function (CW / CCW)
		Linear output function with intermediate plateau (CW / CCW)
		Linear V-output function (High-Low-High / Low-High-Low)

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](mailto:sales@contelec.ch)), the programmable Vert-X products are not limited to these basic characteristics.



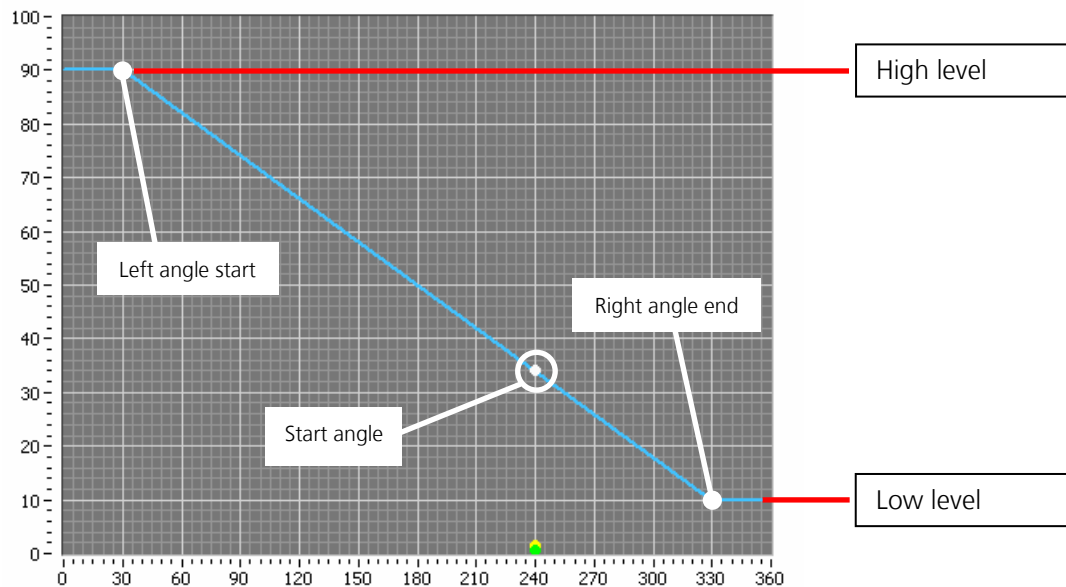
#### 4.1.1.1 Linear output function (CW)



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)

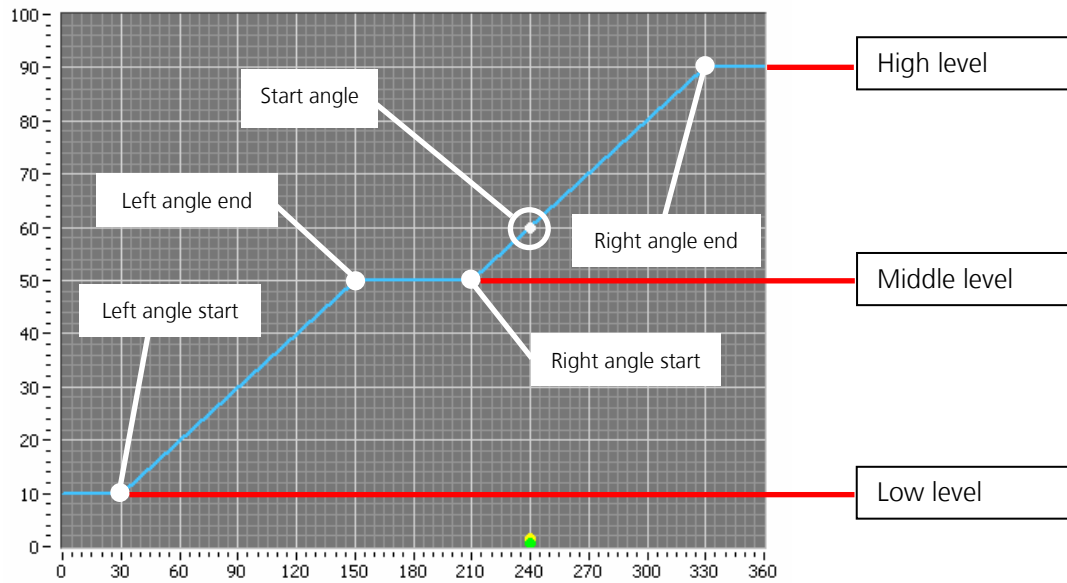


Parameters:

- 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



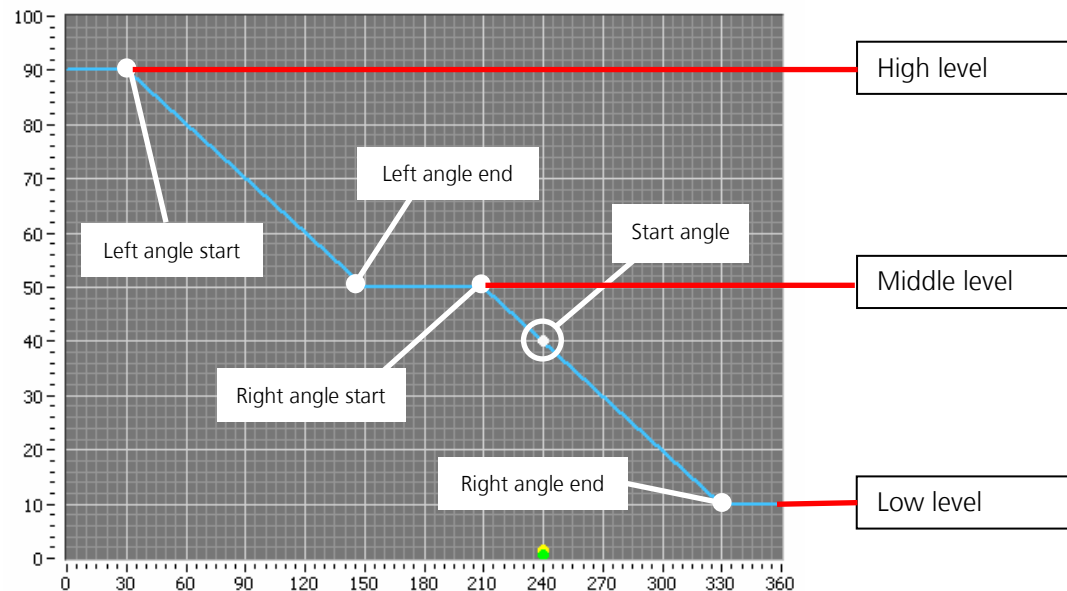
#### 4.1.1.3 Linear output function with intermediate plateau (CW)



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

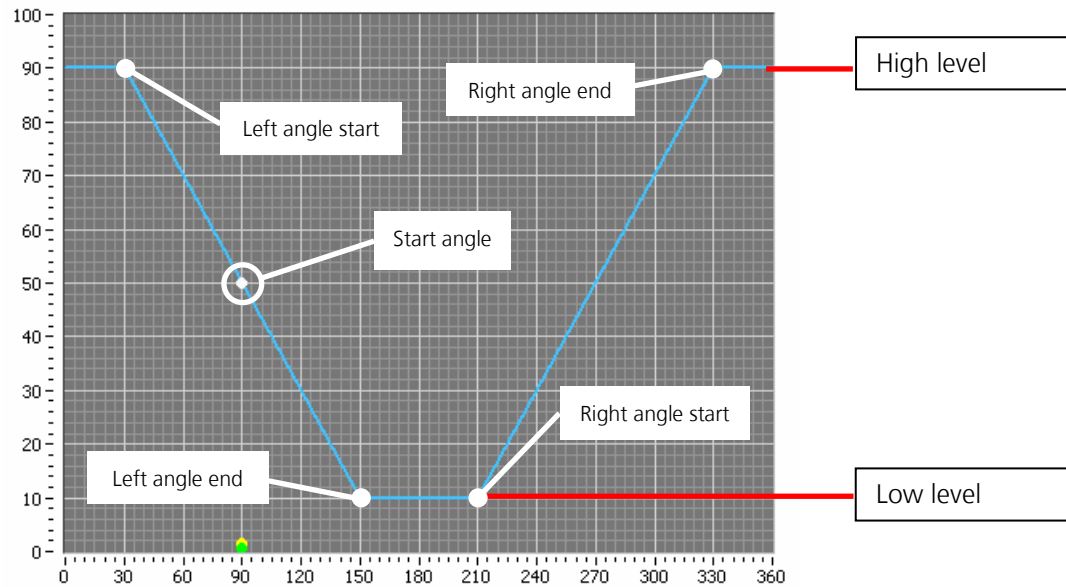
#### 4.1.1.4 Linear output function with intermediate plateau (CCW)



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

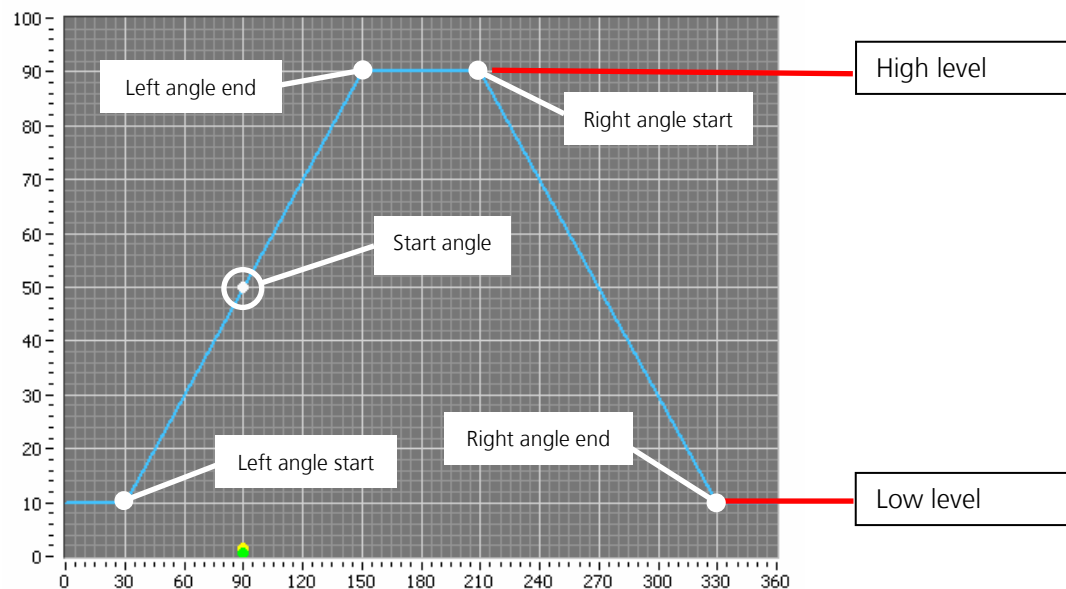
#### 4.1.1.5 Linear V-output function (High-Low-High)



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.



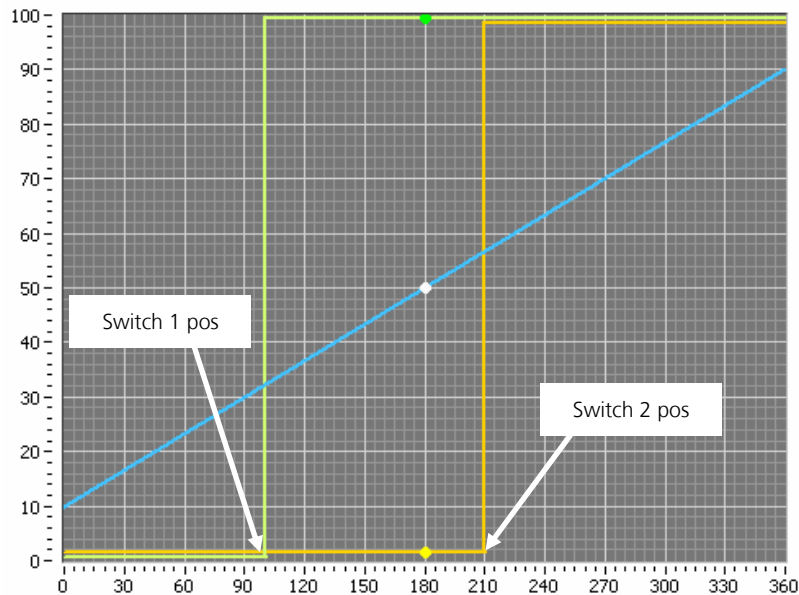
Switch step (Low-High / High-Low)



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](mailto: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.

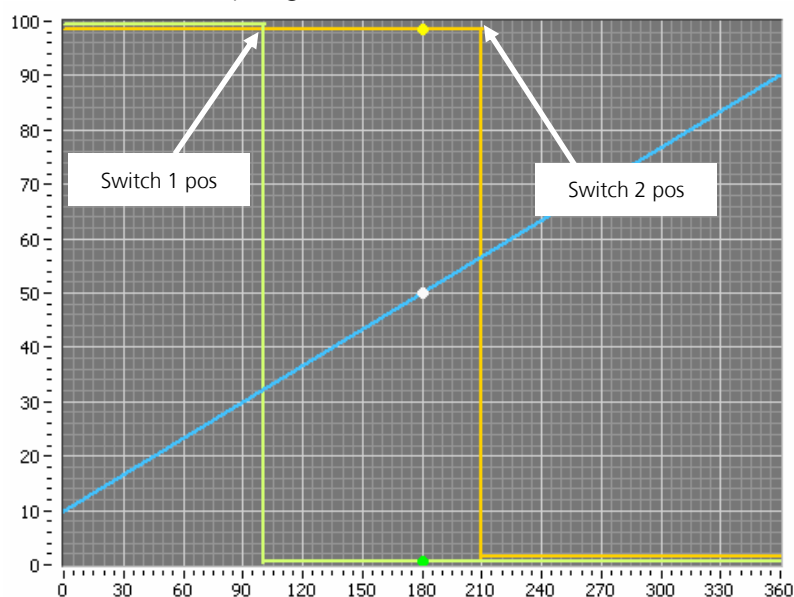
##### 4.1.2.1 Switch step (Low-High)



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

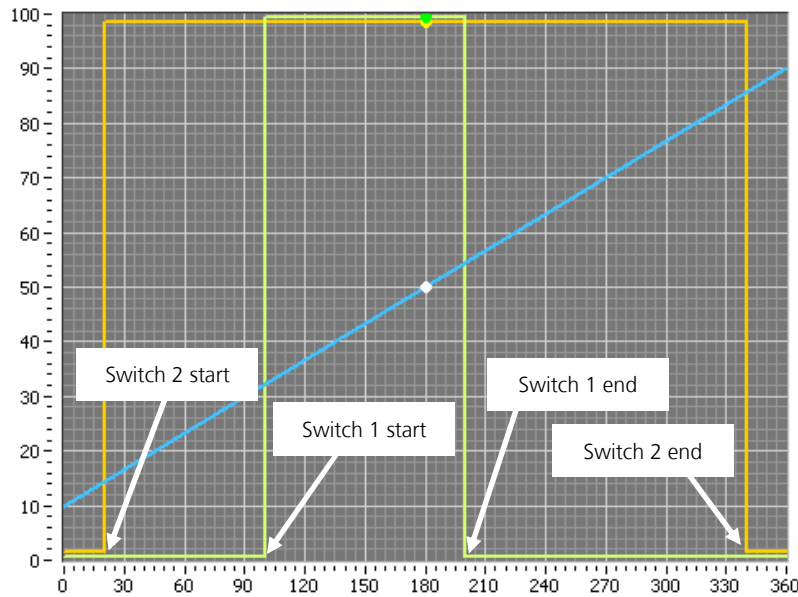
##### 4.1.2.2 Switch step (High-Low)



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

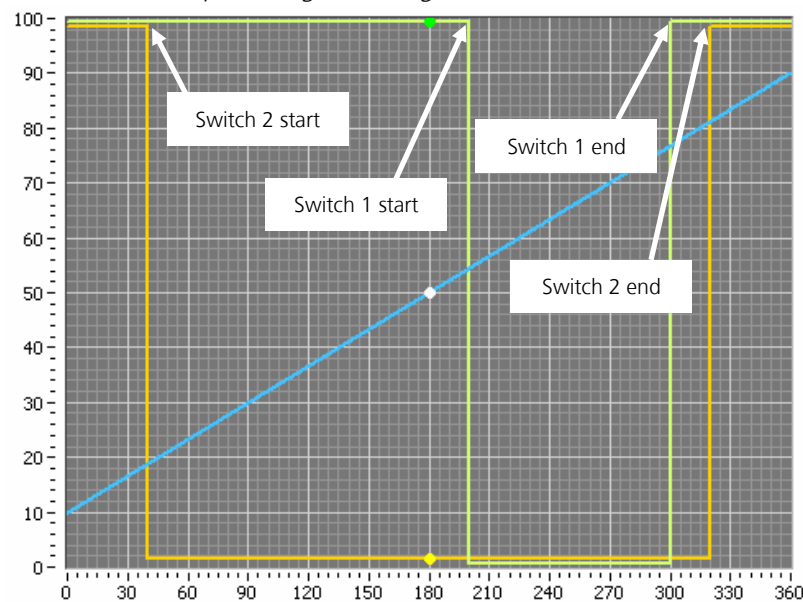
#### 4.1.2.3 Switch pulse (Low-High-Low)



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)

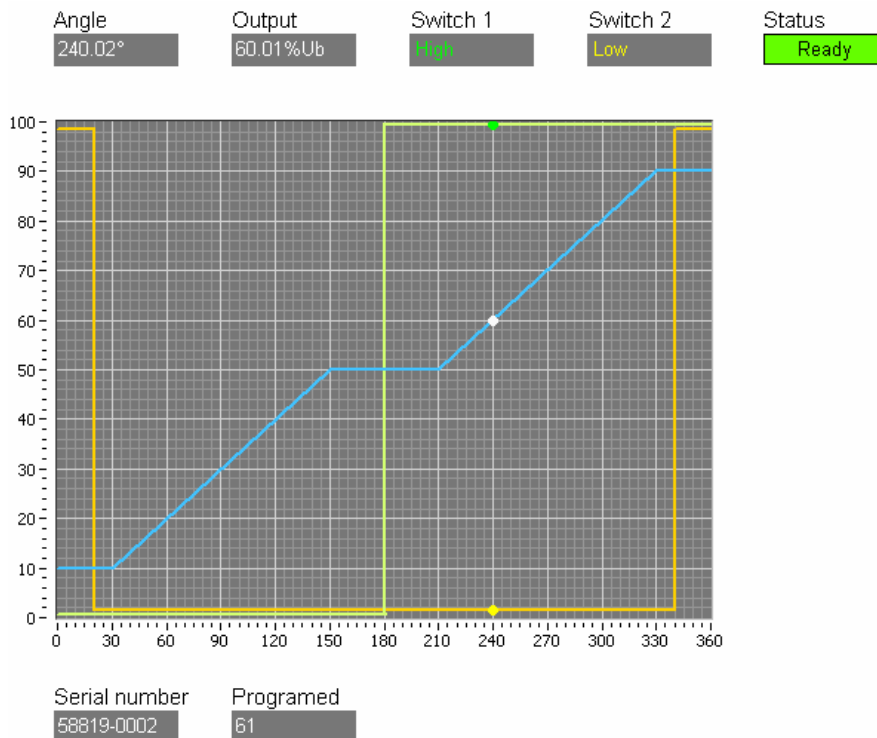


Parameters:

- 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

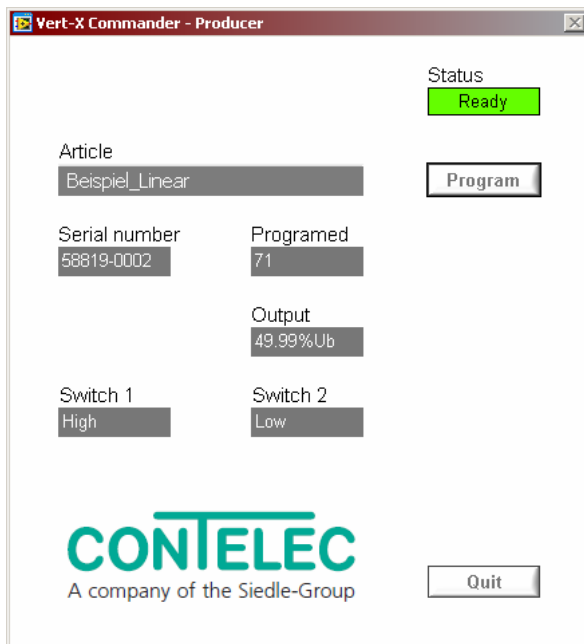
## 4.3 Operation



### 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   |

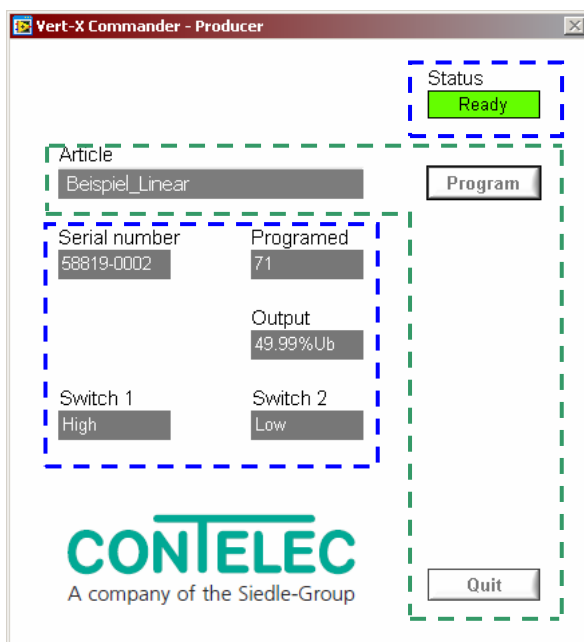
## 5 Vert-X Commander – Producer



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 58819-0002	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:



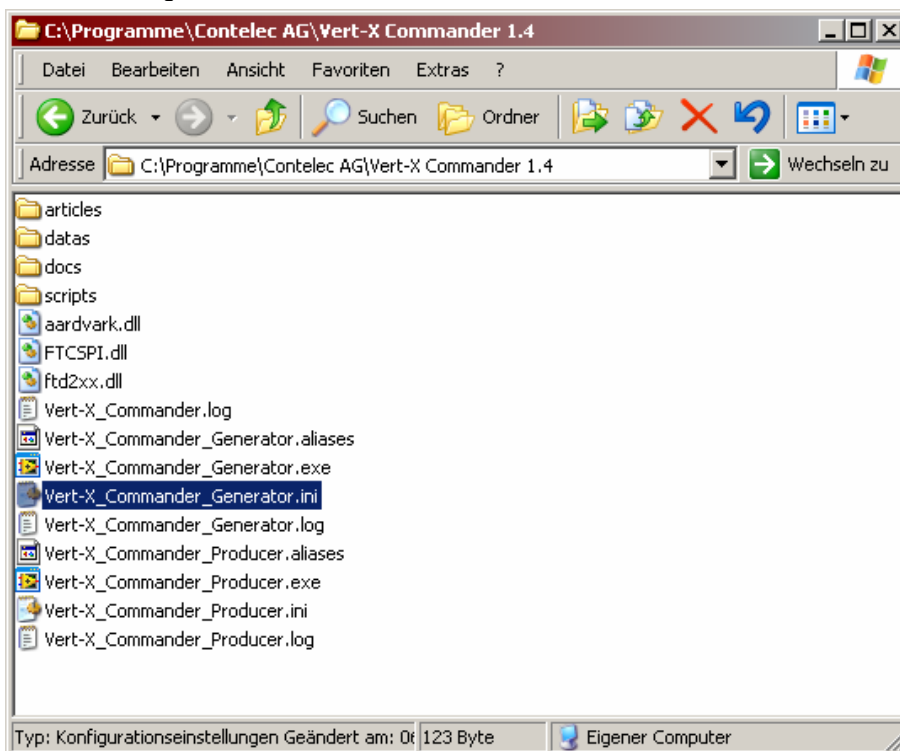
If you do not choose a different folder, the parameter-files which you generate in the Vert-X Commander – Generator will be saved in the default folder.

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

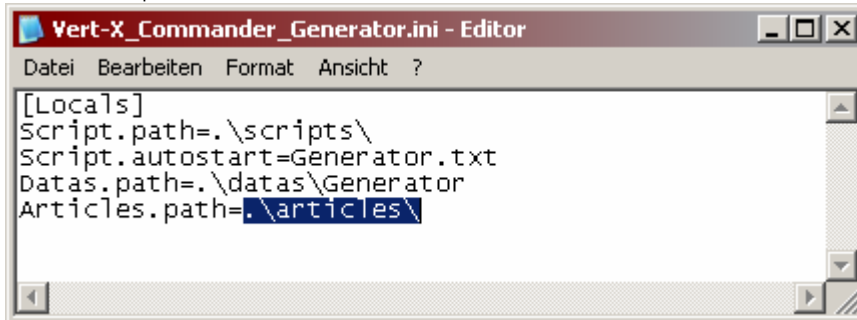
The default folders of the Vert-X Commander – Generator and Vert-X Commander – Producer can be changed in the corresponding ini-files.

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

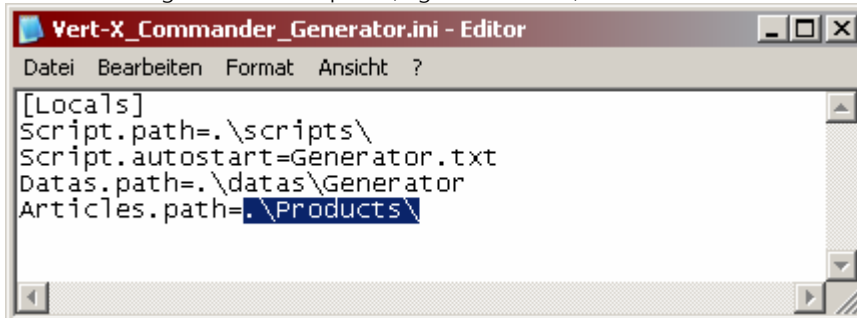


Open the ini-file with the text editor.

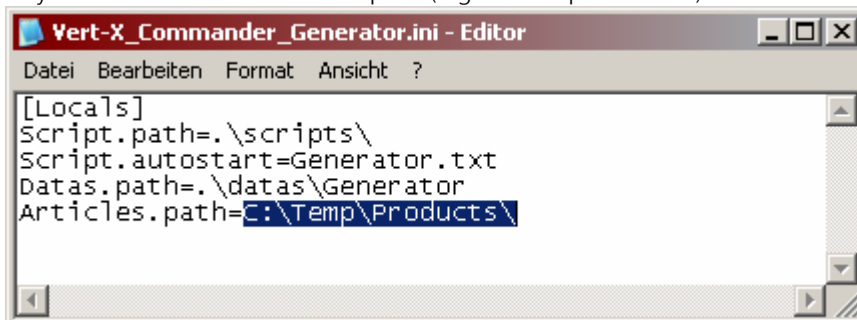
The default path is: .\articles\



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



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



#### 6.2.1.1 Important notes

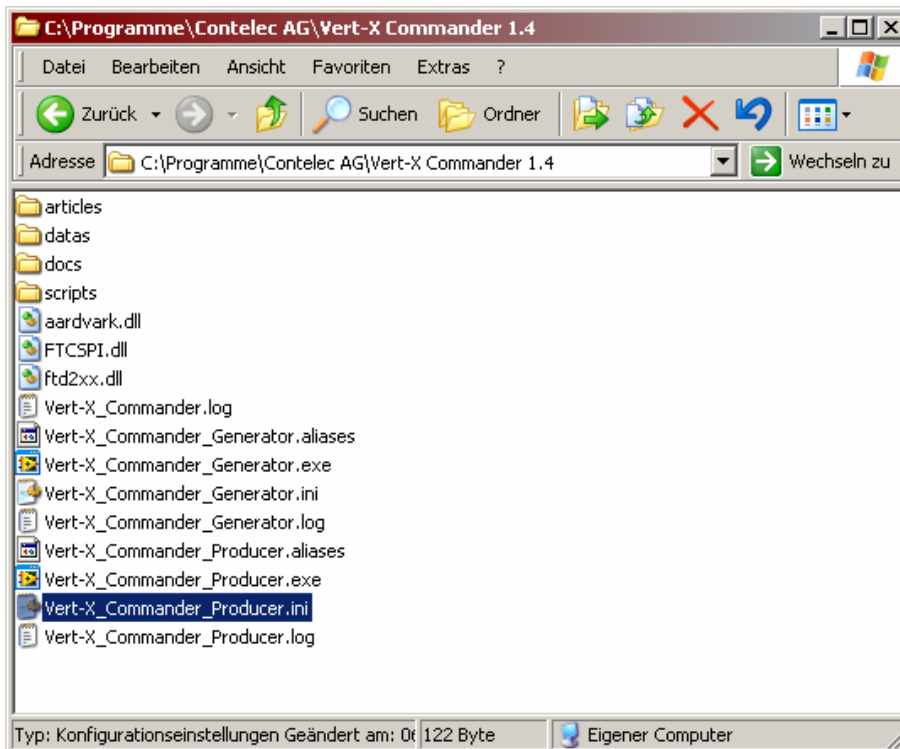
Use an existing path only, otherwise the files will eventually not be saved properly and you can not find them.

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.

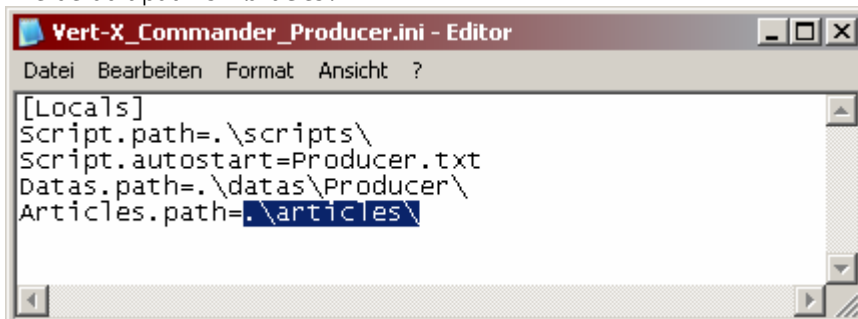
It is necessary to copy or move the files manually.

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



Open the ini-file with the text editor.

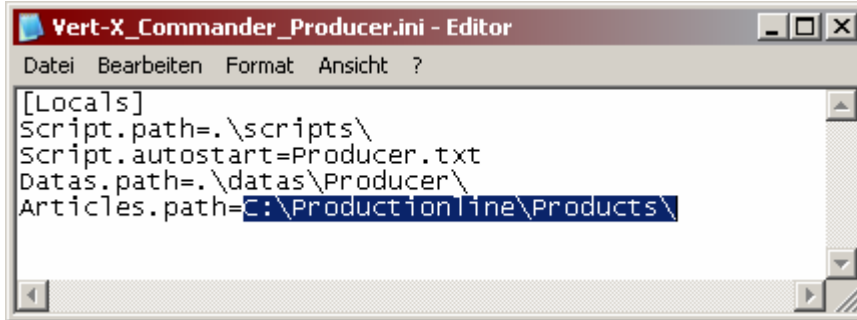
The default path is: .\articles\



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

Please read this Software License Agreement carefully before downloading or using the Software. By opening the package, downloading the SOFTWARE, or using the equipment that contains the PRODUCT AND THE SOFTWARE, you are consenting to be bound by this agreement.

### 7.1 License grant, Rights and Duties of the Licensee

Contelec AG grants Licensee a non-exclusive and non-transferable license to use the sensor Product and the Software in accordance with the purpose intended.

Title, ownership rights, intellectual property rights, confidential business information and other industrial property rights in the Product/Software shall remain with Contelec AG.

Licensee is entitled to program the Product (Sensor) by using the delivered programming device and the delivered Software.

Licensee may not: (1) modify the Software, (2) decompile the Software, (3) disassemble, reverse engineer, or otherwise attempt to derive the source code for the Software, (4) transfer the Software to another operating system, (5) make the Software available to a third party.

Licensee takes all reasonable measures to prevent any unauthorised use or access, duplication, sell or publication of the Software.

### 7.2 Limited Warranty

It is up to the Licensee to select the appropriate Software. Licensee shall bear the full risk as to the quality and performance of the Software, the results obtained and for the suitability of the Software for the intended use.

Contelec AG warrants, that (a) the data carrier containing the Software is at date of delivery free of defects in materials and workmanship, and that (b) the Software (but not the up-dates) works in accordance with the description of the services for the warranty period of one (1) year from purchase. This warranty does not apply if the Software has not been used in accordance with the purpose intended. Contelec AG does not guarantee that the Software is free of defects, does operate without interruption, meets the expectations of Licensee, works in combination with hard- or software of third parties or that all possible program errors will be fixed.

Licensee's exclusive remedy and Contelec AG's entire liability under this limited warranty will be at Contelec AG's option and own expense to (a) replace the data carrier and/or the Software or (b) to repair the Software, or (c) to terminate this Agreement and to return the paid fee provided that the Software will be returned. This warranty applies to all replaced data carriers and replaced Software lasting until the time of the original warranty of the delivered items would expire.

Any further warranty and duty of Contelec AG is explicitly excluded. In particular but not exclusively, Licensor is not liable for direct, indirect or consequential losses of any kind whatsoever, including loss of profit, unrealised cost reductions, loss of data, increased costs of the Licensee or other financial losses resulting from or in connection with the sell, the granting of the rights of use, the use, the Software failure or other technical problems with services provided by the Software. Licensee is solely responsible for any material damages or injury to life and limb caused by the programming of the Sensor by using the delivered programming device. That applies in particular as well for new programming carried out by the Licensee. Contelec AG can only be held liable for damages, caused by an application (detailed description of field operation)

which had been approved in written and only if the Licensee verifiably has not programmed or modified the Sensor. Any liability for resellers is excluded.

Licensee shall with no delay cease the usage of the Software if a deficiency of the Software that could cause a warranty duty is detected. Such deficiency has to be notified to Contelec AG in written within the notification period. Licensee shall submit to Contelec AG a documentation proving the existence of the defect. The documentation period shall be thirty (30) days from the delivery date (for a deficiency of the data carrier) respectively one (1) year from the delivery date (for a deficiency of the Software). The Licensee has to enclose the proof of purchase. Contelec AG may ask the Licensee for support in analyzing the causes and circumstances of the deficiency as well as for support in developing and testing correction codes for different solutions at their own expense.

### 7.3 Duration of the contract

This agreement shall come into force as soon as the Licensee has agreed to all of the terms of this agreement. This License is effective until terminated. The parties may terminate this License with a notification period of one (1) month.

Upon termination of this agreement, all usage rights of the Licensee shall cease.

Within thirty (30) days after the termination of this agreement, Licensee shall destroy or return to Contelec AG the Software including all copies or partial copies, all modified components of the Software or of the interfaces to other programs or data systems and – where they exist – security installations. Licensee shall confirm the destruction, if applicable, in writing.

### 7.4 Applicable Law

This Agreement is governed by and interpreted in accordance with Swiss Material Law. International Private Law and the rules of the Convention on the international sale of goods (CISG) are explicitly excluded.

### 7.5 Place of Jurisdiction

Any disputes or claims in connection with or relating to this Agreement shall be subject to the exclusive jurisdiction of the ordinary courts of Biel, Switzerland. However, Contelec AG is entitled to proceed before the courts where Licensee has its place of incorporation or place of business.

Contelec AG  
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