

# Manual Configuration RS232 USB HID Keyboard Converter Version 5.1



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## Publisher

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## Important notes

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# 1 Introduction

## 1.1 About this operating manual

This manual describes the installation, configuration and operation of the RS232 USB HID Keyboard Converter.

## 1.2 General Information

With the RS232 USB HID Keyboard Converter you can connect devices with standard RS232 data interfaces like scales, barcode scanners, RFID readers etc. to a standard USB port of your computer and transfer your data like a USB keyboard.

The data received at the adapter from the device connected via RS232 can be transferred to the computer unchanged or adapted via processing actions.

No special driver is required for regular use of the adapter, as it is recognized as a standard USB keyboard after it is connected to the computer. Only for configuration a Virtual USB ComPort Driver has to be installed, this can also be done on another computer than the target system.

## 2 Scope of delivery

The scope of delivery of the RS232 USB HID Keyboard Converter consists of the following components:



- RS232 USB HID Keyboard Converter
- USB-Stick
  - o Configuration software for Computer with Microsoft Windows operating system
  - o Virtual ComPort Driver - for the configuration of the adapter
  - o Manual

Unpack all components of the keyboard converter and check them for completeness and possible transport damage.

## 3 Storage

Incorrect storage when not in use can cause damage to the device. Store the converter and additional components in a clean, dry and dust-free place. The storage temperature should be between -20 and +50°.

## 4 General safety regulations

### 4.1 Principles

The RS232 USB HID Keyboard Converter may only be operated in perfect technical condition.

### 4.2 Intended use

The RS232 USB HID Keyboard Converter is only suitable for RS232 device interfaces and USB ports that comply with current standards.

### 4.3 Foreseeable misuse

Warranty and liability claims for personal injury and damage to property are excluded if they are attributable to one or more of the following causes.

- Improper connection, commissioning, operation and maintenance of the adapter.
- Operating the adapter in a faulty condition.
- When used in a humid environment.

### 4.4 Extension and reconstruction

Structural modifications to the RS232 USB HID Keyboard Converter and accessories generally require the written consent of Bayerische Waagenbau Werkstätte - Althaus GmbH. In case of violation any liability and warranty expires.

## 5 Hardware

### 5.1 Adapter Interfaces

The adapter is equipped with two interfaces. One cable with USB 2.0 plug type A for configuration of the adapter or emulated keyboard for normal operation. Furthermore a cable with RS232 interface to connect a device, depending on the order with 9 pin or 25 pin plug or socket.



## 5.2 RS232 interface on the connected device

The RS232 interface of the device connected via the USB HID adapter must be parameterized or its settings for the configuration of the adapter must be read out. If necessary, this information can also be found in the manual of the RS232 device. The settings of the adapter must match those of the RS232 device.

During the configuration of the adapter, deactivate cyclic data output on the connected RS232 device as this can lead to problems.

## 5.3 USB Keyboard output

The characters output via the USB HID keyboard correspond to a standard keyboard (101/102 keys) with the QWERTZ keyboard layout for German-speaking countries.

German-language keyboards have the keys for Y and Z in comparison to American keyboards.

The representation of the characters corresponds to Windows Character table 'Windows Western'.

### ATTENTION!


Depending on the configuration and connected device, the adapter sends its data to the computer in the focused input field. Also in password fields e.g. Windows Login, which can trigger a locking of the password! If the adapter cyclically outputs data via USB, disconnect it from the computer when you do not need it.

## 5.4 LED status at the adapter

The LED built into the adapter indicates the current status.

 LED lights green - permanent light

Adapter is in processing mode, normal operation after start as keyboard.

 LED lights red - permanent light

Configuration mode, called by the special start with pressed Config key.

 -  -  -  -  LED red - fast flashing

The USB-HID connection between adapter and computer cannot be established.

 LED lights up blue

RS232 Data Processing Send - Receive, USB Serial - Configuration

## 5.5 Config button

To operate the adapter in configuration mode, press the Config button while the USB plug is connected to the computer. It is best to use a paper clip for this purpose. If the configuration start is successful, the LED lights up red.



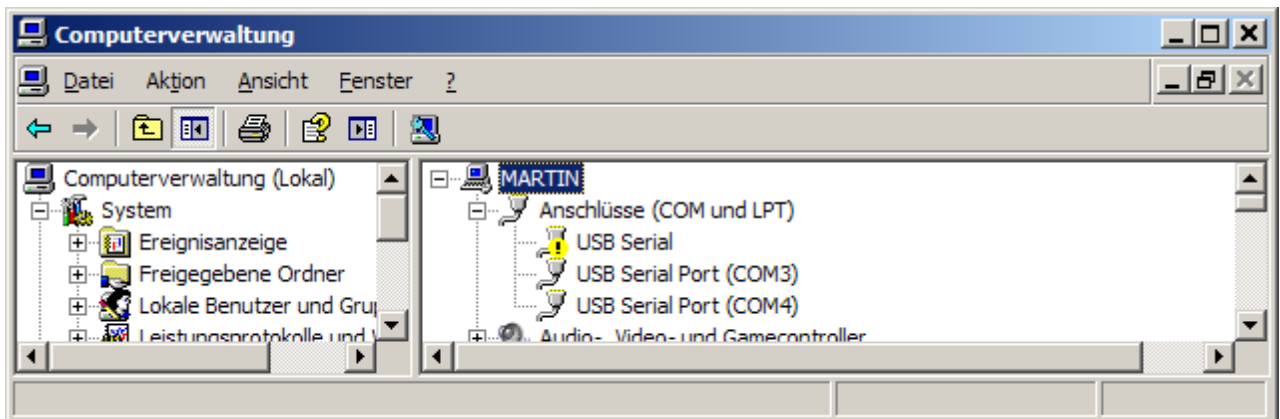
## 6 Driver for Windows®

The RS232 USB HID Keyboard Converter requires the installation of a Virtual ComPort (VCP) driver for configuration. The installation must be done with administrator rights on the Windows® computer, please contact your system administrator.

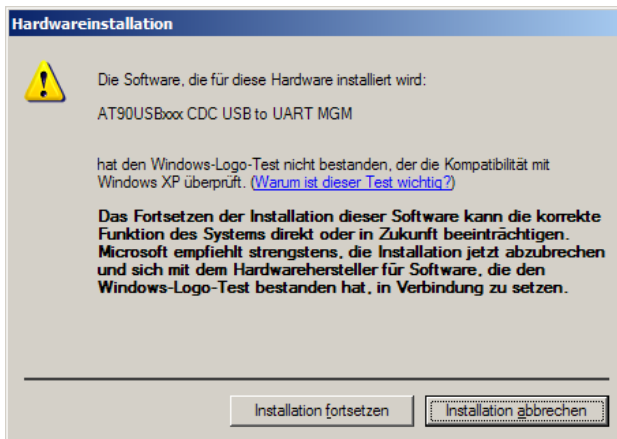
### 6.1 Installing the Driver

Connect the adapter to the computer via USB while holding down the Config key to set it to configuration mode. The LED lights up red.

Open the Windows® Device Manager, where a new device with an exclamation mark is displayed under "Ports (COM and LPT)" or "Other devices".



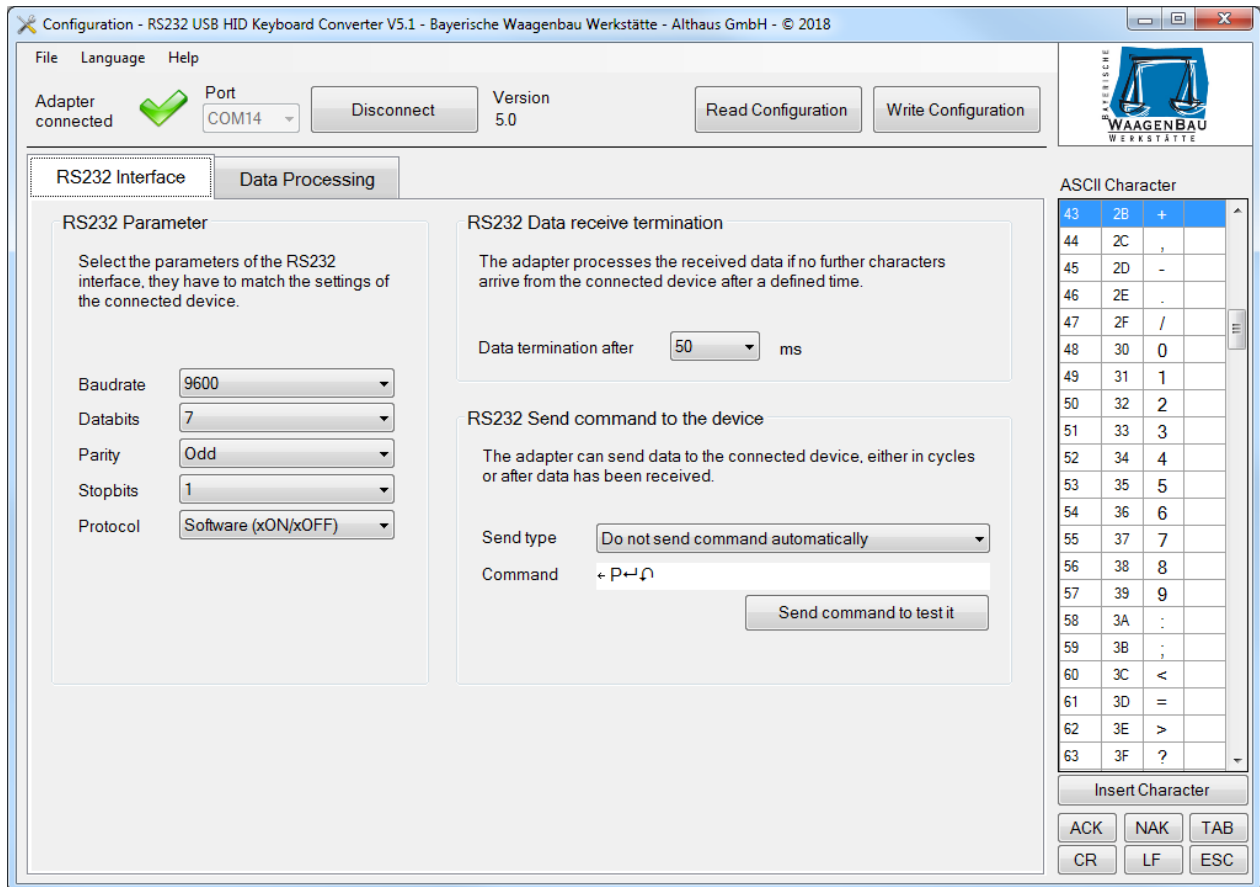
Install the driver for the device, you will find it on the supplied USB stick in the Driver directory. The driver does not yet have a signature for Windows and the following message appears:



With 'Continue installation', the driver is installed. After that the Virtual Serial ComPort is available, in this example COM6. The COM number varies during installation.



## 7 Configuration software



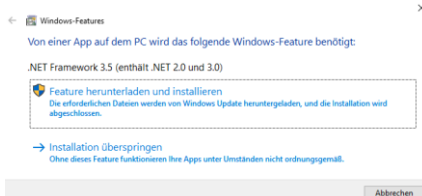
The configuration software for the RS232 USB HID Keyboard Converter can be found on the supplied USB stick in the directory "Konfigurationsprogramm und Dokumentation" as well as in the latest version on the Internet at [www.bayernwaage.de](http://www.bayernwaage.de).

With it you can set the RS232 interface parameters of the adapter and configure data processing of the RS232 receive data.

### 7.1 System requirements

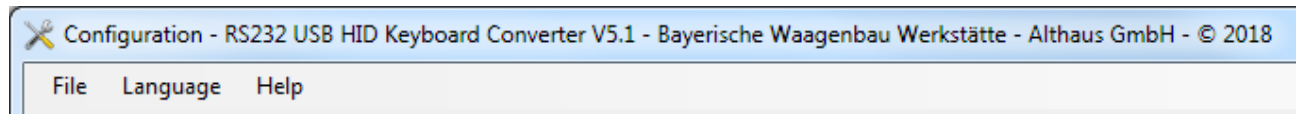
The configuration software requires the following computer system requirements:

- Operating system Microsoft Windows® 7 or higher.
- Microsoft .NET Framework 3.5 SP1, already installed on Windows® 7, on Windows® 10 the Windows feature must be installed first.



- No installation of the configuration software necessary, start from USB stick possible.
- Minimum screen resolution 1024 x 768 pixels.

## 8 Menu



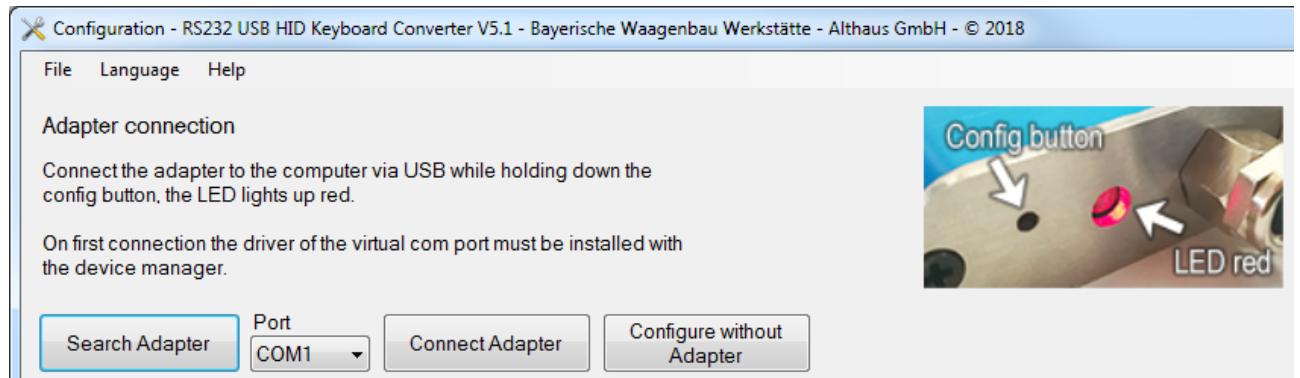
### 8.1.1 File Load / Save

Via the File menu in the configuration software it is possible to save the current configuration of the software in a file and to load stored configurations from file.

### 8.1.2 Language

In the Language menu, you can change the language of the application from English to German.

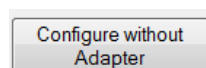
## 9 Connection to the adapter



After starting the configuration software, you can choose whether you want to establish a connection or use the software without an adapter.

### 9.1 Configure without Adapter

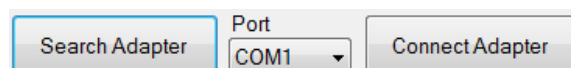
To edit a configuration without adapter press the button [Configure without Adapter].



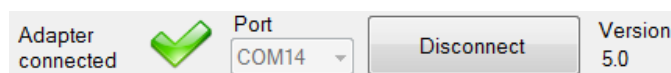
### 9.2 Search / Connect Adapter

To establish a connection to the adapter, the adapter must be connected to the computer via the USB port by holding down the Config button and the Status LED will light up red. When using an adapter for the first time, the Virtual ComPort Driver must be installed.

Press the button [Search Adapter] if you do not know the ComPort of the connected adapter or select the connection manually and press [Connect Adapter].



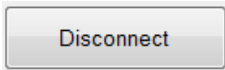
If the connection is successful, the operating mask changes.



The connected adapter has hardware version 5.0.

### 9.3 Disconnect Adapter

Before disconnecting the USB cable from the computer, you must disconnect the USB cable from the adapter. Press the [Disconnect] button.



### 9.4 Read / Write Adapter Configuration

If the adapter is successfully connected, it is possible to read or write its current configuration. To do this, click on the corresponding button.



## 10 ASCII Characters Table

ASCII Character			
0	00	☐	NUL
1	01	☒	SOH
2	02	☑	STX
3	03	☐	ETX
4	04	☐	EOT
5	05		ENQ
6	06	-	ACK
7	07	•	BEL
8	08	☐	BS
9	09	→	TAB
10	0A	↵	LF
11	0B	≡	VT
12	0C	≡	FF
13	0D	↵	CR
14	0E	☐	SO
15	0F	☐	SI
16	10	†	DLE
17	11	◀	DC1
18	12	↕	DC2
19	13	!!	DC3
20	14	☐	DC4
21	15	⊥	NAK

Insert Character

ACK   NAK   TAB

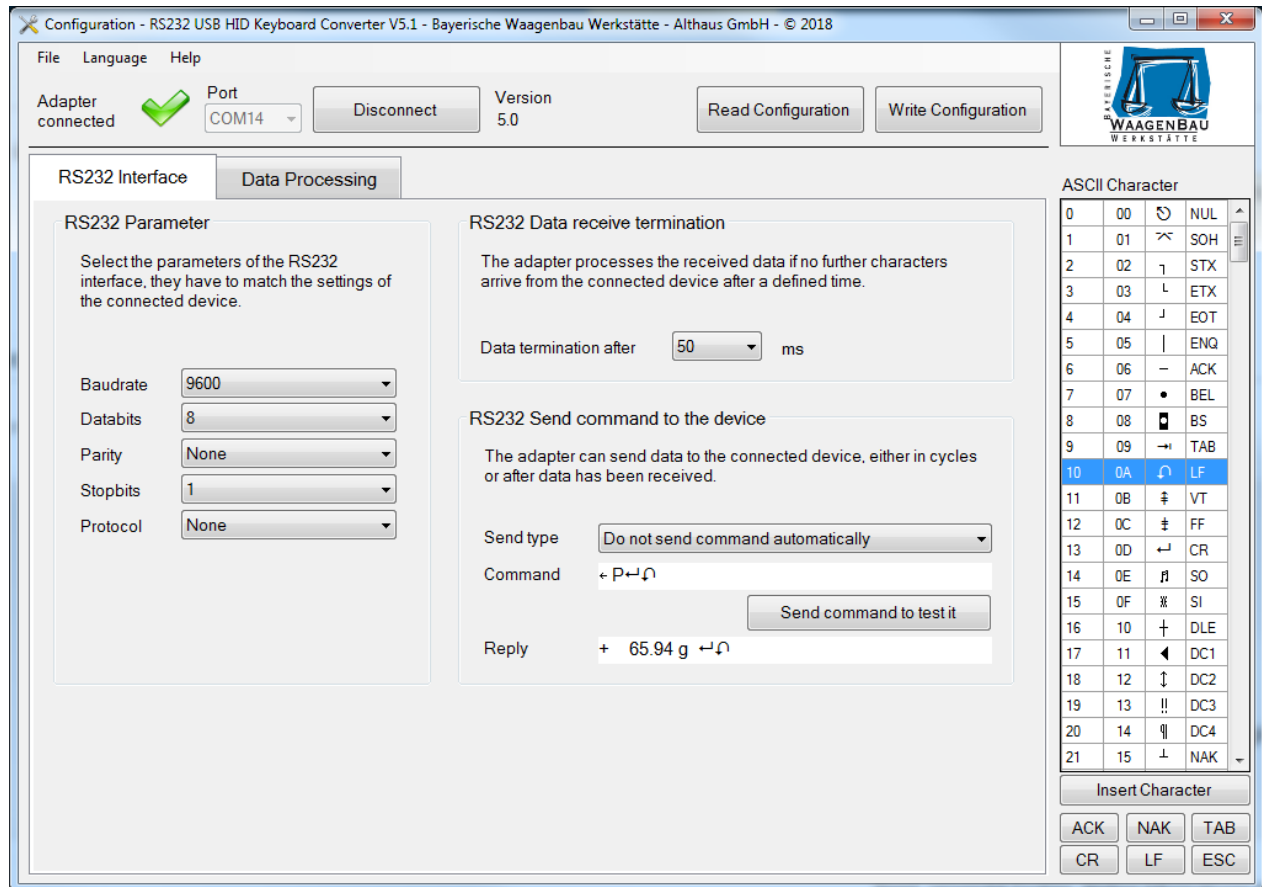
CR   LF   ESC

The ASCII character table is used to insert characters into text input fields which cannot be entered using the keyboard. To do this, place the cursor at the desired insertion position in the text input field, then select the character to be inserted in the table and click [Insert Character] or double-click on it. If you select a character in a text input field, this character is selected in the table.

Sample input in a text field, ESC P CR LF:



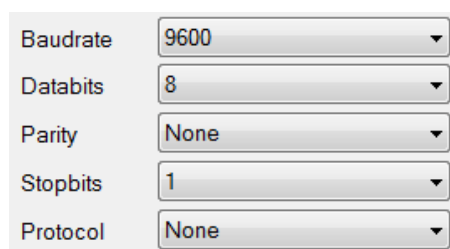
# 11 RS232 Interface



In the RS232 Interface configuration area you set the RS232 parameters of the connected device, specify when data reception is complete and have the option of sending a command to the device. Changes to these settings must be sent to the adapter via [Write Configuration] in order to activate them.

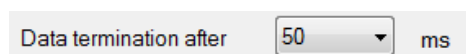
## 11.1 RS232 Parameters

Select the RS232 interface parameters for the adapter that are set on the RS232 device. They must match otherwise no or only faulty data will arrive in the adapter.



## 11.2 RS232 Data receive termination

The adapter accepts the received data for data preparation if no further characters are received from the connected device after a certain time.



## 11.3 RS232 Send command to the device

The adapter can send a **command** to the connected device, either cyclically or after data reception. In this example, a scale is connected to the adapter via RS232; the **command** specified requests the current weight.

### Input field: Command

In the **Command** text field, enter the command you want to send to the device, you can also insert ASCII characters from the table.

### Output field: Reply

The data received by the device are displayed here.

### Send Command to test it

With the button [Send command to test it] you can send the **Command** to the connected device and receive an answer if everything is parameterized correctly.

The **Reply** of the device is also written into the data preparation in the field "RS232 Receive".

#### 11.3.1 Send type: Do not send command automatically

Send type	Do not send command automatically
Command	← P↵↵
Reply	+ 65.94 g ↵↵

Send command to test it

During normal operation of the adapter, no commands are sent to the connected RS232 device. Use this send type if you only want to test commands.

#### 11.3.2 Send type: Send command cyclic

Send type	Send command cyclic
Command	← P↵↵
Interval	1,5 s
Reply	+ 65.94 g ↵↵

Send command to test it

During normal operation, the adapter sends the **Command** to the RS232 device at the specified **Interval**.

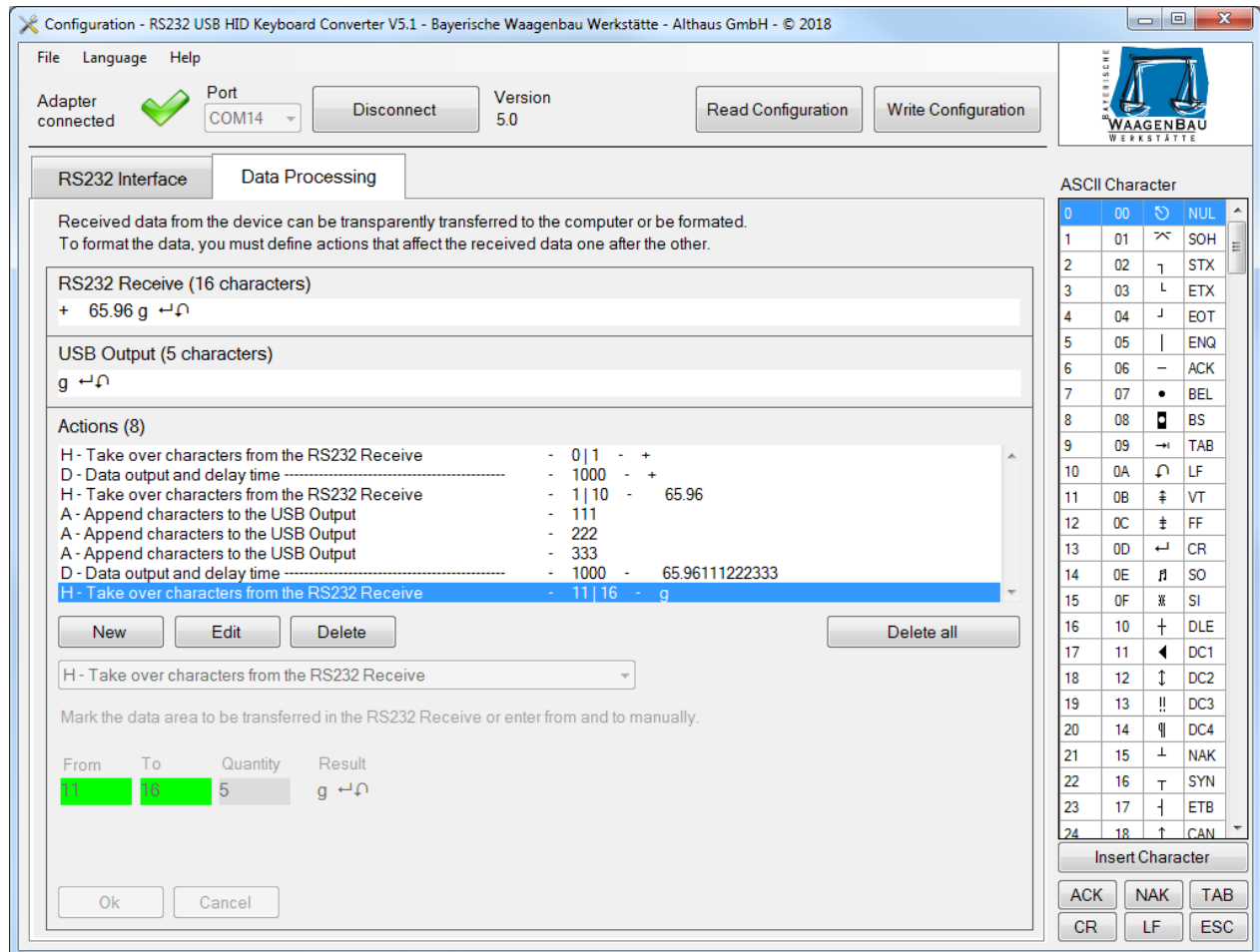
#### 11.3.3 Send type: Send command after data received

Send type	Send command after data received
Command	← P↵↵
Reply	+ 65.94 g ↵↵

Send command to test it

During normal operation, the adapter automatically sends the specified **Command** after data has been received from the RS232 device. This allows data to be requested from the device as quickly as possible.

## 12 Data Processing



In the Data Processing configuration area, you can have the data received via RS232 from the connected device processed by the adapter before it is transferred to the computer via USB keyboard output. To do this, the adapter processes defined actions in sequence that lead to the desired USB keyboard output on the computer.

If no actions are defined, the adapter forwards the received data of the device connected via RS232 unchanged to the computer as USB keyboard input.

### 12.1 RS232 Receive

RS232 Receive (16 characters)

+ 65.94 g ↵

For data preparation, data must first be transferred from the connected device or written manually into the **RS232 Receive** field. You can also request the data from the device by using of a command, see "RS232 send command to the device". Some data processing actions refer to this field.

### 12.2 USB Output

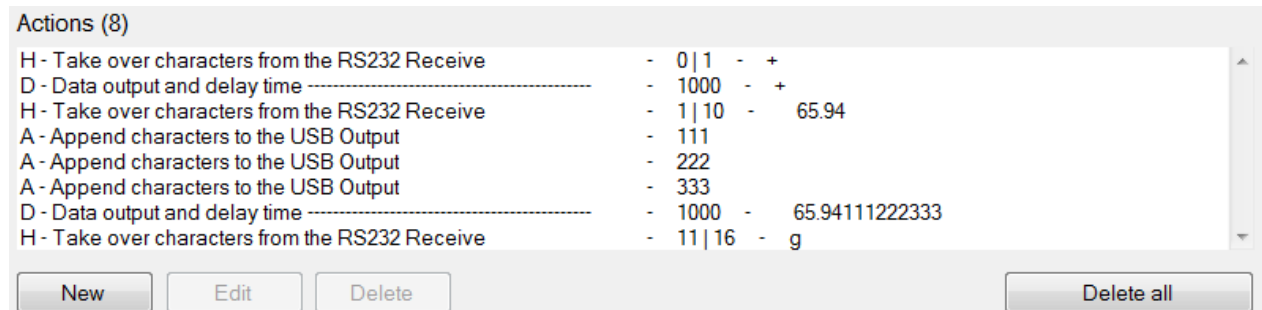
USB Output (16 characters)

+ 65.94 g ↵

In the text field **USB Output** you can see how the RS232 USB HID keyboard adapter transfers the data to the computer. If no actions are defined, the **USB Output** is similar to the **RS232 Receive**.

If actions have been defined in the data preparation, the **USB Output** shows the data output up to the currently selected action line. Some data processing actions refer to this field.

## 12.3 Action List



Data Processing is performed in individual steps, actions, and in the action list.

All actions performed one after the other lead to the **USB Output** result. All actions performed one after the other will result in the **USB Output** result being sent to the computer at the current cursor position.

An exception to this is action D - Data output and delay time, with which previous action results can be output in the meantime and subsequent actions can be restarted.

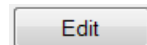
In the configuration program you can see the prepared data up to the currently selected action in the field **USB Output**. The maximum number of actions is 50.

### 12.3.1 Edit Action List

To add a new action to the action list, click the [New] button.



To edit an existing action, select it in the action list and click the [Edit] button.



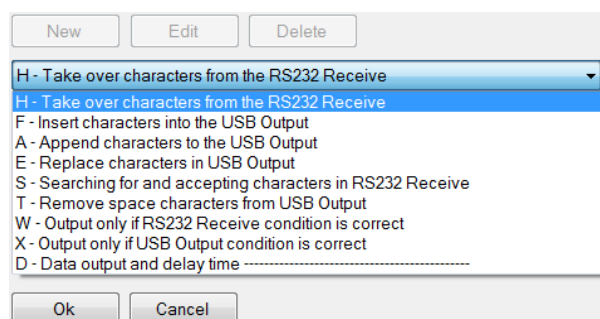
To delete an existing action, select it in the action list and click the [Delete] button.



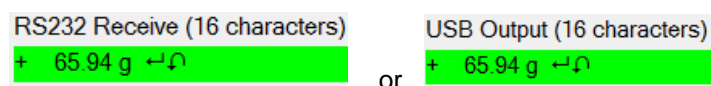
To delete all actions from the action list, press the [Delete all] button.



## 12.4 Actions



Various actions are available for data processing, some refer to **RS232 receive**, others to **USB Output**. You can recognize the reference by the fact that the corresponding text field is highlighted in green.



### 12.4.1 H - Take over characters from the RS232 Receive

Mark the data area to be transferred in the RS232 Receive or enter from and to manually.

RS232 Receive (16 characters)			
+ 65.94 g ↵			
USB Output (10 characters)			
+ 65.94			
From	To	Quantity	Result
0	10	10	+ 65.94

### 12.4.2 F - Insert characters into the USB Output

Select the insertion position in the USB Output and specify the characters to insert.

RS232 Receive (16 characters)	
+ 66.62 ↵	
USB Output (17 characters)	
+ 66.62 g ↵	
Position	Insert characters
11	g

### 12.4.3 A - Append characters to the USB Output

Enter the characters to be appended to the USB Output.

RS232 Receive (16 characters)	
+ 66.62 ↵	
USB Output (22 characters)	
+ 66.62 ↵Test↵	
Append characters	
Test↵	

### 12.4.4 E - Replace characters in USB Output

To replace characters in the USB Output, first select the range and then enter the search and replacement characters.

RS232 Receive (16 characters)			
+ 66.62 ↵			
USB Output (16 characters)			
- 66.62 ↵			
Range from, to	Quantity	Search character	Replacement character
0 10	10	+	-



### 12.4.5 S - Searching for and accepting characters in RS232 Receive

Search for characters in RS232 Receive and accept data range in RS232 Receive relatively from the found position. Suitable for variable data receives where the characters to be transferred are always at the same distance from the search characters.

RS232 Receive (16 characters)  
+ 65.95 g ↵

---

USB Output (5 characters)  
65.95

---

Found position	Search character
11	g

Takeover from, to	Übernahme Pos.	Anzahl	Result
5 10	-6	5	65.95

### 12.4.6 T - Remove space characters from USB Output

Highlight the data range in the USB Output or manually type from and to where you want to remove the spaces.

RS232 Receive (16 characters)  
+ 65.95 g ↵

---

USB Output (9 characters)  
+65.95g↵

---

Range from, to	Quantity	Result
0 16	16	+65.95g↵

### 12.4.7 W - Output only if RS232 Receive condition is correct

USB Output only if defined characters in RS232 Receive were found in a specified range.

Example character "+" found in Receive, USB Output is done:

RS232 Receive (16 characters)  
+ 65.95 g ↵

---

USB Output (16 characters)  
+ 65.95 g ↵

Example character "+" not found in Receive, no USB Output:

RS232 Receive (16 characters)  
65.95 g ↵

---

USB Output (0 characters)

Parameters:

Range from, to	Quantity	Search character
0 1	1	+

### 12.4.8 X - Output only if USB Output condition is correct

USB Output only if defined characters in the USB Output were found in a specified range.

Example character "+" found in USB Output, USB Output is done:

RS232 Receive (16 characters)
+ 65.95 g ↵↶
USB Output (16 characters)
+ 65.95 g ↵↶

Example character "+" not found in USB Output, no USB Output:

RS232 Receive (16 characters)
- 65.95 g ↵↶
USB Output (0 characters)

Parameters:

Range from, to	Quantity	Search character
0 1	1	+

### 12.4.9 D - Data output and delay time

Execute USB data output of the previously executed actions, the USB Output will be reset afterwards. A waiting time can be defined before the next actions are processed. Waiting time input in steps of 10 and between 10 and 999 990 milliseconds.

RS232 Receive (16 characters)
- 65.95 g ↵↶
USB Output (16 characters)
- 65.95 g ↵↶
Delay time 500 ms