

# Firmware update for **DMA-22(A)**



DIGITAL MODULE AMPLIFIER FOR ALL KIND OF PROPORTIONAL VALVES

**Applicable for all SW Versions**



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## Revision History

| Revision | Date       | Description                                                                 |
|----------|------------|-----------------------------------------------------------------------------|
| R 0.0    | 20.10.2022 | First preliminary release                                                   |
| R 1.0    | 16.10.2023 | First released version                                                      |
| R 1.1    | 24.06.2024 | Update the procedure when only bootloader available (No firmware installed) |
|          |            |                                                                             |
|          |            |                                                                             |

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## 1 General information

### 1.1 About this manual

This document describes how to update the firmware of the digital amplifier DMA-22(A). For a firmware update an separate terminal program on PC like TeraTerm is needed. In this document the handling with TeraTerm is described.

#### 1.1.1 Reservation of changes and validity

The information contained in this manual is valid at the time of this version's release. See footer for version number and release date of this manual.

We reserve the right to make changes to this manual at any time without specified reasons.

#### 1.1.2 Completeness

This manual is complete only when used in conjunction with the product related hardware and software documentation required for the relevant application.

#### 1.1.3 Place of storage

This manual and all other associated documentation for hardware and software must always be kept in a location where they will be readily accessible and close to the amplifier or the equipment in which it is installed.

#### 1.1.4 Warranty and liability

This manual only describes the functionality and influence of the parameters. The described software functionality can be used in various amplifier models which can be implemented in a vast range of applications. Hence it is not possible to assume liability for the influence of the parameters. Please refer to the safety instructions and remarks in the related operating instructions.

#### 1.1.5 Typographical conventions



### DANGER

Identifies safety instructions that are intended to warn of an immediate and impending danger to life and limb.

Failure to observe these safety instructions will inevitably lead to death, serious personal injury (disablement)!



### WARNING

Identifies safety instructions that are intended to warn of potential danger to life and limb.

Failure to observe these safety instructions might lead to death, serious personal injury (disablement)!



### CAUTION

Identifies safety instructions that are intended to warn of slight personal injury.

Failure to observe these safety instructions might lead to slight personal injury.

### NOTICE

Failure to observe this safety notice can result in property damage!

## 2 Terminal program “TeraTerm”

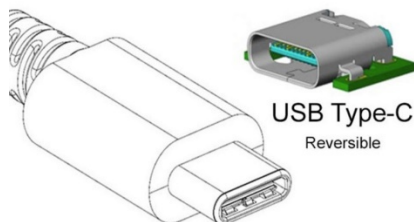
You can find the terminal program “TeraTerm” \*1 at our webpage by using the following link:

[http://www.h-c-s-gmbh.de/images/download/software/archiv/Tools/Setup\\_Teraterm\\_4.106.0.0.exe](http://www.h-c-s-gmbh.de/images/download/software/archiv/Tools/Setup_Teraterm_4.106.0.0.exe)

Please download and install: “**Setup\_Teraterm\_4.106.0.0.exe**”  
“TeraTerm” is an product of © TeraTerm project

### 2.1 USB connection type

The connector to communicate with the PC is an USB type “C” connector.



### 2.2 Install the USB driver for the device

#### NOTICE

During the installation process of the HCSTool, all necessary USB drivers are pre-installed.

If using Windows-7 or an older Windows version, you may have to install an USB driver to communicate with the device.

The USB driver can be found on our web-page.

[https://www.h-c-s-gmbh.de/images/download/software/archiv/USB\\_driver/VCP\\_V1.5.0\\_Setup\\_W7\\_x64\\_64bits.exe](https://www.h-c-s-gmbh.de/images/download/software/archiv/USB_driver/VCP_V1.5.0_Setup_W7_x64_64bits.exe)

When using Windows10 or higher, the USB driver is already included in the windows setup, no extra driver is needed.

### 2.3 Connection of DMA-22(A) to PC

Connect the DMA-22(A) with a USB cable to your computer. An USB connector type USB-C is needed  
An external supply is not needed. The USB connection is able to supply the DMA-22(A)

#### NOTICE

No extra Supply is needed

The status LED shows the connection status, what this status means can be found in the operating instructions.

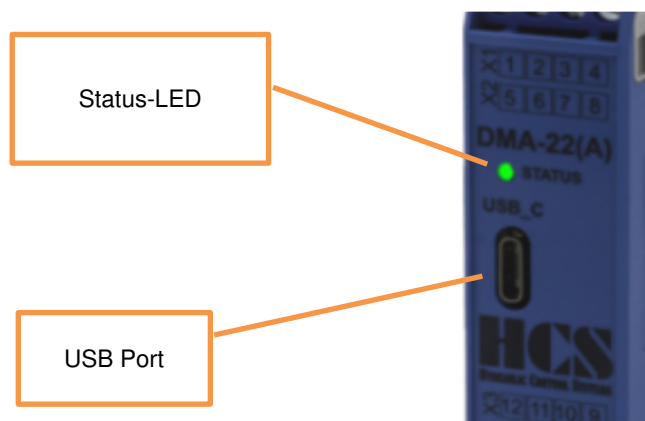


Figure 1: Top view, status LEDs and USB port

## 2.4 Setup “TeraTerm” for communication

TeraTerm is set automatically during installation to the following values:

| Feature      | Data  |
|--------------|-------|
| Speed        | 19200 |
| Data         | 8     |
| Parity       | none  |
| Stop bits    | 1     |
| Flow control | none  |

To open the setup feature of “TeraTerm” please open Setup→ serial port..

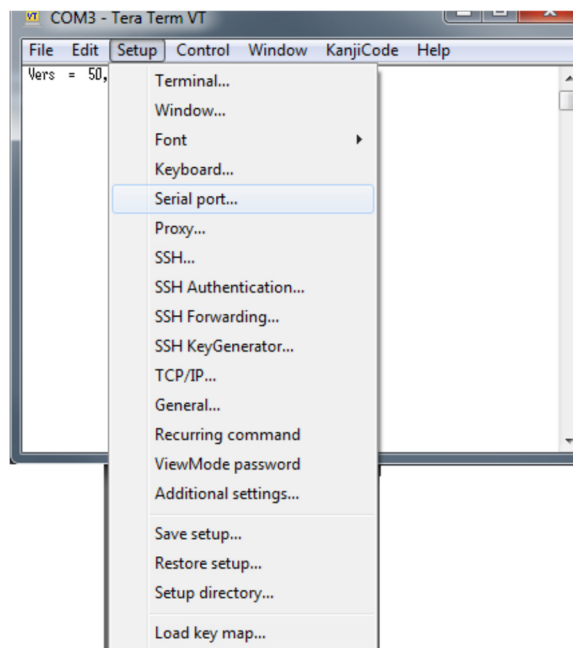


Figure 2: TeraTerm setup selection

## 2.5 Connected to DMA-22(A)

Select the proper “COM Port” (In this example “COM3” as USB communication port is used)  
Here the STM driver for windows is used. This driver is included in the installation package of the HCSTool.

### NOTICE

If you not sure witch COM Port is needed,  
You can look into the windows device manager.



STMicroelectroni  
cs Virtual COM  
Port (COM3)

here COM3 is used.

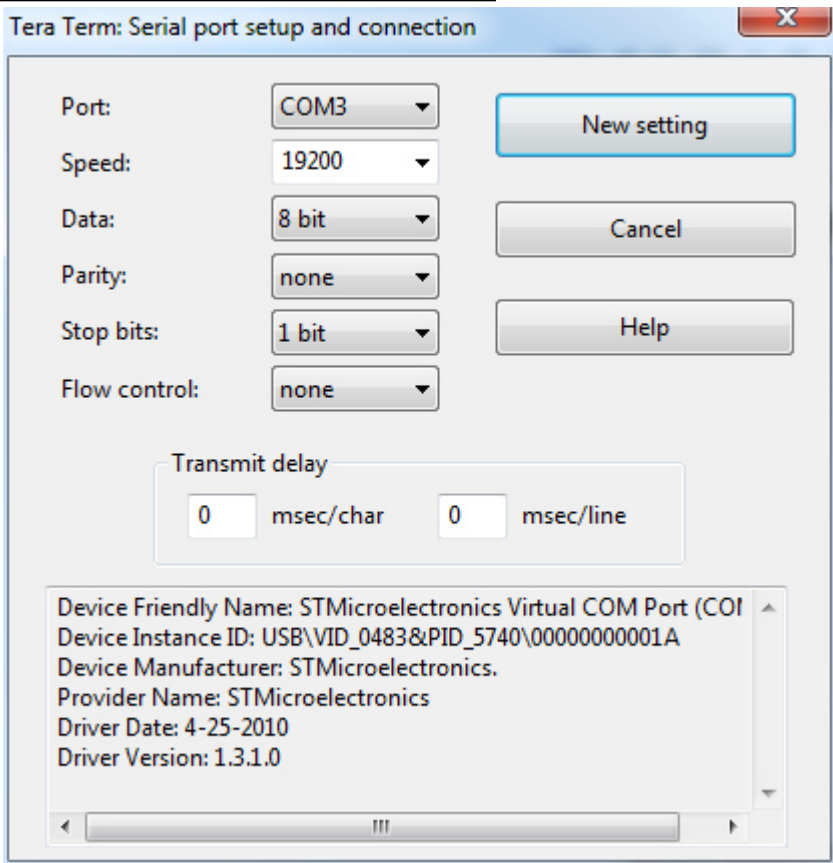


Figure 3: TeraTerm setup with DMA-22(A) connected

3 Procedure, Step by Step, when firmware is installed

In this section we will explain an example when update the firmware from version “V1.02c xxxx” to “V1.02ca 20200805a”

NOTICE

Do not cut the connection between PC and DMA-22(A) module during download!  
After a failed download the procedure can be repeated

In this case see □ Chapter "0

Procedure, Step by Step, when firmware is deleted", page 9

Section □ Chapter "6 Set of Pictures", page 10 the pictures for the individual steps are shown(

| Step | Picture    | Action                                                                                                                                                | Input at TeraTerm / keyboard / response screen |
|------|------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|
| 1    | 1<br>□ 6.1 | When the DMA-22(A) is powered up then the „actual software version“ will be displayed. Here you have to enter the string “@prog” followed by RETURN → | @prog RETURN                                   |

|                                     |            |                                                                     |                                                              |
|-------------------------------------|------------|---------------------------------------------------------------------|--------------------------------------------------------------|
| 2                                   | 1<br>□ 6.1 | Following the response will be shown →                              | Attention: Download new firmware to STM Flash really (y/n) ? |
| 3                                   | 1<br>□ 6.1 | Now enter “y” (for yes) →                                           | y                                                            |
| NOTICE                              |            |                                                                     |                                                              |
| Do <b>not</b> use the “Return” key! |            |                                                                     |                                                              |
| 2                                   | 1<br>□ 6.1 | Following the response will be shown →                              | You really want to reboot the system (y/n)?                  |
| 3                                   | 1<br>□ 6.1 | Now enter “y” (for yes) →                                           | y                                                            |
| NOTICE                              |            |                                                                     |                                                              |
| Do <b>not</b> use the “Return” key! |            |                                                                     |                                                              |
| 4                                   | 2<br>□ 6.2 | Following the response will be shown →                              | BootV03.10..                                                 |
| 5                                   | -          | Now you have a few seconds to enter the character “#” or “*” →      | # or *                                                       |
| 6                                   | 3<br>□ 6.3 | Following the response with actual software version will be shown → |                                                              |
| 7                                   | 3<br>□ 6.3 | Following the response will be shown →                              | Do you really want download new firmware to ST Flash (y/n)?  |
| 8                                   | 3<br>□ 6.3 | Now enter “y” (for yes) →                                           | y                                                            |
| NOTICE                              |            |                                                                     |                                                              |
| Do <b>not</b> use the “Return” key! |            |                                                                     |                                                              |
| 9                                   | 4<br>□ 6.4 | Following the response will be shown →                              | >rec:                                                        |
| 10                                  | 5<br>□ 6.5 | Select “File” →                                                     | Drop down menu opens                                         |
| 11                                  | 5<br>□ 6.5 | Select “Send file ...” →                                            | Next window opens → Pic. 3                                   |
| 12                                  | 6<br>□ 6.6 | Now browse for the file to be downloaded ...                        | ---                                                          |

|                                                                                                                                                                                                    |            |                                                                                             |                            |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|---------------------------------------------------------------------------------------------|----------------------------|
| 13                                                                                                                                                                                                 | 6<br>□ 6.6 | Select file to be downloaded ...                                                            | ---                        |
| 14                                                                                                                                                                                                 | 6<br>□ 6.6 | Accept with “Open” (Öffnen) →                                                               | Next window opens → Pic. 5 |
| 15                                                                                                                                                                                                 | 7<br>□ 6.7 | Screen will show download information indicating progress                                   | ---                        |
| 16                                                                                                                                                                                                 | 8<br>□ 6.8 | Also screen will show in the background several rows of signs also indicating progress →    | ***** .....                |
| <div>NOTICE</div> <p>If this takes extremely long, than most likely the TeraTerm setup is not correct or download was interrupted. Stop downloading and verify the adjustment! Then repeat ...</p> |            |                                                                                             |                            |
| 17                                                                                                                                                                                                 | 8<br>□ 6.8 | After approx. 1 minutes the download is finished →                                          | *****>CKS:EF56...          |
| 18                                                                                                                                                                                                 | 9<br>□ 6.9 | A few seconds later the actual software version will be displayed (here for example V1.01a) | Vers = 1.02 c              |
| 19                                                                                                                                                                                                 | 9<br>□ 6.9 | Download finished. DMA-22(A) is ready to be used again!                                     | ---                        |

## 4 Get the actual firmware version of the device

To see which firmware is installed in the device type “@info” and the <return>-key to get the information. Picture 10 shows an example.

## 5 Procedure, Step by Step, when firmware is deleted

This section explains the procedure for installing firmware when the flash is already erased. This can happen if the firmware update process was interrupted.

The DMA-22(A)'s internal non-erasable bootloader is available for this procedure.

Section [Chapter "6 Set of Pictures", page 10](#) the pictures for the individual steps are shown(

| Step | Picture                      | Action                                                                                                                                                                                                     | Input at TeraTerm / keyboard / response screen |
|------|------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|
| 1    | 11<br><a href="#">□ 6.11</a> | <p>When the DMA-22(A) is powered up then the „device will send “ .....”.</p> <p>The Status LED is toggled red/green</p>  | .....                                          |
| 2    | 12<br><a href="#">□ 6.12</a> | <p>Until “any” key is pressed. (Every key is recognized)</p> <p>In this case, the device-ID is “FF” this means, the device is empty.</p>                                                                   | <Any-Key>                                      |
| 3    | -                            | Now follow the instruction and press the <Return>-Key                                                                                                                                                      | <CR>                                           |

### NOTICE

Please note that an incorrect hint appears here. It is not the "+" key but the "\*" key that is meant here !

|   |                                       |                                                                                                                                                                                                                                                                                                                                                                 |        |
|---|---------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
| 4 | 13a,<br>13b<br><a href="#">□ 6.13</a> | <p>The message "reboot to load new txt file!" and the following message:</p> <p>"Please press key &lt;#&gt; or &lt;+&gt; to start download txt file ! . . . ."</p> <p>will be sent until the "#" or "*" key is pressed. This message will</p> <p>Please note that an incorrect hint appears here. It is not the "+" key but the "*" key that is meant here.</p> | # or * |
| 5 | 14<br><a href="#">□ 6.14</a>          | <p>To start the firmware update process, this question must be answered with "y".</p> <p>Following the response "&gt;rec:" will be shown</p>                                                                                                                                                                                                                    | Y      |

### NOTICE

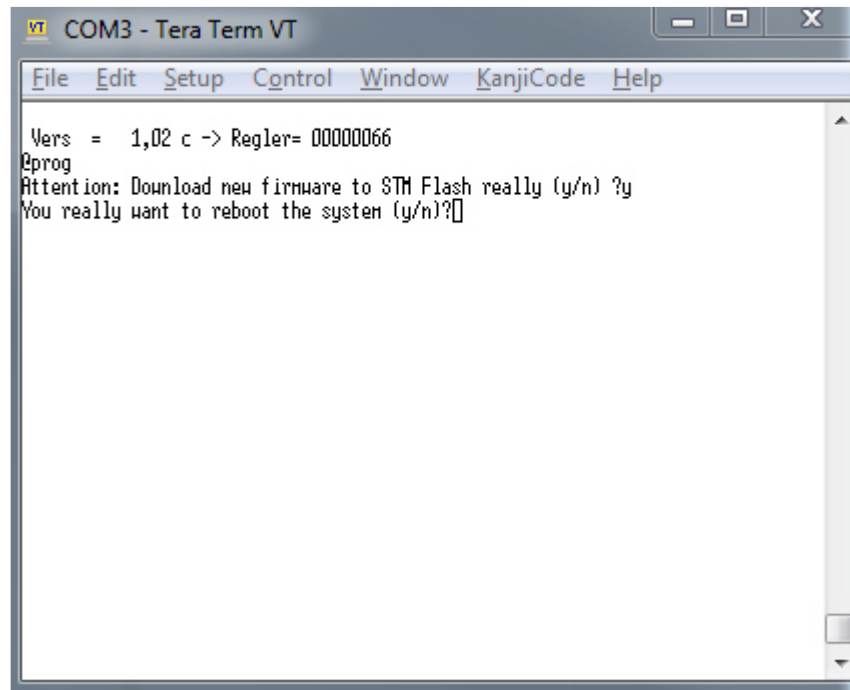
Now steps 9 to 19 from chapter:

[□ Chapter "3 Procedure, Step by Step, when firmware is installed", page 6](#)

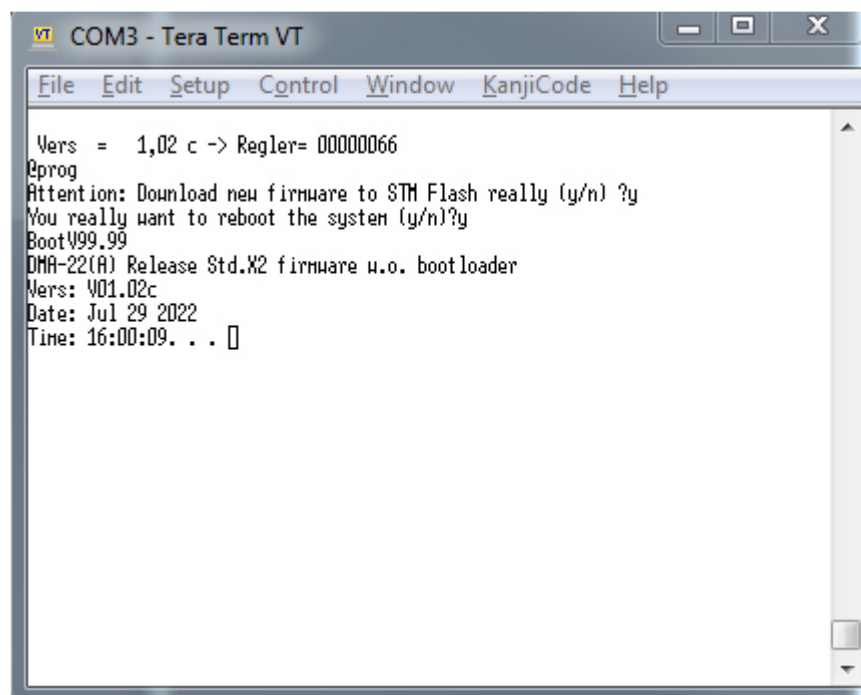
must be carried out.

## 6 Set of Pictures

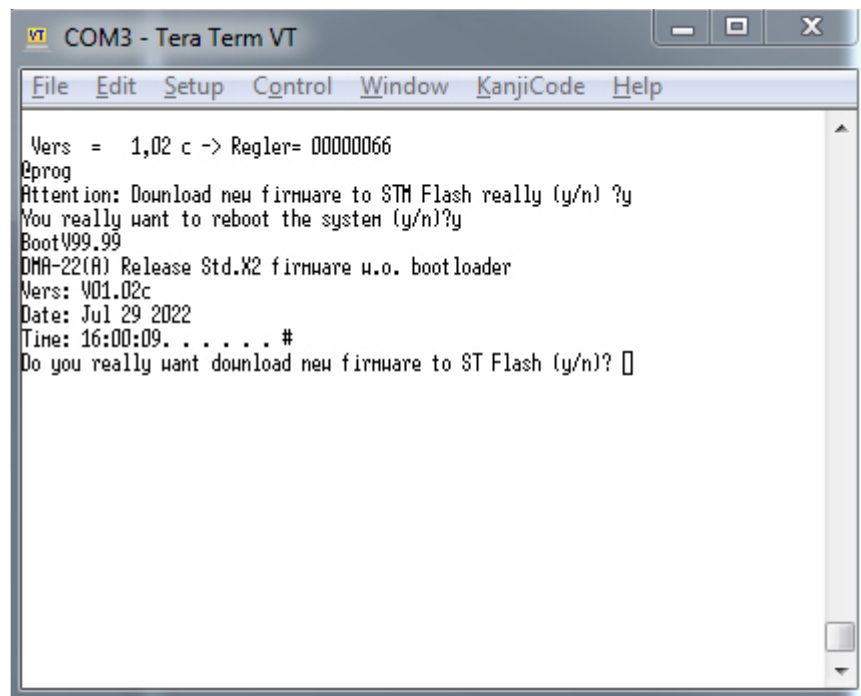
### 6.1 Picture 1



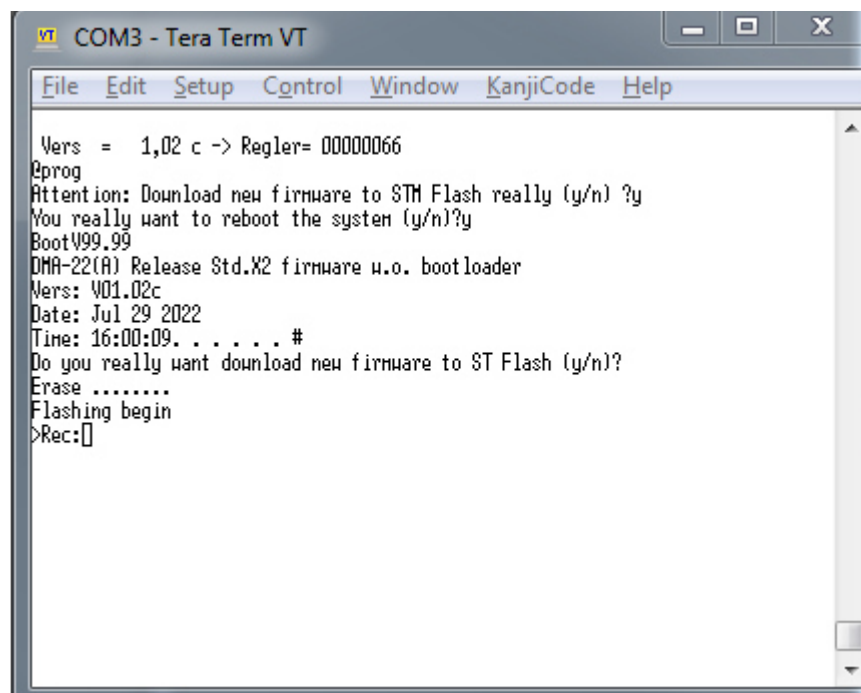
### 6.2 Picture 2



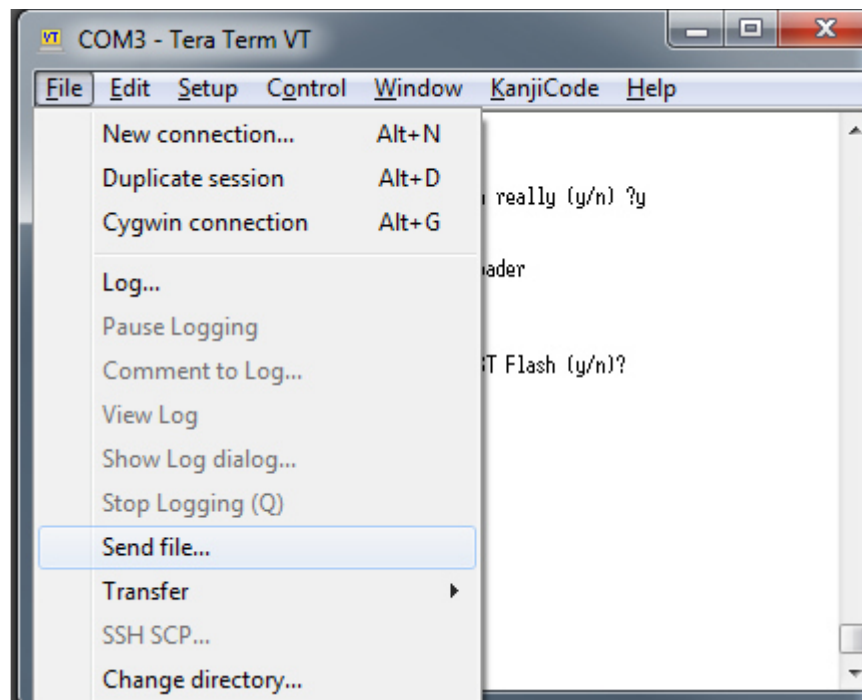
## 6.3 Picture 3



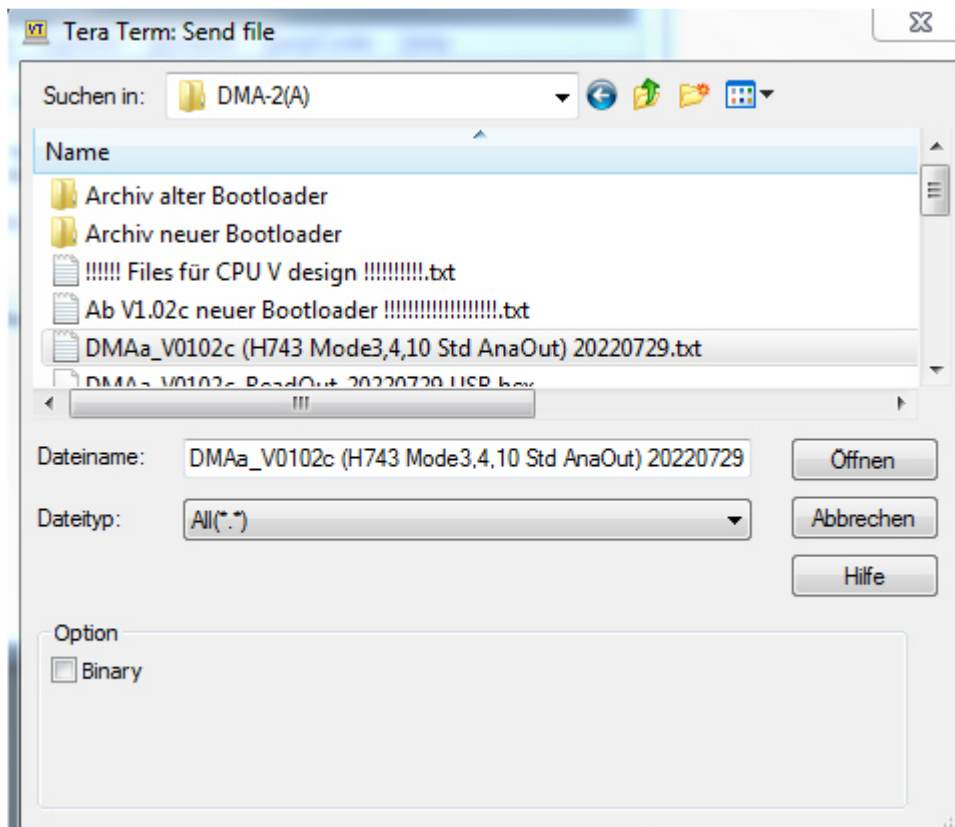
## 6.4 Picture 4



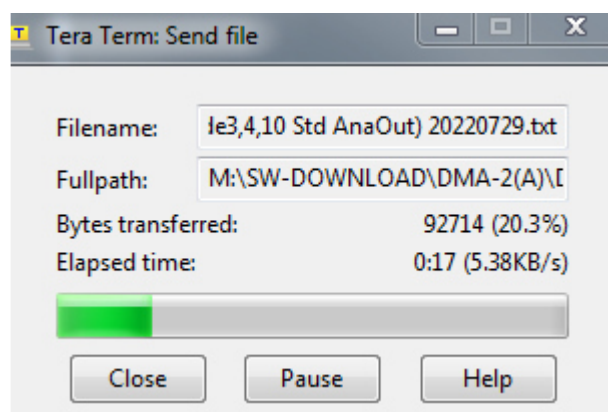
## 6.5 Picture 5



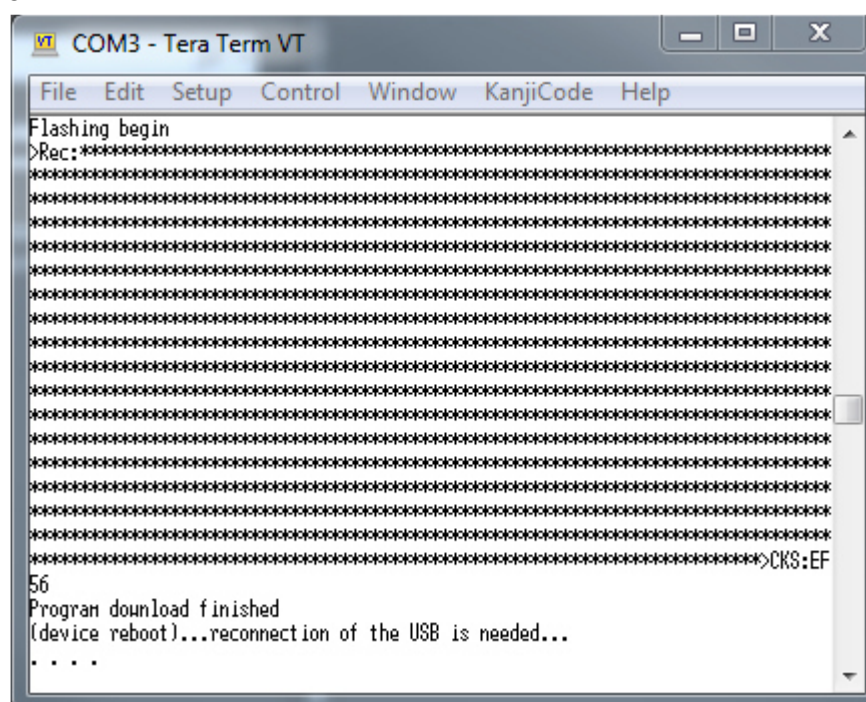
## 6.6 Picture 6



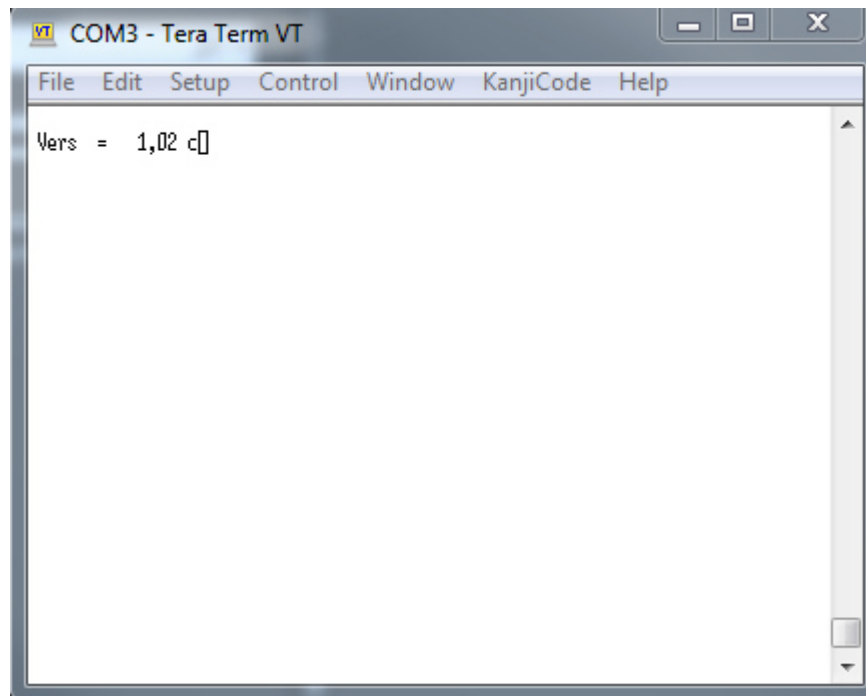
## 6.7 Picture 7



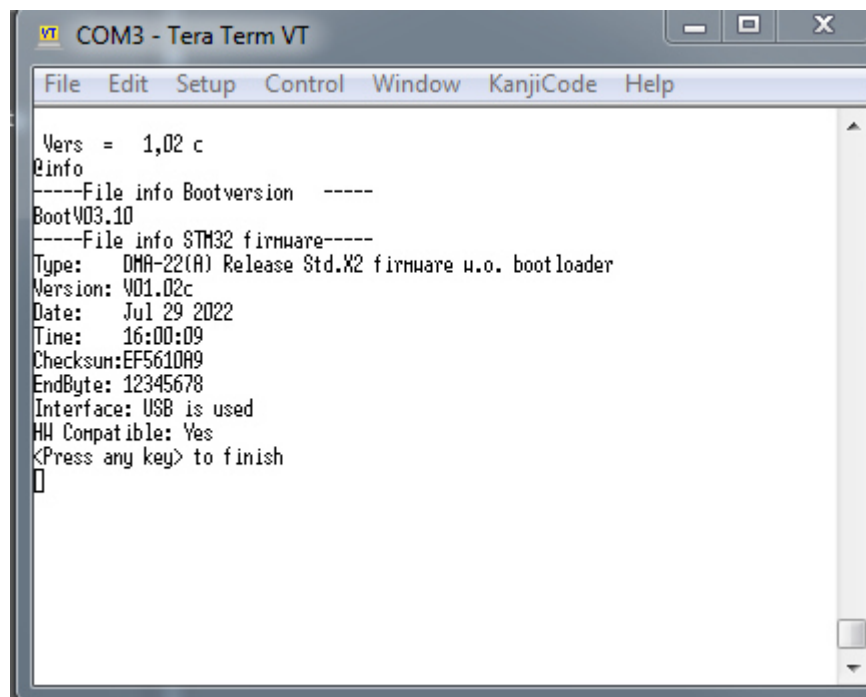
## 6.8 Picture 8



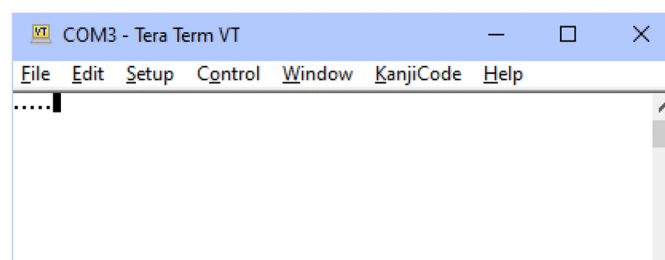
## 6.9 Picture 9



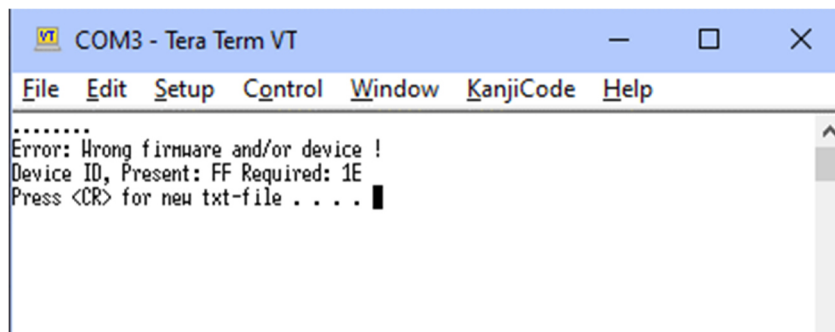
## 6.10 Picture 10



## 6.11 Picture 11



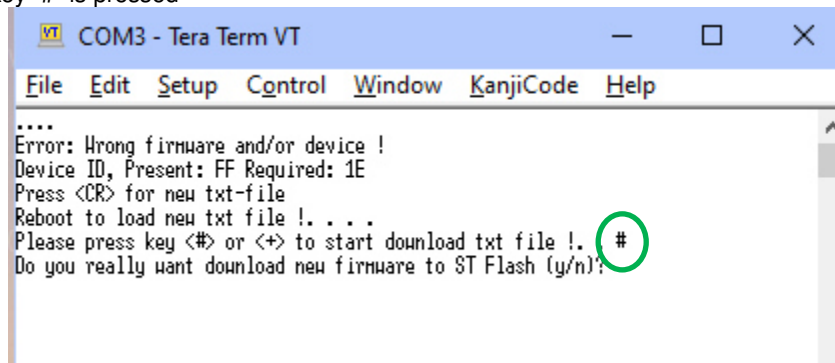
## 6.12 Picture 12



```
VT COM3 - Tera Term VT
File Edit Setup Control Window KanjiCode Help
.....
Error: Wrong firmware and/or device !
Device ID, Present: FF Required: 1E
Press <CR> for new txt-file . . . .
```

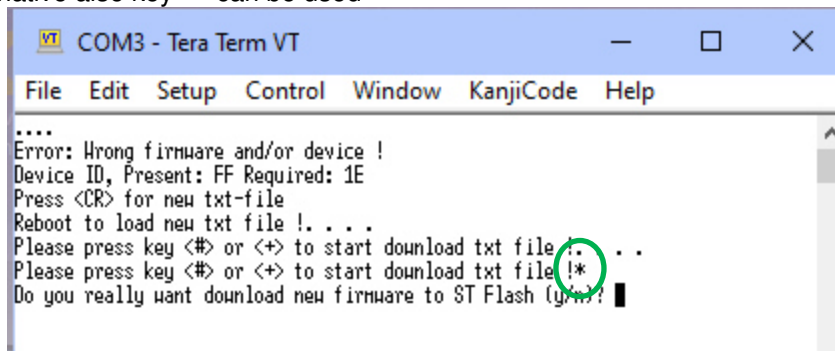
## 6.13 Pictures 13a und 13b

Picture 13a, the key “#” is pressed



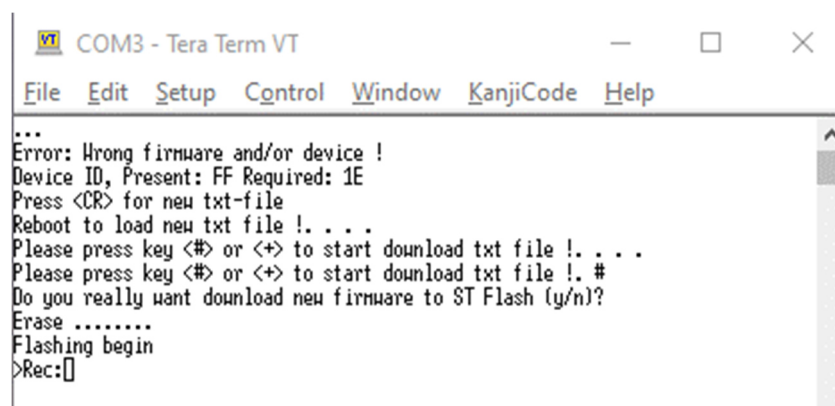
```
VT COM3 - Tera Term VT
File Edit Setup Control Window KanjiCode Help
....
Error: Wrong firmware and/or device !
Device ID, Present: FF Required: 1E
Press <CR> for new txt-file
Reboot to load new txt file !. . . .
Please press key <#> or <+> to start download txt file !. #
Do you really want download new firmware to ST Flash (y/n)?
```

Picture 13b, alternative also key “\*” can be used



```
VT COM3 - Tera Term VT
File Edit Setup Control Window KanjiCode Help
....
Error: Wrong firmware and/or device !
Device ID, Present: FF Required: 1E
Press <CR> for new txt-file
Reboot to load new txt file !. . . .
Please press key <#> or <+> to start download txt file !. . . .
Please press key <#> or <+> to start download txt file !*
Do you really want download new firmware to ST Flash (y/n)?
```

## 6.14 Pictures 14



```
VT COM3 - Tera Term VT
File Edit Setup Control Window KanjiCode Help
...
Error: Wrong firmware and/or device !
Device ID, Present: FF Required: 1E
Press <CR> for new txt-file
Reboot to load new txt file !. . . .
Please press key <#> or <+> to start download txt file !. . . .
Please press key <#> or <+> to start download txt file !. #
Do you really want download new firmware to ST Flash (y/n)?
Erase .....
Flashing begin
>Rec:[]
```

[illegible]

*Please refer to:*

on our web side.

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