

## Firmware Update TMS 2 (RS-232)

This firmware update guide is designed for the serial communication interface RS-232.

In order to update the Firmware of all UniTek digital controllers, an additional program called SDFlash is required. The installation files of the program SDFlash can either

be found on the UniTek CD UNITEK-CD-DOKU-SOFT  
 Folder "SOFTWARE\NDrive2-Software\Firmware update inst"

or downloaded from our homepage [www.unitek.eu](http://www.unitek.eu) or [www.unitek-online.de](http://www.unitek-online.de)

Destination	Download	
Download	NDrive2-Software.zip	Press "NDrive2-Software.zip" and save on PC (e.g. Downloads)
Extract	NDrive2-Software.zip	Press RM + (Extract All... / Extract Here)
Open folder	"NDrive2-Software/Firmware update inst"	

**Firmware version (e.g. FWxxx\_Reg2812.out):**

Before the general installation of SDFlash and the firmware update process can be started, it is recommended to acquire the newest firmware directly from UniTek.

Please request the newest firmware directly from one of these contacts:

<a href="mailto:md@unitek.eu">md@unitek.eu</a>	(Michael Daum)
<a href="mailto:ek@unitek.eu">ek@unitek.eu</a>	(Edward Käding)
<a href="mailto:info@unitek.eu">info@unitek.eu</a>	

After receiving the newest firmware, please make sure to save it and remember the location. This location will be important to configure the program SDFlash at a later stage.

## Programming-Adapter for SDFlash:

In order to update the firmware of a digital UniTek controller a special SDFlash-Adapter for the RS-232 serial connection is required. This SDFlash-Adapter is placed between the RS-232 cable and the PC on which the program SDFlash is installed. The function of this SDFlash-Adapter is to send the digital UniTek controller into its bootloader mode at initialization.

Only then is a firmware update possible.

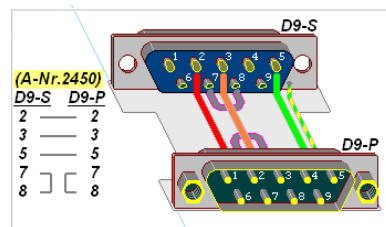
In general it is very easy to build an SDFlash-Adapter yourself.

The first two images show the technical wiring and an example of a self-built adapter.

### Self-built SDFlash-Adapter:

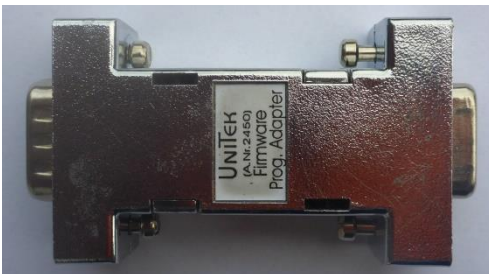


RS-232-cable SDFlash-Adapter

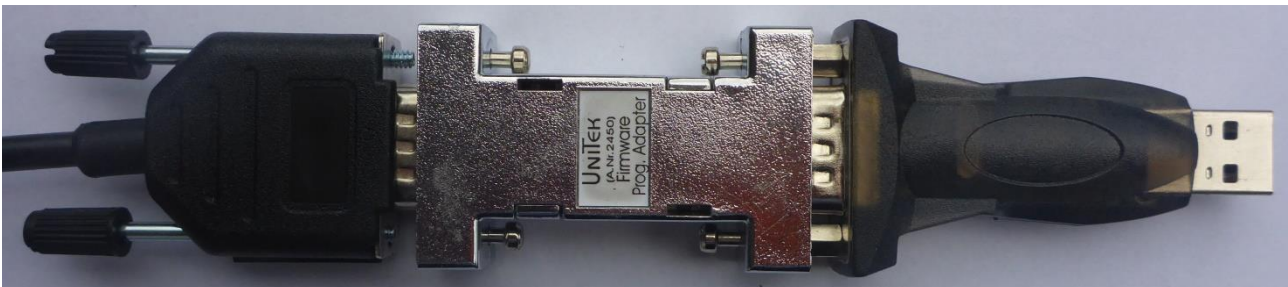


Technical Drawing (Short Pin 7+8)

### UniTek SDFlash-Adapter Art.Nr 2400:



### Combination for PC without RS-232 socket (with USB adapter):



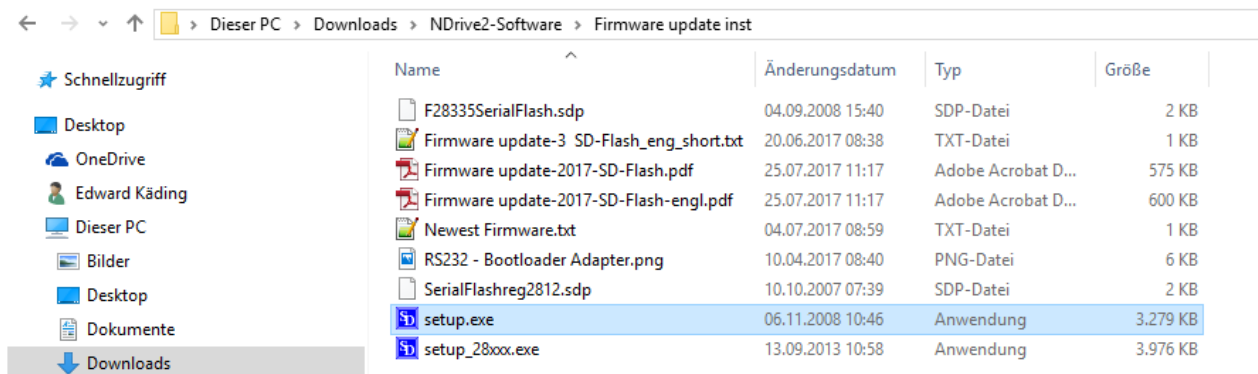
RS-232 cable

SDFlash-Adapter

USB-Adapter

## SDFlash installation procedure:

Install SDFlash using 'setup.exe' inside the folder 'Firmware update inst'



(In this installation process guide we will use the default installation location → C:\CCStudio\_v3.3)

### Installing SDFlash:

- Start installation process      Double-Click → "setup.exe"
- 'Welcome to the SDflash-bins Setup Wizard'      Click → [Next >]
- 'Select Destination Location'      default location: "c:\CCStudio\_v3.3\specdig\sdfash"  
Click → [Next >]
- 'Ready to Install'      Click → [Install]
- 'Welcome to the  
SDFlash Serial v3.1 Setup Wizard'      Click → [Next >]
- 'License agreement'      Read the 'C2000 Software License Agreement'  
Select → 'I accept the agreement'  
Click → [Next >]
- 'Select Destination Location'      default location: "C:\CCStudio\_v3.3\specdig\sdfash"  
Click → [Next >]
- 'Folder Exists' question-window      Click → [Yes]
- 'Ready to Install'      Click → [Install]
- Installation process, then 'Information'      Click → [Next >]
- 'Completing the  
SDFlash Serial v3.1 Setup Wizard'      Click → [Finish]
- 'Completing the SDflash-bins Setup Wizard'      Click → [Finish]
- If desired, create a shortcut of the program SD-Flash to the desktop:  
'C:\CCStudio\_v3.3\specdig\sdfash\bin\SDFlash.exe'

## SDFlash configuration procedure:

### Start SDFlash.exe:

- Double-Click the desktop shortcut  
or Double-Click "SDFlash.exe" (C:\CCStudio\_v3.3\specdig\sdf\bin\SDFlash.exe)
- ➔ The SDFlash window / program will appear



### Load project:

- Click on the tab "File" and select "1 SerialFlashreg2812.sdp"



- ➔ The 'Programming Flash' window will show the message: 'MSG: Interface version 1'
- In case of an 'Error' message, the Project must be loaded manually:
  - o Click on the tab "File" and select "Open Project..."
  - o Select and Open the "SerialFlashreg2812.sdp" file from inside the folder 'Firmware update inst' (Same location as 'setup.exe' of the SDFlash installation process)
  - ➔ The 'Programming Flash' window will show the message: 'MSG: Interface version 1'

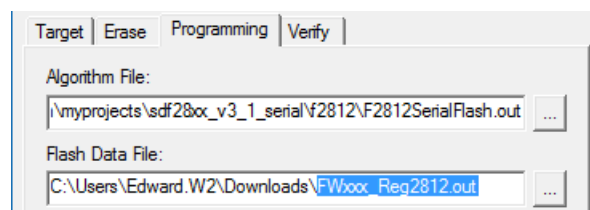
### Configure COM port:

- Click on the tab "Project" and select "Settings..."
- Select your serial RS-232 COM port (C1 → C4) inside the tab "Target" select at 'Emulator Address/Id:' ( → COM1(C1), COM2(C2), COM3(C3), or COM4(C4))
  - o Check your *device manager* in case you do not know your COM port
  - o In case your COM port number is larger than 4, then this COM port must be configured to a port number of 1, 2, 3 or 4.

*Please check in the internet on how to change your COM port number if you do not know how or ask a qualified person*

### Configure Flash Data File: (select the firmware (.out) file)

- Click on the tab "Project" and select "Settings..."
- Inside the tab "Programming" press the select button [...] at "Flash Data File:"
- Then choose the firmware file (e.g. FWxxx\_Reg2812.out) sent by the UniTek support team



- Click → [OK] in order to confirm the changes
- Click on the tab "File" and select "Save Project" in order to save all the changes

## Firmware Update procedure:

**Important:** No HV power supply must be connected or there will be a risk of damaging the inverter


### Connect the SD-Flash Adapter:

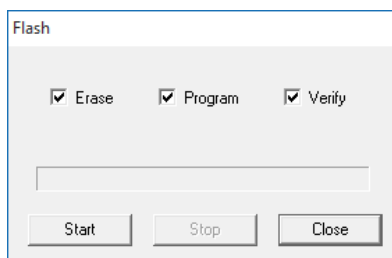
- Connect the SDFlash-Adapter between the RS-232 serial cable and the PC

### Switch on the 24 V auxiliary voltage:

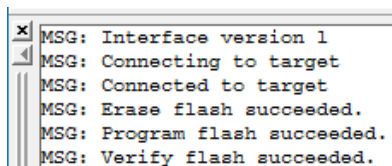
- The bootloader mode of the controller will now be activated

### Start the flash program sequence:

- Open SDFlash and press the button  or Click on "Flash..." inside the tab "Device"
- ➔ The Flash window will open



- Make sure that Erase, Program and Verify are checked
- Click → [Start] and the flash / firmware update sequence will start
- A succesful flash / firmware update sequence is verified with the message "MSG: Verify flash succeeded"



- Click → [Close] to exit the „Flash“ window

### Switch off the 24 V auxiliary voltage:

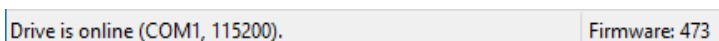
- Exit bootloader mode of the UniTek controller

### Disconnect the SDFlash-Adapter:

- Disconnect the SDFlash-Adapter between the RS-232 serial cable and the PC
- Connect the PC with the UniTek controller using the RS-232 serial cable for normal operation

### Verify firmware update:

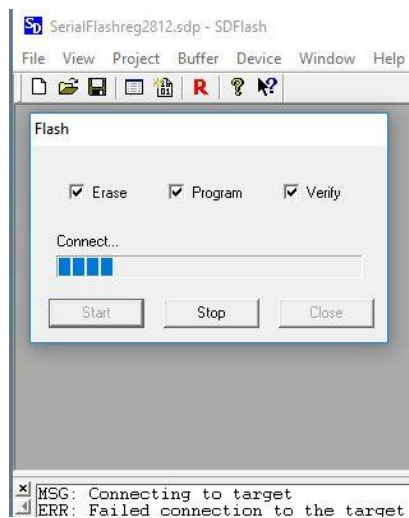
- Switch on the 24 V auxiliary voltage
- Connect to NDrive and compare the numbers (e.g. 473). Check the bottom of NDrive at "Firmware:" with the number you have received as the newest firmware number



## Note - Error message:

**ERR: Failed connection to the target**

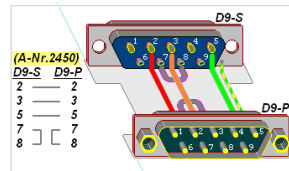
**No data connection between the pc and the servo**



## Error possibilities:

### UniTek controller not in Flash-Mode

- Check if the SDFlash-Adapter is connected
- Switch-off the 24 V auxiliary voltage
- Switch-on the 24 V auxiliary voltage
- ➔ Try again



### Incorrect communication interface address

- Make sure that the correct COM port is selected
- Repeat step "Configure COM port:" at the section SDFlash configuration procedure

### Broken serial cable

- Try to connect to the UniTek controller using NDrive without the SDFlash-Adapter. If this is not possible then please replace your serial cable
- A missing driver for the USB adapter is also a possibility