

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 C2Prog is required.

Note:

Firmware updates are always carried out at your own risk.

C2Prog Flash Programming Tool for TI C2000™ MCUs:

The program C2Prog by the company „CODESKIN“ can be acquired from their official homepage at the Download section.

Link: <https://www.codeskin.com/c2prog-download>

Please read the License Conditions and download the newest version by pressing on the DOWNLOAD button.

Firmware Version (e.g. FWxxx_Reg2812.out):

Before the general installation of C2Prog 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:

md@unitek.eu

(Michael Daum)

ek@unitek.eu

(Edward Käding)

info@unitek.eu

After receiving the newest firmware, please make sure to save it and remember the location. This location will be important to configure the program C2Prog at a later stage.

Flash Programmier-Adapter:

In order to update the firmware of a digital UniTek controller a special Flash-Adapter for the RS-232 serial connection is required. This Flash-Adapter is placed between the RS-232 cable and the PC on which the program C2Prog is installed.

The function of this Flash-Adapter is to send the digital UniTek controller into its bootloader state during its initialisation process (applying the low auxiliary voltage). Only then is a firmware update possible.

Sadly, the Flash-Adapter must be built by yourself. The company UniTek is no longer offering a factory version.

The images show the technical wiring and an example of a self-build adapter.

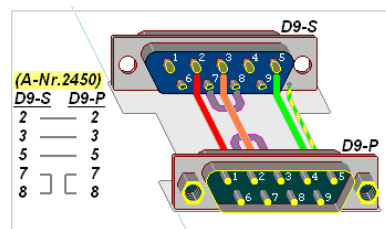
This adapter just channels the Rx, Tx and GND connections, but short circuits the RTS and CTS Pins together. Are the RTS and CTS Pins connected together during the initialization process of the controller, the bootloader mode will then start immediately (undefined static image of the 7 segment display and red LED; no serial communication possible).

Self-built Flash-Adapter:



RS-232 cable

Flash-Adapter



Technical drawing with short

→ Pin 7+8 - D9 - connector

(→ Pin 1+3 - X10 round - connector)

(→ Pin 26+27 - X1 Tyco - connector)

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



RS-232 cable

Flash-Adapter

USB-Adapter

C2Prog installation procedure:

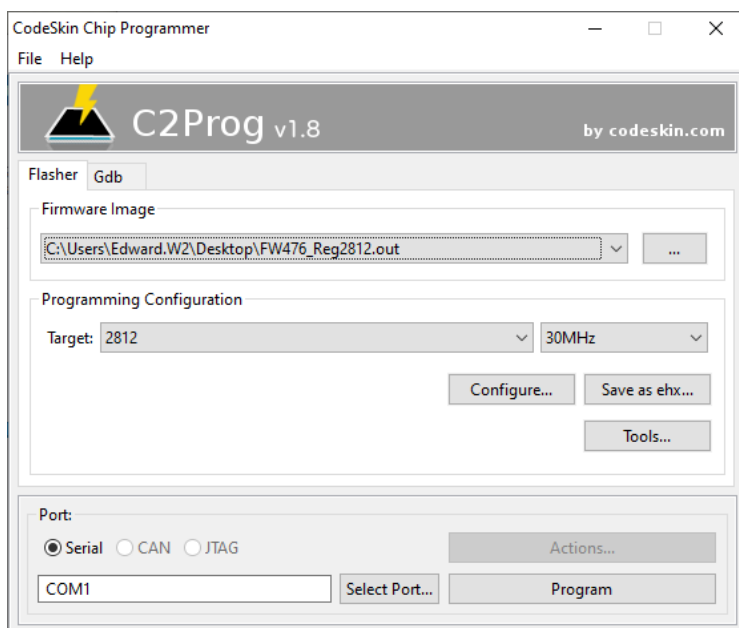
The C2Prog installation is started by executing the application (.exe) which has been download from the above mentioned link. This manual is refering to the current Version 1.8.6 – 1/12/2020.

Installing von C2Prog:

- | | |
|---|--|
| - Start installation process | Double-Click → "C2Prog_v1.8.6.exe " |
| - 'Welcome to the C2Prog Setup Wizard' | Click → [Next >] |
| - 'License agreement' | Read the 'C2PROG LICENSE' agreement
Select → 'I accept the agreement' |
| | Click → [Next >] |
| - 'Select Destination Location' | Default location: "C:\Program Files (x86)\C2Prog" |
| | Click → [Next >] |
| - 'Select Components' | Select → 'Full installation' |
| | Click → [Next >] |
| - 'Select Start Menu Folder' | Click → [Next >] |
| - 'Ready to Install' | Click → [Install] |
| - 'Completing the C2Prog Setup Wizard' | Click → [Finish] |
| | |
| - If desired, create a shortcut of the program C2Prog to the desktop: | |
| | 'C:\Program Files (x86)\C2Prog\C2Prog.exe' |

C2Prog configuration:

The CodeSkin Chip Programmer must have the following configuration.



- Firmware Image:** Selection of the firmware file. The file can be selected from the hard drive by pressing on the [...] button and choosing the received firmware file (e.g.: FW476_Reg2812.out).
- Target:** Select the MCU **2812** and the programming speed of **30MHz** from the Drop-Down lists.
- Port:** Select the option **Serial** and configure the used communication port by pressing on the **[Select Port...]** button.
C2Prog will scan for all available COM-Ports automatically and give you a selection.

C2Prog firmware update procedure:

Important: No HV power supply must be applied or the inverter can be damaged!

Connect the Flash-Adapter:

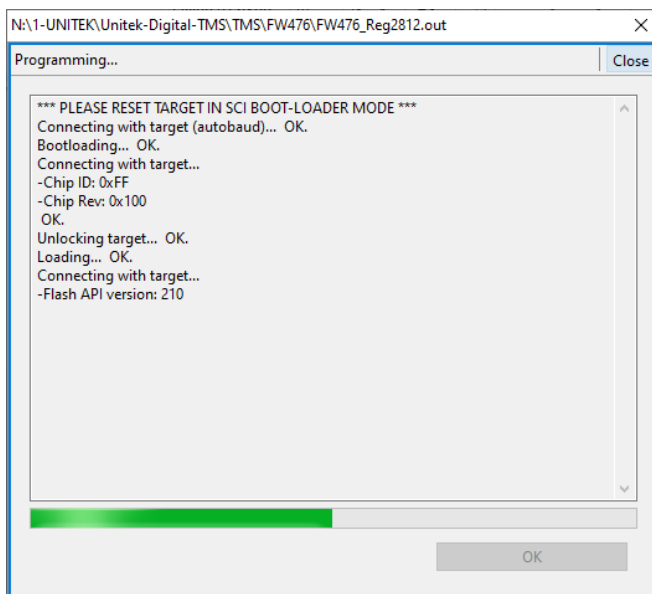
- Connect the Flash-Adapter between the RS-232 serial cable and the PC.

Switch on the low auxiliary voltage:

- The bootloader mode of the controller will now be activated.
(undefined static image of the 7 segment display and red LED; no serial communication possible)

Start the flash program sequence:

- Press the **[Program]** Button.
➔ The 'Programming...' window will open and the programming procedure should start a short time later.



- At the end of a successful programming procedure, the message „You may now close this window and reset the target” will appear and all steps will have an OK as status information.
- The 'Programming...' window can then be closed by pressing on the [OK] button.

Switch off the low auxiliary voltage:

- Exit bootloader mode of the UniTek controller.

Disconnect the Flash-Adapter:

- Disconnect the Flash-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.

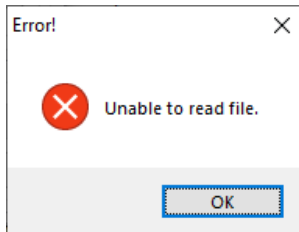
Verify firmware update:

- Switch on the low 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.

Drive is online (COM1, 115200).	Firmware: 473
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Note – Error Messages:

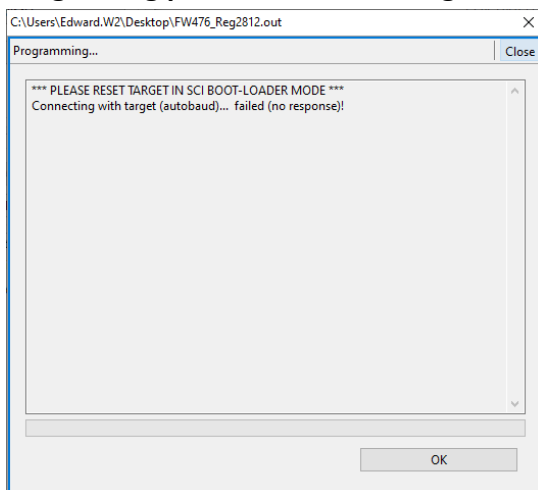
Path of the firmware file not found:



Firmware file path contains unknown characters

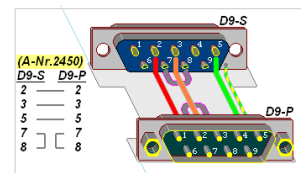
- C2Prog cannot identify firmware images if the selected file path contains special characters (e.g. ä, ö, ü.). Please change the file path accordingly or place the firmware image to a different location and reconfigure the C2Prog Firmware image selection.

Programing process is not starting:



UniTek controller not in Flash-Mode

- Check if the Flash-Adapter is connected.
- Switch-off the low auxiliary voltage.
- Switch-on the low auxiliary voltage.
- ➔ Try again.



Incorrect COM Port selected

- Make sure that the correct COM port is selected.

Broken serial cable / Wrong USB-Adapter

- Try to connect to the UniTek controller using NDrive without the Flash-Adapter (normal operation). If this is not possible then please replace your serial cable.
- A missing driver or a faulty USB-adapter is also possible.