Firmware Update
i-CON VARIO 2 / 4

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Summary

We explain below how to use a microSD™ card to upload a new firmware version into the i-CON VARIO 2 or i-CON VARIO 4. Firmware upgrades improve the performance not only of the station itself, but also of tools such as i-TOOL AIR S. In order to ensure problem-free operation of the station, we advise that you regularly check the firmware version you are running and upgrade it as necessary. The current firmware can be downloaded as a zip file at any time from http://www.kurzersa.com folder »Electronics Production Equipment / Products / Soldering Tools & Accessories / Soldering & Desoldering Stations / i-CON VARIO 4«.

In the zip file, in the subdirectory »**asia**«, the Asian version with the languages English, Chinese, Japanese and Korean is found. The subdirectory »**west**« includes the version with the languages German, English, Spanish, French, Russian, Italian and Portuguese. Please select the version from the appropriate directory for your firmware update.

> *Note:*
> *A change between the two language versions is possible at any time by a firmware update. Afterwards maybe the desired language must be readjusted in the menu »Configuration«.*

> *Tip:*
> *Set the language to English before the change of the language version, then after the change initially you also get English.*

Basic concepts

The i-CON VARIO 2 is fitted with an *0ICV205* control board and *0ICV206* power board.

The i-CON VARIO 4 is fitted with two *0ICV205* control boards and one *0ICV206* power board.

Each of these boards runs its own firmware. In order to determine whether a firmware upgrade is necessary, you must first check which version the station is running.

Checking the firmware version

The firmware version running on the i-CON VARIO station is given in the "Kontrast" (Contrast) menu. To access this menu, proceed as follows:

- As soon as you switch the station on, turn the i-OP to the right. This opens the "Kontrast" (Contrast) menu.

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Figure 1. Kontrast (Contrast) Menu

This displays the contrast setting and the tools (in this case: CHIP TOOL VARIO and i-TOOL AIR S).

- Press and hold down the i-OP until the display changes. The display should now be similar to that shown in figure 2.

    Note:

    This function is not yet implemented on pre-production models (firmware version 1.04 dated 04.05.12). If you find this to be the case, you should do the upgrade anyway.
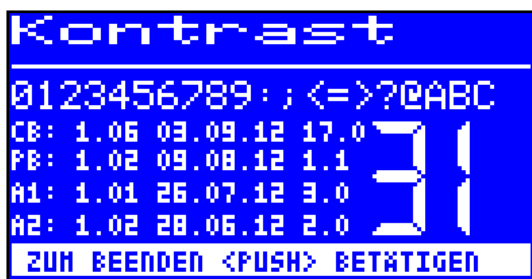

Figure 2. Firmware versions in the Kontrast (Contrast) menu

This displays the firmware versions of the various components, their dates, the hardware versions of the boards as well as those of any installed tools.

"CB: 1.06 03.09.12 17.0" means: Control-Board, Firmware Version 1.06 dated 03.09.12, Hardware Version 17.0.

"PB: 1.02 09.08.12 1.1" means: Power-Board, Firmware Version 1.02 dated 09.08.12, Hardware Version 1.1.

"A1:" and "A2:" give the firmware versions, dates and hardware versions of the currently installed tools.

    Note:

    This function is currently available only for CHIP TOOL VARIO, X-TOOL VARIO and i-TOOL AIR S.

The firmware version and date of the control board are also displayed when the unit is switched on.

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Figure 3. Firmware version display at power on

Firmware filenames

i-CON VARIO firmware filenames have the syntax VARIO(ddd).BIN and VARPB(ddd).BIN.

VARIO(ddd).BIN: The files contain the firmware for the control board
VARPB(ddd).BIN: The files contain the firmware for the power board.

AIRSL(ddd).BIN: i-TOOL AIR S firmware files.
VARIO(ddd).BIN: CHIP TOOL VARIO firmware files

»(ddd)« are the three digits of the firmware version number. The filenames could thus be VARIO120.BIN or VARPB106.BIN.

> *Note:*
>
> *From firmware version 1.13 dated 18.02.13 (VARIO113.BIN), the power board firmware (in this case power board firmware version 1.05 dated 13.02.13) is already integrated into the i-CON VARIO firmware file. You thus only need one file to upgrade the entire firmware.*

Procedure

Step 1: Preparation

The current firmware updates for the *i*-CON VARIO, CHIP TOOL VARIO and i-TOOL AIR S are available for download from http://www.kurzersa.com folder »Electronics Production Equipment / Products / Soldering Tools & Accessories / Soldering & Desoldering Stations / i-CON VARIO 4«.

> *Note:*
>
> *The i-CON VARIO can read* microSD™, *microSDHC™ and microSDXC™ cards formatted for the FAT12, FAT16 and FAT32 filesystems. Make sure that the microSD cards are correctly formatted before using them for an update.*
> *It is advisable to format the cards before using them to update the firmware!*

- Download the firmware update files.
- Save the files to a microSD™ card.

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Note:

The files must be saved in the microSD™ card's top level directory.

Do not change the filenames.

Caution!

A bug in the control board firmware up to and including version 1.12 dated 24.01.13 means that the new firmware file may not be read correctly.

This problem arises when many files have previously been written to the microSD™ card's top level directory, even if they have been deleted.

This problem occurs especially with power board firmware file VARPB103.bin. Do not upload this file.

If the firmware update procedure aborts, freezes, or continually attempts to start again, you have to switch off the station to break off the procedure.

Now repeat the update procedure with a new or newly formatted microSD™ card on which no other files have been stored.

Using a microSD™ card prepared in this way prevents the problem arising in the first place.

If the control board is already running firmware version 1.13 dated 18.02.13 or later, the problem does not arise.

Note:

The filenames must be in the 8.3 DOS format.

Tip:

The fewer other files are in the microSD™ card's top level directory, even if they have previously been deleted, the faster the system can find the data.

Step 2: Insert the microSD™ card

- Turn the *i*-CON VARIO station off and remove all tools which are not to have their firmware updated.
- Insert the microSD™ card as shown in figures 4 and 5.
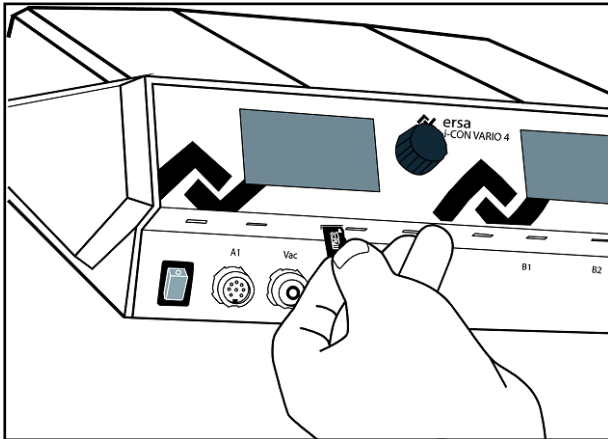
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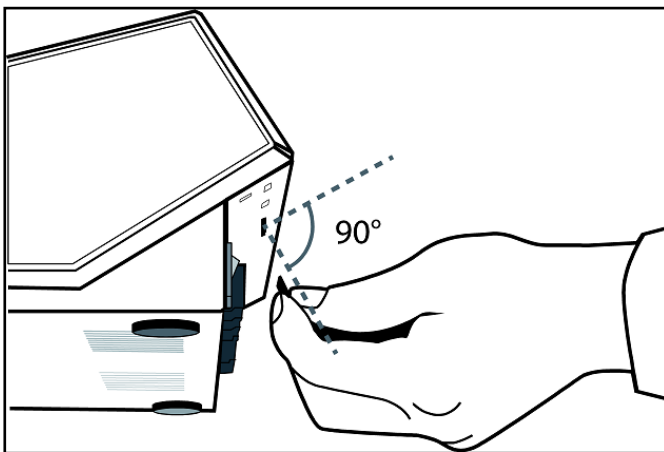**Figure 4. Inserting the microSD™ card, front view**

90°

Figure 5. Inserting the microSD™ card, side view

Note:

Once the card has been inserted halfway, you should feel a slight resistance. This indicates that the card has been inserted correctly. If you don't feel this resistance, pull the card out and try again.

Step 3: Uploading the firmware

Caution!

Do not switch off the i-CON VARIO during the firmware update procedure. Power failures should be prevented, if at all possible. Do not remove the microSD™ card.

- Insert the microSD™ card and turn the station on.
  The "micro SD card" message should display (exception: pre-production series version 1.04 dated 04.05.12).

The firmware update starts automatically, as soon as a more recent version is detected on the card. If no such version is detected, the normal menu displays after a few seconds.

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Note:

If the update does not start after 5 seconds, or the error message »Error 1« displays (see figure 6), the microSD™ has been inserted either the wrong way round or at an angle. Turn the station off, insert the card correctly and turn the station back on again.

Figure 6. microSD™ card, Error 1

The message "bootloader" displays. The progress of the update is indicated by a progress bar.
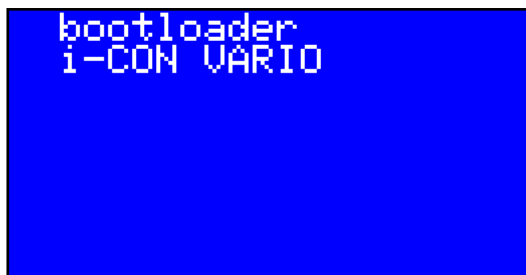

Figure 7. Bootloader mode

Once this procedure has terminated, the system automatically looks for further updates on the card and runs the procedure again for the power board or any connected tools, as appropriate.

Figure 8. Power board firmware update

Step 4: End of update

- Wait until the entire update procedure has terminated and the normal menu is displayed once more.
- Turn the station off.
- Remove the microSD™ card.
- Turn the station on again. The station is now updated to the new firmware version.

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Note:

Settings made before the update are retained.
The password is not changed, nor is it required to run the firmware update procedure.

Caution!

If your i-CON VARIO 4 is running firmware version 1.12 dated 24.01.13 or earlier, the firmware update must be run separately for each side of the station, i.e. for both control boards.
Both control boards must always be running the same firmware version.
Run the update procedure again for the second side of the i-CON VARIO 4. Start with step 2 of the procedure. Once the procedure has terminated, check that both control boards are running the same firmware version.

From firmware version 1.13 dated 18.02.13 onwards, both sides of the station are automatically updated together, even if an older version is installed.

Duration of the update procedure

Updating the control board takes around 30 seconds.

For i-CON VARIO 4's with firmware 1.13 dated 18.02.13 or later, the second control board update takes around 2 minutes.

The power board update terminates after around 30 seconds.

Troubleshooting

- **The firmware update procedure has still not terminated after 5 minutes.**
  Format the microSD™ card or use a new one.
  Save the firmware to the card and repeat the procedure.
- **The update procedure has been interrupted** (e.g. power failure, switching off, or removal of the microSD™ card). Turn the station off and repeat the procedure from step 3.

Version history

i-CON VARIO control board firmware

The current version is 1.30 dated 29/04/19.

Version 1.30 dated 29/04/19.
- ✓ i-TOOL Standby Temperature decreased to 210°C.
- ✓ i-TOOL Standby Time decreased to 2min.
- ✓ i-TOOL performance improvement.

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Version 1.28 dated 04/11/16.
- ✓ i-TOOL set temperature is adjustable from 50°C (122°F).
- ✓ Bugfix: i-TOOL HIGH POWER no standby.
- ✓ Bugfix: CHIP TOOL VARIO Err 8 high load

Version 1.26 dated 27/09/16.
- ✓ Introduced Asian Version.
- ✓ Help text for the tool calibration separated for Fahrenheit and Celsius.

Version 1.24 dated 02/11/15.
- ✓ Added new Tool i-TOOL HIGH POWER recognition and functionality.

Version 1.23 dated 21/10/15.
- ✓ Bootloader Firmware refactoring and simplification.
- ✓ Ambient temperature is adopted initial uniform with 23°C.
- ✓ thermocouple Err 7 for CHIP TOOL VARIO instead 10s with only 3s delay, if not exceeding 15K during heating.
- ✓ Bugfix: CHIP TOOL VARIO Err 8 during heating.
- ✓ optimization and standardization of the control parameters for both legs for CHIP TOOL VARIO Hardware Version 6.

Version 1.22 dated 31/07/15.
- ✓ VAC pump operates continuously during the movement of an X-TOOL VARIO.
- ✓ POWER TOOL set temperature is adjustable from 50°C (122°F).

Version 1.20 dated 18/02/15.
- ✓ New Parameter Entry "Opto Sensor Sensibility" for i-TOOL AIR S since version 1.04 dated 04.03.2015.
- ✓ Displays "bootloader" instead of the firmware version in the "Kontrast" (Contrast) menu, when a Tool or the Power-Board is in bootload mode, waiting for a firmware update.

Version 1.18 dated 17/06/14.
- ✓ Bug Fix: sign error i-TOOL calibration at negative values.

Version 1.17 dated 21/03/14.
- ✓ Added new Tool X-TOOL VARIO recognition and functionality.

Version 1.16 dated 16/07/13.
- ✓ Bug fix: CHIP TOOL VARIO mostly shows Error 8 "HEAT ELEMENT !" after Shutdown-Mode.
- ✓ Bug Fix: Error 61 "INCORRECT TOOL ARRANGEMENT" is sometimes not detected.

Version 1.15 dated 12/07/13.
- ✓ Bug fix: CHIP TOOL VARIO shows Error 8 in Shutdown-Mode.

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Version 1.14 dated 28/03/13.

- ✓ Improved contact monitoring of CHIP TOOL VARIO heating elements.

Version 1.13 dated 18/02/13.

- ✓ Collects all current board firmware versions into a single file.
- ✓ The progress bar now runs through only once for each updates.
- ✓ Bug fix: a password setting does not block in the first 30 seconds after power on, version 1.12 dated 24.01.13.
- ✓ Bug fix: incorrect reading of microSD™ cards when many other files have been written to the card's top level directory.
- ✓ Bug fix: control board firmware update problematic with power board or USB interface.

Version 1.12 dated 24/01/13.

- ✓ New language versions completed and available.
- ✓ Automatic VAC pump recognition.
- ✓ VAC Pen mode also on *i*-CON VARIO 2, when VAC pumps are present.
- ✓ Bug fix: "Default setting" does not work on *i*-CON VARIO 2 with all parameters.
- ✓ Chip Tool VARIO regulation redone. 50% output level limiting removed.
- ✓ Bootloader Patch for i-Tool AIR S version 1.02.

Version 1.08 dated 05/10/12.

- ✓ i-Tool AIR S settable from 50°C.
- ✓ Software versions display in Kontrast (Contrast) menu with "long push".
- ✓ "INCORRECT TOOL ARRANGEMENT" error when tools with grounded thermoelements are combined.
- ✓ "Default setting" option (still not working properly with *i*-CON VARIO 2)
- ✓ i-Tool AIR S regulation redone.
- ✓ Several firmware updates can be done with a single microSD™ card (power board and control board at the same time).
- ✓ "on 2x" message displays for i-Tool AIR S IR sensor operation.
- ✓ Improved error detection (especially Chip Tool VARIO)

Version 1.04 dated 04/09/12.

- ✓ Also operates with 60Hz (230V).
- ✓ New Error 6 "Undefined Tool" for future, not yet defined tools.
- ✓ Firmware updates possible with microSD™ card.

Version 1.00 dated 04/05/12.

- ✓ First official version.

i-CON VARIO power board firmware

The current version is 1.07 dated 13/07/15.

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Version 1.07 dated 13/07/15.

- ✓ VAC pump continuous operation mode implemented.

Version 1.06 dated 17/06/14.

- ✓ Added communication with EASY ARM.

Version 1.05 dated 13/02/13.

- ✓ Bug Fix: incorrect VAC pump recognition when an X-Tool is connected during the "Default setting" procedure.

Version 1.04 dated 31/01/13.

- ✓ USB connection operational.
- ✓ Automatic VAC pump recognition.

Version 1.03 dated 01/10/12.

- ✓ X-Tool VAC leakage timeout increased from 20 seconds to 60 seconds.
- ✓ Communications between control and power boards improved.
- ✓ Additional USA version with 115V 60Hz.

Version 1.02 dated 09/08/12.

- ✓ Firmware updates possible with microSD™ card.
- ✓ VAC pump program section redone.
- ✓ VAC pen mode disabled by default.

Version 1.00 dated 04/05/12.

First official version.

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