

X-600 firmware version cMT2078X-3.03

This zipped folder contains the files and instructions to upgrade your X-600 fluxer with the current firmware (operating system) version 3.03.

Please read carefully all sections between your current firmware version and this one. Specific adjustments may be needed, while others may not be available on your fluxer.

New features version 3.03 (cMT2078X-303E only)

- Corrections to allow O2 mode and manual NWA.

New features version 3.02 (cMT2078X-302E only)

- Minor bugs in the Special window 2207 corrected.
- Y1 Parameters ranges for current transducer have been modified to enable proper calibration with the new ATO current transducer.

New features version 3.01 (cMT2078X-301E only)

- Firmware adapted to work on new HMI model cMT2078X. Instructions to update firmware have been updated to work with this new HMI.

New features version 3.01 (V71-301E only)

- Splash boot screen updated to match Environmental Express; now handling Katanax Brand instead of Spex.

New features version 3.00 (V71-300E only)

- Complete redesign of the software visual look to match the new physical look of the unit (Red instead of orange) and standardization of Spex color palette.

New features version 2.21

- New "Data Sampling" feature added. It gives the ability to log every fusion cycle with the samples IDs and generate a report for each day, up to a possibility of 40 days data recovery. The data sampling activation can be done by unlocking the system (password 2014) and it is located in the global parameters. A button will appear in the main window to access the data sampling window.

Please refer to an up-to-date user's manual for details on using this new feature.

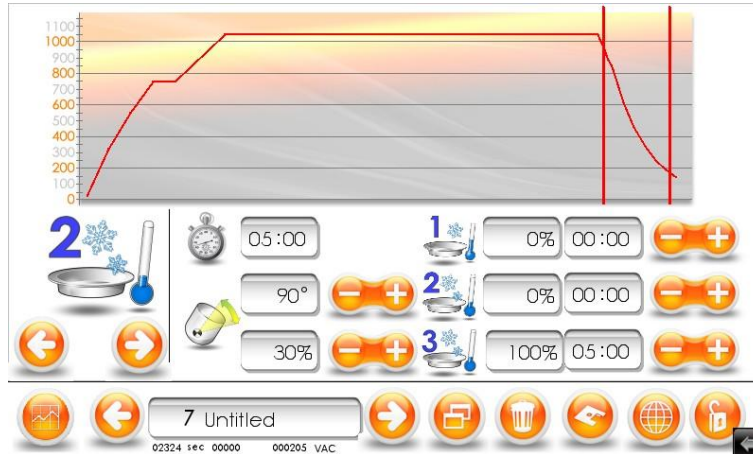
- New "Ethernet connection" feature added. An X-Fluxer unit **with a firmware version ending with "E" (ex: V2.21E)**, can be monitored remotely by the user via the LAN network or by a Katanax service engineer via the WAN network. A user can remotely monitor the unit using VNC protocol on their favourite supported device (e.g. computer, phone, tablet...).

Please refer to an up-to-date user's manual for details on using this new feature.

Firmware release notes

- New "Cooling fans control" feature added. It gives the ability to program 3 sub-steps for the cooling fans speed during the cooling step 2. The fans speed is expressed in percent with a programmable timer for each 3 sub-steps.

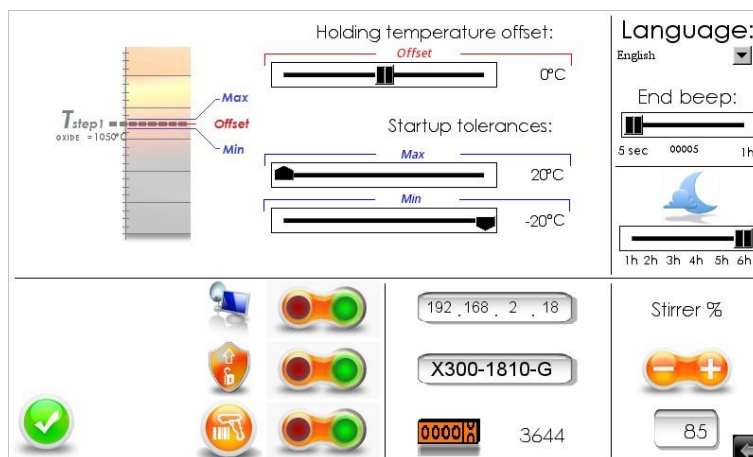
Please refer to an up-to-date user's manual for details on using this new feature.



- New information fields, showing the serial number of the unit and the fusion counter in the global parameter window.

X300-1810-G 0000

- Various labels in the global parameter window have been replaced by icons in order to reduce the amount of text. The "security shield" and the "moon crescent" icons are linked with the same feature as before (i.e. activating/deactivating the security shield in order to start a fusion, and setting the delay for an automatic shutdown to occur, respectively).



- Increased the time for the blue LEDs to light up by 1 min. It now matches the default cooling duration parameter.
- Improved security to unlock the security shield.
 - The security shield unlocks at the end of the fusion, but only if the LEDs are blue. If the LEDs are red, the user needs to unlock it manually (by pressing on the "shield" button), which will display a confirmation window to confirm the desired action, as the unit parts might be still hot.
 - Improved security if there is a power failure during a fusion. The system will remember in which state the LEDs were (based on the cooling stage the fluxer was at) and will resume from there at the next boot up.
- Japanese and Korean languages have been added.
- Minor bugs corrected.

New features version 2.15

- Fan cooling step is subdivided in three steps with adjustable fan speed and duration for each of them. It allows more flexibility with the cooling parameters.
- Optimized heating element control when lower temperature (than the current in the furnace) is set.
- Intermittent issue with the rocking motion button resolved in the 2206 window.
- Optimized heating control when pause button is activated and holders are moved out for visual control.

New features version 2.14

- Issue with intermittent false error detection of broken SSR or leak to ground resolved.

New features version 2.12

- Fusion counter and Temp. Factor parameters are now stored in the rocking board to prevent them to be overwritten when a firmware update is done with history files option selected.
- Wrong default pouring parameters for default method in version 2.11 are corrected. History files don't need to be updated. The firmware detects the wrong parameters and update them to standard values.
- Small quantity of material is better handled with this new firmware version. Flux and sample can be weight in a tilted crucible to regroup the material in a small corner of the crucible. The crucible can then be loaded in the pre-tilted crucible holder to prevent the movement of the material. Finally, fusion is started and the holder remains in this pre-tilted position until a rocking parameter is encountered in the cycle. Then only, the crucible will move to standard rocking position. This makes sure that small quantity of sample remains in proximity of the flux to allow its dissolution.
- Low Voltage parameter can be adjusted down to 110VAC for show purpose in North America.

New features version 2.11

- Voltage information is updated more frequently.
- Problem with End fusion window appearing intermittently at start is solved.

New features version 2.10

- Temperature ramping parameter is initialized to fast in all cases after a fusion is completed;
- Analog to digital converters are software corrected to offer more accurate power control of heating element.

New features version 2.02

- Add a user confirmation after NWA injection before the holders are sent back in the furnace.



New features version 2.00

- Modification to firmware to match new motor hardware board version 2.33:
 - Parameter has been added in the special window 2208 to calibrate the AC voltage read by the analog to digital converter;
 - Broken solid state relay detection code has been modified to match the higher speed processor. The code ensure the good functionality with previous hardware version 1.33.

New features version 1.45

- A delay of 2ms to reply on a command sent by the HMI has been added to resolve intermittent communication issue.
- Parameter added to adjust the number of try when a communication problem occurs. We can also monitor the maximum number of tryout by entering special code 1103. By default the communication try is set to 15.
- Default initialization of communication tryout to 15 (for project file update alone).
- Locking solenoid remains in unlocked position when the door is opened.
- New ICON for Manual Shutdown button.



New features version 1.44

- Font adjustment for Polish and Turkish language.
- Intermediate temperature target no more displayed. It can be seen again by entering special code 1103 with the keypad.
- Correction of a minor bug. Intermittent bug was occurring if the temperature was above the start-up tolerance after start button has been pressed.
- Default methods have been updated.
- Button has been added to turn off the furnace heating. By pressing on the button below, the system will remove the power to the heating elements and display a warning message similar to automatic shutdown operation. User just need to press the message to resume operations and furnace heating.



New features version 1.43

- Correction of an intermittent bug that was creating a false furnace temperature not increasing error.

New features version 1.42

- The system allows to execute a manual addition of releasing at the last heating step (Step 6). A general parameter must be activated by Katanax to allow this special function. Once activated, a parameter (NWA) in the pouring step will allow to turn ON or OFF the manual injection of releasing agent during the fusion. If set to ON, the system will reach the temperature of step 6 and move the holders out for the addition of releasing agent. The security door will unlock automatically to allow the addition. The system will warn the user to open the security door, add the releasing agent and close the security door. The action of closing the security door will automatically resume the fusion. The holders will move in the furnace. The temperature of step 6 will be reached again and the normal fusion will continue.

New features version 1.41

- The temperature can be adjusted by increment of 5°C (instead of 10°C).

New features version 1.40

- The system detects motion problems, generates error messages and stop motions if initialization of motions failed.

New features version 1.36

- OQ LOW and OQ HIGH methods have been added to allow temperature verification protocol with K₂SO₄ (Potassium sulfate).
- Improve temperature control within +/-1°C.

New features version 1.35

- Turkish, Danish and Polish languages have been added.
- Minor correction to the door motor board software. This was necessary to work with new hardware version 1.3 of the electronic board.

New features version 1.34

- Correction to O₂ parameter on step 6.

New features version 1.33

- Safety shield operation is optimized. A set of new Icons are used to unlock the safety shield.



- Minor optimizations and corrections has also been done.

New features version 1.31

- O2 injector function is added. It requires the optional hardware to work.

New features version 1.30

- Fusion remaining time is shown under the temperature vs time graphic.
- Security door operation is modified. The security door is now automatically unlocked after the initial reset and immediately after a fusion has been completed. Once the security is opened and reclosed, it is automatically locked. If for any reasons it needs to be unlocked and opened again, the user just have to press the unlock icon beside the start icon to unlock it. **Once the security door is unlocked, the user must push and pull sequentially to open it.**
- Broken SSR detection adjusted to be less sensitive. If a fault is detected, the execution is immediately stopped and a warning message is displayed.

New features version 1.28

- Low power detection level in Watts.
- Maximum power detection.
- Broken SSR detection.
- Allow a maximum of one heating element in low power condition.

New features version 1.27

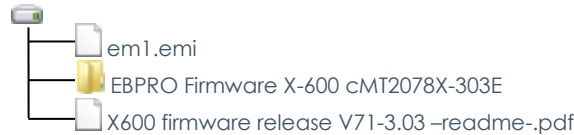
- Low power detection bug corrected for heating elements 1, 2 and 3.
- Debug window for sensors added.
- Temperature control in special window 2206 added.

Apply the upgrade to your instrument

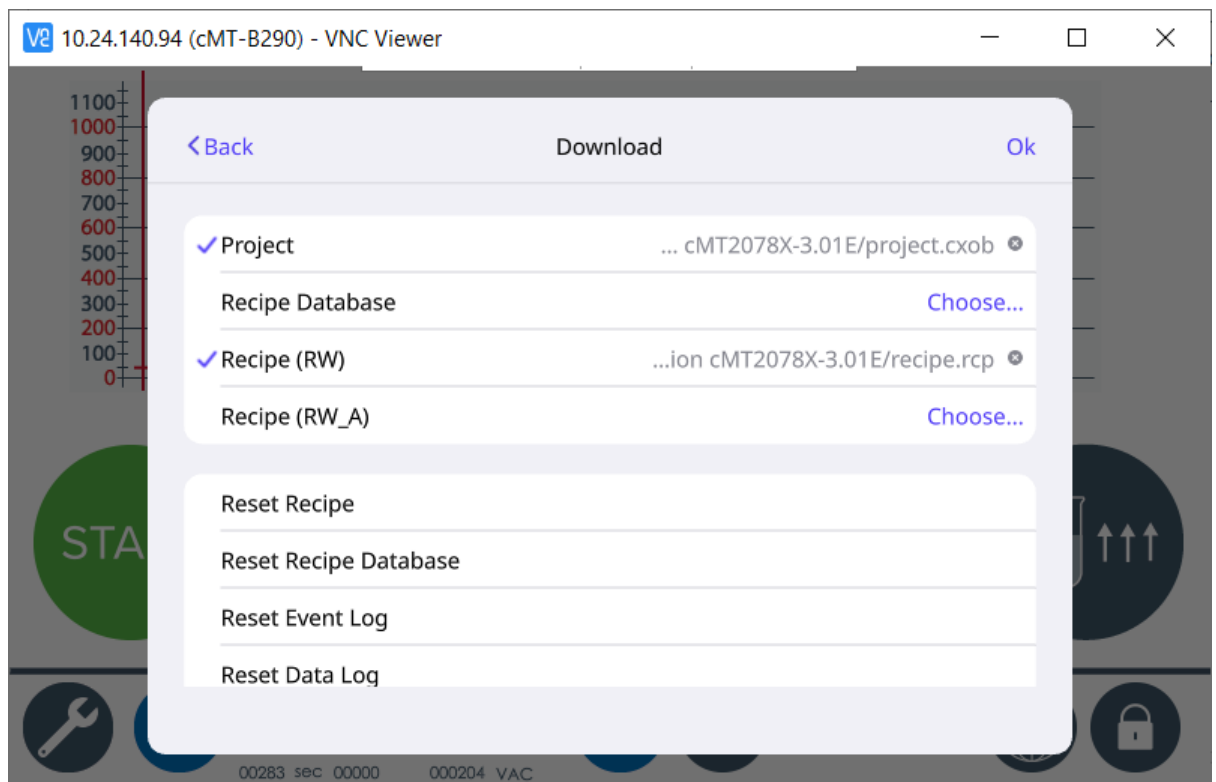
1. Extract (unzip) the compressed folder file directly onto a USB drive "letter" (i.e. root directory).

- The structure of your drive should look like this :

USB drive
root directory
(e.g. "E:\", "F:\" ...)



- Make sure that your X-600 is not running a fusion. In such case, wait for the fusion to complete or press STOP button twice to abort it.
- Insert the USB drive into the X600. The hole to insert the USB memory is located at the bottom left of HMI (human machine interface).
- A dialog will automatically pop up, after a few seconds.
- Touch "Download".
- A dialog will appear, requesting a password and what data to download. The password is "111111" (six times the digit one). You may have to drag the dialog window to the left, to show the keyboard and then type the password.
- Press the Choose button on the Project line to select the "project.cxob" file from the desired folder (EBPRO Firmware X-600 cMT2078X-303E) to update the firmware.



- Press the Choose button on the Recipe (RW) to select the "recipe.rcp" file from the desired folder (EBPRO Firmware X-600 cMT2078X-303E) to update the history file (methods parameters). This will clear up all existing methods you have created. **Do not choose/select the Recipe (RW) option to keep your existing created methods.**
- Touch "OK" to confirm. The screen will black out, and the fluxer will re-boot.
- During the first boot-up, the firmware motor upgrade (if available) takes about 5 minutes to be performed. Do not interrupt it. Do not turn OFF the instrument until you have reached the main screen (where you can execute fusion method).
- The new firmware is loaded, and you can remove the USB drive.