

## X-300 firmware version 3.022E

This zipped folder contains the files and instructions to upgrade your X-300 fluxer with the current firmware (operating system) version 3.022E.

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

Instruments with serial number **X300-16XX-Y (where X and Y can take any values)** and with firmware version **earlier than 1.43 must contact** Katanax (info@katanax.com) before proceeding with this upgrade. A hardware incompatibility will cause a bad functionality of the new firmware. Katanax will gladly provide the necessary parts to resolve the incompatibility issue.

The current firmware version can be found on the startup- screen during boot-up.

### New features version 3.022E (V71-3022E only)

- Correction to bugs in 3.021E version that allows motor boards programming.

### New features version 3.021E (V71-3021E only)

- Adjusted frequency execution of macros to match heavier OS.

### New features version 3.02 (V71-302E only)

- Y1 Parameters ranges for current transducer have been modified to enable proper calibration with the new ATO current transducer.

### 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 separate report for each day, up to a possibility of 40 days data recovery.

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

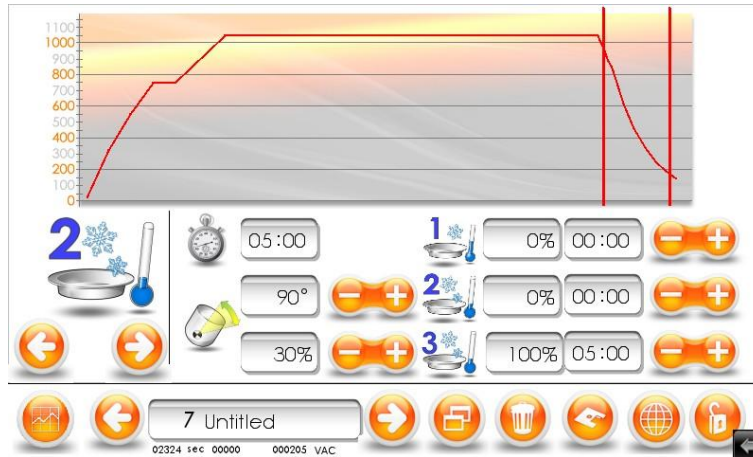
- New "Ethernet connection" feature added. An X-Fluxer unit **with a firmware version ending with "E" (ex: V2.21E)**, can be monitored remotely by the user via the LAN network or by a Katanax service engineer via the WAN network. A user can remotely monitor the unit using VNC protocol on their favourite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

Please refer to an up-to-date user's manual for details on activating and 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.

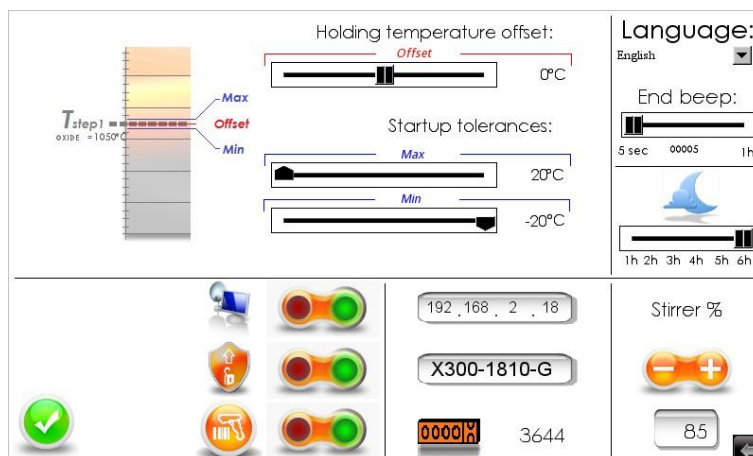
Please refer to an up-to-date user's manual for details on using this new feature.



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



- 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**

- Intermittent bad behaviour during pouring caused by infrared emissions that disturb the rocking sensor when furnace door is opened. The rocking sensor is no more used during the perturbation period.

## **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.
- 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.

## **New features version 2.10**

- Minor correction on acceleration parameters of sliding and door motions;
- 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;
- Problem with End fusion window appearing intermittently at start is solved.

## **New features version 2.02**

- Minor correction on door motion closing to adapt for new hardware version 2.3 of motor board.

## **New features version 2.01**

- Low temperature control optimized.

## **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 ensures the good functionality with previous hardware version 1.33.

### New features version 1.47

- Temp. Factor reset problem have been fixed. Under certain circumstances, the Temp. Factor was returning to default value.

### New features version 1.46

- Temp. Factor range have been modified.
- Minor bugs corrected.

### New features version 1.45

- On automatic or manual shutdown, when the temperature is below 600°C, the furnace door open by 50mm and a message is displayed that instrument can be turned to OFF.
- Default initialization of communication tryout to 15.
- New ICON for Manual Shutdown button.



### New features version 1.44

- A delay of 2ms to reply on a command sent by the HMI has been added to resolve intermittent communication issue.

### New features version 1.43

- Optimization on door and sliding motions.
- 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.
- Locking solenoid remains in unlocked position when the door is opened.

### New features version 1.42

- Font adjustment for Polish and Turkish languages.
- 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.
- Complete reprogramming of door and swing motions.
- 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 1.41

- Holding temperature offset can be adjusted by increment of 10°C instead 20°C;
- Temperature for heating steps can now 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 1.39

- Intermittent motor controller communication issue resolved.

### New features version 1.38

- OQ LOW and OQ HIGH methods have been added to allow temperature verification protocol with K<sub>2</sub>SO<sub>4</sub> (Potassium sulfate).
- Initialisation error detected and displayed when holders are located just under the furnace door at start-up.
- Improve temperature control within +/-1°C.

### New features version 1.37

- 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 1.36

- Automatic initialization of offset parameters
- Low voltage detection can be adjusted by software

### New features version 1.35

- 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 1.30

- 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.

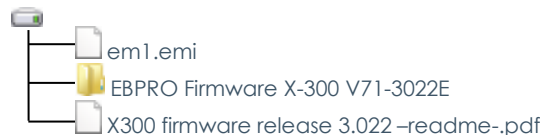
## New features version 1.27

- 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).
2. The structure of your drive should look like this :

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



3. Make sure that your X-300 is not running a fusion. In such case, wait for the fusion to complete or press STOP button twice to abort it.
4. Insert the USB drive into the X-300. The hole to insert the USB memory is located at the bottom left of HMI (human machine interface).
5. A dialog will automatically pop up, after a few seconds.
6. Touch "Download".
7. 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.
8. Select "Download Project Files" to upgrade the firmware.
9. **Unselect** "Download History Files" to **do not** update **the fusion recipes**
10. Touch "OK" to confirm.
11. Now, choose where you want the data to be fetched. By default, you will have to double-click on "USBDISK", then double-click on its sub-directory, named "disk\_a\_1", then highlight the folder named "EBPRO Firmware X-300 V71-3022E".

## Firmware release notes

12. Click "OK" to start the transfer to the USB drive. The screen will black out, and the fluxer will re-boot.
13. During the first boot-up, the firmware motor upgrade takes about 10 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).
14. The new firmware is loaded, and you can remove the USB drive.