



RANGEMASTER
SYSTEMS

HOW TO:
Update Software for Rangemaster X2.PRO sequencer
User Manual

Revision Date: 02.02.2023

YOU NEED

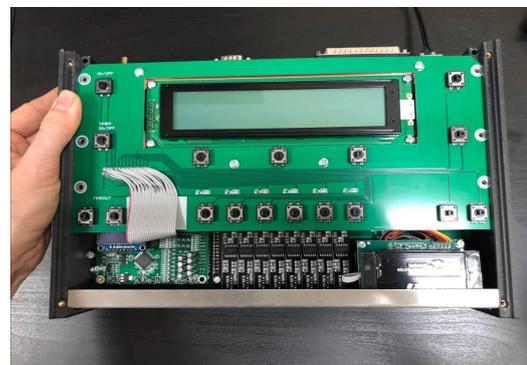
- X2 PRO sequencer with the power supply
- Computer or Laptop
- The update files are sent to you by the Rangemaster Systems operator via email saved on your laptop (2 files in .hex and .eep formats)
- Microchip Technology ATATMEL-ICE programmer (you can order it e.g. from Digikey, Reichelt or Conrad electronic shops).



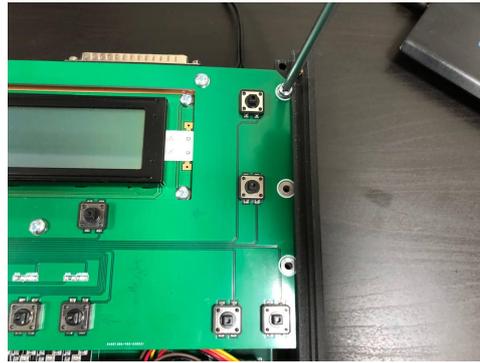
1. Download software Atmel Studio ver. 7.X from www.atmel.com website and install it before attaching programmer for the first time and start the program
2. Attach the programmer to the USB slot of PC or laptop
3. Open X2 PRO:
 - unscrew the 4 front screws and remove the front cover



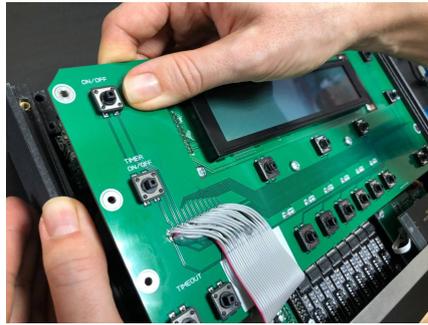
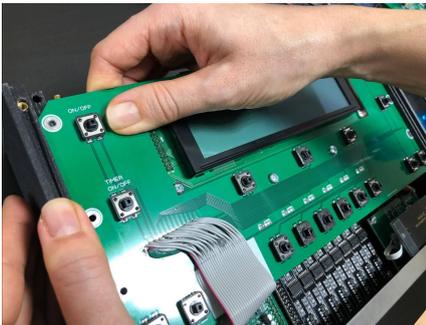
- unscrew 4 back side screws and remove the back side cover



- unscrew the screws holding front PCB



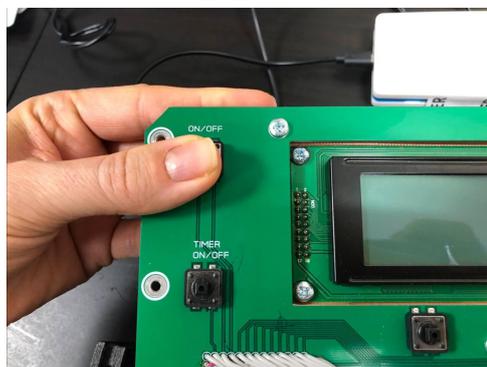
- remove the display front PCB by slightly pulling the left or right side panel



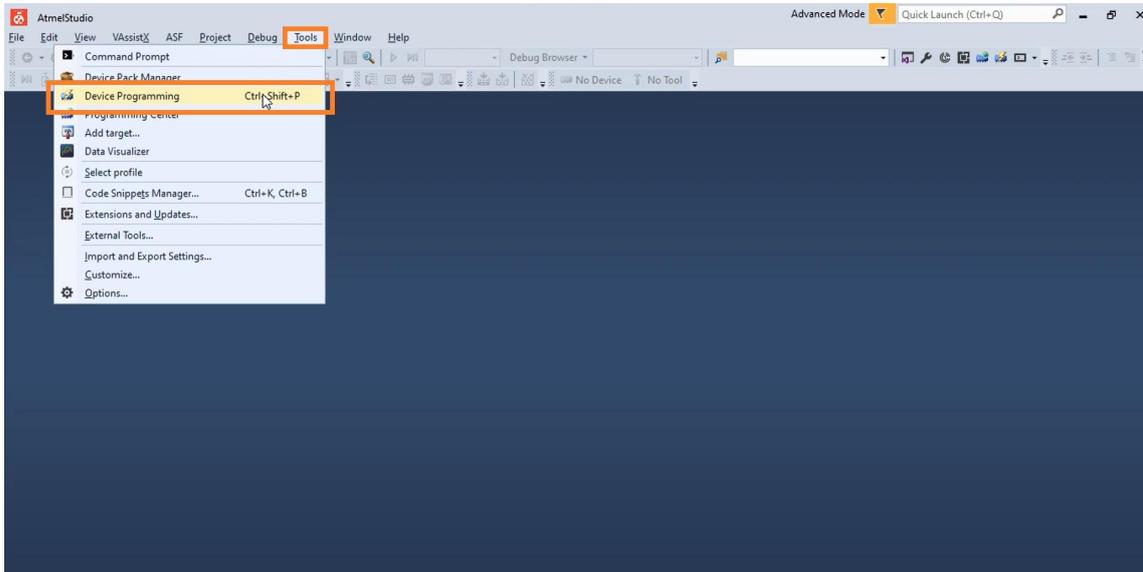
4. Now you have access to the microcontroller board. Attach the other side of the programming cable to the microcontroller board connector.



5. Power the X2 PRO on and keep the **ON** button on all the time (ask somebody to assist you).



6. Go to **Atmel Studio** program on your laptop and press **Tools** → **Device Programming**.



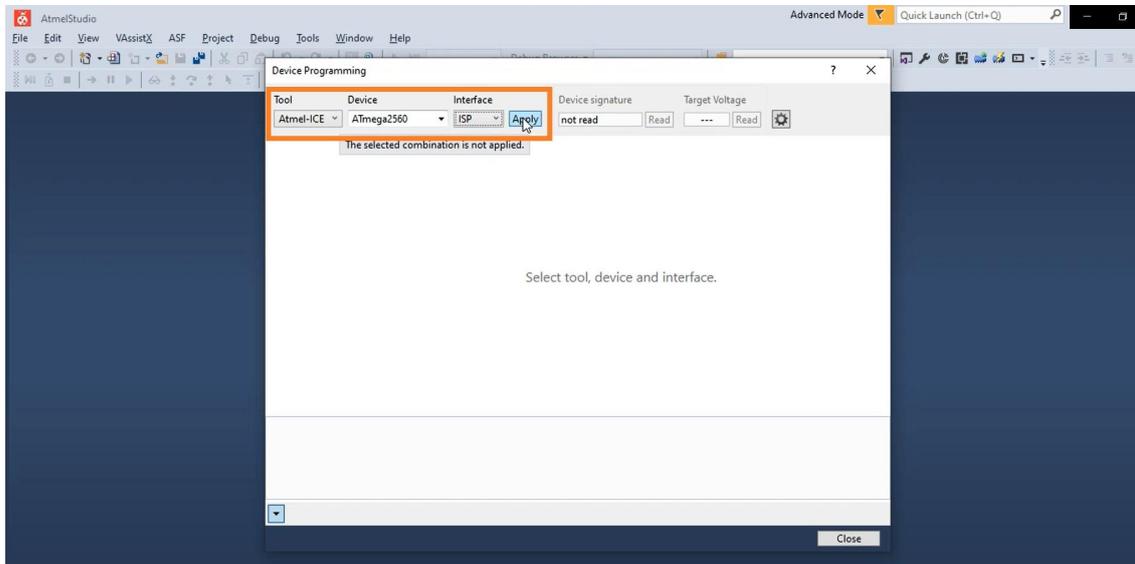
7. Make the following settings:

Tool: Atmel-ICE XXXXX

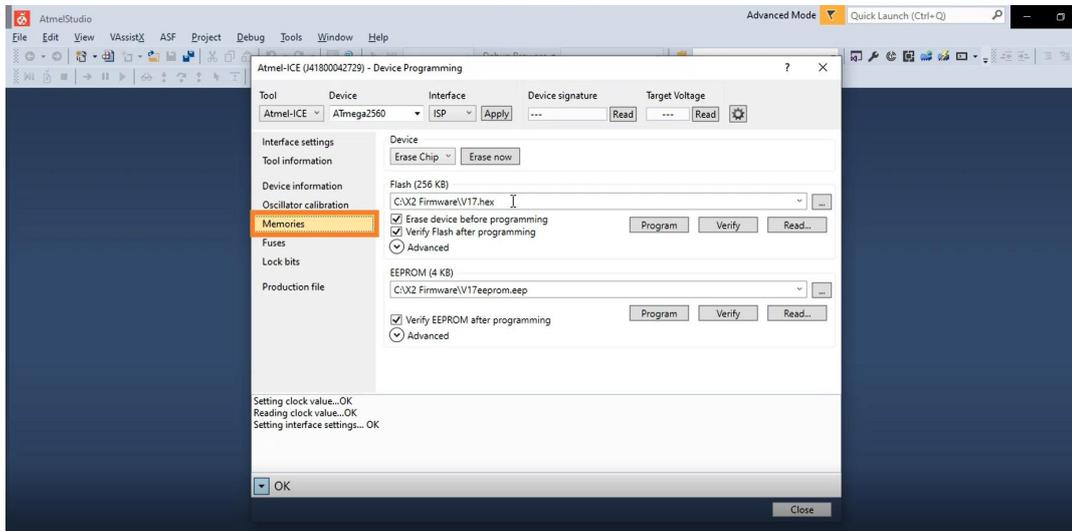
Device: Atmega 2560

Interface: ISP and press **Apply**

Set **ISP Clock** to a value around 1000 kHz and press **Set**

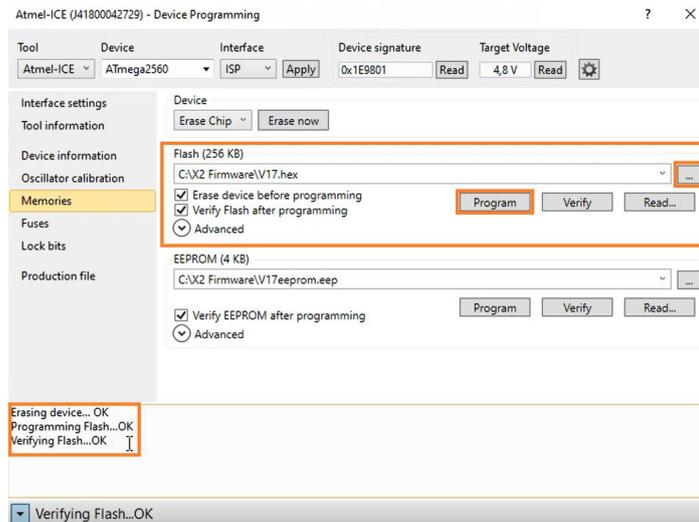


We have 2 stages of programming: Flash and EEPROM.
Open **Memories** section:



8. To update Flash (Software):

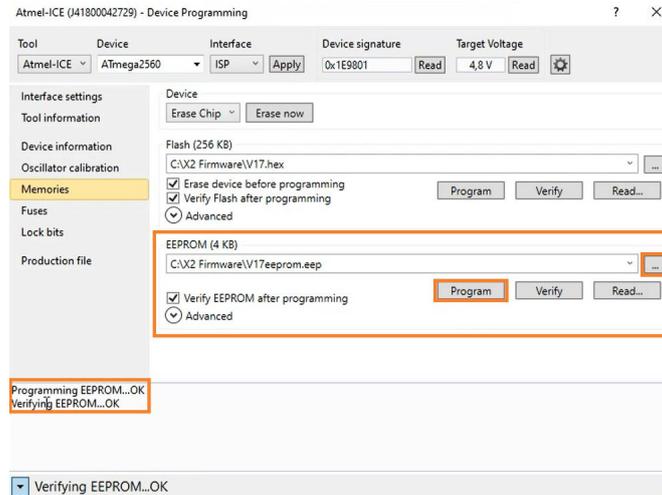
- Open the firmware which we are going to upload by using ... button in the Flash (256KB) section: *in our case it is on C disk in X2 Firmware folder, file in hex format called V17.hex.*
- Click **Program** button and wait until it is finished



You can see the status of the programming process in the lower part of the window

9. To update EEPROM (Settings):

- Open the firmware which we are going to upload by using ... button in the EEPROM (4 KB) section: *in our case it is on C disk in X2 Firmware folder, file in eep format called V17eeprom.eep.*
- Click **Program** button and wait until it is finished



You can see the status of the programming process in the lower part of the window

10. Switch off the X2 unit, disconnect the programmer and start it again.

Check that on the display you have a new updated version shown (e.g. here we see that it was updated to **V. 2217**):

11. Reassemble the X2.PRO unit back

