

Manual K+K FXE2 Firmware Uploader

Version 1.0.0 - 2026-07-30

The program **KK_FXE2_FirmwareUploader** updates and configures the firmware of K+K FXE2 devices.

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History

Date	Version	Who	Description
26-07-30	1.0.0	Loryn	created

1. Requirements

Extract the .zip file in a directory with write access.

The executable **KK_FXE2_FirmwareUploader** is for K+K FXE2 devices only. For older FXE devices please use **KK_FirmwareUpload**.

The firmware to be updated is separated in two parts: USB (U2) and LAN (E2). The USB part is updated via the USB interface and the LAN part via the LAN interface. Therefore **please connect the device to your network and connect it to your computer via USB**. Then power the device.

The executable already contains the firmware to be loaded. The firmware versions are indicated in the file name (U2_xx_E2_xx).

A single connection is sufficient for firmware configuration.

Please allow the executable file in your firewall settings to ensure proper network access.

2. Starting

The operation of **KK_FXE2_FirmwareUploader** depends on selected function *Firmware Update* or *Firmware configuration* and interface selection *Both*, *USB*, *LAN*. Default is *Firmware Update* and *Both*.

When starting **KK_FXE2_FirmwareUploader**, it first searches for K+K FXE2 devices that are connected via USB.

If interface selection is *Both* or *USB*, the USB connection is established and USB firmware version is read. Informations found in the version string are displayed in the *Device Info* box. If interface selection is *Both*, a network connection to the IP address found in the USB version string is established and LAN firmware version is read.

With older USB firmware versions, the IP address found in the version string may be incorrect. In this case, please enter the correct IP address: Select *new* in the *LAN* box and key in an IPv4 Address.

The version strings are displayed in the message box.

If interface selection is *LAN*, a network connection to IP address in *LAN* box is established and LAN firmware string is read and displayed.

3. Main Window

At start **KK_FXE2_FirmwareUploader** displays the main window.

K+K FXE2 Uploader - 1.0.0 2026-07-30 - Firmware version U2: 1.32 E2: 1.30

File Window Help

Select Function

☒ Firmware Update ☐ Firmware Configuration ☒ Both ☐ USB ☐ LAN

Select Device

USB: KK-FXE2 Refresh Reopen LAN: IP: 192.168.178.98 Reopen

Device Info

Serial number: 0000031D Firmware: U21-1.23 25-07-01 - E20-1.23 25-07-01
 Hardware: FXE2 IP address: 192.168.178.98
 FPGA Code: 23111731 MAC address: E0:51:1B:xx:xx:xx

Progress

USB				LAN			
Description	State	KK-FXE2	%	State	IP: 192.168.178.98	%	
Read version	Done		100	Done		100	
Read config	Done		100	Done		100	
Transmit code	-		-	-		-	
Program	-		-	-		-	
Reset	-		-	-		-	
-	-		-	-		-	

Update Firmware Cancel

Messages

USB: Firmware version: FXE2 / # 0000031D User 1 / U21-1.23 25-07-01 / HW: 23111731 / IP: 192.168.178.98
 LAN: Firmware version: FXE2 / # 0000031D User 1 / E20-1.23 25-07-01 / HW: 23111731 / IP: 192.168.178.98

Main Window

Here the main window shows a FXE2 device connected via USB and LAN.

The main window is divided into six groups:

1. Menu
2. Select Function
3. Select Device
4. Device Info
5. Progress
6. Messages

Menu:

The menu item **File – Exit** close the program - same action as close button in window title.

Window – Configuration displays configuration window if function is *Firmware configuration*

To switch on/off debug log use **Help** menu items **Debug log, Debug stream, Debug error only**. The debug log serves for error detection and is switched off by default. Option *Debug error only* is switched on by default. If debug logs are written all error free debug files are deleted on program end.

Debug log files are in sub folder **Debug** of the executable. Debug settings are stored in INI file (see chap 7).

Help – About displays version informations about KK_FXE2_FirmwareUploader.

Select Function:

Select operation mode: *Firmware Update* (see chap. 5) or *Firmware Configuration* (see chap. 6)

Select interface: *Both* (Firmware Update only), *USB*, *LAN*

Select Device:

USB box shows all found FXE2 devices on USB. First USB device is selected automatically.

Click *Refresh* to search for USB devices again. If USB device is plugged in or powered, USB enumeration starts again.

Click *Reopen* to establish USB connection again and to read USB firmware version.

LAN box shows IP address of connected USB device or IP address keyed in previously.

IP addresses are stored in INI file. Click *Reopen* to establish network connection again and to read LAN firmware version.

Device Info.

Shows informations found mainly in the firmware version strings like device serial number, hardware configuration, FPGA User Code, firmware version numbers and date, IP and MAC address.

Progress:

Displays the progress of the function steps separately for USB and the LAN.

Includes buttons for starting an update or configuration or to cancel operation.

Messages:

The message box displays USB an LAN firmware version stings and progress updates.

4. First start – configure network settings

When you start up your K+K FXE2 device for the first time, you will need to configure the network settings.

Please connect the device to your network and connect it to your computer via USB. Power the device.

Start **KK_FXE2_FirmwareUploader**. Preselected function is *Firmware Update* and interface *Both*. The USB firmware version is read.

In *Select Function* box please select *Firmware Configuration* and interface *USB*. The USB firmware configuration is read and displayed in separate configuration window. Please set network settings:

- either *dynamic IP* and *FXE2 host name*
- or *static IP*, *IP address*, *Subnetmask*, and *Standard gateway (IPv4 addresses)*

Then confirm the changes by clicking *Write configuration*. The settings are transmitted to the device, device reset is executed and firmware version and configuration are read again.

5. Update firmware

Please connect your K+K FXE2 device to your network and connect it to your computer via USB. Power the device and start **KK_FXE2_FirmwareUploader**. In *Select Function* box please select *FirmwareUpdate*, interface selection changes to *Both*.

The USB connection to the device is established automatically and the USB firmware version is read and displayed in the *Messages* box. The device's IP address is determined, the network connection is established, the LAN firmware version is read and displayed in the *Messages* box.

Click *Update Firmware* to start update process. If the device firmware versions are identical with version numbers in filename, update is denied. Update of the LAN firmware requires login password (see chap. 6.6).

If not, the USB and/or LAN firmware is transferred to the device, the programming process is started and completed by resetting the device. The firmware versions are then read in again and displayed.

6. Configure firmware

Please start **KK_FXE2_FirmwareUploader** and select *Firmware Configuration* in *Select Function* box. If an USB connection is found, interface selection changes to *USB*, otherwise *LAN* is selected and you have to select (or key in a new) IP address in the *LAN* input box.

Firmware version and configuration is read and displayed in a separate configuration window. Please make your settings in the separate window and confirm the changes by clicking *Write configuration*. Changes via network requires login password (see chap. 6.6). The settings are transmitted to the device, device reset is executed and firmware version and configuration are read again. The settings apply to both USB and LAN.

The screenshot shows the 'FXE2 Configuration: KK-FXE2 - USB - #0000031D' window. It contains several sections for configuring the device:

- IP configuration:**
 - ☐ dynamic IP address (DHCP) FXE2 host name: (up to 40 english letters, digits and -)
 - ☒ static IP address
 - IP address:
 - Subnetmask:
 - Standard gateway:
- CAN:**
 - CAN Receive ID: ☒ Extended Format
 - CAN Transmit ID: ☒ Extended Format
- Start condition:**
 - ☒ default
 - ☐ User defined
 - Reportmode:
 - Reportintervall:
- Reference clock monitoring:**
 - Monitoring:
- Serial:**
 - Baud rate:
- PPI:**
 - ☐ User dependend
 - Interval:
 - Offset [ms]:
- Password:**
- USB Nick name:** (up to 40 english letters, digits and -)
- Configuration:**
 -
 -

Configuration Window

6.1 IP configuration

Please choose between dynamic and static IP addressing. Dynamic IP addresses require a DHCP server on the network.

For dynamic IP address via DHCP the *FXE2 host name* is required.

For static IP address please key in *IP address*, *Subnetmask*, and *Standard gateway* in format IPv4.

6.2 Start condition

The report mode and report interval for all users are set here when the device is started. If set to *default*, the device starts with 'Phase Average, 1s'. During operation, the report mode and interval for the user can be changed via a command.

6.3 Reference clock monitoring

The connected reference can be monitored. If it deviates from 10 MHz, an error message is sent; a success message is sent once the 10 MHz frequency is restored.

The options are:

- off: no reference clock monitoring
- on (option1): reference clock is compared to measurement interrupts
- on (option2): reference clock is compared to measurement packets

6.4 Serial

Sets the baud rate for a serial connection. The default setting is 576000 baud which is the maximum value.

The older FXE devices have a fixed baud rate of 115200 baud.

6.5 PPI

Defines **Pulse per interval**. The FXE2 unit generates a pulse at the specified interval with a time offset in milliseconds.

If **User dependend** is checked, PPI settings can be changed via command. Otherwise, the PPI setting is fixed.

6.6 Password

A login password (8-digit HEX code) is required to change the firmware and its configuration via the network.

This setting is displayed exclusively via USB connections and can only be changed via USB.

6.7 USB Nick name

This setting allows you to give the USB device a custom name to distinguish it from other USB devices. If you change the name in Windows, the USB device will be reinstalled.

This setting is also used as the *FXE2 host name*.

6.8 CAN

Default CAN configuration is displayed. If you wish to operate the device via CAN, please configure your CAN environment as follows: *CAN Receive ID*, *Extended Format* yes/no, *CAN Transmit ID*, *Extended Format* yes/no.

7. INI file

The settings for debug log, IP addresses and window positions are loaded from and saved into INI file (*.ini). The INI file is located in same directory as the executable.