

How to Flash MicroSD Card in Wiser for KNX and spaceLYnk Controllers

LSS100100

LSS100200

Application Note

This application note outlines the procedure for restoring the firmware image of the Wiser for KNX and spaceLYnk controllers.

AN 2_001 rev. 2.0

Basic / Intermediate / Expert

Release date 04/2024

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Table of Contents

Safety information	5
Safety Notice: Electrical Equipment Handling	6
Safety Precautions.....	7
Introduction	8
Installing USB Image Tool on Your Computer	9
Configuration	10
Controller Hardware Version.....	10
Preparing Your MicroSD Card for the Controller	11
Creating a New MicroSD Card with W4K Firmware	12
Restoring a MicroSD Card from Backup	13
Useful Links	15

Safety information

Important information

Read these instructions carefully and look at the equipment to become familiar with the device before trying to install, operate, service, or maintain it. The following special messages may appear throughout this manual or on the equipment to warn of potential hazards or to call attention to information that clarifies or simplifies a procedure.



The addition of either symbol to a “Danger” or “Warning” safety label indicates that an electrical hazard exists which will result in personal injury if the instructions are not followed.



This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that accompany this symbol to avoid possible injury or death.

DANGER

DANGER indicates a hazardous situation which, if not avoided, **will result in** death or serious injury.

Failure to follow these instructions will result in death or serious injury.

WARNING

WARNING indicates a hazardous situation which, if not avoided, **could result in** death or serious injury.

CAUTION

CAUTION indicates a hazardous situation which, if not avoided, **could result in** minor or moderate injury.

NOTICE

NOTICE is used to address practices not related to physical injury.

Safety Notice: Electrical Equipment Handling

Electrical equipment is critical for various applications, but it must be handled with care and expertise. Please adhere to the following guidelines:

1. **Qualified Personnel Only:**

- Installation, operation, servicing, and maintenance of electrical equipment should be carried out exclusively by qualified personnel.
- A qualified person possesses the necessary skills and knowledge related to the construction, installation, and operation of electrical systems.
- Such individuals have also received safety training to recognize and mitigate potential hazards.

2. **Schneider Electric Disclaimer:**

- Schneider Electric assumes no responsibility for any consequences arising from the use of this material.
- Users must exercise caution and follow best practices when dealing with electrical equipment.

Safety Precautions

⚠ WARNING

HAZARD OF INCORRECT INFORMATION

- Do not incorrectly configure the software, as this can lead to incorrect reports and/or data results.
- Do not base your maintenance or service actions solely on messages and information displayed by the software.
- Do not rely solely on software messages and reports to determine if the system is functioning correctly or meeting all applicable standards and requirements.
- Consider the implications of unanticipated transmission delays or failures of communications links.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

Introduction

This application note outlines the procedure for restoring the firmware image of the Wiser for KNX and spaceLYnk controllers. You may need to perform this process for either updating or backing up the firmware, or in the unfortunate event of microSD card failure.

Competencies

This document is intended for readers who have received training on Wiser for KNX or spaceLYnk products and possess at least intermediate computer skills. Administrator rights for the PC will be required, as third-party software will be installed.

System Prerequisites

Software	Version	Download
Wiser for KNX firmware	3.0.0	https://www.se.com/il/en/product/LSS100100/wiser-for-knx-logic-controller/
USB Image Tool	1.9	https://www.alexpage.de/usb-image-tool/download/
Wiser for KNX recovery image	2.0	Click here: https://www.se.com/cz/cs/download/document/AN2_001/ . Or go to www.se.com > select your country > search for <i>LSS100100</i> > scroll down > click Documents tab > look for <i>How to flash microSD card</i> document.

Installing USB Image Tool on Your Computer

In this chapter, we will explain which tool you need to install on your computer for a successful microSD card flash.

The **USB Image Tool** is a small freeware utility that serves several purposes related to flash drives:

- Creating image files of flash drives
- Restoring images to flash drives
- Creating compressed image file formats
- Revealing device information
- Managing image files

To install the USB Image Tool, follow these steps:

1. **Download USB Image Tool:** Visit this link to download the tool: <https://www.alexpage.de/usb-image-tool/download/>.
2. **Unzip the Tool:** Extract the downloaded USB Image Tool to a folder on your PC. No further installation is needed.
3. **System Requirements:**
 - **.NET Framework 4.0:** Ensure you have the .NET Framework 4.0 installed.
 - **Operating System:** USB Image Tool works on Windows XP or higher.
 - **usbit32.dll:** If you are using the graphical interface (EXE file), make sure the included **usbit32.dll** is in the same directory.
4. **Command Line Utility:** If you prefer the command line utility, it does not require the .NET Framework or the **usbit32.dll**.

For the **.NET Framework** download, visit this link: <https://www.microsoft.com/en-us/download/details.aspx?id=17851>.

Configuration

In this chapter, you will discover where to find the device version, learn about the processor it uses, and explore the steps for preparing and creating a new microSD card. Additionally, we will touch on making backups or copies of existing microSD cards.

Controller Hardware Version

The controller comes in two hardware versions, which can be identified by checking the sticker on the controller housing or by the position of the reset button on the device:

1. Older Version (IMX28 Processor):

- Applicable to all hardware versions with the IMX28 processor.
- Hardware version: **1.x**.



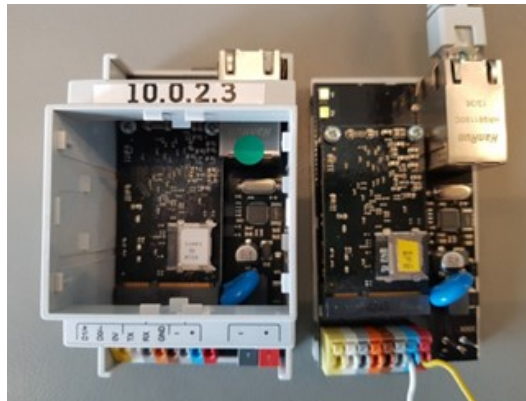
2. New Version (IMX6 Processor):

- Utilizes the IMX6 processor.
- Hardware versions: **2.x** and **3.x**.
- The device has a reset button on the front next to the LEDs.
- Applicable to HW version 2.0 and higher.



Preparing Your microSD Card for the Controller

1. **Choose Quality microSD Card:** We strongly recommend using branded, high-quality microSD cards that match or exceed the size of the card originally used in your controller. Using subpar cards may cause the controller to malfunction or become inaccessible.
2. **Static Electricity Precautions:**
 - **Discharge Static Electricity:** Before handling the microSD card, ensure that you discharge any potential static electricity from your body. microSD cards are extremely sensitive to overvoltage and can be damaged or even destroyed under such conditions.
 - **Secure Grounding:** Use securely earthed points. If you're working on a building site, consider using grounded heating or water installations as makeshift grounding points.
3. **Wiser for KNX Housing Types:**
 - There are two types of W4K housings:
 - **Top-Removal Housing:** The top part can be removed.
 - **Bottom-Removal Housing:** The bottom part is removable.



4. **Removal Process:**
 - **Caution:** Never remove the microSD card while W4K is powered on and connected to a power supply. Avoid using metal tools inside the controller to release the card, as it may cause damage to the internal components
 - **Remove the microSD Card:** If your microSD card is already mounted inside the controller housing, you can access it by simply opening the top part of the W4K controller (applicable to HW version 1.3 and higher). The microSD card is secured in place by a metal bracket located in the middle of the controller. To remove the microSD card, gently push the metal bracket to the left, allowing it to open, and then you can safely take out the microSD card.
5. **Insertion into PC:**
 - After removing the card, insert it into a compatible microSD card reader connected to your PC. **Windows may prompt you to format the card** since it won't recognize Linux-based files. Choose **NO** to avoid accidental formatting.

Creating a New MicroSD Card with W4K Firmware

1. Download the recovery image:

- Retrieve a copy of the recovery image to your computer. It is attached to this Application Note.
- There are two recovery versions that correspond to different hardware versions of the W4K. Refer to [Controller Hardware Version](#), page 10 for details. Both recovery versions are included in this application note.
- Recovery file names:
 - For old hardware: **SL_W4K_HW1_xx_recovery:img.gz**
 - For new hardware: **SL_W4K_HW2_xx_3_xx_recovery:img.gz**
- Unzip the appropriate recovery file.

2. Create a backup of the microSD card:

- Launch the USB Image tool that you previously downloaded.
- On the left side of the interface, select your microSD card.
- Look for the green button labeled **Backup**. Click this button once the correct microSD card is selected.
- A dialog window will open. Choose the location where you want to save the backup files.
- Give the backup file a descriptive name and click **Save**.
- Wait while the backup process runs. You will see a progress bar on the left side of the screen.
- The completion of the backup process ensures that your data is safely copied.
- Keep the backup file secure. It might be requested for future analysis or restoration.

3. Prepare the microSD card:

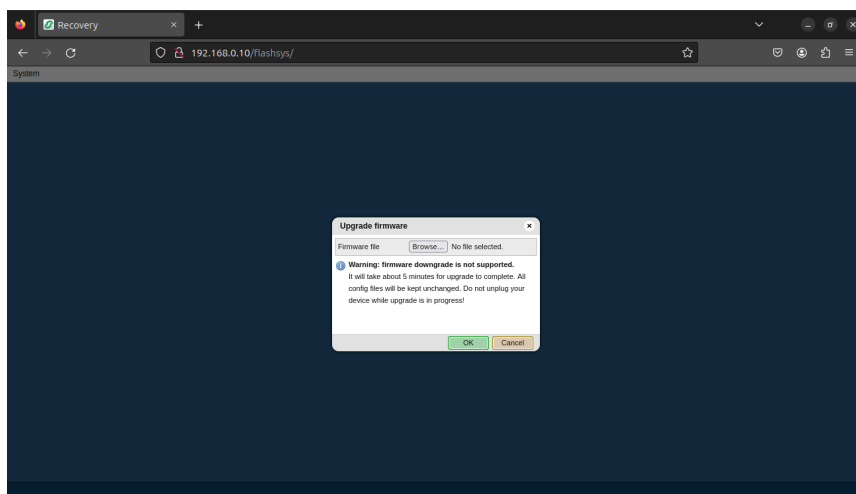
- Open the USB Image tool. On the left side of the interface, choose your microSD card.
- Click the green button labeled **Restore**. It should become available once the correct microSD card is selected.
- A dialog window will open. Navigate to the location where you unzipped the recovery files in step 1.
- Select the appropriate recovery file and click **Open**.
- A pop-up window will appear, asking if you want to restore the image to the selected device.
- Click **Yes** to proceed with the restoration process.
- Wait until the flashing ends (progress bar on the left).
- Remove the microSD card safely (eject, remove hardware).

4. Install the microSD card in your W4K:

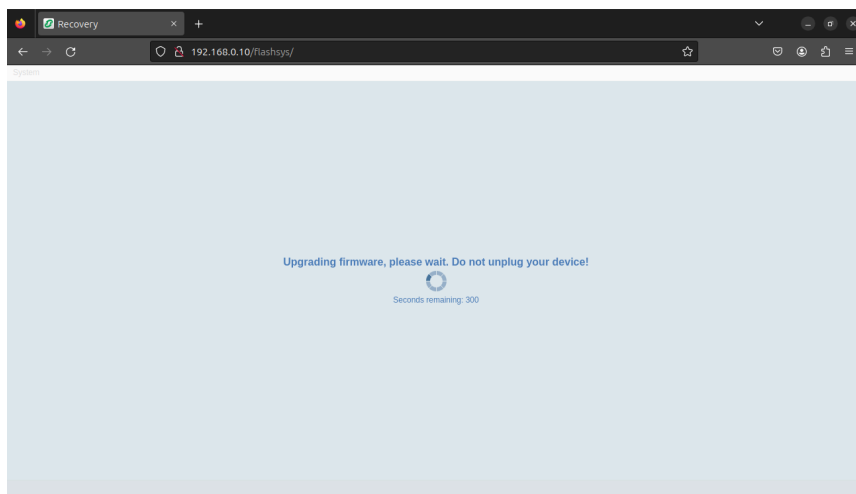
- Insert the card into your W4K controller. Ensure that the microSD card is correctly positioned and securely held by the metal bracket. The metal bracket should be latched to the right.
- Close the top part of the W4K controller.
- Power it up and open a supported web browser.
- Clear your browser cache.
- Connect to your W4K using the default IP address **192.168.0.10**.
- If you encounter difficulties connecting to your controller, please consult the controller user guide.

5. Select the desired firmware version:

- Download the desired firmware version from here: <https://www.se.com/il/en/product/LSS100100/wiser-for-knx-logic-controller/>.
- Unzip the files after the download.
- Open your web browser and go to your controller (192.168.0.10). You will see the window prompting you to upgrade your firmware.



- In the popup window, click **Browse...** and select the image file you unzipped in the previous step (for example, named **Wiser_for_KNX-3.0.0_hw2.xx_hw3.xx.img**).
- Click **Open** > **Next** > click **OK**. This will initiate the firmware flashing process, which will take approximately 5 minutes.



- After 5 minutes, you will be able to access your W4K with the default settings.

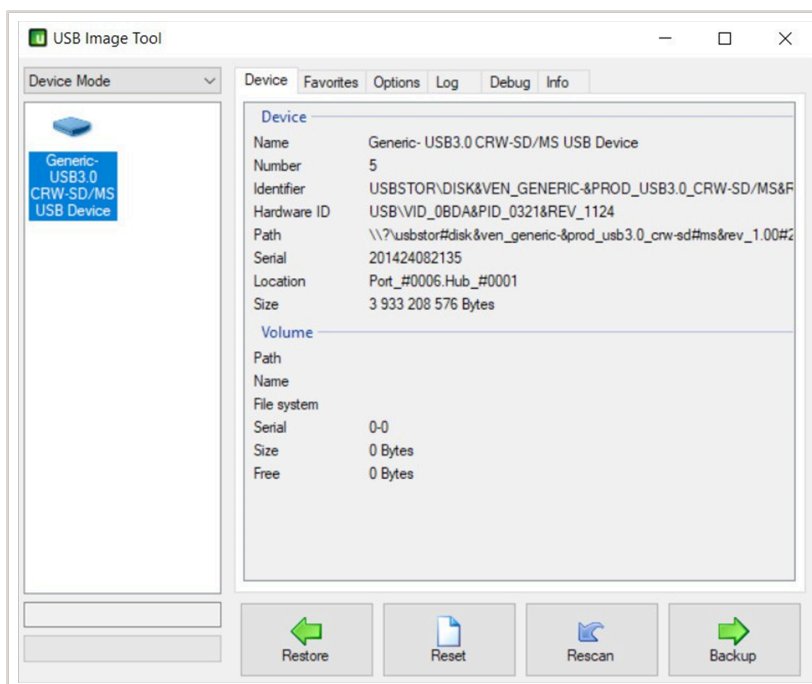
6. Firmware version recommendation:

- We strongly recommend using the up-to-date firmware version (specifically named **Wiser_for_KNX_Firmware_v.3.0.0_HW_2_X_X_HW_3_X_X (zip)**) or newer if available [here](#).
- However, if you are restoring a W4K in an existing installation, you can keep the version already in use to ensure compatibility with all features.

Restoring a MicroSD Card from Backup

- Insert the micro SD card into your W4K device.
- Power it up and open a supported web browser.
- Clear your browser cache.

- Connect to your W4K using the default IP address **192.168.0.10**. If you encounter difficulties connecting to your controller, please consult the controller user guide.
- Specify the backup file location and click **Restore**.

**NOTE:**

- If you use a card larger than the original one, you will lose access to any excessive space.
- If the card size differs from the existing card (even if it is the same size but from a different type or manufacturer), you will encounter an error message.

Useful Links

In this chapter, you will find helpful links for tools, firmware, and other resources to successfully navigate through this application note.

Item	Reference
USB Image Tool	https://www.alexpage.de/usb-image-tool/download/
W4K manual	https://www.se.com/ww/en/product-country-selector/?pageType=product&sourceId=LSS100100
W4K firmware (Always verify the proper version for your hardware.)	https://www.se.com/il/en/product/LSS100100/wiser-for-knx-logic-controller/

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AN 2_001.2.0