



# Touch Panel Firmware Update

Document version: a

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# 1 INTRODUCTION

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Some touch panels in Zennio, such as Z70 or Z41, incorporates **two separate microcontrollers**, one of which focuses on interfacing with the KNX bus and on running the application program itself, while the second one is dedicated to running the firmware that implements the operating system and the management of the peripherals.

Therefore, updating these devices may consist in two phases:

- Downloading the new application program (from ETS),
- Downloading the new **firmware**. Two alternative methods are available:
  - By connecting a **flash memory USB drive** through the male Micro-USB (or Mini-USB, depending on the device) to female USB adapter.
  - Through the network from a PC running the Windows operating system, by means of the **Ethernet** adapter bundled with the original packaging of the device.

The next sections explain how to perform the firmware update, including the possible events that may take place during the process, together with the suggested solutions.



**Important Warning:** *Please avoid bus / power interruptions until the new firmware installation has been completed and the device has booted into its normal operating mode.*

## 2 UPDATE VIA USB

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### 2.1 STEP-BY-STEP PROCESS

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Updating the firmware via USB (universal serial bus) requires a male Micro-USB (or Mini-USB, depending on the device) to female USB adapter and a USB flash memory drive.

These are the steps:

1. Download from <https://www.zennio.com> the **\*.ZIP** file with the firmware corresponding to the desired version of the application program. Compressed inside this \*.ZIP file is the update package: **Zxx\_update.pak** (where xx depends on the device).
2. Save or copy this **.pak** file, leaving the file name unchanged, in the **root folder** of a USB flash storage<sup>1</sup> drive with the **FAT32** file system.

**Important:** *if the file name is altered or the file is not saved to the root directory, the update process will not start after the connection of the USB drive.*

3. **Safely** disconnect the USB drive from the PC, in order to prevent electrical risks that may corrupt the information stored.
4. Insert the USB drive into the female end of the adapter and connect the other end of the adapter to the device port (please refer to the element diagram in the user manual).

In some devices, such as Z41, the update will begin automatically after a few seconds. In others, such as Z70, when the device recognizes the inserted USB flash memory, a USB icon will appear on the top bar and an informational message will appear on the screen. The actions notified will be:

- *Update detected. Rebooting...:* A update package with a **different** version from the installed version has been detected. After a few seconds, the update process will begin automatically, as long as the external power supply is plugged.

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<sup>1</sup> Only flash memory drives are supported; USB hard disks are not compatible.

➤ *No updates found:* no update package with different version than the current one has been detected. No update process will take place.

**Important:** *any firmware version (newer or not) can be downloaded as long as it differs from the currently installed version. Because of this, it is important to ensure that the version of the application program to be downloaded from ETS matches the version of the firmware being installed.*

5. Wait until the update process finishes, which may take several seconds/minutes and some reboots. The update process is totally transparent to the user, and will finish as soon as the touch panel loads the user interface again. From that moment, the USB drive and the adapter **can be disconnected**.

**Important:** *do not connect the device directly to the USB port of a PC, as the device may become damaged.*

## 2.2 TROUBLESHOOTING

Event	Possible cause(s)	Solution
<p><b>The update process does not start after connecting the USB memory</b></p>	The <b>.pak</b> file has been renamed.	Change the file name back to <b>Zxx_update.pak</b> , where xx corresponds to the device (for example: Z70_update.pak, Z41_Pro_Update.pak, etc.)
	The <b>.pak</b> file has not been saved into the root directory of the USB memory drive.	Move the file to the root folder of the USB memory drive, e.g., X:\.
	The USB drive is not supported (non-flash memory, external hard drive, etc.).	Use a flash memory drive or try with another.
	The file system in the USB memory is not <b>FAT32</b> .	Format the USB memory to the FAT32 file system.
	More than one partition co-exist in the USB drive and the <b>.pak</b> file has not been found on the first partition detected by the touch panel.	Define only one partition in the USB memory and save the <b>.pak</b> file to the root directory of that partition.
	The <b>.pak</b> file and the already loaded firmware have not the same version.	Get the version of the application program corresponding to that of the <b>.pak</b> file.
	The firmware update feature through the USB port has been disabled in ETS.	Enable in ETS the update function via USB ( <u>making use of the particular application program version that is currently loaded on the device</u> ) and download the parameters again.

<p><b>After the update, the screen shows the Status page permanently, or remains blank, or shows a Software Error warning.</b></p>	<p>The <b>.pak</b> file was damaged, or the download failed.</p>	<p>Restart the process (by disconnecting and then connecting back the USB drive) and/or obtain a fresh copy of the desired firmware.</p>
	<p>The firmware downloaded is not compatible with the installed version of the application program.</p>	<p>Download from ETS the application program version that corresponds to the firmware version, or install a firmware that matches the current application program.</p>
	<p>The update process was interrupted (bus power failure, unexpected power loss from the external supply, disconnection of the USB drive, etc.).</p>	<p>Fix the incident and wait until the process automatically resumes. If this does not happen, restart it manually (disconnect and connect back the USB memory).</p>
	<p>Several resets (bus failures or external power failures) have taken place within the first two minutes after the firmware update, making the touch panel consider the new firmware as corrupt.</p>	<p>Please, disconnect and connect the device again, avoiding power failures during the first two minutes of operation.</p>

## 3 UPDATE VIA ETHERNET

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### 3.1 STEP-BY-STEP PROCESS

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Updating the firmware through the network from a PC running the Windows operating system requires an Ethernet cable connected to it by means of the adapter supplied with the original packaging of the device.

The update is performed from the **ZenPak Updater** application, available in Zennio website. For more information about this application, please consult its specific manual.

Note that:

- This procedure only works for wired networks. It is not supported under **wireless networks** (Wi-Fi).
- The local network must be running a **DHCP server** (implemented for example in the network router) that dynamically and automatically assigns IP addresses to any new devices joining the network.
- The **firmware updates through Ethernet can be enabled or disabled from ETS**. Bear in mind that the procedure described next assumes that such function was marked as “enabled” (which is the default option) during the last parameterisation applied.

These are the steps:

1. Download from <http://www.zennio.com> the **\*.ZIP** file containing the firmware corresponding to the version of the application program to be used. Compressed inside this \*.ZIP file is the update package under the name **Zxx\_update.pak**, where xx depends on the device (for example, Z41\_Pro\_update.pak, Z70\_update.pak).
2. Again from <http://www.zennio.com>, download the **ZenPak Updater** tool, which is also provided as a \*.ZIP file.
3. After extracting the contents of the second \*.ZIP file, launch the installer (**ZenPak-Updater\_X.Y.Z.exe**, where X.Y.Z depend on the downloaded version).



4. The installer will copy the required files to the PC and will add to the Start menu a direct access to the **ZenPak Updater** tool.
5. After launching the tool, it will analyse the **network interfaces** available on the system and will determine the one that the user would typically select (it is possible to switch to another interface afterwards, as explained later).



Figure 1 Interface Analysis

6. Next, the tool will search for devices in the local network corresponding to the selected interface will start.



Figura 2 Device Search

7. The main window will look similar to Figure 3.

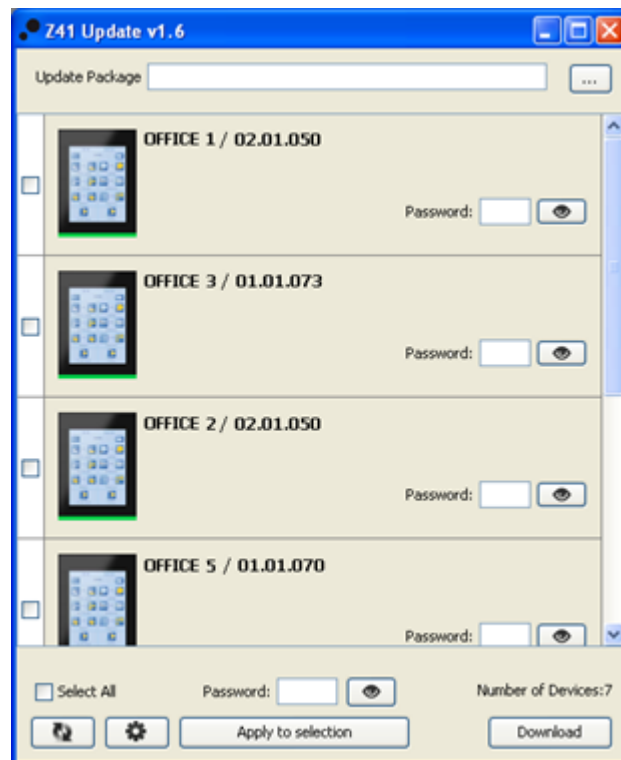



Figure 3 Main window in the ZenPak Updater.

This window lists all the Z41, Z70, etc. devices detected in the network. Each of them shows its identifying name, if parameterized in ETS, and the individual address it was assigned in the KNX topology.

On the other hand:

- In case of **multiple network interfaces** installed on the PC, button  will let the user access the Preferences window. This window (see Figure 4) shows the list of all the detected Ethernet interfaces, making it possible to select the one desired.

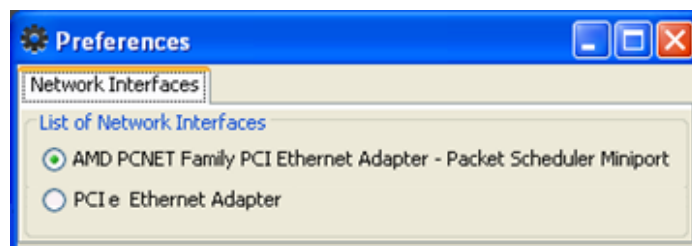







Figure 4 Preferences window

- Button  may be used to perform a **new device search and update the list** shown on the screen.

- Select the update package to be installed by clicking on  and browsing to the desired \*.PAK file.

**Note:** while the update via USB requires leaving the file name unchanged, such requirement is not required for updates via Ethernet.

- After selecting the desired package, all the detected devices will show an overlaid icon depending on the firmware version currently installed on them.

		
The version of the selected package matches that of the currently installed firmware.	The version of the selected package does not match the currently installed firmware. The checkbox of the device becomes automatically marked.	The package is not compatible with the device.

Moreover, a colour bar (Figure 3) is shown under each device:


- **Green bar:** the device is currently in working mode.
- **Blue bar:** the device is in the Update mode (the Status page is shown on the screen instead of the user interface).

**Important:** any firmware version (newer or not) can be downloaded as long as it differs from the currently installed version. Because of this, it is important to ensure that the version of the application program to be downloaded from ETS matches the version of the firmware being installed.

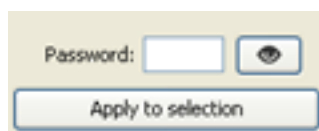
- After marking the checkboxes of the devices to be updated, click on the “**Download**” button, in the right lower corner of the window. The update process will start from that moment.

**Note:** to select all the devices from the list, it is possible to mark the “**Select**” checkbox.

- In case a **password protection** for the updates via Ethernet was configured in the ETS parameterisation of the application program currently, it will be necessary to type such password in the corresponding textbox. If no password was set, it can be left blank.

**Note:** passwords are masked with asterisks as they are typed in. These masks can be temporarily hidden by clicking on the  button.

If multiple devices are going to be batch-programmed and all of them have the same password configured, it is possible to click on the “**Apply to selection**” button, so that the password typed into the adjacent textbox is copied into the password textboxes of the devices whose checkbox is active.



12. During the process, the device being updated will show a progress bar. At the end of the update, the bar will disappear and the device will boot normally, unless the application program corresponding to the new firmware has not been downloaded yet from ETS (in such case, the initial synchronisation will fail, and a “Software Error” message will be shown, being then necessary to download the proper application program).

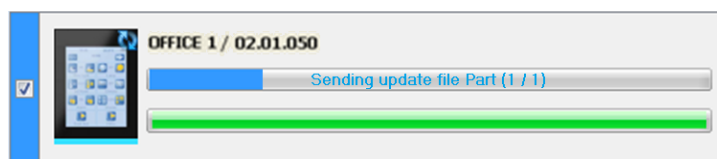


Figure 5 Update progress

**Note:** prior to the update process, please ensure that the device is provided with external power and has IP connectivity. Please refer to the element diagram in the device user manual to identify the connections and the Ethernet adapter (bundled with the original packaging) required for firmware updates through the network.

### 3.1.1 ADDITIONAL REMARKS

A few remarks must be taken into account:

- ZenPak Updater shows the “**Password**” textboxes in any case, although they should be filled out only when necessary.
- Up to **three password verification attempts** are allowed. After three firmware update denials due to an incorrect password, the device will ignore any further

update attempts (via Ethernet) during approximately the following 24 hours, which may be more if power failures take place under this state.

- During the lock time count, the option to **update the firmware through the USB port** will still be available, unless it was specifically disabled by parameter in ETS.
- The device will leave this lock state if **a new password** is set by means of an additional parameter download from ETS (important: it is necessary to import into ETS the same version of the application program that may be running on the device at that moment, as explained in the next paragraph).
- The password configuration (and, in fact, the whole parameter configuration) that applies is always **the last one the device is aware of**. That is, the last configuration that led to a proper synchronisation at the device boot stage.
- The synchronisation takes place if the version of the installed application program is compatible with that of the installed firmware. In such case, any successive parameterisation (passwords, enabling / disabling the update function...) will be taken into account.

However, if the version of the downloaded application program is not compatible with that of the already installed firmware, any further parameter download will be ignored (to make the touch panel recognise the new parameters, it is first necessary to download a version of the application program which is compatible with the version of the installed firmware). That said, **updating the firmware prior to updating the application program is highly encouraged**.

## 3.2 TROUBLESHOOTING

Event	Possible cause(s)	Solution
<b>The ZenPak Updater tool does not start</b>	The version in use requires installing the JAVA™ Runtime Environment (or a newer version, if already installed).	Download and install the latest version of ZenPak Updater from <a href="http://www.zennio.com">http://www.zennio.com</a> . Versions 1.8.1 and later do not require JAVA™ to be installed.
	Incompatibility with Windows XP	Make sure Java 8 is installed and run the application from C:\Program files\Zennio\ZenPak Updater \app through the file "ZRC_UPD.jar".
<b>The desired network interface is not listed under Preferences in the ZenPak Updater tool</b>	The desired interface is a wireless network interface (Wi-Fi).	Use a wired Ethernet connection ( <b>Wi-Fi is not recommended</b> ).
	The local network interface is disabled or has not been installed on the PC.	Open the Windows Network Manager and enable or install the network interface.
<b>The ZenPak Updater tool does not find the device after performing a device search.</b>	The device or the PC are not connected to a wired Ethernet network.	Connect the PC and the device to the local wired Ethernet network or perform an advanced configuration (see ZenPak Updater user manual).
	The touch panel is not being powered.	Connect the external power supply to the touch panel.
	The network is not running a DHCP server, thus the touch panel has not been assigned an IP address.	Enable the DHCP protocol in the network router (or equivalent device).
	Multiple network interfaces are installed on the PC, and the right one is not being used.	Select the appropriate interface from the Preferences window of ZenPak Updater.

	<p>There are security restrictions that prevent the detection of the device.</p>	<p>Temporarily deactivate the firewall restrictions or set an exception to permit routing traffic towards port 50000 (TCP and UDP).</p>
	<p>The network is unavailable.</p>	<p>Retry the update once the network failure is solved.</p>
<p><b>The touch panel does not get properly updated or remains blank or permanently shows the Status page after being updated through the ZenPak Updater tool.</b></p>	<p>The *.PAK file was corrupt, or was not transferred properly to the device, or the update process failed (power failure, etc.).</p>	<p>Restart the process, making sure to obtain a fresh copy of the *.PAK file.</p>
	<p>The version of the selected *.PAK file is not compatible with the version of the current application program downloaded via ETS.</p>	<p>Download from ETS the application program version that corresponds to the firmware version, or install a firmware that matches the current application program.</p>
	<p>An old version of ZenPak Updater is being used.</p>	<p>Download the latest version available of ZenPak Updater, to ensure it supports all the security restrictions.</p>
	<p>The maximum number of password verification attempts has been exceeded.</p>	<p>Refer to section 3.1.1.</p>
	<p>Several resets (bus failures or external power failures) have taken place within the first two minutes after the firmware update, making the device consider the new firmware as corrupt.</p>	<p>Please, disconnect and connect the device again, avoiding power failures during the first two minutes of operation.</p>

### 3.2.1 ERROR DESCRIPTION

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During the update process, different errors may occur. Please refer to the user manual of the ZenPak Updater application for a detailed description of these errors and possible solutions.



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