
# How can a safety relay 3SK2 with PROFINET communication be commissioned?

SIRIUS Safety

https://support.industry.siemens.com/cs/ww/en/view/109778581

Siemens Industry Online Support

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# 1 Starting Guide for 3SK2 PROFINET with Safety ES V17

Using the following instructions, the user will establish a connection between his programming device/PC (***Safety ES V17***) and the 3SK2 safety relay via the PROFINET Interface module.

## 1.1 Preconditions

- PG/PC with
  - Ethernet interface
  - Further system requirements can be found under: https://support.industry.siemens.com/cs/ww/en/view/109793090

Required components:

- 3SK2 basic device (x: 1=Screw-type terminals, 2=Spring-type terminals)
  - 3SK2112-xAA10 or
  - 3SK2122-xAA10
- Interface module PROFINET: 3SK2511-xFA10
- Connection cable basic device <-> Interface module: 3UF7930-0AA00-0
- RJ45 connection cable: e.g. 3TK2810-0A
- SIRIUS Safety ES V17 Professional Licence

All required components are contained in the 3SK2 PROFINET starter kit 3SK2942-2AA11.



## 1.2 Safety ES installation

***Safety ES V17*** is part of the TIA Portal Framework and can be installed alongside other packages such as ***SIMATIC STEP 7 V17*** or ***Soft Starter ES V17***. As a result, devices with different engineering packages can be used in a project, e.g. a 3SK2 safety relay in addition to a SIMATIC S7 controller. This results in considerable advantages for the user, e.g. with regards to uniform data storage. Nevertheless, users who use ***Safety ES V17*** as independent software also benefit from many advantages of the TIA Portal Framework.

A CD containing the software is enclosed together with the 3SK2 PROFINET starter kit.

Before starting the Setup program, please close all applications (MS Word, etc.). After installing ***Safety ES V17***, you may have to reboot MS Windows in order to activate all system variables.

Insert the ***Safety ES V17*** CD into the drive. A menu-prompted Setup program guides you through the installation procedure for ***Safety ES V17***. The Setup program starts automatically when you insert the ***Safety ES V17*** CD. If you have deactivated this function on your computer, you can start the Setup program in MS Windows Explorer by double-clicking the SETUP.EXE program on the CD.

After starting the Setup program, you can install ***Safety ES V17***. The Setup program guides you step by step through the installation procedure. After completion of the setup program and possibly restart of your PC, you can start ***Safety ES V17*** by double-clicking on the desktop symbol "***TIA Portal V17***".

As an alternative to an installation via CD, the installation file can be downloaded from the Siemens Industry Online Support website:
https://support.industry.siemens.com/cs/ww/en/view/109793090

For this purpose, download the file “SIRIUS_Safety_ES_V17.exe” from the above-mentioned website and start the setup program. All following steps are the same as during installation via CD.

## 1.3 License key transmission

A USB memory stick containing the license Safety ES Premium is enclosed together with the 3SK2 PROFINET starter kit.

To operate ***Safety ES V17***, you must make sure the Automation License Manager is installed. If it has not already been installed on your PG/PC, it will be installed automatically during the installation of ***Safety ES V17***.

Before you can start working with ***Safety ES V17***, you must transfer the license key (user authorization) from USB memory stick to the computer. There are two ways of doing this:

- You will receive a prompt from the "Setup" program during installation of ***Safety ES V17*** that your computer does not have a suitable license key. You can then either have the "Setup" program install the license or you can install the license manually at later time with the "Automation License Manager" program.
- If the license key cannot be installed during setup, continue the setup program without installing the license key. Then boot the computer and install the license key using the Automation License Manager.



## 1.4 Connecting 3SK2 basic device and PROFINET interface module

Before the 3SK2 can be accessed via PROFINET, the basic device and interface module (IM) must each be supplied with 24 V DC (①) and connected to each other via the supplied connection cable 3UF7930-0AA00-0 (②).

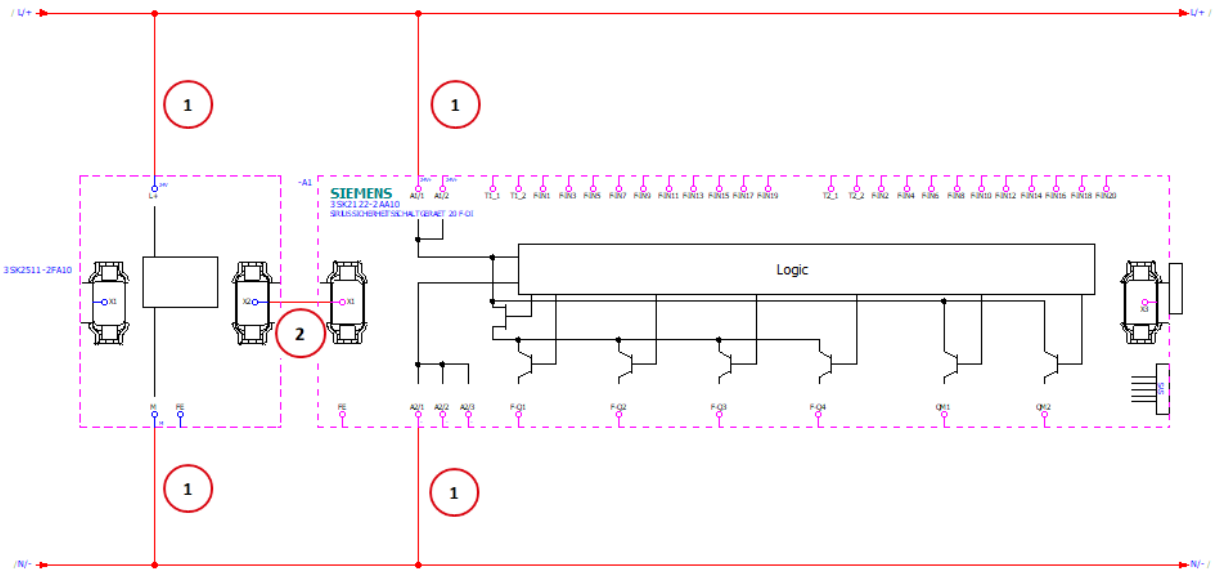


**Figure 1: Wiring of PROFINET IM and 3SK2 basic device**

Please consider the wire cross-sections permitted for SIRIUS spring-loaded terminal blocks as well as the mechanisms for connecting and disconnecting in order to ensure reliable edge contacting and a long service life of the terminal blocks. See Figure 2, an excerpt from the operating instructions for the 3SK2.

| 3SK21.2-2AA10 | |
|---|---|
| | |
| 3RA2908-1A<br>DIN 5264 / 0,5 x 3 mm | |
| 10 +1 (A) | 1 x 0,5 ... 1,5 mm²<br>2 x 0,5 ... 1,5 mm² |
| 10 +1 (A) | 1 x 0,5 ... 1,0 mm²<br>2 x 0,5 ... 1,0 mm² |
| 10 +1 (B) | 1 x 0,5 ... 1,5 mm²<br>2 x 0,5 ... 1,5 mm² |
| AWG | 1 x 20 to 16<br>2 x 20 to 16 |

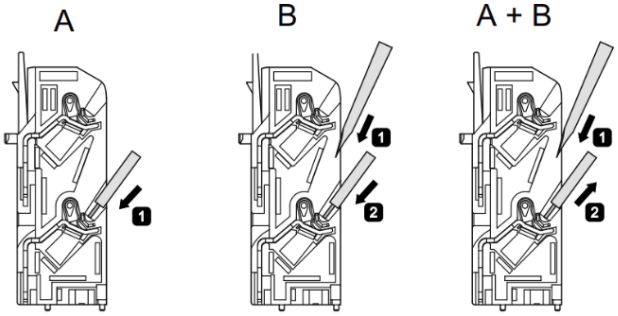


**Figure 2: Permitted wire cross-sections and procedure for SIRIUS spring-loaded terminal blocks**

The correct connection of the connection cable is shown in figure 3.

**Figure 3: Connection of PROFINET IM and 3SK2 basic device via connection cable**

In this illustration, the 3SK device connector was attached to the rear of the 3SK2 basic device (3ZY1212-4GA01). With its help, the 3SK2 can be extended in a low wiring way by 3SK output extensions (e.g. 3SK1211-2BB40 via 3ZY1212-2BA00) and failsafe motor starters 3RM1 (e.g. 3RM1307-2AA04 via 3ZY1212-2FA00). If the 3SK2 is used with device connector, there is an empty connector available for the PROFINET interface module in order to be able to adapt the device depth (3ZY1210-2AA00).

In this example of the starter kit the usage of device connectors or other output extensions of 3SK2 is not intended, but, of course, basically possible.

Finally, connect the PROFINET interface module with your PG/PC using the delivered RJ45 connection cable.



## 1.5 Loading the Safety ES example project into 3SK2 via PROFINET

In the following, a Safety ES project will be loaded into the 3SK2 via PROFINET. As an example project, the application example “Emergency stop shutdown to SIL 3 or PL e with a 3SK2 safety relay“ will be used. The project can be downloaded using the following link:
https://support.industry.siemens.com/cs/ww/en/view/109479271

Alternatively, every other prepared project can be used. However, it must be ensured that within the project the PROFINET IM is configured.

The before mentioned application example does not include a PROFINET IM. Thus, in the first step it will be shown how the PROFINET IM can be added to a 3SK2 project which has until now been built without communication module.

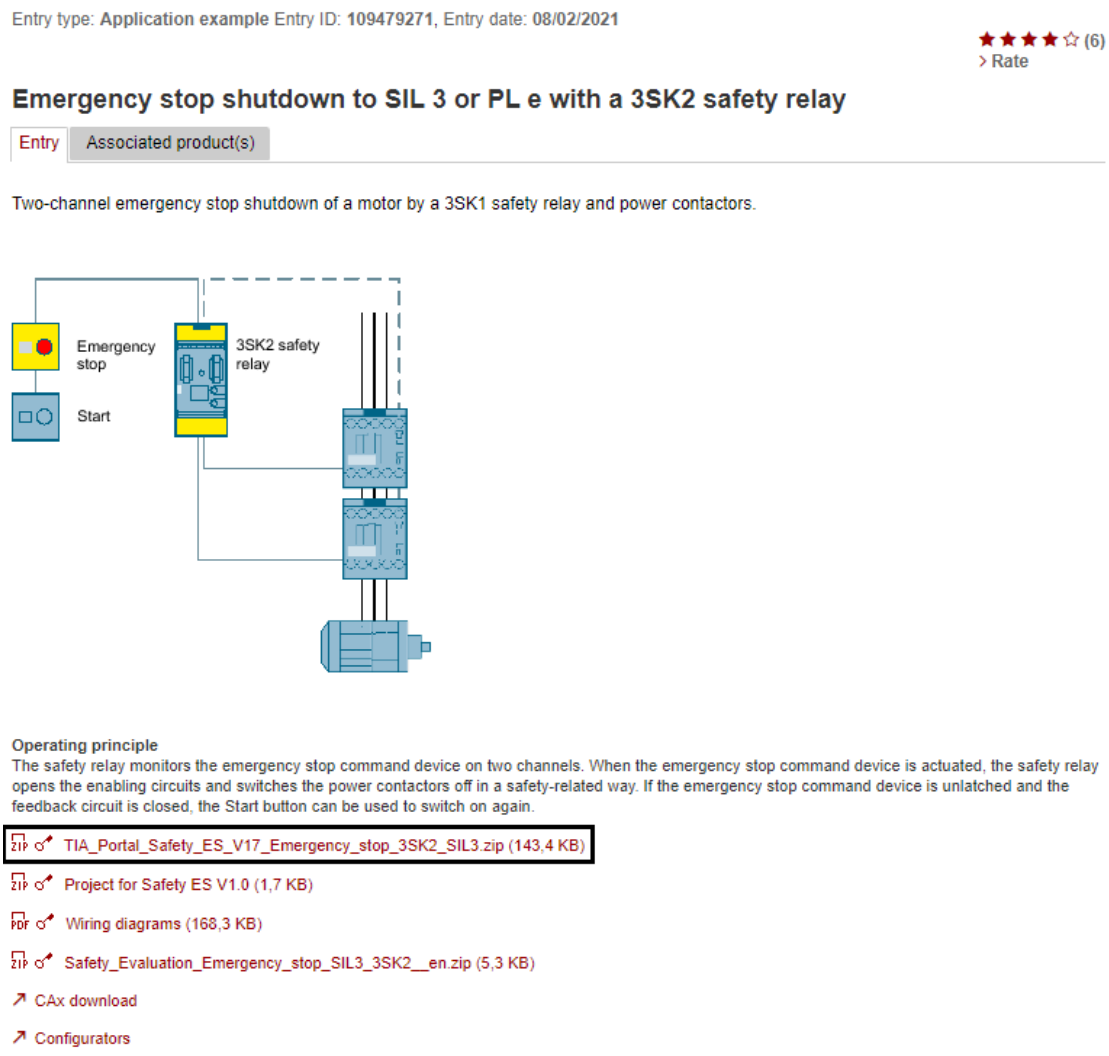


**Figure 4: Application example from Industry Online Support**

Please open the Safety ES project file, which was downloaded from the before mentioned website, in ***Safety ES V17***. Switch to the device configuration of the 3SK2. Add the PROFINET interface module from the catalog to system slot 2. Then open its properties by double-clicking on the PROFINET interface. Enter the IP address, subnet mask and a device name in the tab "PROFINET interface [X1]". Alternatively, you can skip this step, as default values are already created when adding the PROFINET IM.

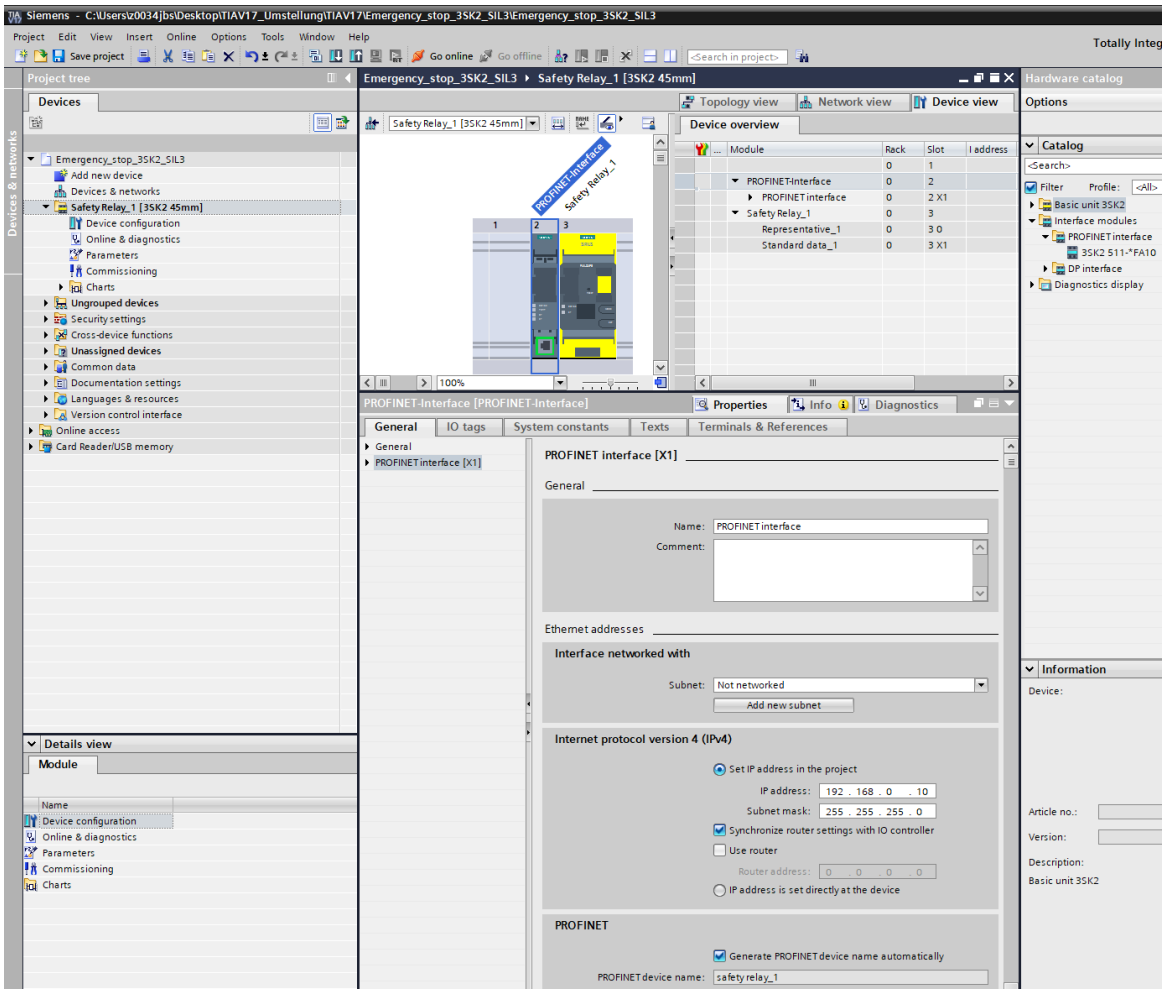


**Figure 5: Configuration of PROFINET IM in Safety ES V17**

Hint: In order to be able to diagnose the 3SK2 with a SIMATIC S7 controller, there is a STEP7 block available in the Industry Online Support. In order to use this block, the process data structure in the properties of the 3SK2 basic device need to be converted from “32DI/32DQ“ to “64DI/64DQ“. A detailed explanation of the block as well as information regarding its usage in the STEP7 project can be found under the following link:
https://support.industry.siemens.com/cs/ww/en/view/109747831

When the PROFINET IM is put into operation for the first time, a temporary IP address must first be assigned to it in order to establish a connection with the PG/PC. To do this, open the tab "Online access" in the project navigation and search for the available participants under the network card connected to the interface module.

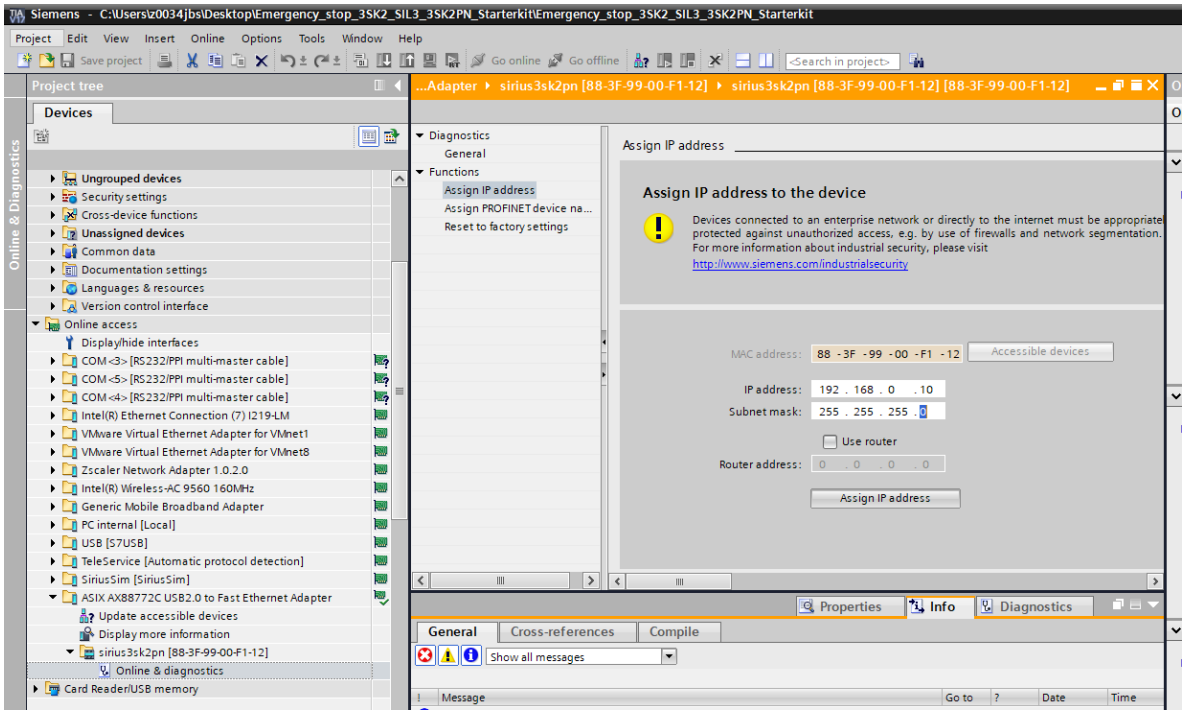


**Figure 6: Assigning a temporary IP address**

The same IP address does not have to be assigned as a temporary IP address as in the project in the properties of the PROFINET IM (see figure 5). An IP address on the same subnet is sufficient. However, the adapter options in the network settings of your own PG/PC should be observed.

After you have entered an IP address and a subnet mask via "Online & Diagnostics" under "Assign IP address", these parameters can be transferred to the PROFINET IM via the "Assign IP address" button.

Alternatively, an IP address can also be assigned to the interface module directly in the 3SK2 project under "Online & Diagnostics" and "PROFINET interface".

**Note** Please regard that for the interface of your PG/PC you may have to assign a fixed IP address with the same subnet that is used for the PROFINET IM. The IP address and subnet mask are set in the adapter options of the network interface in the Control Panel of your PG/PC.

If the 3SK2 safety relay is marked in the project navigation, you can now use "Online> Download to device..." or the corresponding symbol  to load the created project into the 3SK2 basic unit via the PROFINET IM. Alternatively, the project can be transferred to the 3SK2 by right-clicking on the 3SK2 and "Download to device". In the appearing dialog (see figure 7), the correct network card of the PG/PC must first be selected. The list of available participants is then updated via "Start search" and the PROFINET IM is displayed. After the interface module has been selected, the charging process can be started via "Load".

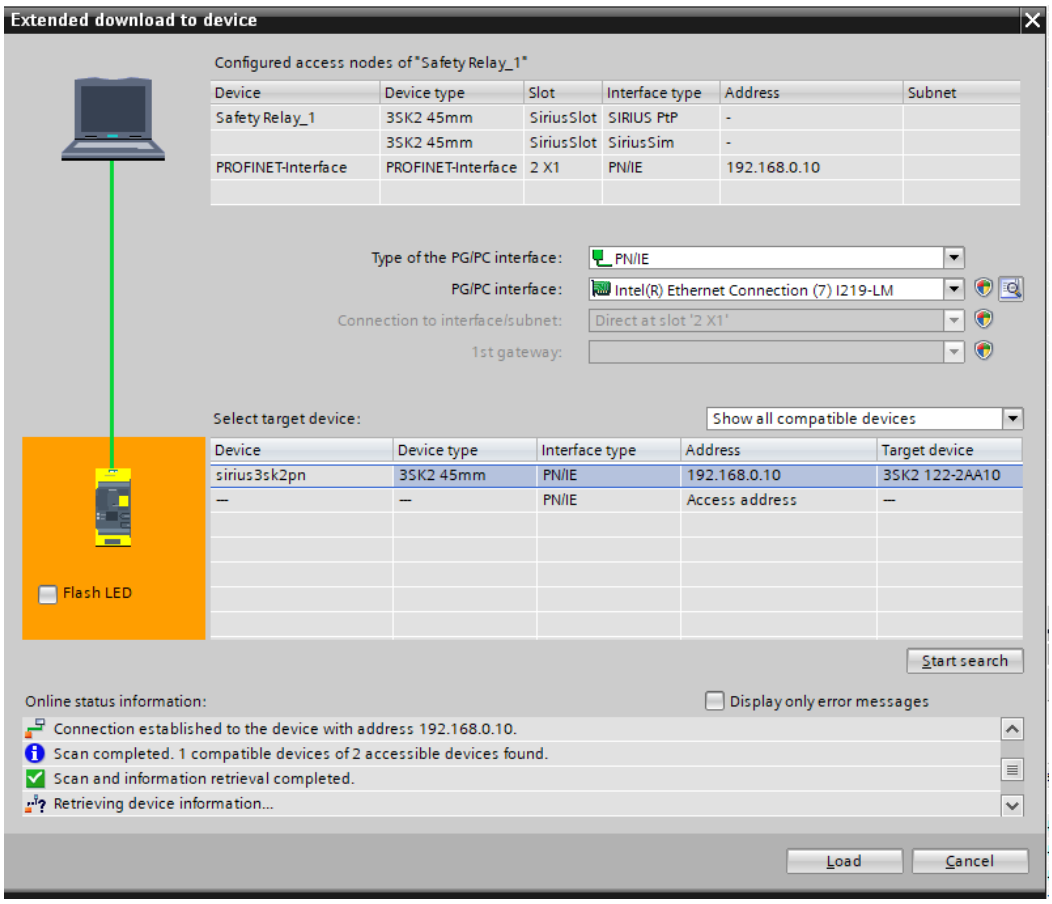


**Figure 7: Download to device**

Then, the following dialog appears, in which it may be necessary to confirm by selecting "Yes" in the drop-down menu marked in red that an already released configuration on the 3SK2 should be canceled. If "Yes" is selected, the drop-down menu is no longer highlighted in red (see Figure 8). Further down, information on the utilization of the device can also be found in this dialog.

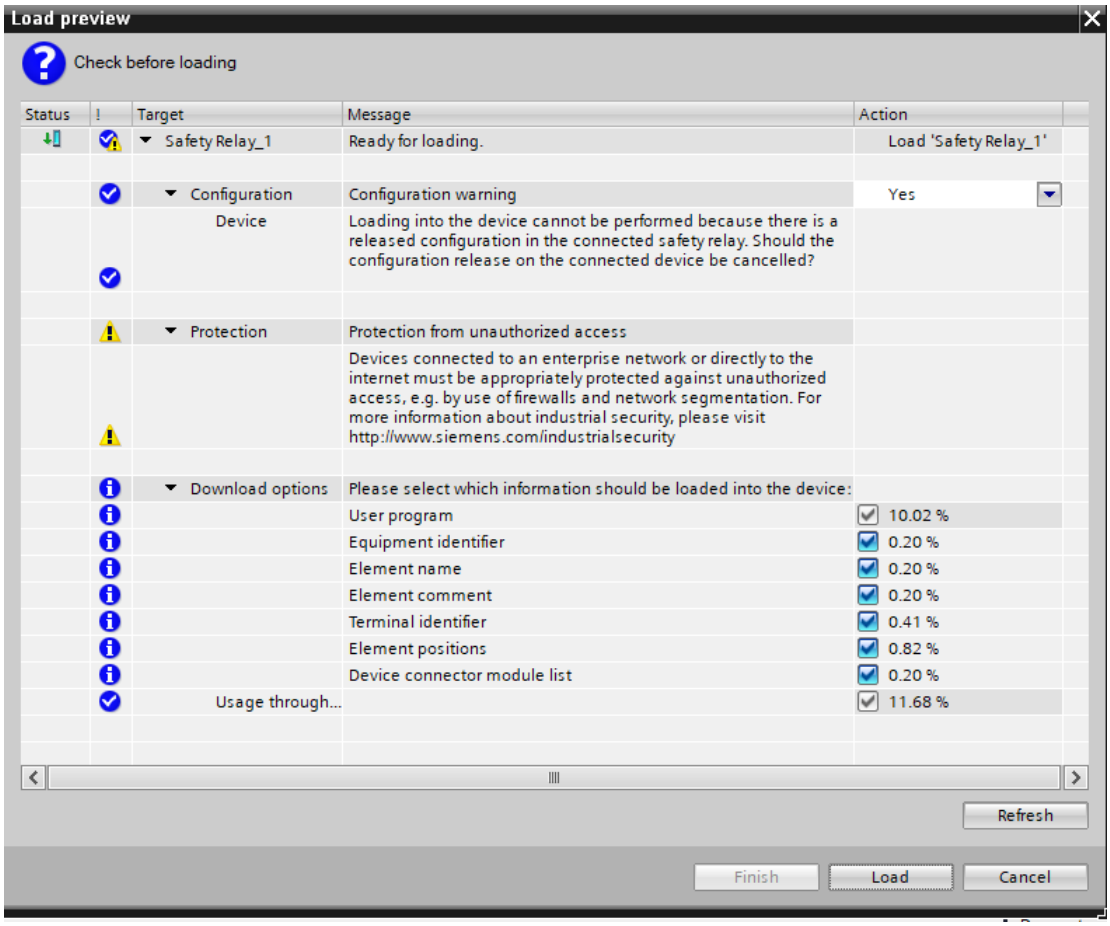


**Figure 8: Load preview**

Now the 3SK2 basic unit is in configuration mode, the display of the 3SK2 shows "PROJ" and the LED "Device" lights up orange. Now you can put the 3SK2 base unit either first into test mode or directly into safety mode. The following describes how the 3SK2 can be put into these two operating states. Further information can be found in the online help of Safety ES, as well as in the device manual: https://support.industry.siemens.com/cs/ww/en/view/109444336

## 1.6 Changing into test mode

In order to be able to switch between the operating modes of the 3SK2 an online connection between the basic device and the PG/PC resp. Safety ES is necessary. This can be done in the project navigation via a right-click on the 3SK2 and "Go online" or, if the 3SK2 is marked, via the corresponding symbol in the header of TIA Portal Go online resp. via "Online> Go online".

The operating mode is shown in Safety ES in the status bar on the bottom right edge of the screen (see figure 9).


**Figure 9: Safety ES V17 Status bar**

You can then switch to test mode via the menu item "Parameters" of the 3SK2 and "Commands".

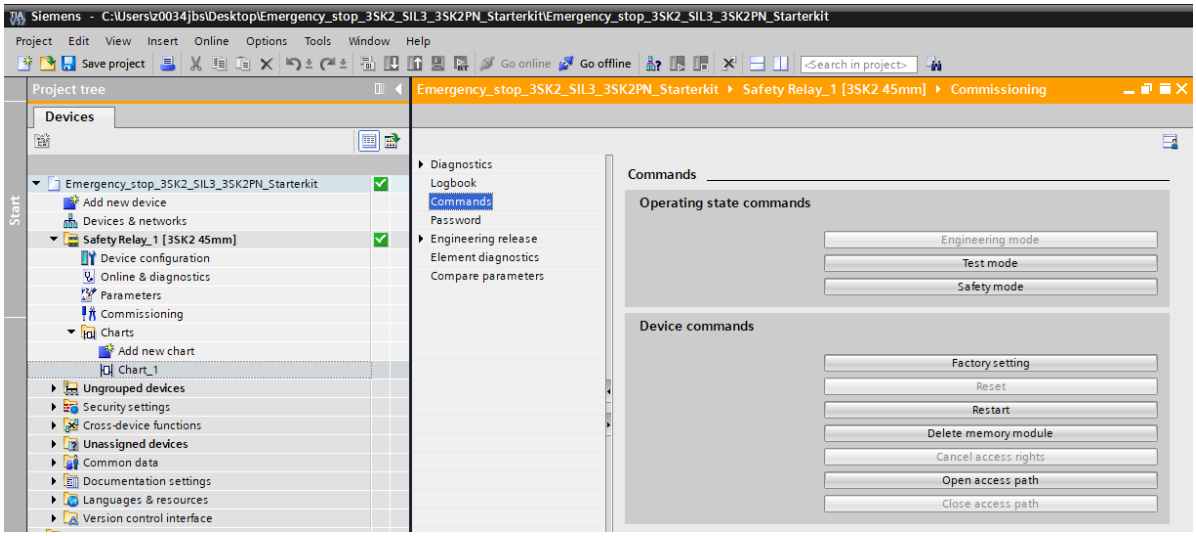


**Figure 10: Changing to Test mode**

In order to switch to test mode, you must enter a password. The default password of the 3SK2 in the delivery state is "0000" and must be changed during the first change to test mode.

The test mode can be used to assist in performing the prescribed functional test of the safety circuit. For example, you can force outputs of function elements in test mode. After you have opened a 3SK2 plan (folder "Charts" in the project navigation of the 3SK2), you can display the states of the inputs / outputs, the function elements and the connections between the function elements via the corresponding symbol if you have an online connection to the 3SK2.

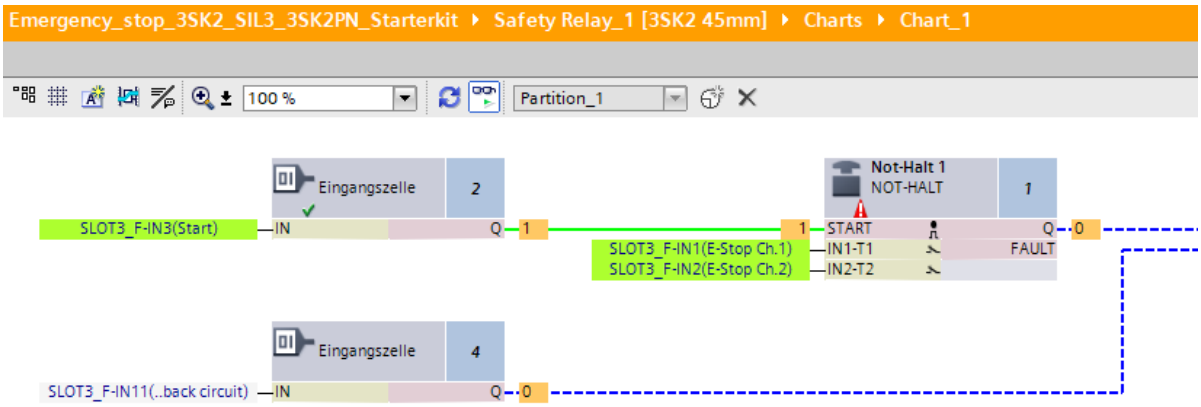


**Figure 11: Online monitoring**

After the project has been tested, you can switch back to the configuration mode via "Parameters" of the 3SK2 and "Commands". To switch from online to offline operation, select the menu item "Online>Go offline" or use the corresponding icon Go offline.

## 1.7 Approving configuration and changing into safety mode

Before the 3SK2 can be set into the productive safety mode, it must first undergo an approval process. In order to start this process, the 3SK2 must be in configuring mode and an online connection to the safety relay must be establsihed.

Open the corresponding dialog via the menu item "Parameters" and "Engineering release>Release engineering". By ticking "Confirm", you as the safety officer confirm the complete functionality of the project planning as well as compliance with all safety-related regulations and standards for the application. Enter the name of the releaser and the company name below and check "Confirm" again.

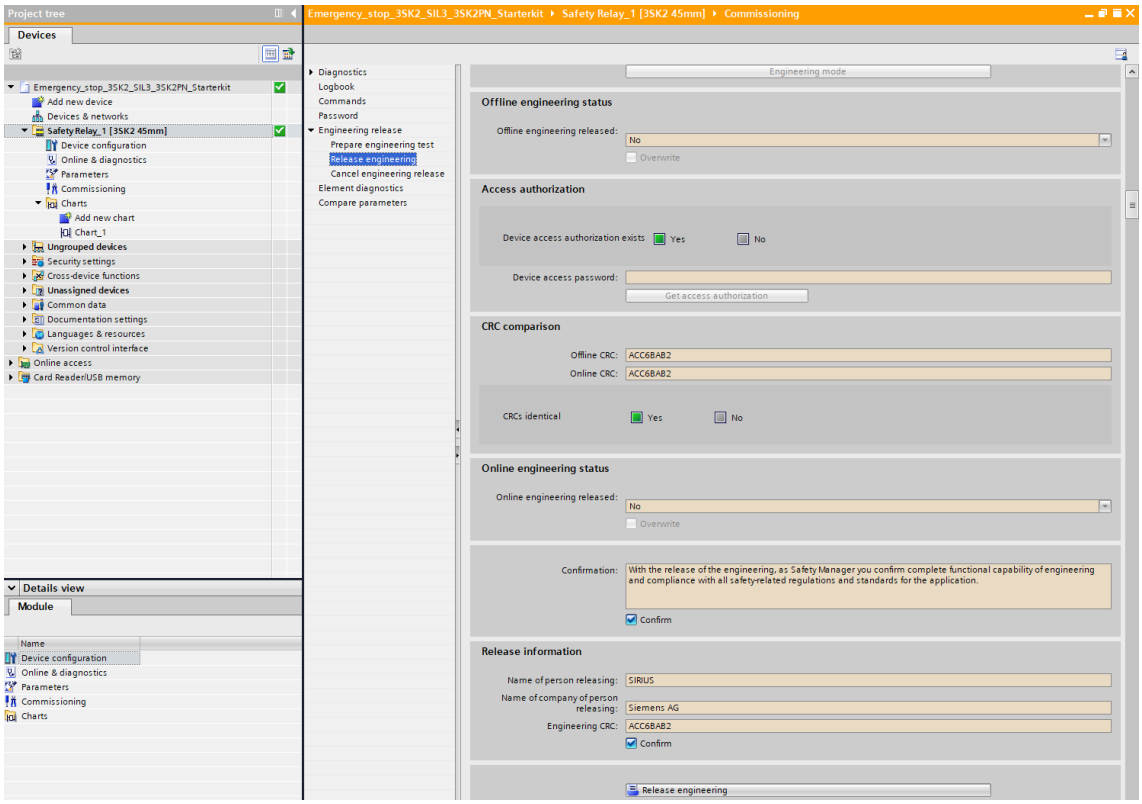


**Figure 12: Release configuration**

Finally, select "Release engineering".

A comparison is then carried out as to whether the open configuration corresponds to the configuration available online in the safety relay. If not, an error message appears.

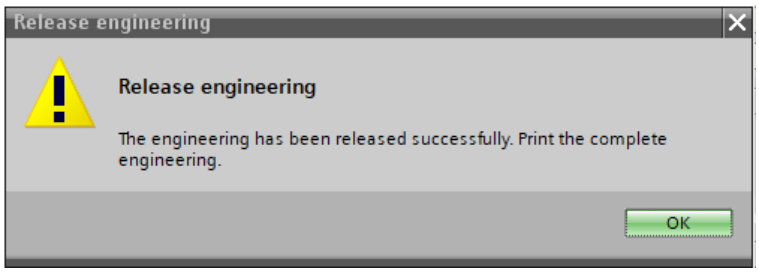


**Figure 13: Engineering successfully released**

By right-clicking on the 3SK2 in the project navigation and "Print..." the complete configuration can be printed out for the machine documentation.

After releasing the configuration, you can now switch the safety relay to safety mode. To do this, there must be an online connection to the 3SK2. If this does not yet exist, it can be done in the project navigation by right-clicking on the 3SK2 and "Go online" or, if the 3SK2 is marked, via the corresponding symbol in the header of TIA Portal Go online or via “Online> Go online". Now switch to safety mode by opening the "Commands" section in the "Commissioning" of the 3SK2 and selecting the "Safety mode" button here.

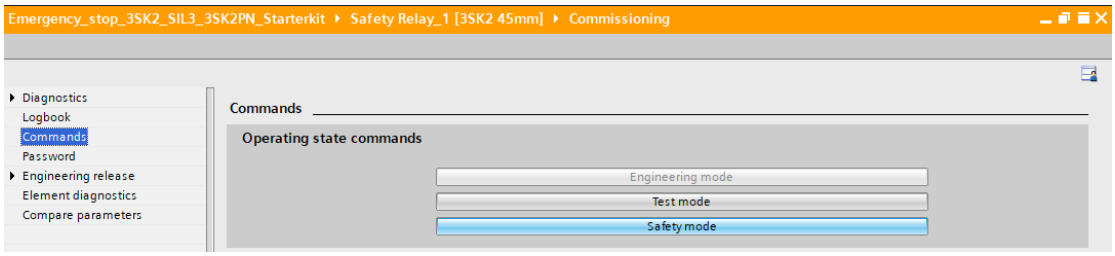


**Figure 14: Changing to safety mode**

With correctly wired sensors and actuators, the display of the 3SK2 shows "RUN" and the LED "Device" lights green.

## 1.8 STEP7 integration

By integrating the 3SK2 Engineering into the TIA Portal Framework, communication between the 3SK2 safety relay and a SIMATIC S7 controller can be carried out easily via the PROFINET process image.

A joint Safety ES and STEP7 project can be found in the application example ***Emergency stop group shutdown up to SIL 3 or PL e via 3SK2 safety relay with PROFINET connection and fail-safe motor starters*** under the following link: https://support.industry.siemens.com/cs/ww/en/view/109769503

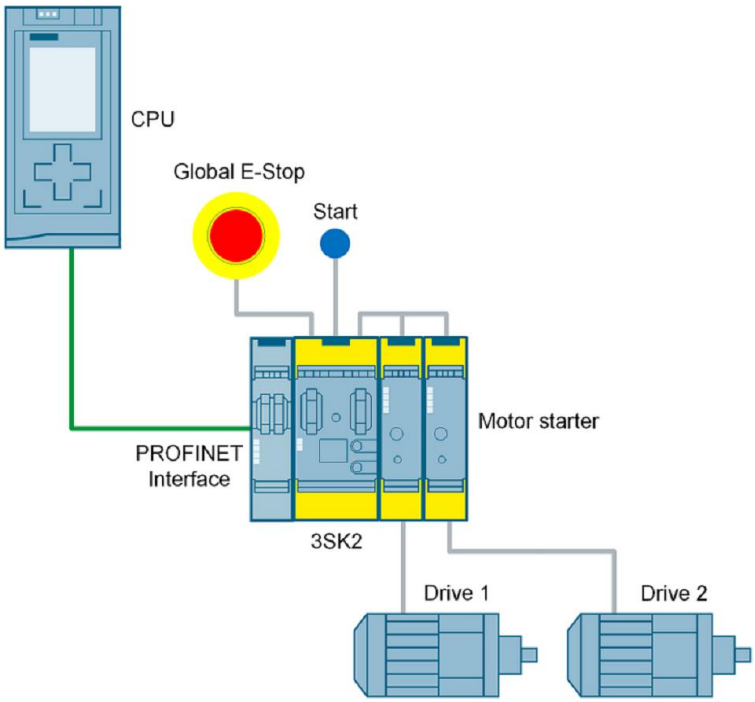


**Figure 15: Application example with included STEP7 project**

# 2 Starting Guide for 3SK2 PROFINET with Safety ES V1.0 + SP3

Using the following instructions, the user will establish a connection between his programming device/PC (***Safety ES V1.0 + SP3***) and the 3SK2 safety relay via the PROFINET Interface module.

**Note** The procedure described in this document also applies in principle to the MSS 3RK3 basic devices with AS-i interface.

## 2.1 Preconditions

- PG/PC with
  - Windows 7 SP1 64 Bit Ultimate, Professional and Enterprise (standard installation) or
  - Windows 10 64 Bit Professional and Enterprise (standard installation)
  - Ethernet interface



Required components:

- 3SK2 basic device (x: 1=Screw-type terminals, 2=Spring-type terminals)
  - 3SK2112-xAA10 or
  - 3SK2122-xAA10
- Interface module PROFINET: 3SK2511-xFA10
- Connection cable basic device <-> Interface module: 3UF7930-0AA00-0
- RJ45 connection cable: e.g. 3TK2810-0A
- SIRIUS Safety ES Software Licence Premium

All required components are contained in the 3SK2 PROFINET starter kit 3SK2942-2AA10.

## 2.2 Safety ES installation

A CD containing the software is enclosed together with the 3SK2 PROFINET starter kit.

Before starting the Setup program, please close all applications (MS Word, etc.). After installing ***Safety ES V1.0 + SP3***, you may have to reboot MS Windows in order to activate all system variables.

Insert the ***Safety ES V1.0 + SP3*** CD into the drive. A menu-prompted Setup program guides you through the installation procedure for ***Safety ES V1.0 + SP3***. The Setup program starts automatically when you insert the ***Safety ES V1.0 + SP3*** CD. If you have deactivated this function on your computer, you can start the Setup program in MS Windows Explorer by double-clicking the SETUP.EXE program on the CD.

After starting the Setup program, you can install ***Safety ES V1.0 + SP3***. The Setup program guides you step by step through the installation procedure. After completion of the setup program and possibly restart of your PC, you can start ***Safety ES V1.0 + SP3*** by double-clicking on the desktop symbol "***Safety ES V1.0 + SP3***" or, under MS Windows, for example, via Start -> Safety ES V1.0 + SP3.

As an alternative to an installation via CD, the installation file can be downloaded from the Siemens Industry Online Support website:
https://support.industry.siemens.com/cs/ww/en/view/109477416

For this purpose, download the file “Safety_ES_V1.0_SP3.exe” from the above-mentioned website and start the setup program. All following steps are the same as during installation via CD.

## 2.3 License key transmission

A USB memory stick containing the license Safety ES Premium is enclosed together with the 3SK2 PROFINET starter kit.

To operate ***Safety ES V1.0 + SP3***, you must make sure the Automation License Manager is installed. If it has not already been installed on your PG/PC, it will be installed automatically during the installation of ***Safety ES V1.0 + SP3***.

Before you can start working with ***Safety ES V1.0 + SP3***, you must transfer the license key (user authorization) from USB memory stick to the computer. There are two ways of doing this:

- You will receive a prompt from the "Setup" program during installation of ***Safety ES V1.0 + SP3*** that your computer does not have a suitable license key. You can then either have the "Setup" program install the license or you can install the license manually at later time with the "Automation License Manager" program.
- If the license key cannot be installed during setup, continue the setup program without installing the license key. Then boot the computer and install the license key using the taskbar in "SIRIUS engineering\License Management\Automation License Manager".



## 2.4 Connecting 3SK2 basic device and PROFINET interface module

Before the 3SK2 can be accessed via PROFINET, the basic device and interface module (IM) must each be supplied with 24 V DC (①) and connected to each other via the supplied connection cable 3UF7930-0AA00-0 (②).

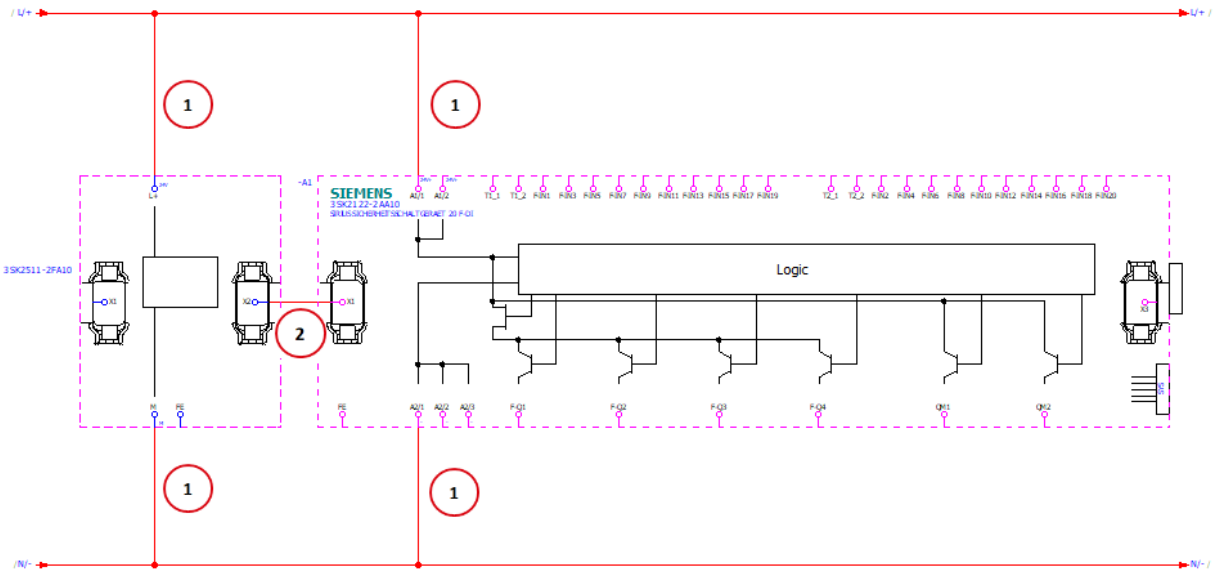


**Figure 16: Wiring of PROFINET IM and 3SK2 basic device**

Please consider the wire cross-sections permitted for SIRIUS spring-loaded terminal blocks as well as the mechanisms for connecting and disconnecting in order to ensure reliable edge contacting and a long service life of the terminal blocks. See Figure 17, an excerpt from the operating instructions for the 3SK2.

| 3SK21.2-2AA10 | |
|---|---|
| | |
| 3RA2908-1A<br>DIN 5264 / 0,5 x 3 mm | |
| 10 +1 (A) | 1 x 0,5 ... 1,5 mm²<br>2 x 0,5 ... 1,5 mm² |
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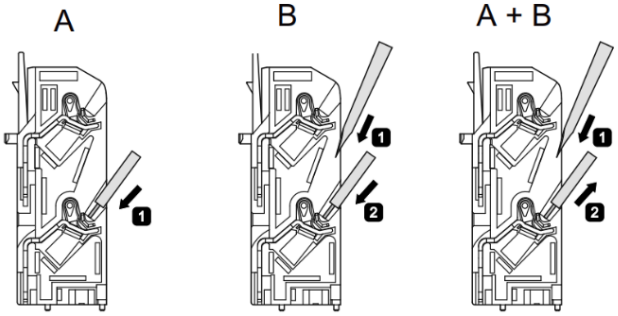


**Figure 17: Permitted wire cross-sections and procedure for SIRIUS spring-loaded terminal blocks**

The correct connection of the connection cable is shown in figure 18.

**Figure 18: Connection of PROFINET IM and 3SK2 basic device via connection cable**

In this illustration, the 3SK device connector was attached to the rear of the 3SK2 basic device (3ZY1212-4GA01). With its help, the 3SK2 can be extended in a low wiring way by 3SK output extensions (e.g. 3SK1211-2BB40 via 3ZY1212-2BA00) and failsafe motor starters 3RM1 (e.g. 3RM1307-2AA04 via 3ZY1212-2FA00). If the 3SK2 is used with device connector, there is an empty connector available for the PROFINET interface module in order to be able to adapt the device depth (3ZY1210-2AA00).

In this example of the starter kit the usage of device connectors or other output extensions of 3SK2 is not intended, but, of course, basically possible.

Finally, connect the PROFINET interface module with your PG/PC using the delivered RJ45 connection cable.

## 2.5 Loading the Safety ES example project into 3SK2 via PROFINET

In the following, a Safety ES project will be loaded into the 3SK2 via PROFINET. As an example project, the application example “Emergency stop shutdown to SIL 3 or PL e with a 3SK2 safety relay“ will be used. The project can be downloaded using the following link:
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Alternatively, every other prepared project can be used. However, it must be ensured that within the project the PROFINET IM is configured.

The before mentioned application example does not include a PROFINET IM. Thus, in the first step it will be shown how the PROFINET IM can be added to a 3SK2 project which has until now been built without communication module.

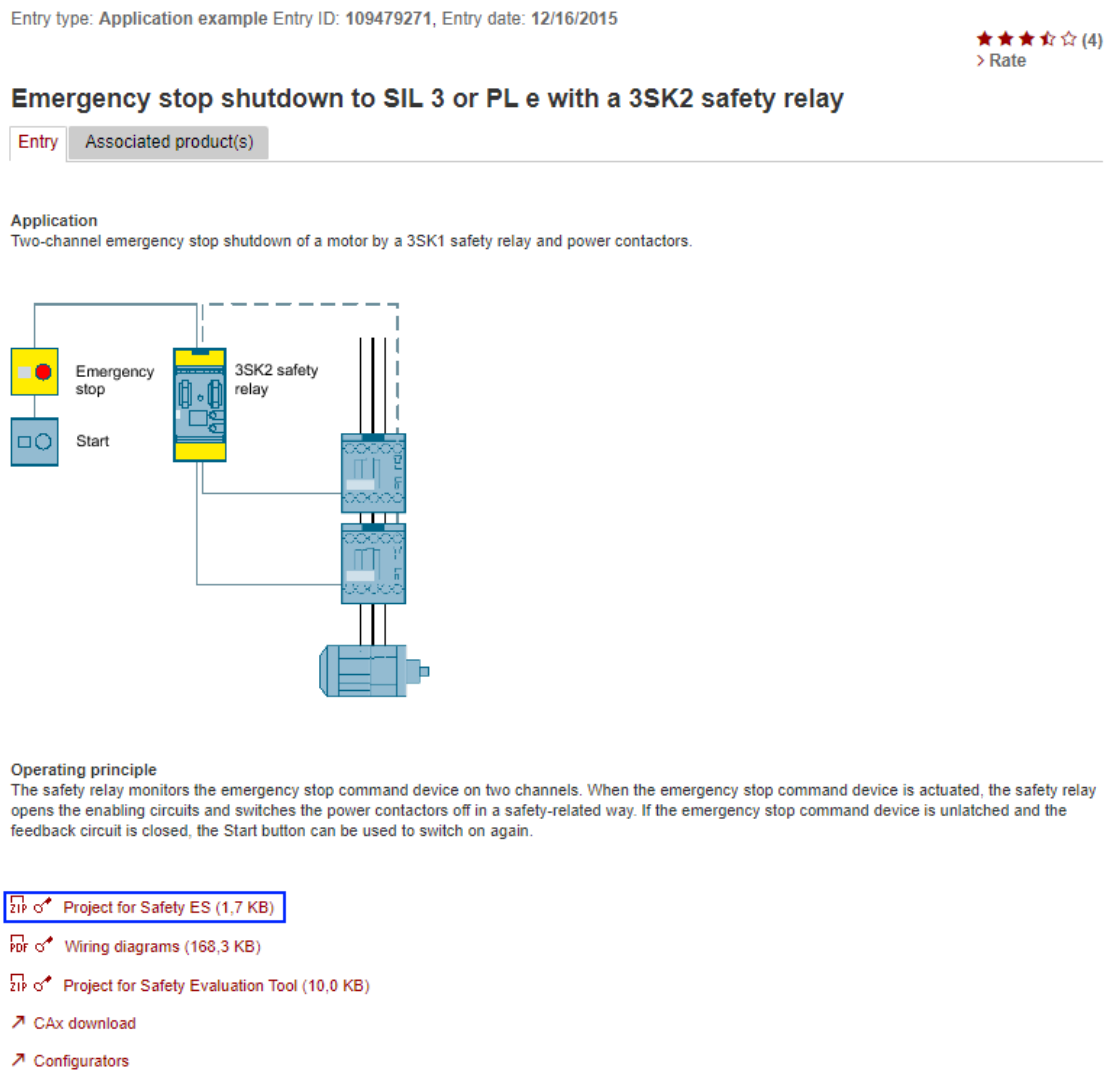


**Figure 19: Application example from Industry Online Support**

Please open the Safety ES project file, which was downloaded from the before mentioned website, in ***Safety ES V1.0 + SP3***. In the “Main system” under “Configuration”, add the PROFINET IM from the right column to the system slot 2. Afterwards, via double clicking on the PROFINET IM, open its properties. Here, you can assign an IP address, subnet mask and a PROFINET device name.

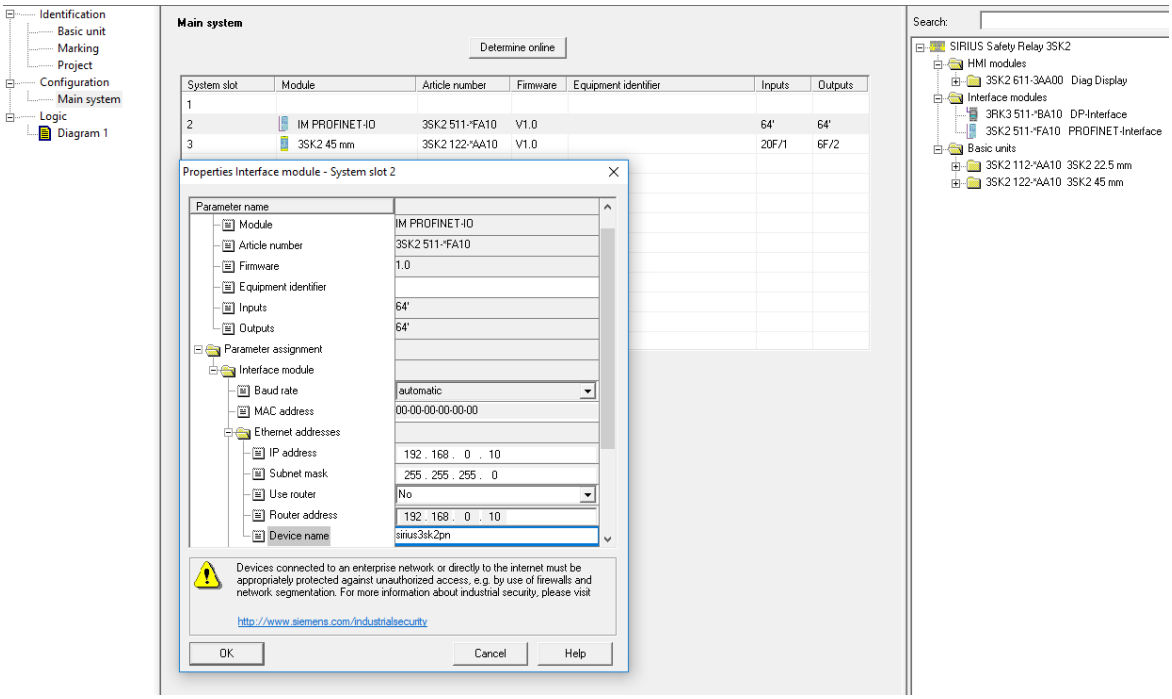


**Figure 20: Configuration of PROFINET IM in Safety ES**



Hint: In order to be able to diagnose the 3SK2 with a SIMATIC S7 controller, there is a STEP7 block available in the Industry Online Support. In order to use this block, the process data structure in the properties of the 3SK2 basic device need to be converted from “32DI/32DQ“ to “64DI/64DQ“. A detailed explanation of the block as well as information regarding its usage in the STEP7 project can be found under the following link:
https://support.industry.siemens.com/cs/ww/en/view/109747831

In order to establish a connection with the PROFINET interface module, the PG/PC interface must be set first. The corresponding menu can be found under “Options” (see figure 21).

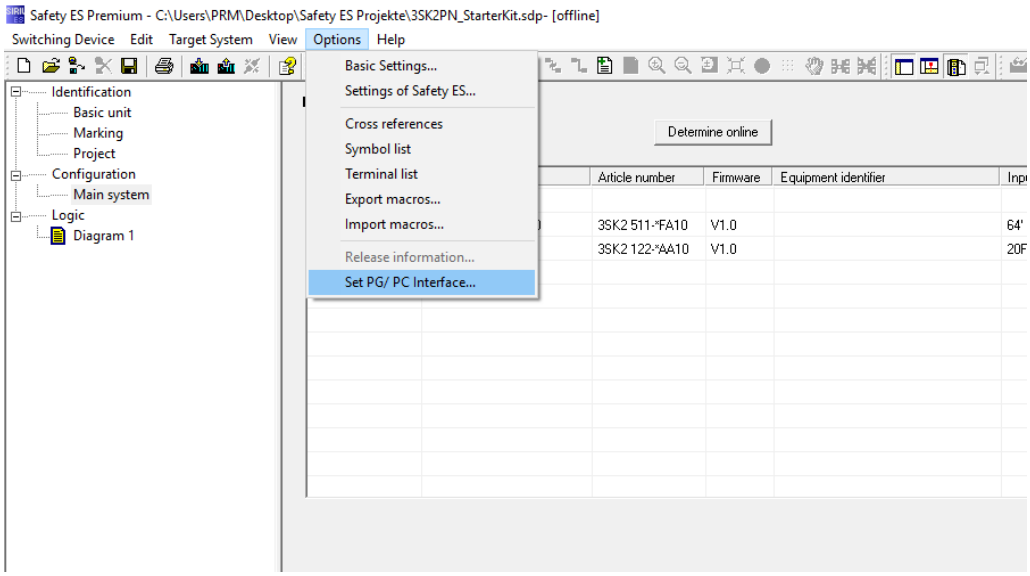


**Figure 21: Setting of PG/PC interface**

Select the interface of your PG/PC that is connected to the PROFINET IM. Preferably "TCPIP.Auto" should be selected. Confirm both the warning that appears when the interface is selected and the window "Set PG/PC Interface" with "OK".

**Note**

Please regard that for the interface of your PG/PC you may have to assign a fixed IP address with the same subnet that is used for the PROFINET IM. The IP address and subnet mask are set in the adapter options of the network interface in the Control Panel of your PG/PC.

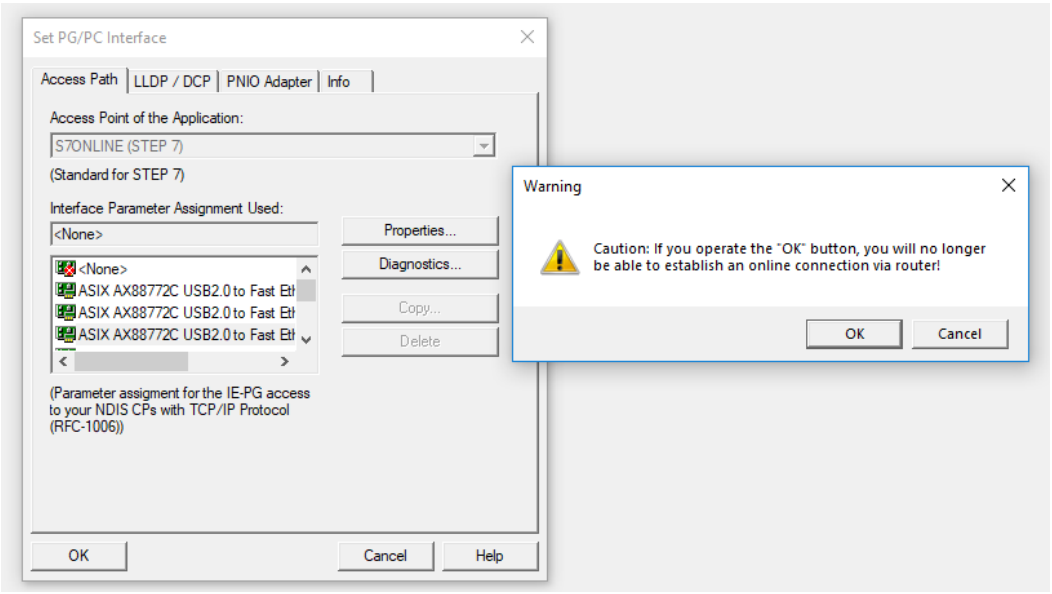


**Figure 22: Applying of PG/PC interface**

When the PROFINET IM is put into operation for the first time, it must first be provided with a temporary IP address in order to establish a connection with the PG/PC. To do this, open the dialog “Edit Ethernet Node“ under “Target System“.

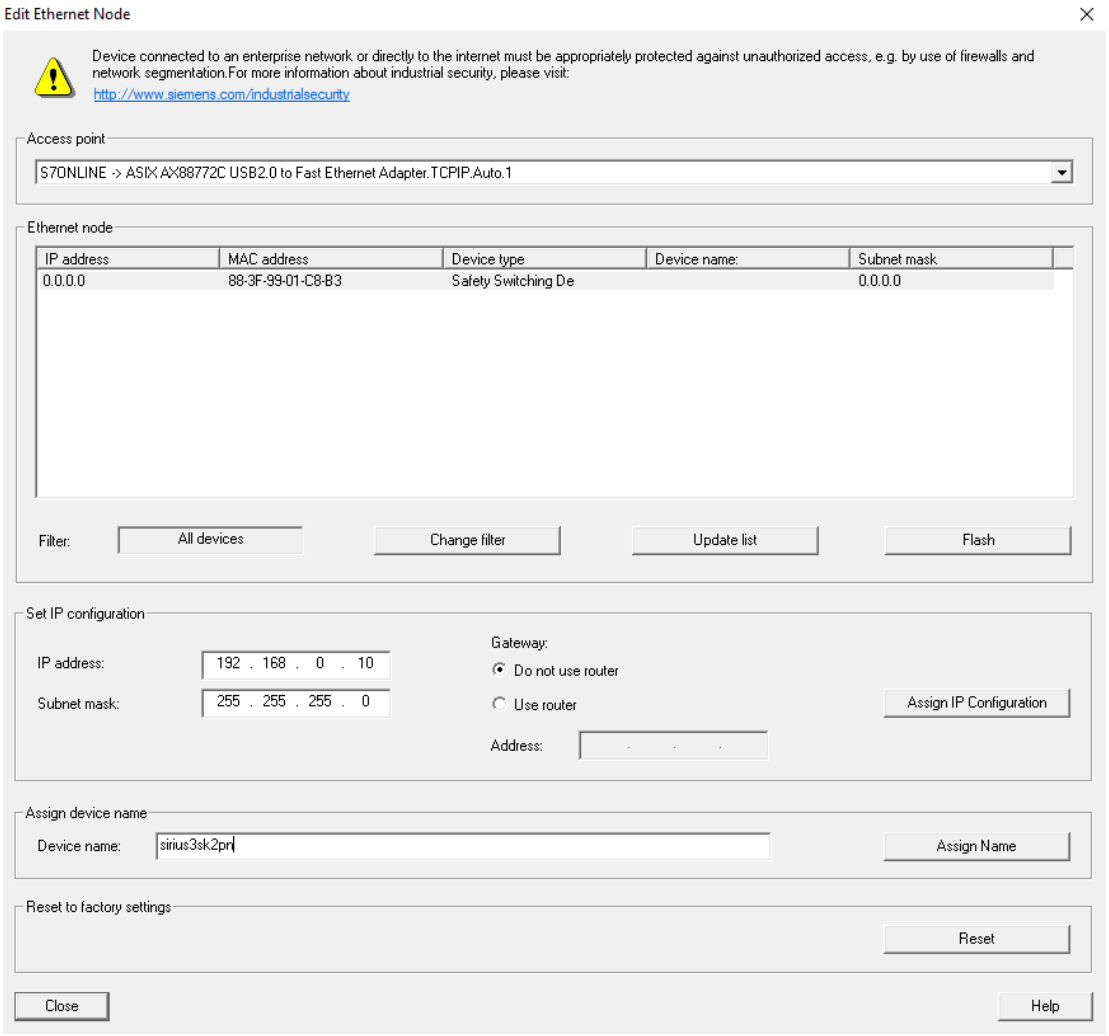


**Figure 23: Edit Ethernet node**

Concerning the temporary IP address, it is not necessary to assign the same IP address as in the properties of the PROFINET IM in the project (see figure 20). Assigning an IP address in the same subnet is sufficient. However, the adapter options in the network settings of the own PG/PC should be observed.

After you have entered the IP address as well as a subnet mask under "Set IP configuration“, these parameters can be transferred to the PROFINET IM via the button „Assign IP Configuration“. After a successful transmission the following dialog appears (figure 24).

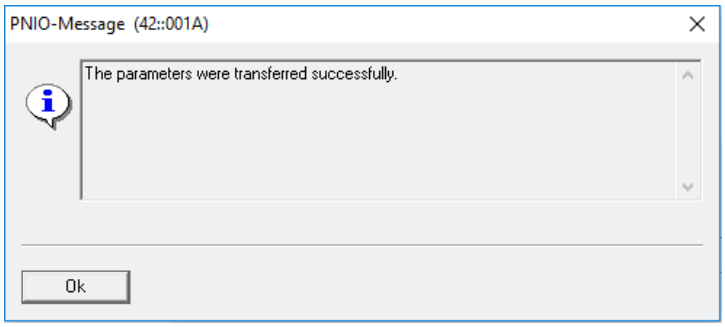


**Figure 24: Successful parameter transmission**

Via „Target system>Load to Switching Device…“ or the corresponding symbol , the created project can now be loaded into the 3SK2 basic device via PROFINET IM. In the appearing dialog (see Figure 10), the correct access point resp. the correct network card of the PG/PC (see Figure 22) is selected under the tab "PROFINET IO". Afterwards, the list is updating itself as soon as the point at „Available stations“ is marked and the PROFINET IM is displayed with the ethernet characteristics as previously assigned (see Figure 23). Click "OK" to start the loading process.

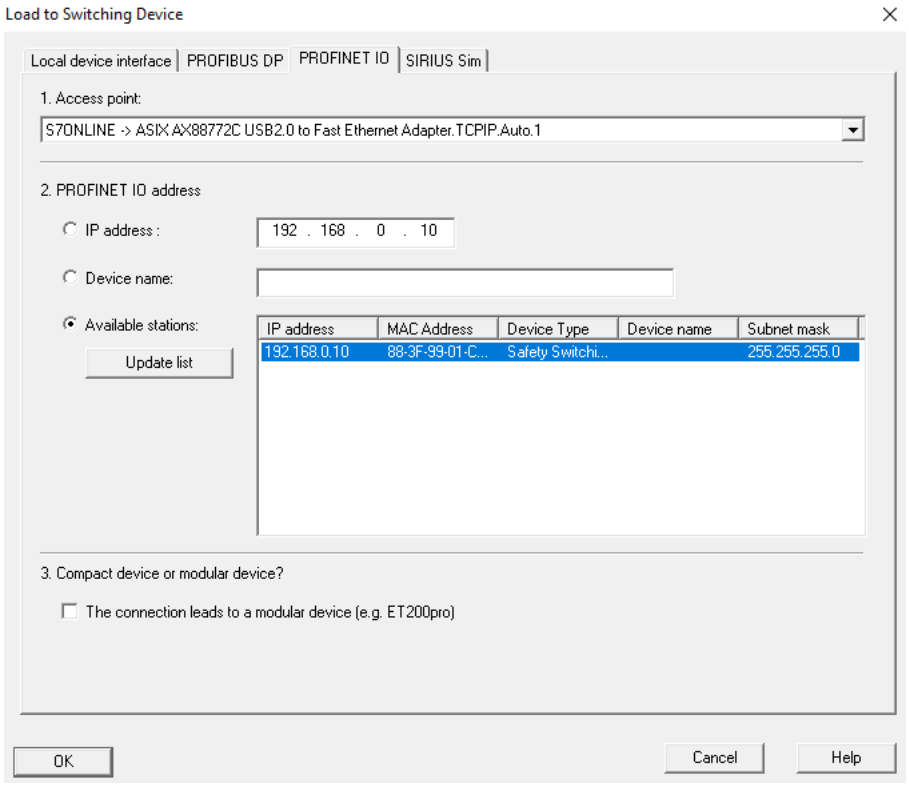


**Figure 25: Load to Switching Device**

Depending on the individual Safety ES settings the informative dialog “Settings of Safety ES…” appears. Afterwards, the successful loading process is confirmed with the following dialog.

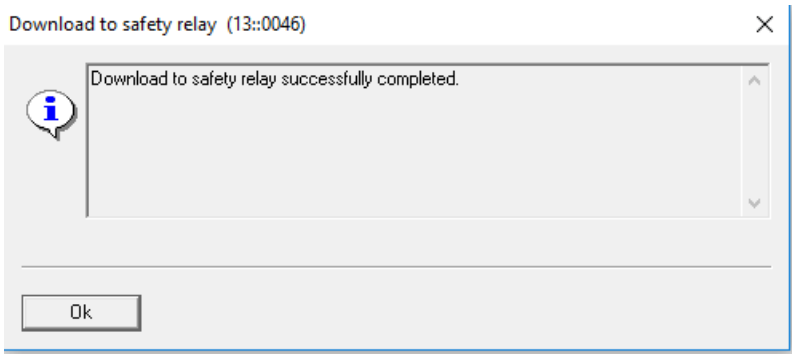


**Figure 26: Download successful**

Now the 3SK2 basic device is in Configuring mode, the display of the 3SK2 shows “PROJ” and the LED “Device” lights up orange. At this point you can either set the 3SK2 basic device into Test mode or directly into Safety mode. In the following it will be described how the 3SK2 can be set to these two different operating modes. Further information can be found in the user manual „SIRIUS engineering Safety ES V1.0”:
https://support.industry.siemens.com/cs/ww/en/view/109769618

**Note** If you have set a different IP address in the project engineering that you had loaded into the device than the one that was used for the download, you must use the new IP address to establish the connection to the 3SK2 before you perform the further steps.

## 2.6 Changing into test mode

In order to be able to switch between the operating modes of the 3SK2 an online connection between the basic device and the PG/PC resp. Safety ES is necessary. This can be fulfilled via the menu item „Switching Device>Open Online…“ or the corresponding symbol . Afterwards, you can switch to test mode via „Target System>Test mode“. For changing into test mode, a password is required. The default password of the 3SK2 in delivery state is “0000” and needs to be changed when used for the first time.

The operating mode is shown in Safety ES in the status bar on the bottom right edge of the screen (see figure 27).


**Figure 27: Safety ES Status bar**

The test mode can be used to support the execution of the prescribed functional test of the safety circuit. For example, you can force the outputs of function elements in test mode. The menu command "Target System>Diagnostics Logic>Monitor" or the corresponding icon shows the status of the inputs / outputs, the function elements and the connections between the function elements.

After finishing the test of the project, you can switch back to configuring mode via „Target system>Configuring mode“. To switch from online back to offline mode,

select the menu item „Target system>Go Offline“ or use the corresponding symbol  .

## 2.7 Approving configuration and changing into safety mode

Before the 3SK2 can be set into the productive safety mode, it must first undergo an approval process. In order to start this process, an offline configuration must be opened in Safety ES ("Offline" in the status bar at the bottom right edge of the screen) and the 3SK2 must be in configuring mode.

Open the menu command "Target System>Approve Configuration". Define the access path via PROFINET in the dialog that opens. Confirm with "OK". A connection to the safety relay is established. Confirm the dialog with OK. Afterwards, the following actions are performed:

- Comparison to see whether the opened configuration agrees with the online configuration in the safety relay. If not, an error message is displayed.
- Displaying the dialog box with the CRC. Enter the following data: Your name, your company name
- Password prompt for device access, if assigned.
- Print preview in which you can decide whether the release data should be printed out or saved as a PDF file.

After having approved the configuration, you can now switch the safety relay into safety mode. To do this, switch to online operation via the menu item „Switching Device>Open Online…“ or use the corresponding symbol  . Afterwards you are able to switch the 3SK2 to safety mode via „Target System>Safety mode“.

With correctly wired sensors and actuators, the display of the 3SK2 shows "RUN" and the LED "Device" lights green.



## 2.8 Integration in STEP7 via GSDML file

In order to exchange data with an S7 controller, the GSDML file of the PROFINET interface module must be integrated in the corresponding TIA Portal STEP7 project.

The file can be downloaded within the article “GSDML file for SIRIUS 3SK2 and 3RK3 safety relays with PROFINET module“:
https://support.industry.siemens.com/cs/ww/en/view/109771958

In the following it is shown how the GSDML file can be used in TIA Portal STEP 7.

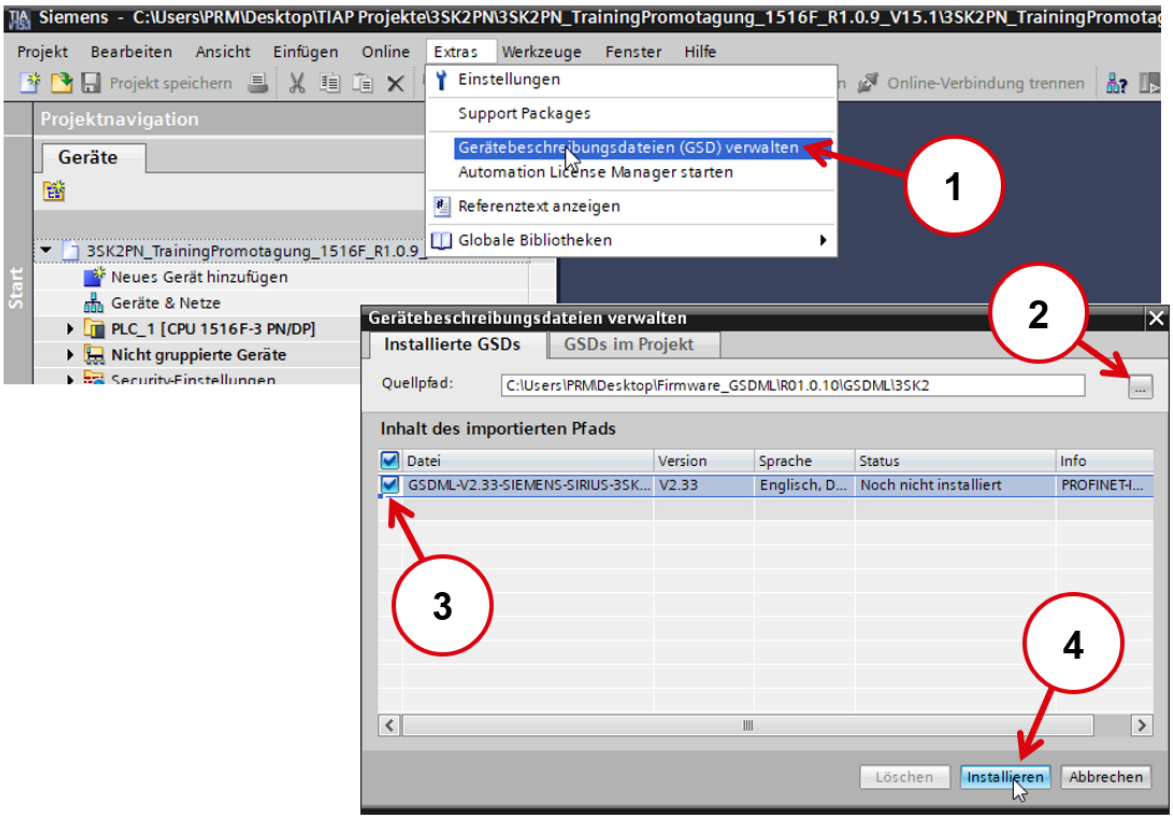


**Figure 28: Installation of the GSDML-file in TIA Portal**

1. „Options“ > „Manage GSD“
2. Select the path of the GSDML-file via „…“
3. Place a checkmark
4. “Install”

The installation and the following update of the hardware catalogues may take some time.

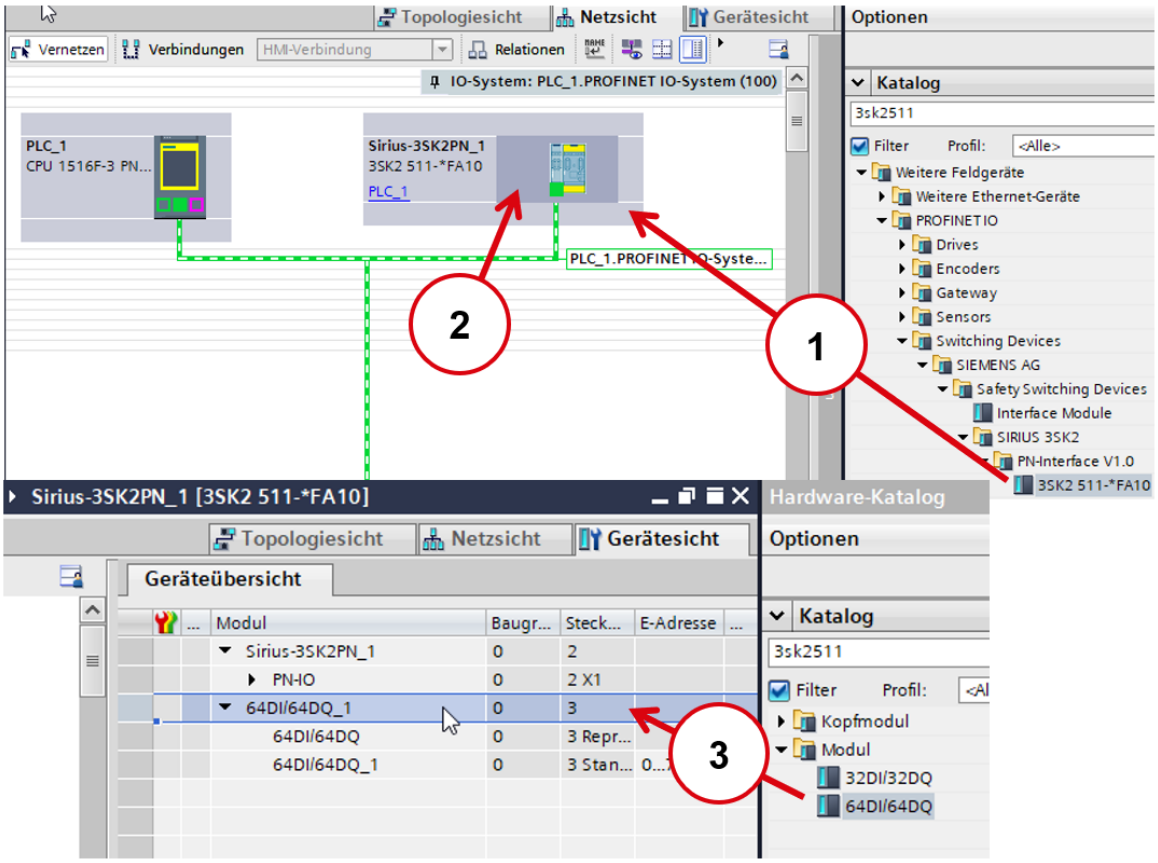


**Figure 29: 3SK2 PROFINET – Configuration in TIA Portal**

1. Add the PN interface module from the HW-catalogue into the network view of the project
2. Via properties you can define IP-address, PROFINET device name etc.
3. Add process image for data exchange with the PLC into the device view (64DI/64DQ or 32DI/32DQ)

Attention: The chosen structure of process data must correspond to the structure chosen in Safety ES.

# 3 Contact/ Support

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