

## Setup Safety Housing with door contact switch

For High-Z series with Zero-4 control

Software KinetiC-NC

<https://www.cnc-step.de/>





## Safety Housing with door contact switch



### Short description

We offer substructures and enclosures in different designs. We are also happy to implement special solutions on customer request.

For the enclosure with folding doors there are optional door contactswitches. These prevent the operation of the machine with the doors open. Thus, intervention during operation is not possible.

**For safety reasons, we generally recommend the use of door contact switches!**

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## 1 ASSEMBLY

The enclosure is already delivered completely assembled.

If the machine is on a workbench / work table, there must be enough space for the support of the enclosure.

The enclosure is not connected to the machine by default and stands loose above the machine.

On request, mounting angles for the fixed connection of the enclosure with the machine can be requested.

There are also suitable underframes for machine and housing. (Ideal solution)



*Fig.1: Combination of enclosure and underframe*

## 2 CONNECTION OF DOOR CONTACTS

The door contact switches prevent the operation of the system with the doors open. The machine stops in a controlled manner after opening the doors and can only be moved again after the doors have been closed. (Exception: slow creeping - if desired)

The enclosure with door contact switches has a 5m connection cable with a MiniXLR plug (3pol.)

### 2.1 Connection to the Zero-4 controller

The connection cable of the enclosure is connected to the XLR1 connector on the back of the Zero-4 control.



Pin mapping in the software:

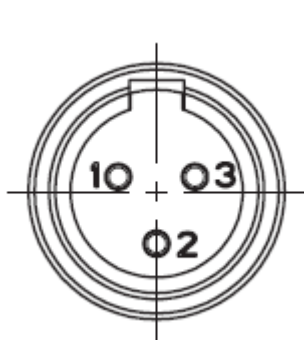
XLR1 = LPT2 PIN5 (Software Pin)

Fig.2: Connections back

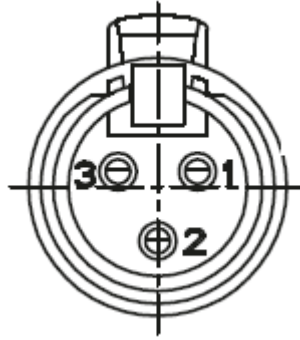
#### **hint:**

When the enclosure in the software is fully set up and the connection plug of the enclosure is separated from the Zero-4, the software gives out a malfunction (enclosure opened).

## 2.2 Pin assignment miniXLR cable socket (3pol.)



*Built-in plug on Zero-4*



*Cable socket on the connection cable*

PIN	signal
1	Supply voltage (+24V / ground)
2	Not used
3	Signalinput

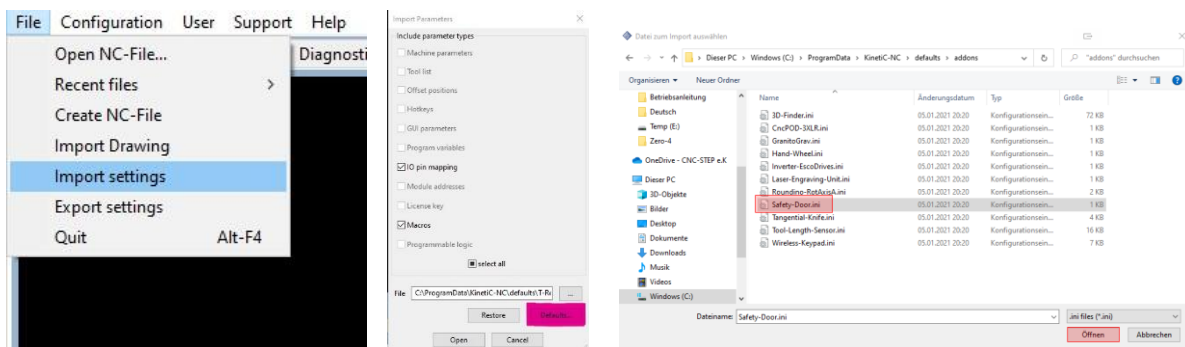
### 3 SETTING UP THE KINETIC-NC SOFTWARE

Before setting up the enclosure, please be sure to read the manuals of the machine and the Zero-4 control. The quickstart is also helpful.

It may also be that depending on the order scope, everything is already set up for you and you can skip the following steps.

#### 3.1 Import accessory parameter files (ADDONS)

The necessary parameters for the enclosure can be imported in this way.



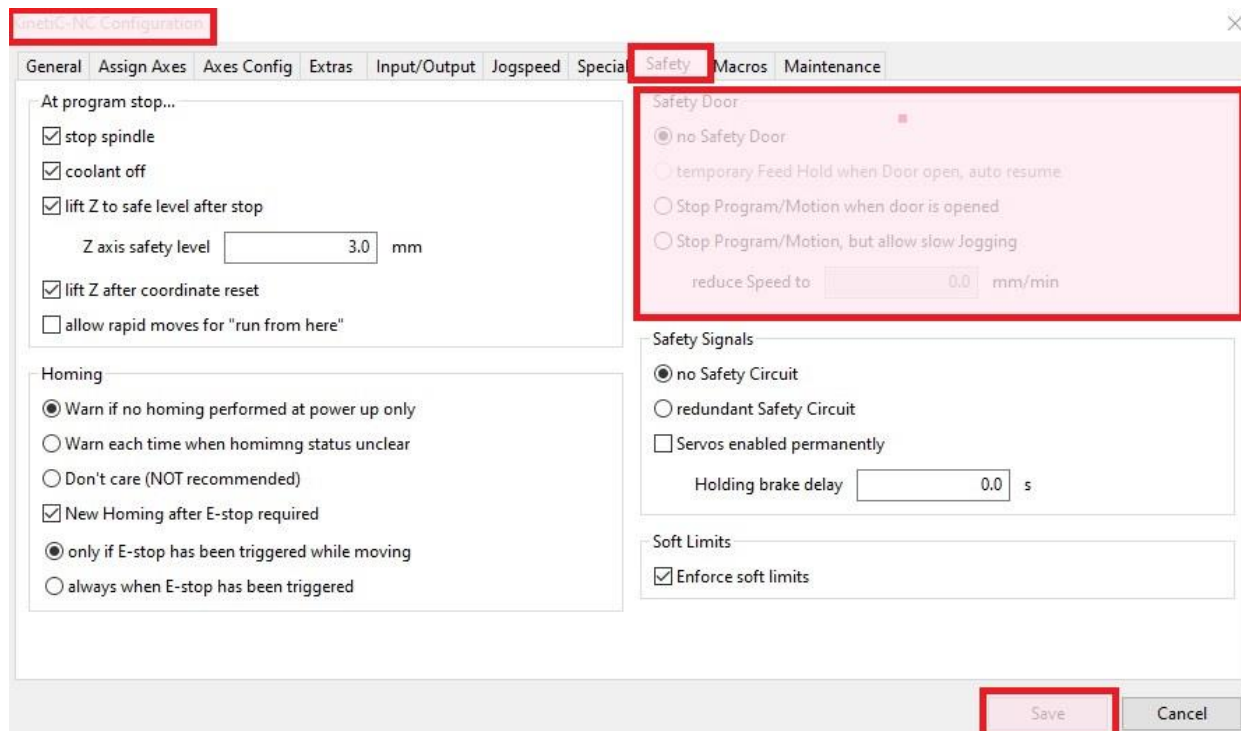
1. File - Import settings
2. Click on the "Default Parameters" button
3. Select the folder for your machine series such as e.g., "High-Z"
4. Select the subfolder "Addons"
5. Select the subfolder with the control variant "Zero-4"
6. Select the Safety Door (addon)
4. Click on the "Open" button
5. In the second window click again on "Open"

The enclosure is set up and all necessary parameters are loaded.

Regardless of the parameter files already provided by us or by loading addons already configured systems, we still want to address the important points.

## 3.2 Activation of the security door

The function for the security doors / door contacts must be activated in the software.



To do this, open the KinetiC-NC configuration and go to the "Security" tab.

In the "Security door" area, the desired entry must be selected.

There are three options:

### 1. No security door

The machine does not respond to the opening of the door (not recommended).

### 2. Stop program/movement when door is opened

The machine stops in a controlled manner when opening the door and drives the Z-axis out of the material to the set safety height (e.g. Z=3.0mm)

The machine can no longer be operated with the door open and no outputs (e.g., spindle, cooling, etc.) can be switched. The milling program cannot be started when the door is open.

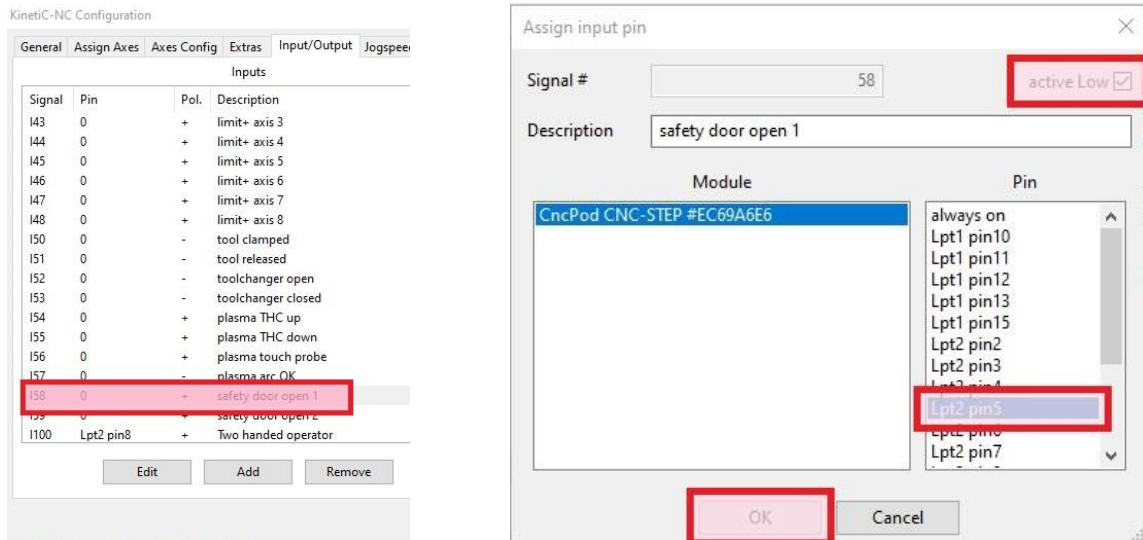
### 3. Stop program/movement but slow jogging allowed

Identical to option 2, but the axles of the machine can be driven with the set, reduced feed (max. 2,000 mm/min) when the doors are open.



### 3.3 PIN assignment for the door contacts of the enclosure

The input pin of the selected port (XLR1) must be assigned accordingly in the configuration of the software.



To do this, open the KinetiC-NC configuration and go to the "Input/Output" tab.

The signal input "I58 - security door is open 1" can now be marked and changed.

In the window "Assign input pin" the correct input PIN of the XLR1 connector (LPT2 - PIN5) must now be selected.

Be sure to pay attention to the correct inversion(low-active).

The description of the entrance can also be adjusted (e.g., in "Enclosure - Doors on")

### 3.4 Functional test

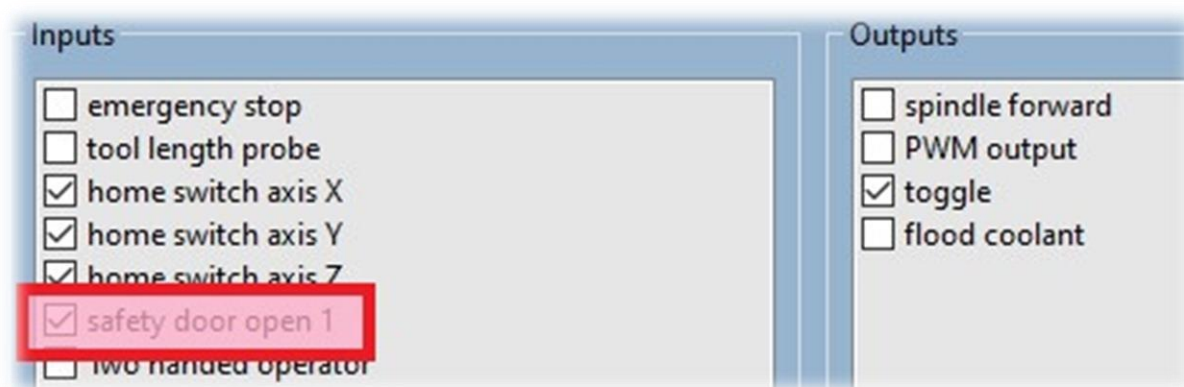
After setting up, the function of the door contacts should be checked.

To do this, go to the program tab "Diagnosis". There is now the enclosure at the Inputs with a box listed. (Display as entered e.g., "Enclosure...")

In the normal state (deactivated) no check mark may be displayed in it. When opening the doors, the check mark should become visible.

If the behavior is exactly the opposite, the entry at "low-active" must be changed. This inverts the signal.

If nothing changes, the door contact is not properly connected.



#### 3.4.1 Display with the enclosure open

The software displays the following icon in the status area of the software when the doors are open.



#### **hint:**

This is also the case if the connector of the enclosure is separated from the Zero-4.

## 4 MAINTENANCE

Under certain circumstances, it is necessary to be able to drive the axles of the machine, or to be able to switch outputs e.g., for functional tests or maintenance, even with the doors open.

For this work the controller can be changed to the so-called maintenance mode. This mode is only available as long as the security doors are open.



The maintenance mode can be activated in the "Setup" tab under Functions.

The maintenance mode can only be activated by a user with admin rights (foremen, master, machine fitter).

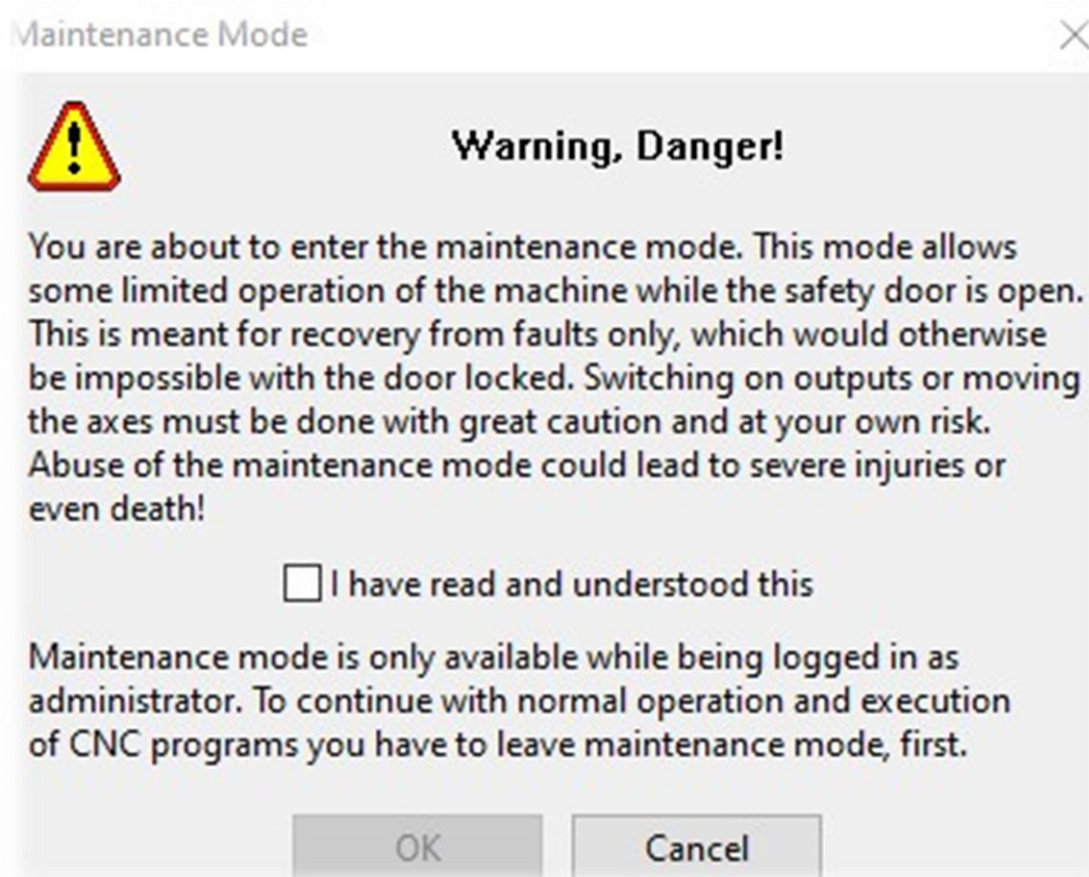


Registered standard users will receive this notice!



## 4.1 Security

The employee with the necessary rights can switch on the maintenance mode after confirming the warning.



After closing the security doors, the software terminates the maintenance mode automatically.

## 5 CUSTOMER SERVICE

For technical information, our customer service is at your disposal:

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If you have any questions, please contact our customer service by e-mail or phone. We are happy to advise you.

Numerous suggestions and information can also be found on our website:

***<https://www.cnc-step.de/>***