

Safety

Safe Stop condition

If the motor is powered with Digital Input 0 (Enable) and Digital Input 1 (Trigger) set to 24VDC (high level), after boot sequence, the integrated drive goes in a fault condition called **SAFE STOP**. In this condition, the internal PLC is disabled and MODBUS RTU debug mode will send a string on the MODBUS. See: https://www.nilab.at/dokuwiki/doku.php?id=integrated_drive_motors:modbus_debug

Soft landing function

For vertical application, it is possible to activate a function call soft landing. This function executes automatically at every switch-off (Disable command via software or via digital input) an homing procedure.

This to avoid that the motor falls down every time is switched off. Function can be activate using NiLAB Starter Software in Motor parameter windows.

The screenshot displays the NiLAB Starter software interface for configuring a miniature linear motor. The title bar reads "NiLAB Starter - INTEGRATED DRIVE MINIATURE LINEAR MOTOR COMMISSIONING TOOL - V2.3.1.7". The interface includes a progress bar at 0%, a "COM: COM15" dropdown, and buttons for "DISCONNECT FROM MOTOR" and "DOWNLOAD CONFIGURATION TO MOTOR".

The main window is divided into several sections:

- DRIVE STATUS:** Shows "COM Link" as active (blue square), "CURRENT SLAVE ID" as 4, and a "READY" status bar. Below this are buttons for "ON" (green), "OFF" (red), "FAULT RESET" (orange), "RESET AUTOMATIC HOMING" (green), and "MANUAL HOMING" (grey).
- Digital input and output state:** Shows values 4620 and 4621.
- Motion controller / Controller configuration / Scope / Motor parameter / Comm:** A tabbed interface where the "Motor parameter" tab is active.
- Legend:**
 - Orange square: Value changed and not downloaded
 - Green square: Value downloaded / uploaded correctly
 - Checked checkbox: Load/Write these data from/to motor
- MODBUS ADDRESS:** A table of parameters:

| MODBUS ADDRESS | Parameter | Value | Unit | Status |
|----------------|------------------------------|-------------------------------------|------|---------------------------------------|
| 60 | Homing current threshold | 3500 | mA | Value downloaded / uploaded correctly |
| 61 | Homing speed | 50 | mm/s | Value downloaded / uploaded correctly |
| 59 | Invert zero position | <input checked="" type="checkbox"/> | | Value downloaded / uploaded correctly |
| 58 | Trigger mode | On mechanical stop | | Value downloaded / uploaded correctly |
| 184 | Soft Landing (vertical axis) | <input checked="" type="checkbox"/> | | Value downloaded / uploaded correctly |

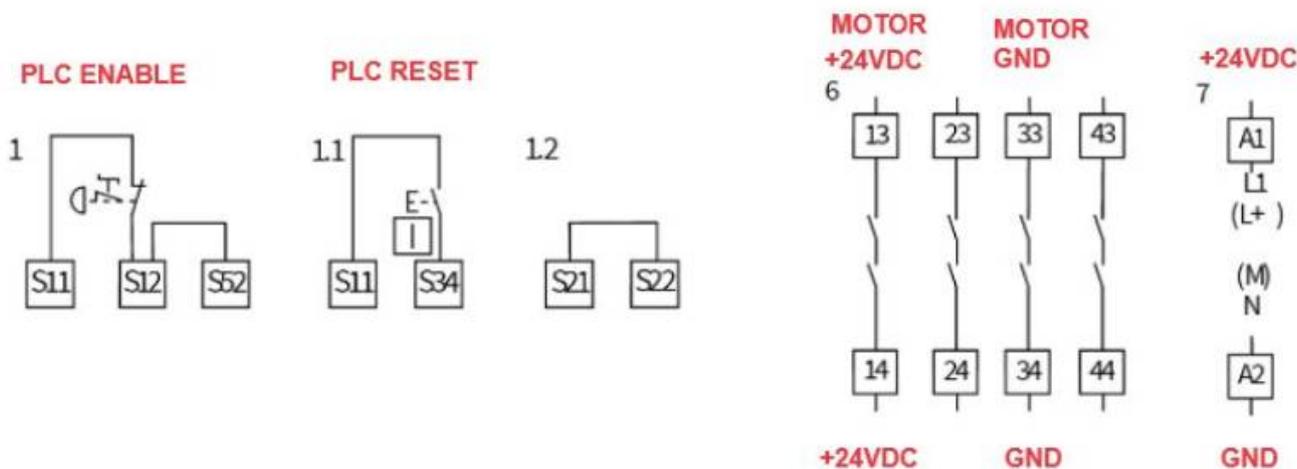
Safety Relais - External STO Function

In order to emulate the STO function, an external safety relais can be used to switch-on and off the 24VDC power to the integrated linear motor.



For example using Wieland **SNA 4043K**
 (<https://eshop.wieland-electric.com/products/en/device-for-monitoring-of-safetyrelated-circuits-sna4043ka-acdc-24v-a/r1.188.1810.0?locale=en>)

The connection will be the following:



PLC Enable must be set high (Pin S12) and subsequently the PLC Reset signal (Pin 34) must be applied to power on the relays. In case of emergency event, PLC Enable must be set low to switch off the relays cutting off the 24VDC power .

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Knowledgebase

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