

Installation Manual

TH LINK Industrial Ethernet
TH LINK PROFINET
TH LINK EtherNet/IP
TH LINK Modbus TCP



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The latest version of this manual is available in the Softing download area at: <http://industrial.softing.com/en/downloads.html>

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1 Introduction

1.1 About TH LINK

- TH LINK provides a secure access to the fieldbus network and forms the basis for the Softing product TH SCOPE.
- Intended use: The TH LINK is designed to be used as a secure access point to Industrial Ethernet networks. Any other use is deemed non-intended use.

1.2 Before you connect TH LINK

Strictly observe the following safety instructions before connecting the TH LINK:



Note

Small objects or liquids must not enter the case of the TH LINK (e.g. through the ventilation slots). This may damage the device. Never cover the ventilation slots on the device.



Note

Never open the case of the TH LINK or carry out any mechanical modifications on the device. This may lead to damages on the device as well as to loss of warranty.



EMC note

The TH LINK contains electronic components sensitive to electrostatic discharges. Damages due to electrostatic discharge can lead to premature failure of components or intermittent faults at a later stage. Before installing the TH LINK, divert the electrostatic discharge away from your body and the tools used.

- The TH LINK may only be installed or uninstalled by qualified, trained electrical engineering personnel. When installing the TH LINK, observe the regulations for handling electric components in accordance with VDE 0100. In addition, you must also observe the valid safety and accident prevention regulations (UVV) when operating the device within the jurisdiction of the Federal Republic of Germany.
- High temperature differences between the storage site and installation site can result in condensation within the case, which may cause the TH LINK to become damaged. In case of high temperature differences, wait at least three hours before operating the device.



WEEE

Electrical and electronic equipment must be disposed of separately from normal waste at the end of its operational lifetime.

Please dispose of this product according to the respective national regulations or contractual agreements. If there are any further questions concerning the disposal of this product, please contact Softing Industrial Automation.

2 TH LINK design

2.1 Start-up guideline

The following steps are required for start-up:

1. Mounting
2. Plug-in SD card (recommended).
3. Connect to network (see [Connect to network](#)).
4. Connect to the power supply (see [Connecting the power supply](#)).
5. Configure network (see [Configure the device in the network](#)).

2.2 Connections and display elements

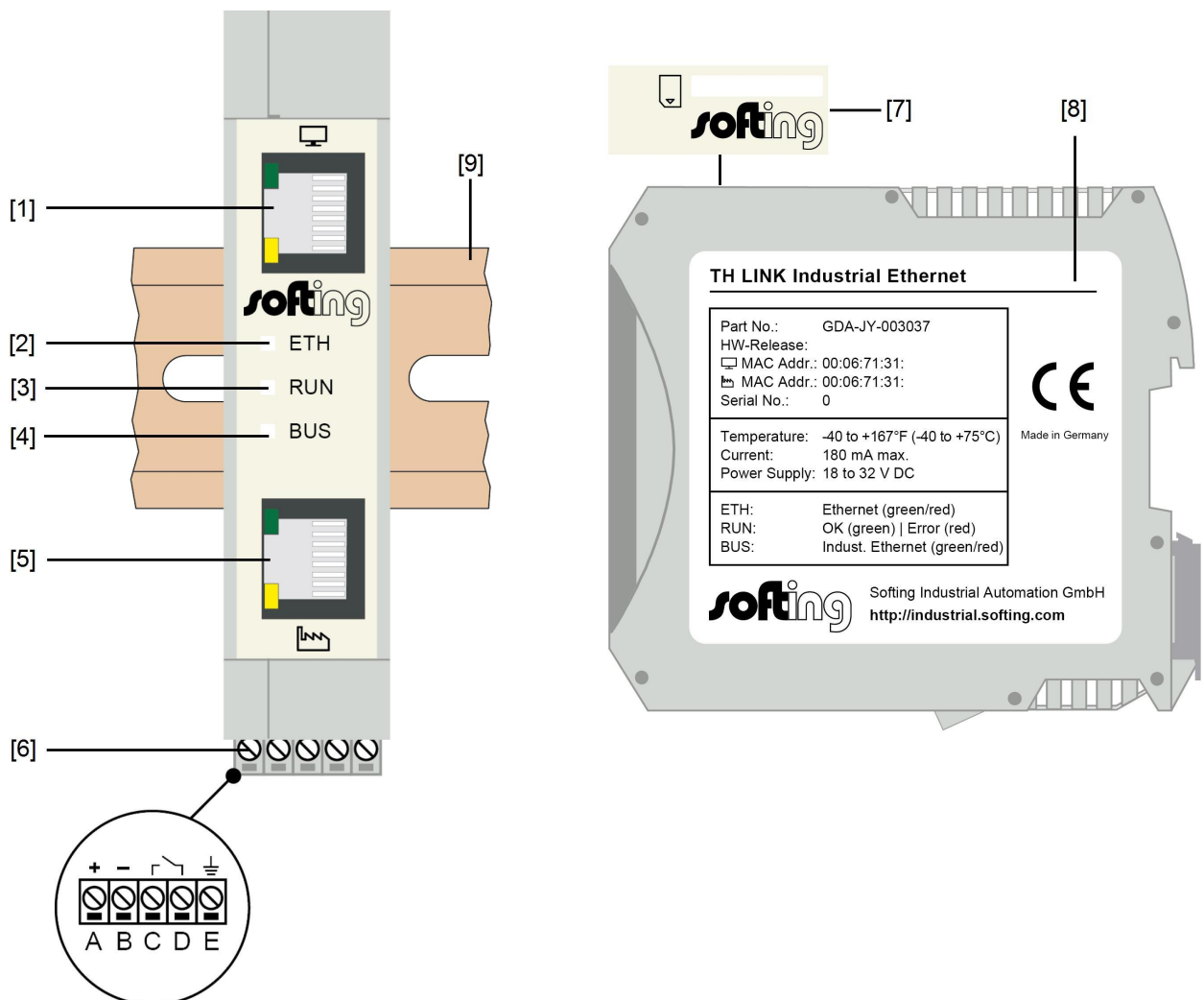


Figure 1: TH LINK (front and lateral view)

[1] Ethernet interface for office network

- lights yellow: Ethernet data communication
- lights green: physical connection available

[2] LED ETH

- lights red: boot procedure
- lights green: firmware update in progress
- is off: boot procedure is completed

[3] LED RUN

- lights red: internal error
- lights green: power supply is applied
- is off: device is not powered

[4] LED BUS

- lights red: relay contact active (error occurred in the bus)
- lights green: TH SCOPE measurement is running
- is off: TH SCOPE measurement is stopped

[5] Ethernet interface for automation network

- lights yellow: Ethernet data communication
- lights green: physical connection available

[6] Terminal strip for +24 V DC power supply

- A: 24 V (+)
- B: 0 V (-)
- C: Relay contact - input
- D: Relay contact - output
- E: Protective earth

[7] SD card slot

- You can save data on the SD card to have the data available even after voltage recovery.
- Insert the SD card before installing the device or putting it into operation. Thus you make sure the card is recognized during boot procedure.
- Now go to **TH LINK** → **Settings** → **TH SCOPE** and set the parameter **Data restore after voltage recovery** to **Yes**.
- Following the initial device commissioning the SD card is formatted automatically. From this time on you can save data independently from power interruptions.

**Note**

If the SD card is not recognized during boot procedure, restart the TH LINK.

[8] Type label

2.3 Mount device



Note

Make sure you have a minimum of 5 cm below and above the TH LINK in order to ensure heat dissipation.

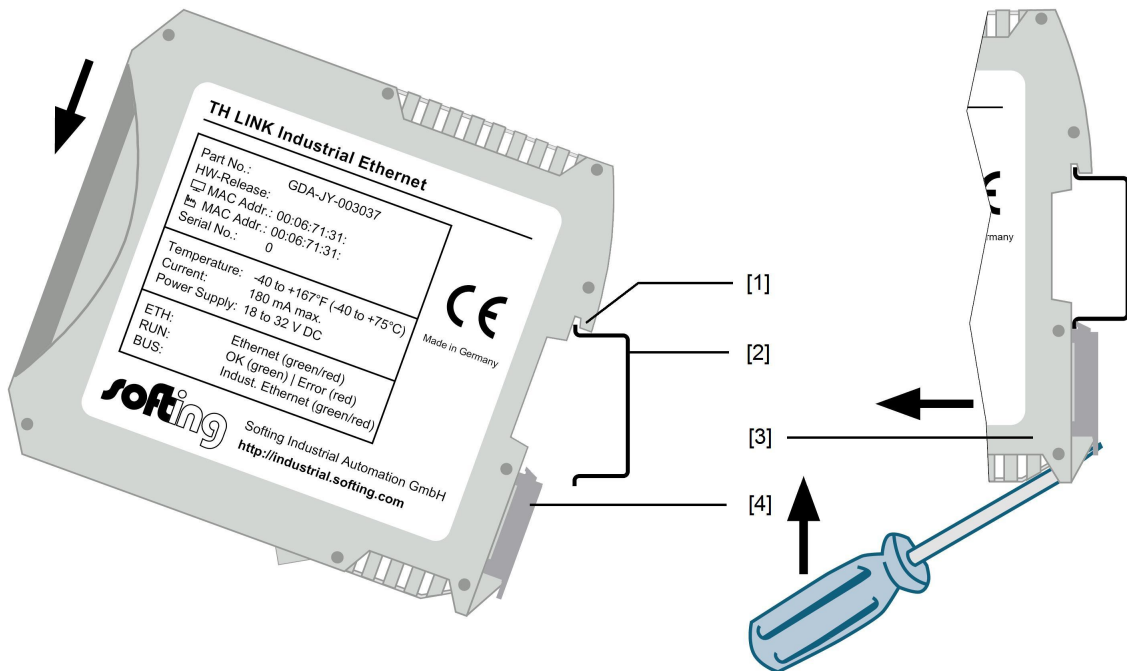


Figure 2: Mount and unmount the TH LINK

- [1] Device with notch on DIN rail
- [2] DIN rail
- [3] Device on DIN rail
- [4] Stop lever

1. Place the device with its notch on the DIN rail.
2. Move the device downwards until the stop lever locks into place on the DIN rail.

Unmount TH LINK:

1. Remove the connected supply and signal lines (Ethernet, power supply).
2. Place the screwdriver into the stop lever on the device (see figure above).
3. Press the screwdriver in the direction of the device and simultaneously swing the device off the DIN rail.

2.4 Connect to network

1. TH LINK can either be accessed using the upper port (desktop icon) of the TH LINK or accessing the network directly, which then has to be connected to the lower port (factory icon) of the TH LINK.
2. The bottom port (factory icon) should be connected to the automation network.



Note

There must be no firewall between the TH LINK and the Industrial Ethernet devices.



Note

The green LED on the Ethernet socket lights as soon as the TH LINK is energized and a network is available.

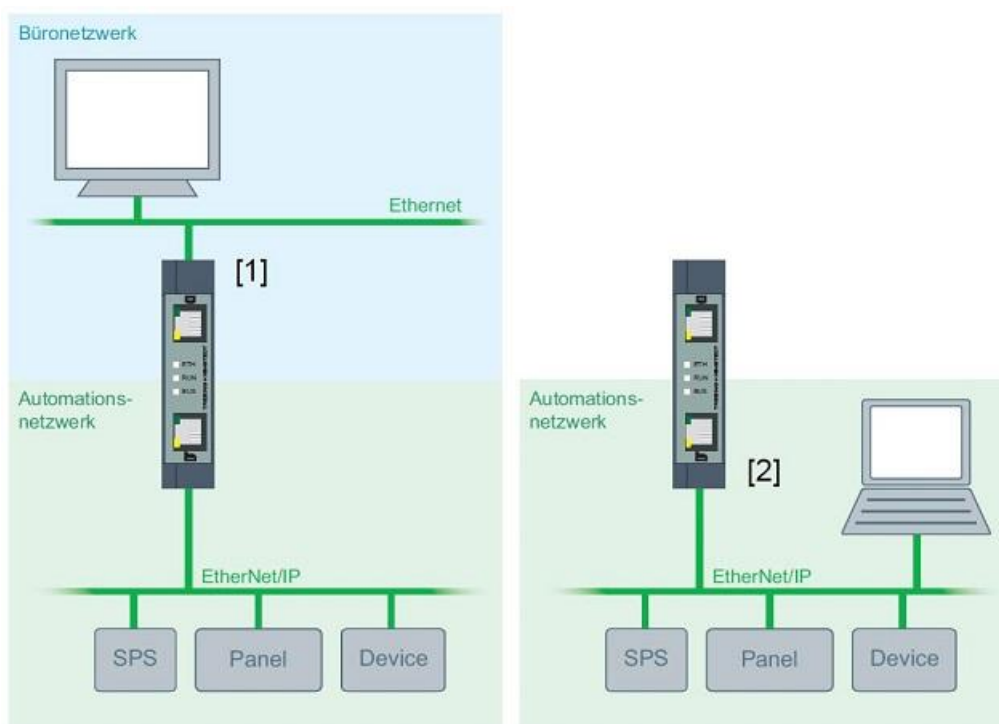


Figure 3: Connection options

2.5 Connecting power supply and relay contact



Electrical voltage

Only qualified electricians are allowed to work on the electrical equipment.



Danger due to incorrect earthing

Incorrect device earthing may cause injury to personnel or damage the device. Ensure correct and proper earthing of the device.



Note

Reverse polarity in the power supply can damage the device. Make sure the power supply is connected with correct polarity.

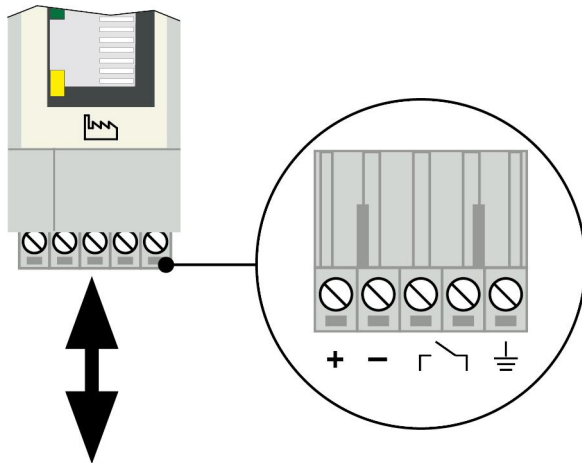


Figure 4: Terminal strip for power supply of the device

1. Connect the cable of a 24 V power supply and the earth conductor (earth terminal) to the terminal strip on the device. The terminal strip can be plugged and lifted out for installation using a screwdriver.
2. Connect the cable of the circuit that should be closed by the relay contact to the terminal strip on the device.
3. Switch on the power supply. The LED RUN is green and the LED ETH flashes red until the device's boot procedure is completed. Afterwards the LED RUN and BUS light green.

3 Configuring the device in the network

3.1 Configuration requirements

- The following ports have to be enabled in the firewall:

Protocol/purpose	Port
HTTP	80 TCP
Firmware update	1100 TCP
TH LINK communication with each other	1123, 1124, 2364 UDP
TH LINK communication with TH SCOPE via Multicast via Unicast	2364 UDP 1151, 2365, UDP

3.2 Network presettings

- The device is preset to network operation with a DHCP server. No network configuration settings are required in this operating mode.
- In case of manual allocation of IP addresses the device can be reached via the following IP addresses (Factory setting):



Note

TH LINK can be accessed from office network via IP 169.254.0.1 (default). To access TH LINK from the automation network, you would choose IP 169.254.0.2 (default).

3.3 Web access and login

- After TH LINK has been successfully configured in the network, please go to **Windows start > Program > Softing > TH LINK > TH LINK** to open the TH LINK web interface.
- To log in as an administrator, go to the top right of the page and enter the password.



Note

The default password is the 9-digit serial number of the TH LINK. We recommend changing the password after initially setting up the device.



Figure 5: Access and log in to the TH LINK web interface

3.4 Network overview

When opening the TH LINK web interface, a network overview will be provided, giving essential information on all necessary diagnostic data of the network.

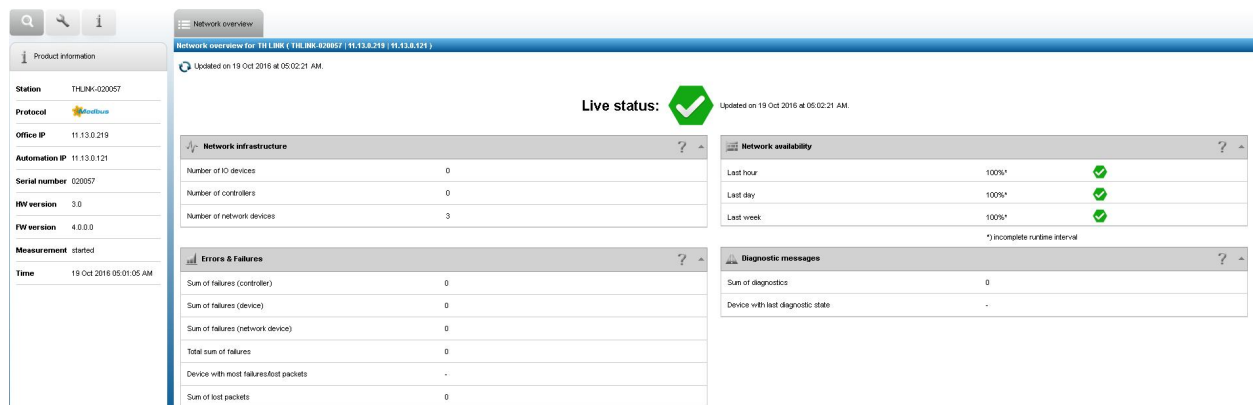


Figure 6: TH LINK network overview tab

3.5 Setting new IP and network address

For configuration of IP-address of the TH LINK, please perform the following steps:

1. Inside the web interface, click on **Settings** and then on **TH LINK**.
2. In menu **Network configuration** switch the configuration method for office networks and/or automation networks from **DHCP** to **Manual**.
3. Enter the new IP address.

**Note**

Note down the IP address. You can only access the device's configuration page by using this IP address.

4. Enter the new addresses for **Subnet mask** and **Default gateway**.
5. Enter the IP address of the **DNS server**.
6. Click on the floppy disk sign to save the settings. The device then performs a restart.

**Note**

The default password can be changed on the TH LINK 's settings page. On the web interface, click **Settings > TH LINK** and change the password under "**User administration**". Click "Change password" to finalize.

**Note**

The device is preset to network operation with a DHCP server and in this case it is automatically assigned an IP address. No network configuration settings are required in this operating mode. The routine for the DHCP identification only runs during device start-up. Briefly switch off the power supply for a new DHCP identification.

Figure 7: Settings page of TH LINK web interface

3.6 Check the connection to the device

You can check the device's connection in the network. Start a web browser on your PC/notebook.

- **For DHCP:** Enter the hostname `http://THLINK-serial number` (e.g.: `http://THLINK-143500067`) and press **Enter**.
- **For manual IP configuration:** Depending on the network in which your PC/notebook is installed, enter the specified IP address of the office or automation network (basic setting: 169.254.0.1 or 169.254.0.2) and press **Enter**.

Now the website of the TH LINK should be displayed in the web browser.

3.7 Firmware update

Firmware updates for the TH LINK are available free of charge from our website. Proceed as follows:

1. Click **Settings** and then **Firmware Update**.
2. Check if the requirements for a firmware update are met. Stop the current measurement.
3. Download the latest firmware version from (<http://industrial.softing.com/en/downloads.html>) and save it to a local directory.
4. Click [...] and then select the firmware file.
5. Click **Start**.

**Note**

Do not turn off the power during the entire firmware update process! After the firmware update the TH LINK restarts automatically.

Firmware update	
Current firmware version	4.0.0.0
Firmware update requirement	Please stop measurement.
Firmware file	<input type="button" value="Get from website"/>
Firmware selection	<input type="text"/> <input type="button" value="..."/>
Firmware update start *	<input type="button" value="Start"/>

Figure 8: Firmware update

4 Troubleshooting

TH LINK is not found in the Ethernet network

- Check the power supply (LED RUN must light green).
- Check for correct connection (RJ-45, see [Connecting to Ethernet](#)).
- The device is preset to network operation with a DHCP server (IP address for the device is assigned by the DHCP server. If your network server does not support DHCP, you need to set the IP address for the TH LINK manually (see Connection in a network with manual IP address assignment).
- When a crossover cable is used between PC/notebook and TH LINK, both devices must be in the same subnet.

LED RUN lights red – internal error

- Internal error or defect: Please contact the Technical Support (support.automation@softing.com).

Reset password

In case you forgot the password to log in to the TH LINK, you can either

- have the password reset with the help of the Softing Support team. The device must be remotely accessible by a Softing staff.
- send in the device to reset the password. The procedure is described on Softing's website (<http://industrial.softing.com/en/services/support/netzdiagnose.html>).

5 Technical Data

Electrical data		
Nominal supply voltage (limit values)	V DC	24 (18 ... 32)
typical current consumption	mA	150
continuous current consumption	mA	180
maximum current consumption relay contact	mA	100
Protection class	IP	20



Note

The maximum current consumption on turn on is limited to 8 A in the TH LINK

Operating conditions		
Ambient temperature range (*)	°C	-40...+75
Relative humidity	%	5 ... 95 (no condensation)




- (*) Depending on the SD card used the ambient temperature range might deviate from the values indicated here. Verify the ambient temperature range specified by the SD card manufacturer. You can find a list of recommended SD cards in Release Notes on your installation CD or in the Softing download area (<http://industrial.softing.com/en/downloads.html>).

Housing dimensions		
Dimensions W × H × D	mm	22,5 × 99 × 114,5
Weight (approx.)	g	120

Other		
Ethernet connection	Type	RJ-45 (10Base-T/100Base-TX)
Certificates		CE, UL

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