



GETTING STARTED

echolink S7-compact

Plug&Play Ethernet Coupler for SIMATIC S7



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Disclaimer of liability

We have checked the contents of the document for conformity with the hardware and software described. Nevertheless, we are unable to preclude the possibility of deviations so that we are unable to assume warranty for full compliance. The information given in the publication is however, reviewed regularly.

Necessary amendments are incorporated in the following editions.

We would be pleased to receive any improvement proposals which you may have.

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Important notes

Read the manual before the start. For damages due to improper connection, implementation or operation Softing refuses any liability according to our existing guarantee obligations.

The recent version of this manual is available in the Download Area of the Softing at: <http://industrial.softing.com>.

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Chapter 1

Introduction

1 Introduction

Echolink s7-compact is an Ethernet gateway for coupling MPI enabled S7 PLCs. It supports the communication between the PLC and higher-level systems the same as PLC to PLC communication.

1.1 CD content

The included CD contains:

- Getting Started
- Configuration tool NetCon
- Step 7 driver VCOM S7-compact for Windows 32 Bit Systems
- Step 7 driver IBH-Net

1.2 Compatibility

1.2.1 Supported Programming Software

The programming software Step7 up to Version 5.5 is supported by the Step 7 driver VCOM S7-compact for Windows 32 Bit Systems.

The programming software Step7 TIA Portal is supported by the Step 7 driver IBH-Net.

1.2.2 Compatible Softing Products

- echolink S7-compact functionality is compatible with NetLink PRO/ETH
- echolink S7-compact functionality is compatible with echocollect with PLC programming license

1.3 System Requirements

The echolink S7-compact requires for its function an appropriate power source with 18V bis 24 V output. The power can be supplied to the device either directly over the Profibus Interface from the PLC or with an external power source.

1.4 Software Installation

The setup utility installs the configuration tool NetCon and the Step 7 driver VCOM S7-compact in the "../programme/softing" directory on your PC.

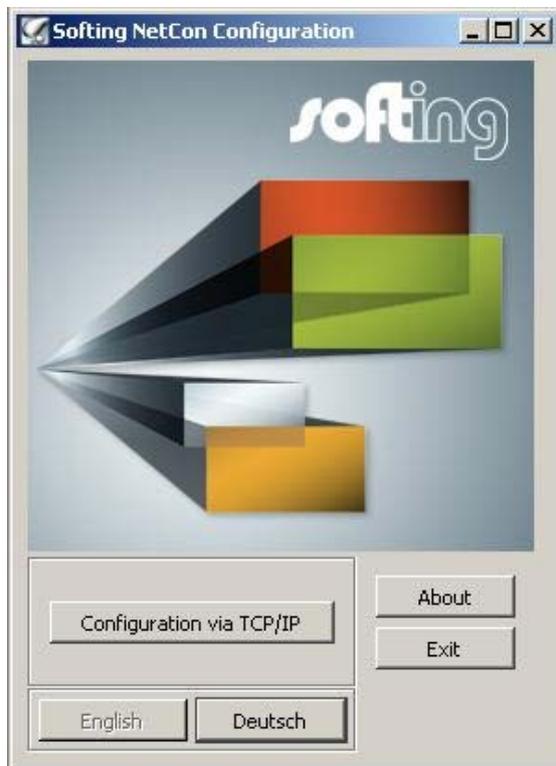


Chapter 2

Configuration

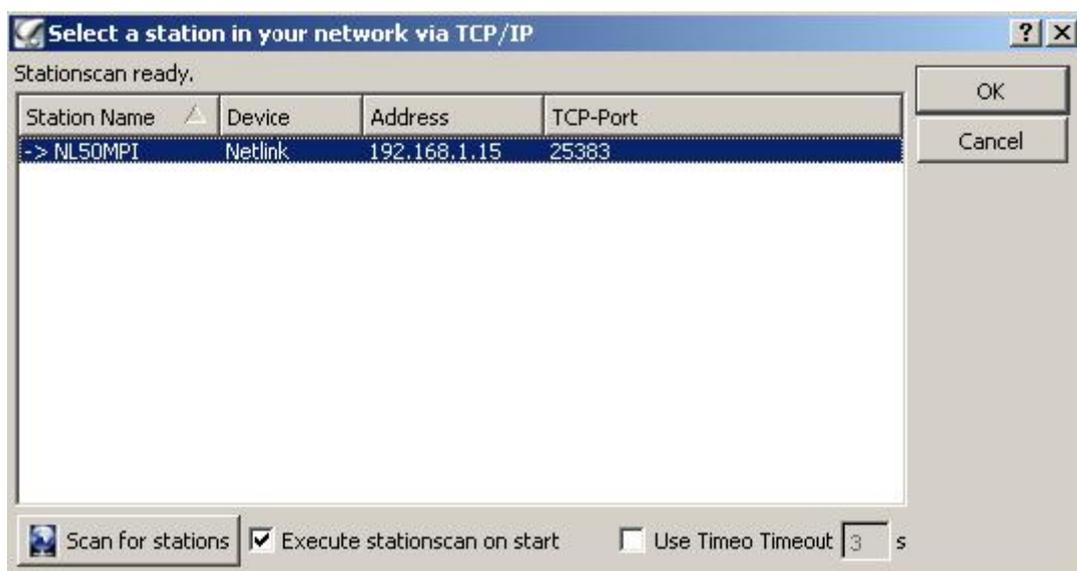
2 Configuration

1. Start the Netcon configuration tool



2. Click on **“Configuration via TCP/IP”**

The next window will display the echolink S7-compact device(s), connected to the local network.



NOTE:

The echolink S7-compact device are provided by default with an IP address 192.168.1.15. In order to prevent IP address conflict, be sure that this IP address does not already exist in the network or please connect to the echolink S7-compact directly.

3. Select the device and click on “OK”, or double click on the device, alternatively.

The next window offers general network setting:



TCP/IP-Parameter

- Define the IP address of the device (here, e.g., 192.168.1.19)
- Define the subnet mask (here, e.g., 255.255.255.0)
- Define the router address (default gateway) (here, e.g., 192.168.1.126)

MPI-Parameter

- Define the MPI Address here (here, e.g., 12). Please make sure that this address is not already used on the bus.
- Select the MPI bus speed.

NOTE:

For MPI communication shall be the 187,5 kbit/s bus speed selected. For Profibus communication the Baudrate needs to be selected according the CPU, the Profibus is configured for.

- The bus parameters are set for MPI/Profibus by default. In case that these do not fit your custom bus, please change them accordingly:

The image shows a 'Station Parameters' dialog box with the following fields and options:

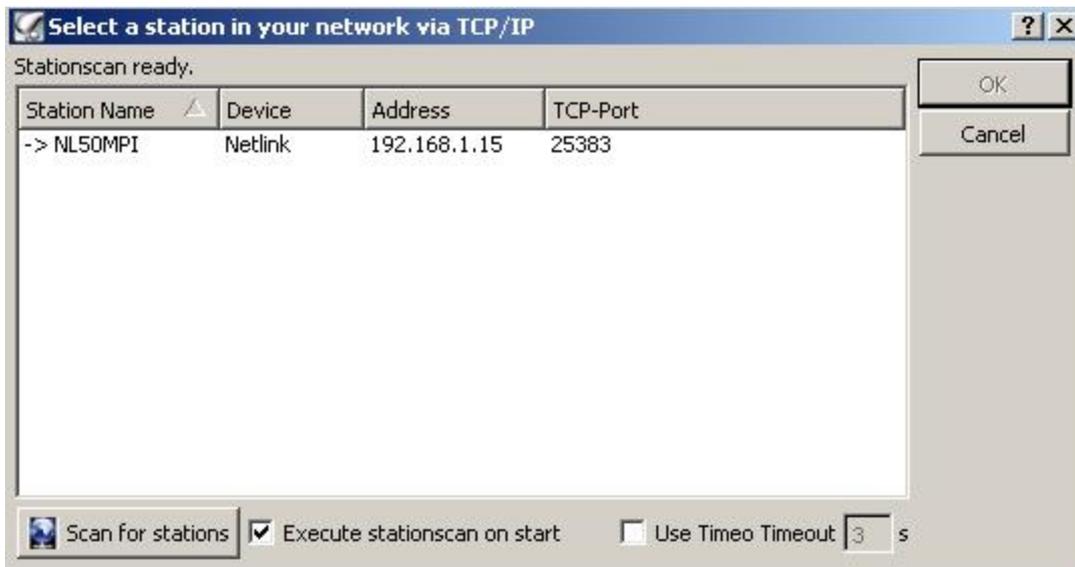
- Name of the Station: NL50MPI
- MAC (Ethernet) Address: 00 02 A2 28 CE 13
- TCP/IP Station Parameter section:
 - Only set temporary IP Address
 - Use DHCP
 - Use Boot-P
 - IP Address: 192.168.1.19
 - Subnet Mask: 255.255.255.0
 - Router Address: 192.168.1.126
- Mpi Parameter section:
 - Mpi Address: 12
 - Mpi Bus Speed: 187.5 kbit/s
 - Mpi Default button
 - Profibus Default button
 - Bus Parameters
 - Highest Station Address (HSA): 31
 - Slot Time (TSL): 415
 - Minimum Station Delay Responder (Min_TSDR): 60
 - Maximum Station Delay Responder (Max_TSDR): 400
 - Quiet Time (TQUI): 1
 - Setup Time (TSET): 1
 - Target Rotation Time (TTR): 10000
 - Gap Factor (G): 20
 - Maximum Retry Limit (MRL): 2

Buttons on the right side: OK, Cancel, Update Firmware, Version Information.

- Proceed with „OK“. The device will be configured in a few seconds:



- Confirm the dialog with „OK“. The device list will appear again



- In order to update the list, click on the **“Scan for stations”** button.



Chapter 3

PLC Programming with Step 7 via TCP/IP

3 PLC Programming with Step 7 via TCP/IP

In order to program a S7 PLC with standard Ethernet CP (e.g. CP 443-1) over TCP/IP, follow these steps:

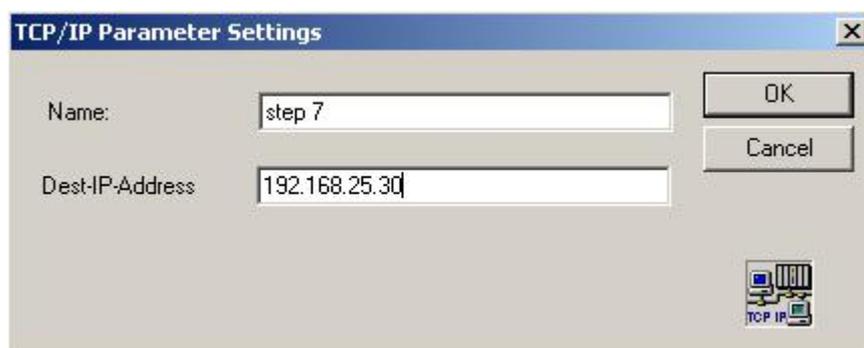
3.1 Connecting with Softing VCOM S7 Compact

Add a new connection:



- Assign a name for the new connection.
- **COM Line:** Select the desired virtual COM-port (here, e.g., COM3).
- Default setting for the serial protocol is „Mpi S7-300/400“
- Default settings for the network is „TCP/IP“
- Default destination device is „standard“
- Proceed with „OK“

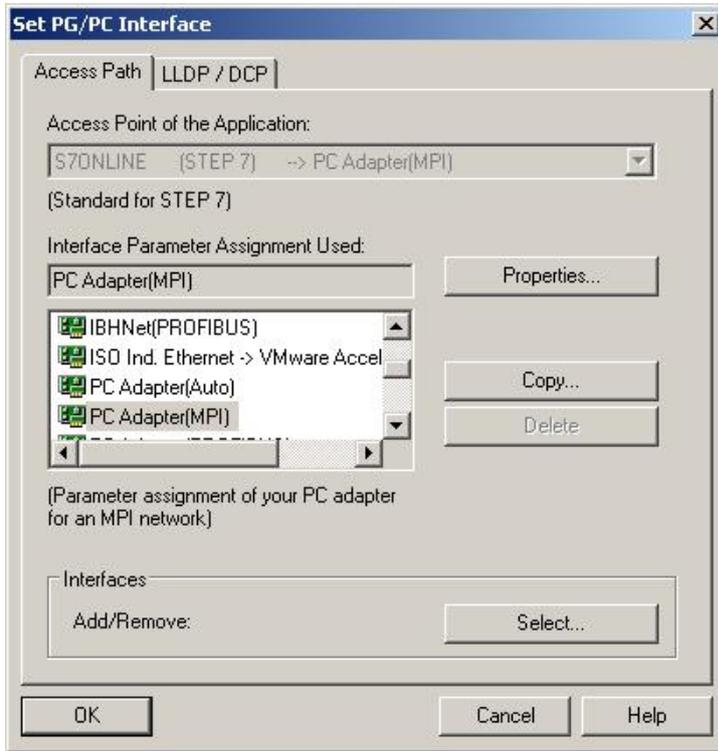
In the following dialog will open:



- Here define the destination IP address of the echolink S7-compact (here, e.g., 192.168.25.30).
- Proceed with „OK“

3.2 Settings in SIMATIC Manager

- Open the software STEP 7.
- Select **Extra** → **Set PG/PC Interface**



- Select the PC Adapter (MPI) and click on the button **“Properties”**.



- Here, select the virtual COM-port. This port needs to be the same one, as you select in the Softing VCOM S7 Compact configuration.
- Proceed with **„OK“**

Now, you can program and diagnose your STEP 7 over the TCP/IP network.



Chapter 4

OPC Access

4 OPC Access

With different OPC-Server you have the opportunity to choose MPI/RFC 1006 or netlink as protocol. Because of the more universal use we recommend to use MPI/RFC 1006 protocol.

4.1 RFC1006

echolink S7-Compact behaves similar to a Siemens S7 communication processor. If a Rack/Slot Configuration is not offered by your OPC tool, it is necessary to configure a MPI®/PB Address in the TSAPs directly to create a link between PLC and MPI connector. The first byte of the TSAP describes the service used over this channel (02 or 03 for Visualization). The second byte contains the MPI®/PB address. TSAP is always presented as Hex Code.

Sample

MPI®/PB Address	Rack	Slot	TSAP(Hex)
0	0	0	02 00
1	0	1	02 01
...
31	0	31	02 1F
32	1	0	02 20
...
126	3	30	02 7E