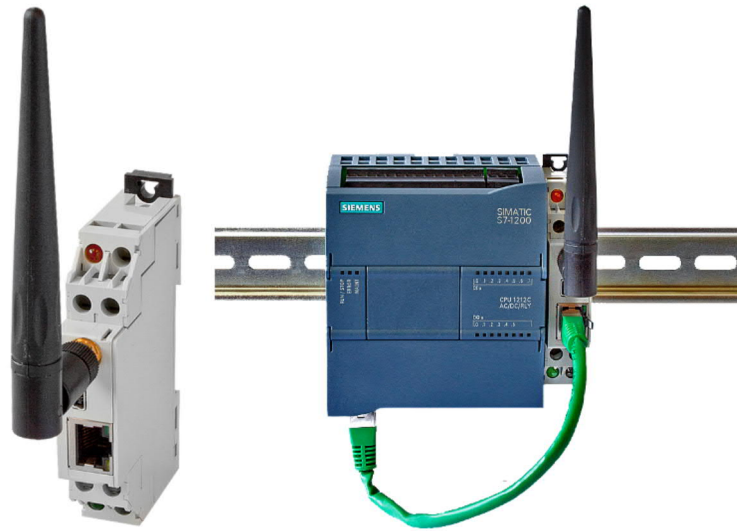


# WLAN-terminal user manual

(english)



Art.Nr. 9352-WLAN-KLEMME

11.02.2021

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# WLAN-terminal

## 1 Description

The WLAN-Klemme enables network devices to connect to an Access-Point in an existing WLAN network or set up a direct WLAN connection (Ad-hoc) between a network device and a WLAN device (must be capable of Ad-hoc).

## 2 System requirements

### 2.1 Operating system(s)

- Windows XP
- Windows Vista
- Windows 7

### 2.2 Software

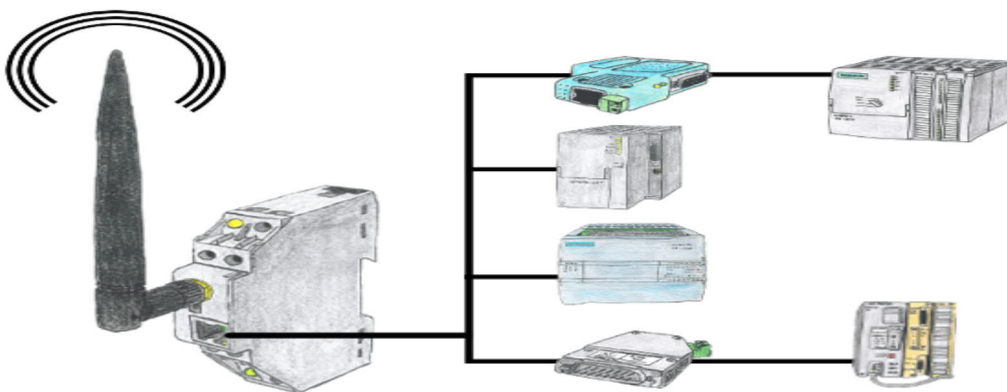
- WLANConfig-Tool (on CD)

### 2.3 Hardware

- USB 1.1 Type A (for configuration)
- 24VDC power supply (two strands are needed to connect the WLAN-Klemme to the power supply)
- RJ45-Ethernet jack at the integrated network client

## 3 Connecting options

Wireless connecting of a network client (e.g. S7-LAN) with a Access-Point or direct with a laptop.



## 4 Installation

### 4.1 Hardware

### 4.1.1 WLAN-Klemme configuration

The WLAN-Klemme will be connected with a USB-Kabel Type A / Mini B to the computer. No external power supply is required!



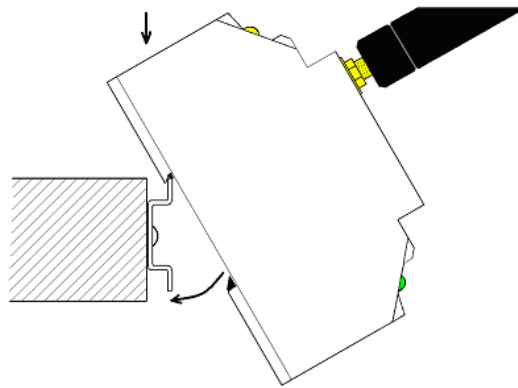
*If you get while connecting the S7-WLAN bridge the error code 10, connect the S7-WLAN-Bridge directly to your computer and not via usb-hub or try a different USB port on your computer.*

### 4.1.2 WLAN-Klemme normal operation

You have two possibilities to install the WLAN- Klemme: Either you clip the WLAN-Klemme on a cap rail (DIN- rail EN 60715 TH35) or install the module with two screws at the wall.

#### 4.1.2.1 Installation on the cap rail

Hinge the WLAN-Klemme on the cap rail just as it is shown in the drawing and push the lower side carefully to the rail until the module snaps into place.

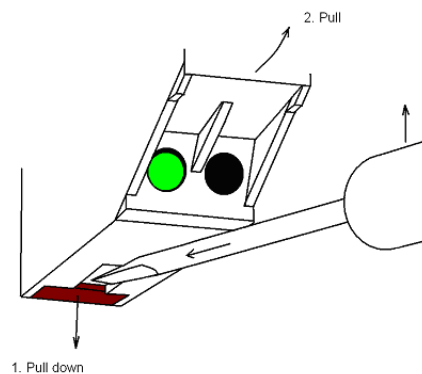


#### 4.1.2.2 Removing from the cap rail

In order to remove the module from the cap rail you have to pull down the dark brown plastik holding bow carefully with a slotted screwdriver and hold it. (take a look on the drawing)

While holding the holding bow pull the lower side of the module carefully away from the rail (take a look on the drawing).

When the lower side is removed from the rail you can pull the module up and remove it completely from the rail.

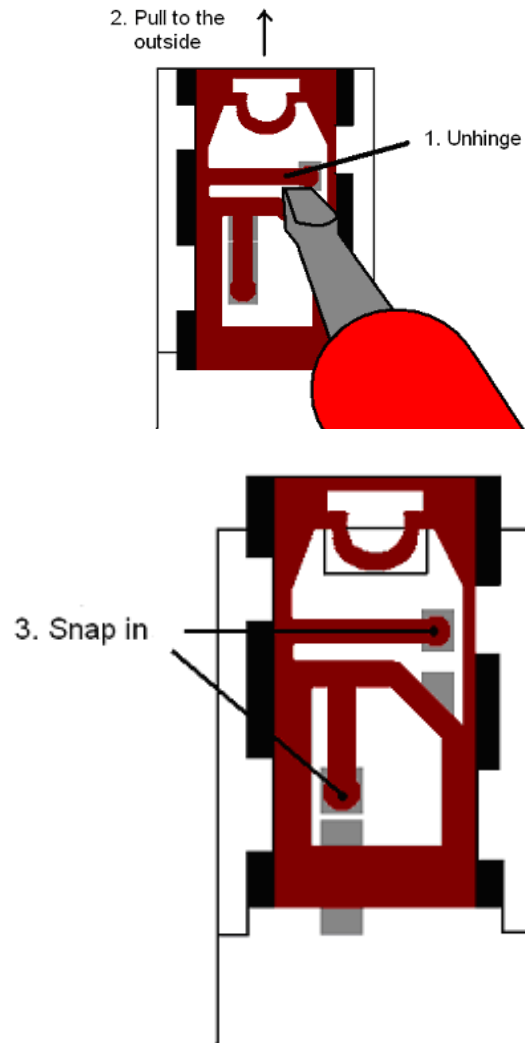


#### 4.1.2.3 Installation at the wall

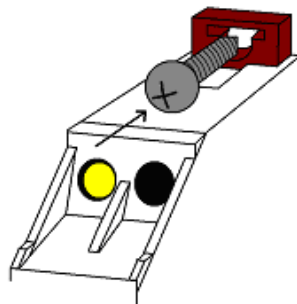
In order to install the module at the wall firstly you have to unhinge the two holding bows of the WLAN-Klemme, push it to the outside and hinge it again.

Therefore you have pull up the little bow and hinge it off with a slotted screwdriver.

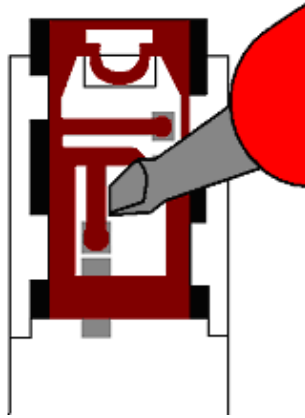
When the little bow is unhinged pull the complete holding bow to the outside until the second little bow snaps into place (take a look at the drawing).



Now you can install the module at the wall with two screws just as it is shown in the drawing

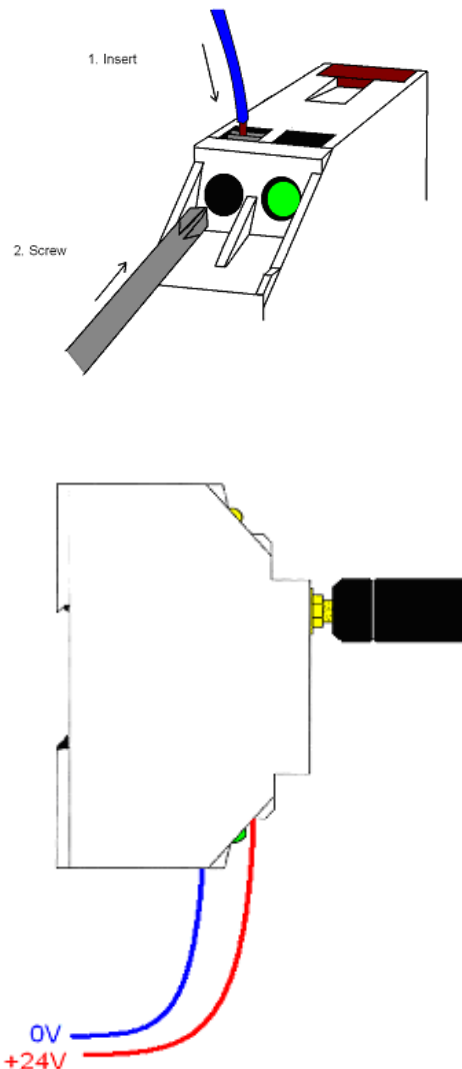


When you want to bring the holding bow back into its default position you have to unhinge the second little bow and pull the complete holding bow to the inside again (take a look at the drawing!).



While the configuration the WLAN-Klemme uses the USB- Port as its power supply. In order to supply the module without an USB-Port a 24VDC power supply is required.

Therefore you have to install two strands to your 24VDC power supply just as it is shown in the following drawings



When the WLAN-Klemme is installed you have to connect the module with the network client (e.g. S7 LAN), which will be connected via WLAN, with a network cable.

## 4.2 Software

### 4.2.1 WLANConfig-Tool installation

To configure the WLAN-Klemme, install the WLANConfig-Tool.

Do this by double-clicking the WLANConfig setup.

The Installshield takes you through the installation.

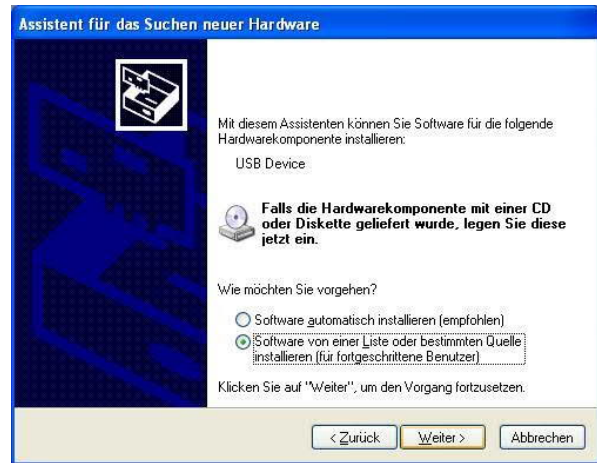
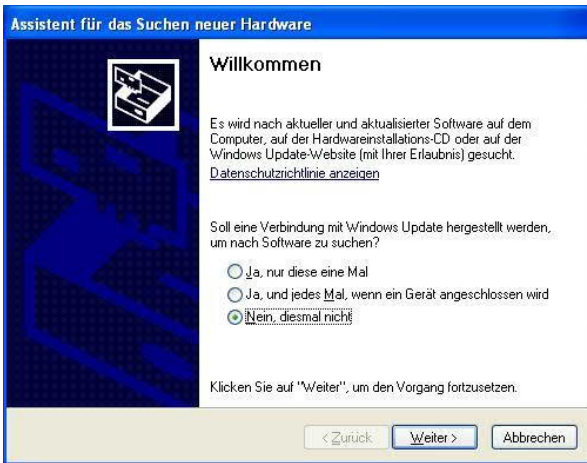
WLANConfig-Tool and drivers will be installed in the specified folder and are ready to use.

#### 4.2.2 Driver installation for Windows XP

1) Plug in the S7-WLAN-Bridge or WLAN-Klemme with a USB-Kabel on your computer

2) After a few seconds the following window appears. Click „No, not this time“ and „Next“

3) Click on "Install software from a list or specific location" and then "Next"



4) Click "Browse for the best driver on these locations"

5) Click on "Continue installation", when asked for the windows logo test

Set the hook in "Include this location"

Enter now the WLANConfig installation path

e.g. C:\Programme\PI\S7BridgeConfig



6) Wait until the driver files were copied

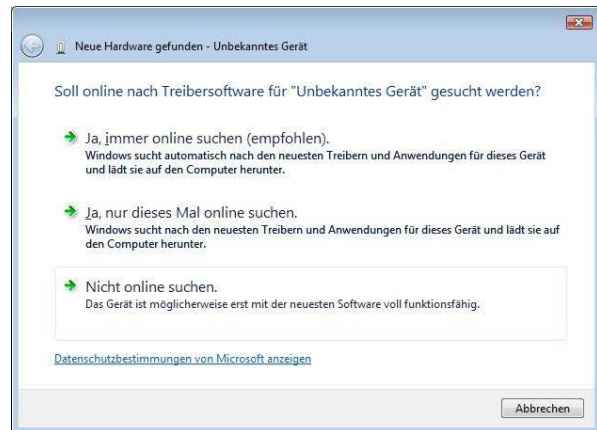
7) Complete the driver installation with „Finish“





### 4.2.3 Driver installation for Windows Vista

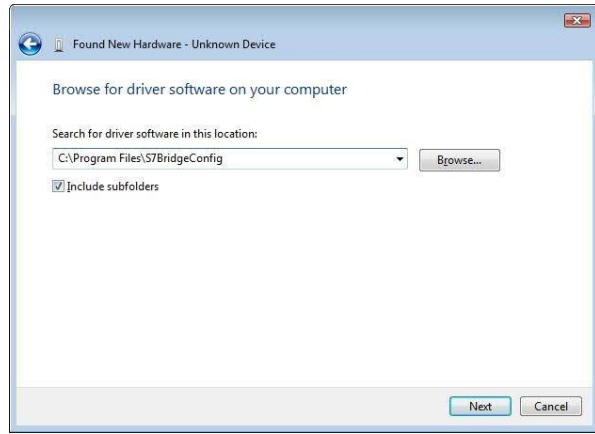
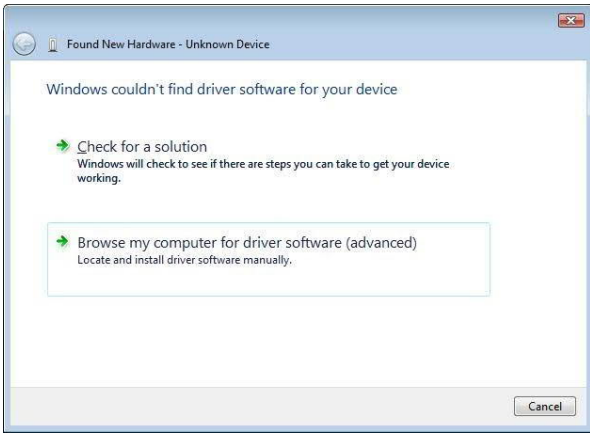
- 1) Plug in the S7-WLAN-Bridge or WLAN-Klemme with a USB-Kabel on your computer
- 2) After a few seconds the following window appears
- 3) Click on "No online searching"



Click on "Locate and install driver software"

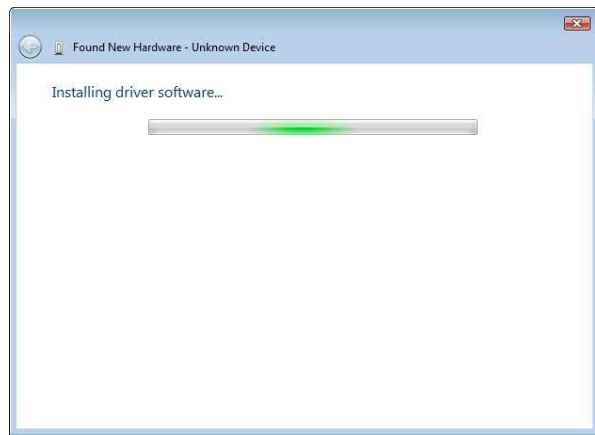
- 4) Click on "Browse my computer for driver software"
- 5) Click in the text field and enter the WLANConfig installation path

e.g. C:\Programme\PI\S7BridgeConfig

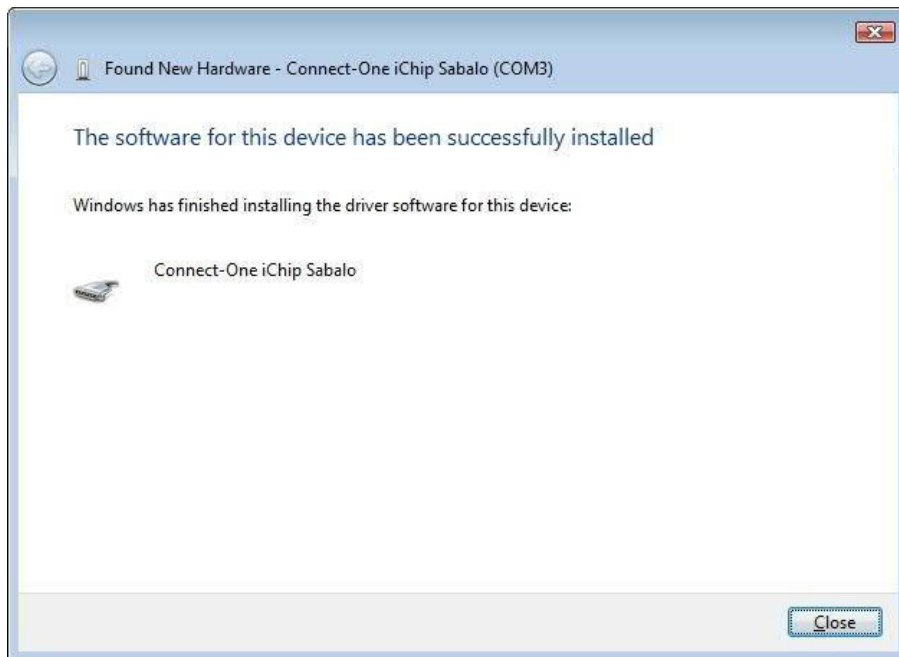


6) Click on "Install this driver anyway"

7) Wait till the driver installation is complete



8) The driver installation was successful if the following screen appears



#### 4.2.4 Driver installation for Windows 7

- 1) Plug in the S7-WLAN-Bridge or WLAN-Klemme with a USB-Kabel on your computer
- 2) Click on the Windows-Logo in the taskbar, then on „Control panel“
- 3) In the control panel click on „System and Security“



- 4) Click on „System“



- 5) Click on the Device Manager

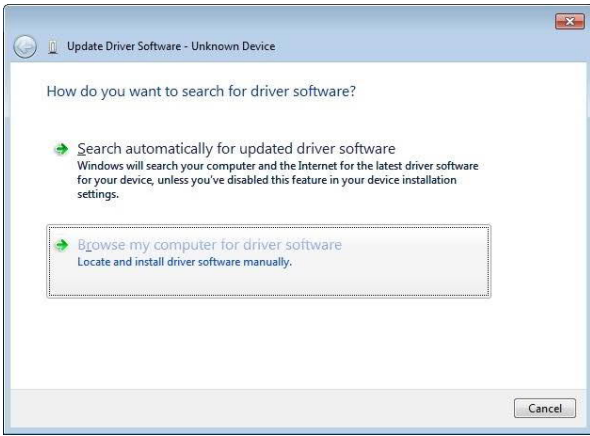


- 6) Click with the right mouse button on „Unknown device“ and then on „Update Driver Software“

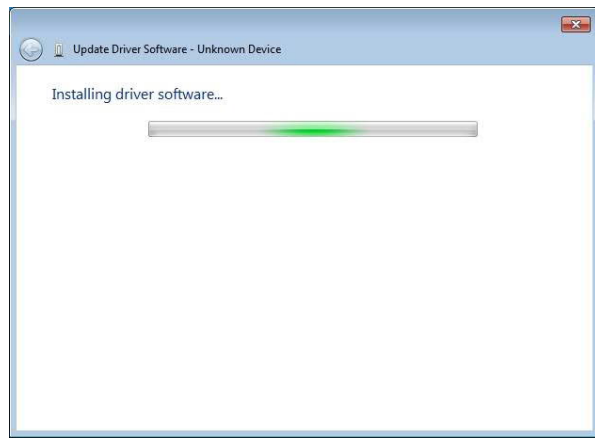


- 7) Click on „Browse my computer for driver software“

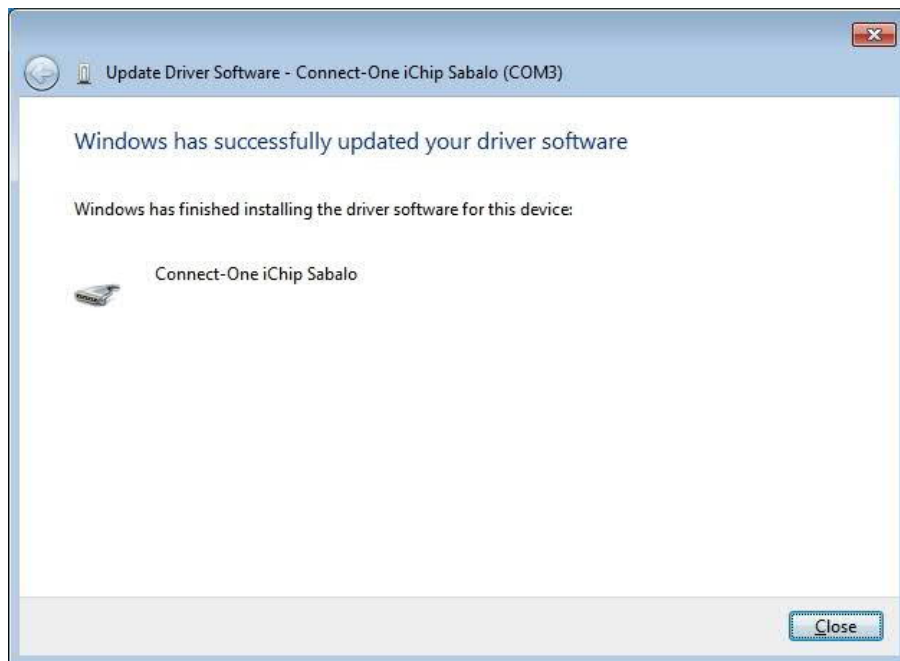
- 8) Enter the WLANConfig installation path  
e.g. C:\Programme\PIS7BridgeConfig



9) Click on „Install this driver software anyway“ 10) Wait till the driver installation is complete

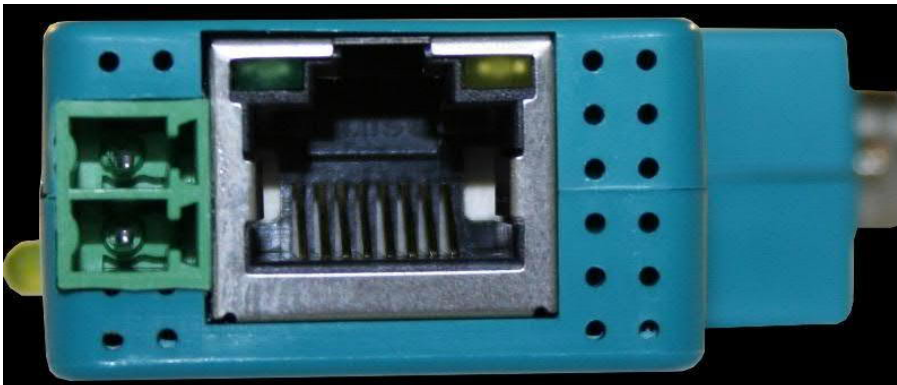


11) The driver installation was successful if the following window appears



# 5 Control elements

## 5.1 Ethernet-LEDs



Green LED OFF: Link OFF (There is no connection to the network)

Green LED ON: Link ON (There is a connection to the network)

Yellow LED OFF: Listening (No data transfer)

Yellow LED flashing: Transmission (data transfer running)

only Yellow LED ON (only for S7-LAN): Modul is starting up, after ready for work LED is OFF

## 5.2 Side LEDs



Green LED OFF: Power OFF (S7-WLAN-Bridge or WLAN-Klemme is not supplied with power)

Green LED ON: Power ON (S7-WLAN-Bridge or WLAN-Klemme is supplied with power)

Yellow LED OFF: Disconnected (S7-WLAN-Bridge or WLAN-Klemme is not connected to a Wi-Fi network)

Yellow LED flashing: Calling (S7-WLAN-Bridge or WLAN-Klemme tries to connect to a Wi-Fi network)

Yellow LED ON: Connected (S7-WLAN-Bridge or WLAN-Klemme is connected with a Wi-Fi network)

# 6 Implementing

## 6.1 Configuration



If you have to configure a Ad-hoc-netowrk, first you have to establish described in chapter [Establishing a Ad-hoc Wi-Fi network](#) a Ad-hoc-network on your computer and make a connection with S7-WLAN-Bridge / WLAN-Klemme with this Ade-hoc-network.

1. Connect the S7-WLAN-Bridge / WLAN-Klemme, as described in chapter [Hardware installation of S7-WLAN-Bridge / WLAN-Klemme](#) , to your computer.
2. Start the WLANConfig-Tool
3. WLANConfig-Tool overview



After the start, you can choose on top your desired language (German / English) and among the COM-Port, which is set for your S7-WLAN-Bridge / WLAN-Klemme in the Device Manager.

With F1, you can call the help function for questions and problems.

### 4. Logging

By enabling the logging function all inputs and messages are written in the log file. In it you can then look up in a case of an error or a problem and can see if any data is entered incorrectly, or the cause of the malfunction, or if there is another problem. This file can also be send to the service technician to take care of your problem.

The file itself is created in the folder where the tool is installed.

### 5. Definitions for the WLANConfig-Tool

- SSID: Name of the Wi-Fi network
- Encryption: e.g. None (no), WEP, WEP128, WPA, WPA2
- at WPA is AES, TKIP and AES/TKIP supported!
- Channel: In Germany is a transmission channel 1 – 13 possible
- Key: Password of the encrypted Wi-Fi network:
  - WEP: exactly use 10 HEX symbols (0...9, A, B, C, D, E, F) as key
  - WEP128: exactly use 26 HEX symbols (0...9, A, B, C, D, E, F) as key
  - WPA and WPA2 corresponds to the passphrase as key
  - WPA-Enterprise: Encryption is handled via a radius-server  
Further entries while doing this absolutely necessary!

- WLAN: Access-Point or Ad Hoc
- Netsearch: Searching for current available Wi-Fi networks
- Configure: Transmitting the selected / entered parameters

6. To read out the data that is configured in your S7-WLAN-Bridge / WLAN-Klemme, click on „Readout“ and the SSID, encryption, WLAN(connection type) and channel will be filled with the data.

! The key is not shown for security reason !

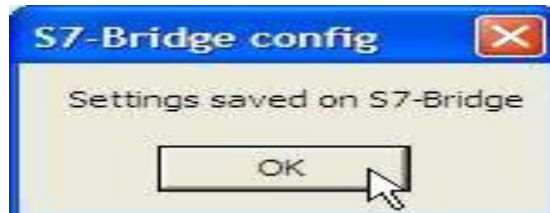
7. Now click on „Netsearch“, to search for available Wi-Fi networks

If the desired Wi-Fi is not shown, you should check with your network administrator if the Wi-Fi is possibly invisible! In this case, you can enter the network parameters manually.

8. Select at the SSID the desired Wi-Fi network and the parameters like encryption, WLAN and channel will be filled in.

9. Finally you have to enter your Wi-Fi key and click on „Configure“.

10. When the message „Settings saved on S7-WLAN-Bridge / WLAN-Klemme,“ appears, the configuration was successful and you can separate your S7-WLAN-Bridge / WLAN-Klemme from the USB-Kabel. Confirm the message with „OK“.



## 6.2 Normal operation

1. Configure your network client that should be integrated in the Wi-Fi network.

- set it to DHCP (obtain an IP-Address automatically), if a DHCP-Server is running on your Access-Point.

- enter the IP-Address, subnetmask and gateway manually, if you would like to set up a Ad-hoc network or on your Access-Point is no DHCP-Server running.



*The manually set IP-Address have to match to the network, in which you would like to embed the network device!*

2. Connect the S7-WLAN-Bridge / WLAN-Klemme, as described in chapter [Hardware installation](#), to the network device.

3. If your Wi-Fi key and eventual manually entered settings are right, the yellow LED starts flashing and is on after a successful connection.

=> is the yellow LED just flashing in longer distances, the manually entered Wi-Fi key or settings could be wrong!

In this case please check your Wi-Fi settings with the WLANConfig-Tool, as described in chapter 3.1 and reconfigure your S7-WLAN-Bridge / WLAN-Klemme!

4. Now your network client is connected to the Wi-Fi network and is accessible via Wi-Fi.

# 7 Establishing a Ad-hoc Wi-Fi network

## 7.1 For Windows XP

### 7.1.1 Activate Wireless Network Connection

=> Start => Connect to => „Right click“ Wireless Network Connection => Activate



### 7.1.2 Establishing a Ad-hoc Network

=> Start => Connect to => „Right click“ Wireless Network Connection ==> Properties



Select the register map „Wireless Network“.



*Make sure that in „Properties“ the option „automatically connect to non-preferred networks“ is disabled!*



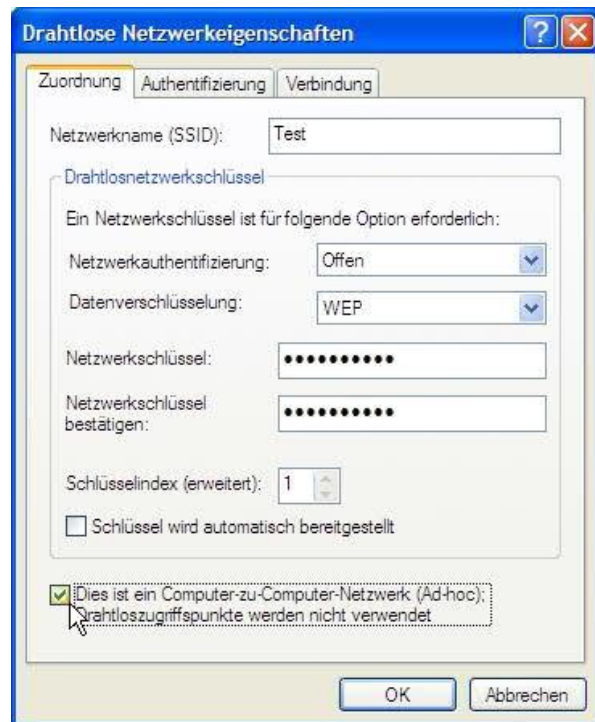


Now click on „Add“ and enter the desired parameters, which your Wi-Fi network should have.

Choose a name (SSID) and activate optional the data encryption.

It is necessary to set „This is a computer to computer (Ad-hoc) network!“

Confirm with „OK“



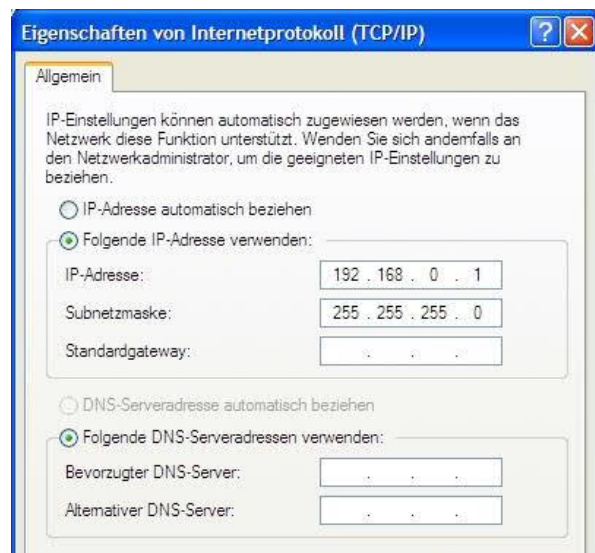
### 7.1.3 IP-address configuration



Now select the register map „General“ and click on Internet Protocol (TCP / IP)“ in the field „This connection uses the following items“.

Click below on „Properties“ and activate „Use the following IP-Address“

Enter here your network parameters.



For example:

IP-address: 192.168.0.1

Subnetzmask: 255.255.255.0

Default gateway: could be clear

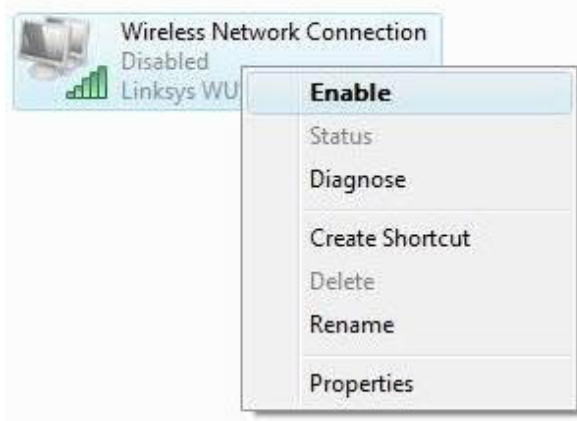
## 7.2 For Windows Vista

### 7.2.1 Activate Wireless Network Connection

=> Start => Control Panel => Classic View => Network- and Sharingcenter



Click in the left task on „Manage Network connections“



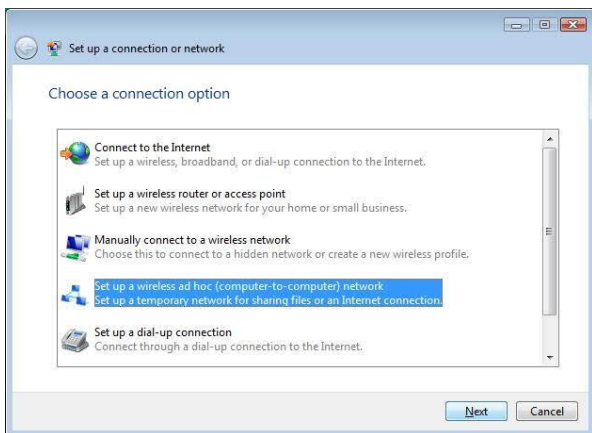
„Right click“ on the Wireless Network Connection and „Enable“

### 7.2.2 Establishing a Ad-hoc Network

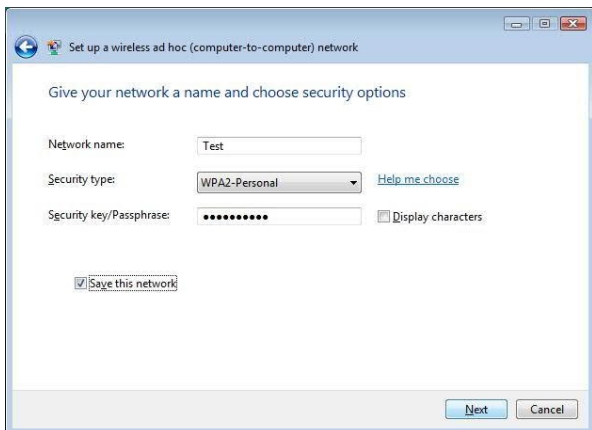
=> Start => Control Panel => Classic View => Network- and Sharingcenter



In the following window click in the left task on „Set up a connection or network“



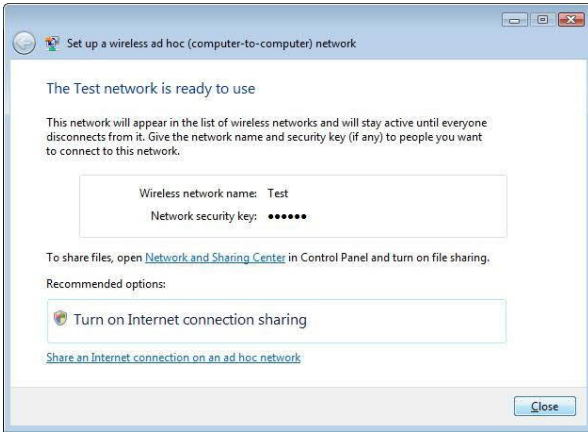
Then select „Set up a wireless Ad-hoc (computer-to-computer) network“ Confirm twice with „Next“



Enter here the desired parameters, which your Ad-hoc network should have.

Choose a name (SSID) and activate optional the data encryption.

Select „Save this network“, to make this network permanent available.

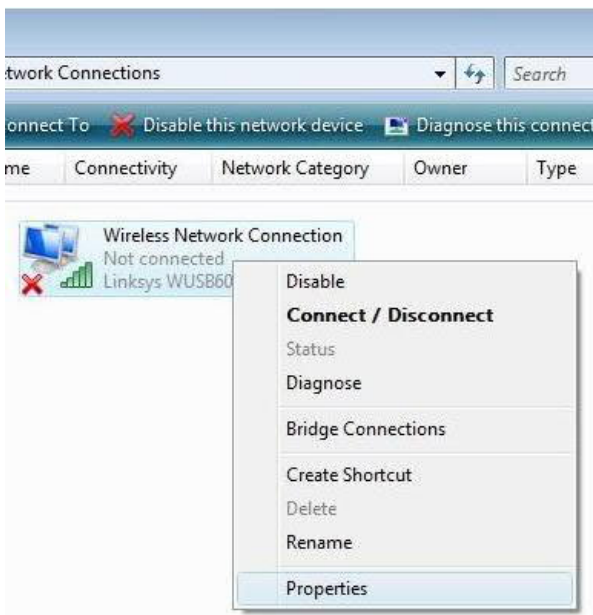


Finally a overview of the set network parameters appears.

Confirm with „Close“

### 7.2.3 IP-address configuration

=> Start => Control Panel => Classic View => Network- and Sharingcenter

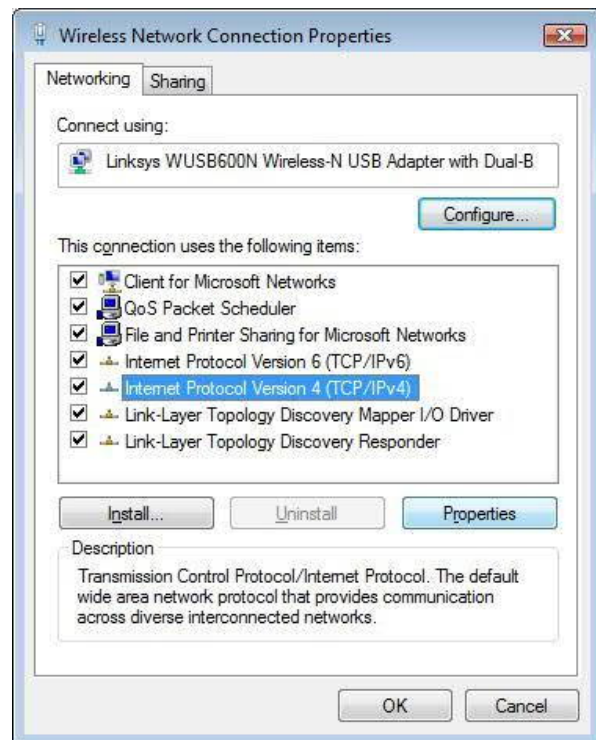


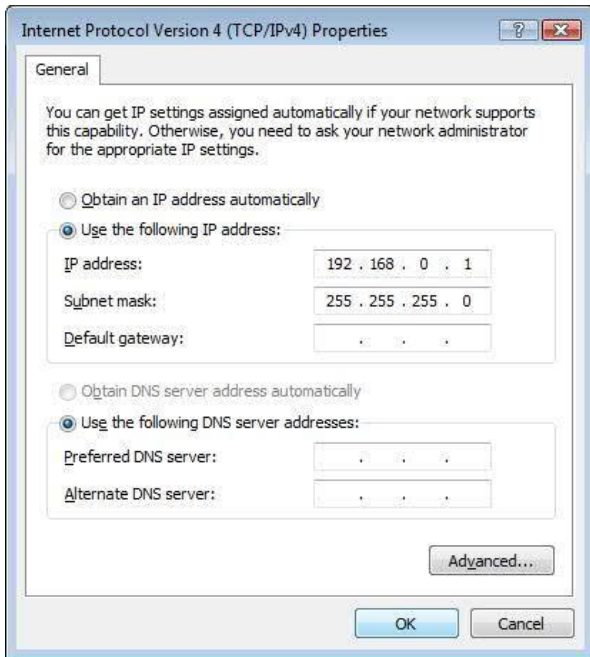
In the following window click in the left task on „Manage Network Connections“

Then „Right click“ on the Wireless Network Connection and „Properties“

Select the entry „Internet Protocol Version 4 (TCP/IPv4)“ in the field „This Connection uses the following items“.

Click below on „Properties“ and select „Use the following IP address“





Enter here your network parameters.

For example:

IP-address: 192.168.0.1

Subnetmask: 255.255.255.0

Default gateway: could be clear

Confirm with „OK“  
and again „OK“.

Your Ad-hoc network is now established and appears in the available wireless network connections.

## 7.3 For Windows 7

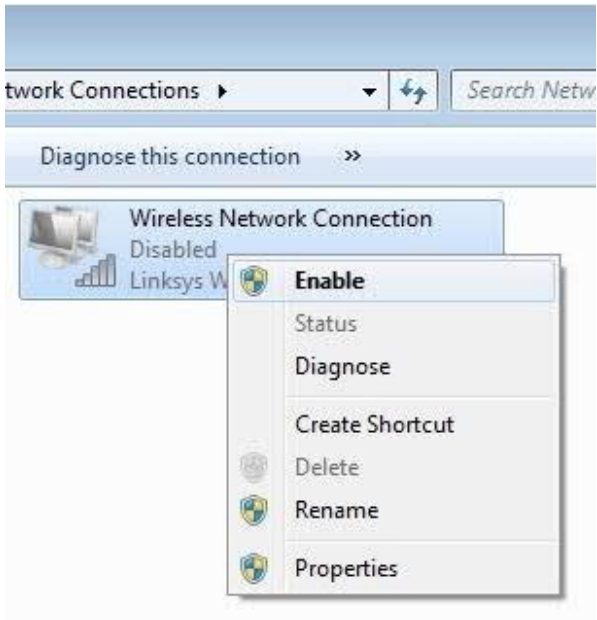
The installation shown here is based on Windows 7 32-bit. Under Windows 7 64-bit, it is similar. But here you can install in your PC a [virtual WiFi-access-point](#) and then connect it to the S7-wireless bridge or wireless terminal. This possibility can be linked but only if it is supported by the wireless part of the PC.

### 7.3.1 Activate Wireless Network Connection

=> Start => Control Panel => View network status and tasks



In the following window click in the left task on „Change adapter settings“



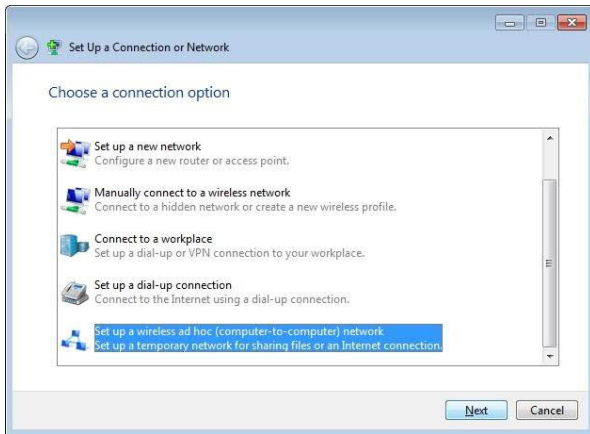
Then „Right click“ on the Wireless Network Connection and „Enable“

### 7.3.2 Establishing a Ad-hoc Network

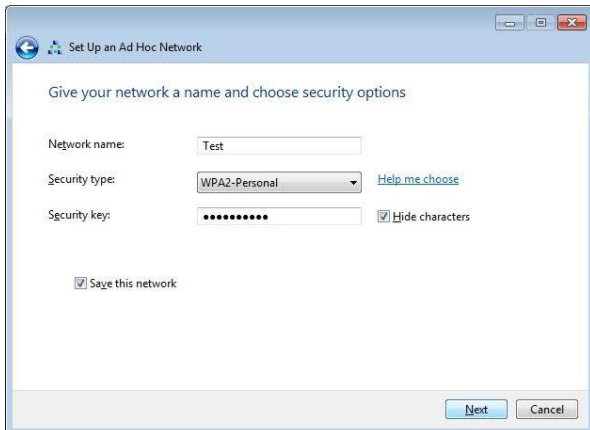
=> Start => Control Panel => View network status and tasks



In the following window click on „Set up a new connection or network“



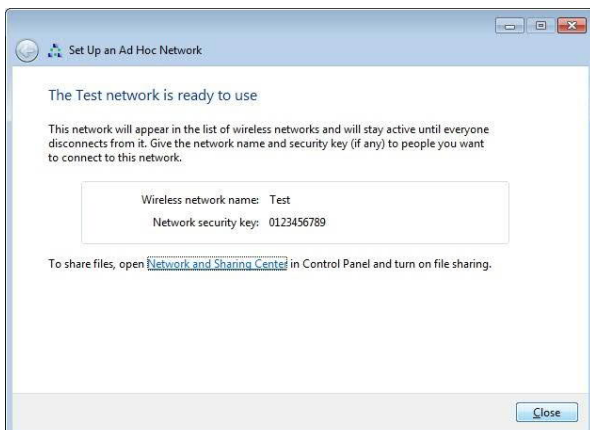
Select here „Set up a wireless Ad-hoc (computer-to-computer) network“ Confirm twice with „Next“



Enter here the desired parameters, which your Ad-hoc network should have.

Choose a name (SSID) and activate optional the data encryption.

Select „Save this network“, to make this network permanent available.



Finally a overview of the set network parameters appears.

Confirm with „Close“

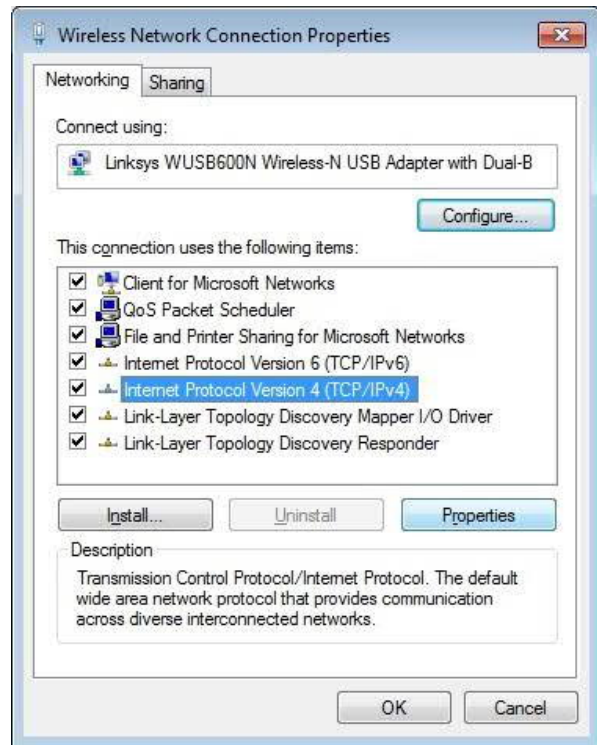
### 7.3.3 IP-address configuration

=> Start => Control Panel => View network status and tasks



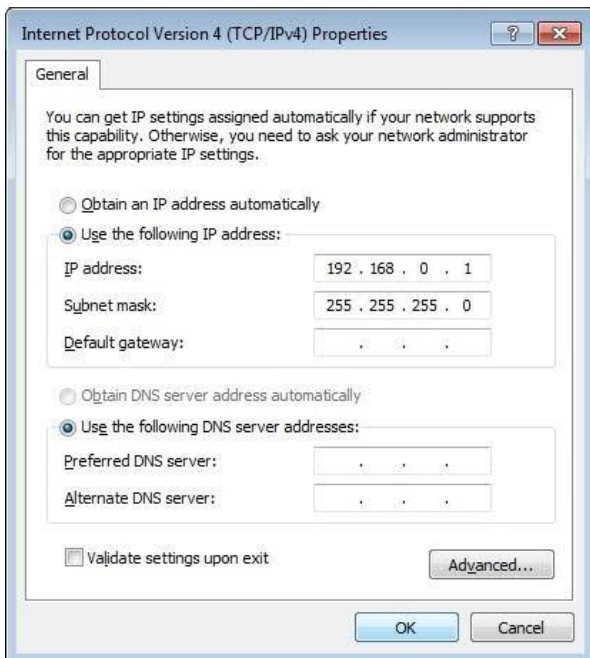
In the following window click in the left task on „Change adapter settings“

Then “Right click“ on the Wireless Network Connection and „Properties“



Select the entry „Internet Protocol Version 4 (TCP/IPv4)“ in the field **Use the following IP address** This Connection uses the following items“.

Click below on „Properties“ and select „Use the following IP address“



Enter here your network parameters.

For example:  
 IP-address: 192.168.0.1  
 Subnetzmask: 255.255.255.0  
 Default gateway: could be clear

Confirm with „OK“ and again „OK“.

Your Ad-hoc network is now established and appears in the available wireless network connections.

## 8 Technical data



**Supply voltage:** 24V DC +/- 20%  
 5V DC USB  
**Power consumption:** 1,2 watt  
**Display:** 2 status-LEDs  
**Handling/Configuration:** S7BridgeConfig-software  
**Interfaces:** to the PLC:  
 10/100BaseTX RJ45-ethernetplug  
to the PD/PC:  
 WLAN connection (802.11 b/g)  
 Mini-USB-B-jack (for Configuration)  
**Operating temperature:** 0 - 55°C  
**Case:** plastic case UL 94 V-0  
**Dimensions:** 90 x 59 x 18 mm

## 8.1 Pinning Mini-USB-jack

Pin No.	Short name	Notation	Direction
1	Vcc	Power supply (DC)	Input
2	D -	Dataline -	Bi-directional
3	D +	Dateline +	Bi-directional
4	ID	Not connected	Not connected
5	GND	Signalground	Input

### Attention:

Do not lengthen this side. This side leads also 5V/DC power supply and this will decrease the quality of the signals (maximum allowed cable length is 5 m).



*A longer cable would decrease the signal quality of the bus and cause several errors in the transmission!*

## 8.2 Pinning Ethernet

Pin no.	Short name	Notation	Direction
1	TX +	receive line +	Out
2	TX -	receive line -	Out
3	RX +	send line +	In
6	RX -	send line -	In

## 8.3 WLAN

Standards: 802.11 b/g Wireless LAN

Security: WEP / WPA / WPA2 (AES + TKIP+ AES/TKIP)

Antenna connection: SMA-plug