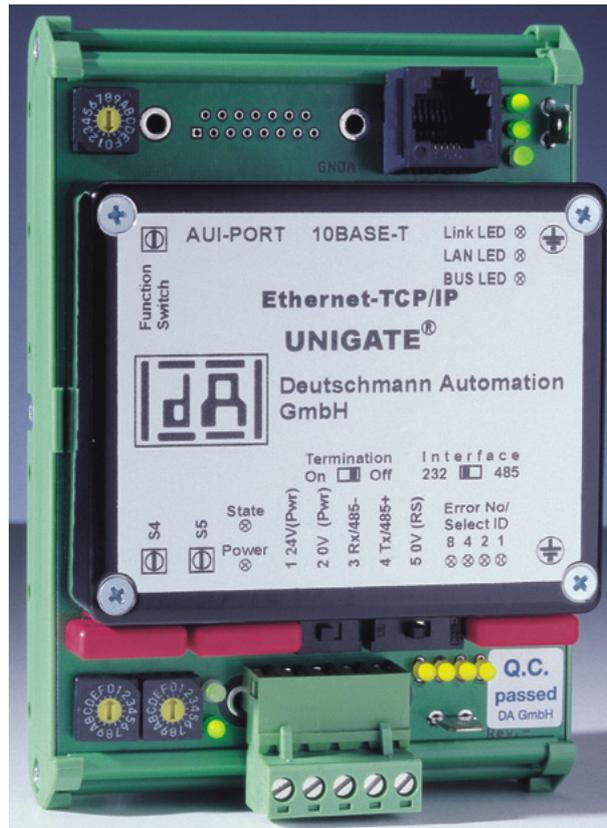


# First steps with Ethernet TCP/IP



## Connection of Ethernet-Gateways to a PC or to an Ethernet-Network

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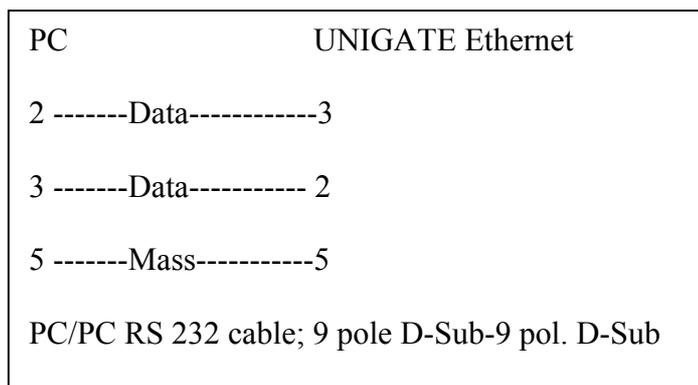
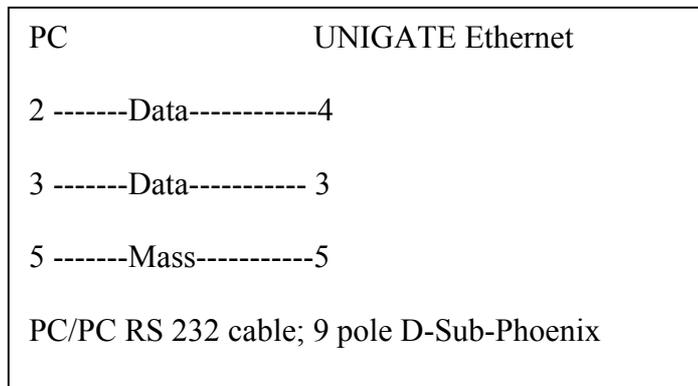
# 1 Introduction

In the following paragraph the start-up of TCP-IP-Ethernet connections by means of several examples is explained. If you work through the following checking list step by step you will have no difficulties with the start-up.

## 1.1 System conditions and required components

In every case you need:

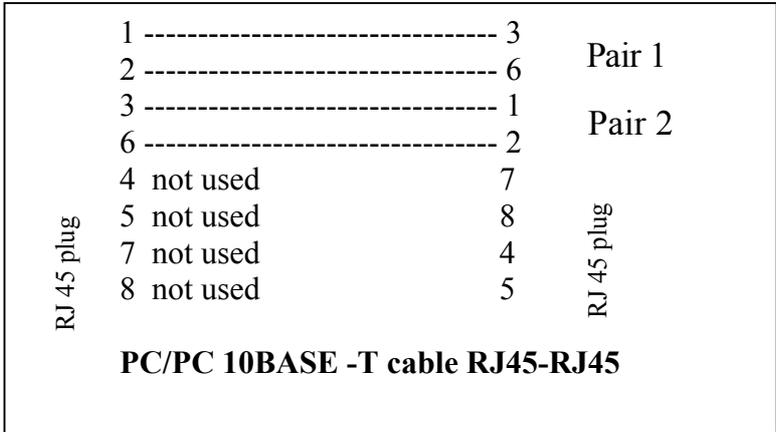
- A PC with Windows 9x or Windows NT 4.0 with installed Ethernet network card and a free COM interface
- An Unigate Ethernet
- A serial cable for PC connection of the gateway
- Network access cable



If your PC is not yet integrated into a network and the connection should occur via Twisted-Pair-RJ45-Cable (10BaseT), you need:

- 2 x 10BaseT-Patch-cable
  - 1 x 10BaseT-HUB (star coupler)
- or

- 1 x 10BaseT-cable :



If your PC is already integrated into a network and the connection should occur via Twisted-Pair-RJ45-cable (10BaseT), you need:

- 1 x 10BaseT Patch-cable
- a free 10BaseT port on a hub. Check it with your network administrator!

## 2 Proceeding

### 2.1 Determining IP-addresses

At first you have to check whether the employed PC is already installed for the network operation below TCP/IP. If this is not the case, you have to add the TCP/IP support to the network qualities.

If your PC is already installed into an Ethernet network, you should first bring into experience whether applications are already operated in this network below TCP/IP. In this case ask your network administrator whether an IP address has already been designated for your PC or which IP addresses you can use for your PC and the UNIGATE Ethernet that should be put into operation.

In addition you have to know which subnet-mask and which gateway are valid for the net.

If there are still no TCP/IP components in your net or if your PC is even not cross-linked, you can select the IP addresses randomly but the first three numbers should be identical (e.g. 172.16.48.210 for the PC and 172.16.48.212 for the UNIGATE Ethernet). For the subnet-mask choose 255.255.0.0.

Please make a note of the used values:

IP-address PC:                    -----.-----.-----.-----

IP-address UNIGATE:            -----.-----.-----.-----

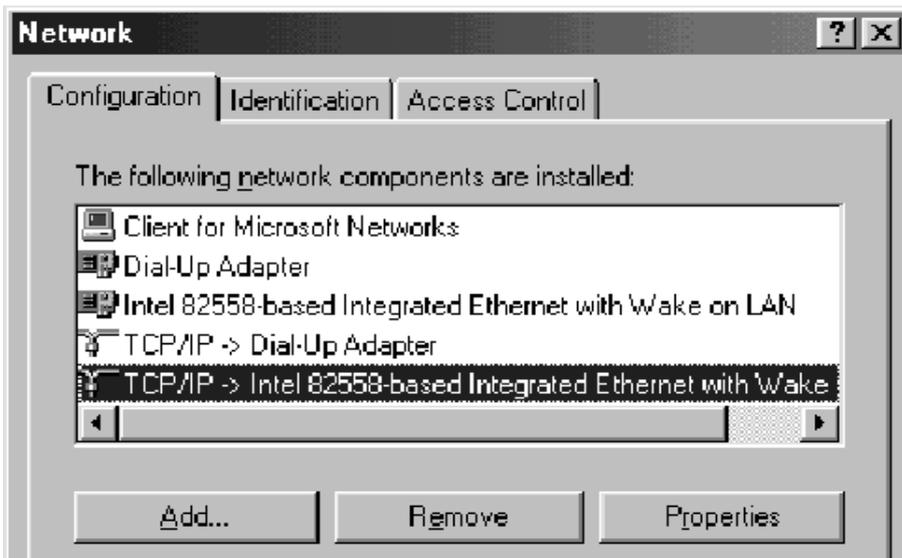
Subnet mask:                    -----.-----.-----.-----

Gateway:                        -----.-----.-----.-----

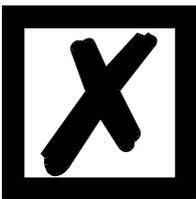
### 2.2 Installing and configuring TCP/IP below Windows 9x

1. Click on start and open the system control under settings.
2. Double click on the icon with the designation network .
3. Check if "network card" is listed in the configuration window

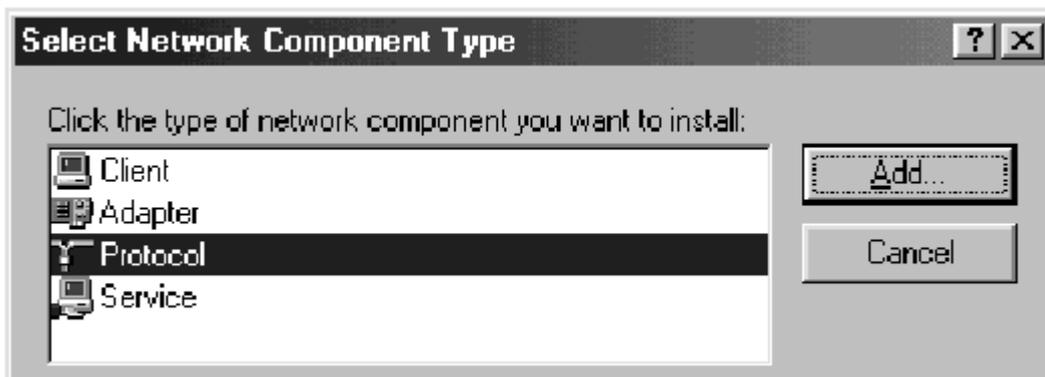
If the entry TCP-IP --> "network card" is available, continue with point 1.5.



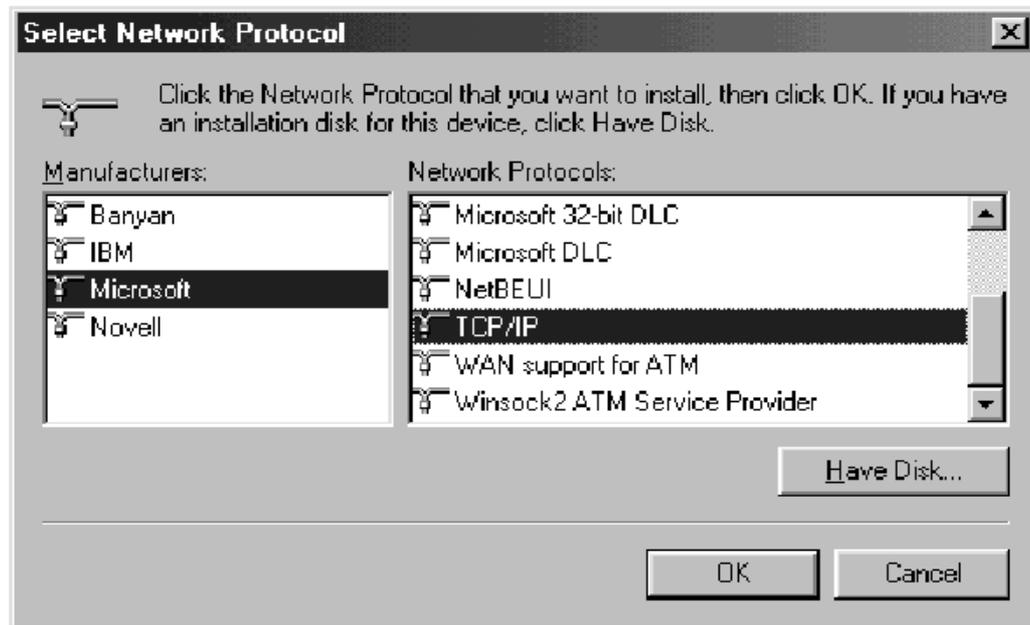
**Note:** The entry TCP/IP->Dial Up-adapter is not sufficient to operate TCP/IP below Ethernet.



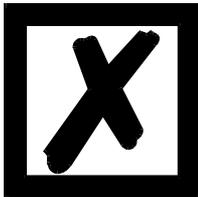
4. In case of missing entry TCP/IP-> "network card" click on add and choose protocol in the following window.



Click on add and choose in the following window microsoft as manufacturer and TCP/IP as network protocol.

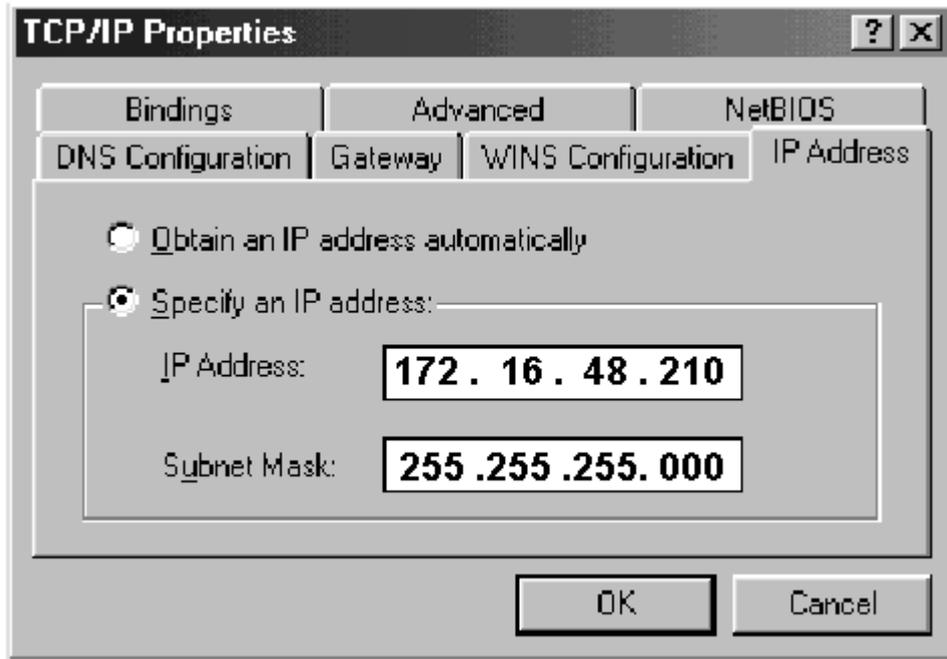


Confirm with OK.

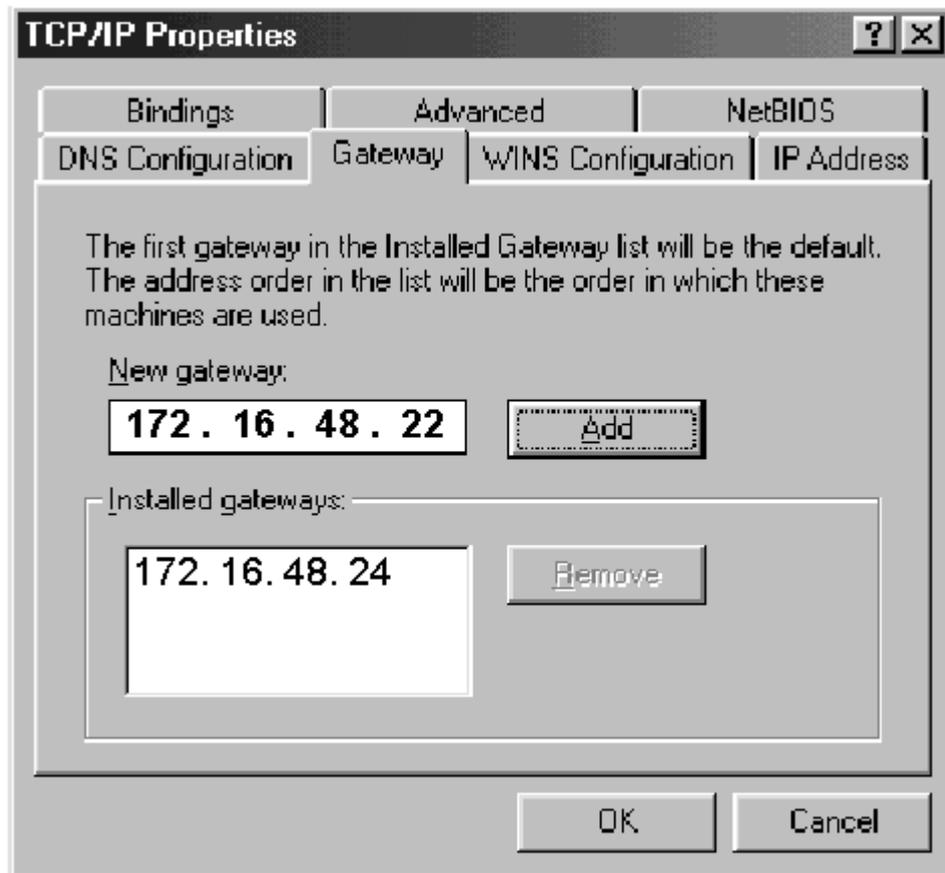


For installing the protocol you require the installation CD of your windows version.

5. Mark TCP/IP-> „network card“ and choose properties. If TCP/IP support is available you check in the register IP address whether IP address and subnet-mask are correctly registered. Ask your network administrator if the IP address is automatically covered via DHCP. Otherwise, you enter the IP-address and subnet-mask under properties at the newly added TCP/IP support.



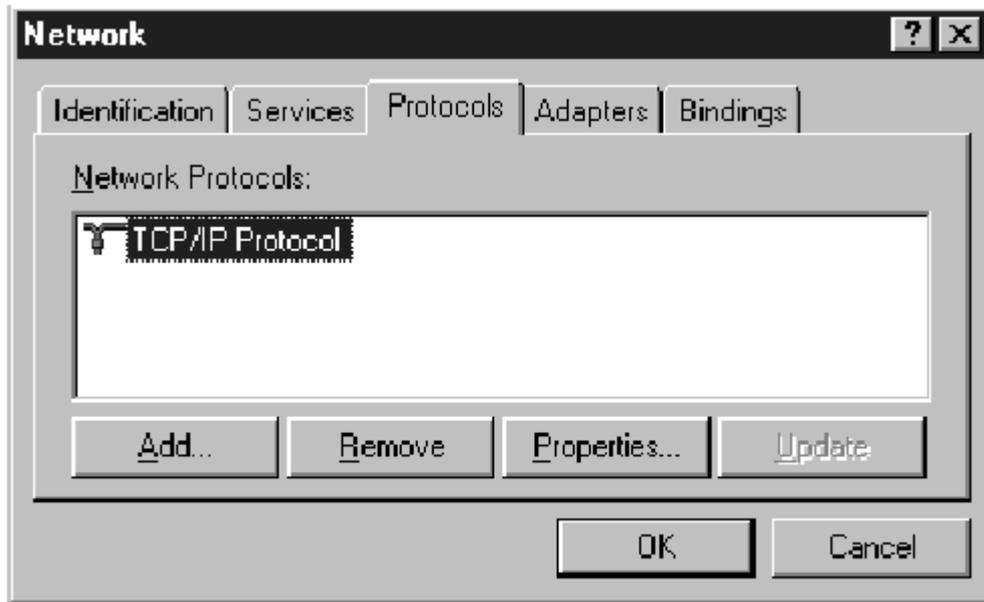
If the TCP-IP support is already available you check under properties in the register gateway, whether the gateway is correctly registered. At newly added TCP-IP support you enter the IP-address of the gateway in the field gateway and click on add. Only if the registered gateway address appears in the lower window, it remains exist after confirming with OK.



With this the installation of the TCP/IP support has finished. For activating you have to boot up the PC.

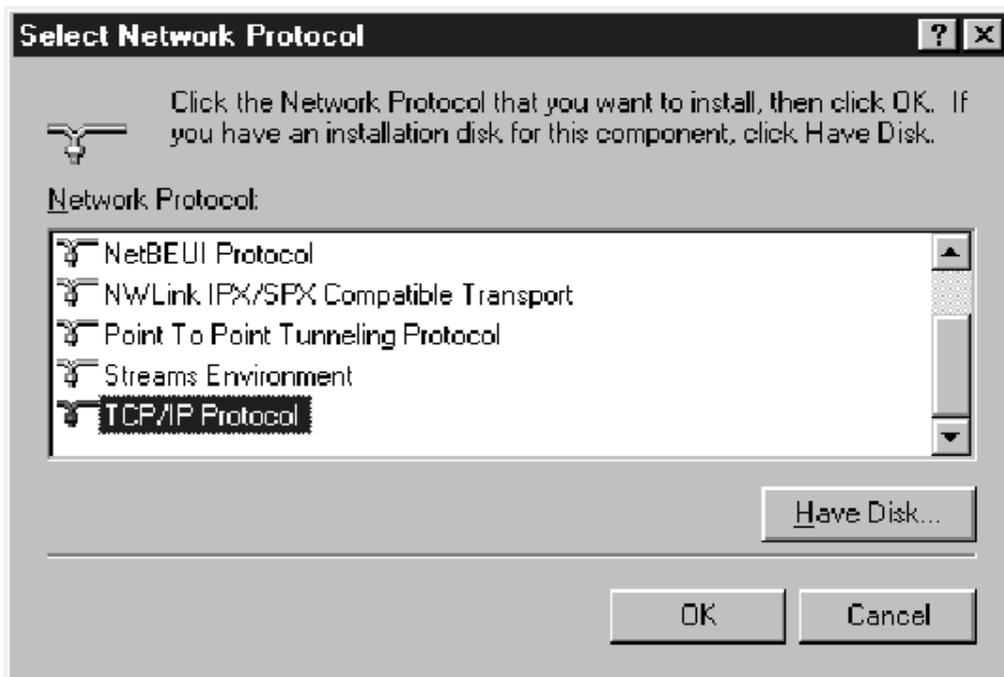
### 2.3 Installing and configuring TCP/IP below Windows NT

1. Click on start and open the system control under settings.
2. Double click on the icon with the designation network .
3. Check if the TCP/IP protocol is listed in the register protocols.



If the entry TCP/IP protocol is available, continue with point 5.

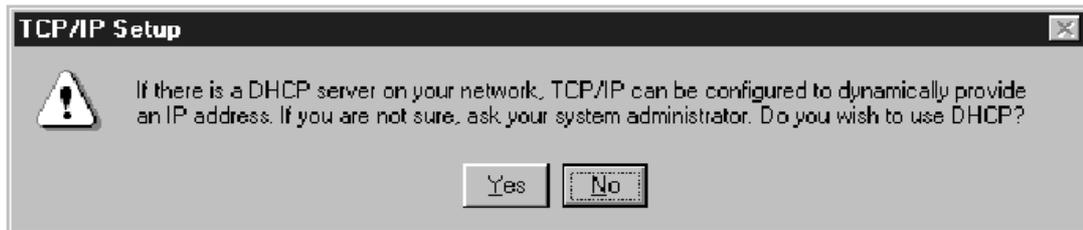
4. In case of missing entry TCP/IP protocol click on add and choose TCP/IP in the following window.



Now you need the Windows-NT-installation CD. After confirming with OK the list of the network protocols is extended by the entry TCP/IP protocol.

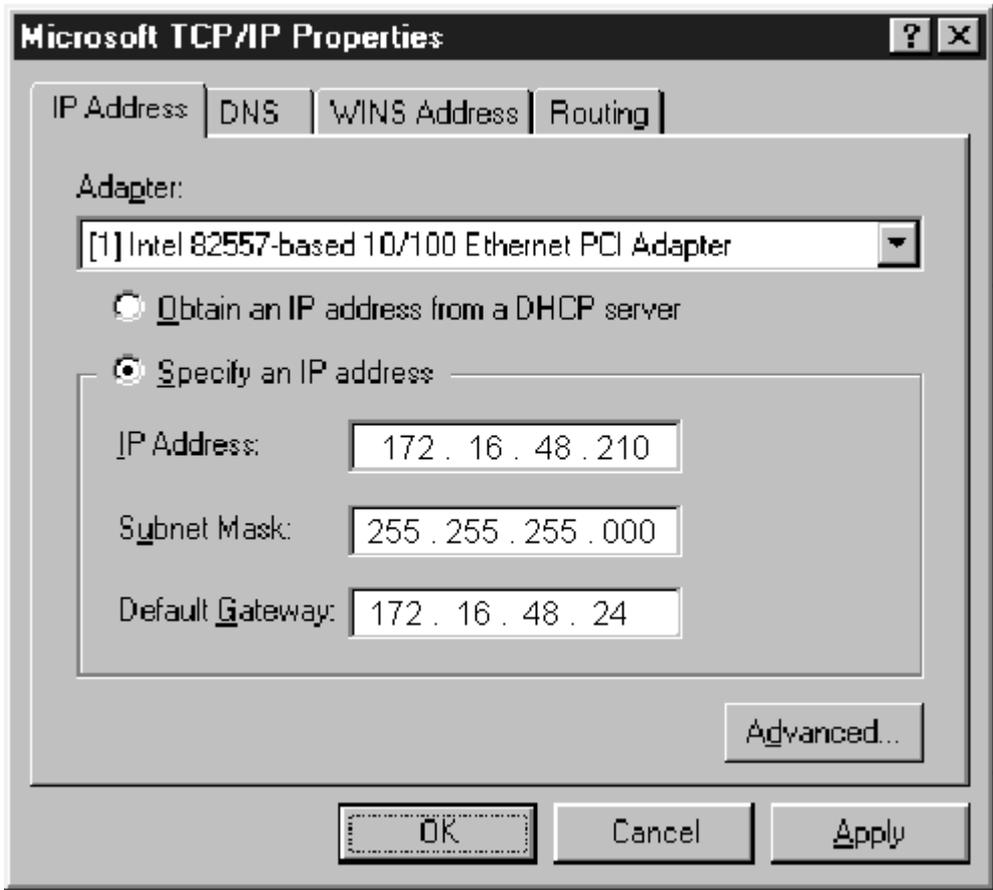
5. At newly added TCP/IP support click on OK for configuring the properties. If the TCP/IP was already installed on your PC, mark the entry TCP/IP protocol and then click on properties.

If you have newly installed the TCP/IP support the following message appears:



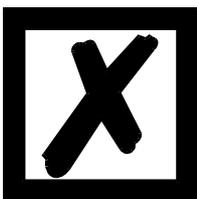
If your PC is already installed into a network you have to ask your network administrator whether the DHCP service is supported. If not, click here on no.

Enter in the following window the IP-address, subnet mask, gateway and confirm with OK. If the TCP/IP support was already available, you should check now whether the IP-address, subnet mask and gateway are correctly entered.



With this the installation of TCP/IP has finished and now you are requested to restart your PC.

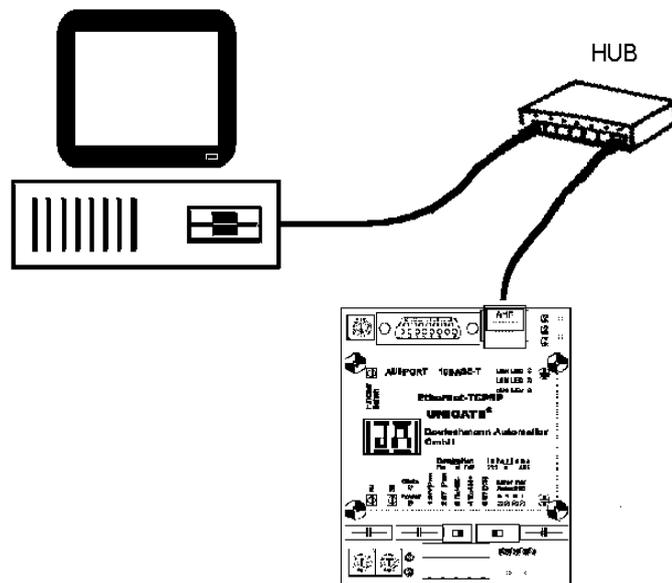
## 2.4 Connection of the PC and UNIGATE Ethernet to the network



During installation all components should be turned off!

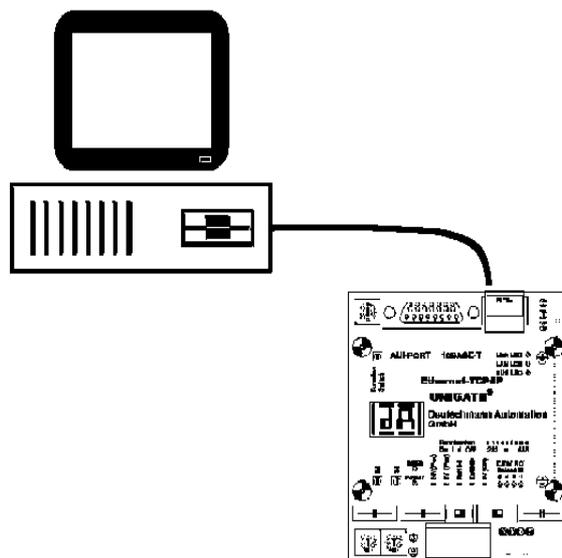
Connection PC <-> UNIGATE Ethernet without further network connection via twisted-pair-cable (10BaseT). For connecting only the PC with the UNIGATE Ethernet, you have two possibilities:

1. Connection via a hub. Connect as follows:



Both the PC and the UNIGATE are each combined with the hub via a patch cable.

2. Connection via a crossed patch cable. Connect the RJ45 terminals of PC and UNIGATE with the crossed patch cable.



With a crossed patch cable you produce a pure point-to-point configuration that is not expandable.

After the devices are combined, the PC can be turned on and the UNIGATE Ethernet can be supplied with current.

### 3 Allocation of the IP address on the UNIGATE Ethernet

The allocation of the IP address and the subnet-mask are made in the same way like the most other attitudes via the program Wingate.

#### 3.1 First tests with the UNIGATE Ethernet in the network

After the gateway is combined in the above described way with the PC and gateway and PC are put into operation, it can be tested whether the attitudes were successful, and data transfer is possible via Ethernet.

Open a DOS window on the PC. Call up the program PING.EXE. At the most computers you can find this program below the register: c:\windows\

Call (example): PING 172.16.48.212 <CR>

(172.16.48.212 stands for the IP-address that is adjusted at the UNIGATE).

The program should make a message as:

```
Answer of 172.16.48.212: Bytes=32 time=2ms TTL=32
Answer of 172.16.48.212: Bytes=32 time=1ms TTL=32
Answer of 172.16.48.212: Bytes=32 time=1ms TTL=32
Answer of 172.16.48.212: Bytes=32 time=1ms TTL=32
```

Ping-statistics for 172.16.48.212:

Parcels: Sent = 4, receiving = 4, lost = 0 (0% loss)

Approx. time indications in milliseconds:

Minimum = 1ms, Maximum = 2ms, Average = 2ms