

# *DIL/NetPC DNP/9200* Installing a PPP Connection

# **User Manual**



SSV Embedded Systems

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# **1** INTRODUCTION

This document describes how to install a PPP (point-to-point) connection for the DNP/9200 on a Windows-PC. For further information about the individual components of this product you may follow the links from our website at http://www.dilnetpc.com.

Our website contains a lot of technical information, which will be updated in regular periods.

#### 1.1 Hardware Requirements

The following hardware is needed to install a PPP connection on the DNP/9200:

- One PC with Windows XP and two unused COM ports
- One Evaluation Board (e.g. EVA9) with mounted DNP/9200 and two COM ports
- One plug-in power supply (5 VDC)
- Two null modem cables

#### 1.2 Software Requirements

To install a PPP connection on the DNP/9200 you need the **ppp-dnp9200.tar.gz**. You find this file on your Starter Kit CD-ROM in the directory CD:\Linux\PPP.



# 2 **PREPARATIONS**

#### 2.1 Serial Links between Evaluation Board and PC

Setup the serial links between the Evaluation Board and your PC. Use the null modem cables for these connections.

The first serial link is for communication between the DNP/9200 and your PC via HyperTerminal. Connect one end of **null modem cable #1** with the **COM1** port of your PC and the other end with the **COM1** port of the Evaluation Board.



Figure 1: Serial links between Evaluation Board and PC

The second serial link creates the PPP connection between the DNP/9200 and your PC. Connect one end of **null modem cable #2** with the **COM2** port of your PC and the other end with the **COM2** port of the Evaluation Board.

Please make sure that the PC COM ports support 115.200 bps and are unused.

**Please note:** The COM2 mode jumper of the DNP/EVA9 has to be set as shown in the following figure to enable the COM2 port.







## 2.2 Connecting Power Supply

Connect a 5 VDC power supply with a 5.5 mm x 2.5 mm jack plug with the Evaluation Board.



Figure 3: Power supply for the Evaluation Board

Please pay attention to the polarity of the power connector: **the + pole is in the center!** 



Figure 4: Polarity of the power connector



## 2.3 Configuring HyperTerminal

Run HyperTerminal on your PC. Enter a name for the new connection. In the next dialog select **COM1** for the connection.

Verbinden mit	? 🛛
🧞 DNP9200	
Geben Sie die Rufnu	mmer ein, die gewählt werden soll:
Land/Region:	Deutschland (49)
<u>O</u> rtskennzahl:	
<u>R</u> ufnummer:	
<u>V</u> erbindung herstellen über:	Сом1
	OK Abbrechen

#### Figure 5: Direct connection setup with HyperTerminal

Now change the connection parameters to the values of table 1. Make sure, that you use the **COM1** port of your PC and that it supports 115.200 bps.

genschaften von CC	)M1	?
Anschlusseinstellungen		
Bjts pro Sekunde:	115200	~
<u>D</u> atenbits:	8	~
<u>P</u> arität:	Keine	~
Stoppbits:	1	~
<u>F</u> lusssteuerung:	Kein	~
		ederherstellen
	K Abbreche	n Übernehmer

Figure 6: Parameter setup with HyperTerminal

Parameter	Value
Speed	115.200 bps
Data Bits	8
Parity	None
Stop Bits	1
Protocol	No (Xon/Xoff, RTS/CTS or similar)

 Table 1:
 Setup parameters for HyperTerminal



# **3 INSTALLING THE PPP CONNECTION**

## 3.1 Uploading the PPP Files on the DNP/9200

Start the HyperTerminal connection you created in chapter 2.3. If you have not powered up the Evaluation Board so far, please do it now. Wait until the Linux boot process finishes (this may take a few seconds). You will see the Linux login prompt. Enter the user name **root** and hit Return if Linux asks for a password.

4	DNP9200 - HyperTerminal
D	atei Bearbeiten Ansicht Anrufen Übertragung ?
С	) 🖻 🗇 🕉 🗈 🖰 🗳
	Starting network Configuring and Starting Network : lo dhcpcd[131]: timed out wa iting for a valid DHCP server response
	eth0
	Starting inetd: inetd Starting httpd Starting autostart
	- SSV Embedded Linux - Version 0.62 emblinux login: root Password: login[177]: root login on 'ttyS0'
	[root@emblinux /root]\$
Ve	rbunden 00:01:18 Auto-Erkenn. 115200 8-N-1 RF GROSS NUM Aufzeichnen Druckerecho

Figure 7: DNP/9200 boot messages and login prompt

Change to the directory tmp with the command cd .../tmp.

Open Transfer > Send file... from the menu bar and select the ppp-dnp9200.tar.gz from the Starter Kit CD-ROM directory CD:\Linux\PPP. Choose Zmodem with Crash Recovery as protocol and send the file.

🗖 Datei senden	? 🗙
Ordner: F:\Linux\PPP\ Dateiname:	
F:\PPP\ppp-dnp9200.tar.gz	D <u>u</u> rchsuchen
Protokoll:	
Zmodem mit Wiederherstellung	<b>~</b>
<u>S</u> enden S <u>c</u> hließen	Abbrechen

Figure 8: Selecting the ppp-dnp9200.tar.gz for transfer



## 3.2 Installing the PPP Files on the DNP/9200

Unzip the file **ppp-dnp9200.tar.gz** into the directory flash. Change to that directory with the command cd .../flash.

Unzip the file with these commands:

```
1.gunzip ../tmp/ppp-dnp9200.tar.gz
2.tar xvf ../tmp/ppp-dnp9200.tar
```

🗞 DNP 9200 - Hyper Terminal	
Datei Bearbeiten Ansicht Anrufen Übertragung ?	
<pre>[root@emblinux /root]\$cd/tmp [root@emblinux /tmp]\$[root@emblinux /tmp]\$cd/flash [root@emblinux /flash]\$gunzip/tmp/ppp=dnp9200.tar.gz [root@emblinux /flash]\$tar xvf/tmp/ppp=dnp9200.tar autoinit.sh ppp ppp/chat ppp/options.ttyS1 ppp/ppp_async.o ppp/ppp_deflate.o ppp/ppp_generic.o ppp/ppp_synctty.o ppp/pppd ppp/slhc.o ppp/pppd ppp/slhc.o ppp/win.chat [root@emblinux /flash]\$</pre>	
Verbunden 00:09:22 Auto-Erkenn. 115200 8-N-1 RF GROSS NUM Aufzeichnen Druckerecho	

Figure 9: Unzipping the file ppp-dnp9200.tar.gz into the flash directory

Now reset the DNP/9200 to complete the installation.



## 3.3 Changing the IP Address on the DNP/9200

Open HyperTerminal and login as root.

Enter the following command to change the IP address on the DNP/9200: ifconfig eth0 192.168.10.1.

4	DNP9200 - HyperTerminal	
ļ	Datei Bearbeiten Ansicht Anrufen Übertragung ?	
I		
	Starting network Configuring and Starting Network : lo dhcpcd[131]: timed out wa iting for a valid DHCP server response	^
	eth0	
	Starting inetd: inetd Starting httpd Starting autostart	
	- SSV Embedded Linux - Version 0.62 emblinux login: root Password:	
	Inginii//j: root login on ttysu [root@emblinux /root]\$ifconfig eth0 192.168.10.1 [root@emblinux /root]\$_	
V	erbunden 00:13:02 Auto-Erkenn. 115200 8-N-1 RF GROSS NUM Aufzeichnen Druckerecho	

Figure 10: Changing the IP address on the DNP/9200

You can view the changed IP address by entering the following command: if config -a.

🗞 DNP 9200 - Hyper Terminal	
Datei Bearbeiten Ansicht Anrufen Übertragung ?	
D 🖆 😂 💲 🛍	
<pre>eth0 Link encap:Ethernet HWaddr 02:80:AD:20:A9:48     inet addr 192.168.10.1 Bcast:192.168.10.255 Mask:255.255.255.0     UP BROADCAST RUNNING MTU:1500 Metric:1     RX packets:0 errors:0 dropped:0 overruns:0 frame:0     TX packets:0 errors:0 dropped:0 overruns:0 carrier:0     collisions:0 txqueuelen:1000     Interrupt:24 Base address:0xc000 lo Link encap:Local Loopback     inet addr:127.0.0.1 Mask:255.0.0.0     UP LOOPBACK RUNNING MTU:16436 Metric:1     RX packets:2 errors:0 dropped:0 overruns:0 frame:0     TX packets:2 errors:0 dropped:0 overruns:0 frame:0     IX packets:2 errors:0 fram</pre>	
Verbunden 00:14:33 Auto-Erkenn. 115200 8-N-1 RF GROSS NUM Aufzeichnen Druckerecho	<u></u> ⊻

Figure 11: Checking the IP address on the DNP/9200



## 3.4 Creating the PPP Connection on the Windows PC

Open the **Control Panel** and select **Network Connections**. Click on **Create a new connection**. The **New Connection Wizard** opens. Click on **Next**.



#### Figure 12: New Connection Wizard

In the following dialog select Set up an advanced connection and click on Next.

uss Sie den Br	owser verw	venden
nss Sie den Bi	owser verv	venden
nlatz herste		
piuce noroce	llen	
(über eine DF oder unterwe	0-oder gs arbeiter	n können.
k einrichte	n	
eim- oder kleir	nem Firmenn	netzwerk
Computer üb diesen Comp	er einen ser uter so ein,	riellen, dass
	e ober unterwe erk einrichter leim- oder kleir n Computer übe n Computer über diesen Compi	e ober unterwegs albeiter erk einrichten leim- oder kleinem Firmen n Computer über einen se t diesen Computer so ein,

Figure 13: Selecting a network connection type



Select Connect directly to another computer and click on Next.

Erweiterte Verbindungsoptio Welchen Verbindungstyp mö	nen chten Sie einrichten?
Wählen Sie einen Netzwerkty	/p.
O <u>E</u> ingehende Verbindu Ermöglicht anderen Comp Internet, eine Telefonleitu	<b>ngen zulassen</b> Jutern, eine Verbindung mit diesem Computer über das Ing oder ein direktes Kabel herzustellen.
• Verbindung direkt mit	anderem Computer herstellen
Stellt eine Verbindung mit Infrarotanschluss her.	einem anderem Computer über seriellen, parallelen oder

#### **Figure 14: Selecting the advanced connection options**

In the next dialog select Guest and click on Next.



Figure 15: Selecting guest



Enter a name for the new connection, e.g. "DNP9200" and click on Next.

Assistent für neue Verbindungen
Verbindungsname Wie lautet der Name des Computers, mit dem eine Verbindung hergestellt werden soll?
Geben den Namen des anderen Computers im folgenden Feld ein. Computer <u>n</u> ame
DNP9200
Der hier eingegebene Name wird als Name für die zu erstellende Verbindung verwendet.
< <u> ∠</u> urück <u>W</u> eiter > Abbrechen

#### Figure 16: Entering a connection name

Select COM2 as device to make the connection and click on Next.

Gerät auswählen	17	6
Dieses Gerät wird zum Herstellen der	Verbindung verwendet.	
<u>G</u> erät auswählen		
Kommunikationskabel zwischen zw	ei Computern (COM2)	*

Figure 17: Selecting COM2 to make the connection



Click on **Finish** to complete the New Connection Wizard.



Figure 18: Completing the New Connection Wizard



## 3.5 Configuring the PPP Connection on the Windows PC

Open the **Control Panel** and select Network Connections. Double click on the new created connection, e.g. "DNP9200" and click on **Properties**.

Verbindung mit "DNP9200" herstellen 🛛 🕐 🔀				
Benutzername:				
Kennwort:				
Benutzernamen und Kennwort speichern für:				
Nur für eigene Verwendung				
○ <u>A</u> lle Benutzer dieses Computers				
<u>V</u> erbinden Abbrechen Ejgenschaften <u>H</u> ilfe				

#### Figure 19: Connection dialog

In the following dialog select the tab **General** and click on **Configure...** . Select **115.200 bps** as maximum speed and click on **OK**.

Modemkonfiguration				
Kommunikationskabel zwischen zwei Computern (CDM2)				
Ma <u>x</u> . Übertragungsrate (Bit/s): 115200				
Modemprotokoll				
Hardwarefunktionen				
✓ Hardwareflusssteuerung aktivieren				
Modem <u>f</u> ehlerkontrolle aktivieren				
Modem <u>k</u> omprimierung aktivieren				
Modemlautsprecher verwenden				
OK Abbrechen				

Figure 20: Modem configuration



Open the tab **Networking**, select **Internet Protocol** (**TCP/IP**) from the list and click on **Properties**.

In the following dialog select **Use the following IP address** and enter **192.168.11.1**. Click on **OK** to close the dialog. Click again on **OK** to finish the configuration.

Allgemein IP-Einstellungen können automatisc Netzwerk diese Funktion unterstützt Netzwerkadministrator, um die geeig	h zugewiesen werden, wenn das t. Wenden Sie sich andernfalls an den gneten IP-Einstellungen zu beziehen.
O I <u>P</u> -Adresse automatisch bezieł	nen
Solgende IP-Adresse verwend	en:
IP-Adresse:	192.168.11.1
Bevorzugter DNS-Server:	86 86 82
Alternativer DNS-Server:	
	Erweitert

Figure 21: Changing the IP address of the PPP connection on the Windows PC



#### 3.6 Testing the PPP Connection

In HyperTerminal enter the following command to start the PPP connection on the DNP/9200:

pppd /dev/ttyS1 nodetach.



#### Figure 22: Starting the PPP connection on the DNP/9200

Open the new created PPP connection on the PC and click on **Connect**. You do not have to enter a user name or password.

Verbindung mit	"DNP9200" herstellen	? 🗙		
C		M		
Be <u>n</u> utzername:				
<u>K</u> ennwort:				
Benutzername	n und Kennwort <u>s</u> peichern für:			
<ul> <li>Nur für eigene Verwendung</li> <li>Alle Benutzer dieses Computers</li> </ul>				
Verbinden	Abbrechen Ejgenschaften	<u>H</u> ilfe		

Figure 23: Starting the PPP connection on the Windows PC



In HyperTerminal you will see the PPP messages shown in the figure below.

🏶 DNP 9200 - Hyper Terminal	_ 🗆 🗙
Datei Bearbeiten Ansicht Anrufen Übertragung 2	
D 🖆 📾 🕉 🛍	
Starting inetd: inetd Starting httpd Starting autostart - SSV Embedded Linux - Version 0.62 emblinux login: root Password: login[177]: root login on 'ttyS0' [root@emblinux /root]\$pppd /dev/ttyS1 nodetach Serial connection established. Using interface ppp0 Connect: ppp0 <> /dev/ttyS1 local IP address 192.168.10.1 remote IP address 192.168.11.1	
Verbunden 00:27:03 Auto-Erkenn. 115200 8-N-1 RF GROSS NUM Aufzeichnen Druckerecho	

Figure 24: PPP connection messages on the DNP/9200

To test the connection open your browser and enter the IP address of the DNP/9200 (192.168.10.1) in the address bar. You will see a web page from the DNP/9200 web server.



Figure 25: Web page from the DNP/9200 web server

That's all.



# CONTACT

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