

TELECOM

PC-Support Information Pages for Telecommunication

Connector pin assignment for: TAE plug, TAE single socket, TAE double socket, connector pin assignments for: ISDN plug, ISDN single socket, ISDN double socket, ISDN technical information and ISDN installation, DSL technical information.

Filename : e_dta-pc-tech-tel.htm

Location : <http://www.elektroniklager.de/pc-sup>

Copyright, all rights reserved, Eberhard De Wille

Revision History:

Date	Version	Revision	Name	Department	Phone	Description of Changes
2004-06-01	1.0	a	Eberhard De Wille	pc-sup	-	First version of the telecommunication page

Table of contents

1. TAE Connector Pin Assignment 4

 1.1. TAE Plug pin assignment:..... 4

 1.2. Connection of a single TAE Socket..... 5

 1.3. Connection of a double TAE Socket 6

2. ISDN-Anschlußbelegung und technische Informationen..... 7

 2.1. ISDN technical Information 7

 2.2. ISDN Plug RJ45..... 7

 2.3. The RJ45 ISDN Single Socket is assigned as follows 8

 2.4. The RJ45 ISDN Double Socket is assigned as follows 8

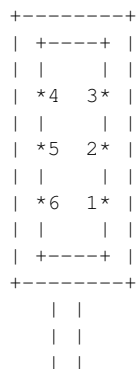
3. ISDN Installation 9

4. DSL Informations 10

1. TAE Connector Pin Assignment

1.1. TAE Plug pin assignment:

TAE plug view from front onto the contacts



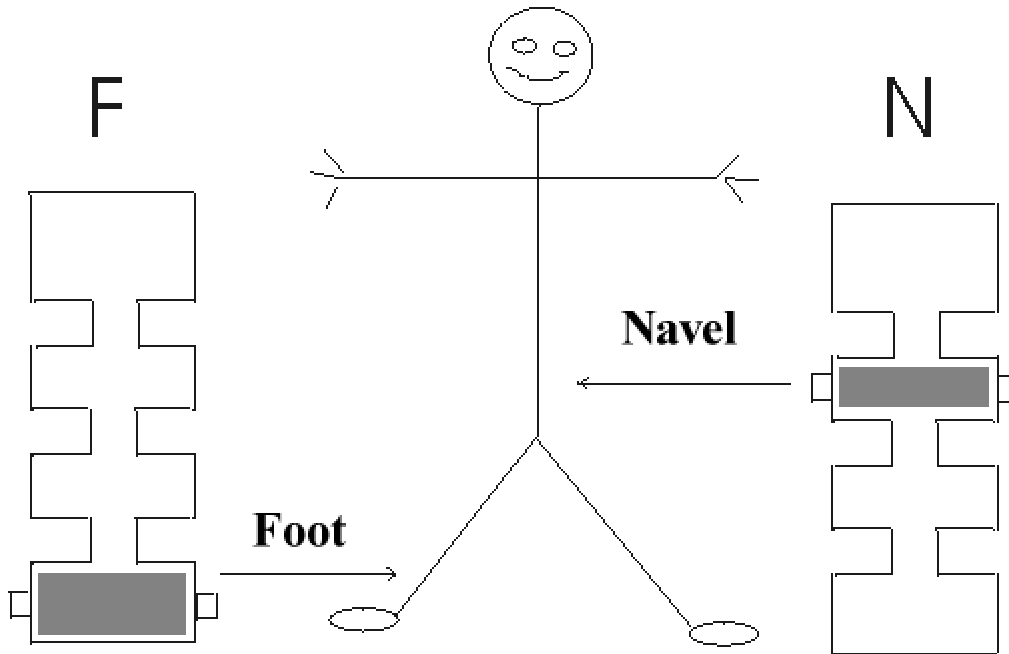
The assignment for the TAE socket is therefore (view upon the socket):

W E
b b2
a a2

Pin No.	Function	Color
1	a-wire of the telephone line	white
2	b-wire of the telephone line	brown
3	W	green
4	E , ground (Erde)	yellow
5	b2 , b-wire continuation	grey
6	a2 , a-wire continuation	pink

TAE means **T**elekommunikations-**A**nschluß-**E**inheit (telecommunication connection unit). There are two different codings of the plugs available. I.e. the plugs with a certain coding can only be plugged into a socket with the same coding. The pin assignment is however the same for both versions. Is the plastic nose at position 1 you have a so called F-plug. Is the nose at position 3 you have a so called N-plug. "F" stands for "Fernsprechen" (phoning) and "N" stands for "Nichtfernsprechen" (not phoning).

TAE Coding



"F" coding is for normal telephones

"N" is for all additional equipment like fax, answering machines and modems.

ISDN telephones: The NTBA of a ISDN installation is mostly connected with the same plug to the incoming line. This is not described here.

1.2. Connection of a single TAE Socket

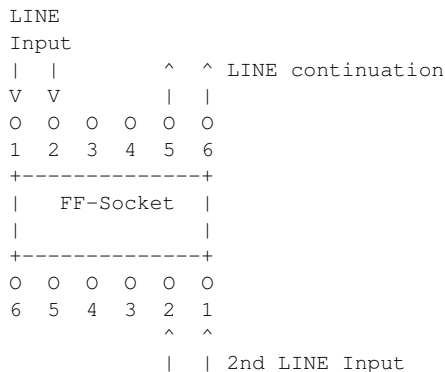
```

LINE
Input
| |   ^ ^ LINE continuation
V V   | |
0 0 0 0 0 0
1 2 3 4 5 6
    
```

The line is connected to contacts 1 and 2. Only one telephone or unit can be plugged in. If no telephone is plugged in, the line is switched to contacts 5 and 6 (continuation). By this mechanism it is possible to connect several sockets in sequence. If a telephone is plugged into one of the sockets, all sockets after the plugging position are disconnected.

At contacts 2 and 3 and additional bell can be connected. Contact 4 is only used for telephone communication systems. It is used to access the external line. However, this is described in the handbook of these systems.

1.3. Connection of a double TAE Socket



The upper contact row is always for the left socket. The lower contact row is always for the right socket. This double socket is available as a FF and as a NF version. The wiring is done always the same, no matter which kind of coding the sockets have. The following ways of wiring can be performed:

- **two external lines** e.g. for two telephones or one telephone and one fax. The external line is connected to contact 1 and 2 of the upper contact row. This line can then be continued via contact 5 and 6 to further TAE sockets. The second external line is connected to contact 1 and 2 of the lower contact row.

- **one external line** for one additional unit (fax, modem, answering machine) and one telephone. The additional unit uses the left socket, the telephone or any other unit uses the right socket. The external line has to be connected to contact 1 and 2 of the upper contact row. If an unit is plugged into the left socket, the unit will automatically switch the line to contact 5 and 6, if it is in idle mode, and a second unit can be used in the second socket. Note, that this only works for units which are complying to the official German standard. For imported units (e.g. from Japan or USA) this usually does not work and a crossover has to be installed from contact 1 to contact 5 and from 2 to 6 inside the TAE plug of the unit in the left socket. A telephone should only be using the last i.e. right socket.

The Wire Colors for Telephones are:

German units (not for very old telephones!):

- 1 - white
- 2 - brown
- 3 - green (not needed)
- 4 - yellow (not needed)

Imported units:

- 1 - red
- 2 - green

2. ISDN-Pin Assignment and technical Information

2.1. ISDN technical Information

At the following links you find valuable informations concerning ISDN: Explanations, descriptions of the functionality, hints, standards, wireing etc. (only in German!)

- <http://home.t-online.de/home/Peter.Zwosta/>
- <http://www.mst.fh-kl.de/~zitt/isdn.htm>
- <http://www.fh-fulda.de/fb/ai/twt/isdn/index.htm>
- <http://www.uni-mannheim.de/rum/netze/isdn/>
- <http://home.t-online.de/home/peter.hinrichs/win95.htm>
- <http://home.t-online.de/home/hanewin>
- http://home.t-online.de/home/Peter.Zwosta/download_msk.htm
- http://www.rz.uni-frankfurt.de/netz/isdn/isdn_starter_kit.html
- <http://www.avm.de/de/>
- <http://getinformation.to/data/uetch/ISDN/kurs1/ISDN-K-1.htm>

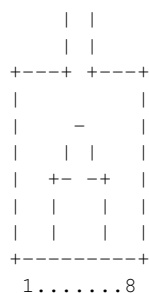
My personal favorites is the lecture material of the DETEWE education program. There is a good Glossary - <http://www.detewe.blocom.de/isdn/isdnglos.htm> which explains the important expressions in great detail. Also there are some chapters of the lecuture material which are really interesting: http://www.detewe.blocom.de/pdf/Isdn_1-6.pdf

<http://www.detewe.blocom.de/ISDN-dtw-kap7.PDF> <http://www.detewe.blocom.de/ISDN-dtw-kap8.PDF>

Here you find the original ISDN handbook - <http://www.telekom.de/dtag/downloads/t-isdn-hb.pdf> of the German Telekom in PDF format. This contains also a lot of descriptions and hints.

2.2. ISDN Plug RJ45

View upon the Nose of the Plug:



Pin Assignment:

Pin No.	Wire
1	not used
2	not used
3	a2
4	a1
5	b1
6	b2
7	not used
8	not used

2.3. The RJ45 ISDN Single Socket is assigned as follows

```

8 7 6 5 4 3 2 1   Screwing terminal
0 0 0 0 0 0 0 0
      +-+
      +-+ +-+
      |   |
      +-----+
      8...1
    
```

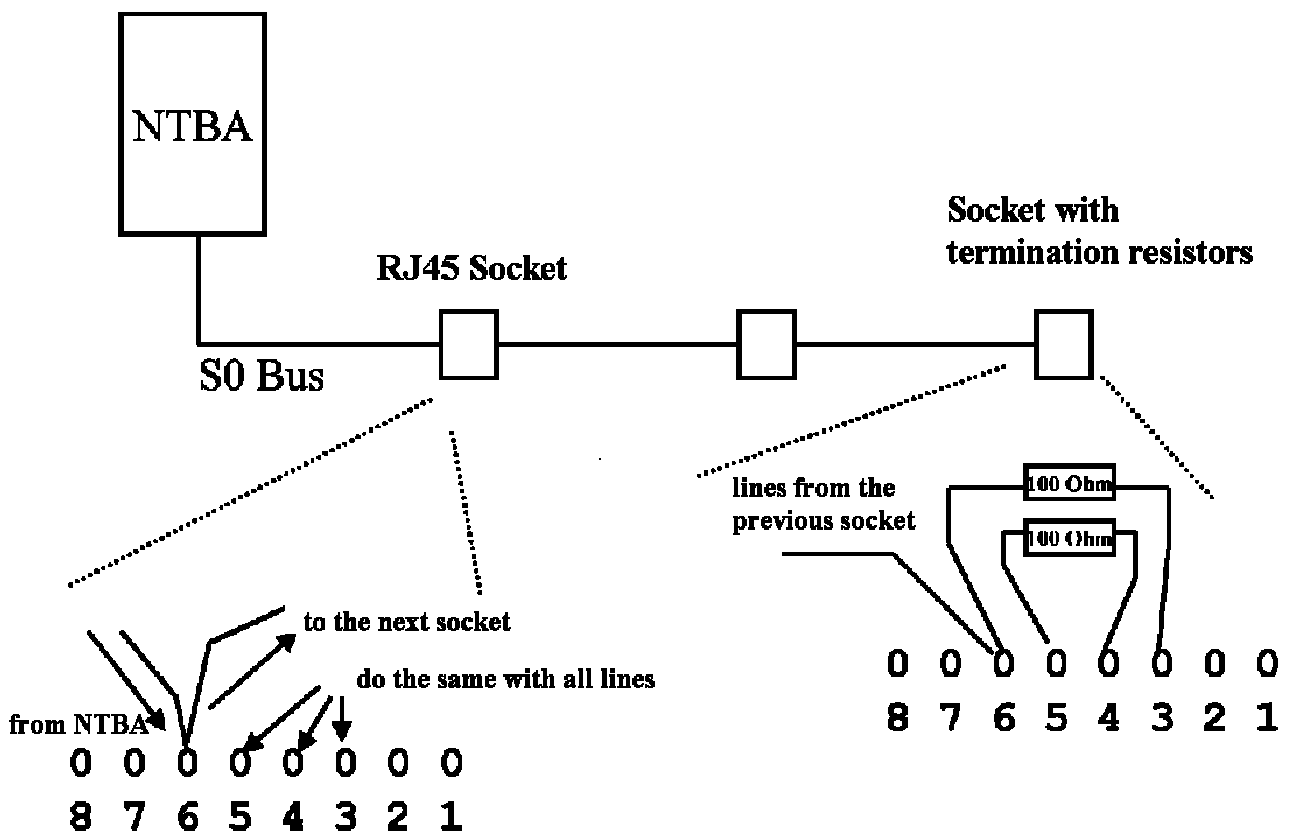
2.4. The RJ45 ISDN Double Socket is assigned as follows

```

8 7 6 5 4 3 2 1   Screwing terminal for the left socket
0 0 0 0 0 0 0 0
      +-+      +-+
+-+ +-+ +-+ +-+
|   | |   |
+-----+ +-----+
8...1      8...1
0 0 0 0 0 0 0 0
8 7 6 5 4 3 2 1   Screwing terminal for the right socket
    
```

3. ISDN Installation

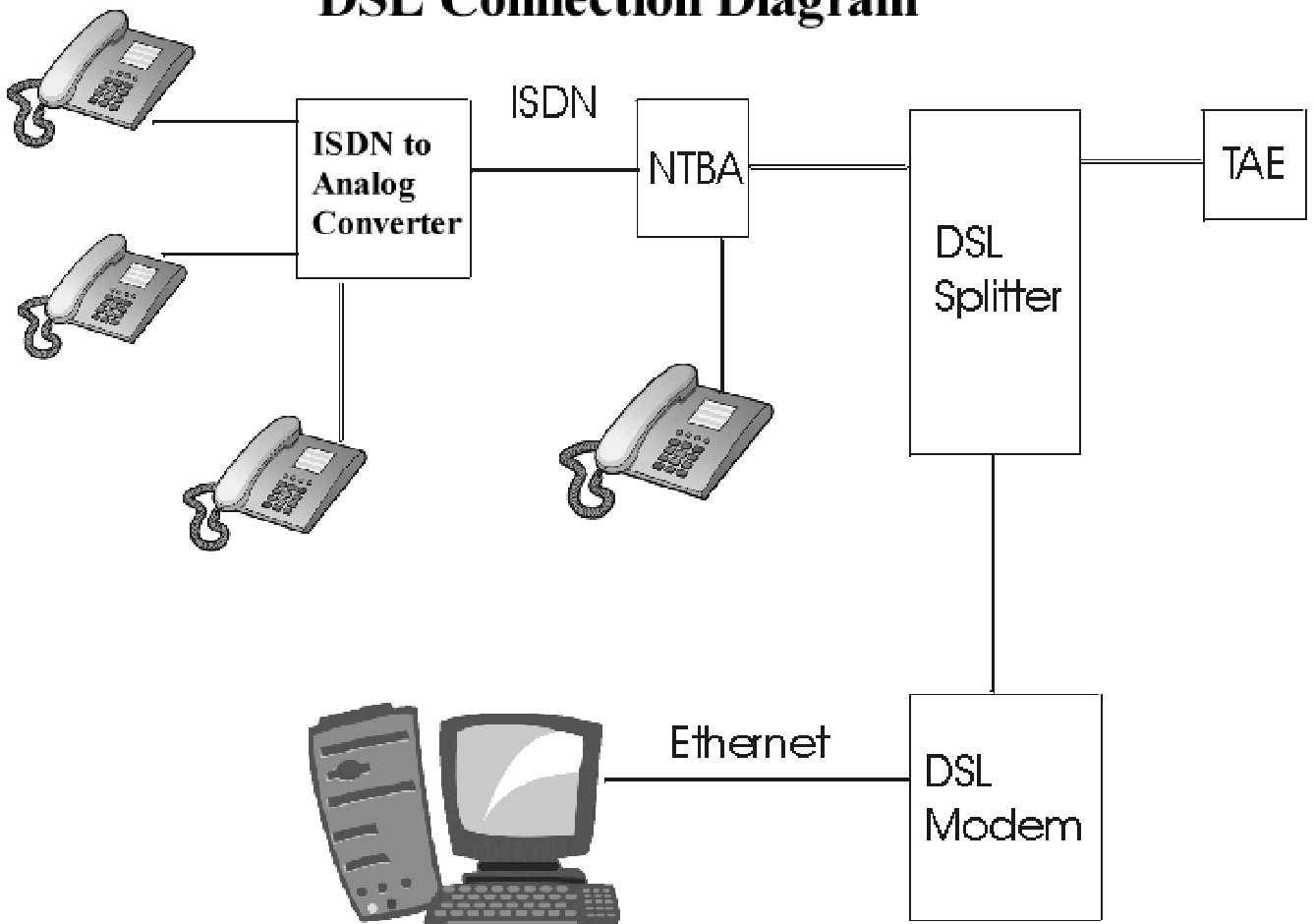
For the ISDN installation it is important that the wires are not swapped or interchanged. The S0 bus has to be passed without interruption, line swapping or interchanging from one socket to the next one. This means that line a2 is connected to contact 3 of the first socket and also connected to contact 3 of the next socket etc. with all lines. The number of sockets is not limited. The total length of the S0 bus should not be longer than 130 meters. In the last socket the wires have to be terminated with 100 to 120 ohms resistors. At each socket any ISDN unit can be connected. These can be ISDN-Telephones, PC cards or terminal adapters for analog telephones. At the NTBA are 2 sockets of the same S0 bus. If you only want to connect 2 ISDN units, e.g. a terminal adapter and a PC card you can plug them directly into the NTBA and does not need to terminate the bus. However the cable lengths are restricted to 3 meters per unit in this case.



4. DSL Informations

DSL stands for "Digital Subscriber Line". You can find a description at the Telekom Pages - <http://www.telekom.de/dtag/ipl2/cda/t2/0,4260,11044,00.html>. The transmission rate for this new technology is up to 768 kbit/s and thus approximately the 10-fold if the ISDN connection. By this the download times for software and MP3 (music) files come into a good range. There is no need for changes at the telephone lines. Only two additional units are necessary: a DSL splitter and a DSL modem. You also need an ethernet card for the PC. The DSL splitter filters the signals from the usual telephone and ISDN signals. The DSL modem performs the adaptation to the internet. The connection from the PC to the DSL modem is done via the ethernet card. The following schematic drawing shows the DSL installation:

DSL Connection Diagram



Hints for the installation and configuration of the software can be found at the following pages:

<http://www.gschwarz.de/t-dsl.htm> <http://www.detewe.blocom.de/adsl/know-adsl.htm>