

# PCAN-Dongle

PS/2 and DIN



Hardware Manual

Version 1.2

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## 1 Overview

- Baud rate setting up to 1 Mbit/s
- Equipped with a Philips CAN controller SJA1000T with 16 MHz of clock frequency
- Supports all interrupt and port address settings of the parallel interfaces
- Hardware reset of the SJA1000T by software instruction possible
- Built up in space saving port adapter case
- Transceiver 82C251
- CAN connection via 9-pole SUB-D plug, pin assignment according to CiA recommendation DS102
- Temperature range: 0° - 70°C

## 2 Application Notes

The PCAN-Dongle enables the connection of a CAN bus to the parallel interface of an IBM compatible PC. It is suitable particularly for use with notebook computers since these seldom have a PC ISA plug-in slot. With the help of this adapter every PC can be linked to CAN.

## 3 Getting Started

The hardware of the PCAN-Dongle doesn't need to be configured. You need merely the information about the interrupt and the port address reserved by the parallel interface. This can be found out with the MS-DOS tool MSD, that is enclosed in every MS DOS as of the version 6.0 (MSD.EXE in the DOS directory).

Port	Address	Interrupt
LPT1	0x378	IRQ7
LPT2	0 x278	IRQ5
LPT3	0 x3BC	IRQ5/7

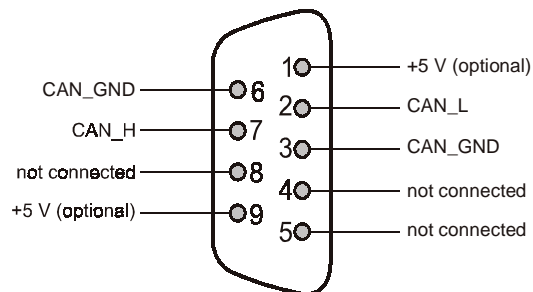
**Table 1:** List of the common interrupts and base addresses for parallel interfaces at the PC

### 3.1 Connection of the CAN Net

The CAN net is connected by the 9-pole SUB-D plug. Pins 2 and 7 (CAN-L, CAN-H) are part of the minimal configuration.

## Assignment of the SUB-D Plug

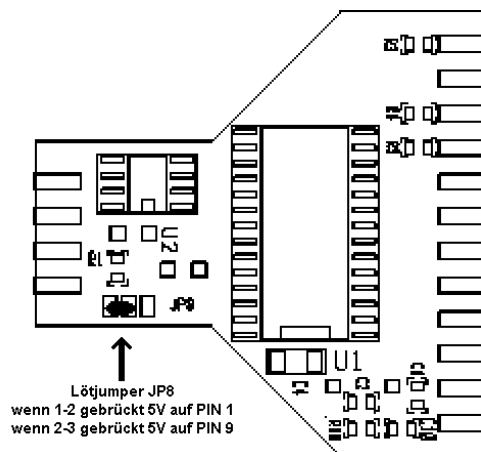
The SUB-D plug corresponds to the CiA recommendation DS 102-1. Reserved pins aren't used.



**Figure 1:** Terminal assignment of 9-pole SUB-D plug

A 5 Volt supply can optionally be put on pin 1 and/or 9 by means of soldering jumpers. Through this it is possible to provide e.g. a bus converter TJA1054 from the PCAN-Dongle.

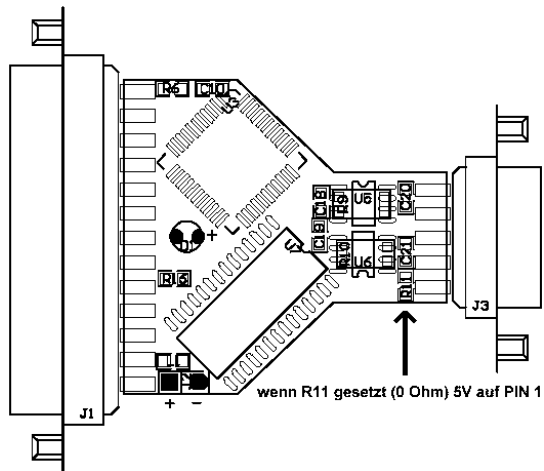
## PCAN-Dongle (IPEH-002015/19)



By setting the soldering jumper JP8 either pin 1, pin 9 or pins 1 and 9 can be put on 5 Volts.

Please take into account that by this intervention the guarantee expires. A short-circuit between 5 V and CAN-GND can lead to the defect of the PC. PEAK-System Technik doesn't assume any liability for such damages.

**Figure 2:** Setting the soldering jumpers for output of 5 Volts on pin 1 and/or pin 9 at the PCAN-Dongle

**PCAN-Dongle with Opto Coupler (IPEH 002020)**

The PCAN-Dongle with opto coupler has only pin 1 for the output of 5 volt at its disposal. Please take into account, that the voltage is generated by a DC/DC converter, which can deliver only a very low electrical power.

By this intervention the guarantee of the adapter expires. PEAK-System Technik doesn't assume any liability for damages.

**Figure 3:** Setting the soldering jumper for output of 5 Volts on Pin 1 at the PCAN-Dongle with opto coupler

## 4 CANVIEW for DOS

The program CANVIEW being enclosed in the package is a CAN bus monitor under DOS, supporting different SJA1000/82C200 based PC hardware extensions of the company PEAK-System Technik. It makes possible the sending and receiving of CAN messages. As base software it represents the Light version of the CANMON for DOS. Existing nets are quickly checked or built up with CANVIEW.

**Note:** As of Pentium III > 400 MHz you should use only program releases > version 3.0

### 4.1 Program Configuration

Start CANMON under DOS. Enter the port address of the parallel interface and the interrupt. Choose your desired baud rate.

If your computer has an ECP interface at its disposal and the corresponding functionality is activated, you can select the DONGLE-CAN EPP mode. If you should have problems with that, choose the DONGLE-CAN mode.

By pressing the F10 key the Dongle is configured and linked into the CAN net. If the error message "CAN controller 82C200 not found" is displayed, then check the interrupt and the used port address as well as the selected hardware type, please.

An online help is obtainable with the F1 key at any time.

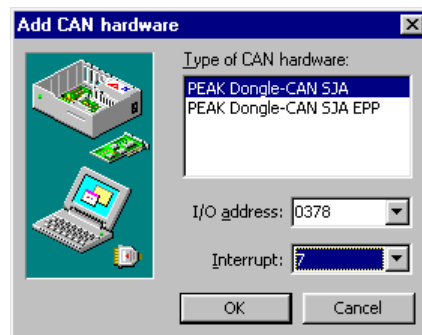
CANVIEW										Hardware: PC-ISA-CAN	
<b>Empfangen</b>											
Name	ID	Len	Daten [hex]					Anzahl	Zeit[s]		
	020	2:	00 64	--	--	--	--	1			
	02E	8:	00 64 00 64 00 00 80 AF					208	0.321		
	020	2:	00 64	--	--	--	--	1			
<b>Senden</b>											
Name	ID	Len	Daten [hex]					Anzahl	Zeit	Sollzt	Trigger
	01E	5:	A7 00 FE 04 00	--	--	--	--	1			warten User
	023	1:	00	--	--	--	--				warten
	025	1:	00	--	--	--	--	209	0.222	0.200	Time
	020	2:	00 00	--	--	--	--				warten
	021	2:	00 00	--	--	--	--				warten
<b>Fehler</b>											
Fehlertyp	Anzahl	Zeit									
<F1> Hotkeys, <Strg-F1> Hilfe										(c) h&h'95	

Figure 4: Screen shot CANVIEW

## 5 PCAN-View for Windows

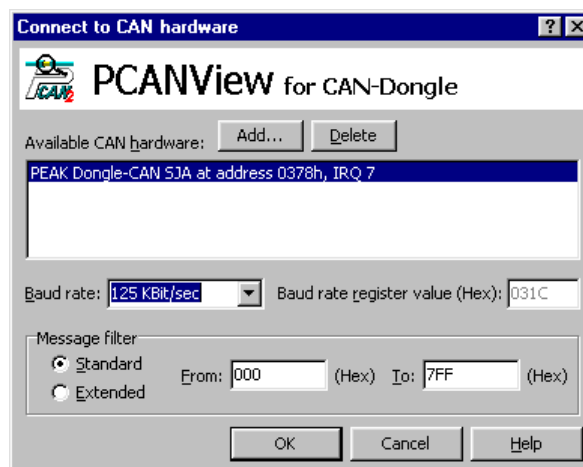
Start the program PCAN\_DNG . EXE from the floppy disk and follow the instructions . After the installation procedure and the needed restart of your computer the entry PCAN-Dongle can be found in the Programs menu. You can start the program PCAN-View there.

Please enter the port address as well as the interrupt of the used parallel port (see Device Manager of Windows) at the first start. Choose the type of the parallel interface and confirm the input. If the mode of the parallel port is set to ECP in the BIOS, you can also sign on the PCAN-Dongle as “PEAK Dongle-CAN for SJA EPP”.



**Figure 5:** Selection of the hardware resources

Select the desired baud rate and confirm the input.



**Figure 6:** Selection of CAN specific parameters

If you need further help after the program start, use the online help (F1) enclosed with the program.

## 6 PCAN Light

All files located in the PCAN-Light directory are designed only for developers. They serve exclusively for the connection of own programs to PEAK-System Technik hardware via the installed device driver software under Win9x/ME/NT/2000/XP. The device driver software, the interface DLL as well as all other files needed for the connection are property of the PEAK-System Technik GmbH and may be used only in connection with a hardware bought at the PEAK-System Technik GmbH or one of its partners. Should a CAN hardware of third party suppliers be compatible to a PEAK-System Technik hardware, you are not allowed to use or to pass on the PEAK-System Technik driver software.

PEAK-System Technik assumes no liability and no support for the PCAN Light driver software and the necessary interface files. If third party suppliers develop software based on the PCAN Light driver software and problems appear at use of this software, please consult the software provider. To obtain development support, you must own a PCAN-Developer or PCAN-Evaluation version.

You can find header files and examples in the directory PCAN Light, to create applications of one's own with the Light driver software. Please obtain the exact documentation of the interface (API) from the respective header files.

### 6.1 Overview of the API Functions

**DWORD CAN\_Init(WORD BTR0BTR1, int CANMsgType, int CANHwType,  
DWORD IO\_Port, WORD Interrupt);**

Activates a hardware, carries out register tests of the SJA1000, allocates a send buffer and a hardware handle. Programs the configuration of the send/receive drivers.

#### Parameters:

- Baud rate register BTR0BTR1
- Message type
  - CANMsgType = 0 → 11 bit ID operation
  - CANMsgType = 1 → 11/29 bit ID operation
- Hardware type
  - HW\_DONGLE\_SJA → PCAN-Dongle SJA1000 MUX mode
  - HW\_DONGLE\_SJA\_EPP → PCAN-Dongle SJA1000 EPP mode
- Port address
  - e.g. 0x378
- Interrupt
  - e.g. 0x07

**Possible errors:** NOVXD ILLHW REGTEST RESOURCE

**DWORD CAN\_Close(void);**

End everything and deallocate the hardware.

**Possible errors:** NOVXD

**DWORD CAN\_Status(void);**

Return the hardware's current status (e.g. BUS-OFF)

**Possible errors:** NOVXD BUSOFF BUSHEAVY OVERRUN

**DWORD CAN\_Write(TPCANMsg\* pMsgBuff);**

Writes a message of the format:

```
typedef struct {
    DWORD ID; // ID
    BYTE MSGTYPE; // Message type
    BYTE LEN; // Data length 0-8
    BYTE DATA [8]; // Data bytes
} TPCANMsg;
```

**Possible errors:** NOVXD RESOURCE BUSOFF QXMTFULL

**DWORD CAN\_Read(TPCANMsg\* pMsgBuff);**

Returns the next message or the next error from the client's RCV queue. The message is written to 'msgbuff'.

**Possible errors:** NOVXD QRCVEMPTY

**DWORD CAN\_VersionInfo(LPSTR lpszTextBuff);**

Returns a string with information about version and copyrights (max. 255 characters).

**Possible errors:** NOVXD

**Note:** You can find more information in the file PCAN\_DNG.HLP on floppy disk.