APPLICATION NOTE

MF EV800

Quick Introduction Sheet

Preliminary Specification

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Revision 1.0

**Philips
Semiconductors**

PHILIPS

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1 GENERAL INFORMATION

1.1 Scope

This document describes how to get started with the MF EV800 evaluation kit. This evaluation kit is based on the Pegoda reader, the MF RD700. The MF RD700 itself is based on the PHILIPS reader IC MF RC500. The MF RC 500 is member of a new family for highly integrated reader ICs for contactless communication at 13.56 MHz. This family is called MICORE.

The content of the MF EV700 Pegoda CDROM should help the user to design In the MF RD 700 in a specific application.

The following description covers how to set-up the needed driver to start the Pegoda reader and should give an overview about the added documents and software libraries.

Please make sure that the USB driver was developed for the Pegoda reader exclusively. Regarding information concerning to the licence requirements refer to chapter 3.

1.2 General Description

The **MF EV 800 full evaluation kit** is designed to fulfil several requirements.
The Pegoda reader covers all functionality of the core component, MF RC500 reader IC, to be able to use this reader for easy PC adaptation and application development. Additionally this package might be taken as a reference design for the MF RC500 reader IC. The documentation covers all basic requirements to design in that reader IC into a user specific hardware.

This package includes

- Pegoda reader, MF RD700. This reader communicates via USB to a host PC and is ready for plug-In.

- Pegoda CD ROM containing a complete documentation set including software libraries and description as well as the demonstration program MIFAREWnd covering all MIFARE and ISO 14443A commands. Additionally all needed drivers and Acrobat Readers for Windows set-up is included.

- 5 MIFARE$^®$ Cards

- Pegoda PCB MF RM700 with USB or RS232 interface

- 5 MF RC 500 sample ICs

- card size antenna

- 50 Ohm matching circuit

Since Philips Semiconductors is mainly focused on the card and reader ICs, Philips does not produce cards. Nevertheless we have attached some sample cards of manufacturers that already incorporated MIFARE$^®$ in their standard product range.

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1.3 System Requirements

To use the MF RD700 Pegoda reader in a PC environment the PC has to fulfil the following requirements.

Hardware:

- PC (Intel Pentium 166 MHz or
- comparable)
- minimum 32 MBytes RAM
- full USB support
- 1 available USB port
- 20 MB free hard disk space
- CD-ROM or DVD-ROM drive

Operating Systems:

Supported Operating systems are

- Windows98
- Windows2000

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1.4 Getting started

After wrapping out the components, please ensure that all Windows applications are closed, the USB port is available and the supplied CD-ROM is in the drive.

1.4.1 USB DRIVER INSTALLATION

At first, connect the Reader with the supplied cable and connect afterwards the cable to your PC.

Depending on the operating system you are using, the message for the new detected hardware will appear slightly different. Therefore choose the next section corresponding to your operating system.

NOTE: If the software for the Philips SL EV400 ICODE Pegoda reader is already installed on your system you do not have to install the USB driver again! You can immediately follow the install instructions for the Windows demo-software MIFAREWND as described in the User Manual *' MIFAREWND, Demo software for Win32'.*
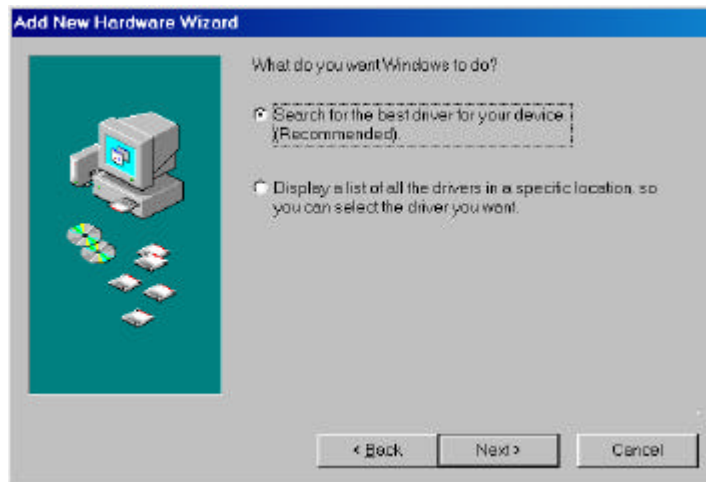
1.4.1.1 Windows 98

- Having connected the MIFARE® MF EV700 Pegoda to the PC using Windows 98 as operating system a message is visible that a new hardware component is detected.
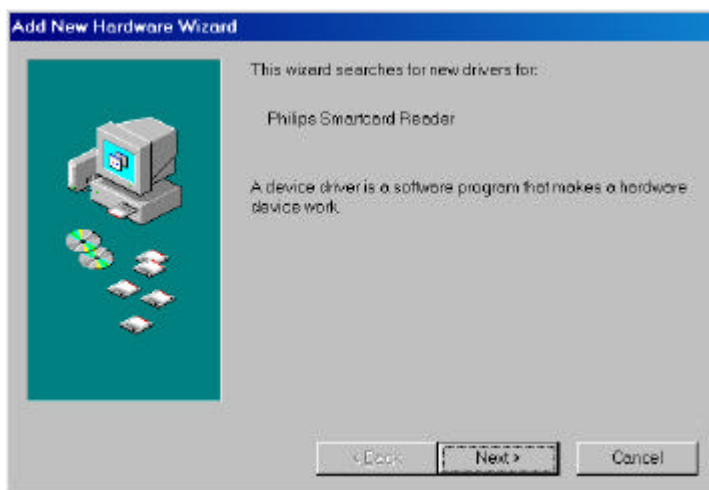
- After clicking on the **Next** button you have to search for the best driver for your device and continue with the **Next** button
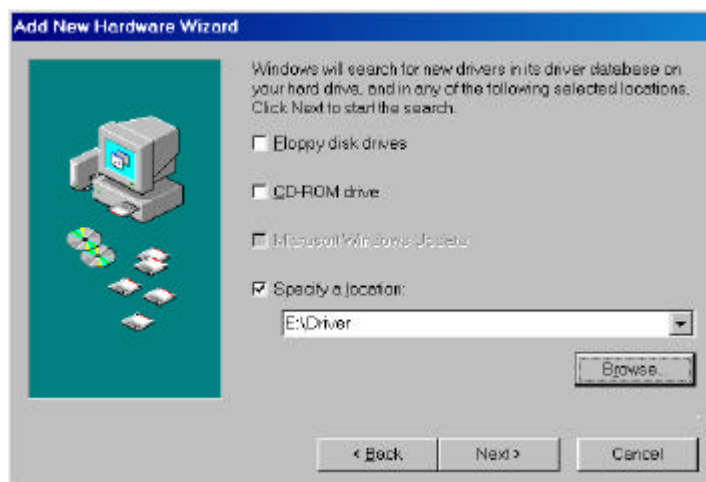
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- Now a new driver has to be installed. You can specify the location of the driver files in the lower entry field.

  Please press the **Browse** button to specify the location of your driver file **usbio.inf** and specify the driver's location.


- To define the directory you have to insert the path for the USB driver or to specify the directory by using the **Browse**-Button. Please select the USB driver to finish the installation.
  On the delivered CD-ROM the required file is stored in the directory "Driver".
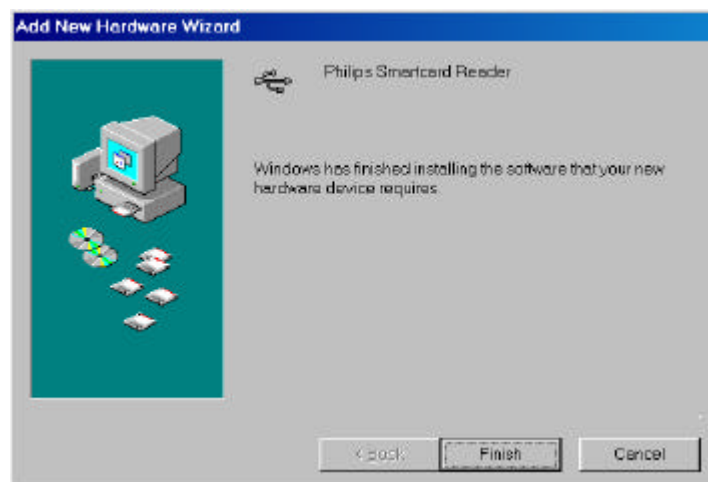
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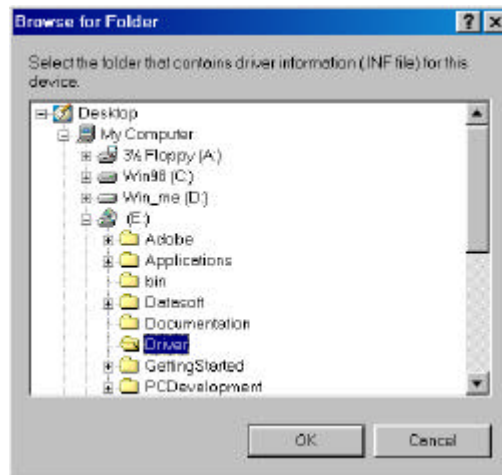
- After directory selection you can go on with the installation by pressing the **Next** button.
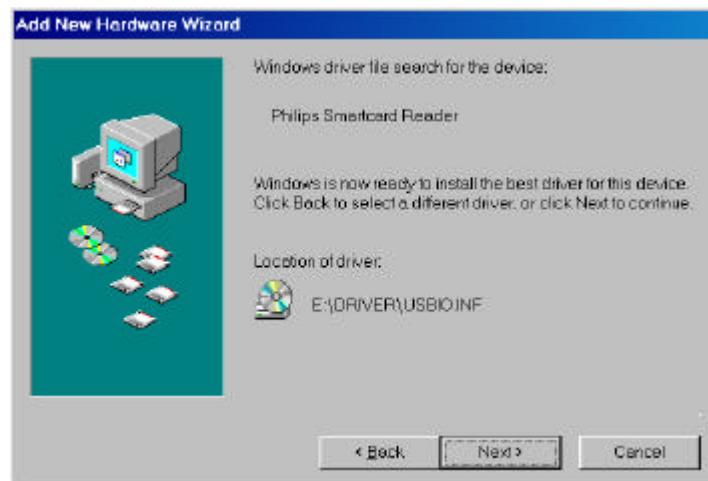

- . Installation of the USB driver has been finished. Please press **Finish**.

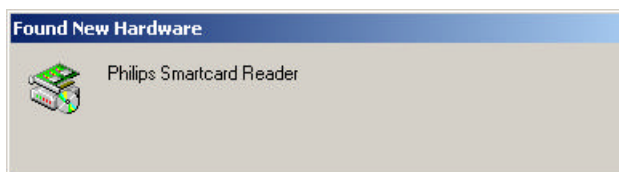## Quick Introduction Sheet   **MF EV800**

- Having successfully installed the driver you can control the installation by selecting the **System Icon** in your **Control Panel** under **System Properties**. Within the sheet Device Manager under Universal Serial Bus controller you should find **Philips Smartcard Reader**.

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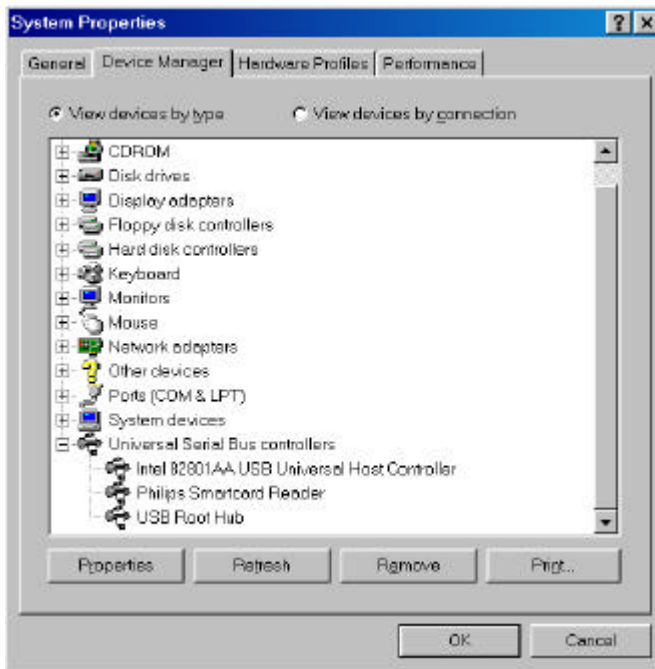
- Now your MIFARE Pegoda is ready for work. If you plug off your Pegoda, the entry in the USB **Serial Bus controller's** list will disappear. Having plugged in your read/write device again the logon is done automatically without further interaction of the user.

1.4.1.2 Windows 2000

- Having connected the MF EV700 MIFARE $^{®}$ Pegoda to the PC using Windows2000 as operating system a message is visible that a new hardware component is detected.
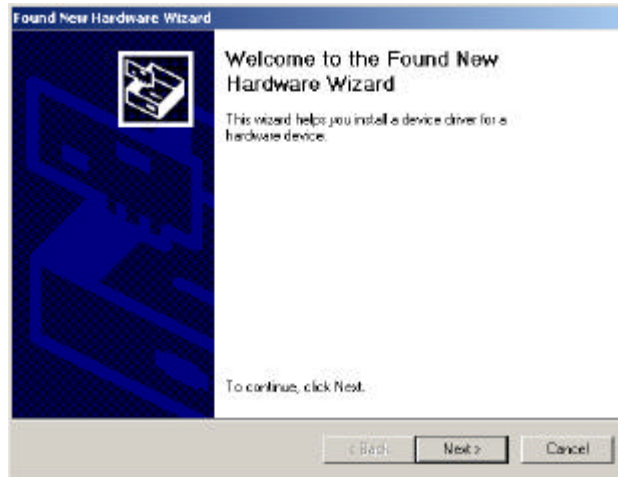

- To continue the installation of the corresponding driver for the new read/write device please press **Next**.
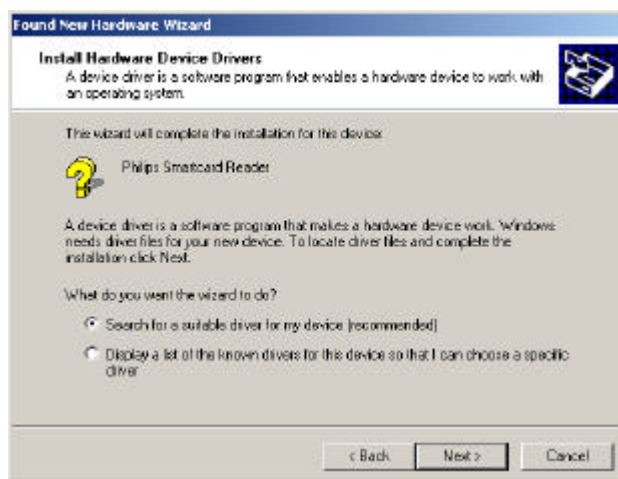
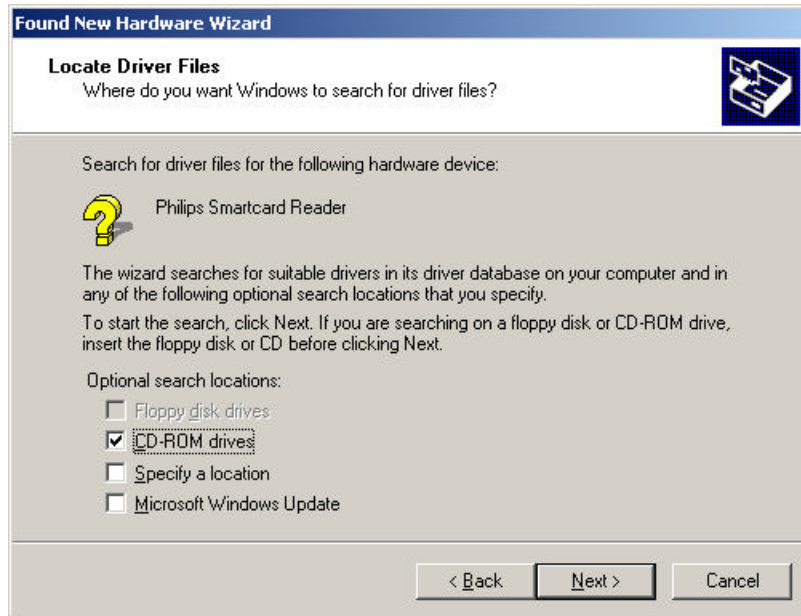Quick Introduction Sheet   **MF EV800**

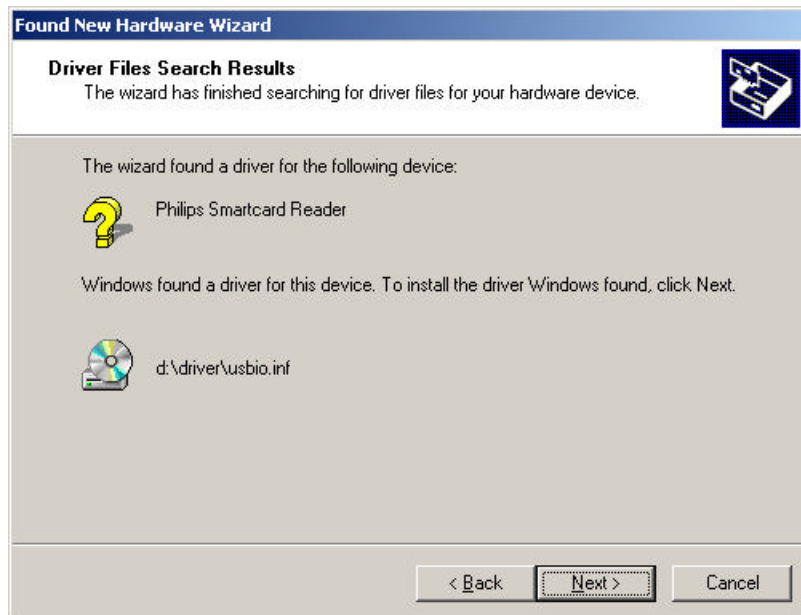- Select the first choice 'Search for a suitable driver' - and press **Next.**

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- Select your preferred installation medium (CD-ROM) and press the **Next** button. The required driver file **usbio.inf** is stored on the delivered CD within the directory "Driver".
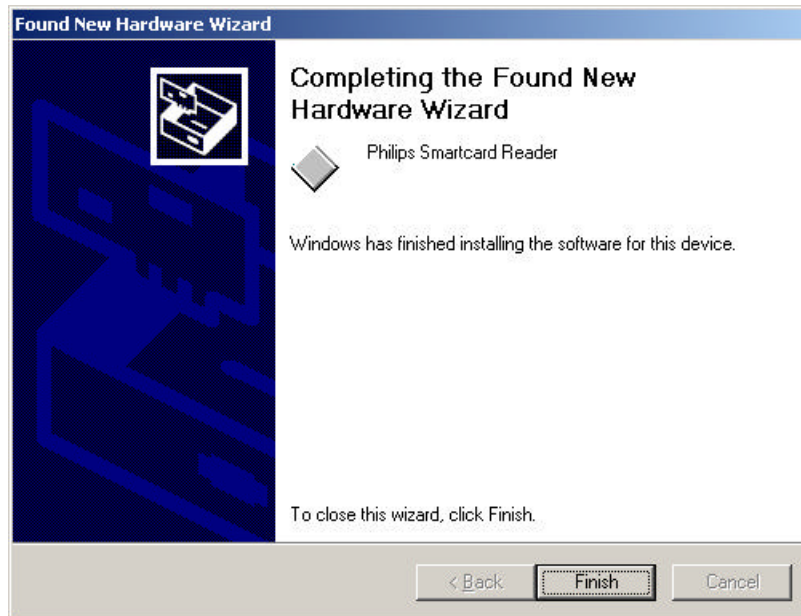

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- After pressing the **Next** button the driver will be found automatically on the CD.

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- Continue with the **Next** button to install the driver.

- Press the **Finish** button to finalise the installation

- To check if the driver is installed correctly open the Device Manager within
  Control Panel – System – Hardware.
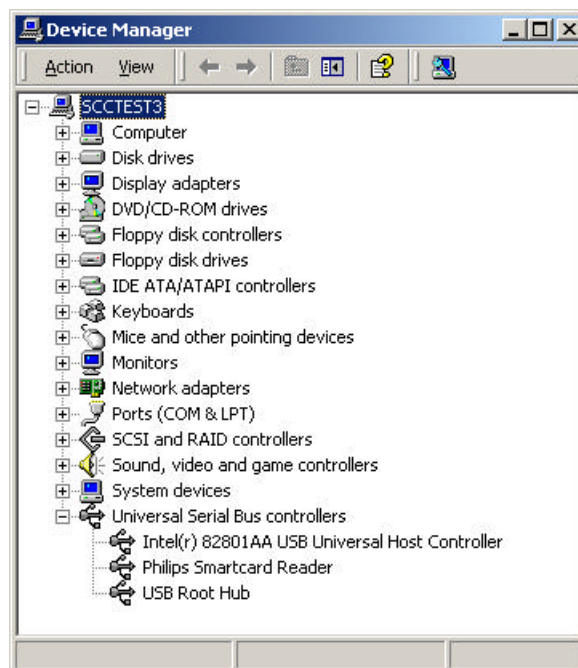
- Plugging off your MF EV700 MIFARE® Pegoda, the entry in the USB **Serial Bus controller** list will disappear. After plugging in, your I•CODE Pegoda will logon automatically without further interaction of the user.

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1.4.2 EXPLORING THE CD

To view the documents on this CD-ROM, you have to install the Adobe Acrobat Reader first, found in the folder or directory called **Acrobat** at the root level of the CD.

In this directory, you can select the appropriate Adobe Acrobat Reader for your operating system. Please follow the installation instructions for the selected package.

To install the Acrobat Reader at your hard drive, double click on the single executable in the directory called **rp500enu.exe.**

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2 CONTENT OF THE MF EV700 PEGODA CD

The content of the Pegoda CD ROM can be divided in several parts:

Folder Name	Content, short description
Adobe	Adobe Acrobat Reader
Applications	**MIFAREWND.exe**, as Windows based demonstration program to show the functionality of the reader in the communication with different cards.
PC Development	needed PC **libraries** to design an own application based on the Pegoda:
	CommonLibs: describing a common used library for error handling
	MFRC500: DLLs and header files how to communicate to the Pegoda reader
	HostRDCom: defines the communication using the different serial interfaces
	RD700: Pegoda specific DLLs
	Program sample called **Rges.exe** and the sources show to integrate the needed libraries. Rges itself continuously reads out a MIFARE® Standard card
Documentation	complete description of the libraries and the Pegoda reader itself
Driver	USB driver
Reader Development	**documentation** and **basic function libraries** for the MF RC 500 , giving the possibility to design In the MF RC 500

3 GENERAL CONDITIONS

3.1 Usage

You may use the source codes contained on this CD for the development of free and/or commercially sold applications. You may also modify the source codes. We do not warrant that the functions contained in the source codes will meet your requirements or that the software operation will be uninterrupted or error free. The codes are only examples to show the usage of the hardware. They are not optimised in terms of speed or code size. The entire risk as to the results and performance of the codes is assumed by you.

3.2 The AS IS paragraphs

Please note that Philips hereby state that this package is provided "AS IS". Philips reserves the right to make changes without notice at any time. Philips makes no warranty, expressed, implied or statutory, including but not limited to any implied warranty of merchantability or fitness for any particular purpose, or that the use will not infringe any third party patent, copyright or trademark. Philips must not be liable for any loss or damage arising from its use.

3.3 USB Driver

The used USB driver was developed for the Pegoda reader by

DATASOFT ISDN Systems GmbH,
Schillerplatz 3,
A- 3100 St.Pölten,
Austria.

The licensing conditions cover only the use of this driver in combination with PHILIPS Pegoda products. For customer application support regarding the USB Driver please contact DATASOFT ISDN Systems GmbH directly.

4 COPYRIGHTS

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Windows98 and Windows200 are trademarks of Microsoft,

Definitions

Data sheet status	
Objective specification	This data sheet contains target or goal specifications for product development.
Preliminary specification	This data sheet contains preliminary data; supplementary data may be published later.
Product specification	This data sheet contains final product specifications.
Limiting values	
Limiting values given are in accordance with the Absolute Maximum Rating System (IEC 134). Stress above one or more of the limiting values may cause permanent damage to the device. These are stress ratings only and operation of the device at these or at any other conditions above those given in the Characteristics section of the specification is not implied. Exposure to limiting values for extended periods may affect device reliability.	
Application information	
Where application information is given, it is advisory and does not form part of the specification.	

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