



**DIN EN ISO 9001:2000
certified**



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Preliminary version

Technical description

Board management with ADDIPACK

APCI-1500, APCI-3120, APCI-3001

2nd edition 04/2005

Product information

This manual contains the technical installation and important instructions for correct commissioning and usage, as well as production information according to the current status before printing. The content of this manual and the technical product data may be changed without prior notice. ADDI-DATA GmbH reserves the right to make changes to the technical data and the materials included herein.

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WARNING

The following risks result from improper implementation and from use of the board contrary to the regulations:



- ◆ **Personal injury**
- ◆ **Damage to the board, PC and peripherals**
- ◆ **Pollution of the environment**

- ◆ **Protect yourself, the others and the environment!**
- ◆ **Read carefully the safety precautions (yellow leaflet).**

If this leaflet is not with the documentation, please contact us and ask for it.

- ◆ **Observe the instructions of the manual.**

Make sure that you do not forget or skip any step. We are not liable for damages resulting from a wrong use of the board.

- ◆ **Used symbols:**



IMPORTANT!

designates hints and other useful information.



WARNING!

It designates a possibly dangerous situation.

If the instructions are ignored the board, PC and/or peripheral may be destroyed.

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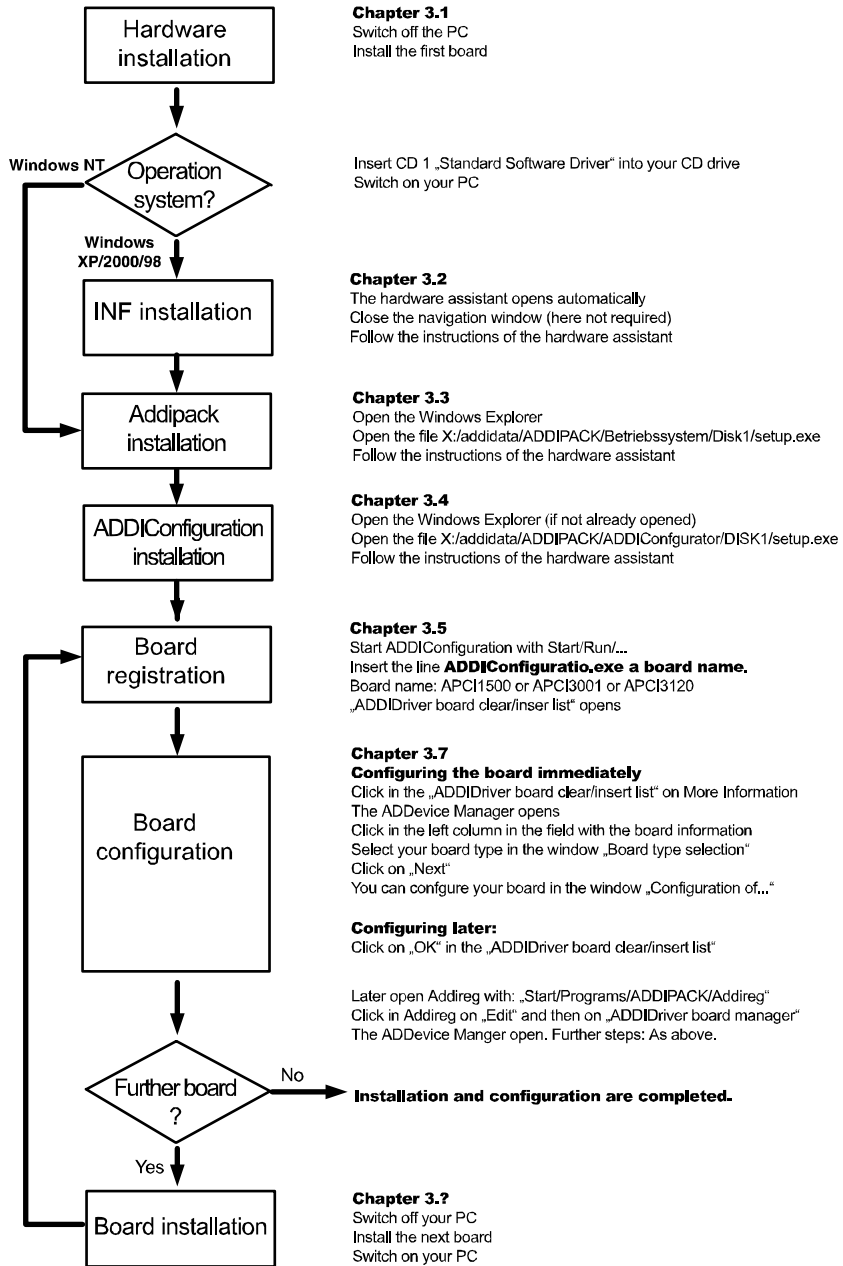
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1 OVERVIEW: INSTALLATION

Fig. 1-1: Diagram: Overview – Installation



2 HARDWARE INSTALLATION

- ◆ Switch off your PC
- ◆ Install your first board

Note:

The technical description of your board (APCI-1500, APCI-3120 or APCI-3001) contains detailed information about:

- ◆ Board installation
- ◆ Technical data
- ◆ Connection to the peripheral



IMPORTANT!

Do observe the safety precautions (in the present manual, in the technical description of your board and in the yellow leaflet)!

3 SOFTWARE INSTALLATION WITH ADDIPACK

3.1 Delivered software



IMPORTANT!

The supported software functions for the board are listed in chapter 5.

The board is supplied with a CD-ROM containing the ADDIPACK software package for Windows NT 4.0 and Windows XP/2000/98.

The delivered tool “**ADDICONFIGURATOR**” allows the user to insert the boards APCI-1500, APCI-3120 and APCI-3001 as virtual boards in ADDIPACK and to update the registry database of ADDIREG.

ADDIPACK is composed of the following programs:

- **ADDIREG:** The ADDIREG registration program is a 32-bit program for Windows NT 4.0 and Windows XP/2000/98. The user can register all hardware information necessary to operate the ADDI-DATA PC boards.
- **ADDIDRIVER** contains API functions to control the “universal ADDI-DATA boards” in 32 bits.
- **ADDevice Manager** manages the configuration of the ADDI-DATA virtual board (See below).
- **ADDI-DATA virtual board:**
ADDI-DATA software is based on the principle of a **virtual board:** it interprets the different functions (e.g. digital inputs, analog outputs, timer, ...) of all inserted “universal ADDI-DATA boards” as the functions of a single (virtual) board. This virtual board features a pool of functions, the functionality of which can be called up without calling a specific board.
- **ADDEVICE MAPPER** was specifically developed for the ADDIPACK boards to facilitate the management of the virtual board. With this program you can optimally adapt the virtual board to your application requirements.



IMPORTANT!

For some functions of the **ADDEVICE MAPPER** program the browser Internet Explorer 6 or higher has to be installed on your PC.

3.2 Operation system



IMPORTANT!

For the installation under Windows XP/2000/98 please note the section about “Installation of the INF files”. However, when you install under Windows NT this section is of no importance.

3.2.1 Installation under Windows NT

- ◆ Insert the delivered CD 1 into your CD drive
- ◆ Start the setup.exe file under “CD\ADDIPACK\WintNT40\Disk1”

In case that ADDIPACK is already installed on your PC, you have the following choice:

1. Uninstall the current ADDIPACK version and manually install the latest version from the CD1 or
2. Register the board with the installed ADDIPACK version.

- ◆ **Follow the instructions until the complete installation of ADDIPACK.**

3.2.2 Installation under Windows XP/2000/98

- ◆ Reboot your PC after the installation of your ADDI-DATA board
- ◆ Insert the delivered CD 1 into your CD drive

Follow the instructions of the next chapter in order to install the INF files.

3.3 Installation of the INF files

The user interface of CD 1 appears automatically.

- ◆ **Close the user interface of the CD.** In the next steps it will be of no importance.

The hardware assistant starts the installation of the INF files.

- ◆ **Follow the instructions of the hardware assistant until the complete installation.**

3.4 Installation of ADDIPACK

- ◆ Open your Windows Explorer
- ◆ Click in your CD directory on

:\addidata\ADDIPACK\Ihr Betriebssystem (e.g. Win2000)\Disk1\setup.exe

- ◆ Follow the instructions of the „InstallShieldWizard“ until the complete installation

3.5 Installation of ADDICONFIGURATOR

- ◆ Open your Explorer
- ◆ Click in your CD directory on

:\addidata\ADDIPACK\ADDIConfigurator\DISK1\setup.exe

- ◆ Follow the instructions of the hardware assistant until the complete installation of the program.

3.6 Board registration

For **adding** a board, please follow the steps below:

- ◆ Click on " Start/Run "
- ◆ Insert in the „Run “-window the following command:

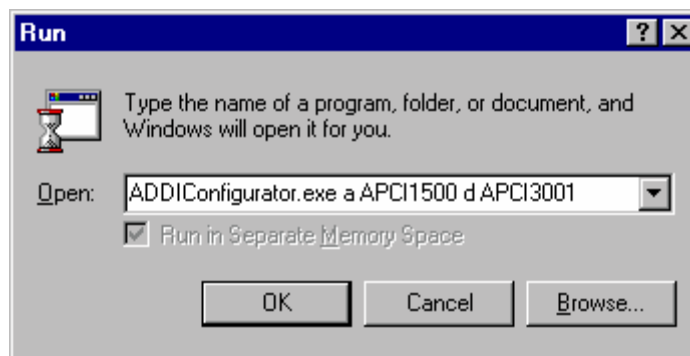
ADDIConfigurator.exe (blank) a (blank) board name

For **deleting** a board, please follow the steps below::

- ◆ Click on " Start/Run "
- ◆ Insert in the „Run “-window the following command:

ADDIConfigurator.exe (blank) d (blank) board name

Fig. 3-1: Adding or deleting a board with ADDICONFIGURATOR



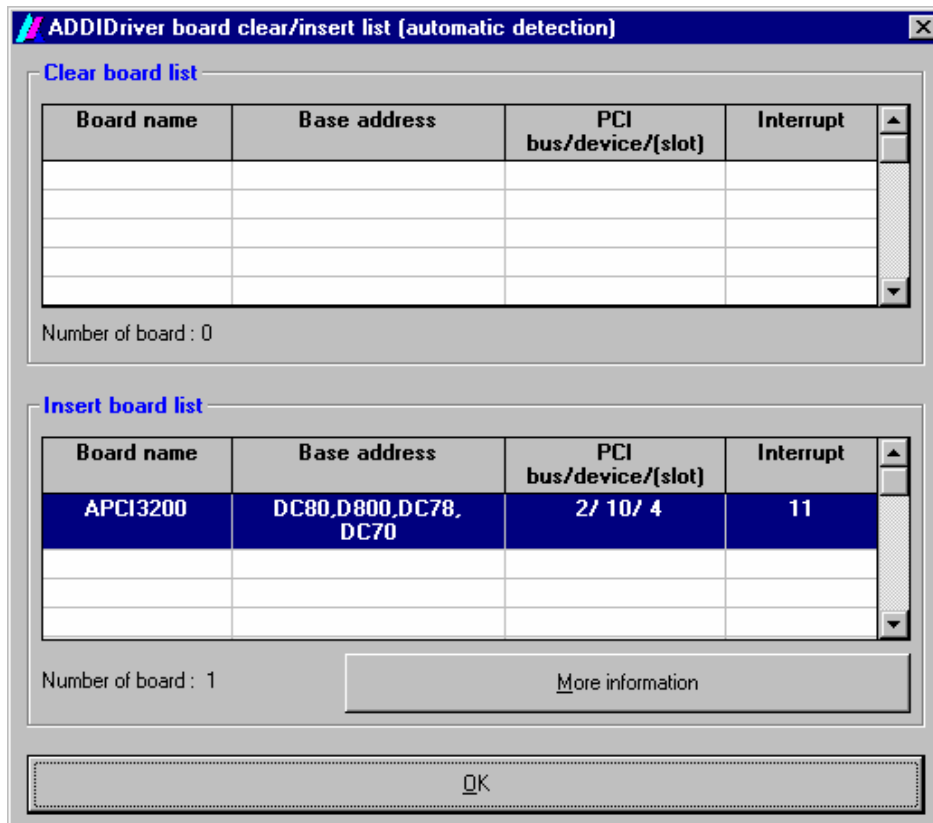
Example:

ADDIConfigurator.exe **a** APCI1500 **d** APCI3001

Adds the APCI-1500 as virtual board and **deletes** the APCI-3001 as virtual board.

With these entries the registry database is updated. Then the „ADDIDRIVER board clear/insert list“ window opens.

Fig. 3-2: “ADDIDRIVER board clear/insert” window



The boards which have been removed from the PC since the last ADDIREG start are listed in the upper table

The new inserted boards, which were found in the PC, are listed in the lower table. Now you can proceed with the configuration of your board.

3.7 Board configuration

You can configure your board either immediately (see chapter 3.7.1) or later (see chapter 3.7.2)

3.7.1 Immediate configuration of the board

If you want to configure your board immediately, follow the steps below:

- ◆ Click in the „ADDIDRIVER-board clear/insert list“ window (see Fig. 3-2) on „More information“

Then the “ADDevice Manager” (see Fig. 3-3) opens.

Fig. 3-3: ADDevice Manager

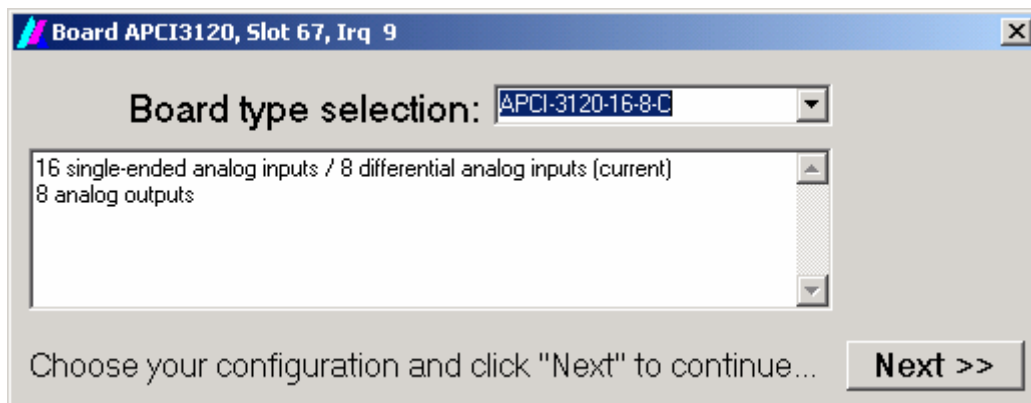
V : Virtual board R : Real board	Digital input	Digital output	Analog input	Analog output	Timer
APCI1500 Board Index : 0 Slot:5 IRQ: 10 Addr 0:8800 Addr 1:8400 Addr 2:8000	V - R Mod. 0 - Mod. 0 : Nbr : 16 0 - 0 ... 15 - 15 24V	V - R Mod. 0 - Mod. 0 : Nbr : 16 0 - 0 ... 15 - 15 24V/HS	No	No	
APCI3120 Board Index : 1 Slot:4 IRQ: 10 Addr 0:8000 Addr 1:A800 Addr 2:A400	No	No	V - R Mod. 0 - Mod. 0 : Nbr : 16 0 - 0 ... 15 - 15	V - R Mod. 0 - Mod. 0 : Nbr : 8 0 - 0 ... 7 - 7 Voltage	

No information

- ◆ Click in the left column (marked in grey) into the field with the board information.

Then the „Board type selection“ window (see Fig. 3-4) with which you can select type and version of your board.

Fig. 3-4: Board type selection“ window

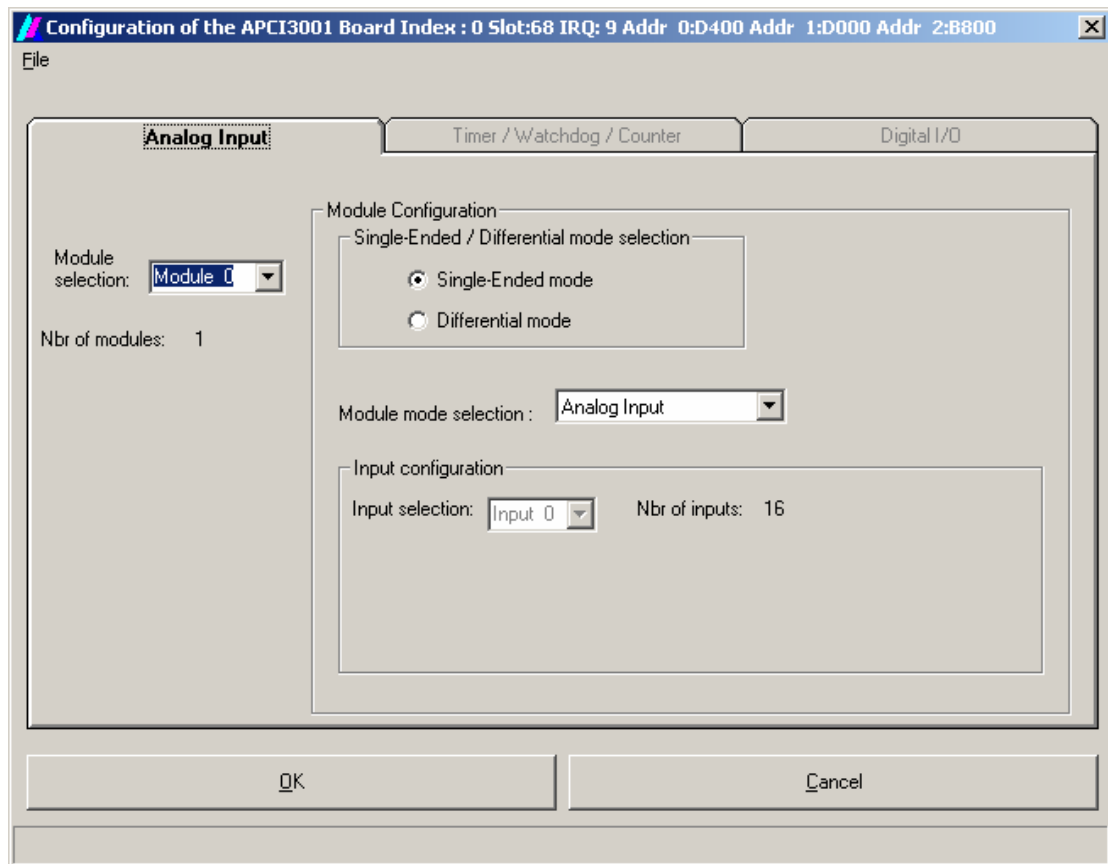


- ◆ Select your board type
- ◆ Check if the inserted board matches with the board installed in the PC and click on „Next“.

Then the fine settings of the board appear in the „ADDevice Manager“ window (see Fig. 3-5) where you can do the required changes

For the APCI-1500 you can do the settings for the counter/timer/watchdog.

Fig. 3-5: Fine settings in the „ADDevice Manager“ window



- ◆ When you have checked the set registration, close the window of the ADDevice Manager with „OK“.

Now the board is ready-to-operate

i

IMPORTANT!

You **cannot** run simultaneously an APCI-3120 under ADDIPACK with an APCI-3120 with DMA or interrupt management

3.7.2 Configuring the board later

If you do not wish to configure your board immediately, please follow the steps below:

- ◆ Click in the ADDIDRIVER-board clear/insert list window (see Fig. 3-2) on „OK“

In order to call Addireg later, please follow the next steps:

- ◆ Open Addireg with Start/Programs/ADDIPACK/Addireg
- ◆ Click in Addireg on „Edit“ and then on „ADDIDriver board manager“.

The „ADDevice Manager“ (see Fig. 3-3) will open.

- ◆ Follow the steps as described above.

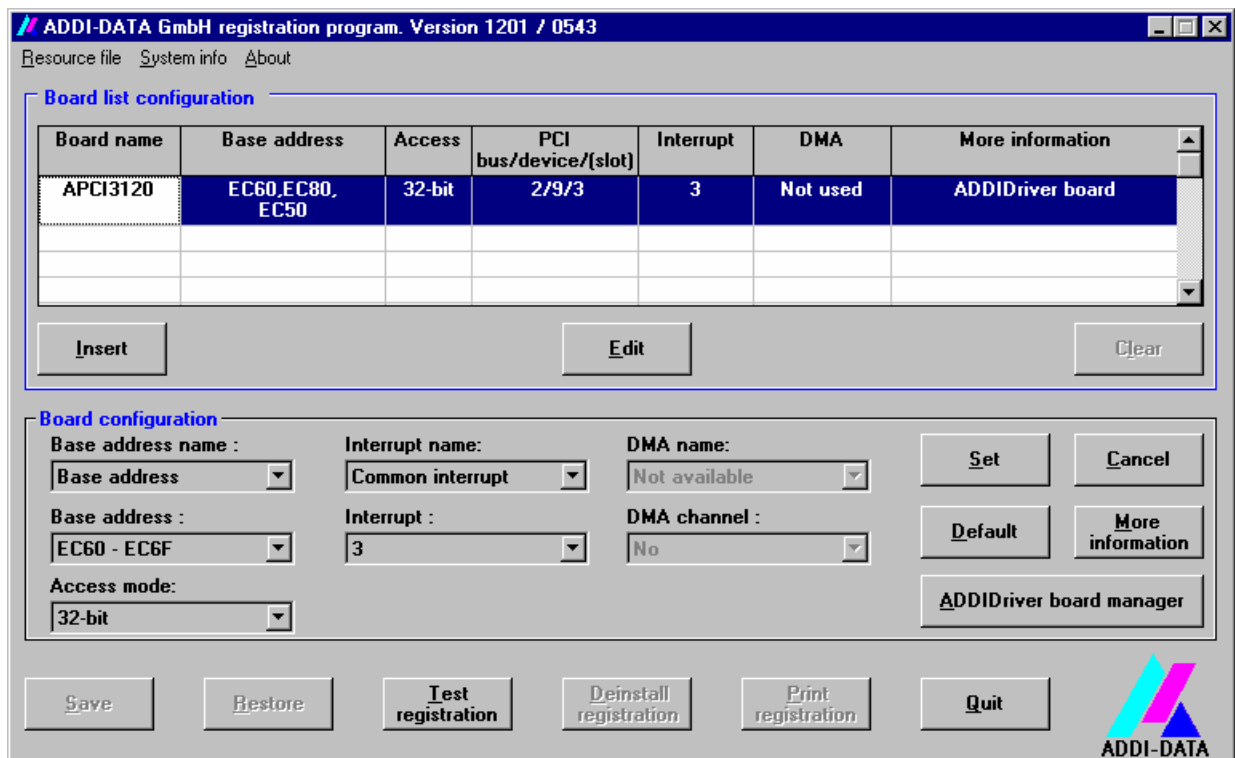
3.7.3 Changing the configuration of an existing board

You can change the current configuration of the board with the ADDIREG registration program at any time.

- ◆ Select in the „ADDIREG“ main window the required board
- ◆ Click on „Edit“ and then on „ADDIDriver Board manager“.

Now you can do the necessary changes.

Fig. 3-6: ADDIREG main window



3.7.4 Name of the windows

This chapter explains the buttons and the meaning of the window names:

- a) „ADDevice Manager“ window
- b) „ADDIREG“ main window

a) „ADDevice Manager“ window

In the „ADDevice Manager“ windows (see Fig. 3-5) the following information is displayed for every inserted board:

First column:

- Board name
- Board index: Number allocated to the board when it is registered in ADDIREG.
- Slot number
- IRQ line
- Different addresses which are automatically allocated to the board by the BIOS.

Other columns:

The program distinguishes between the resources (analog/digital input/output, watchdog, ...) of the virtual board (**V**, software) and the real board (**R**, board).

The following parameters are listed

- Module number,
- Number of resources
- Index: The first index line represents the number of the first resource (left: virtual resource - right: real board) The second index line represents the number of the last resource (left: virtual resource - right: real board).
- Type (24 V/5 V, voltage/current, HS/OC - High-Side/Open collector etc.). If on this index line “various” is displayed it means that the resources are of different types. “Undefined” means that the type of this resource is not defined.
- IRQ: if the input/output channels are interruptible, the program displays the number of the first and of the last input/output.

By double-clicking within a column, the connection principle and the technical data of the resource are displayed. This function is only possible if a question mark appears with the cursor.

You can export the set configuration as a text file. Click on "file" and save the configuration as **.txt** file with "Export information to file...". Then you can print the configuration or use it as a basis for other boards.

b) „ADDIREG“ main window

The description and buttons in the „ADDIREG“ main window (see **Fehler! Verweisquelle konnte nicht gefunden werden.**) have the following meaning:

Table:

Board name:

Names of the different registered boards (e.g.: APCI-3120).

Base address:

Selected base address of the board. For PCI boards the base address is allocated through BIOS.

Access:

Selection of the access mode for the ADDI-DATA digital boards.
Access in 8-bit, 16-bit or 32-bit mode.

PCI bus/device/(slot):

Number of the used PCI bus, slot, and device. If the board is no APCI board, the message "NO" is displayed.

Interrupt:

Used interrupt of the board. If the board supports no interrupt, the message "Not available" is displayed.

DMA:

Indicates the selected DMA channel or "Not available" if the board uses no DMA or if the board is no ISA board.

More information:

Additional information like the identifier string or the installed COM interfaces. If the board is programmed with ADDIDRIVER, this will also be indicated.

Text boxes:**Base address name:**

Description of the used base addresses for the board. Select a name through the pull-down menu. The corresponding address range is displayed in the field below (Base address).

Interrupt name:

Description of the used interrupt lines for the board. Select a name through the pull-down menu. The corresponding IRQ is displayed in the field below (Interrupt).

DMA name (for ISA boards only):

If the board supports 2 DMA channels, you can select which DMA channel is to be changed.

DMA channel (for ISA boards only):

Selection of the used DMA channel.

Buttons:**Edit¹:**

Selection of the highlighted board with the different set parameters.

Set:

Sets the parameterised board configuration. The configuration must be confirmed with Set before you can save it.

¹ „x“: key sequence; e.g. „Alt + e“ = Edit

Cancel:

Resets the former parameters of the saved configuration.

Default:

Sets the standard parameters of the board.

More information (not available for the boards with ADDIPACK)

You can change the specific parameters of the board.

ADDIDriver Board Manager:

Under Edit/ADDIDriver Board Manager you can manage, watch the boards or rather modify them.

ADDevice Manager will open. The window displays a list of all resources available for the **virtual board**.

Test registration:

Checks if there is a conflict between the board and other devices installed in the PC. A message indicates the parameter that has generated the conflict. If no conflict has occurred, "Test of device registration OK" is displayed.

Deinstall registration:

Deinstalls the registrations of all boards listed in the table and deletes the entries of the boards in the Windows Registry.

Print registration:

Prints the registration parameter on your standard printer.

Quit:

Closes the ADDIREG program.

Testing the registration

Under "Test registration" you can test if the registration is "OK":

This test checks if the registration is right and if the board exists. If the test has been successfully completed you can quit the ADDIREG program. The board is initialised with the set parameters and can now be operated.

4 FURTHER INSTALLATION PROCEDURES

4.1 Driver installation for the APCI-1500



IMPORTANT!

The driver installation is to be realised only for the APCI-1500 board.

The board requires its own **DLL file** in order to be recognised by ADDIPACK.

Start the setup.exe file under CD1\ACPI1500\Win-XP-2000-NT-98\Driver\Disk1.

4.2 Installation of the software samples

◆ Log in with administrator rights

◆ Change to the data medium drive:

Under ADDIPACK/Samples:

◆ Select the required programming language

You will receive further instructions by the installation program..



IMPORTANT!

You shall install only **function examples** that are supported by the board.

Please observe the software tables in chapter 5.

4.3 Questions and software download in the internet

You can send us your questions:

by e-mail: info@addi-data.com or
 hotline@addi-data.com

Download in the internet

You can download the latest version of the standard software for the board under:
<http://www.addi-data.com>.

5 STANDARD SOFTWARE

5.1 APCI-1500

5.1.1 Type and version of the board (Header table)

You can change the version and type of your board through ADDEVICE Manager (see Fig. 3-3).

Table 5-1: Header table for the APCI-1500

“Board type selection”	Description
APCI-1500 without interrupt	16 digital inputs, 16 digital outputs without event interrupt
APCI-1500 with interrupt	16 digital inputs, 16 digital outputs with event interrupt
APCI-1500 Timer, Watchdog, Counter 115 kHz with interrupt	16 digital inputs, 16 digital outputs with event interrupt, timer, watchdog and counter 115 kHz
APCI-1500 Timer, Watchdog, Counter 3.6 kHz with interrupt	16 digital inputs, 16 digital outputs with event interrupt, timer, watchdog and counter 3.6 KHz
APCI-1500 Timer, Watchdog, Counter 1.8 kHz with interrupt	16 digital inputs, 16 digital outputs with event interrupt, timer, watchdog and counter 1.8 KHz

5.1.2 Software functions

ADDIPACK supports the following functions for the APCI-1500

Table 5-2: Supported software functions

Functionality	Function name
Common functions	i_ADDIDATA_OpenWin32Driver
	i_ADDIDATA_GetCurrentDriverHandle
	i_ADDIDATA_GetDriverVersion
	i_ADDIDATA_GetLocalisation
	b_ADDIDATA_CloseWin32Driver
Interrupt	b_ADDIDATA_SetFunctionalityIntRoutineWin32
	b_ADDIDATA_TestInterrupt
	b_ADDIDATA_ResetFunctionalityIntRoutine
Error	i_ADDIDATA_GetLastError
	i_ADDIDATA_GetLastErrorAndSource
	b_ADDIDATA_EnableErrorMessage
	b_ADDIDATA_DisableErrorMessage
	b_ADDIDATA_FormatErrorMessage
Digital inputs	b_ADDIDATA_GetNumberOfDigitalInputs
	b_ADDIDATA_GetDigitalInputInformation
	b_ADDIDATA_Read1DigitalInput
	b_ADDIDATA_Read2DigitalInputs
	b_ADDIDATA_Read4DigitalInputs
	b_ADDIDATA_Read8DigitalInputs
	b_ADDIDATA_Read16DigitalInputs
	b_ADDIDATA_InitDigitalInputInterrupt
	b_ADDIDATA_ReleaseDigitalInputInterrupt
	b_ADDIDATA_EnableDisableDigitalInputInterrupt

Functionality	Function name
Digital outputs	b_ADDIDATA_GetNumberOfDigitalOutputs
	b_ADDIDATA_GetDigitalOutputInformation
	b_ADDIDATA_SetDigitalOutputMemoryOn
	b_ADDIDATA_SetDigitalOutputMemoryOff
	b_ADDIDATA_Set1DigitalOutputOn
	b_ADDIDATA_Set1DigitalOutputOff
	b_ADDIDATA_Set2DigitalOutputsOn
	b_ADDIDATA_Set2DigitalOutputsOff
	b_ADDIDATA_Set4DigitalOutputsOn
	b_ADDIDATA_Set4DigitalOutputsOff
	b_ADDIDATA_Set8DigitalOutputsOn
	b_ADDIDATA_Set8DigitalOutputsOff
	b_ADDIDATA_Set16DigitalOutputsOn
	b_ADDIDATA_Set16DigitalOutputsOff
Timer	b_ADDIDATA_GetNumberOfTimers
	b_ADDIDATA_GetTimerInformation
	b_ADDIDATA_GetTimerInformationEx
	b_ADDIDATA_InitTimer
	b_ADDIDATA_EnableDisableTimerInterrupt
	b_ADDIDATA_StartTimer
	b_ADDIDATA_StopTimer
	b_ADDIDATA_TriggerTimer
	b_ADDIDATA_ReleaseTimer
	b_ADDIDATA_ReadTimerValue
	b_ADDIDATA_EnableDisableTimerHardwareGate
	b_ADDIDATA_EnableDisableTimerHardwareTrigger
	b_ADDIDATA_TestTimerAsynchronousFIFOFull
Counter	b_ADDIDATA_GetNumberOfCounters
	b_ADDIDATA_GetCounterInformation
	b_ADDIDATA_GetCounterInformationEx
	b_ADDIDATA_InitCounter
	b_ADDIDATA_EnableDisableCounterInterrupt

Functionality	Function name
Counter	b_ADDIDATA_StartCounter
	b_ADDIDATA_ClearCounter
	b_ADDIDATA_TriggerCounter
	b_ADDIDATA_StopCounter
	b_ADDIDATA_EnableDisableCounterHardwareGate
	b_ADDIDATA_EnableDisableCounterHardwareTrigger
	b_ADDIDATA_TestCounterAsynchronousFIFOFull
Watchdog	b_ADDIDATA_GetNumberOfWatchdogs
	b_ADDIDATA_GetWatchdogInformation
	b_ADDIDATA_GetWatchdogInformationEx
	b_ADDIDATA_InitWatchdog
	b_ADDIDATA_EnableDisableWatchdogInterrupt
	b_ADDIDATA_StartWatchdog
	b_ADDIDATA_TriggerWatchdog
	b_ADDIDATA_StopWatchdog
	b_ADDIDATA_ReleaseWatchdog
	b_ADDIDATA_EnableDisableWatchdogHardwareGate
	b_ADDIDATA_EnableDisableWatchdogHardwareTrigger
	b_ADDIDATA_TestWatchdogAsynchronousFIFOFull

5.1.3 Software samples

Table 5-3: Supported software samples for the APCI-1500

Functionality	Sample number	Description
Digital inputs	SAMPLE01	Read 1 digital input
	SAMPLE02	Read 2 digital inputs
	SAMPLE03	Read 4 digital inputs
	SAMPLE04	Read 8 digital inputs
	SAMPLE05	Read 16 digital inputs
	SAMPLE07	Test the interrupt of all digital inputs
Digital outputs	SAMPLE01	Test 1 digital output with/without output memory
	SAMPLE02	Test 2 digital outputs with/without output memory
	SAMPLE03	Test 4 digital outputs with/without output memory
	SAMPLE04	Test 8 digital outputs with/without output memory
	SAMPLE05	Test 16 digital outputs with/without output memory

5.2 APCI-3120

5.2.1 Type and version of the board (Header table)

You can change the version and type of your board through ADDEVICE Manager (see Fig. 3-3).

Table 5-4: Header table for the APCI-3120

“Board type selection”	Description
APCI-3120-16-8-V	16 single-ended inputs/8 differential inputs (voltage), 8 analog outputs
APCI-3120-16-4-V	16 single-ended inputs/8 differential inputs (voltage), 4 analog outputs
APCI-3120-8-8-V	8 single-ended inputs/4 differential inputs (voltage), 8 analog outputs
APCI-3120-8-4-V	8 single-ended inputs/4 differential inputs (voltage), 4 analog outputs
APCI-3120-16-8-C	16 single-ended inputs/8 differential inputs (current), 8 analog outputs
APCI-3120-16-4-C	16 single-ended inputs/8 differential inputs (current), 4 analog outputs

APCI-3120-8-8-C	8 single-ended inputs/4 differential inputs (current), 8 analog outputs
APCI-3120-8-4-C	8 single-ended inputs/4 differential inputs (current), 4 analog outputs
APCI-3120-16-8-V-D	16 single-ended inputs/8 differential inputs (voltage), 8 analog outputs, 4 digital outputs, 4 digital inputs
APCI-3120-16-4-V-D	16 single-ended inputs/8 differential inputs (voltage), 4 analog outputs, 4 digital outputs, 4 digital inputs
APCI-3120-8-8-V-D	8 single-ended inputs/4 differential inputs (voltage), 8 analog outputs, 4 digital outputs, 4 digital inputs
APCI-3120-8-4-V-D	8 single-ended analog inputs/4 differential analog inputs (voltage), 4 analog outputs, 4 digital outputs, 4 digital inputs
APCI-3120-16-8-C-D	16 single-ended inputs/8 differential inputs (current), 8 analog outputs, 4 digital outputs, 4 digital inputs
APCI-3120-16-4-C-D	16 single-ended inputs/8 differential inputs (current), 4 analog outputs, 4 digital outputs, 4 digital inputs
APCI-3120-8-8-C-D	8 single-ended inputs/4 differential inputs (current), 8 analog outputs, 4 digital outputs, 4 digital inputs
APCI-3120-8-4-C-D	8 single-ended inputs/4 differential inputs (current), 4 analog outputs, 4 digital outputs, 4 digital inputs

5.2.2 Supported software functions

Table 5-5: Supported software functions for the APCI-3120

Functionality	Function name
Common functions	i_ADDIDATA_OpenWin32Driver
	i_ADDIDATA_GetDriverVersion
	i_ADDIDATA_GetLocalisation
	i_ADDIDATA_GetCurrentDriverHandle
	b_ADDIDATA_CloseWin32Driver
Error	i_ADDIDATA_GetLastError
	i_ADDIDATA_GetLastErrorAndSource
	b_ADDIDATA_EnableErrorMessage
	b_ADDIDATA_DisableErrorMessage
	b_ADDIDATA_FormatErrorMessage
Analog inputs	b_ADDIDATA_GetNumberOfAnalogInputs
	b_ADDIDATA_GetNumberOfAnalogInputModules
	b_ADDIDATA_GetNumberOfAnalogInputsForTheModule
	b_ADDIDATA_GetAnalogInputInformation
	b_ADDIDATA_InitAnalogInput
	b_ADDIDATA_Read1AnalogInput
	b_ADDIDATA_ReadMoreAnalogInputs
	b_ADDIDATA_ConvertMoreDigitalToRealAnalogValues
b_ADDIDATA_ReleaseAnalogInput	
Analog outputs	b_ADDIDATA_GetNumberOfAnalogOutputs
	b_ADDIDATA_GetAnalogOutputInformation
	b_ADDIDATA_Init1AnalogOutput
	<i>b_VoltageMode</i> 0: Bipolar ±10V 1: Unipolar 0-10V
	<i>b_Polarity</i> 2: Bipolar (used with Voltage-Mode 0) 1: Unipolar (used with voltage mode 1)
	b_ADDIDATA_InitMoreAnalogOutputs <i>See b_ADDIDATA_Init1AnalogOutput()</i>
	b_ADDIDATA_Write1AnalogOutput
	<i>dw_ValueToWrite</i> Min.: 0; Max.: 16383 (Bipolar) or 8191 (Unipolar)
	b_ADDIDATA_WriteMoreAnalogOutputs <i>See b_ADDIDATA_Write1AnalogOutput()</i>
	b_ADDIDATA_Release1AnalogOutput
b_ADDIDATA_ReleaseMoreAnalogOutputs	

5.2.3 Supported software samples

Table 5-6: Supported software samples for the APCI-3120

Functionality	Sample number	Description
Analog inputs	SAMPLE00	Display information of 1 analog input
	SAMPLE01	Read 1 analog input channel without interrupt.
	SAMPLE03	Read several analog input channels without interrupt.
Analog outputs	SAMPLE01	Write 1 analog output value without synchronisation.
	SAMPLE02	Write more analog output values without synchronisation.
Digital inputs	SAMPLE01	Read 1 digital input
	SAMPLE02	Read 2 digital inputs
	SAMPLE03	Read 4 digital inputs
Digital outputs	SAMPLE01	Test 1 digital output with/without output memory
	SAMPLE02	Test 2 digital outputs with/without output memory
	SAMPLE03	Test 4 digital outputs with/without output memory

5.3 APCI-3001

5.3.1 Type and version of the board (Header table)

You can change the version and type of your board through ADDEVICE Manager (see Fig. 3-3).

Table 5-7: Header table for the APCI-3001

“Board type selection”	Description
APCI-3001-16-V	16 single-ended inputs/8 differential inputs (voltage)
APCI-3001-8-	8 single-ended inputs/4 differential inputs (voltage)
APCI-3001-4-V	4 single-ended inputs (voltage)
APCI-3001-16-C	16 single-ended inputs/8 differential inputs (current)
APCI-3001-8-C	8 single-ended inputs/4 differential inputs (current)
APCI-3001-4-C	4 single-ended inputs (current)
APCI-3001-16-V-D	16 single-ended inputs/8 differential inputs (voltage), 4 digital outputs, 4 digital inputs
APCI-3001-8-V-D	8 single-ended inputs/4 differential inputs (voltage), 4 digital outputs, 4 digital inputs
APCI-3001-4-V-D	4 single-ended inputs (voltage), 4 digital outputs, 4 digital inputs
APCI-3001-16-C-D	16 single-ended inputs/8 differential inputs (current), 4 digital outputs, 4 digital inputs
APCI-3001-8-C-D	8 single-ended inputs/4 differential inputs (current), 4 digital outputs, 4 digital inputs
APCI-3001-4-C-D	4 single-ended inputs (current), 4 digital outputs, 4 digital inputs

5.3.2 Supported software functions

Table 5-8: Supported software functions for the APCI-3001

Functionality	Function name
Common functions	i_ADDIDATA_OpenWin32Driver
	i_ADDIDATA_GetDriverVersion
	i_ADDIDATA_GetLocalisation
	i_ADDIDATA_GetCurrentDriverHandle
	b_ADDIDATA_CloseWin32Driver
Error	i_ADDIDATA_GetLastError
	i_ADDIDATA_GetLastErrorAndSource
	b_ADDIDATA_EnableErrorMessage
	b_ADDIDATA_DisableErrorMessage
	b_ADDIDATA_FormatErrorMessage
Analog inputs	b_ADDIDATA_GetNumberOfAnalogInputs
	b_ADDIDATA_GetNumberOfAnalogInputModules
	b_ADDIDATA_GetNumberOfAnalogInputsForTheModule
	b_ADDIDATA_GetAnalogInputInformation
	b_ADDIDATA_InitAnalogInput
	b_ADDIDATA_Read1AnalogInput
	b_ADDIDATA_ReadMoreAnalogInputs
	b_ADDIDATA_ConvertMoreDigitalToRealAnalogValues
	b_ADDIDATA_ReleaseAnalogInput

5.3.3 Supported software samples

Table 5-9: Supported software samples for the APCI-3001

Functionality	Sample number	Description
Analog inputs	SAMPLE00	Display information of 1 analog input
	SAMPLE01	Read 1 analog input channel without interrupt.
	SAMPLE03	Read several analog input channels without interrupt.
Digital inputs	SAMPLE01	Read 1 digital input
	SAMPLE02	Read 2 digital inputs
	SAMPLE03	Read 4 digital inputs
Digital outputs	SAMPLE01	Test 1 digital output with/without output memory
	SAMPLE02	Test 2 digital outputs with/without output memory
	SAMPLE03	Test 4 digital outputs with/without output memory