

HiCOCAN
Setup Information

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emtrion

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Emtrion GmbH
Greschbachstr. 12
D-76229 Karlsruhe
Tel: +49 (721) 62725-0
Fax: +49 (721) 62725-19
E-mail: mail@emtrion.de
Internet: <http://www.emtrion.de>

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1 Introduction

HiCOCAN is the perfect solution for connecting your PC to a CAN net. No matter what applications you wish to develop, HiCOCAN provides the performance required for your specific design needs, at the highest bus rates.

The following HiCOCAN variants are available:

HiCOCAN-PCI-1	Standard PC card for the PCI bus of a standard PC with one CAN interface
HiCOCAN-PCI-2	Standard PC card for the PCI bus of a standard PC with two CAN interfaces
HiCOCAN-CPCI	Compact PCI card with two CAN interfaces
HiCOCAN-MiniPCI	miniPCI type IIIA board with two CAN interfaces
HiCOCAN-104-2H	PC/104 variant with two CAN interface, high-speed (jumpers)
HiCOCAN-104-2L	PC/104 variant with two CAN interface, low-speed, fault-tolerant (jumpers)

All boards are shipped with a preinstalled firmware, which handles Layer 2 of the ISO/OSI reference model. The PC's function libraries are used for communications with the firmware and so provide optimum access to the CAN net.

This manual provides a description of the hardware, where no distinction is made between HiCOCAN-ISA, HiCOCAN-PCI, HiCOCAN-CPCI and HiCOCAN-104. In addition there is a brief description of HiCOCAN-MiniPCI available as well.

Also, the function library, the installation of the driver and creation of applications are covered in detail.

2 Installation

Important note

Be sure to uninstall any previously installed version of the HiCOCAN driver before installing a new driver. If you fail to do so, the software may not run properly.

2.1 Installing the hardware

Please read the following instructions prior to installing the HiCOCAN-xxx module. These notes apply to all ESD (electrostatic discharge) components:

- Before installing the module, we recommend that you discharge yourself by touching a grounded object.
- Be sure all tools required for installation are electrostatically discharged as well.
- Before installing (or removing) the board, remove the power cable from your mains supply.
- Handle the board with care and try to avoid touching its components or tracks.
- Make sure all jumpers are properly set.

2.2 Installing the HiCOCAN-104 under Windows

This section describes the installation of the drivers for the HiCOCAN-104 boards.

2.2.1 Installing the Software / Driver

1. Install the module as is described.
2. Switch on the power again.
3. Windows NT 4/2000/XP: Log on as system administrator.
4. From the Control Panel choose "Add Hardware "
5. Insert the supplied CD in the CD-ROM drive.
6. Click the "next" button.
7. When the question appears: "Have you already connected this hardware to your computer?", choose "Yes, I have already connected the hardware and click the "next" button.
8. In the next dialog, choose "Add a new hardware device" and click "next".
9. Select "Install the hardware that I manually select from a list (Advanced)" and click the "next" button.

10. Select "emtrion Interface devices" or "Show All devices" and click the "next" button.
11. Click the "Have disk" and search for "HiCOCAN.inf" in the \Driver\ISA directory on the CD.
12. The operating system searches this file and offers a list of drivers. Select "HiCOCAN ISA Board (second generation)" and click next.
13. Answer all further questions with "YES".

Windows copies the driver files to the system.

14. Reboot your PC.
15. Run setup.exe from the root directory of the CD.

After the installation is complete, you will find a new program group in your start menu.

In addition, a subdirectory is created in the directory of your choice. Here, the files required for creating the application are located.

16. Enter the resources used in the registry. For details, please see section "HiCOCAN-104-2H, HiCOCAN-104-2L under Windows" on p. 9.

2.2.2 Uninstalling the Software / Driver

1. Start your computer.
2. Windows 2000 / XP: Log on as administrator
3. In the Control Panel double-click the "Add/Remove Program" symbol.
4. Select "HiCOCAN".
5. Click the "Add/Remove" button.

Now both the software and driver are removed from your system.

6. From the Control Panel choose "System".
7. Select the "Device Manager" tab. Under Windows 2000 and XP you select the "Hardware" tab and then the "Device Manager" button.
8. In the following dialog choose the board "HiCOCAN ISA Board" from the "emtrion Interface devices" group and click the "Remove" button.

The entry will be removed.

9. Shut down Windows, switch off your computer and remove the board.

2.2.3 Necessary Registry Entries

The driver for Windows obtains the resources (memory addresses, interrupts) used by HiCOCAN-104-2H, HiCOCAN-104-2L from the registry. These entries will have to be made after installation. Also, they will need to be modified with each reconfiguration.

The entries may be entered in the registry as follows:

- Manually by using Windows' registry editor.
- Automatically by using the configuration tool.

A description on how do to that can be found in the following sections.

Important note

The resources' entries described here are independent from the definitions **Device Manager** uses. Therefore, **Device Manager** might show other values than those used by the driver. To get around this, you might be required to enter the resources for each board in the Device Manager again.

For each non-Plug and Play HiCOCAN module, the following entries must be made under this key (where X refers to the module number 0 to 3):

[HKEY_LOCAL_MACHINE\SOFTWARE\emtrion\HiCOCAN\BoardX]

Each key will then be made up of the following entries:

Entry	Type	Valid value range	Comments
UseManualDefinition	DWORD	1	Specifies whether the other values are to be used (=1) or not (=0) Must be 1 for HiCOCAN-104 boards
NonPnP	DWORD	1	0: HiCOCAN-104 with PnP-controller (backward compatibility) 1: Must be 1 for HiCOCAN-104 boards
AddressStart	DWORD	C0000-DF000	Specifies the DPM's start address in the physical address space.
AddressSize	DWORD	1000h	Specifies the size of the DPM and of the region that issues a reset to the modules.
IOAddress	DWORD	200h-3FFh	Must be existent but is ignored.
Irq	DWORD	5, 7, 9, 10, 11, 12, 15	Interrupt to be used by the module

Such an entry for the HiCOCAN-104 (without PnP-controller) module with module number 0 might look as follows in a .reg file:

```
[HKEY_LOCAL_MACHINE\SOFTWARE\emtrion\HiCOCAN\Board0]
    "UseManualDefinition"=dword:1
    "NonPnP"=dword:1
```

```
"AddressStart"=dword:0D8000
"AddressSize"=dword:1000
"IOAddress"=dword:201
"Irq"=dword:5
```

2.2.4 Creating the Entries with the Configuration Tool

- Start the configuration tool installed by the installation program.
- Select "Allocate Resources manually" from the "Boards" menu.
- In the following dialog select "Use this data" for the corresponding module number.
- Select "This is a NonPnP-board" and enter the resources used.
- Close the dialog by clicking the OK button. The values will now be entered in the registry.

2.2.5 Creating the Entries with the Registry Editor

To create the necessary registry entries with the Windows registry editor, please proceed as follows:

- Start the registry editor. For this, click "Start", point to "Run" and type regedit.exe.
- The Registry editor opens. Select HKEY_LOCAL_MACHINE -> SOFTWARE -> emtron -> HiCOCAN -> BoardX (where X stands for the jumpered module number).
- In the right window, the registry entries appear. Correct the entries by double-clicking on them and entering the new values.

2.3 Installing HiCOCAN-PCI/CPCI

A PCI/CPCI card can be installed much easier, since the resources are allocated by the operating system or the PC's BIOS.

Usually, the following steps will have to be performed one after the other.

Do not install the HiCOCAN-PCI/CPCI into the PC for the time being:

1. Start the Setup program from CD and follow the instructions on the screen;
2. Have a look at section "Installing hardware", chapter 2.1, and install the card into the PC.
3. After restarting the operating system, a new board will be detected.
4. After that, the wizard for the new hardware is automatically started, identifying the module as "pci bridge". Click "next" without activating an online connection for an updated driver.
5. In the next dialog do not select automatic installation, select installation from another source! Click "next"!
6. You are prompted for a driver disk. Search for "pcisdk.inf" in the \driver\pci_cpci\win9x2000xp directory of the CD or the directory where you have copied the contents of the CD or the zip archive. For WinNT select the directory \driver\pci_cpci\winnt.
7. The operating system scans this file and offers a list of drivers if there is more than one possibility. If there is only one entry in this list, the installer starts automatically the installation. Otherwise please select "HiCOCAN PCI Board" and click "next".
8. Answer all further questions with "YES" (if there are any).
9. Restart the PC.

Uninstalling the Software / Driver

1. Start your computer.
2. Windows 2000 / XP: Log on as administrator
3. In the Control Panel double-click the "Add/Remove Program" symbol.
4. Select "HiCOCAN".
5. Click the "Add/Remove" button.
6. From the Control Panel choose "System".
7. Select the "Device Manager" tab. Under Windows 2000 and XP you select the "Hardware" tab and then the "Device Manager" button.

8. In the following dialog choose the board "HiCOCAN PCI Board" from the "emtrion GmbH Interface devices" group and click the "Remove" button.
9. Shut down Windows, switch off your computer and remove the board.

2.4 Installing HiCOCAN-MiniPCI

The installation of a MiniPCI board is similar to the installation of a PCI board. Usually, the following steps will have to be performed one after the other. Do not install the HiCOCAN-MiniPCI for the time being:

1. Start the Setup program from CD and follow the instructions on the screen;
2. Have a look at section "Installing hardware", chapter 2.1, and install the card into the PC.
3. After restarting the operating system, a new board will be detected.
4. After that, the wizard for the new hardware is automatically started, identifying the module as "pci bridge". Click "next" without activating an online connection for an updated driver.
5. In the next dialog do not select automatic installation, select installation from another source! Click "next"!
6. You are prompted for a driver disk. Search for "pcisdk.inf" in the \driver\MiniPCI\win9x2000xp directory of the CD or the directory where you have copied the contents of the CD or the zip archive. For WinNT select the directory \driver\MiniPCI\winnt.
7. The operating system scans this file and offers a list of drivers if there is more than one possibility. If there is only one entry in this list, the installer starts automatically the installation. Otherwise please select "HiCOCAN MiniPCI Board" and click "next".
8. Answer all further questions with "YES" (if there are any).
9. Restart the PC.

Uninstalling the Software / Driver

1. Start your computer.
2. Windows 2000 / XP: Log on as administrator
3. In the Control Panel double-click the "Add/Remove Program" symbol.
4. Select "HiCOCAN".
5. Click the "Add/Remove" button.

6. From the Control Panel choose "System".
7. Select the "Device Manager" tab. Under Windows 2000 and XP you select the "Hardware" tab and then the "Device Manager" button.
8. In the following dialog choose the board "HICOCAN MiniPCI Board" from the "emtrion GmbH Interface devices" group and click the "Remove" button.
9. Shut down Windows, switch off your computer and remove the board

2.5 Installing HiCOCAN-PCI104

The installation of a PCI104 board is similar to the installation of a PCI board. Usually, the following steps will have to be performed one after the other. Do not install the HiCOCAN-PCI104 for the time being:

1. Start the Setup program from CD and follow the instructions on the screen;
2. Have a look at section "Installing hardware", chapter 2.1, and install the card into the PC.
3. After restarting the operating system, a new board will be detected.
4. After that, the wizard for the new hardware is automatically started, identifying the module as "pci bridge". Click "next" without activating an online connection for an updated driver.
5. In the next dialog do not select automatic installation, select installation from another source! Click "next"!
6. You are prompted for a driver disk. Search for "pcisdk.inf" in the \driver\PCI104\win9x2000xp directory of the CD or the directory where you have copied the contents of the CD or the zip archive. For WinNT select the directory \driver\PCI104\winnt.
7. The operating system scans this file and offers a list of drivers if there is more than one possibility. If there is only one entry in this list, the installer starts automatically the installation. Otherwise please select "HiCOCAN PCI 104 Board" and click "next".
8. Answer all further questions with "YES" (if there are any).
9. Restart the PC.

Uninstalling the Software / Driver

10. Start your computer.
11. Windows 2000 / XP: Log on as administrator

12. In the Control Panel double-click the "Add/Remove Program" symbol.
13. Select "HiCOCAN".
14. Click the "Add/Remove" button.
15. From the Control Panel choose "System".
16. Select the "Device Manager" tab. Under Windows 2000 and XP you select the "Hardware" tab and then the "Device Manager" button.
17. In the following dialog choose the board "HICOCAN PCI 104 Board" from the "emtrion GmbH Interface devices" group and click the "Remove" button.
18. Shut down Windows, switch off your computer and remove the board

3 Troubleshooting

3.1 Support

This product has been thoroughly tested over the development period. Due to its complexity, however, no guarantee can be given that it will seamlessly operate under any circumstances. We are therefore grateful for any feedback regarding an incorrect operation of the boards.

If any problems should occur, have a look at the FAQ section of this manual first. Or visit our website at http://www.emtrion.com/support_en.php_en.php for the latest FAQ.

If you cannot find the necessary information, contact our Support Team via email, fax or phone.

To accelerate the process, please fill out the supplied form, which can be found in the Support directory of the CD or on the internet at http://www.emtrion.com/support_form_en.php.

Please fill in the form and send, fax or email it to:

Emtrion GmbH
Greschbachstr. 12
D-76229 Karlsruhe
Tel: 0721 / 62725 – 0
Fax: 0721 / 62725 – 19
E-mail : mail@emtrion.de