

PCIS-ICL

InControl Interfaces for
NuDAQ PCI-bus Card(WIN-NT)

User's Guide

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How to Use This Manual

This manual is designed to help you use the PCIS-ICL software driver for NuDAQ PCI or NuIPC CompactPCI data acquisition cards in Wonderware InControl software package. The manual describes how to install and configure the software driver to let your InControl application programs able to directly control NuDAQ PCI or NuIPC CompactPCI data acquisition cards. This manual is organized as follows:

- Chapter 1, "Introduction of PCIS-ICL InControl Driver" describes what is the PCIS-ICL InControl driver, how to install the driver and which kind of NuDAQ PCI or NuIPC CompactPCI cards are supported by this driver.
- Chapter 2, "Operations with Driver and the InControl I/O View" describes how to add and remove the PCIS-ICL InControl driver in the InControl I/O View Item, It also describes how to monitor the PCIS-ICL InControl driver.
- Chapter 3, "Sample Programs " describes how to use the sample programs provide by the PCIS-ICL driver.
- If user finds any question go beyond this manual, please contact with us:

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Introduction of PCIS-ICL InControl Driver

1.1 Overview of InControl

InControl is one of the family of tools comprising the Wonderware FactorySuite of process control solutions for factory floor applications. InControl is an open-architecture package that allows you to design, create, test, and run application programs for controlling your process.

InControl incorporates the latest international standards for designing your automation solution and compatible with IEC1131-3 international PLC programming language specification. You can create your own factory automation solution in the following graphic-based or text-based language, they are IL(Instruction List), ST(Structured Text), FBD(Function Block Diagram), LD(Ladder Diagram), SFC(Sequential Function Chart)

1.2 Overview of PCIS-ICL InControl Driver

ADLink's PCIS-ICL InControl driver is a software component to integrate the InControl system and NuDAQ PCI or NuIPC CompactPCI data acquisition cards. Through the PCIS-ICL InControl driver, control system can first get the outside digital and analog signals from the data acquisition cards as the data source, then the system execute the control logical and produce some results about the control system . These results then will be sent to control the outside machines or switches in the form of digital or analog signal through the data acquisition cards.

InControl can provide the control system programming environment and it support the world wide IEC1131-3 PLC language standard. The PCIS-ICL InControl driver can link the control system with the physical I/O cards (NuDAQ PCI or NuIPC CompactPCI data acquisition cards), as a result the combination of these two software can provide the PLC functions, and replace PLC in some industry applications. This is a PC-based software PLC control system. Now it is ready for us.

In this version, the PCIS-ICL InControl driver can support seventeen types of ADLink NuDAQ PCI or NuIPC CompactPCI data acquisition cards. They are PCI-7200/cPCI-7200, PCI-7230/cPCI-7230, PCI-7248/cPCI-7248, PCI-7250/51, cPCI-7252, PCI-7432/cPCI-7432, PCI-7433/cPCI-7433, PCI-7434/cPCI-7434, PCI-7296, PCI-9111DG/HR, PCI-9112/cPCI-9112, PCI-9113, PCI-9114DG/HG, PCI-9118DG/HG/HR, PCI-6208A, PCI-6208V and PCI-6216V.

1.3 Installation of PCIS-ICL InControl Driver

1.3.1 PCIS-ICL InControl Driver Installation

System Requirements

PCIS-ICL InControl driver requires the following minimum configuration:

- An IBM PC or compatibles or CompactPCI system running Windows NT version 4.0 or later
- A hard disk with enough disk space to install PCIS-ICL InControl driver
- A 1.44-MB, 3.5-inch floppy disk drive, or a CD-ROM drive.
- Application development system: Wonderware InControl for Windows NT
- NuDAQ PCI or NuIPC CompactPCI data acquisition cards that are supported by PCIS-ICL InControl driver.

Installation

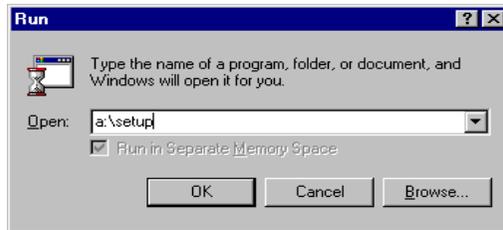
The Setup program provided by PCIS-ICL InControl driver performs all necessary tasks for installing the software.

With ADLink's "PCIS-ICL" diskettes :

- step 1.** Place the "PCIS-ICL InControl Driver Disk1" in the 3.5" floppy drive A:.
- step 2.** If Windows NT is loaded, choose "Run" from the taskbar.
- step 3.** Type A:\SETUP in the Run dialog box.

With "ADLink's All-In-One Compact Disc":

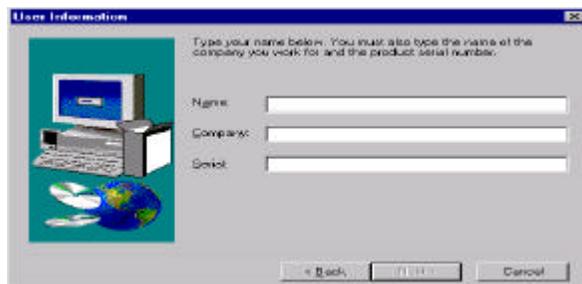
- step 1.** Place "All-In-One Compact Disc" in the CD-ROM drive.
- step 2.** If autorun setup program is not invoked, execute X:\setup.exe(X indicates the CD-ROM drive).
- step 3.** Select Software Package->PCIS-ICL to install the software.



At first setup displays a Welcome dialog box. Please click “Next” button to go to the next step.



Then Setup will display a User Information dialog box. Please fill items in the dialog box (also include the serial number data). Then click “Next” button to go on installation. You have to enter the valid serial number to get a valid license. Otherwise you can only use PCIS-ICL driver in 120-minute demo mode.



“Setup” then prompts the following dialog box for you to specify the destination directory for PCIS-ICL. The default path is c:\Program Files\ADLINK\PCIS-ICL.

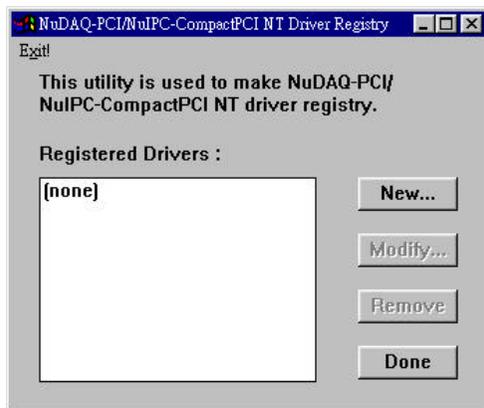
If you want to install PCIS-ICL in another directory, please change the directory you want to install PCIS-ICL.



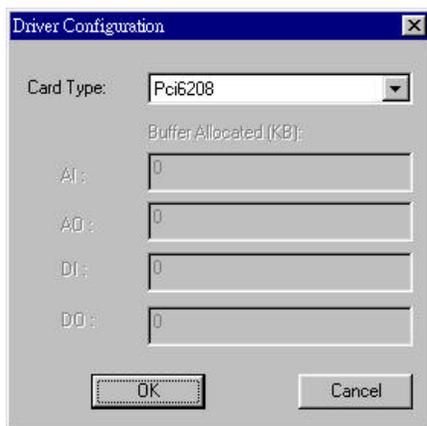
Then user has to assign the “Program Folder”. The default “Program Folder” is “PCIS-ICL”.



When the software component installation process is completed, Setup launches the *Driver Registry Utility* for you to install and setup the drivers.

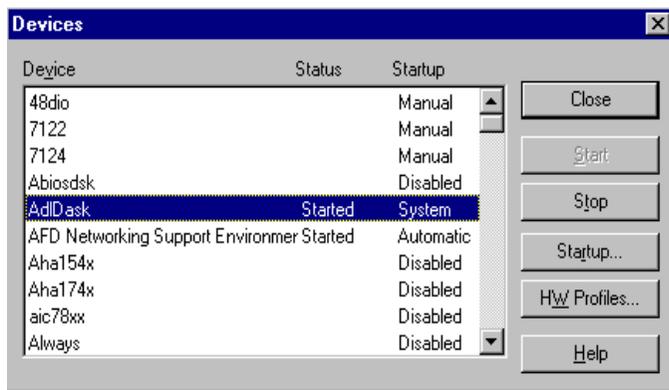


Please click “New...” button to add the driver you want to register. “Remove” button is used for removing the registry of a device driver. If you click “New...” button, the following window will appear for you to select the driver to register. The AI, AO, DI, and DO parameters are the buffer size of continuous data acquisition. With PCIS-ICL, you can ignore this setting.



After registration of necessary drivers, then you can select “Exit!” Command in the menu bar or click “Done” button to exit the *Driver Registry Utility*.

To make the registered drivers work, you have to restart Windows NT system. After re-entering Windows NT, make sure the PCIS-ICL InControl driver for PCI/CompactPCI cards have been already started. In order to enable PCIS-ICL InControl driver to communicate with PCI/CompactPCI data acquisition cards, device driver AdIDask as well as the card's own device driver (e.g. Pci7200, Pci7230, Pci7248, Pci7296, Pci7250, Pci7252, Pci7432, Pci7433, Pci7434, Pci9111, Pci9112, Pci9113, Pci9114, Pci9118, or Pci6208) must be started. You can open the "Control Panel", double-click "Devices", and a Devices window will be shown as below.



If the device status is none, you have to select the AdIDask, Pci7200, Pci7230, Pci7248, Pci7296, Pci7250, Pci7252, Pci7432, Pci7433, Pci7434, Pci9111, Pci9112, Pci9113, Pci9114, Pci9118.or Pci6208 device and press the "Start" button.

Note1: AdIDask and Pcixxxx device drivers can be used by both NuDAQ PCI and NuIPC CompactPCI cards.

Note2: The AdIDask device driver must have been started as you set the card's own device driver status as started.

Note3: PCI-6208V/6216V/6208A all use Pci6208 driver.

1.3.2 PCIS-ICL InControl Driver Handling

The *Driver Registry Utility* is for users to register PCI/Compact PCI data acquisition card device drivers. It is installed with PCIS-ICL software.

The *Driver Registry Utility*, PciUtil.exe, is located in <WINDOW NTDir>\SYSTEM32 directory(User can also find its shortcut in the "PCIS-ICL" folder.). User can use it to register or un-register the device drivers.

1.3.3 PCIS-ICL InControl Driver Un-installation

PCIS-ICL InControl driver has the capability of automatic un-installation.

To un-install PCIS-ICL InControl driver, open the "Control Panel", double-click "Add/Remove Programs", select "PCIS-ICL/NT" to un-install it.

Operations with Driver and the InControl I/O View

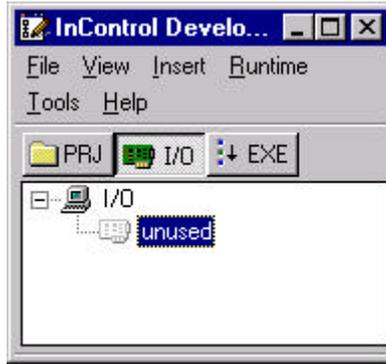
2.1 Adding the Driver to the InControl I/O View

After installing NuDAQ PCI or NuIPC CompactPCI data acquisition cards and PCIS-ICL InControl driver, you need to add the driver to the I/O View in the InControl Project window.

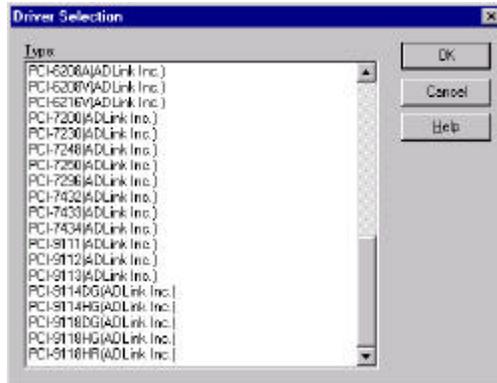
1. If the InControl Project window is hidden, click “**Project**” in the “**View**” menu to display the Project Window. The default display in the InControl Project Window is Project View.



2. Click **"I/O View"** to display the I/O View, The I/O View of the InControl Project Window appears.



3. Double-click an unused I/O slot. The **"Driver Selection"** dialog box appears.



4. Select the driver and click **"OK"**, then the configuration dialog box for the driver appears.
5. Enter a unique name for the card and begin configuration.

2.2 Removing the Driver from the I/O View

You can remove the driver from the I/O View. Any variables that mapped to the I/O points on the board are deleted.

1. If the InControl Project window is currently hidden, click **“Project”** on the **“View”** menu to display the InControl Project Window.
2. Click **“I/O”** to display the I/O View. The I/O View of the InControl Project Window appears.
3. Click the name of the driver to be removed.
4. Press **“Del”** on the keyboard. When prompted to confirm, click **“Yes”**. You can also press the right mouse button while a driver is selected, and click **“Remove”**. Click **“Yes”** to confirm.

2.3 Monitoring the I/O

For information about monitoring the I/O during runtime, refer to the “Running a Project” chapter in the *InControl User Guide*.

2.4 Accessing the Configuration Dialog Boxes

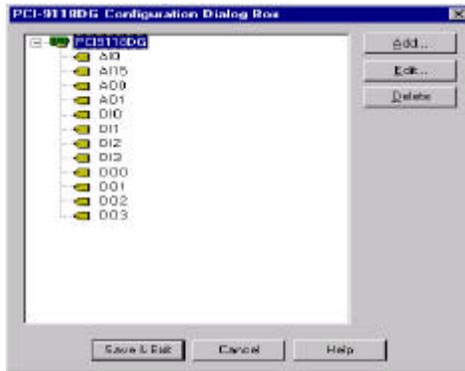
When you double-click the PCIS-ICL InControl driver's name that is displayed in the I/O View, the driver's configuration dialog box appears.



The configuration dialog box supports two types of object :
Devices and tags

- Device: the physical card installed in the computer that the driver will drive.
- Tag : an I/O-based variable that is mapped to input or output memory registers in devices.

The following figure shows the relationship of these objects (device and tag), as they are represented in the View dialog box.



In the dialog box, PCI9118DG is the device, AI0, AI15, AO0, AO1, DI0~DI3 and DO0~DO3 are the tags.

To add an tag in the view dialog box, user just need to select the parent object (device) and click "Add" button. You can also click the right mouse button

To edit an item, place the cursor on the item and double-click the left mouse button, or select the item and click "Edit" button.

Sample Programs

There are several sample programs provided by this software . They can help you to program your own applications easily by using PCIS-ICL InControl driver. The brief descriptions of these programs are specified as follows :

7200 : The introduction of using InControl with PCI-7200 PCIS-ICL driver,

7230 : The introduction of using InControl with PCI-7230 PCIS-ICL driver,

7248 : The introduction of using InControl with PCI-7248 PCIS-ICL driver,

7250 : The introduction of using InControl with PCI-7250 /51 PCIS-ICL driver,

7252 : The introduction of using InControl with PCI-7252 PCIS-ICL driver,

7432 : The introduction of using InControl with PCI-7432 PCIS-ICL driver,

7433 : The introduction of using InControl with PCI-7433 PCIS-ICL driver, and PCI-7434 PCIS-ICL driver

9111 : The introduction of using InControl with PCI-9111 PCIS-ICL driver,

9112 : The introduction of using InControl with PCI-9112 PCIS-ICL driver,

9113 : The introduction of using InControl with PCI-9113 PCIS-ICL driver,

9114DG : The introduction of using InControl with PCI-9114DG PCIS-ICL driver,

9114HG : The introduction of using InControl with PCI-9114HG PCIS-ICL driver,

9118DG : The introduction of using InControl with PCI-9118DG PCIS-ICL driver,

9118HG : The introduction of using InControl with PCI-9118HG PCIS-ICL driver,

9118HR : The introduction of using InControl with PCI-9118HR PCIS-ICL driver,

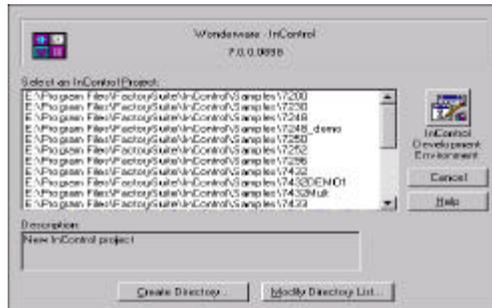
6208A : The introduction of using InControl with PCI-6208A PCIS-ICL driver,

6208V : The introduction of using InControl with PCI-6208V PCIS-ICL driver,

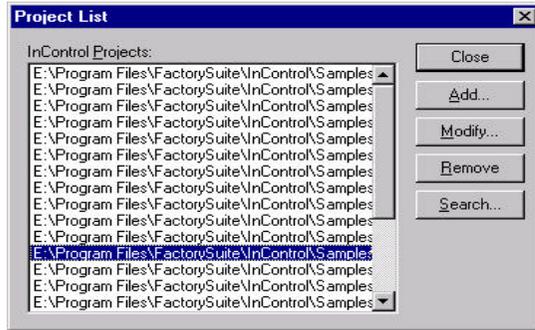
6216V : The introduction of using InControl with PCI-6216V PCIS-ICL driver,

User can find these sample programs by following the procedures described as below :

1. Open the InControl Project Manager, then click the “Modify Directory List” Button in the project dialog box.



2. After clicking the “Modify Directory List” button, the “Project List” dialog box will appear. Now user can click the “Search” button, then “Browse of Folder” dialog box will appear



3. Now user can use the browser to assign the project directory to the installation destination directory which user have already assigned in the installation procedure, then user can find the sample programs which PCIS-ICL provides.

