

NDS-ICL

InControl Interfaces for
NuDAM-6000 Modules(Win-NT)

User's Guide

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Product Model:

Environment to Use:

OS: Computer Brand:

M/B: CPU: Chipset: Bios:

Video Card:

Network Interface Card:

Problem Description:

Any Suggestion is appreciated:

CONTENTS

How to Use This Manual	i
CHAPTER 1 Introduction of NDS-ICL InControl Driver.....	1
1.1 Overview of NDS-ICL InControl.....	1
1.2 Overview of NDS-ICL InControl Driver.....	1
1.3 Installation of NDS-ICL InControl Driver	2
1.3.1 NDS-ICL InControl Driver Installation.....	2
1.3.2 NDS-ICL InControl Driver Un-installation.....	4
CHAPTER 2 Operations with Driver and the InControl	5
2.1 Configure NuDAM Modules	5
2.2 Adding the Driver to the InControl I/O View	8
2.3 Removing the Driver from the InControl I/O View	9
2.4 Monitoring the I/O	9
2.5 Accessing the Configuration Dialog Boxes.....	10
CHAPTER 3 Sample Programs	11

How to Use This Manual

This manual is designed to help you to use the NDS-ICL InControl software driver for NuDAM6000 modules in Wonderware InControl software package. The manual describes how to install and configure the software driver to let your InControl application programs able to direct control the NuDAM6000 modules. This manual is organized as follows:

- Chapter 1, "Introduction to NDS-ICL InControl Driver" describes what is the NDS-ICL InControl driver, how to install the driver and which kind of NuDAM6000 modules are supported by this driver.
- Chapter 2, "Operations with Driver and the InControl I/O View" describes how to add and remove the NDS-ICL InControl driver, in the InControl I/O View Item, it also describes how to monitor the NDS-ICL InControl driver.
- Chapter 3, "Configuration of the NDS-ICL InControl Driver " describes how to configure each NuDAM6000 modules's InControl driver. In this version, driver can supports seventeen types of NuDAM 6000 modules. They are ND-6011/ND-6011D, ND-6012/ND-6012D, ND-6013, ND-6014D, ND-6017, ND-6018, ND-6021, ND-6024, ND-6050, ND-6052, ND-6053, ND-6054, ND-6056, ND-6058, ND-6060, ND-6063, ND-6080.
- Chapter 4, " Configure NuDAM 6000 modules Analog I/O Status " describes how to configure each NuDAM6000 modules analog I/O data input range.
- Chapter 5, " Sample Programs " describes some sample programs user can use.
- If user finds any question go beyond this manual, please contact with us:

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Introduction of NDS-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 graphic-based or text-based languages ST(Structured Text), FBD(Function Block Diagram), LD(Ladder Diagram) and SFC(Sequential Function Chart)

1.2 Overview of NDS-ICL InControl Driver

NDS-ICL InControl driver is a software component which integrate the control system developed by InControl and NuDAM6000 modules. Through the NDS-ICL InControl driver, control system can first get the outside digital and analog signals from NuDAM6000 modules as the data source, then control system can execute the control logical and produce some results about the control system . These results will be sent to control the outside machines or switches in the form of digital or analog signals through the NuDAM6000 modules's digital or analog channels.

Because the InControl can provide the control system programming environment and it also supports the world wide IEC1131-3 PLC standard. The NDS-ICL InControl driver can link the InControl system with the physical analog or digital I/O channels of NuDAM6000 modules to provide remote control functions(through RS-485 protocol). In such a system, it can provide PLC programming functions and also the remote control ability. So it can 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 NDS-ICL InControl driver can support seventeen types of ADLink NuDAM6000 modules. They are ND-6011/ND-6011D, ND-6012/ND-6012D, ND-6013, ND-6014D, ND-6017, ND-6018, ND-6021, ND-6024, ND-6050, ND-6052, ND-6053, ND-6054, ND-6056, ND-6058, ND-6060, ND-6063, ND-6080.

1.3 Installation of NDS-ICL InControl Driver

1.3.1 NDS-ICL InControl Driver Installation

System Requirements

NDS-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 NDS-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
- ADLink NuDAM6000 modules that are supported by NDS-ICL InControl driver.

Installation

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

With ADLink's "NDS-ICL" diskettes :

step 1. Place the "NDS-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”:

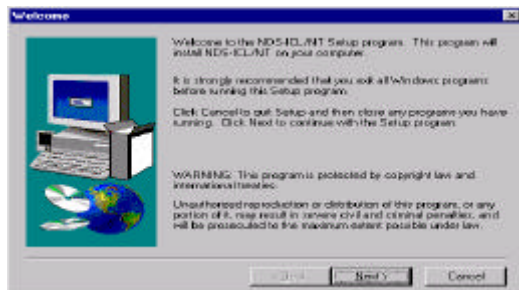
step 1. Place “All-In-One Compact Disc” in the CD-ROM drive.

step 2. If autorun setup program is not invoked, execute X:\setup.exe(X indicates the CD-ROM drive).

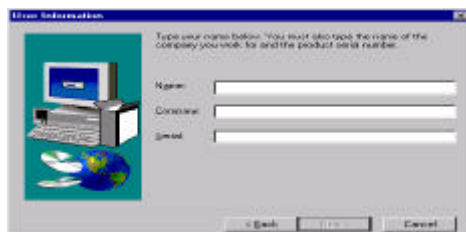
step 3. Select Software Package -> NDS-ICL to install the software.



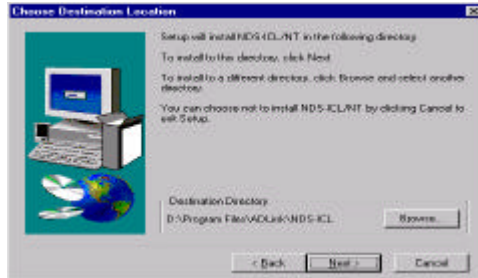
At first setup displays a Welcome dialog box. Please click “Next” button to go to the next step.



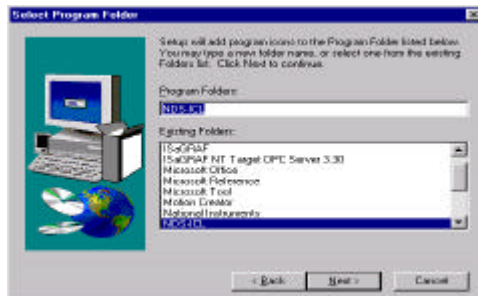
Then “Setup” will display a “User Information” dialog box. Please fill items in the dialog box (also include the serial number data). Then click “Next” button to go on installation. You have to enter the valid serial number to get a valid license. Otherwise you can only use NDS-ICL driver in 120-minute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



“Setup” then prompts the following dialog box for you to specify the destination directory for NDS-ICL. The default path is c:\Program Files\ADLink\NDS-ICL. If you want to install NDS-ICL in another directory, please enter the directory you would like to install NDS-ICL.



Then user must assign the “Program Folder”. The default “Program Folder” is “NDS-ICL”.



After these procedures, the installation of NDS-ICL is then completed now.

1.3.2 NDS-ICL InControl Driver Un-installation

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

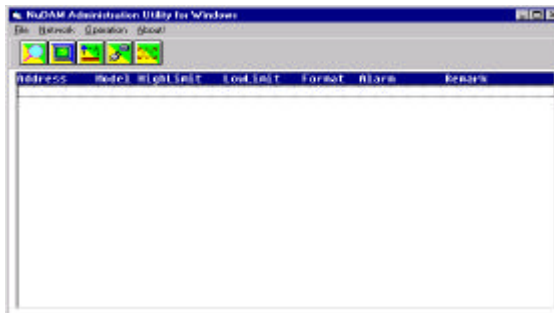
To un-install NDS-ICL InControl driver, open the “Control Panel”, double-click “Add/Remove Programs”, select “NDS-ICL/NT” to un-install it.

Operations with Driver and the InControl

2.1 Configure NuDAM Modules

Before working with the NDS-ICL driver and the InControl, there are two things user have to do at first :

1. **Configure each NuDAM 6000 Modules connected to InControl System** : please configure each NuDAM6000 modules which will be used in your InControl programs by using NuDAM Administration Utility(Nudam32.exe). This utility is included in ADLink's "All-in-one CD". The general configuration data about NuDAM module are "Checksum" status, "Baud rate" status, module's "Address," and analog data input range.



The special configuration for some NuDAM module are described as below :

- For ND-6011, ND-6012, ND-6014 : The NDS-ICL InControl drivers just support “Disable Alarm Mode”. In order to set this mode. User has to fill these data items :

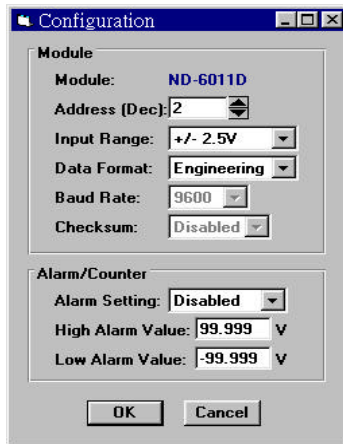
Disable Alarm Mode :

“Type” is designed to “Counter”.

“Counter0 Alarm Setting” is designed to “Disable”,

“Counter1 Alarm Setting” is designed to “Disable”.

If User wants to use “Enable Alarm LATCH Mode” or “Enable Alarm MOMENTRY Mode” functions in InControl program, user has to implement the checking function in the InControl program (Use analog value and counter value as the input, two digital output channels as the Alarms)



- ND-6080 : The NDS-ICL InControl drivers support two modes for ND-6080 module. They are described as below :

1.Counter Mode, Disabled Alarm, :

“Type” is designed to “Counter”.

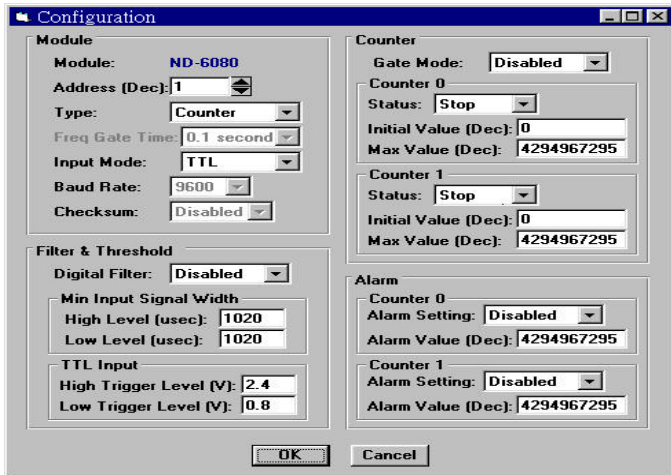
“Counter0 Alarm Setting” is designed to “Disabled”.

“Counter1 Alarm Setting” is designed to “Disabled”.

2.Frequency Mode :

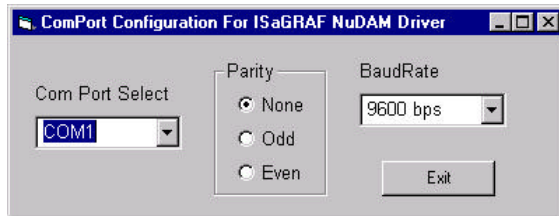
“Type” is designed to “Frequency”.

The following dialog box is an example of ND-6080 “Counter Mode” configuration.



**** All NuDAM module’s “Data Format” item must assign to “engineering” type**

2. **Configuration of COM Port status** : After step 1, user must execute the “ComConfig.exe” which is located in the NDS-ICL folder. After the program execute, it will open a “Com Port” configuration window. In this window, user has to assign the baud rate and parity status for the COM port which will be used in the programs. The items in this window must be the same as each NuDAM module’s configuration.



After these procedures, the NuDAM modules and COM ports are ready to use. So now we can go to operate the NDS-ICL driver with InControl system.

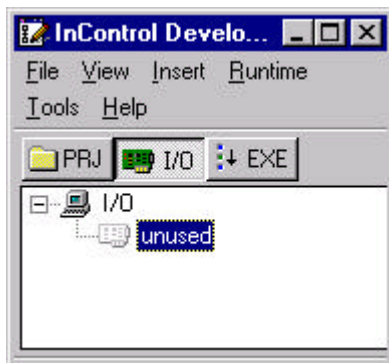
2.2 Adding the Driver to the InControl I/O View

After installing NuDAM6000 modules and NDS-ICL InControl driver, you need to add the driver to the I/O View in the InControl “Project” window.

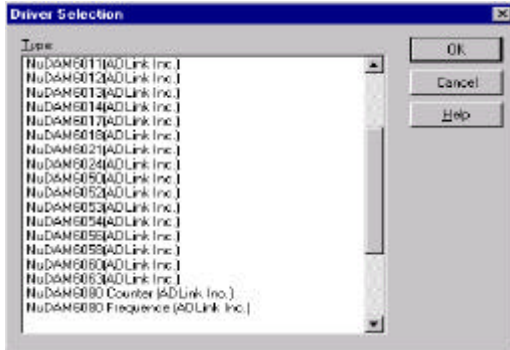
1. If the InControl Project window is hidden, click **Project** in the **View** menu to display the “Project” Window. The default display in the InControl Project Window is “Project” View.



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**. The first configuration dialog box for the driver appears.
5. Enter a unique name for the module and begin configuration.

2.3 Removing the Driver from the InControl I/O View

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

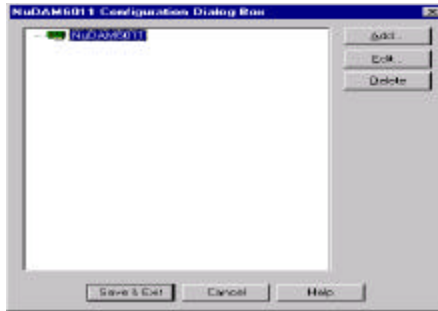
1. If the InControl Project window is currently hidden, click **Project** on the **View** menu to display the InControl Project Window.
2. Click **I/O** to display the I/O View. The I/O View of the InControl Project Window appears.
3. Click the name of the driver to be removed.
4. Press **Del** on the 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.

2.4 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*.

2.5 Accessing the Configuration Dialog Boxes

When you double-click the NDS-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 module connected to 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).



In the above dialog box, NuDAM6011 is the device, AI0, AI1, DI0, DO0 and DO1 are the tags. To add a tag in the view dialog box, just 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

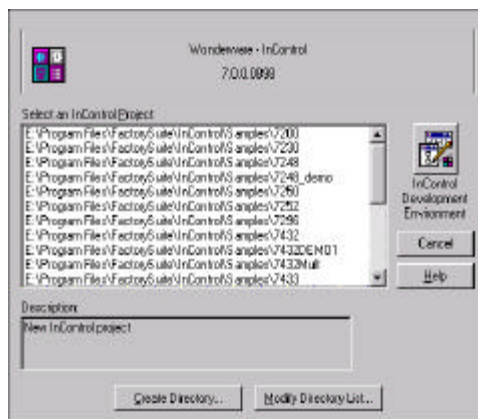
There are several sample programs in this package. They can help you to program your own applications easily by using NDS-ICL InControl driver. The brief descriptions of these programs are specified as follows :

- ND-6011 : The introduction of using InControl with ND- 6011/ND-6011D NDS-ICL driver (Disable Alarm Mode),
- ND-6012 : The introduction of using InControl with ND-6012/ND-6012D NDS-ICL driver (Disable Alarm Mode),
- ND-6013 : This introduction of using InControl with ND-6013 NDS-ICL driver,
- ND-6014 : The introduction of using InControl with ND-6014D NDS-ICL driver (Disable Alarm Mode).
- ND-6017 : The introduction of using InControl with ND-6017 NDS-ICL driver,
- ND-6018 : The introduction of using InControl with ND-6018 NDS-ICL driver,
- ND-6021 : The introduction of using InControl with ND-6021 NDS-ICL driver,
- ND-6024 : The introduction of using InControl with ND-6024 NDS-ICL driver,
- ND-6050 : The introduction of using InControl with ND-6050 NDS-ICL driver,
- ND-6052 : The introduction of using InControl with ND-6052 NDS-ICL driver,

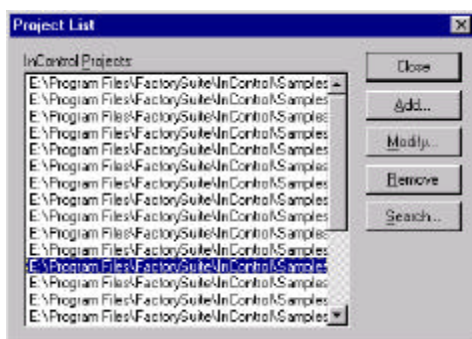
- ND-6053 : The introduction of using InControl with ND-6053 NDS-ICL driver,
- ND-6054 : The introduction of using InControl with ND-6054 NDS-ICL driver,
- ND-6056 : The introduction of using InControl with ND-6056 NDS-ICL driver,
- ND-6058 : The introduction of using InControl with ND-6058 NDS-ICL driver,
- ND-6060 : The introduction of using InControl with ND-6060 NDS-ICL driver,
- ND-6063 : The introduction of using InControl with ND-6063 NDS-ICL driver,
- ND-6080C : The introduction of using InControl with ND-6080 NDS-ICL driver(Counter Mode, Disable Alarm).
- ND-6080F : The introduction of using InControl with ND-6080 NDS-ICL driver(Frequency Mode, Disable Alarm).

User can find these sample programs by the following procedures :

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



2. After click 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 assigned in the installation procedure, then user can find the sample programs which NDS-ICL provides.

