

# *DIO-144*

## *144-channel OPTO-22 DIO Board*

### Quick Start Guide

Product Website:

[https://www.icpdas-usa.com/dio\\_144\\_dio\\_96](https://www.icpdas-usa.com/dio_144_dio_96)

## Introduction

The DIO-144/96 provides 144/96 TTL digital I/O lines. The DIO-144/96 emulates 8255 mode 0 and has an increased output current of 15 mA (source) and 64 mA (sink) , allowing it to control LED, relay, etc. The DIO-144/96 consists of eighteen 8 bit bi-directional ports and 2 input lines for interrupt enable and interrupt. The 8 bit ports are named port A(PA),port B(PB) and port C(PC). The port C can be split into two four bit. All port are configured as inputs upon power-up or reset. The DIO-144/96 uses 4 consecutive I/O locations in I/O addressing space. The base address is selectable from 200 to 3FF hex. The interrupt signal can be connected to any of the interrupt levels 2 through 15 .

## 1 What's on your package?

- One DIO-96/144 card
- One companion ISA CD (V2.1 or later)
- One Quick Start Guide

## 2 Installing Windows Driver




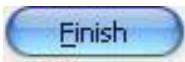
Follow those steps:

### 1. Setup the Windows driver.

You can get the driver from:

CD:\NAPDOS\ISA\DIO\DLL\

<http://ftp.icpdas.com/pub/cd/iocard/isa/napdos/isa/dio/dll/>

2. Click  button to start installation.
3. Click  button to install driver into the default folder.
4. Click  button to continue installation.
5. Select "NO, I will restart my computer later" and then click  button.

### 3. I/O Base Address/Interrupt Setting

The base address is set from SW1 DIP switch on board:

**DIO-96**

SW1

ON

1 2 3 4 5 6

A9 A8 A7 A6 A5 A4

SW1 Value Table (\*):Default setting

I/O	1	2	3	4	5	6
ADDRESS	A9	A8	A7	A6	A5	A4
200	1	0	0	0	0	0
210	1	0	0	0	0	1
...	...	...	...	...	...	...
2C0(*)	1	0	1	1	0	0
...	...	...	...	...	...	...
300	1	1	0	0	0	0
310	1	1	0	0	0	1
.....	...	...	...	...	...	...
3F0	1	1	1	1	1	1

**DIO-144**

SW1

ON

1 2 3 4 5 6

A9 A8 A7 A6 A5 X

SW1 Value Table (\*):Default setting

I/O	1	2	3	4	5	6
ADDRESS	A9	A8	A7	A6	A5	X
200	1	0	0	0	0	X
220	1	0	0	0	1	X
...	...	...	...	...	...	X
2C0(*)	1	0	1	1	0	X
2E0	1	0	1	1	1	X
...	...	...	...	...	...	X
300	1	1	0	0	0	X
.....	...	...	...	...	...	X
3E0	1	1	1	1	1	X

### The Interrupt Level Setting

Default

IRQ 15 14 12 11 10 9 7 6 5 4 3

## 4 Installing Hardware on PC

Follow those steps:

1. Shut down and power off your computer
2. Remove all covers from the computer
3. Select an empty ISA slot
4. Carefully insert your I/O card into the ISA slot
5. Replace the PC covers
6. Power on the computer

After powering-on the computer, continue next process.

## 5 Adding Hardware



Adding hardware is used on Windows 2000/XP/2003/Vista 32 only. Windows 9X/Me/NT users can skip it.

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## 7. Add Hardware

7-1 Open the “Control Panel” by click the item “Start / Settings / Control Panel”.

7-2 Double-click the item “Add/Remove Hardware” and Click the “Next >” button.

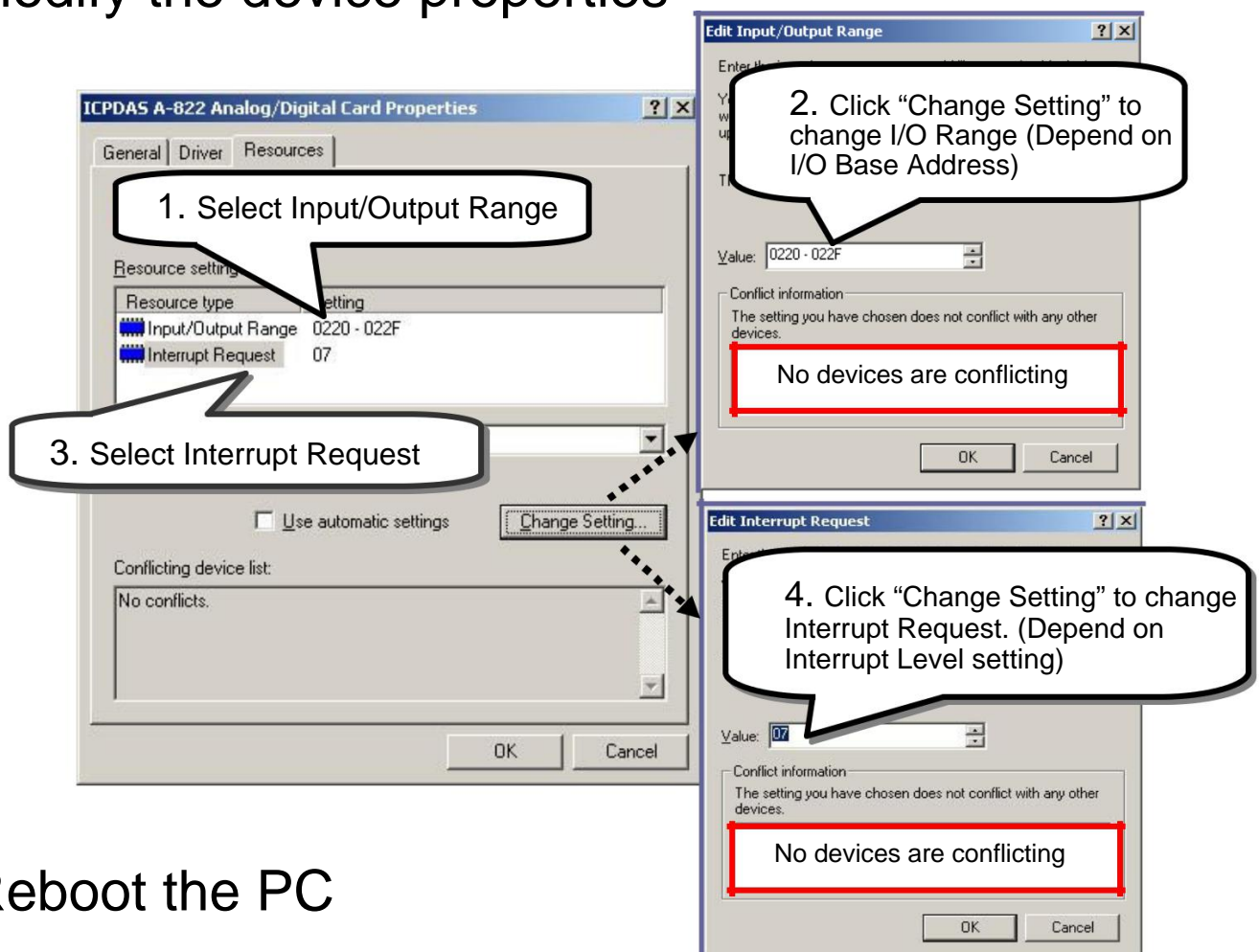
7-3 Select the item “Add/Troubleshoot a device” and click the “Next >” button.

7-4 Select the item “Add a new device” and click the “Next >” button.

- 3 -

- 7-5 Select the item “No, I want to select the hardware from a list” and click the “Next >” button.
- 7-6 Select the item “Other device” and click the “Next >” button.
- 7-7 Click the “Have Disk...” button.
- 7-8 Click the “Browse...” button to select the Inf file default path is C:\DAQPRO\DIO\_Win2K\Inf and click the “OK” button.
- 7-9 Select the correct device from the “Models:” listbox and Click the “Next >” button.
- 7-10 The windows show to dialog box and Click the “OK” button to enter the device’s properties settings.

## 8. Modify the device properties



The image shows two screenshots of the ICPDAS A-822 Analog/Digital Card Properties dialog box. The main dialog box has three tabs: General, Driver, and Resources. The Resources tab is active, showing a list of resource settings: Input/Output Range (0220 - 022F) and Interrupt Request (07). A callout box labeled '1. Select Input/Output Range' points to the Input/Output Range setting. A callout box labeled '3. Select Interrupt Request' points to the Interrupt Request setting. A 'Change Setting...' button is visible. Below the resource settings is a 'Conflicting device list' which is empty, with the text 'No conflicts.' A callout box labeled '2. Click “Change Setting” to change I/O Range (Depend on I/O Base Address)' points to the 'Edit Input/Output Range' dialog box. This dialog box shows the 'Value' field set to '0220 - 022F' and a 'Conflict information' section that says 'The setting you have chosen does not conflict with any other devices.' A red box highlights the text 'No devices are conflicting'. A callout box labeled '4. Click “Change Setting” to change Interrupt Request. (Depend on Interrupt Level setting)' points to the 'Edit Interrupt Request' dialog box. This dialog box shows the 'Value' field set to '07' and a 'Conflict information' section that says 'The setting you have chosen does not conflict with any other devices.' A red box highlights the text 'No devices are conflicting'.

## 9. Reboot the PC


The detail “add hardware” information, please refer to

CD:\NAPDOS\ISA\Manual\PCI\_ISA\_PnP\_Driver\_Installation\_in\_Win9x\_2K\_XP.pdf

# 6 Pin Assignments

CH0/1/2/3/4/5:50-pin header  
 CH5:The DIO-144 only

Pin	Description	Pin	Description
1	PC7	2	GND
3	PC6	4	GND
5	PC5	6	GND
7	PC4	8	GND
9	PC3	10	GND
11	PC2	12	GND
13	PC1	14	GND
15	PC0	16	GND
17	PB7	18	GND
19	PB6	20	GND
21	PB5	22	GND
23	PB4	24	GND
25	PB3	26	GND
27	PB2	28	GND
29	PB1	30	GND
31	PB0	32	GND
33	PA7	34	GND
35	PA6	36	GND
37	PA5	38	GND
39	PA4	40	GND
41	PA3	42	GND
43	PA2	44	GND
45	PA1	46	GND
47	PA0	48	GND
49	+5V	50	GND

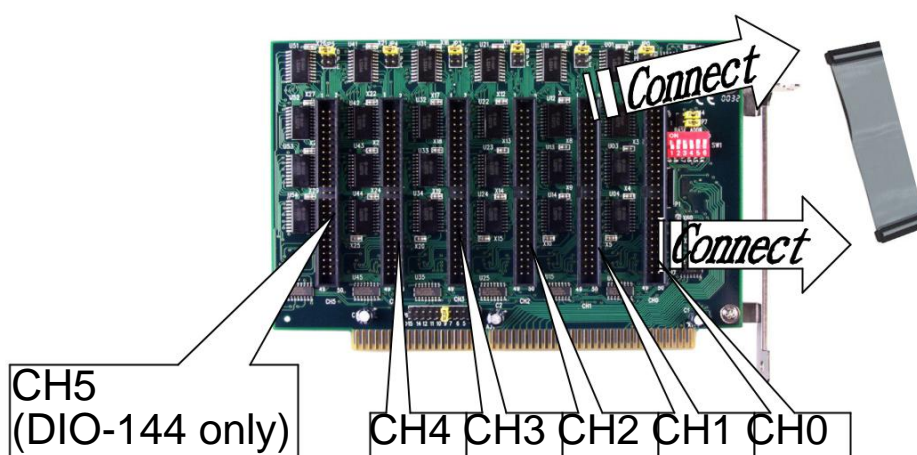


All signal are TTL compatible

TTL High(1)	2.4V ~5.0V (Voltages over 5.0V will damage the device)
None Defined	2.4V~0.8V
TTL Low(0)	Under 0.8V

# 7 Self-Test

I. Use CA-5002(Optional) to connect the CH0 with CH1.



II. Run the DIO sample program.

Get the file from(default path):

C:\DAQPro\DIO\_WinXXX\Demo\

III. Check number of the DIO-96/144, and test DIO function

Please follow those steps:

Step 1

One DIO-96/144 card had successfully installed to PC

Step 2

Select the board number for the DIO-96/144.  
It starts from 0.

Step 3

Select the Ch No. to 1

Step 4

Click this button to output the value

Step 5

Click this button to input the value

Step 6

Check the port A,B and C value.  
If port A is 0, port B is FF and port C is 55.  
The Test is pass!!!

