PISO-DNM100U-D/T
DeviceNet Master Universal PCI board
Quick Start User Guide

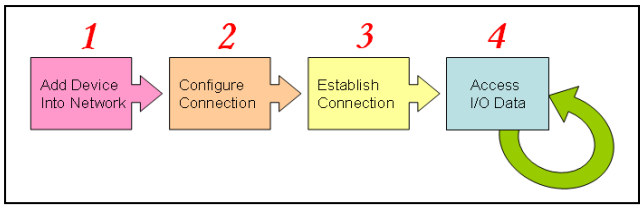
1. Introduction

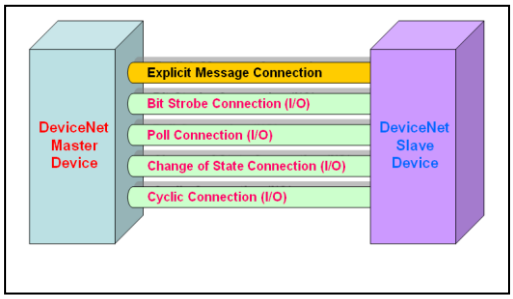
This Quick Start User Guide introduces users how to implement the PISO-DNM100U PCI board to their application quickly. Therefore, it is only provided with the basic instructions. For more detailed information, please refer to the PISO-DNM100U manual in the ICPDAS CD-ROM. Also, users can download the manual from the ICPDAS web site:
http://www.icpdas.com/products/Remote_IO/can_bus/piso-dnm100.htm

This manual will help you quickly to familiarize yourself with the PISO-DNM100U PCI board and DeviceNet communication. Here, we use an example to show how to use the PISO-DNM100U. For more the detail information, please refer to the user's manual of the PISO-DNM100U.

2. The steps of the PISO-DNM100U to access I/O data

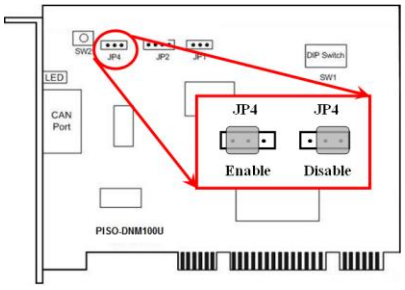
The DeviceNet Communication Protocol is based on the concept of connections method. Master should create connections to slave devices based on the commands of exchanging information and I/O data. To establish master control mechanism, there are four main steps to be followed. The figure demonstrates the basic process for the DeviceNet master communication.





3. Terminal resister /Pin assignment/Indicator LED

● 120Ω Terminal Resister Setting

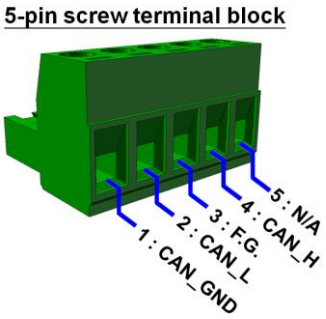


PISO-DNM100U (JP4)

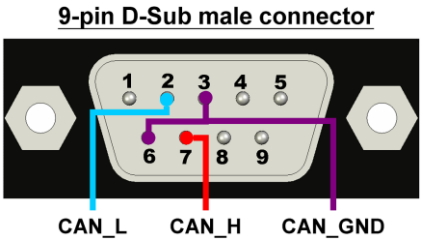
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● Pin assignment

(1) *5-pin screw terminal connector*



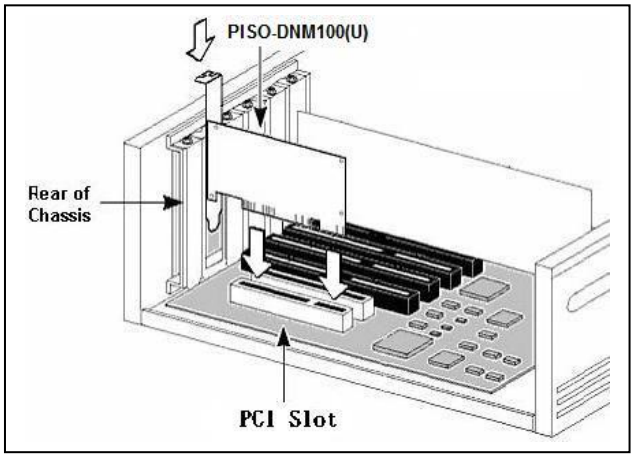
(2) 9-pin D-sub male connector



● Indicator LED

LED	Status	Description
Green LED	Off	The firmware is not running
	Twinkle	The DeviceNet firmware is waiting for configuration.
	On	This indicates that the DeviceNet firmware is running. The PISO-DNM100 is communicating with the slave devices.
Red LED	Off	there is no error on the bus and about the MAC ID
	twinkle	This indicates that there are errors on the bus which maybe the situations as shown bellow: (a) The CAN connector doesn't connect to the slave devices. (b) The power of the slave devices is off. (c) The MAC ID collision between master and slave devices is occurring.

● Hardware Installation



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4. Driver installation

The driver of PISO-DNM100U can be used in Windows environments. Then the installation process will copy the related material to the indicated directory and register the driver on your computer. The driver target directory is below for the different systems.

Windows NT/2000 – **WINNT\SYSTEM32\DRIVERS**

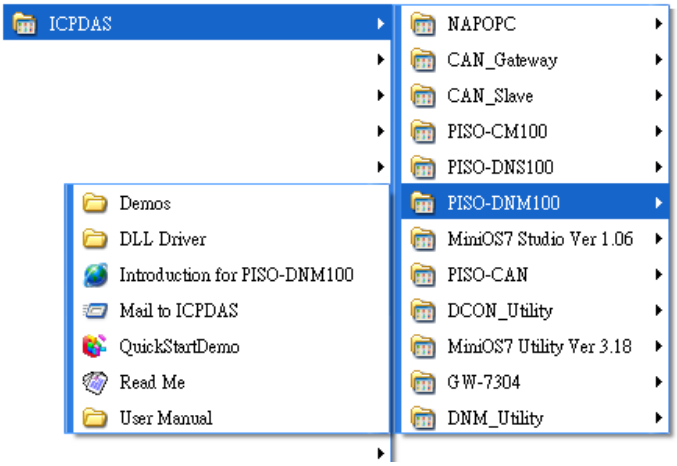
Windows 98/Me/XP – **WINDOWS\SYSTEM32\DRIVERS**

The other data and resource is copied to the following directory:

C:\ICPDAS\PISO-DNM100

You can find the software in the path of /devicenet/master/piso-dnm100 in the Fieldbus_CD or from ftp://ftp.icpdas.com.tw/pub/cd/fieldbus_cd/devicenet/master/piso-dnm100

After installing the software, the related software, demos and manuals are also installed in your PC.



5. DeviceNet Master Utility

You can find the software in the path of /devicenet/Master/DNM_Utility/ in the Fieldbus_CD or from ftp://ftp.icpdas.com/pub/cd/fieldbus_cd/devicenet/master/DNM_Utility

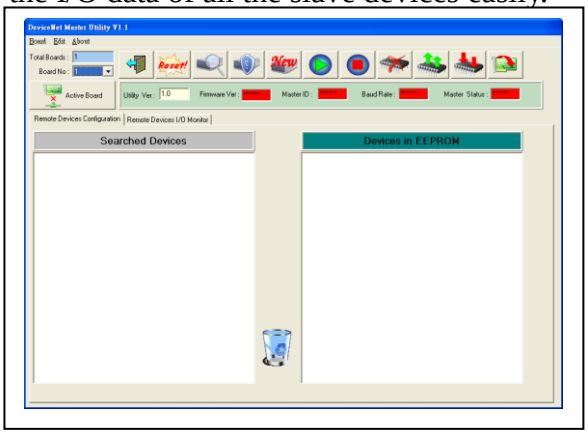
After installing the software, the utility is installed in the path below.

C:\ICPDAS\DNM_Utility\DNM_Utility.exe

Please refer to the manual of utility to know the detail. The utility features as follows.

- Supports to search all devices and specific device in the network.
- Can configure the I/O connection by searched devices or manual setting.

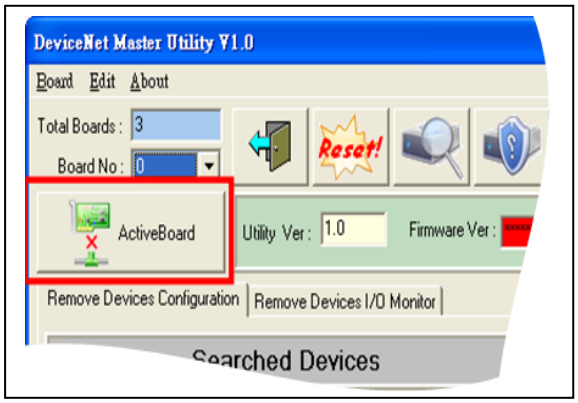
Can access and monitor the I/O data of all the slave devices easily.



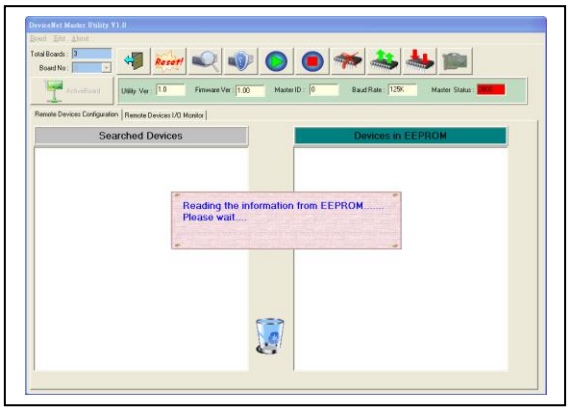
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6. Ten steps to read/write the remote devices

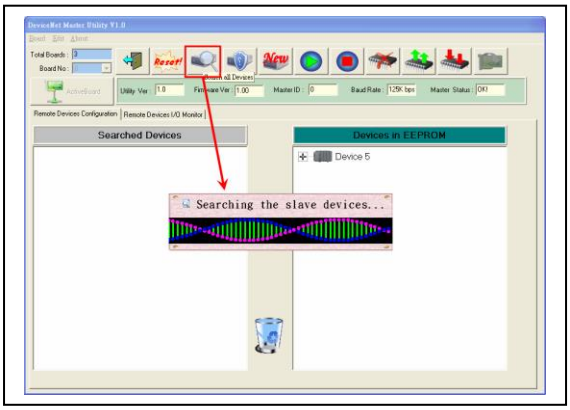
1. Clicking “ActiveBoard” button to active the specific board which you have selected in the “Board No” field.



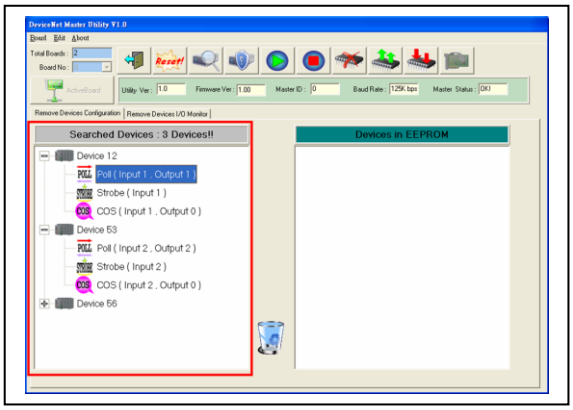
2. The utility will read all configurations from the EEPROM. And the message window would pop-up.



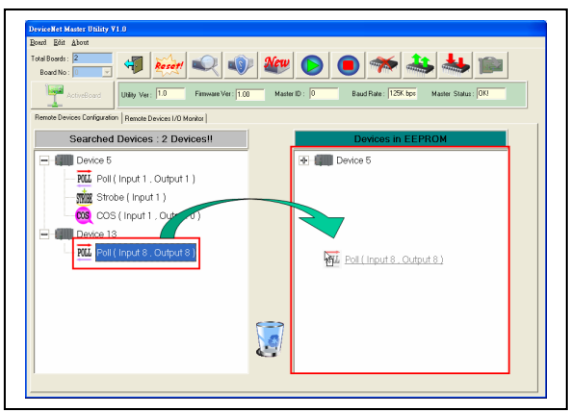
3. Pressing the “Search all Devices” to search the whole devices. It takes about 30 seconds.



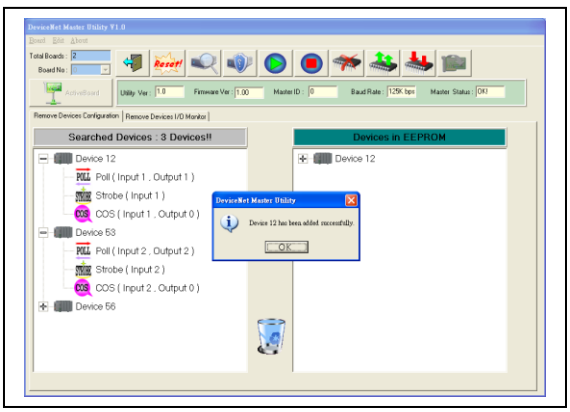
4. Expanding the device to find out more I/O connection information.



5. Selecting the I/O connection items and press the “Add current I/O connection” button to add the I/O information into the EEPROM.

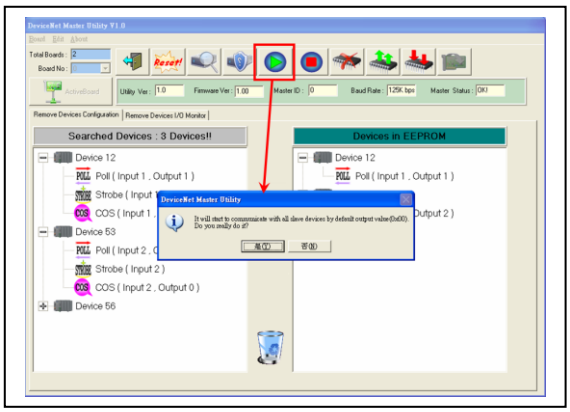


6. If the mission is successful, the users would see the successful message and the item have been added into the EEPROM field.

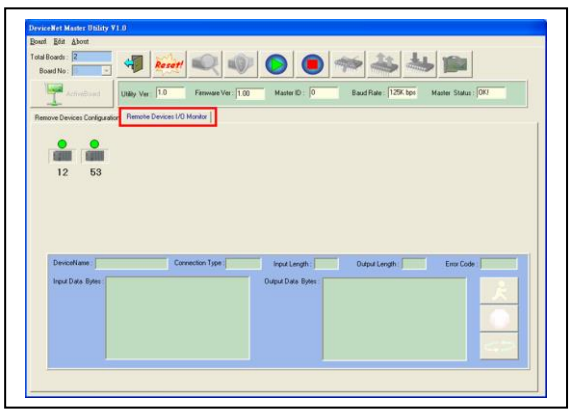


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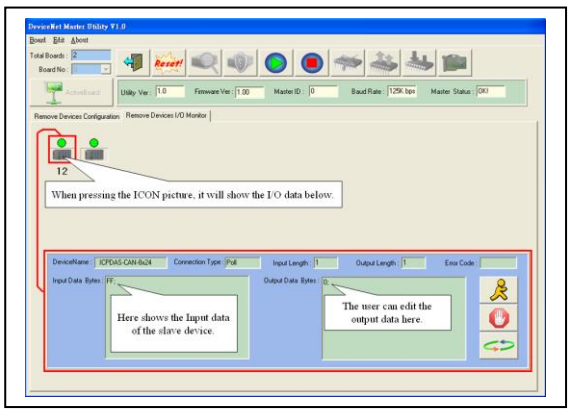
7. Pressing “Start all Device” button to communicate with all slave devices.We can ignore the warning message in this example.



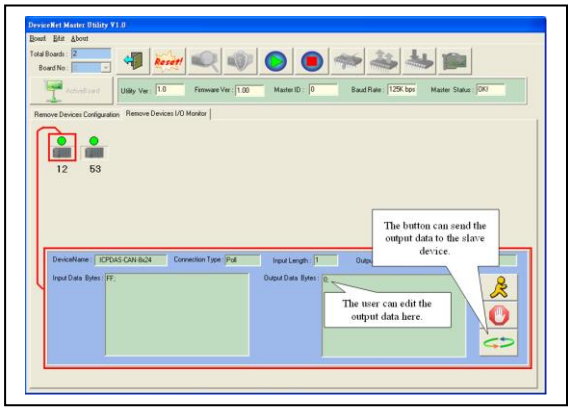
8. Clicking “Remote Device I/O Monitor” page to view the I/O data of the slave devices.



9. Pressing the icon picture to display the device information, including the device name and input data.



10. Pressing “Refresh output data” button to send the output data to the slave device.

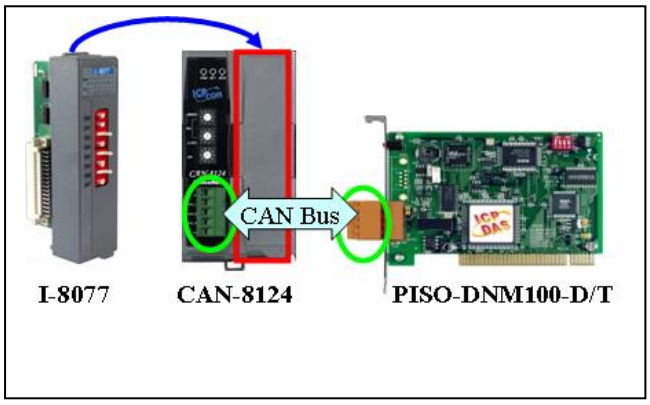


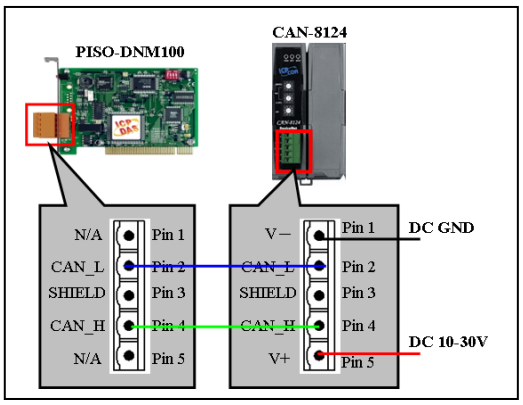
7. Example for the Quick Start Demo application

Users can development their DeviceNet application by applying the API function. We provide the demos for users to show how to implement the system. They can get the demos from the shipping CD or web. The quick start demo is a good reference for users to get into the DeviceNet application by PISO-DNM100U. Please follow the process step by step.

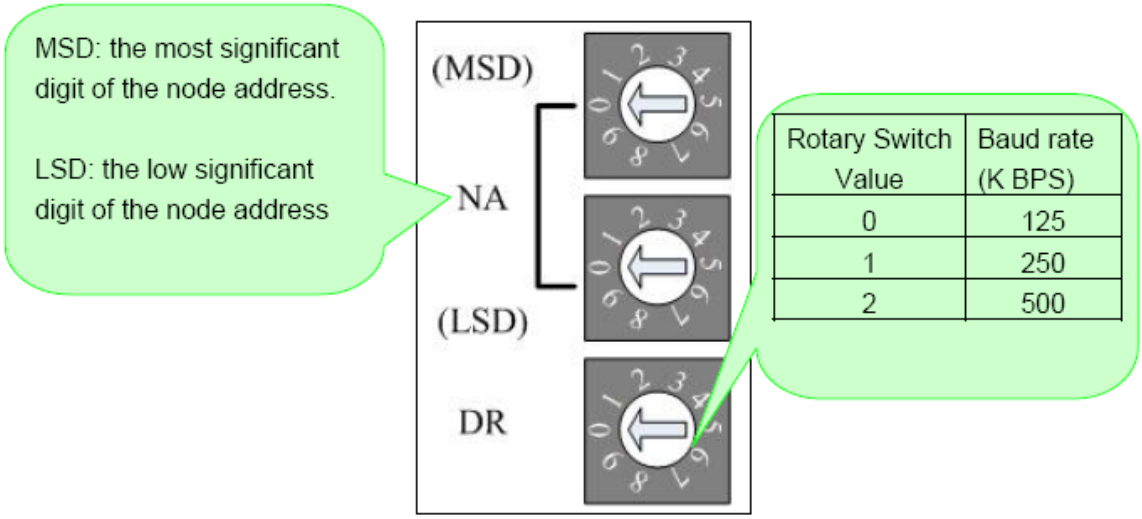
1. Prepare for the equipments below (PC, PISO-DNM100U, CAN-8124, I-8077).
Plug PISO-DNM100U into the PC and plug I-8077 into CAN-8124's slot. PISO-DNM100U's CAN_H to CAN-8124's CAN_H and PISO-DNM100U's CAN_L to CAN-8124's CAN_L as the following figure.

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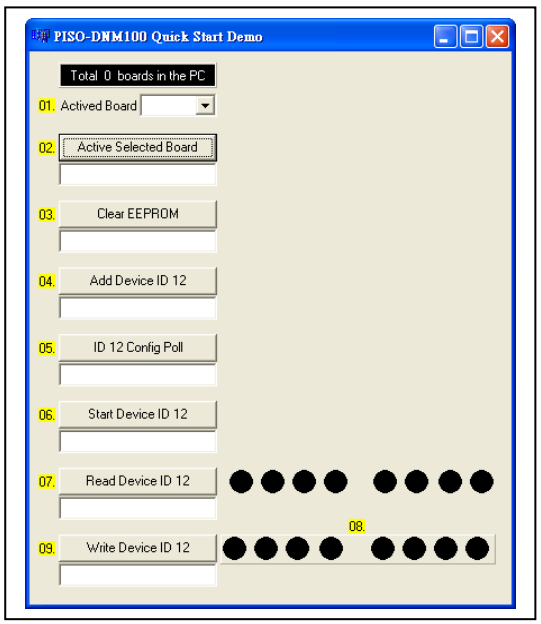




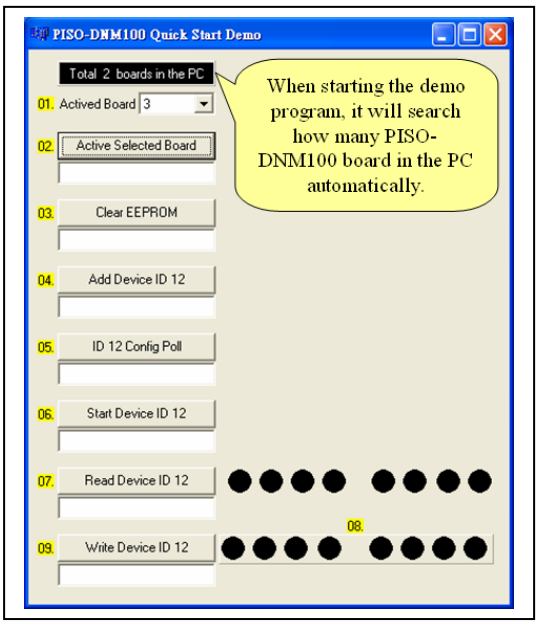
2. Configure the baud rate and MAC ID of CAN-8124. In this example, please set MSD = 1, LSD = 2, DR = 0 as follows. (MAC ID = 12, Rate = 125)



3. Click that item to run "QuickStartDemo.exe". The user will see the following picture in the screen.

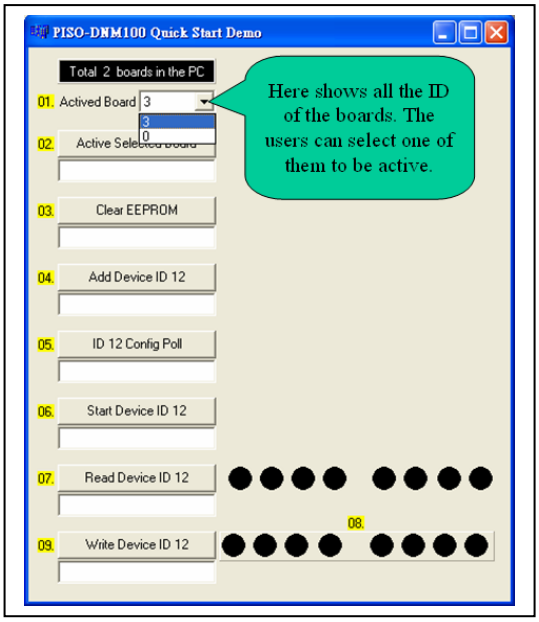


4. The demo will search how many PISO-DNM100U boards in the PC automatically.

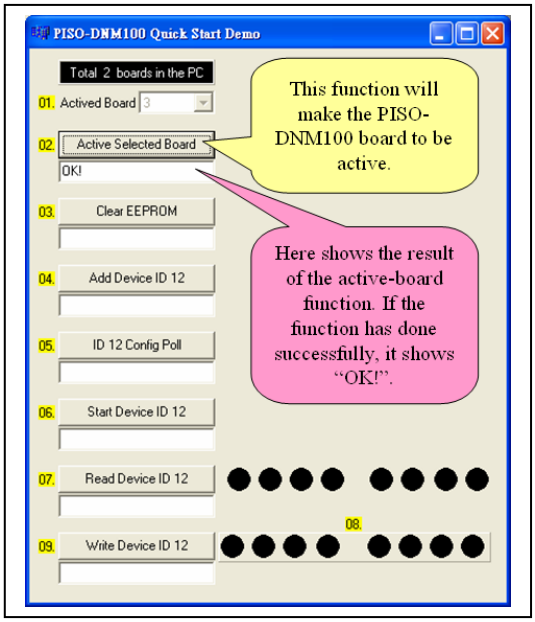


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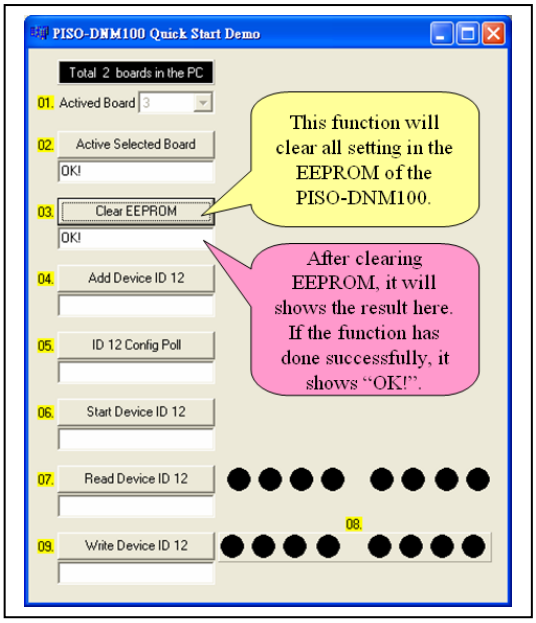
5. The drop-down list will show you all the ID of the PISO-DNM100U board. Users can select one of them to be active.



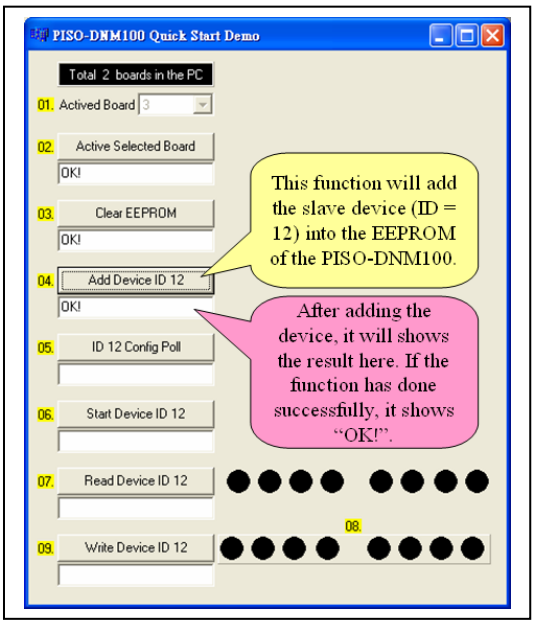
6. In this step, users can press the "Active Selected Board" button to make the board to be started. The edit box below will show the result.



7. In this step, the user can press the "Clear EEPROM" button to clear all setting in the PISO-DNM100U. The edit box below will show the result.

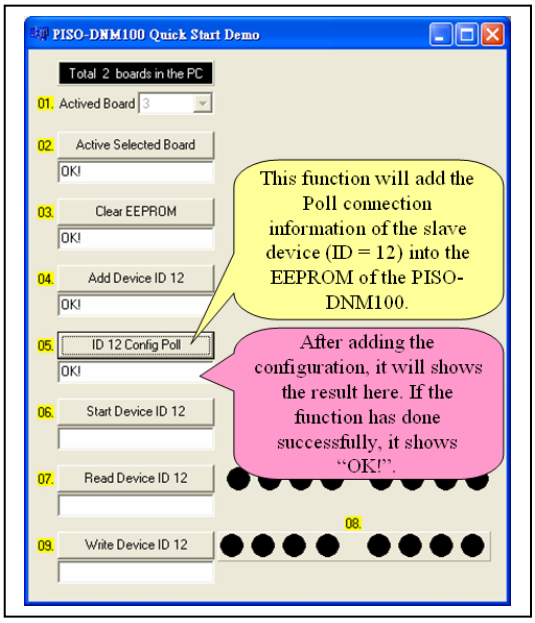


8. In this step, users can press the "Add Device ID 12" button to add the information of the slave device (ID = 12) into the EEPROM of the PISO-DNM100U.

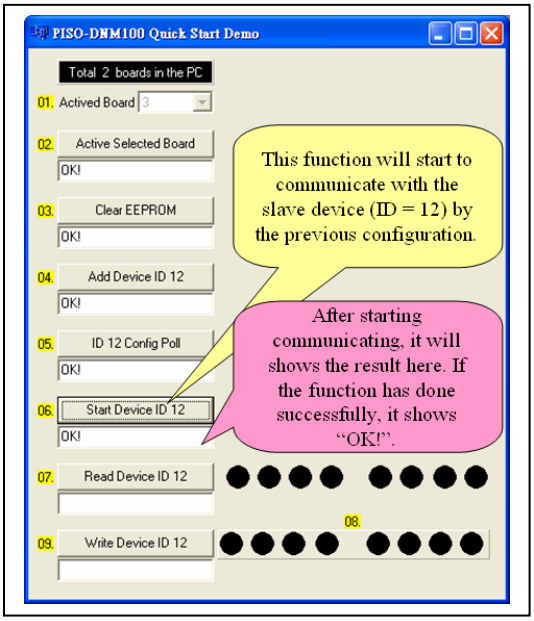


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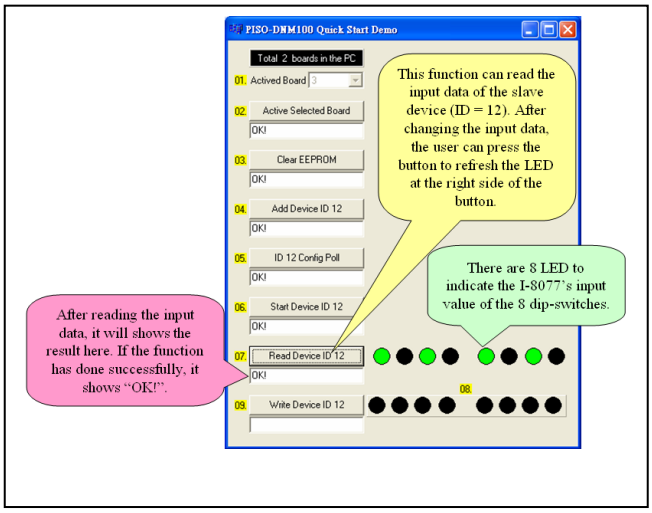
9. In this step, the user can press the “ID 12 Config Poll” button to add the Poll connection information of the slave device (ID = 12) into the EEPROM of the PISO-DNM100U.



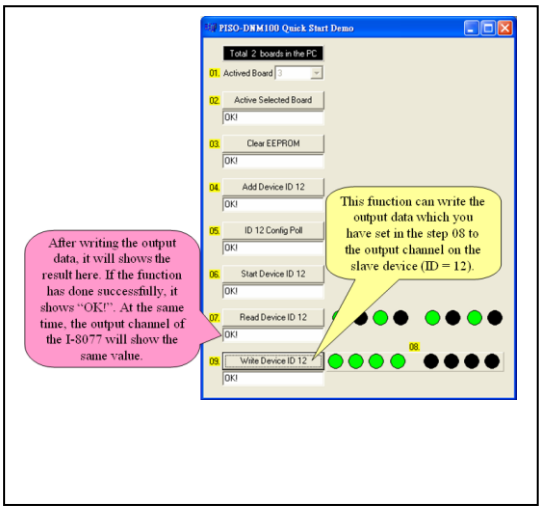
10. In this step, the user can press the “Start Device ID 12” button to start communicating with the slave device (ID = 12) by the previous configuration.



11. In this step, users can press the “Read Device ID 12” button to read the input data of the slave device (ID = 12). The input data is coming from the I-8077’s 8 dip-switches. After changing the dip-switches, users can press the button again to refresh the LED status.



12. In this step, users can press these 8 LED button to edit the output data. And send the data to the output channel of the slave device (ID = 12) by pressing “Write Device ID 12” button to send the output data to the output channel of the slave device (ID = 12). At the same time, the D/O LED on I-8077 will show the same value.



Note :

We provide the source code of the quick start demo program. Therefore, users can use this demo program to start developing your DeviceNet application. About the API detailed information, please refer to the PISO-DNM100U user manual.

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