PISO-CAN / PEX-CAN / PCM-CAN Series

Quick Start User Guide

Introduction

This user guide introduces the user how to implement the PISO-CAN200/400/100U/200U/400U/800U, PEX-CAN200i, or PCM-CAN00/200 into your pc in a quick and easy way. Therefore, it only provides the basic instructions. For more detail information, please refer to the PISO-CAN 200/400/100U/200U/400U/800U, PEX-CAN200i, and PCM-CAN100/200 user manual in the product CD or download it from following web site:

http://www.icpdas.com/products/Remote_IO/can_bus/piso-can100u.htm
http://www.icpdas.com/products/Remote_IO/can_bus/piso-can200.htm
http://www.icpdas.com/products/Remote_IO/can_bus/piso-can400.htm
http://www.icpdas.com/products/Remote_IO/can_bus/piso-can800u.htm
http://www.icpdas.com/products/Remote_IO/can_bus/piso-can200e.htm
http://www.icpdas.com/products/Remote_IO/can_bus/pcm-can200.htm

Product Check List

Besides this guide, the package includes the following items:

- Hardware of PISO-CAN or PEX-CAN or PCM-CAN series CAN card
- ADP-9 Board (for PISO-CAN400/PISO-CAN400U only)
- One CA-4037W and Two CA-4002 (for PISO-CAN800U only)
- Software CD ROM
- User's manual

Installing Your Hardware

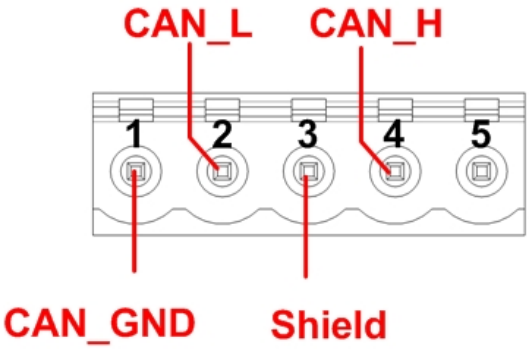
1. Shut down your computer
2. Remove all covers from the computer
3. Select an unused PCI/PCIe slot
4. Carefully insert your PISO-CAN or PEX-CAN or PCM-CAN series CAN card into the PCI/PCIe slot
5. Replace the PC cover
6. When the hardware installation is complete, please turn on the computer again.

Installing Windows Driver

You can get the driver from:
fieldbus_cd:\can\pci\pcm_piso-can_series\driver\
or
http://ftp.icpdas.com/pub/cd/fieldbus_cd/can/pci/pcm_piso-can_series/driver/
The driver of PISO-CAN board can be used in 2K/XP/7 Windows environments. User can find the driver in the path of "\CAN\PCI\pcm_piso_can_series\driver" in the Fieldbus_CD. Execute the PISO-CAN.exe file to start install the driver.

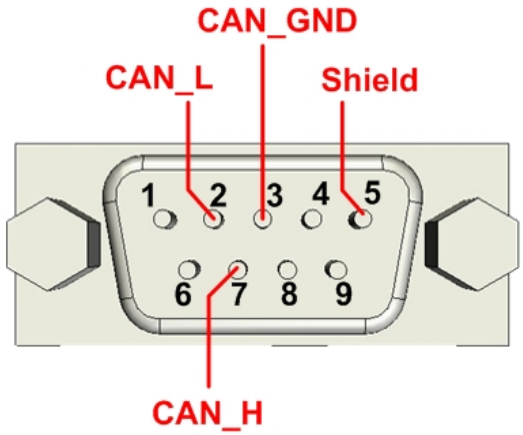
Connector Pin Assignment

5-pin screw terminal connector



5-pin screw terminal connectors pin assignment	
1	CAN_GND
2	CAN_L
3	CAN_SHLD
4	CAN_H
5	Reserved

9-pin D-sub male connectors

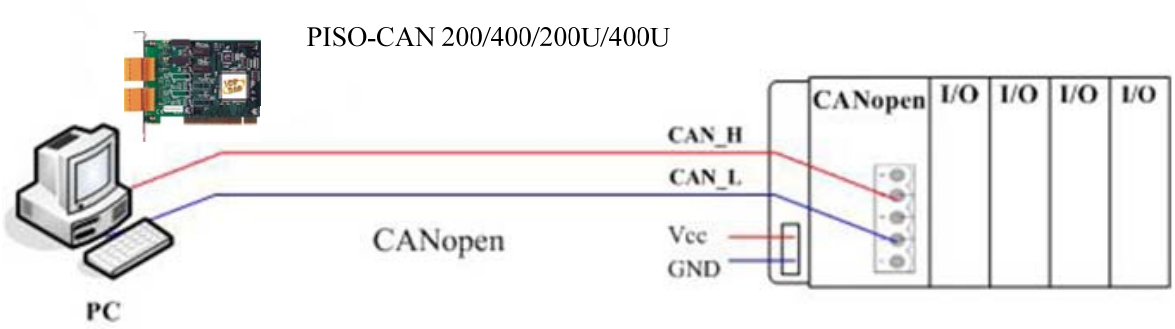


D-sub male connector pin assignment	
1	Reserved
2	CAN_L
3	CAN_GND
4	Reserved
5	CAN_SHLD
6	Reserved
7	CAN_H
8	Reserved
9	Reserved

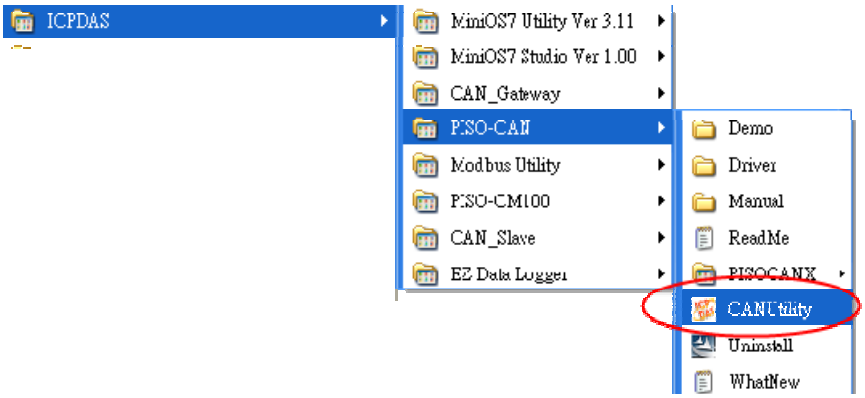
Getting Start

The section will teach users how to control the I/O of CANopen slave with CANUtility step by step. But before following the steps below, users need to prepare some hardware including a PISO-CAN, and a CANopen slave device.

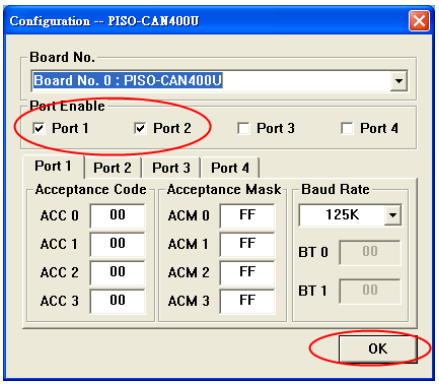
Step 1: Plugged the PISO-CAN or PEX-CAN or PCM-CAN series CAN card in PCI slot of PC and connect the CAN port of the CAN card with the CAN port of CANopen slave device. The node ID of slave device is set to 1, and the baud rate is set to 125Kbps. About the setting method of the node id and the baud rate of the CANopen slave, please refer to the slave's user_manual.



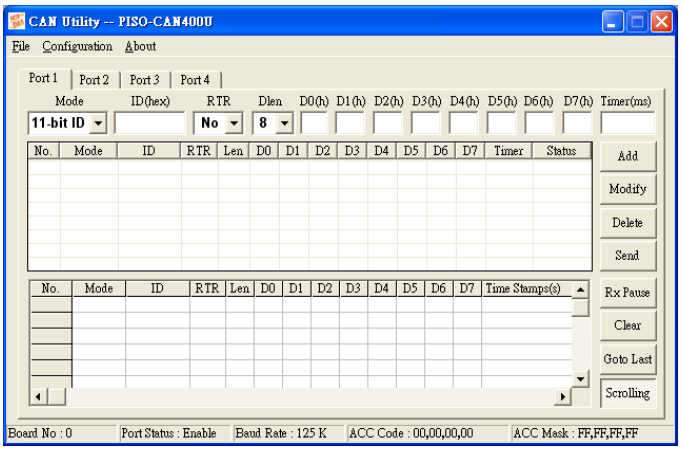
Step 2: After install the PISO-CAN or PEX-CAN or PCM-CAN series CAN card driver, the folder of PISO-CAN will be installed as follows. Please execute the CANUtility.exe on PC in the path of "start manual\all programs\ICPDAS\PISO-CAN" to start the quick start demo test.



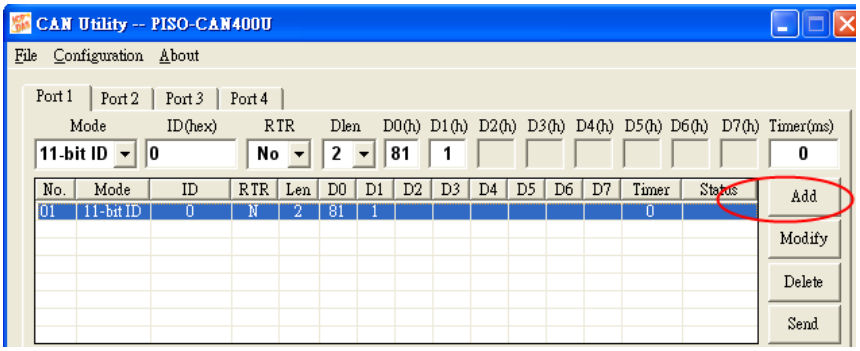
Step 3: Click the "Board NO." combo box to select the "Board 0" and the baud rate "125K bps". And then click the "OK" button to active the PISO-CAN board below.



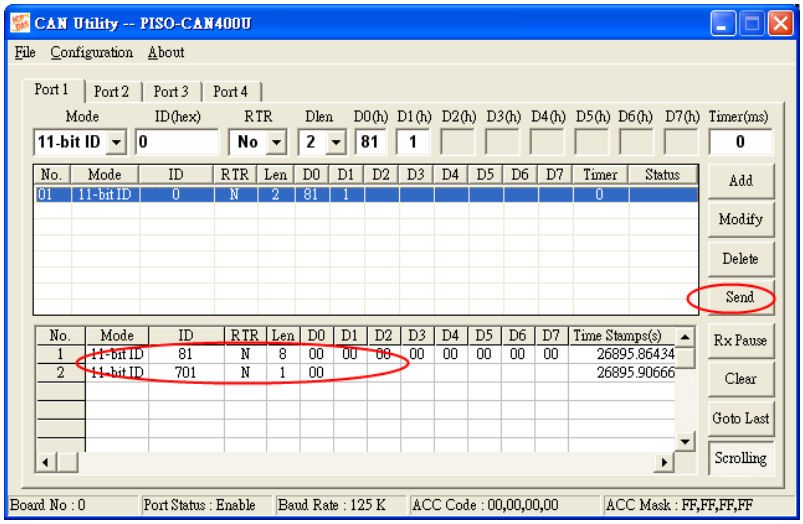
Step 4: After the board 0 is activated successfully. The CANUtility main dialog is as following figure. There are 1 tag, 2 tags, 4 tags and 8 tags for one-port card (PISO-CAN100U and PCM-CAN100), two-port card (PISO-CAN200/200U, PEX-CAN200i, PCM-CAN200), four-port card (PISO-CAN400/400U) and eight-port card (PISO-CAN800U) respectively. In the bottom of the main dialog, the status bar shows five parameters, board number, port status, baud rate, acceptance code, and acceptance mask for the selected port.



Step 5: Set the “ID = 0, RTR = NO, Dlen = 2, D0 = 81, D1 = 1 ” (because the node of CANopen slave is set to 1). Then click the “Add” button to add the message.

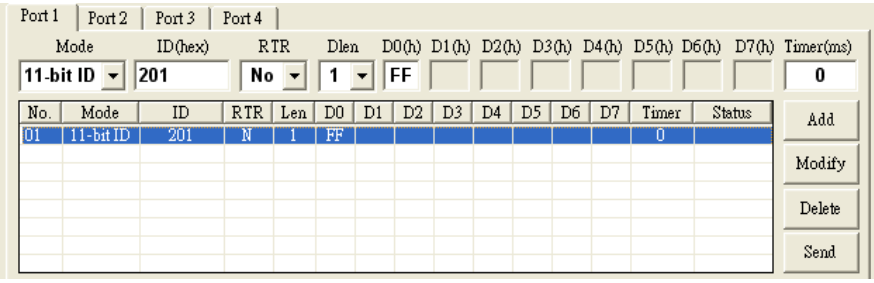


Step 6: Click the “Send” button. The slave node id 1 will be successfully reset.



Step 7: Send the “ID = 0, RTR = NO, Dlen = 2, D0 = 1, D1 = 1” to sets the state of the selected CANopen Slave to OPERATIONAL.

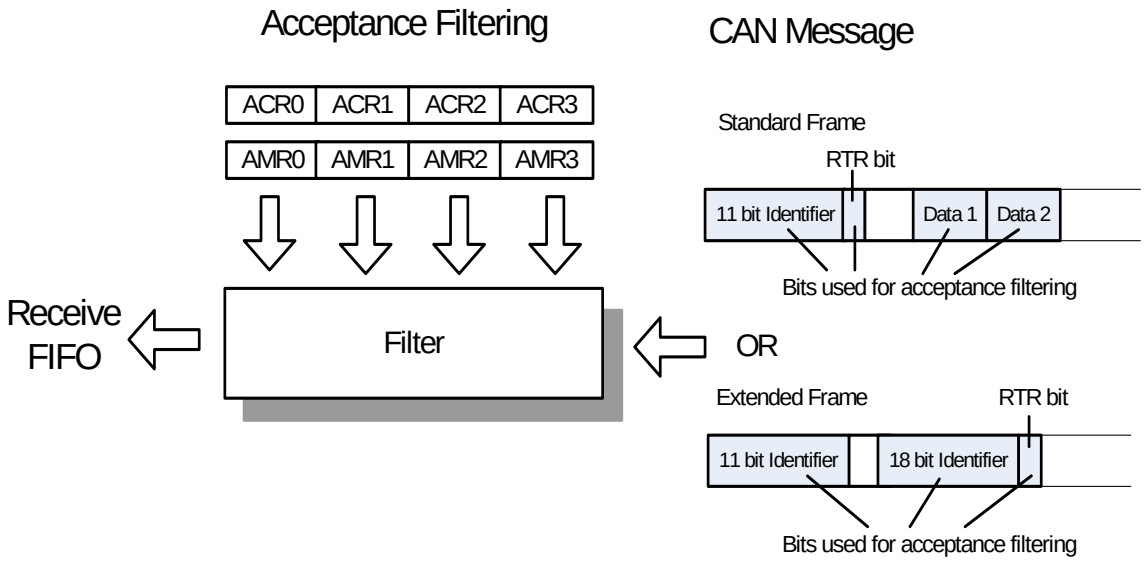
Step 8: For example, if users want to use the RxPDO protocol of CANopen communication, user must send PDO message by using the 1st RxPDO.Set the “ID = 201, RTR = NO, Dlen = 1, D0 = FF”.



Step 9: If users want to use the TxPDO protocol of CANopen communication, user must send PDO message by using the 1st TxPDO. Set the “ID = 181, RTR = Yes, Dlen = 1”.

Acceptance Filtering

Four 8-bits Acceptance Code registers (AC0, AC1, AC2 and AC3) and Acceptance Mask registers (AM0, AM1, AM2 and AM3) are available for a various filtering of messages. These registers can be used for controlling a 4-byte filter, which can check the specific bits of a CAN message and decide if this message will be passed to the CAN card or not. The Acceptance Code Register is mainly used for deciding what kind of message ID the CAN card will accept. The Acceptance Mask Register is mainly used for deciding which bit of message ID will need to check by using the Acceptance Code Register. If the bit of the Acceptance Mask is set to 0, it means that the bit in the same position of message ID needs to be checked.



Example 1

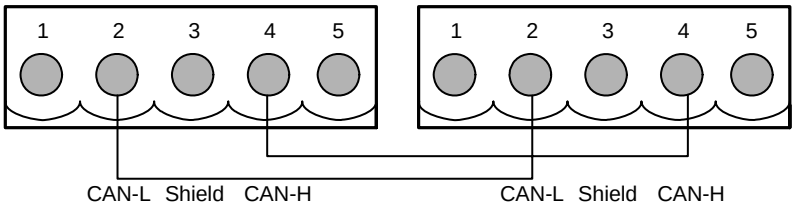
Assume that a message with a **Standard Frame** is considered. The Acceptance Code Registers (ACRn) and Acceptance Mask Registers (AMRn) is set as follows.

n	0	1 (upper 4 bits)	2	3
ACRn	01xx x010	xxxx	xxxx xxxx	xxxx xxxx
AMRn	0011 1000	1111	1111 1111	1111 1111
Accepted messages (ID.28..ID.18 RTR)	01xx x010	xxxx		

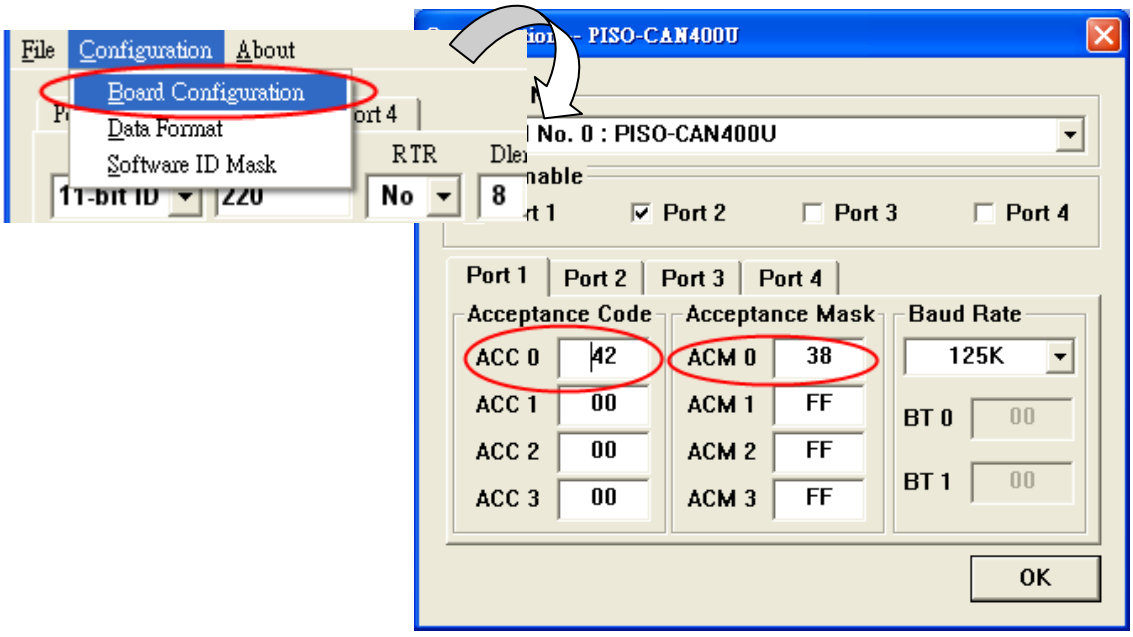
("x"=don't care, only the upper 4 bits of ACR1 and AMR1 are used)

In this case, the ACR0 and the AMR0 are used for the upper 8 bits of message ID. The upper 4 bits of the ACR1 and AMR1 are used for the lower 3 bits of the message ID and RTR bit. The lower 4 bits of the ACR1 and AMR1 are useless. The ACR2 and AMR2 are used for the first data byte of the CAN message. The ACR3 and AMR3 are used for the second data byte of the CAN message. Therefore, no matter the CAN message is remote transmit request message or not, the message ID with the format 01xx x010 xxx will be accepted. (x means "don't care").

Step 1: First of all, please connect port1 and port2.



Step 2: Click the "Configuration\Board Configuration" to set ACC0 "42" and ACM0 "38". Then click the "OK" to complete the setting.



Step 3: Send message by using the port2. Set the “ID = 210, ID=3D7, ID = 100, ID =211 and ID = 220”.

No.	Mode	ID	RTR	Len	D0	D1	D2	D3	D4	D5	D6	D7	Timer	Status
01	11-bit ID	210	N	8	0	0	0	0	0	0	0	0	0	
02	11-bit ID	3D7	N	8	0	0	0	0	0	0	0	0	0	
03	11-bit ID	100	N	8	0	0	0	0	0	0	0	0	0	
04	11-bit ID	211	N	8	0	0	0	0	0	0	0	0	0	
05	11-bit ID	220	N	8	0	0	0	0	0	0	0	0	0	

Step 4: The port1 only receive these messages “ID = 210, ID=3D7, and ID = =211”. The messages “ID = 100 and ID = 220” success of filtering out.

No.	Mode	ID	RTR	Len	D0	D1	D2	D3	D4	D5	D6	D7	Time Stamps(s)
1	11-bit ID	210	N	8	00	00	00	00	00	00	00	00	24173.78170
2	11-bit ID	3D7	N	8	00	00	00	00	00	00	00	00	24175.00244
3	11-bit ID	211	N	8	00	00	00	00	00	00	00	00	24270.14399