I-7565-H1 / I-7565-H2
High Performance USB/CAN Converter

Quick Start User Guide

1. Introduction

This quick start manual will guide users to implement the I-7565-H1 / I-7565-H2 module into their applications in a quick and easy way. This will only provide with the basic instructions. For the more detailed information, please refer to the I-7565-H1/H2 user's manual located on the ICPDAS CD-ROM or from ICP DAS web site:
http://www.icpdas.com/products/Remote_IO/can_bus/i-7565-H1H2.htm

The goal of this quick start manual is focused on helping users to quickly familiarize themselves with the I-7565-H1/H2 module and utility. Here, we use two I-7565-H1 modules (called the I-7565-H1 (A) and the I-7565-H1 (B)) as the example and demonstrate how to use the I-7565-H1 module. The architecture of this example is depicted as below.
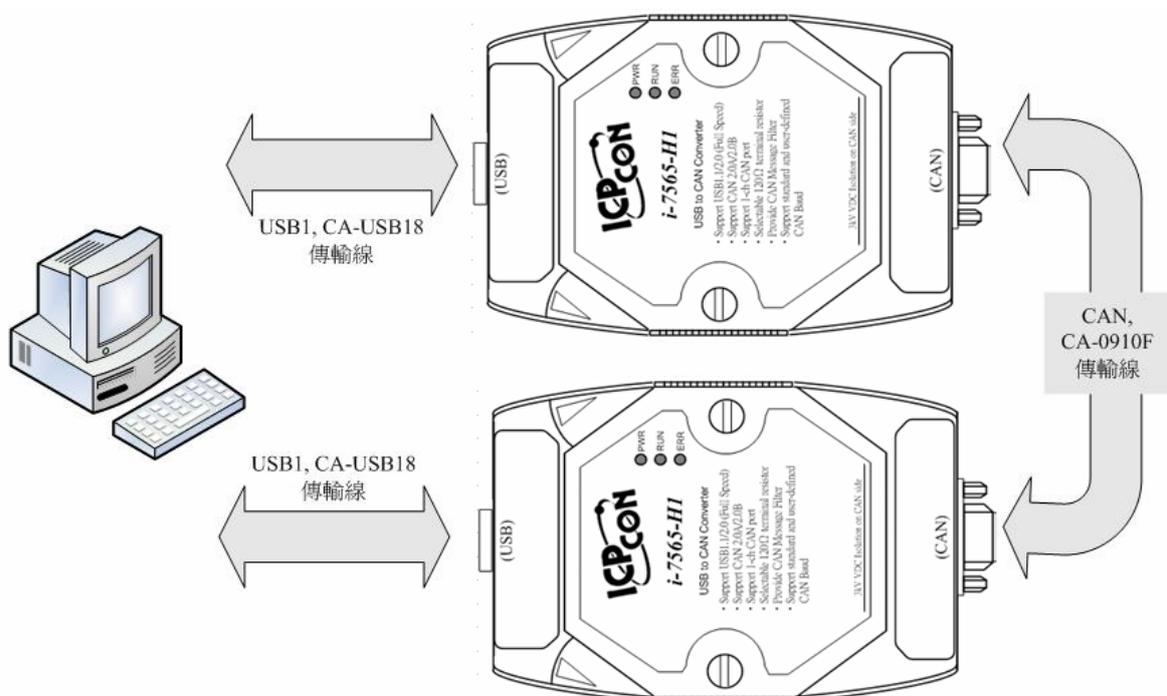
Figure 1-1: Architecture of Example

2. Hardware Installation

Users may need to make a hardware setting before the application. The detailed illustration is as below :

[Step1: USB connection & Install I-7565-H1 Driver.]
Connect the USB ports of the I-7565-H1 A and B to PC respectively. Then users can refer to the "Driver Installation" chapter in the user's manual to complete the I-7565-H1 driver installation.

[Step2: Enable the 120Ω terminator resistor of module A and B.]
Please open the cover of I-7565-H1 and make sure the JP3 jumper is in position 1 and 2 like Figure 2-1.

Enable (default), (Activate)
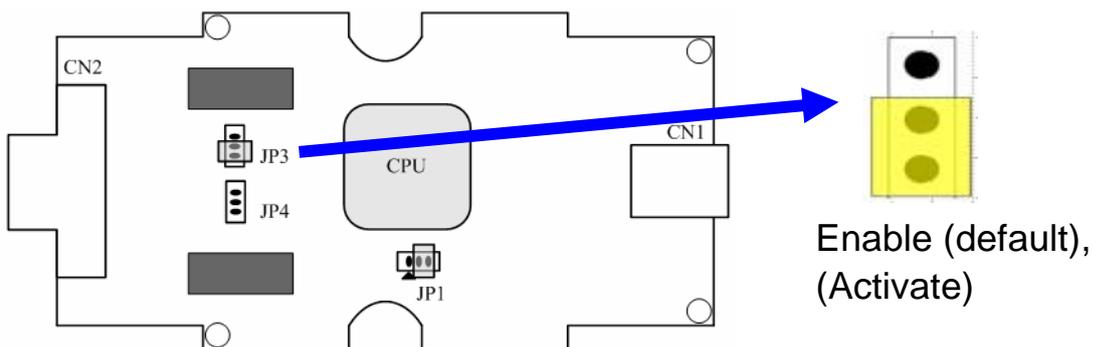
Figure 2-1: JP3 Jumper Position

[Step3: CAN bus connection]
Connect the CAN ports of these two I-7565-H1 modules using the following structure Figure 2-2.
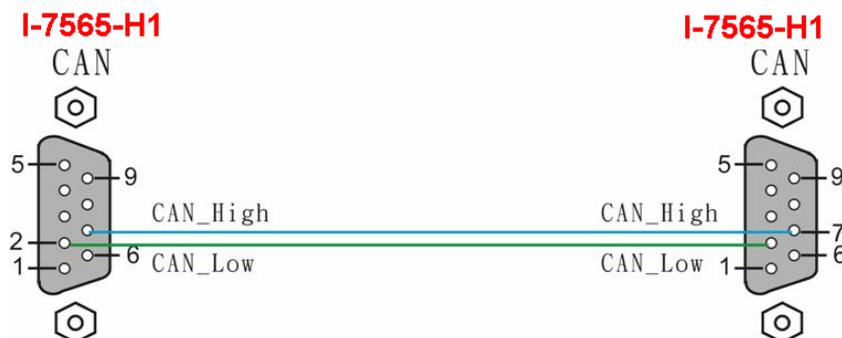
Figure 2-2: CAN bus Connection

3. Test I-7565-H1 by using I-7565-H1/H2 Utility

Step1: Set the Init / Normal switches on the back of the I-7565-H1 A and B to the "**Normal**" position. Then, turn on the DC power. The PWR LED of the I-7565-H1 A and B will be always turned on. It means these two I-7565-H1 converters are working in the "Firmware Operation" mode.

Step2: Run the "I-7565-H1/H2 Utility", I-7565-H1H2_Utility.exe, and configure the connection parameters and then click "Connect" button to connect to the I-7565-H1 A module like Figure 3-1.
Port No　　: The Virtual COM Port Number (COM 3 => Figure 3-2)
Mod Name　: The Module Name (I-7565-H1)
Port Enable **:** Port 1 checked
Baud Rate　: 1000K bps
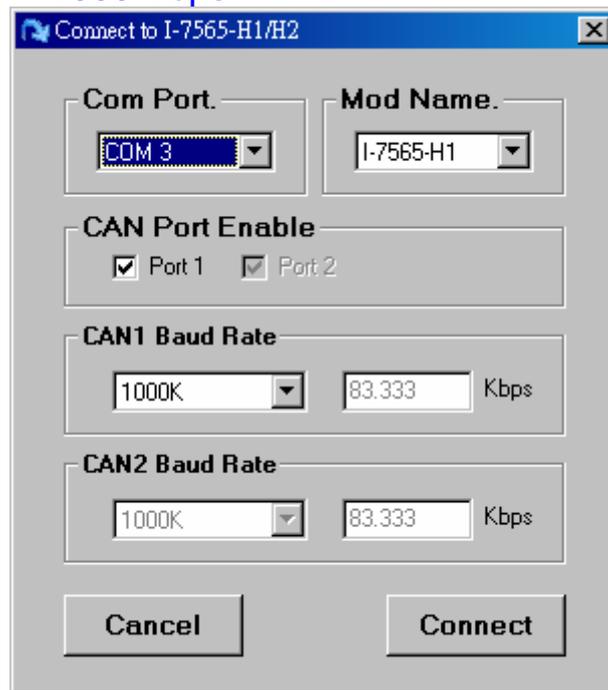
Figure 3-1**:** Connection Screen of I-7565-H1/H2 Utility
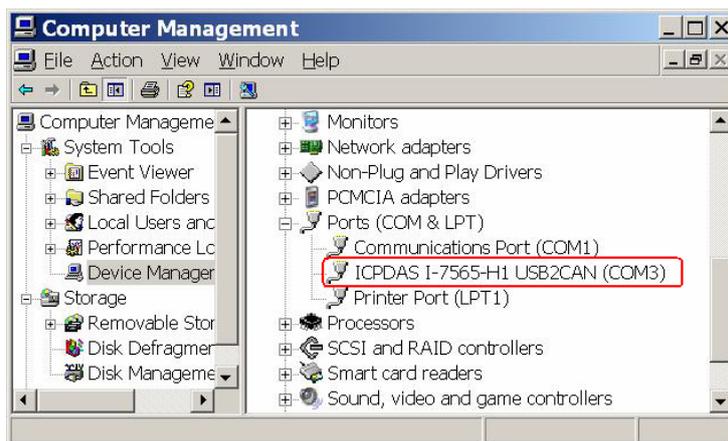
Figure 3-2: The Virtual COM Port Number

Step3: Run the I-7565-H1/H2 Utility again and connect to the I-7565-H1 B module.

Step4: After the connection to I-7565-H1 is successful, the communication screen will show and the connection parameters are listed in status bar of I-7565-H1/H2 Utility like Figure 3-3.
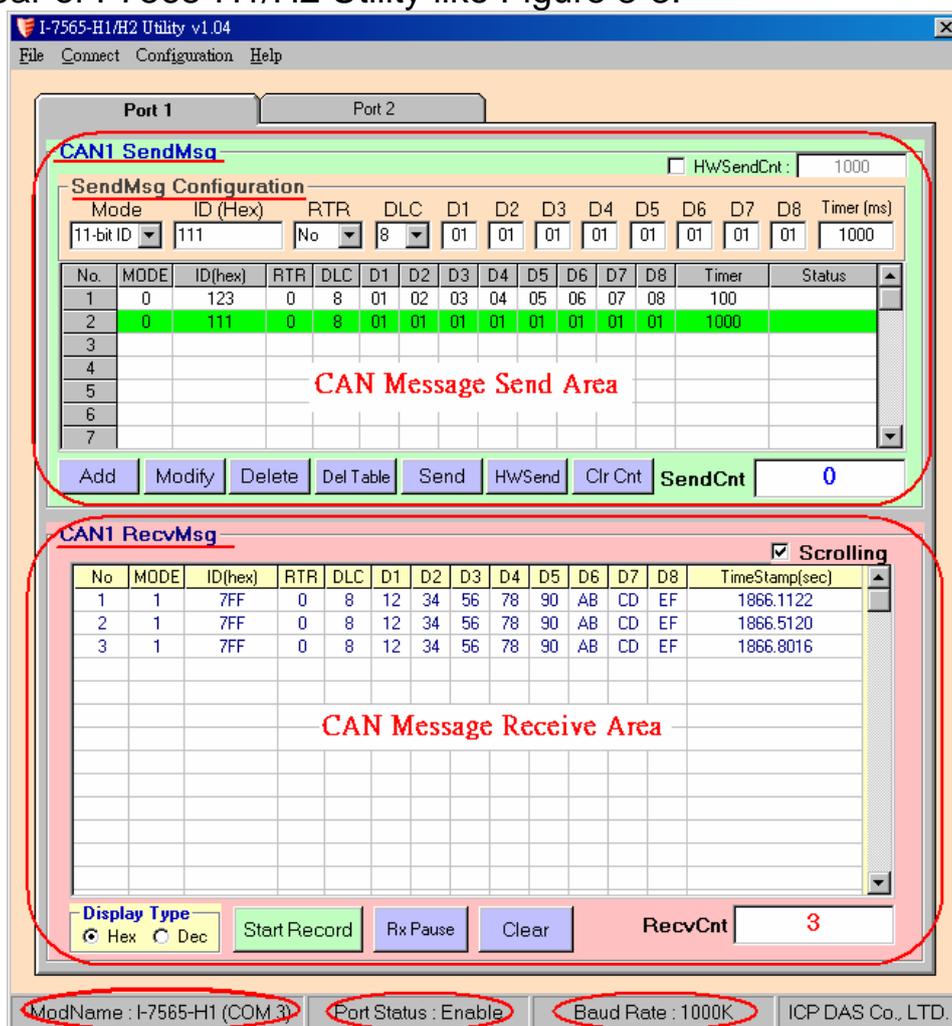
Figure 3-3: Communication Screen of I-7565-H1/H2 Utility

Step5: [1] Input the value to the "SendMsg Configuration" frame.

[2] Click the "Add" button to add the CAN message to "CAN Message Send Area" on Utility A and B.

[3] Click "Send" button and the utility will transfer the CAN message through the PC USB port automatically.

After the I-7565-H1 A receives the CAN message from PC USB port and it will send the CAN message from its CAN port. So, the I-7565-H1 B will receive the CAN message transmitted from I-7565-H1 A. Then, I-7565-H1 B will send this CAN message from its USB port to another PC USB port like Figure 3-4 & Figure 3-5.
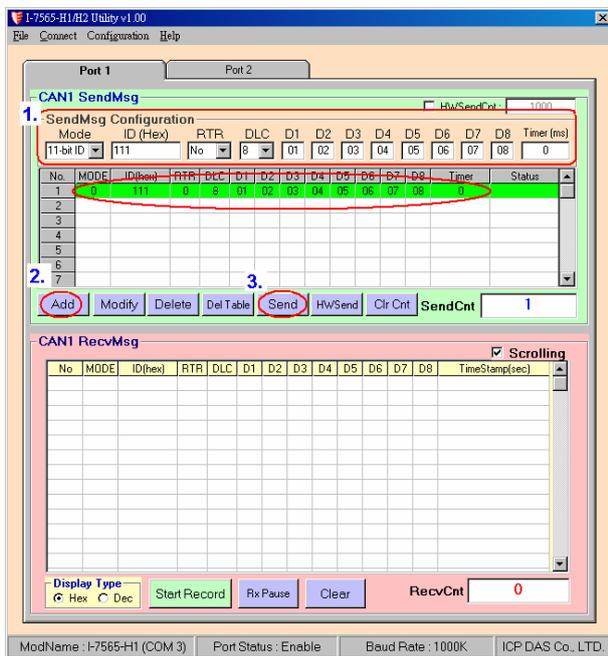
Figure 3-4**:** Utility of I-7565-H1 A   Figure 3-5**:** Utility of I-7565-H1 B
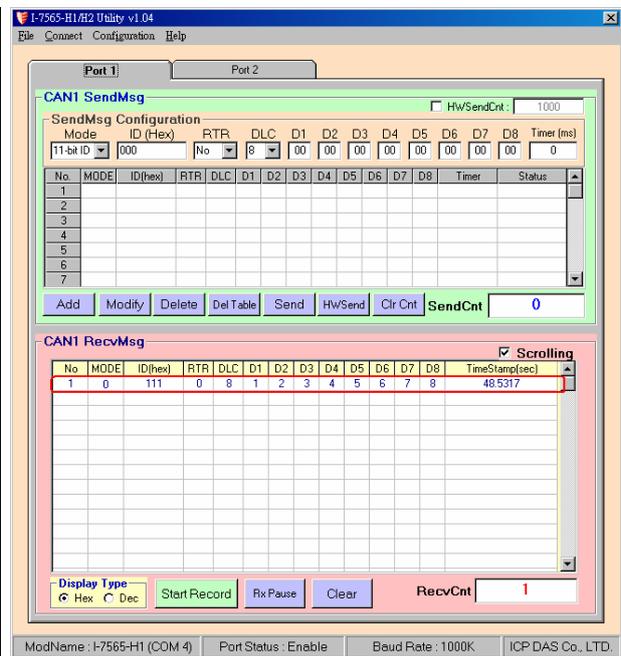
4. LED Indication

There are three LEDs provided to indicate to users what situation the I-7565-H1/H2 is in. The following is the illustration of these three LEDs and the position of these three LEDs shows as Figure 4-1.

(1) PWR LED :
It is used to help users to check whether the I-7565-H1/H2 is standby. If the module is working in "firmware operation" mode, the PWR LED is always turned on. However, when the module is working in the "firmware updating" mode, the PWR LED will flash approximately once per second.

(2) RUN LED :
It is used to show whether the I-7565-H1/H2 is transmitting/receiving CAN messages. The RUN LED will flash whenever a CAN message is sending or receiving. In I-7565-H2, the RUN LED is shared by CAN1 port and CAN2 port.

(3) ERR LED :
It is used for demonstrating an error that has occurred. The ERR LED is normally turned off when the module works in a good condition. When the Bus-Off error happened, the ERR LED will always turn on until the Bus-Off condition disappeared. If the CAN/USB buffer built in I-7565-H1/H2 overflows or CAN message can't be sent out successfully, then the ERR LED will flash continuously. In I-7565-H2, the ERR LED is shared by CAN1 port and CAN2 port.
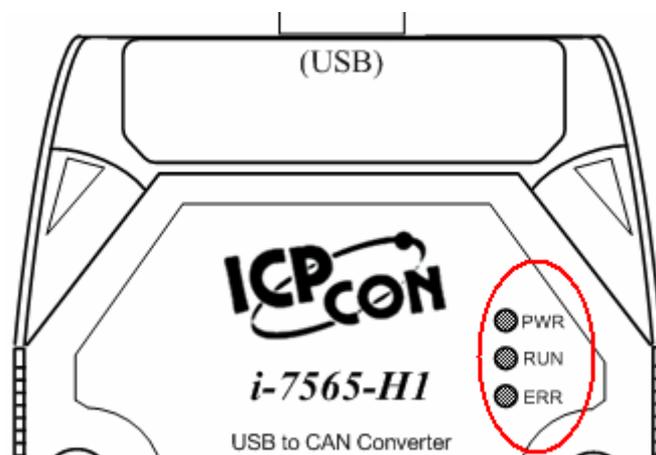
Figure 4-1**:** LED position of I-7565-H1/H2

Table 4-1: LED indication of I-7565-H1/H2

LED Name	I-7565-H1/H2 Status	LED Status
ALL LED	Hardware Init Fail	All LED always turned on permanently after reset
	Hardware WDT Fail	All LED flash per 2 second
	Contact to ICP DAS	All LED flash take turns
PWR LED	Firmware Updating Mode	Flash per second
	Firmware Operation Mode	Always turned on
	Power Off	Off
RUN LED	Transmission	Flash
	Bus Idle	Off
ERR LED	Transmission Fail	Flash per 100 ms
	Buffer Overflow	Flash per second
	Bus-Off	Always turned on
	No Error	Off

5. Flow Chart for Users' Program by using API

The following is the basic control flow chart for users' program development by using API Library – VCI_CAN.dll.
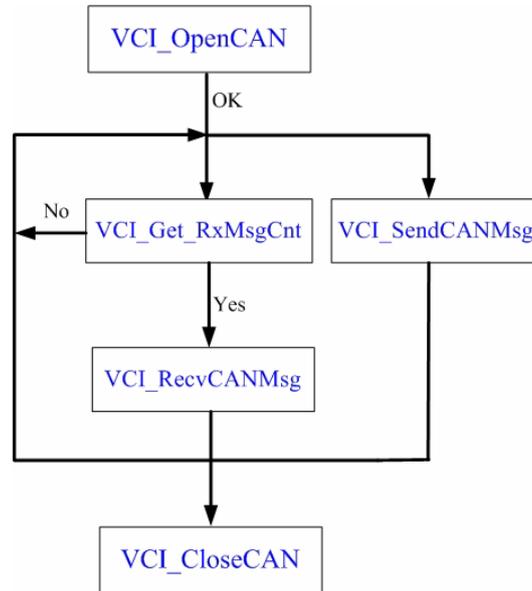
Figure 5-1: Flow Chart of API Library

6. Troubleshooting

The following is the common problems of using I-7565-H1/H2 modules.

6.1 How to use I-7565-H1/H2 ?

Please follow the below steps to complete the operation of I-7565-H1/H2.

(1) Plug I-7565-H1/H2 module to PC via USB port.
(2) Install I-7565-H1/H2 driver.
(3) Execute I-7565-H1/H2 Utility and choose the "virtual com port", "module name", "CAN baud rate" and then connect to I-7565-H1/H2 module.
(4) Send / Receive CAN message or configure module parameters by using I-7565-H1/H2 Utility.

6.2 The Max Data Transfer Rate in I-7565-H1/H2 ?

The max CAN bus data transfer rate in I-7565-H1/H2 is up to 3000 fps and it can be adjusted by I-7565-H1/H2 Utility. If users' PC performance is not good enough, the data loss condition may happen. In this time, users can use "Advanced Config" function to adjust hardware transfer rate of "CAN to USB" in I-7565-H1/H2 and it may improve the data loss problem. Remember that hardware data transfer rate can not be lower than the current CAN bus flow, or the data loss will happen in I-7565-H1/H2 module.

6.3 How many I-7565-H1/H2 could be applied to one PC ?

In theory, there is no the limitation. It supports synchronous operation in a PC with more than one I-7565-H1/H2 modules but the total communication efficiency depends on the PC hardware performance.