I-7540D-MTCP

Ethernet/Modbus TCP/Modbus RTU to CAN Converter

Quick Start User Guide

1. Introduction

This manual introduces the user to the methods used to implement the I-7540D-MTCP module into their applications in a quick and easy way. This will only provide with the basic instructions. For more detailed information, please refer to the I-7540D-MTCP user manual located on the ICPDAS CD-ROM or download it from the ICPDAS web site:

Fieldbus_CD:\CAN\Converter\I-7540D-MTCP\   or

http://www.icpdas.com/products/Remote_IO/can_bus/I-7540-MTCP.htm

The goal of this manual is focused on helping users to quickly familiarize themselves with the I-7540D-MTCP module and the CAN-Modbus TCP /Modbus RTU communication converter. Here, we use two I-7540D-MTCP modules (called the I-7540D-MTCP_A and the I-7540D-MTCP_B) as the example will demonstrate how to use the I-7540D-MTCP modules. The architecture of this example is depicted below.
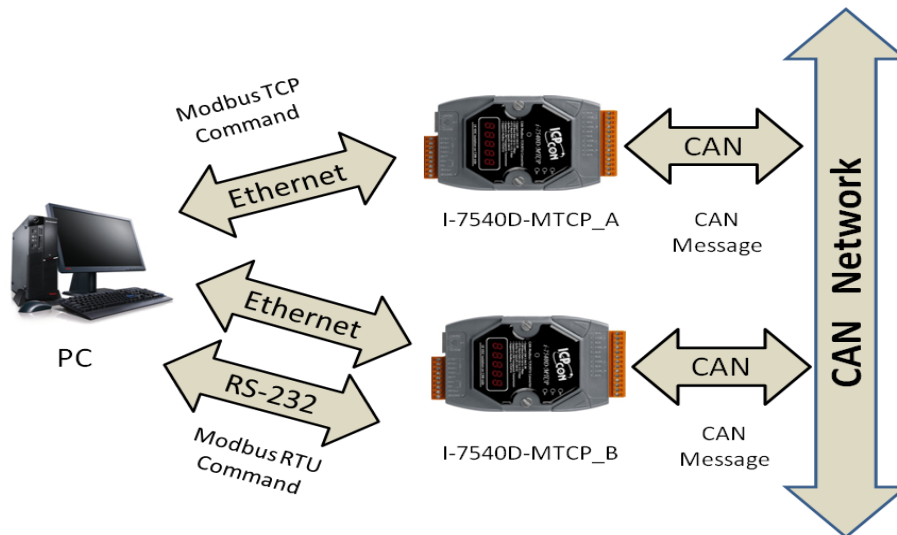

When the I-7540D-MTCP receives a valid Modbus TCP command, it can convert this command into a CAN message and transmits it into the CAN network. Another I-7540D-MTCP will receive the CAN message then store it into the buffer. Meanwhile, user can use Modbus RTU command to get the message back.

2. Hardware Installation

Users need to make a hardware connection between the CAN devices before the application. The details of this are illustrated below:

Step1: Set-up the 120Ω terminator resistor of module A and B. Before going to the next step, check if the JP3 is enabled or not. If not, it is necessary to open the cover for each I-7540D-MTCP and re-configure their JP3 jumpers to enable them again, as shown in below figure.
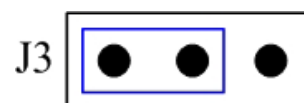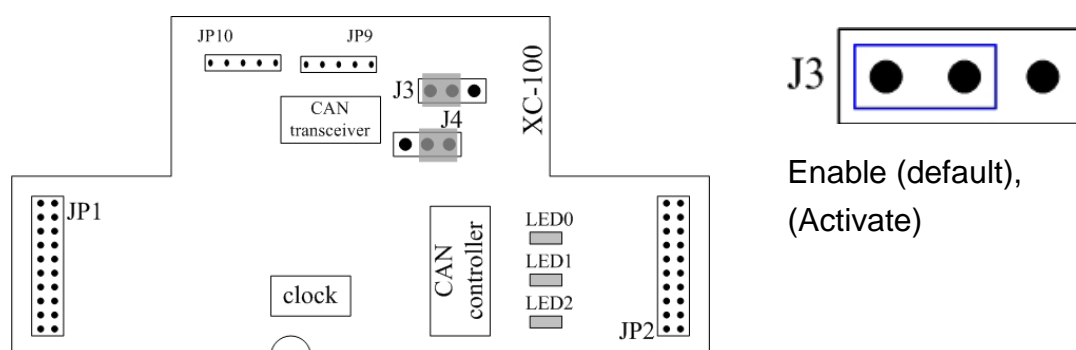
Enable (default), (Activate)

Step2: Power connection for the I-7540D-MTCP #A and I-7540D-MTCP #B. Connect the (R)Vs+ and (B)GND pins of the I-7540D-MTCP module to the DC power supply (10~30VDC).
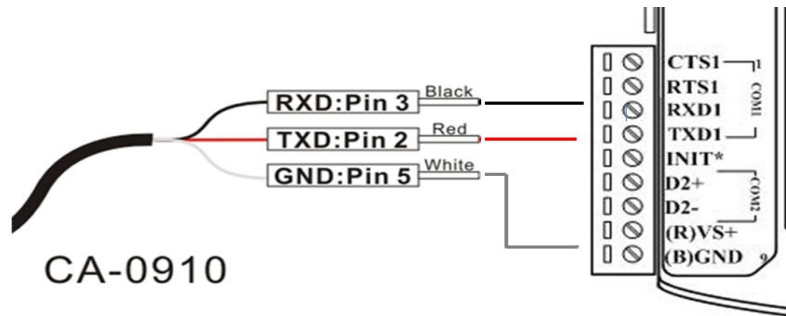

0V DC
+10V~+30V DC
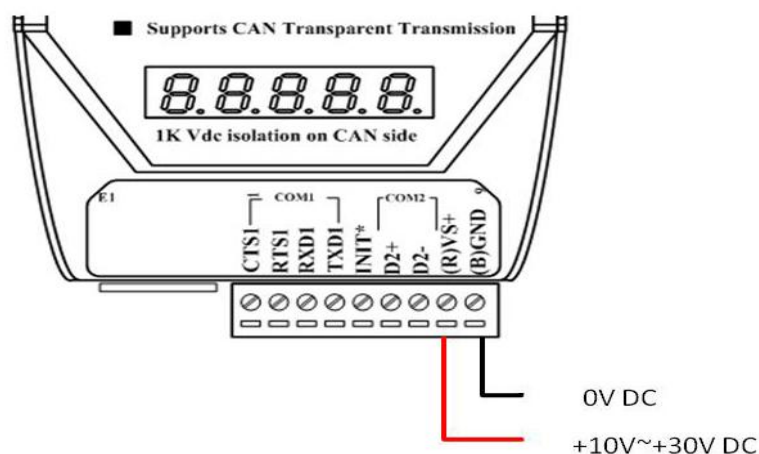
Step3: Ethernet port connection:
By using Ethernet hub device to connect the Ethernet port with the I-7540D-MTCP #A, I-7540D-MTCP #B and the PC with standard network cable respectively.
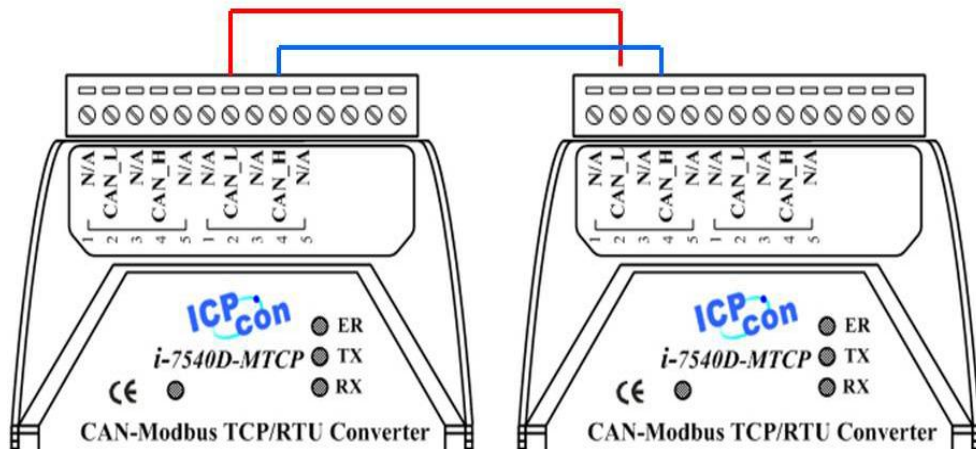
Step4: RS-232 connection:
Connect the RS-232 ports of the I-7530A-MR #B to the COM port of the PC by using the attached cable CA-0910. The wire connection is shown below.

Step5: CAN bus connection:
Connect the CAN ports of these two I-7540D-MTCP modules to the CAN network by using the following structure.

3. The I-7540D-MTCP Parameters Configuration

Before testing the I-7540D-MTCP converter, users need to configure the RS-232, Ethernet and CAN parameters via the I-7540D-MTCP Utility tool. The details of this procedure are shown below.

Step1: The default network setting of the I-7540D-MTCP is shown below.

IP: 192.168.255.1
Mask: 255.255.0.0
Gateway: 192.168.0.1

Before communicating with the I-7540D-MTCP, you must change the

PC's network segment address which is the same with the I-7540D-MTCP. In this case, the PC's IP address needs to be 192.168.xx.xx.

Step2: After changing the PC's IP address, you must change those two I-7540D-MTCPs to different IP address by using the I-7540D-MTCP Utility. The I-7540D-MTCP Utility tool is located in the Fieldbus_CD:\\can\converter\I-7540-MTCP\utility folder on the companion CD-ROM or can be downloaded from the web site: http://www.icpdas.com/products/Remote_IO/can_bus/I-7540d-MTCP.htm

Step3: Click the "Connect" button to connect with the I-7540D-MTCP #A and the I-7540D-MTCP #B. These steps are shown in the following figure.
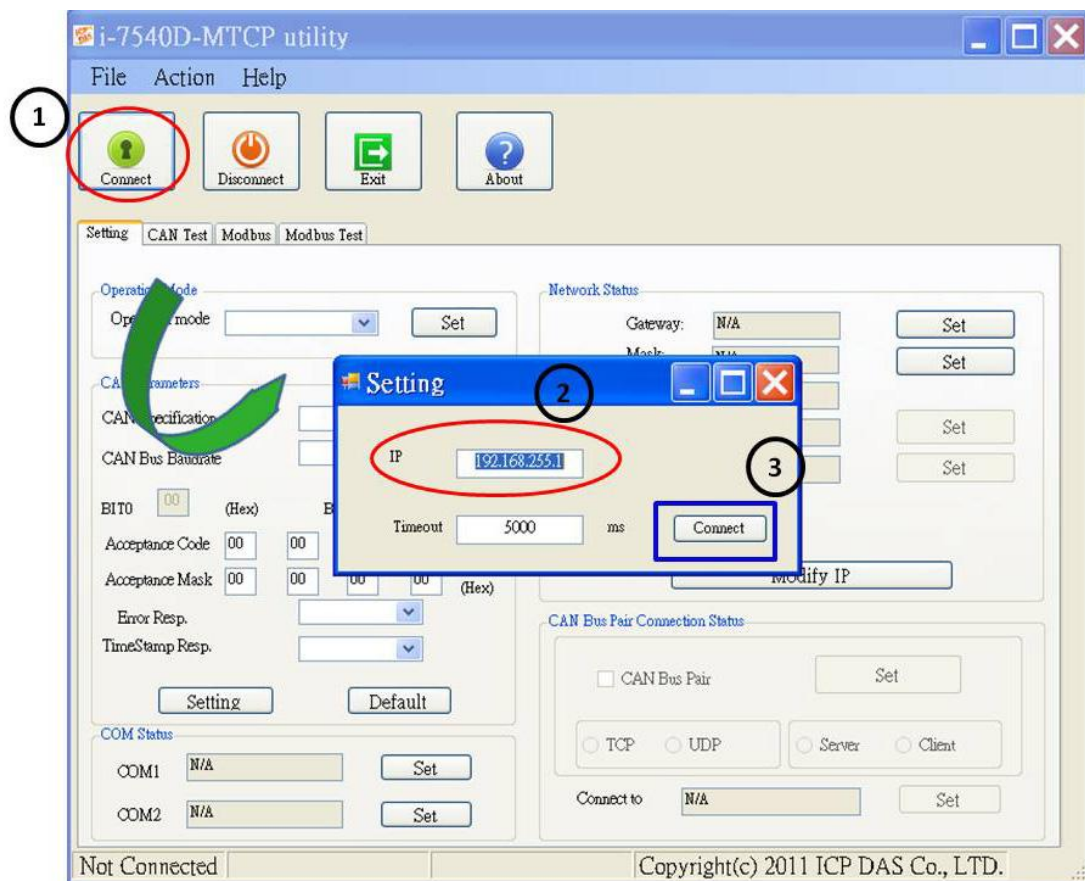
Step4: Click the "Connect" button. If this process is successful, the I-7540D-MTCP Utility shows the I-7540D-MTCP #A communication information as below.
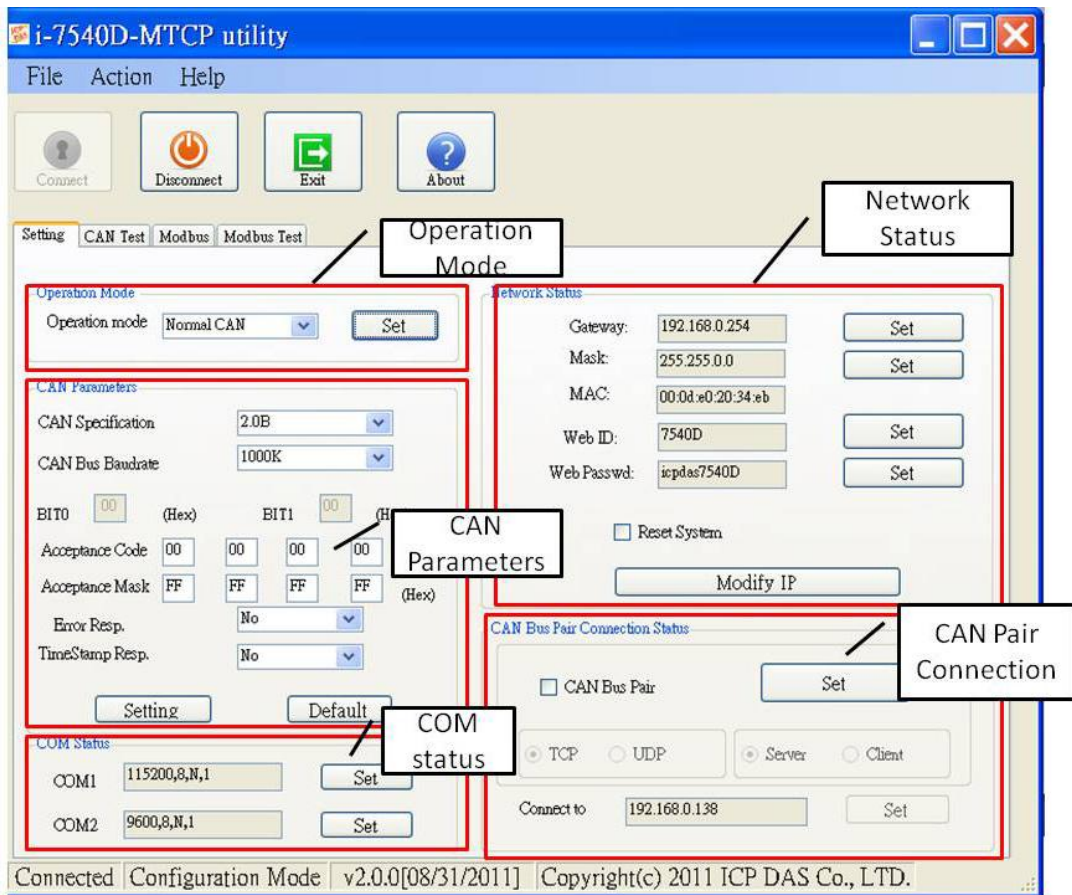
Step5: After connecting with the I-7540D-MTCP #A, you can modify the operation mode to "Modbus TCP". In the same way, you can set the operation mode of I-7540D-MTCP #B to "Modbus RTU". The CAN parameters and network status of I-7540D-MTCP #A and I-7540D-MTCP #B are set as following table.
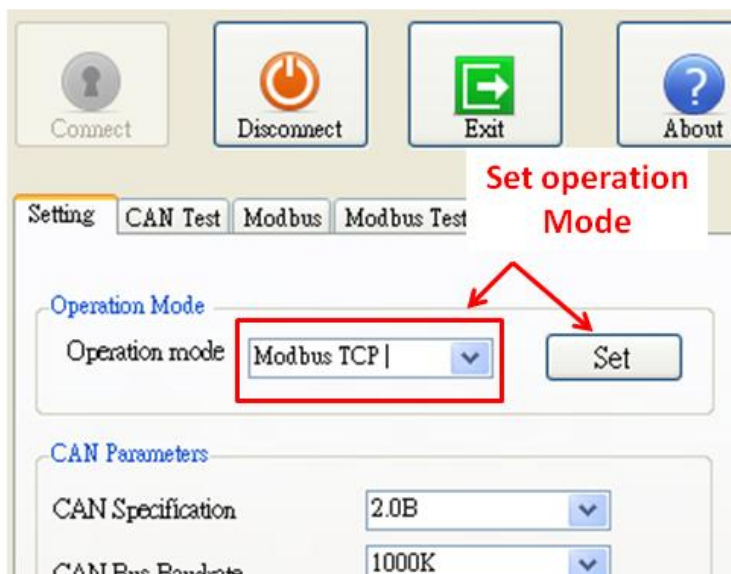
	I-7540D-MTCP #A	I-7540D-MTCP #B
CAN parameters	Specification: 2.0A CAN baud rate: 1M bps ACC: 00 00 00 00 ACM: FF FF FF FF Err Response: No Time-stamp Response: No	Specification: 2.0A CAN baud rate: 1M bps ACC: 00 00 00 00 ACM: FF FF FF FF Err Response: No Time-stamp Response: No
Network status	IP: 192.168.255.1 Mask: 255.255.0.0 Gateway: 192.168.0.1	IP: 192.168.255.2 Mask: 255.255.0.0 Gateway: 192.168.0.1

## 4. Testing the I-7540D-MTCP by using the I-7540D-MTCP Utility

Step1: Run the I-7540D-MTCP Utility (I-7540D-MTCP.exe) two times. Then two I-7540D-MTCP Utility windows will be displayed on the screen. Assume that one is named as Utility #A and the other is called Utility #B.

Step2: Click the "Connect" button to open the connection dialog. Key-in the IP of these I-7540D-MTCPs and press the "Connect" button to connect with them.
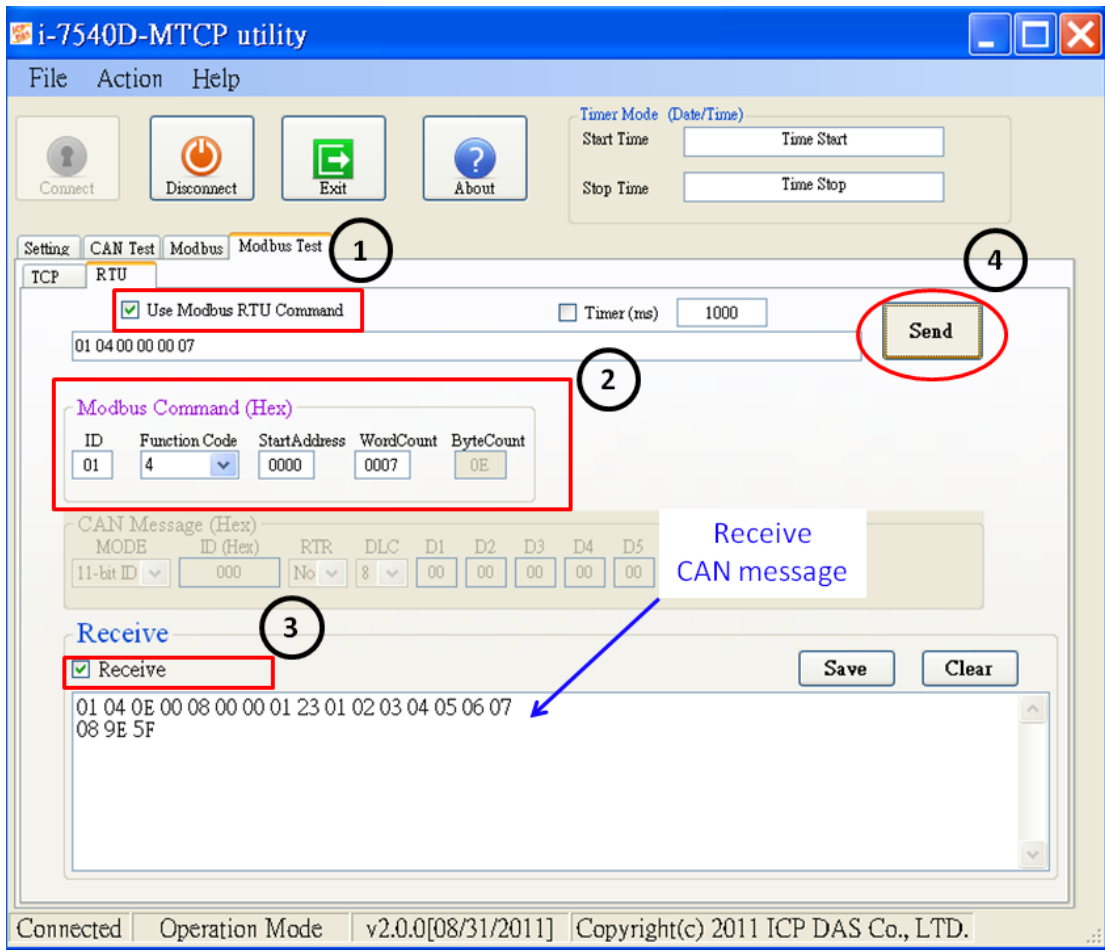
Step3: After connecting with them, select the "Modbus Test" tab. Utility #A is shown in the below figure and Utility #B will be similar to Utility #A.
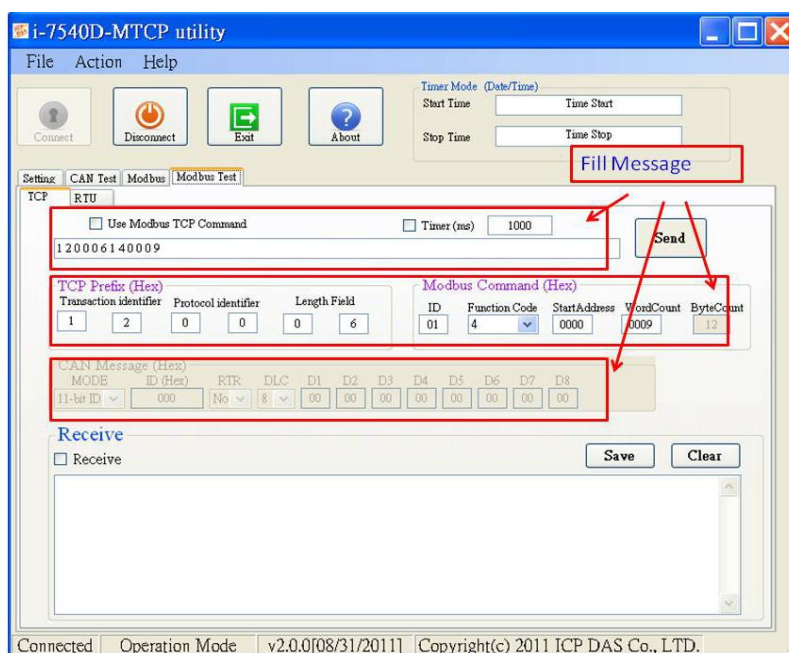
Step4: Check the "Use Modbus TCP Command" checkbox and input the value to the "Modbus Command" frame and "CAN Message" frame on Utility #A. Click the "Send" button. Then, the utility will automatically transfer these CAN messages to the ASCII command string, and send it out through the PC's Ethernet port. (Suppose using Modbus function code 10_{hex} to send CAN message) After the I-7540D-MTCP #A receives this command, It will transfer the command to the CAN message. So, the I-7540D-MTCP #B will receive the CAN message transmitted from I-7540D-MTCP #A and store in the buffer. User can use Modbus RTU command (function code 04_{hex}) to read the CAN message. Detailed steps are shown in the following figure.
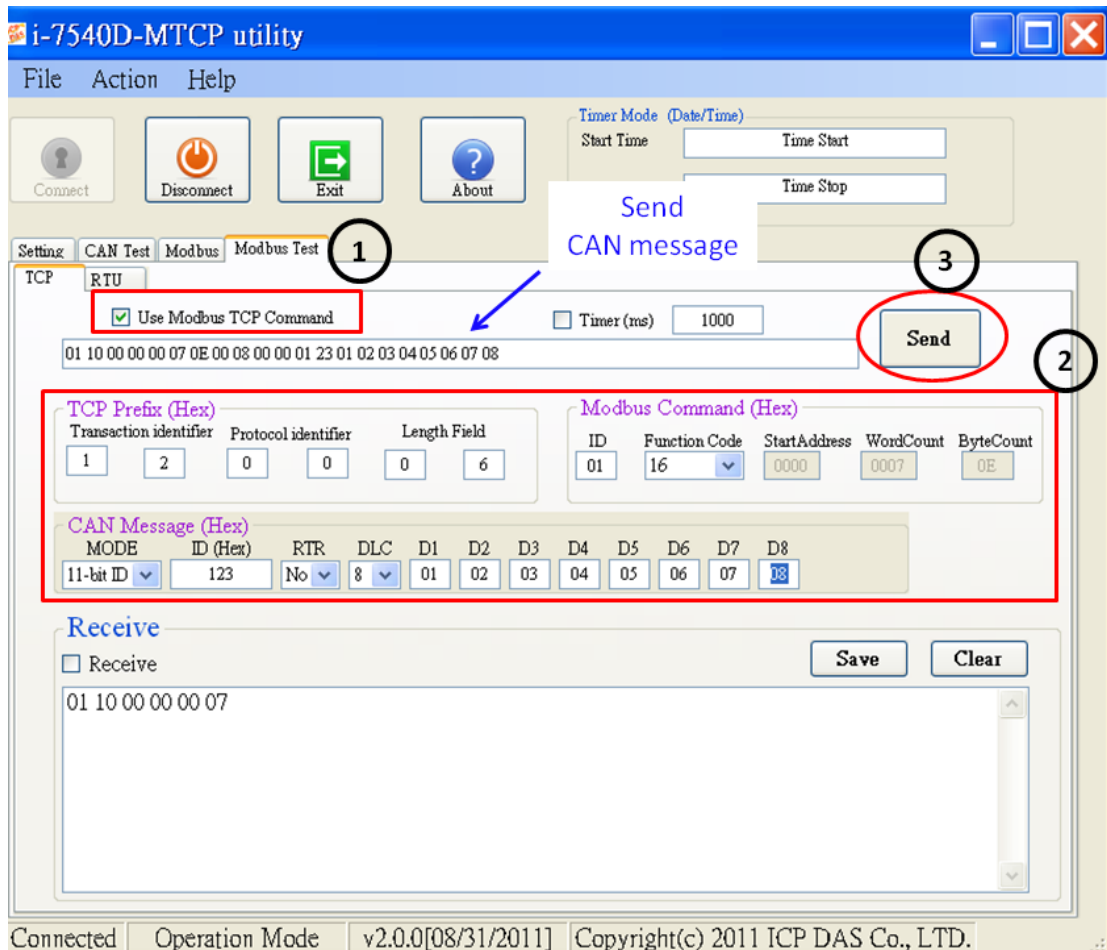
Utility I-7540D-MTCP #A

Utility I-7540D-MTCP #B