



Quick Start Guide for I-2533CS series

Sep 2013, Version 1.0.0

Congratulations!

Congratulations on purchasing I-2533CS series - the most popular automation solution for CAN bus to single mode fiber transformation. This Quick Start Guide will provide information needed to get started with I-2533CS series. Please also consult the User Manual for detailed information on the setup and use of I-2533CS series.

What's In the Box?

In addition to this guide, the package includes the following items:



I-2533CS/I-2533CS-60



Software Utility CD



RS-232 cable (CA-0910)



Screw Driver (1C016)



EMI Core

Technical Support

- I-2533CS series User Manual

CD:\fieldbus_cd\can\converter\i-2533cs>manual\
ftp://ftp.icpdas.com/pub/cd/fieldbus_cd/can/converter/i-2533cs/manual/

- I-2533CS series Website

http://www.icpdas.com/products/Remote_IO/can_bus/i-2533cs.htm

- ICP DAS Website

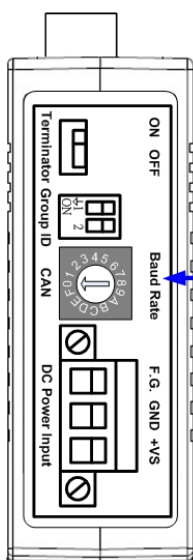
<http://www.icpdas.com/>

1 Hardware Installation

Before using I-2533CS, some things must be done.

Step 1: Prepare one pair of I-2533CS (or one I-2533CS-A and I-2533CS-B)

Step 2: Set the CAN baud rate of each I-2533CS by using rotary switch

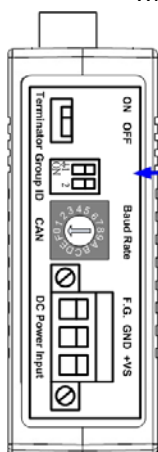


Rotary switch for CAN baud rate

Switch Value	Meaning
0	Set baud rate to 10 kbps
1	Set baud rate to 20 kbps
2	Set baud rate to 50 kbps
3	Set baud rate to 80 kbps
4	Set baud rate to 100 kbps
5	Set baud rate to 125 kbps
6	Set baud rate to 250 kbps
7	Set baud rate to 500 kbps
8	Set baud rate to 800 kbps
9	Set baud rate to 1 Mbps
A	Set baud rate to user-defined baud rate which is configured by I-2533CS utility.
B~D	N/A
E	Set I-2533CS into firmware update mode. The firmware update tool is needed.
F	Set I-2533CS into configuration mode. The utility tool is needed.

Step 3: Check the Module Group ID setting

The CAN port with the same "Module Group ID" setting can communicate with each other via fiber optics.

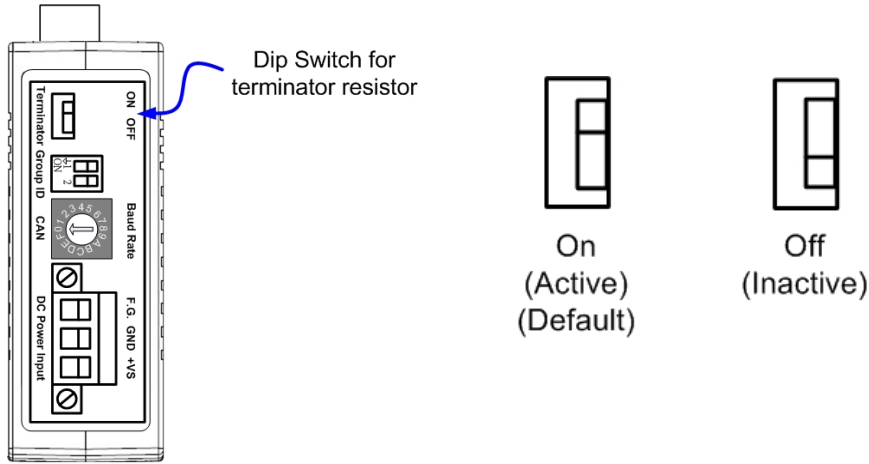


Dip Switch for Module Group ID

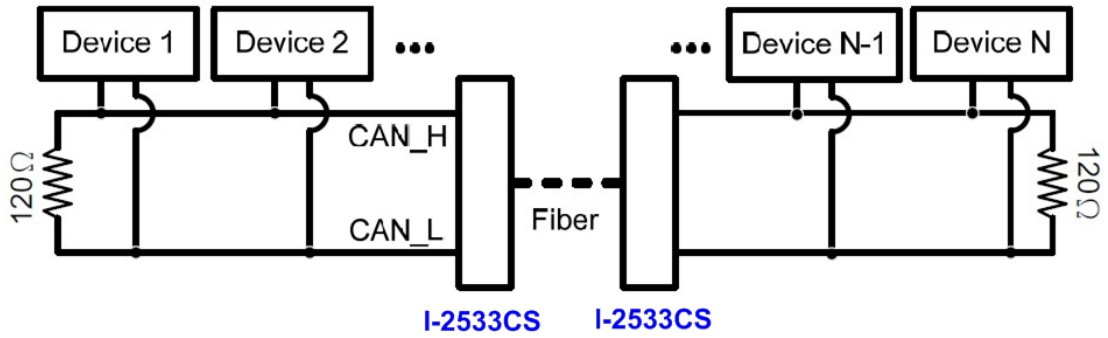
DIP Switch	ID value	Description
	00	The I-2533CS can exchange data with the one which has the group ID 00.
	01	The I-2533CS can exchange data with the one which has the group ID 01, and 03.
	02	The I-2533CS can exchange data with the one which has the group ID 02, and 03.
	03	The I-2533CS can exchange data with the one which has the group ID 01, 02, 03.

Step 4: Determine if the terminator resistor is needed or not

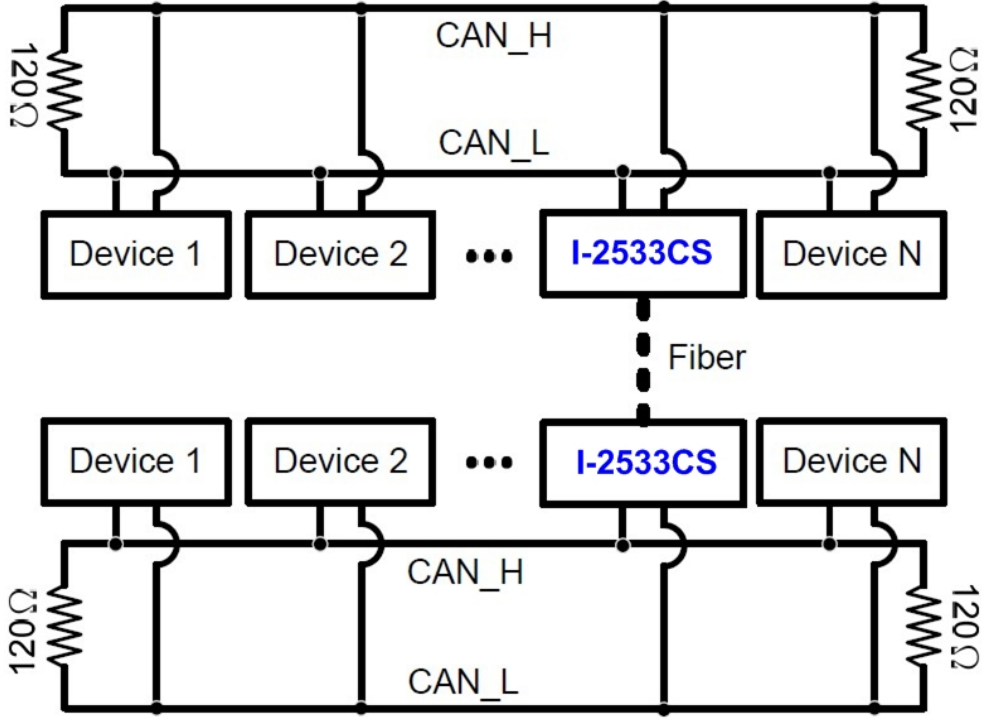
Check the application structure, and determine if the terminator resistor is needed or not. You can find it at the position as follows.



Generally, if your application is as follows, we recommend you to enable the terminator resistor.

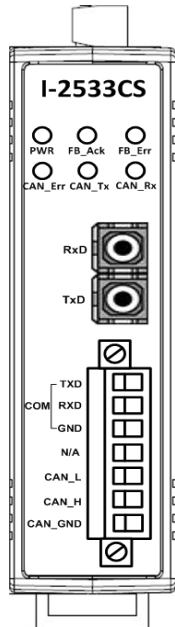


If your application is like the structure as follows, the terminator resistor is not needed.

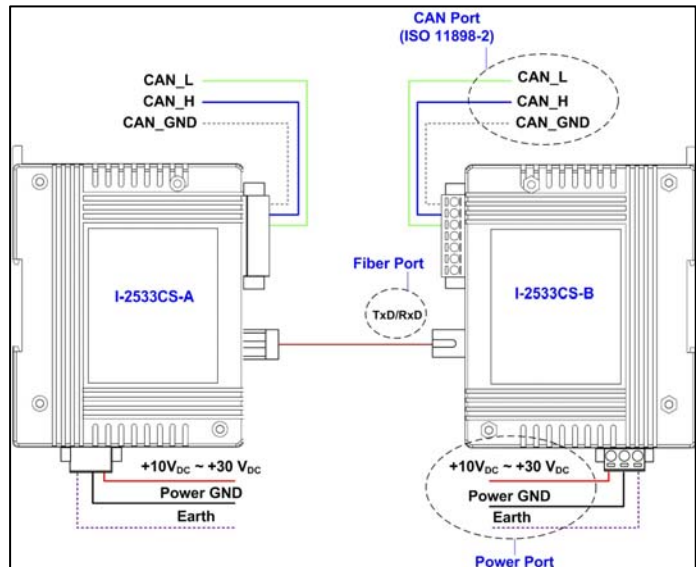
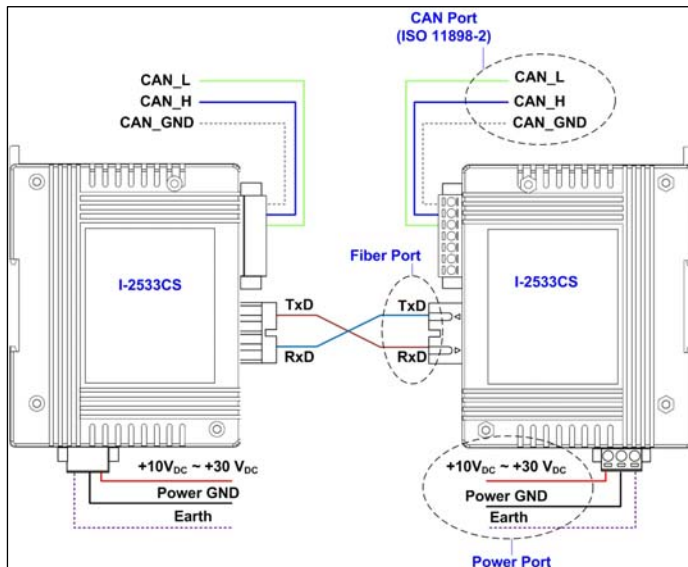


Step 5: Connect the fiber port, CAN port, power line and frame ground of these I-2533CS.

The pin assignment and wire connection are as follows. When finished, run your application with these I-2533CS.



Pin. No.	Meaning
RxD	Fiber RxD port
TxD	Fiber TxD port
COM_TXD	TXD pin of RS-232 port for configuration
COM_RXD	RXD pin of RS-232 port for configuration
COM_GND	GND pin of RS-232 port for configuration
N/A	Non-available
CAN_L	CAN_L pin of CAN bus
CAN_H	CAN_H pin of CAN bus
CAN_GND	CAN_GND pin of CAN bus



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Utility tool

When users want to use user-defined CAN baud rate and CAN message filter, I-2533CS Utility tool may be needed.

Step 1: Install the I-2533CS Utility

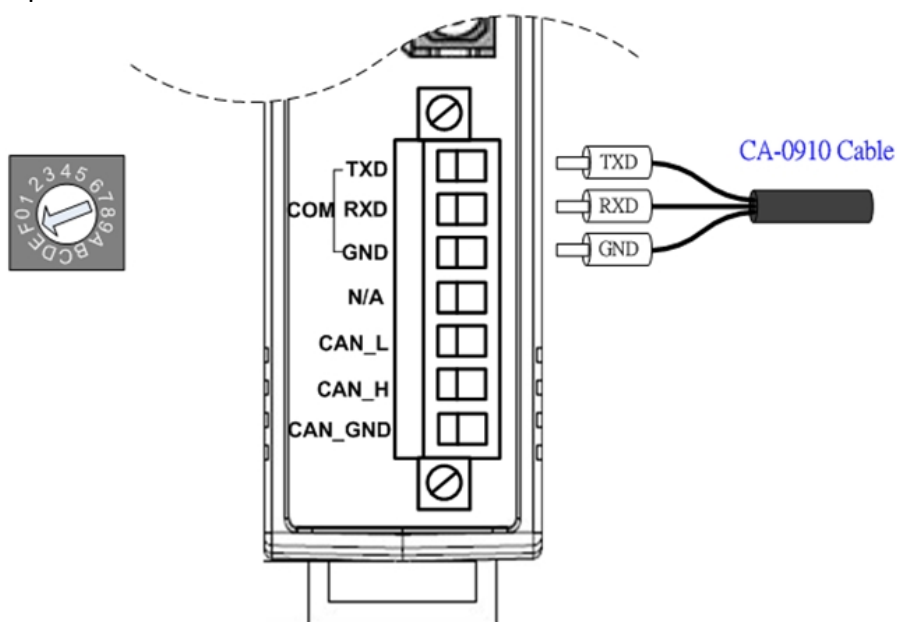
The software is located at:

Fieldbus_CD:\CAN\Converter\I-2533CS\Software\Utility

http://www.icpdas.com/products/Remote_IO/can_bus/i-2533cs.htm

Step 2: Setting up the I-2533CS module

1. Power off the I-2533CS
2. Set the rotary switch to 'F' and connect the PC available COM port with the COM port of the I-2533CS. Users can find the communication cable (CA-0910) in the product box. When connecting to the COM port of I-2533CS, the TXD pin of the cable is connected to the TXD pin of the I-2533CS COM port, RXD pin of the cable is connected to the RXD pin of the I-2533CS COM port, and GND pin of the cable is connected to the GND pin of the I-2533CS COM port.



3. Power on the I-2533CS. Then, the CAN_Err, CAN_Tx, CAN_Rx, FB_Err LEDs will take turns to flash per 500 milliseconds.

- Execute the I-2533CS Utility tool.

Step 3: Configure user-defined CAN baud rate

The I-2533CS series allows users to set the special CAN baud rate by using the “User-defined CAN Baud Rate” field of the Utility.



The CAN bus baud rate is calculated by the parameter BRP (Baud Rate Prescaler), TSEG1 (The delay from the nominal Sync point to the sample point minus one) and TSEG2 (The delay from the sample point to the next nominal sync point minus one).

Please refer to the following formula to calculate the BRP, TSEG1 and TSEG2 parameters of your expected CAN baud rate and click the “Save” button to download this parameter into module.

$$\text{Expected CAN baud rate} = 48000 / ((\text{BRP} + 1) * (\text{TSEG1} + \text{TSEG2} + 3)) \quad (\text{Kbps})$$

Note:

BRP: Baud Rate Prescaler.

Range: **0x000 ~ 0x3FF**

TSEG1: The delay from the nominal Sync point to the sample point minus one.

Range: **0x0 ~ 0xF**

TSEG2: The delay from the sample point to the next nominal sync point minus one.

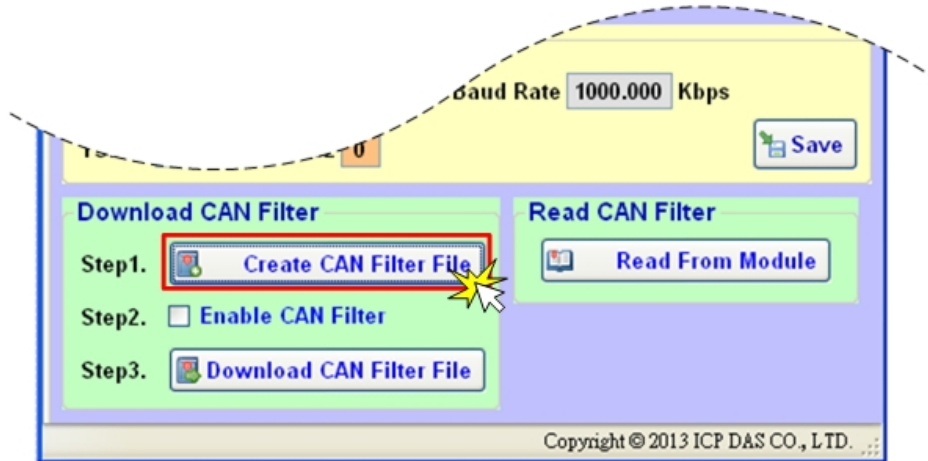
Range: **0x0 ~ 0x7**

Step 4: Setting CAN filter ID

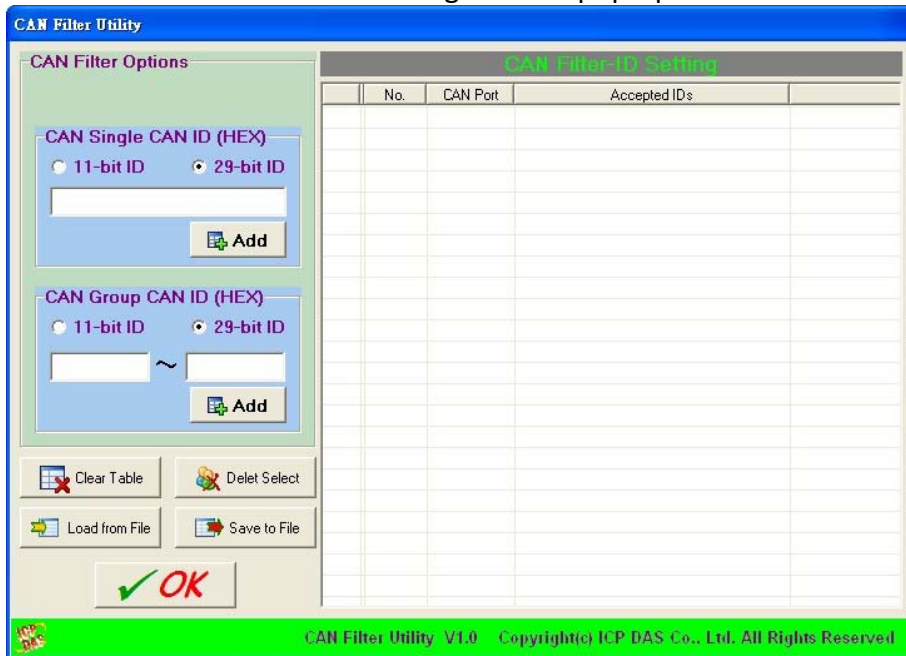
There are two parts of CAN filter configuration. One is “Download CAN Filter” which functions as setting the CAN filter and downloading the configuration to the I-2533CS. Another is “Read CAN Filter” which provides read back the CAN filter configuration from the I-2533CS series.



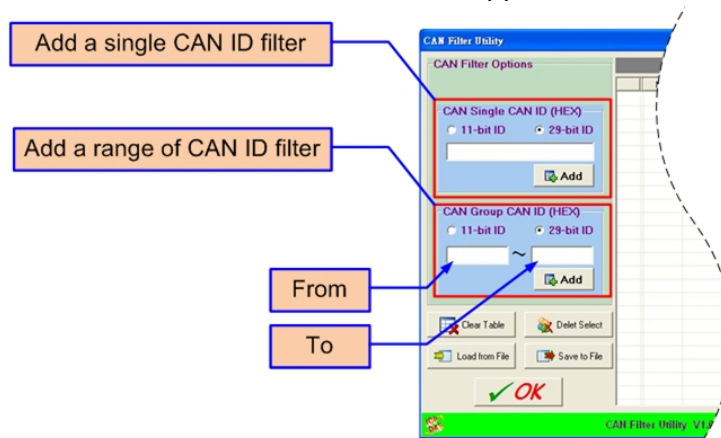
1. Click the “Create CAN Filter File” button to start setting CAN filter



2. Then users would see the following window pop-up.



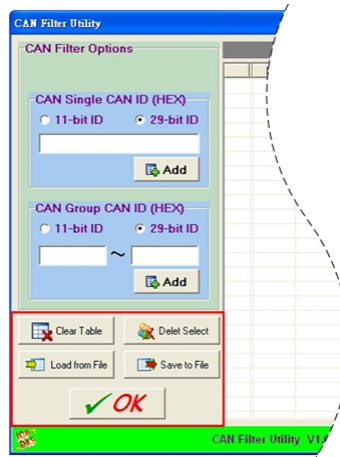
3. Add the CAN filter with single CAN ID or group of CAN ID. The CAN message with the ID in the list will be received, otherwise it will be dropped.



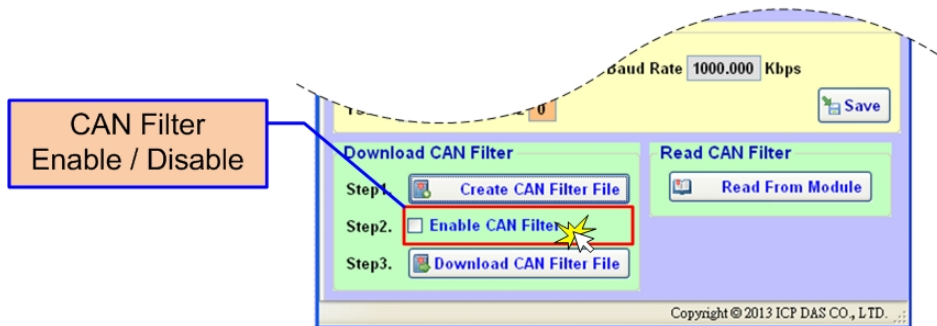
- After completing, users could see the follow picture.

No.	CAN Port	Accepted IDs
0	1	4~15
1	1	7F

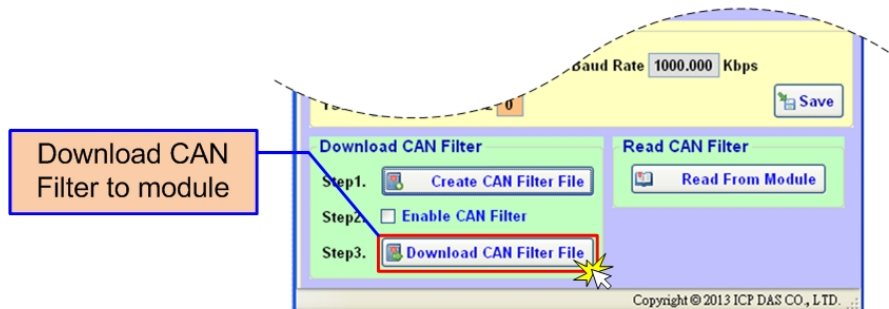
- When completing the CAN filter configuration, click the “Save to File” button to save it by using a record file with “*.FLT” extension file name.



- Check the “Enable CAN Filter” item to make the CAN filter enable.



- Click “Download CAN Filter File” to download the selected CAN filter file into the I-2533CS series.



- After finishing all the steps above, users need to reset the module to enable the configuration by turning it off and then turning it on. If users want to review the configuration, click “Read From Module” button to read back the information.