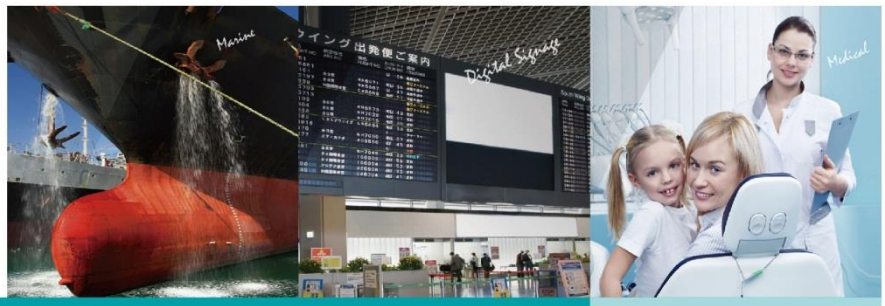


DFI CAN Watcher Application User Guide

V 1.0

DFI

Revision Control.
Long Product Life Cycle.

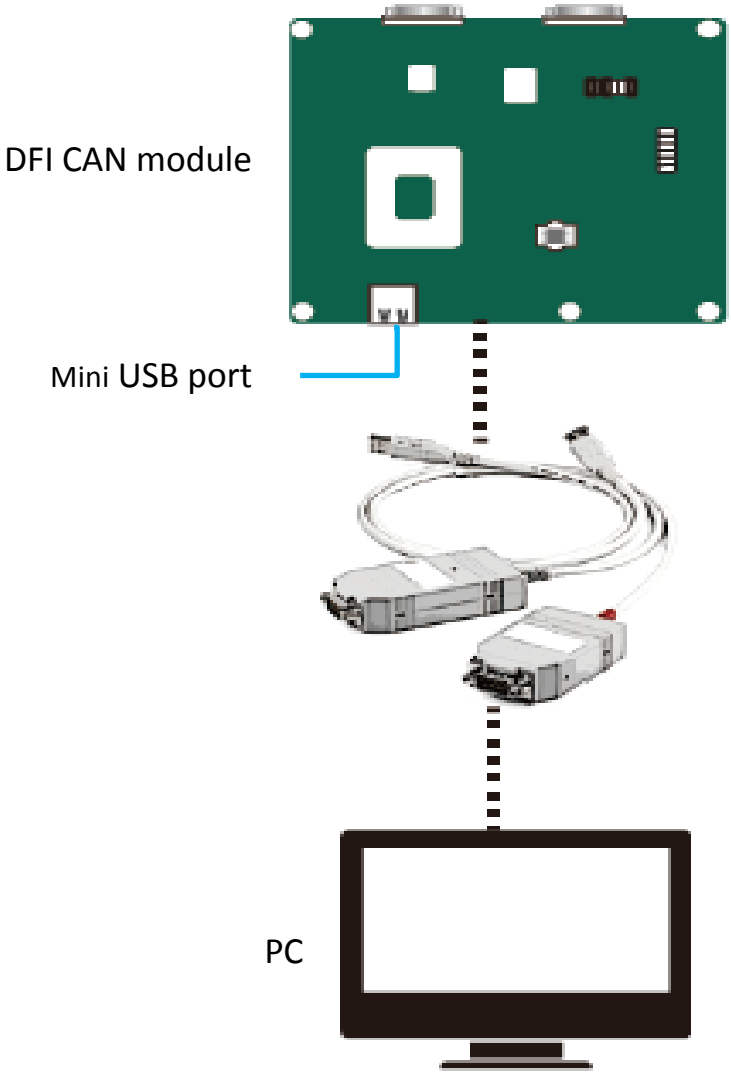
Table of Contents

1 Introduction

The DFI CAN Watcher is a dedicated software program for communicating with the DFI CAN module. It is capable of transmitting and receiving data in a CAN network and provides advanced features such as filtering and logging.

2 Setup

Perform the following procedure to connect the DFI CAN module to your PC:
Connect the end with the Mini USB connector of a USB-to-Serial adapter to the DFI CAN module and the other end (with the serial connector) to your computer.



3 Program installation

System requirements

Before you install DFI CAN Watcher, verify that your computer meets or exceeds the minimum system requirements for the program:

- At least 1 GHz or more recent x32-bit or x64-bit processors
- 2 GB RAM
- 3.0 GB available disk space
- Operating systems: Windows 10, Windows 8.1, Windows 8, and Windows 7 Service Pack 1

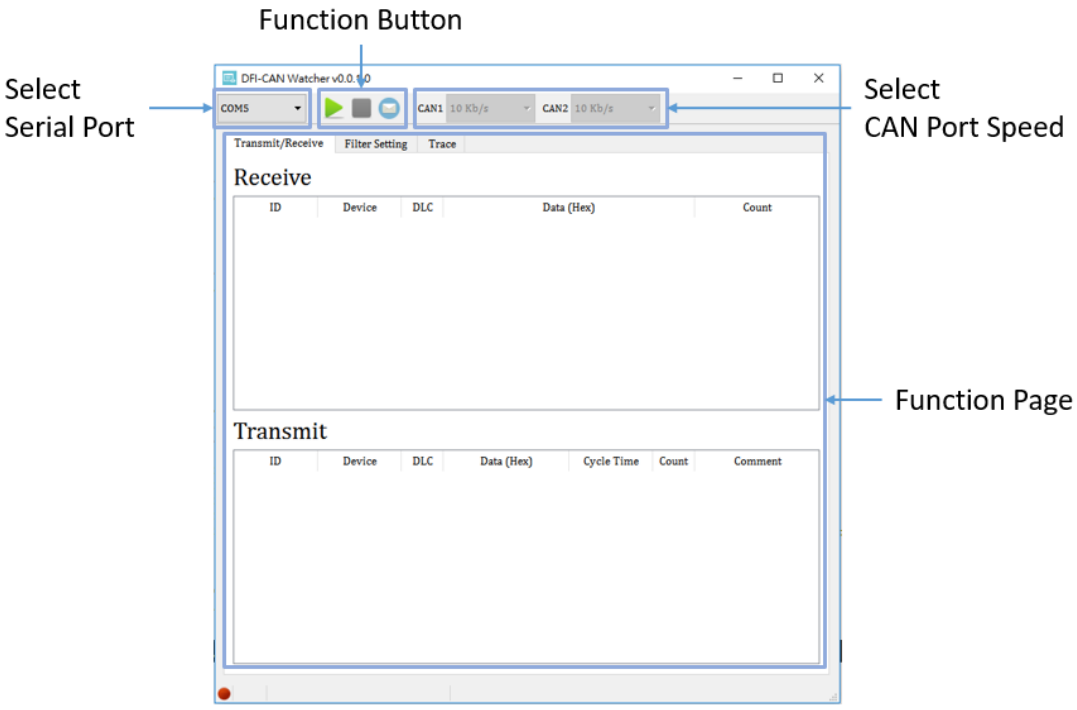
Run the program

Perform the following procedure to run the program:

1. Obtain the software package from DFI technical support.
2. Unzip the package and double-click the executable file: can_watcher.exe

4 Data Transmission

Basic view of the program



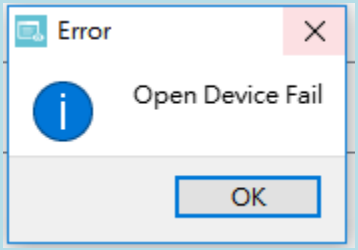
Prepare for data transmission

Perform the following procedure before starting data transmission:
Select the serial port for communication from the “Select Serial Port” drop-down list and click “start”  to start the connection. After the connection is established, the “CAN Port Speed” 

can be selected and the “Function Page” will be activated.

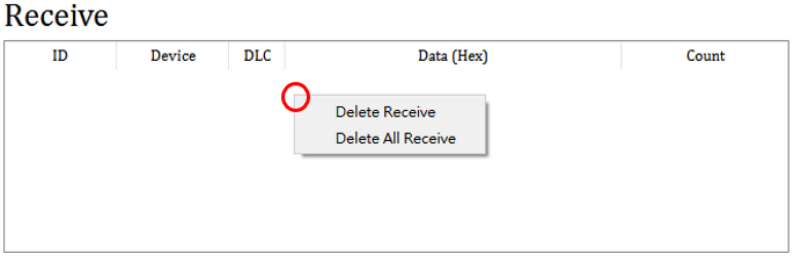
Note:

1. If there are no COM ports detected on your PC, the “Select Serial Port” list will be blank. You should close the program and restart it to scan for available COM ports. You may also view the serial COM ports on your windows in “Device manager”.
2. If an invalid COM port is selected, the “Open Device Fail” error message will be displayed as shown in the following picture.



Work with the Receive Panel

This section demonstrates the functions you can perform using the Receive Panel.
Right-click on the area of the Receive Panel to display the Receive options:
Delete Receive: Delete the selected message.
Delete All Receive: Deleted all received messages.



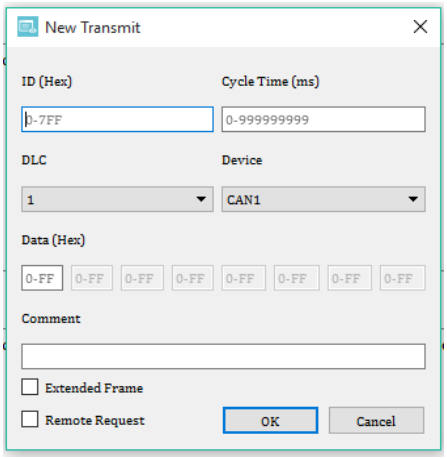
Work with the Transmit Panel

This section demonstrates the functions you can perform using the Transmit Panel.

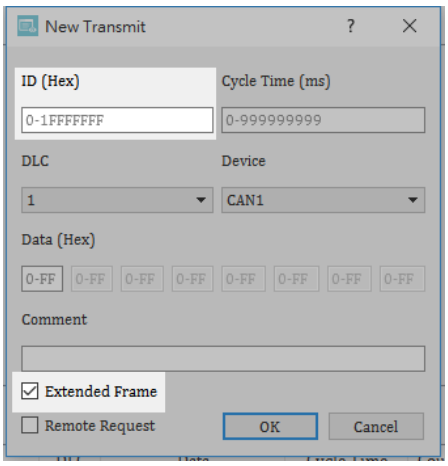
To create a new message

1. Select “New message”  to create a new message to be transmitted.

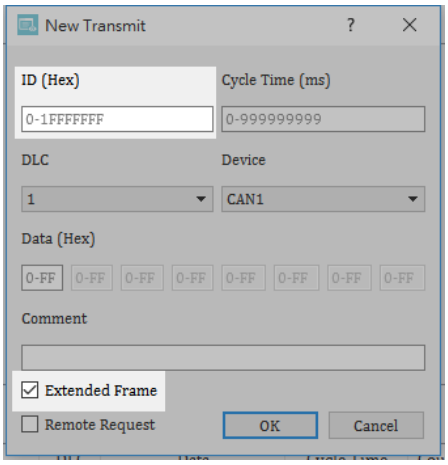
ID (Hex): Specify a CAN Identification Number in hexadecimal (or hex) representation. The valid value for ID ranges from 000 to 7FF. The lower the hex value, the higher its priority.
Cycle Time (ms): Specify the duration for retransmission in milliseconds. If no acknowledgement is detected on the bus, meaning no nodes on the network correctly received the message, this message will be retransmitted repeatedly in the specified duration.
Data (Hex): Enter the data to be transmitted in hex representation.
DLC: Select the length of the data (Max. Length: 8 bytes).



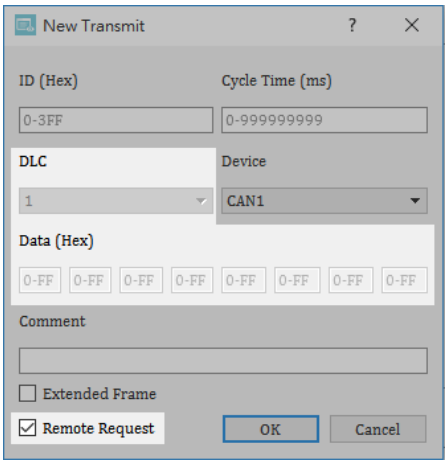
Device: Select the CAN port for transmission.
Comment: State any comments for this transmission entry.



Extended Frame: Select to mark this message as an extended message using an extended CAN identifier (ID). The valid value for ID ranges from 00000000 to 1FFFFFFF.



Remote Request: Specify that this message being transmitted as a remote request frame with the RTR (remote transmission request) bit equal to 1 (the recessive bit) to differentiate it from a data frame. This type of message contains no data.



2. Click “OK” when you are have finished creating a new message. To start transmission, use the “Start All Transmit” option as described below.

To control message transmission

Right-click on the area of the Transmit Panel to display the Transmit options:

Add Transmit: Create a new message to transmit.

Delete Transmit: Delete the selected message.

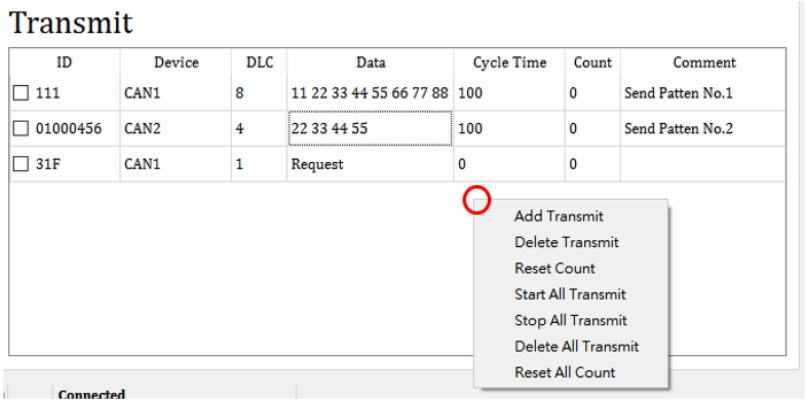
Reset Count: Reset the number of retransmission for the selected message.

Start All Transmit: Start transmitting all messages.

Stop All Transmit: Stop transmitting all messages.

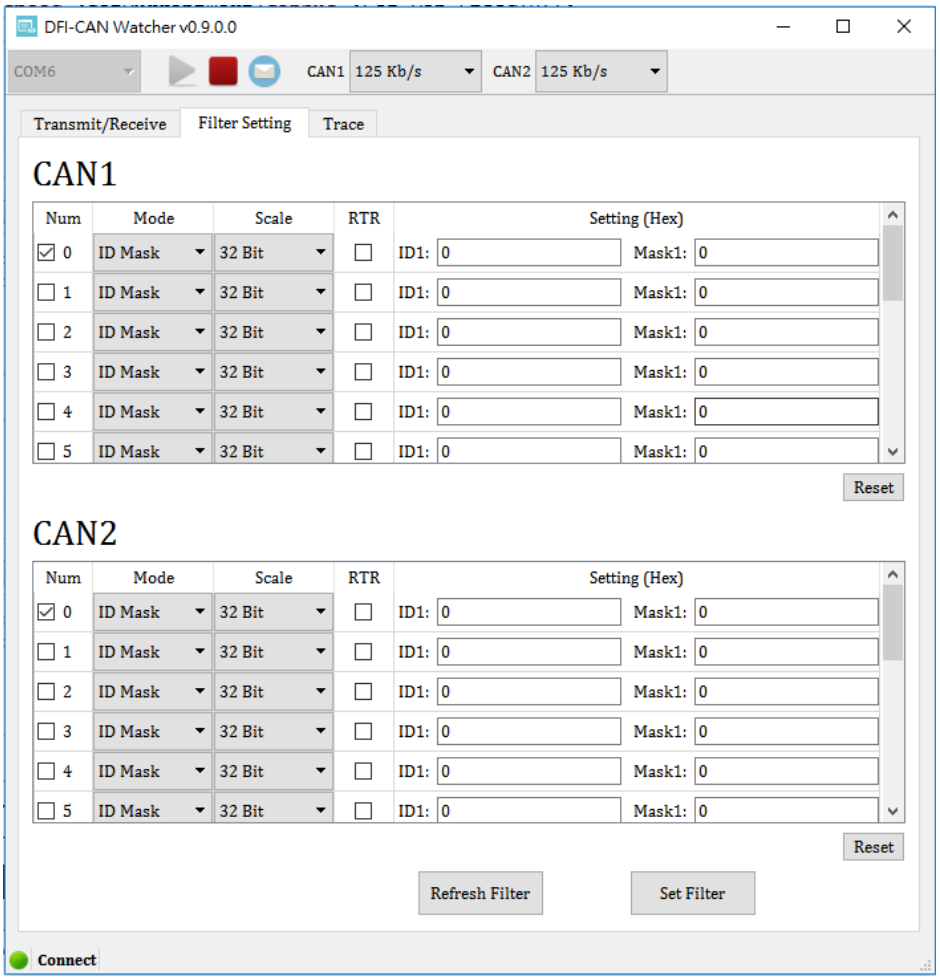
Delete All Transmit: Delete all records of transmitted messages.

Reset All Count: Reset the number of retransmission for all transmitted messages.



5 Filter Settings

The DFI CAN module adopts a filtering mechanism to accept certain messages by filtering received messages with the specified IDs. This is a permission list, i.e., messages with IDs not on the filter list will be discarded.



After the application establishes the connection with the DFI CAN module, the configured filters of the DFI CAN module will be loaded first.

Click “Refresh Filter” to reload the DFI CAN module’s filter configurations.

To create a new filer

1. Select a filter number  to configure a new filter.

2. Select the filter mode.

The module offers 4 modes of filter configuration, which can selected with the ID Mask and the Scale drop-down lists.

ID/Mask with 16-bit scale mode: Enter the ID and the mask to be checked against for the received messages to be accepted. The valid value for ID ranges from 000 to 7FF in hex representation. The Mask will not be limited to this range; however, the bit that is not applicable will be ignored.

ID/Mask filtering example:

The following is an example illustrating this filtering method:

If we received frame with an ID: 0x1FF

Set the filter ID and mask: ID: 0x1FF, Mask: 0x7FF

Do a bit-wise operation on the received ID: 1FF with the mask: 7FF (binary 0 means don't check; 1 means do check. Hence, this mask requires all bits to be checked.)

We will get a masked ID: 0x1FF (Compare this with the filter ID and they are equal.)

The result is that this received frame with ID 0x1FF will be accepted.

ID/List with 16-bit scale mode: Enter the ID of the received messages to be accepted. The valid value ranges from 000 to 7FF in hex representation.

ID/Mask with 32-bit scale mode: Enter the ID and the mask to be checked against for the received messages to be accepted. The valid value for ID ranges from 00000000 to 1FFFFFFF in hex representation. The Mask will not be limited to this range; however, the bit that is not applicable will be ignored.

ID/List with 32-bit scale mode: Enter the ID of the received messages to be accepted. The valid value ranges from 00000000 to 1FFFFFFF in hex representation.

3. Specify whether the received frame is a remote frame, which is identified by a recessive RTR bit (binary 1) and contains no data.
4. Click “Set Filter” Set Filter to finish this filter setting or “Reset” Reset to clear your setting.

Note: The Filter’s priority adheres to the following rules:

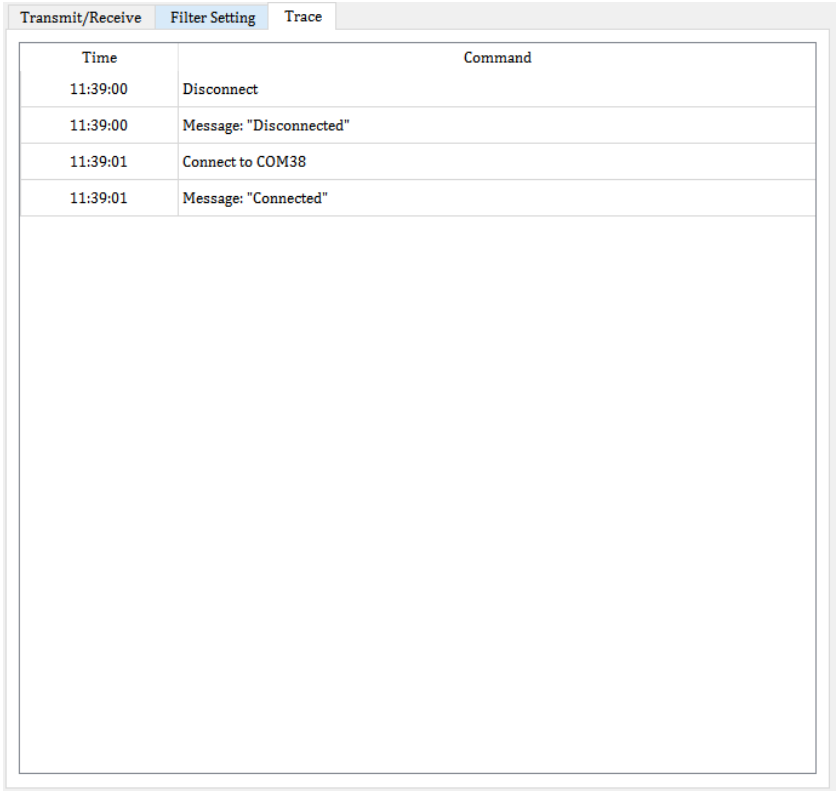
(1) The 32-bit Scale has higher priority than the 16-bit Scale.

(2) When the Scale (16 or 32 bit) is the same, the ID/List Mode has higher priority than the ID/Mask Mode.

(3) When both Filter Mode and Scale are the same, the filter assigned with lower number (in the front of the list) has higher priority.

6 Log

The “Trace” page is a detailed record of the activities on the DFI CAN module.



The log shows you the time and the operation performed on the DFI CAN module.