

Westpac Technology

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CAN3 Monitor



User Manual v2.11

Installation
✧
Quick Start Guide

Preliminary

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1. Preface

This document describes the control and features of the **CAN3 Monitor** to observe & record CAN Node Message signals on a CAN network.

2. Introduction

This **CAN3 Monitor** for CAN Node Message monitoring is an integral part of the **CAN3 package** to assist in the design and implementation of ECU connecting to the CAN Network.

For every electronic module that requires communication with other devices, simulations of other devices are essential for the development cycle; equally important is to have a **monitoring** tool to ensure all data exchanges are carried out in an orderly manner as it is intended to be.

This **CAN3 Monitor** is a real time data tracker for all data transmission on the CAN bus; it is designed with the following benefits:

- ☐ No programming coding is required; operator simply uses the **CAN3 Writer**¹ to type in the data definition- load it in to the **CAN3 Monitor** and is ready to monitor the CAN bus. This eliminates the lead time and financial cost burden from building dedicated simulation tools.
- ☐ Rapid product development by having the monitor readily available; especially when this **CAN3 Monitor** is operating in conjunction with the **CAN3 Simulator**²; in which they use the same CAN Node Message (INI) data file- that is generated by the **CAN3 Writer**.
- ☐ **CAN3 Monitor** is FREE of licence fee; that means **CAN3 Monitor** can be installed on every Windows based machine; allowing for a low cost, high performance development platform across company-wide.
- ☐ The data (Simulated or actual) on the CAN bus can also be recorded into file for record keeping, recorded messages playback and post analysis; in which it greatly enhances the productivity of development.

3. System Requirement

3.1. System Requirement

- ☐ CPU Speed: Pentium 1.6GHz minimum or equivalent or higher.
- ☐ Memory: 512MB Memory or above
- ☐ Connectivity: USB Port or PCI Slot or PCI Express Slot on the PC for Kvaser CAN Product Range

All Kvaser CAN Device are required to have firmware version 1.9 or above and Kvaser System Driver for Windows V5.12.0 or above; which can be downloaded from <http://www.kvaser.com/downloads/>. Also please ensure "Microsoft Visual C++ 2010 x86 Redistributable" is installed; following link provides more details: <https://www.microsoft.com/en-au/download/details.aspx?id=1639>.

Note: For Laptop user, please ensure the laptop is connected to main power and not using battery power, this is because when Laptop is using battery power its operating speed will be greatly reduced and the performance will not at its best.

¹ CAN3 Writer is a Freeware

² CAN3 Monitor is a Freeware

3.2. Operating System Requirement

The **CAN3 Monitor** supports the followings Operating System:

- ☐ Windows 2000
- ☐ Windows XP 32-bits
- ☐ Windows Vista 32-bits
- ☐ Windows 7 64/32-bits
- ☐ Windows 8 64/32-bits

CAN3 Monitor requires Microsoft .NET Framework Version 3.5 be installed. For more information about this, you can visit <http://www.microsoft.com/downloads/en/default.aspx> Search for the key words **.NET Framework 3.5**. This .Net Framework 3.5 covers .Net Framework 2.0 & 3.0.

3.3. Installation

To install **CAN3 Monitor** simply clicks **Setup.exe** and follows the instruction given on the screen.

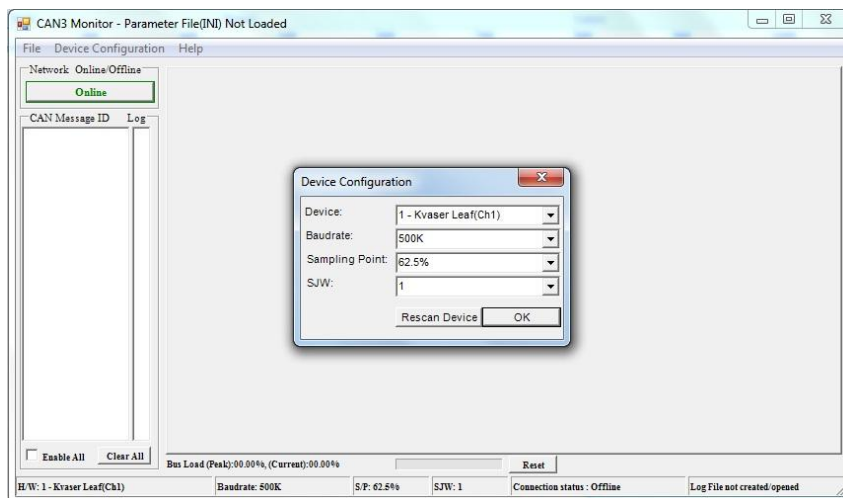
The **CAN3 Monitor** activation button will be installed into the **Start Menu** under the **CAN3 Utility** folder.

4. Starting up

4.1. Start CAN3 Monitor

Go to Windows **Start Menu** → **All Programs** → **CAN3 Utility** folder.

Click **CAN3 Monitor**. The initial start up screen will look like the picture below



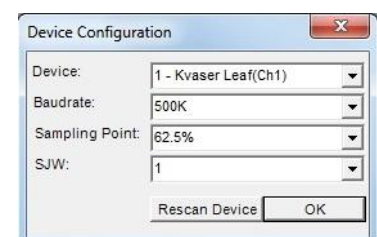
4.1.1. Device Configuration

Setting of the Kvaser's CAN Device Configuration can be done in the following 2 ways:

- ☐ Automatically activated during the start up of the program
- ☐ Go to **Device Configuration** tab on the top menu bar; while the status of the device is "offline" i.e. not running

A **Device Configuration** Window will be shown for user to set the following parameters:

- ☐ Choose available CAN Device CAN Device (See section 4.2 below)
- ☐ Baud rate



- ☐ Sampling Point
- ☐ SJW (Synchronise Jump Width)

After **OK** button has been clicked, the setting will be memorised. User can change the device setting by clicking the **Device Configure** on the top menu bar.

Note:

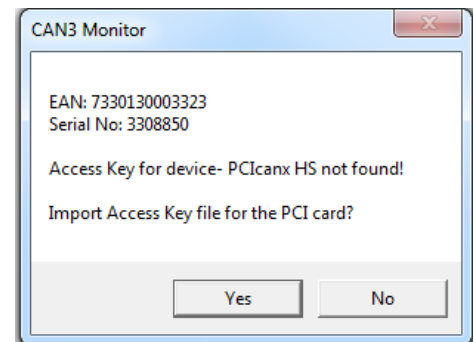
- a) User can only adjust the device configure when the device is in **Offline** Status. **Device Configuration** is not available during **Online** Status.
- b) **CAN3 Monitor** and **CAN3 Simulator** can share one Leaf Light device.

4.2. USB & PCI type devices

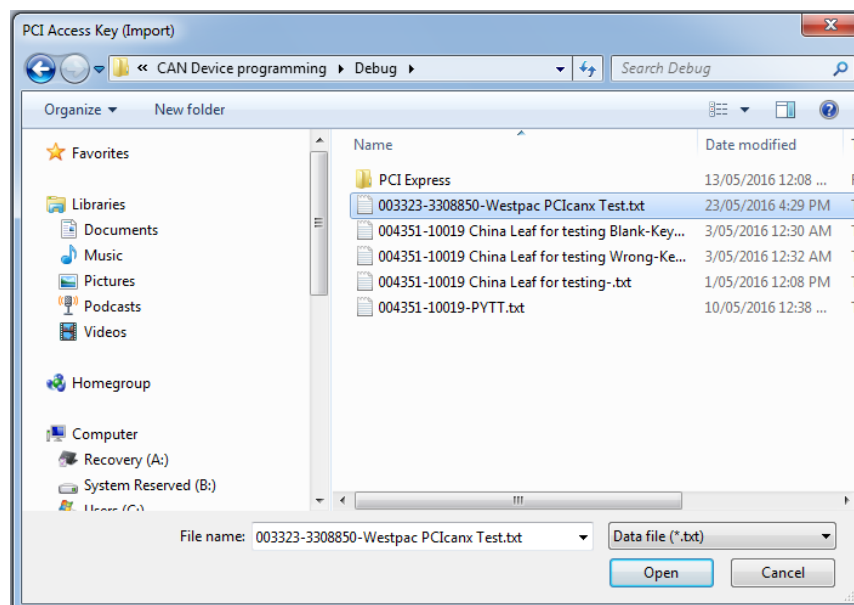
There are basically two type of connecting devices from Kvaser, namely the USB and PCI. The USB device would have the Key enabled by the supplier upon purchased and is transparent to the user; whilst the PCI would require user to manually import the Access key that is provided by the supplier. Following example shows the procedures for importing the Access Key for PCI devices:

the picture as shown on the right hand side is the example of the screen display when a PCI device is selected with a missing Access Key. User has the option to import the Access Key or to abandon the operation.

After clicking the “Yes” button, a new screen (as shown below) will pop up for user to provide the location of the Access Key file that was provided by the supplier. After the Access Key file has been selected, click “Open” button to complete the operation. Please note that once the valid Access Key file has been provided, it will not ask for it again.



Example of prompt message for missing Access Key

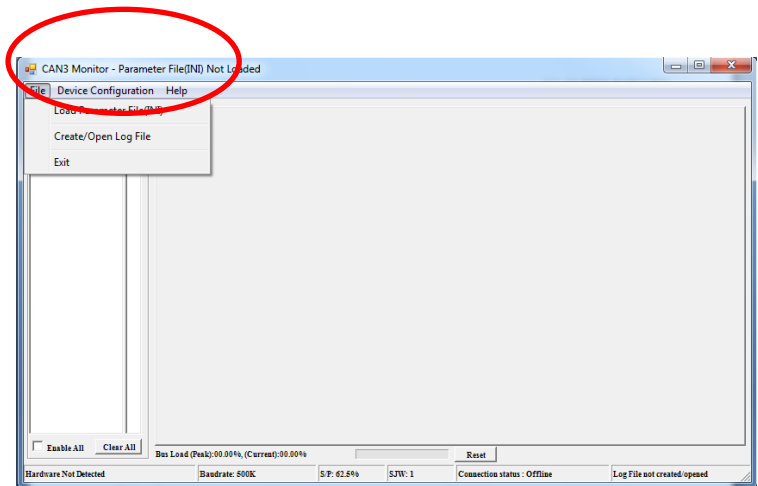


Example screen for entering the Supplier Provided Access Key for the PCI interface card

5. Load Parameter Data File

CAN3 Monitor prefers (but not compulsory) to have a pre-defined data set to operate; so that all the received data can be translated to a meaningful terms and definitions. You can download the Parameter Data File with extension “INI”. For information about how to prepare the Parameter Data File, please refer to the **CAN3 Writer User Manual** for details.

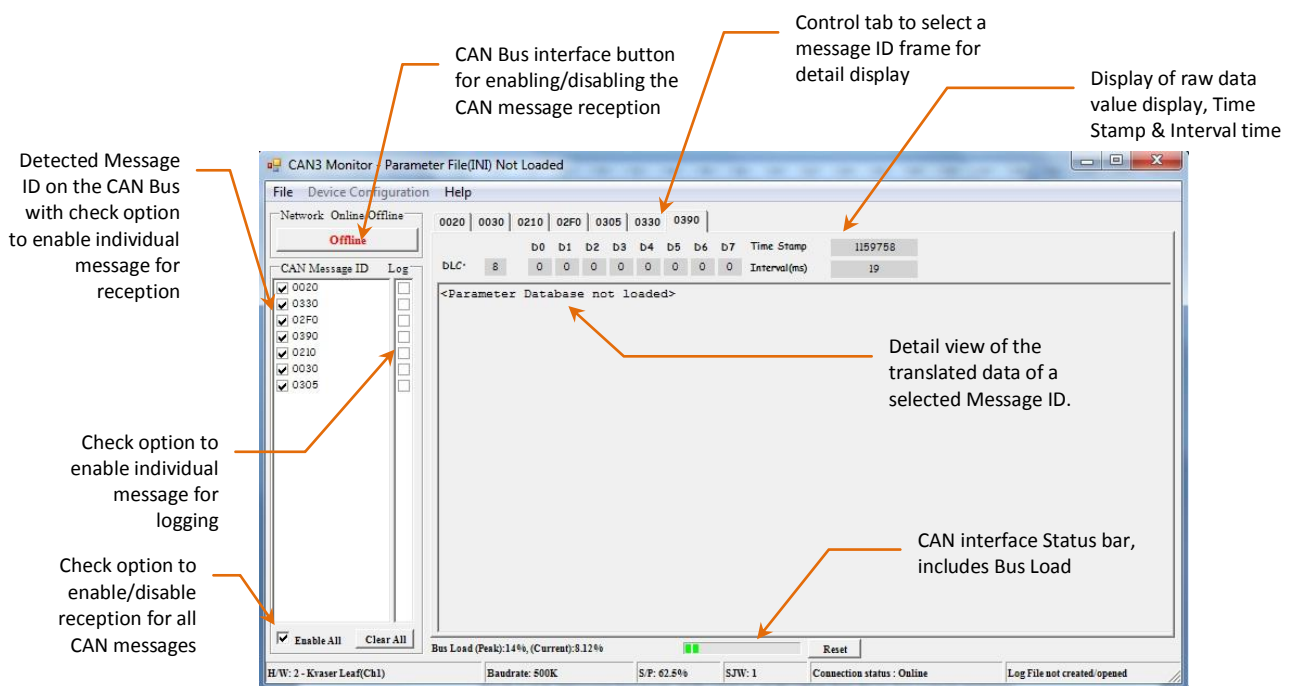
To load the Parameter Data File, **Select File** → **Load Parameter (INI) File** and choose a Parameter File in the open file dialog



CAN3 Monitor operate with or without the Parameter File, with the absent of the Parameter File, the received data will not be translated; only the raw numerical value will be displayed.

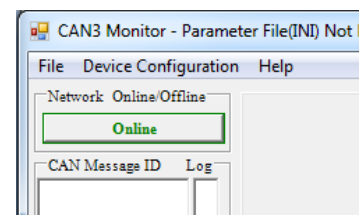
6. CAN3 Monitor controls

Below picture shows an example of **CAN3 Monitor** display after the “Online” button is pressed:



6.1. Online-Offline control

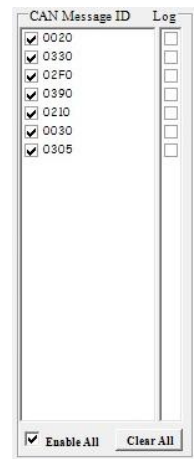
The **Online** button as shown on the right hand side picture is a toggle control to enable or disable the **CAN3 Monitor** connection to the CAN Bus. Once **CAN3 Monitor** is Online, it will detects any new message ID on the CAN BUS and display it on the **CAN Message ID** frame, located on the left of the Window. In the example above **CAN3 Monitor** has detected 7 CAN message ID.



6.2. CAN Message reception controls

The picture shown on the right hand side illustrates the available controls-

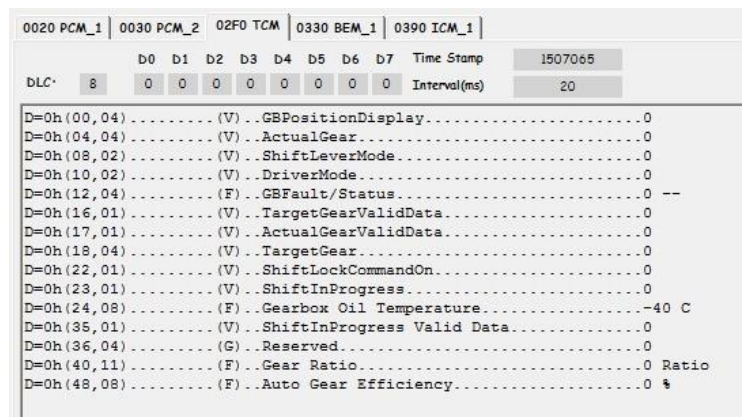
- ☐ The Checked-Box associated to the detected message ID is for a tick to enable the reception of checked message
- ☐ "Enable All" Checked-Box provides one action to enable or disable all message reception
- ☐ The "Clear All" command button is to clear all the detected message ID from the "CAN Message ID" frame and restart the detection of CAN messages on the network
- ☐ The Checked-Boxes in the Log column is for recording feature which will be discussed below in section 6.4.



6.3. CAN Message data display controls

The picture as shown in this section demonstrates an example of the translated data display of a selected CAN Node Message.

- ☐ Select the message by selecting the Message ID Tab, in this sample message 0x02F0 TCM is selected
- ☐ DLC=8: 8 bytes of message for this message
- ☐ D0 to D7: The raw value of the 8 bytes data
- ☐ Time Stamp: Shows the time stamp of the received message
- ☐ Interval: Calculated time between two consecutive messages
- ☐ Detail display of every data of the selected message ID; including the interpretation with the information provided by the Parameter Data file.



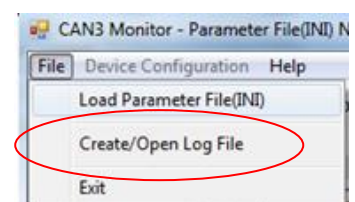
6.4. Data recording function

This function is to record (log) the selected CAN messages on to a file and then be Play-Backed by the **CAN3 Simulator** as desired i.e. re-produce the symptom by replaying the recorded CAN Node message on the bench. This feature plays an important role for system analysis as well as for fixing faults; especially the recorded messages can be sent to a different site for trouble-shooting and analysis.

Following describes the necessary steps to operate this Data Recording function.

6.4.1. Log File.

The CAN Node Message on the CAN Bus can individually be selected for recording into files. Before the recording can proceed, user needs to create or open a "Log File"; an example of the control is shown by the picture on the right hand side.

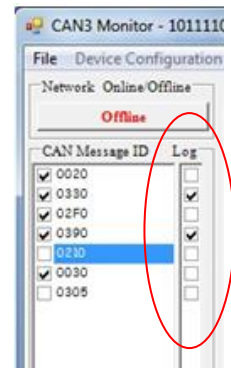


Click **Create/Open Log File** and follows the steps and instructions on the screen to create or open a log file.

6.4.2. Recording of selected CAN Node Message.

The Log column of Check-Boxes as shown in the tight hand side picture are options for the user to individually select the CAN Node Messages for recording. If the Log File is already created or opened, the message frame of a checked CAN Node will be recorded immediately; while an changing the check-box to unchecked will stops the recording immediately. This also provides a way to pause the recording as needed.

CAN Message Information such as CAN ID, Data bytes, timestamp will be logged into the Log File post-mortem analysis.



7. Revision History

Version	Date	Description	Edited
1.00	2011.07.18	First Release	Derek Sum
1.01	2015.05.09	General Clean-Up	Paul
2.00	2015.10.21	Updated the installation for WIN7 & WIN8 64 bits	Paul
2.10	2016.06.04	Added Access Key File import for PCI Card	Paul
2.11	2016.07.20	Correct the Side message to CAN Monitor	Paul