EQP-104

OBD11 BLACK BOX RECORDER

USER MANUAL

Table of Contents

1. Safety Information

For your safety, and to prevent damage to the equipment and vehicles, read this manual thoroughly before operating your EQP-104 Data logger. The safety messages presented below and throughout this user's manual are reminders to the operator to exercise extreme care when using this device. Always refer to and follow safety messages and test procedures provided by the manufacturer of the vehicle or equipment being tested. Read, understand and follow all safety messages and instructions in this manual.

1.1 Conventions Used

We provide safety messages to help prevent personal injury and equipment damage. Below are signal words we used to indicate the hazard level in a condition.

No.	Signal Word	Hazard Level
1	⚠DANGER	Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury to the operator or to bystanders.
2	⚠WARNING	Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury to the operator or to bystanders.
3	⚠CAUTION	Indicates a potentially hazardous situation which, if not avoided, may result in moderate or minor injury to the operator or to bystanders.

1.2 Important Safety Instructions

And always use your Data logger as described in the user's manual, and follow all safety messages.

⚠WARNING Do not exceed voltage limits between inputs specified in this user's manual.

⚠WARNING Always wear ANSI approved goggles to protect your eyes from propelled objects as well as hot or caustic liquids.

⚠WARNING Fuel, oil vapours, hot steam, hot toxic exhaust gases, acid, refrigerant and other debris produced by a malfunction engine can cause serious injury or death. Do not use Data logger in areas where explosive vapour may collect, such as in below-ground pits, confined areas, or areas that are less than 18 inches (45 cm) above the floor.

⚠WARNING Do not smoke, strike a match, or cause a spark near the vehicle while testing and keep all sparks, heated items and open flames away from the battery and fuel / fuel vapours as they are highly flammable.

⚠WARNING Keep a dry chemical fire extinguisher suitable for gasoline, chemical and electrical fires in work area.

⚠WARNING Always be aware of rotating parts that move at high speed when an engine is running and keep a safe distance from these parts as well as other potentially moving objects to avoid serious injury.

⚠WARNING Do not touch engine components that get very hot when an engine is running to avoid severe burns.

⚠WARNING Block drive wheels before testing with engine running. Put the transmission in park (for automatic transmission) or neutral (for manual transmission). And never leave a running engine unattended.

⚠WARNING Do not wear jewellery or loose fitting clothing when working on engine.

⚠CAUTION Make sure to turn off ignition before connecting or disconnecting the Data logger.

2. Using This Manual

We provide instructions for the usage of your data logger in this manual. Below is a list of conventions we used in the manual.

Safety Information

See ***Safety Information*** on page 2.

Symbols and Icons

√ Check Note

Additional information about the subject in the preceding paragraph is introduced by a √ Check Note.

Example:

√ To be able to use the software, PC or laptop must meet the following minimum requirements:

● Solid Spot

Operation tips and lists that apply to specific tool are introduced by a solid spot ●.

Example:

The Setup function is used to configure the data management software and the device. The Setup allows you to:

- Displays device information;
- Clear device memory;
- Synchronize device internal clock with your computer;

.

IMPORTANT

IMPORTANT indicates a situation which, if not avoided, may result in damage to the test equipment or vehicle.

Example:

IMPORTANT Do not soak keypad as water might find its way into the Data logger.

NOTE

NOTE provides helpful information such as additional explanations, tips, and comments.

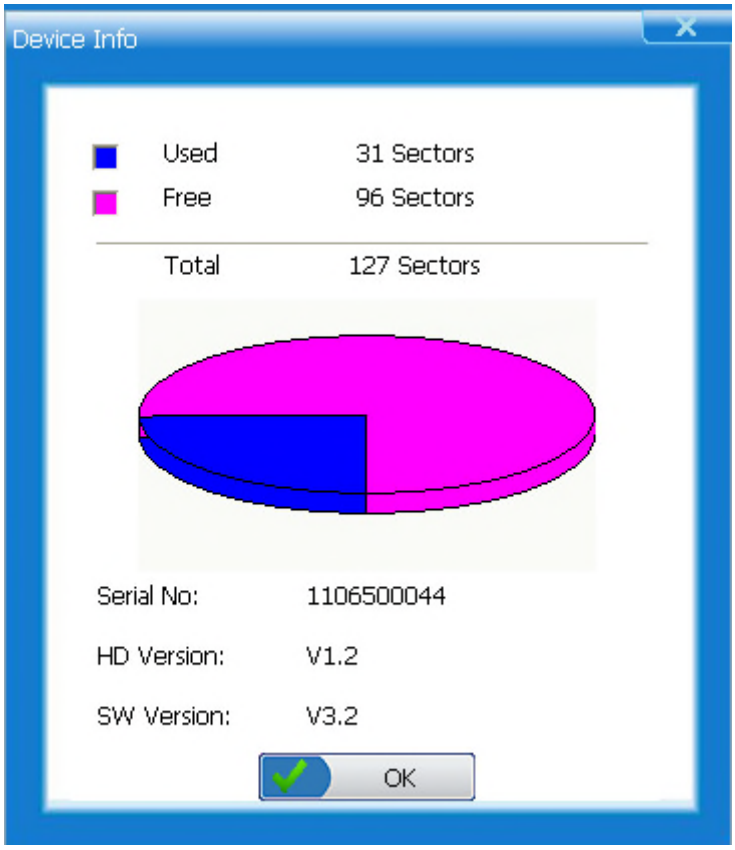
Example:

NOTE Not all data are supported by all vehicles.

Screens

The screens presented are examples only and actual test screen may vary for each vehicle being tested.

Example:



Arrow Icon

▶ An arrow icon indicates a procedure.

Example:

To install EQP-104 in a vehicle:

▶ 1. Locate the Data Link Connector (DLC) on vehicle.

2. Plug in EQP-104 to the DLC.

3. Make sure EQP-104 is correctly attached to the DLC by checking if its LED indicator is blinking.

3. Introduction

EQP-104 is specially designed to work on all OBDII/EOBD compliant cars, SUVs, light-duty truck and mini-vans sold worldwide since 1996. The EQP-104 data logger is an indispensable OBD tool that helps with diagnosis and analysis of intermittent engine faults. Also it is a great tool that empowers you to get improved economy and keep your car running at peak performance by continuously logging engine data of every trip you make and watching how your car is being driven.
EQP-104 data logger communicates with the vehicle via a standard 16-pin OBDII interface. Once plugged into the DLC (Data Link Connector) of your car, it automatically collects and logs data from the on-board computers, including trip start and end times, vehicle speeds, rates of acceleration and braking, any trouble codes detected and also fuel used during the trip. Later, you use the data management software to review the information on your computer screen.

3.1 About OBDII/EOBD

What is OBD?

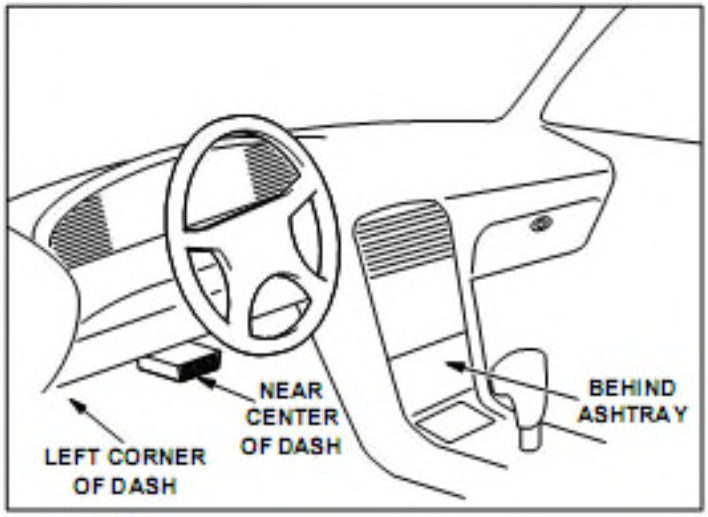
The first generation of On-Board Diagnostics or OBD I was introduced in early 1980's to control engine functions and diagnose engine problems by vehicle manufacturers. As the OBDI lacked standardization of protocols and interface, it allowed different interpretations among vehicle manufacturers.
OBDII, the second generation On-Board Diagnostics, improved in both capability and standardization, is a system developed in mid 1990's by the Society Automotive Engineers (SAE) to standardize automotive electronic diagnosis. EOBD is European version of OBDII required in Europe since2001.
The OBDII standard specifies:

- A generic diagnostic port (Data Link Connector) and its pinout;
- The protocols and the messaging format;
- A standard list of vehicle parameters identifications;
- A standard list of diagnostic trouble codes (DTCs);

Data Link Connector

The Data Link Connector (DLC) is a standard 16-pin interface located under the dashboard on the driver's side of the passenger compartment. If the DLC is not located under the dashboard as stated, a decal describing its location should be attached to the dashboard in the area the DLC should have been located.

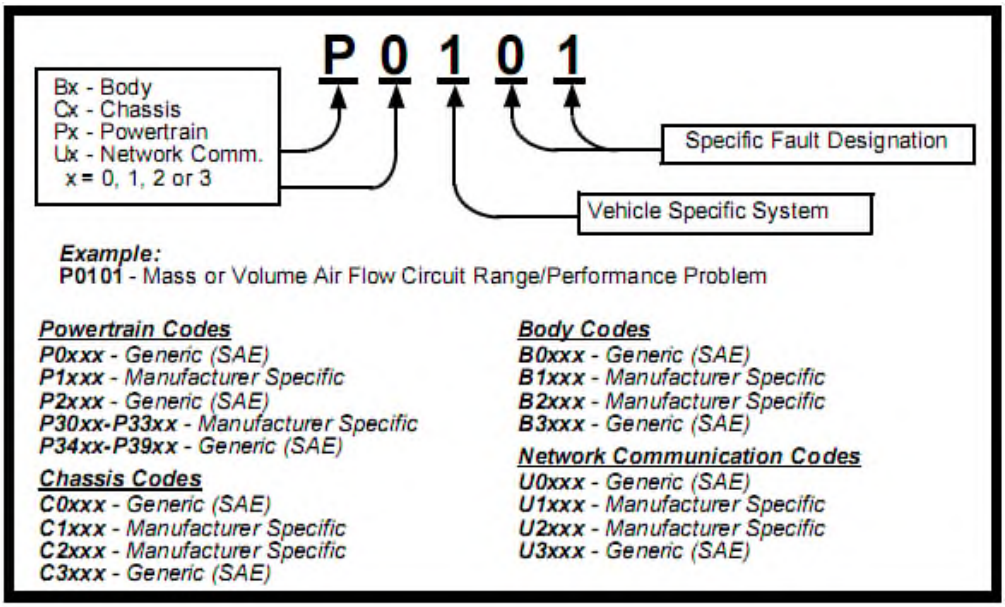
NOTE On some Asian and European vehicles the DLC is located behind the "ashtray", which must be removed to access it, or on the far left corner of the dash. If the DLC cannot be found, consult the vehicle's service manual for the location.



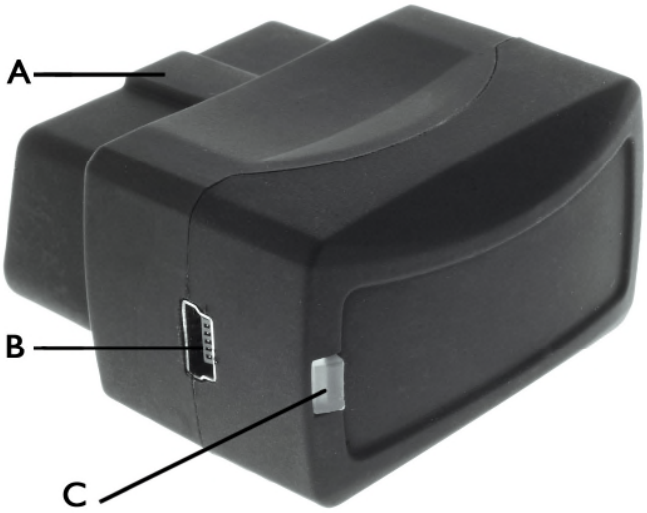
Diagnostic Trouble Codes (DTCs)

Diagnostic Trouble Codes (DTCs) are faults stored by vehicle computers when problems that affect engine performance and emissions are detected. DTCs are used to help identify the cause of a trouble or troubles with a vehicle, and determine the fault location(s).

DTCs consist of a five-digit alphanumeric code. Please see below for the DTCs format and code types.



3.2 About the Data logger



A. **OBD II Connector** - provides communication with vehicle DLC.

B. **USB Port** - provides a USB connection for PC or laptop.

C. **LED Indicator** - indicates communication status of EQP-104 and vehicle.

IMPORTANT Do not use solvents such as alcohol to clean the device. Use a mild nonabrasive detergent and a soft cotton cloth.

IMPORTANT Do not soak the device as water might find its way into the data logger.

Kit Includes

No.	Part	Description
1	EQP-104 Data Logger	Collects and records vehicle data.
2	USB Cable	Provides connection for computer to update EQP-104 and review collected data.
3	Quick Start Guide	Brief instructions on operation of EQP-104.

Specifications

No.	Item	Specification
1	Working Temperature	-40°C to 85°C (-40 °F to 185°F)
2	External Power	8-18 Volts powered by vehicle battery
3	External Power	Built-in Li-ion battery
4	Memory	8MB
5	Storage Capability	Max. 300 hours of data depending on sampling rate and PIDs selected to track
6	Supported Protocols	J1859-41.6, J1850-10.4, ISO9141, KWP2000 (ISO 14230), and CAN (Control Area Network ISO 11898)
7	Sampling Rate	Detects sampling rate automatically according to protocol type and PIDs tracked
8	Time and Date	Accuracy to +/- 2 seconds per day
9	Vehicle Interface	OBDII connector
9	Computer Interface	USB cable
8	Dimensions	46*27*45mm
9	Weight	0.03kg

System Requirements

No.	Item	Description
1	Operation System	Win98/NT, Win ME, Win2000, Win XP, VISTA
2	CPU	Intel P3 or better
3	Memory	64Mb or better
4	Hard Disk Space	5Mb or more
5	Display	800*600 pixel, 16 byte true colour display or better

3.3 About the Data Management Software

The data management software is used to display recorded vehicle and driving data and diagnostic reports, and configure the EQP-104 data logger. (To download software go to www.plusquip.com.au and visit the download section)

Toolbar - The **Toolbar** provides quick access to the software commands.

1. 

Home - The Home Page displays vehicle and driver summary in a specific period of time.

2. 

Trip Log - Displays summary information of each trip.

3. 

Diagnostic - Displays fault summary of each trip.

4. 

Setup - Displays all setup options.

5. 

Fuel Entry - Enters fuel usage and cost for each vehicle associated with the software.

6. 

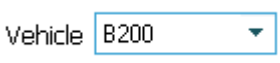
Download - Downloads data from EQP-104 to computer.

7. 

Help - Provides help information on using the device and the data management software.

Data Filters

The data management software allows trip and vehicle data to be sorted by vehicle, driver and date.

1. 

Vehicle - Allows selecting data by vehicle.

2. 

Driver - Allows selecting data by driver.

3. 

Date - Allows selecting data by date.

Tabs

The tabs in this software are used to shift between different types of data.

1. Report Trip Data Report View - Displays detailed trip information for each trip recorded by EQP-104.

2. Plot Trip Data Plot View - Displays line graphs in one screen of all available trip data for each trip. Also, plots are allow to be merged for easy and intuitive diagnosis and analysis of faults.

3. I/M Readiness I/M Readiness - Displays Inspection and Maintenance status of vehicle tested.

4. Trouble Trouble Log - Displays all vehicle troubles detected by EQP-104.

5. Freeze Frame Freeze Frame - Displays freeze data detected by EQP-104.

Buttons and Controls

The buttons and controls in the software are designed for easy use of the software.

1. Search Search - Finds data recorded in database of the data management software.

2. Print Print - Prints data through computer.

3. Save Save - Saves changes made to recorded data and settings.

4. Delete Delete - Deletes trip information, vehicle/driver ID(s) and fuel entry from database of the data management software.

5. Custom PID Customise PID - Selects a list of supported PIDs to view and analyse in Trip Report View.

6. Save As Save As - Export data to spreadsheet.

7. Exit Exit - Exits current view of data.

8. Select All Select All - Selects all PIDs to view.

9. Deselect All Deselect All - Undo all selection of PIDs.

10. OK OK - Confirms a selection or setup.

11. Cancel Cancel - Cancels a selection or setup.

12. ZoomIn Zoom In - Zooms in plots.

13. ZoomOut Zoom Out - Zooms out plots.

14. Restore Restore - Restores zoomed plots to fit to window size.

15. New New - Adds new driver/vehicle ID(s) and fuel entry.

16. Default Default - Sets acceleration, braking and speed settings to factory defaults.

17. 

Download - Downloads trip data to computer.

18. 

Update - Updates the device to newer version.

19. 

Clear – Clears device memory.

3.4 Installation

Use instructions below to connect EQP-104 device to a vehicle and install software.

Install EQP-104 in a Vehicle

To install EQP-104 in a vehicle:

1. Locate the Data Link Connector (DLC) on vehicle.
2. Plug in EQP-104 to the DLC.
3. Make sure EQP-104 is correctly attached to the DLC by checking if its LED indicator is blinking.

NOTE If the indicator light is enabled, it continuously blinks when connected to vehicle; if it is disabled, it stops blinking once it has established communication with vehicle computer(s); if it fails to communicate with vehicle, it illuminates constantly.

√ The data logger detects the communication protocol when it is connected to the vehicle and uses the protocol until it is connected to another vehicle.

Install Software and Connect EQP-104 to Computer

√ To be able to use the software, PC or laptop must meet the following minimum requirements:

- Operation System: Win98/NT, Win ME, Win2000, Win XP and VISTA
- CPU: Intel PIII or better
- RAM: 64MB or better
- Hard Disk Space: 30MB or better
- Display: 800*600 pixel, 16 byte true colour display or better
- Internet Explorer 4.0 or newer

To install the software and connect EQP-104 to computer:

1. Download the software from our site www.plusquip.com.au and visit the download section
2. Double click the  icon and follow instructions on computer screen to install the software.
3. Double click the desktop icon  to launch the software.
4. Plug the smaller connector into EQP-104's USB port.
5. Insert the USB connector to one of the computer's USB ports.

4. Setups

The 

function is used to configure the data management software and the device. You are allowed to:

- Update the device;
- Display device information;
- Clear device memory;
- Synchronize device internal clock with your computer;
- Reset the device to manufacturer defaults;
- Set the braking thresholds that determine hard and extreme stops;
- Set acceleration thresholds that determine hard and extreme starts;
- Set speed thresholds to monitor vehicle speed;
- Choose engine parameters to be monitored;
- Set your EQP-104 to turn off MIL, and change LED status;
- Change unit of measurements;
- Display vehicle information that associated with the EQP-104 data logger;
- Display driver information associated with EQP-104 data logger.

4.1 Update

EQP-104 is able to be updated to keep you current with the latest developments in technology.

√ To update the data logger, you need the following tools:

- EQP-104 data logger
- EQP-104 data management software
- PC or laptop with USB ports and internet explorer
- USB Cable

IMPORTANT Do not disconnect the data logger from computer, or power off the computer during the process of updating.

To update the device:

1. Visit the web site www.plusquip.com.au and go to the download section to see if a software version update is available for your device
2. If the version shown on the download page is a later version than you have installed then download and install the data management software.

√ Refer to **Install Software and Connect EQP-104 to Computer** on page 11 for details of software installation.

3. Click the 

Update icon.
4. Use 

to locate update file and start updating.

5. When update completed, use 

to exit.

4.2 View Device Information

Device Info displays memory status, including total space, used space and free space on your EQP-104, software and hardware information and serial number.

NOTE This command is only available when an EQP-104 device is connected to your computer.

To view device information:

1. Click the 

icon from home screen.

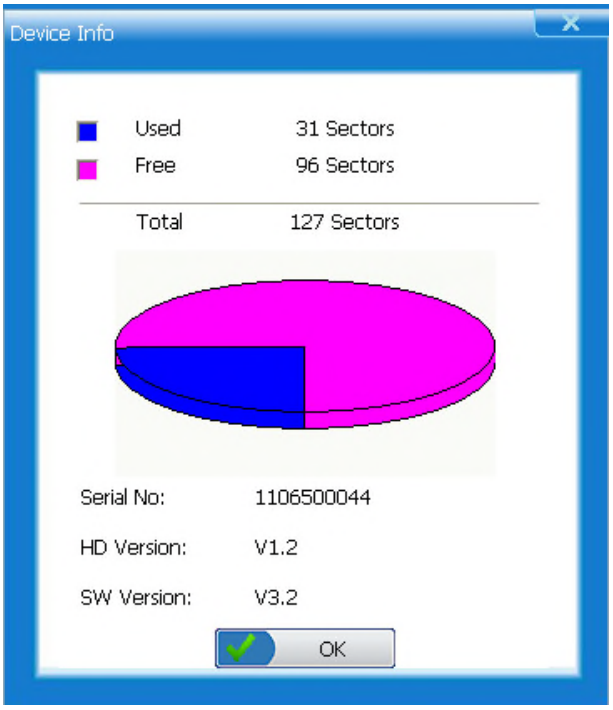
2. Click the 

icon from 

screen.

3. View device information and click 

button to exit.



4.3 Clear Memory

Clear Memory is used to empty the device memory.

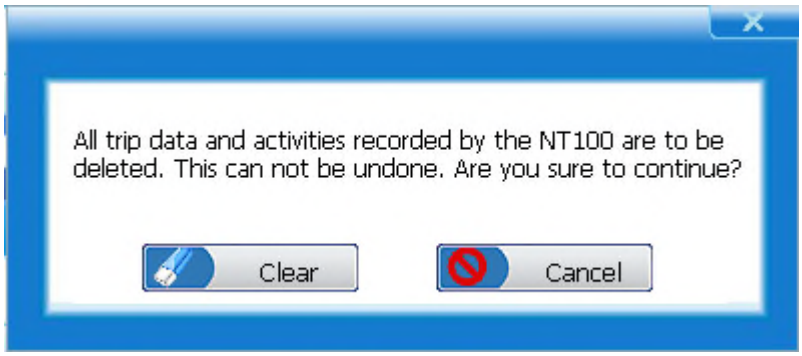
NOTE Make sure all recorded data is completely reviewed before clearing the memory.

To clear device memory:

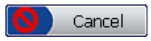
1.Click the 

icon from 

screen.



2.If device memory to be emptied, click the 

key; if data not to be cleared, click 

to quit.

4.4 Set Device Clock

Set Device Clock is used to synchronize EQP-104's internal clock with your computer.

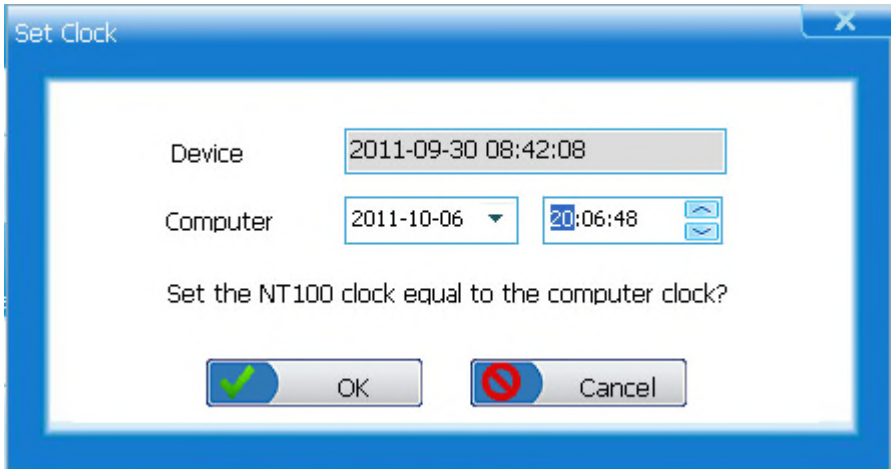
IMPORTANT EQP-104 collects real time vehicle data. To get correct data, make sure to set the device clock match with your computer time before collecting data from your car.

To set the internal clock:

1.Click the 

icon from 

screen.



2. If the internal clock to set to match the clock on your computer, click the 

key; if not, click the 

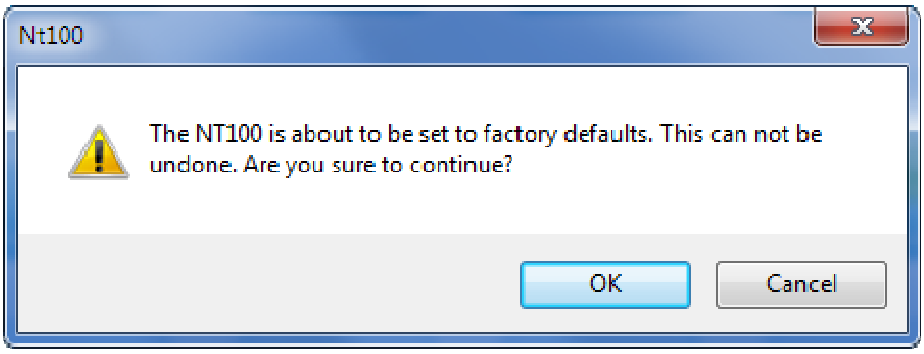
key to quit and retain the original clock settings.

4.5 Reset Device

Reset Device is used to set the device to manufactory defaults.

To reset the device:

▶ 1.Click the  icon from  screen.



If device to be reset, click the  key; if device not to be reset, click  to quit.

4.6 Set Braking Thresholds

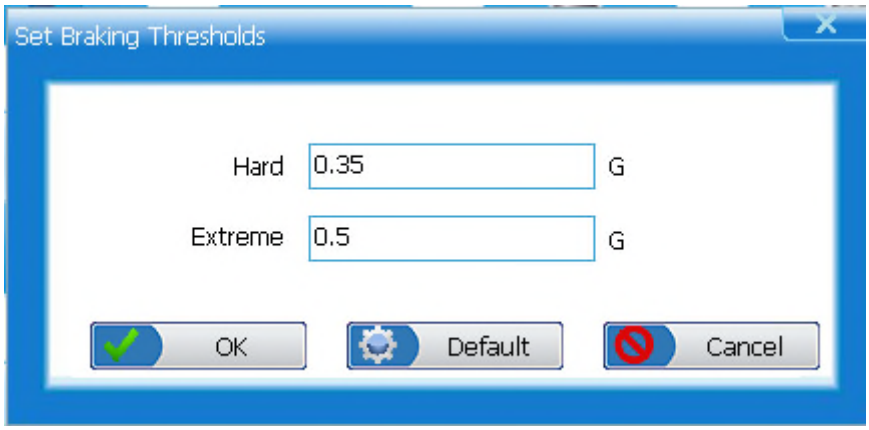
Braking is used to create the braking thresholds that determine hard and extreme stops.

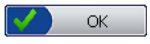
√ The default braking thresholds are: 0.35 and 0.50 G (US & Metric) and 3.4 and 4.9 m/s^2 (S.I.).

To create braking thresholds:

▶ 1.Click the  icon from  screen.

2.Enter your desired hard and extreme braking thresholds or click  to use the manufacturer default settings.



3.If new settings to be saved, click the  key; if new settings not to be saved, click the  key to quit and retain the previous settings.

4.7 Set Acceleration Thresholds

Acceleration is used to create the acceleration thresholds that determine hard and extreme starts.

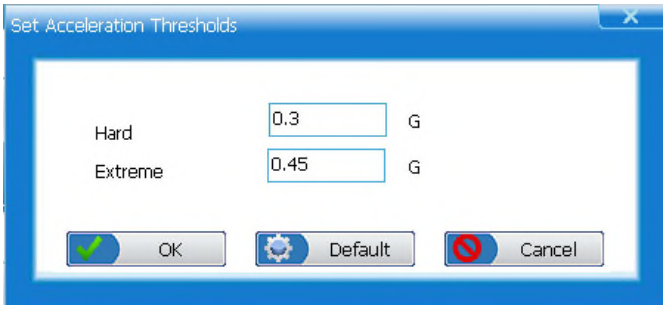
√ The default acceleration thresholds are: 0.30 and 0.45 G (US & Metric) and 2.9 and 4.4 m/s^2 (S.I.).

To create acceleration thresholds:

1. Click the  icon from 

screen.
2. Enter your desired hard and extreme acceleration thresholds or click 

to use the manufacturer default settings.



3. If new settings to be saved, click the 

key; if new settings not to be saved, click the 

key to quit and retain the previous settings.

4.8 Set Speed Bands

Speed Band is used to create speed thresholds for the data logger. The threshold speeds help you identify how much time is spent in each speed band.

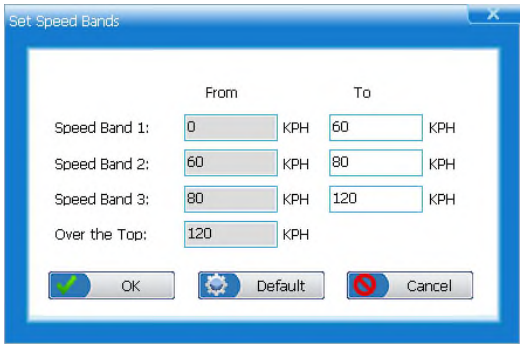
To create speed thresholds:

1. Click the 

icon from 

screen.
2. Enter your desired threshold speed for each speed bands or click 

to use the manufacturer default settings.



3. If new settings to be saved, click the 

key; if new settings not to be saved, click the 

key to quit and retain the previous settings.

NOTE The top speed band consists of all speeds greater than the last threshold.

4.9 Set Parameter

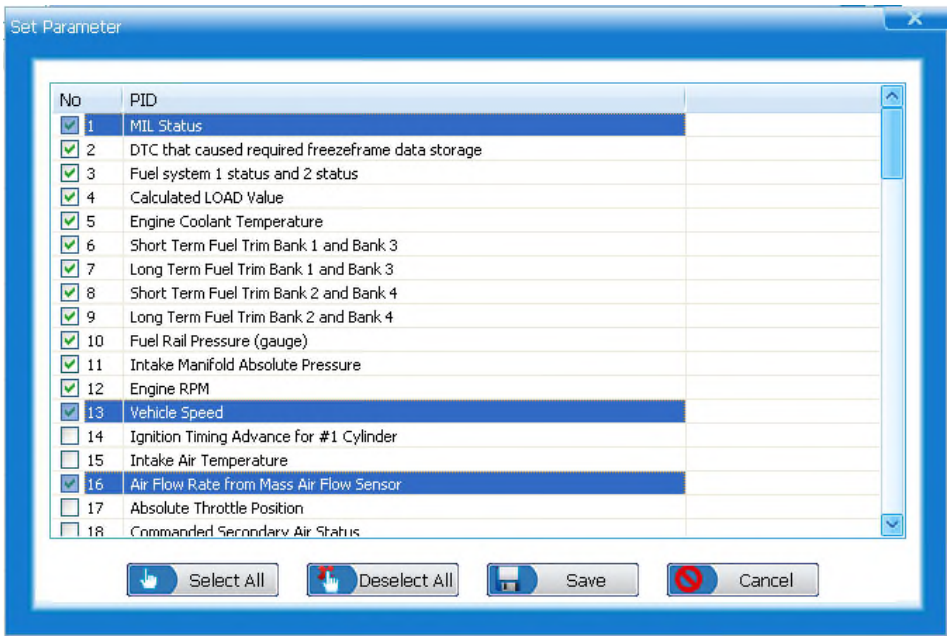
Set Parameter is used to choose engine parameters to be monitored.

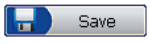
√ EQP-104 is set to track all supported PIDs by default.

√ MIL, vehicle speed, air flow rate from mass air flow sensor are compulsorily selected PIDs by default.

To choose engine PIDs to be monitored:

1. Click the  icon from  screen.
2. Use  or  select/deselect all PIDs or click the check box before a PID name to select/deselect a PID. Selected PIDs will be marked with a √ mark.



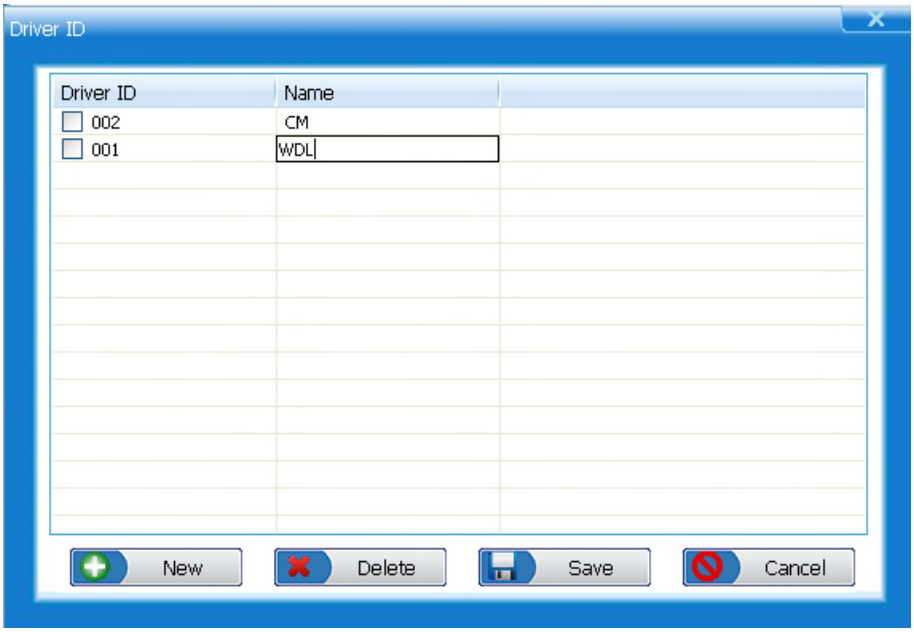
3. If new settings to be saved, click the  key; if new settings not to be saved, click the  key to quit and retain the previous settings.

4.10 Driver ID

Driver ID is used to associate a driver with trip information. You are allowed to add, delete, and edit driver IDs.

To configure driver IDs:

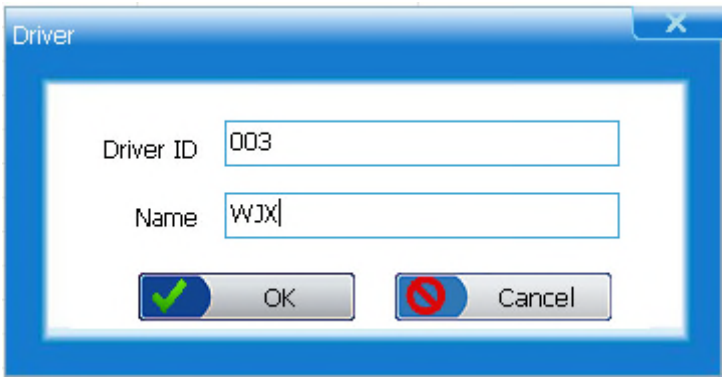
1. Click the  icon from  screen.
2. View a list of driver IDs in the ***Driver ID*** dialog box.



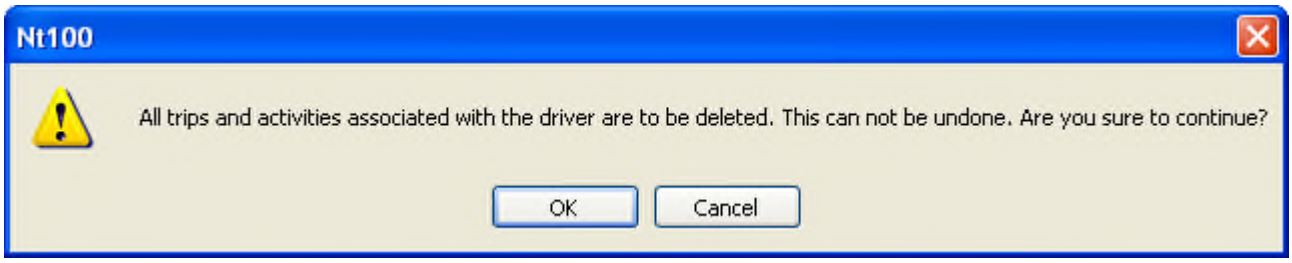
3. To edit existing driver information, click the **Name** field for the driver you want to change.
4. Edit the driver name.

NOTE You are not allowed to edit the ID field for the driver IDs. If you would like to change the driver ID of an existing driver, delete the driver ID and add a new one.

5. If changes to the driver name to be saved, click Save; if changes not to be saved, click Cancel to exit without saving.
6. To create a new driver, click the New button.



7. Create a unique name and ID for the new driver.
8. To add the new driver, click OK; or click Cancel to exit without saving the change.
9. To delete an existing driver ID, select a driver name from the ***Driver ID*** table.
10. Click Delete to delete the driver ID from the list.



11. If the driver ID to be deleted, click OK; if the driver ID not to be deleted, click Cancel to exit.

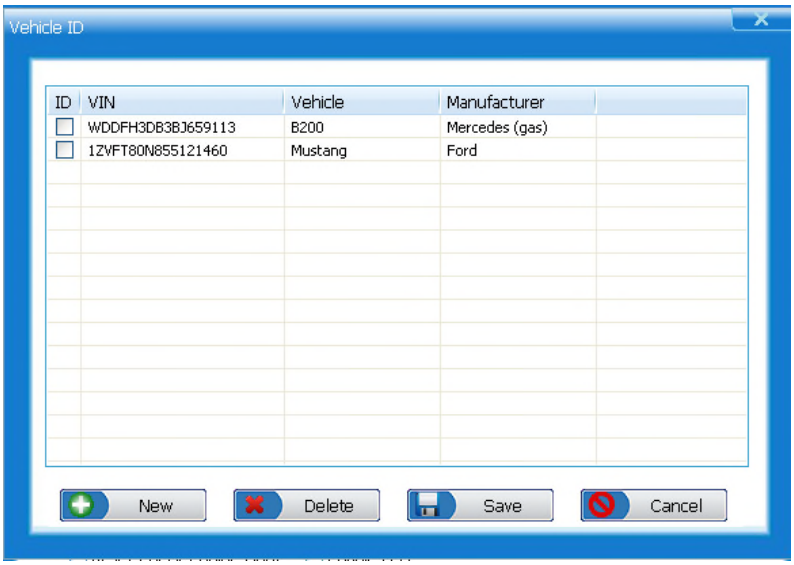
4.11 Vehicle ID

Vehicle ID is used to associate a vehicle with trip information. You are allowed to add, delete, and edit vehicle IDs.

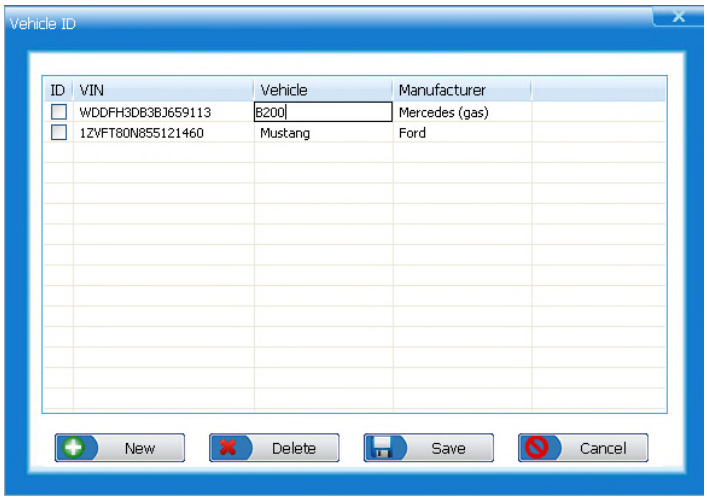
IMPORTANT: Make sure trip information is associated with correct vehicle; otherwise DTCs may not be matched when there is manufacturer specific code detected.

To configure vehicle IDs:

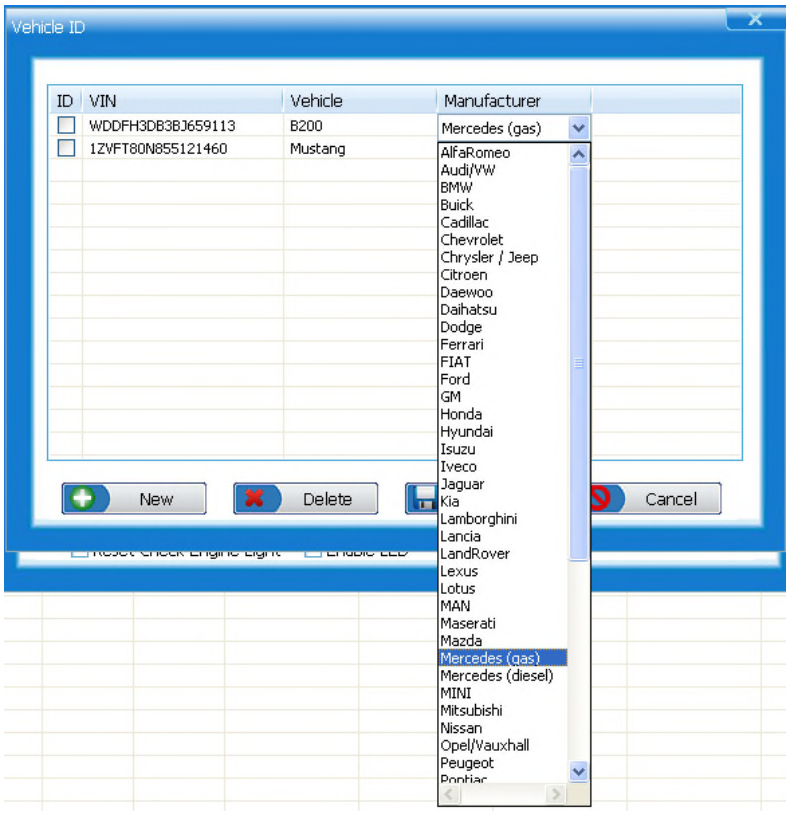
1. Click the  icon from  screen.
2. View a list of vehicle IDs n the ***Vehicle ID*** dialog box.



3. To edit existing vehicle information, click the **Name** field for the vehicle you want to change.

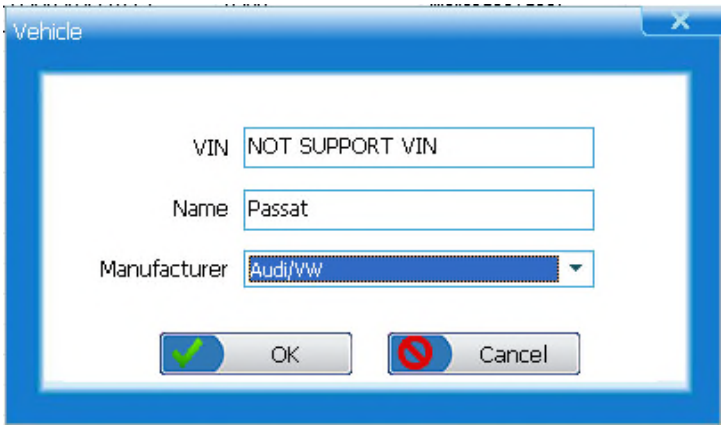


4. Edit vehicle name.
5. To change manufacturer, click the **Manufacturer** field and a drop-down list of manufacturer's shows. Select a vehicle manufacturer from the list.

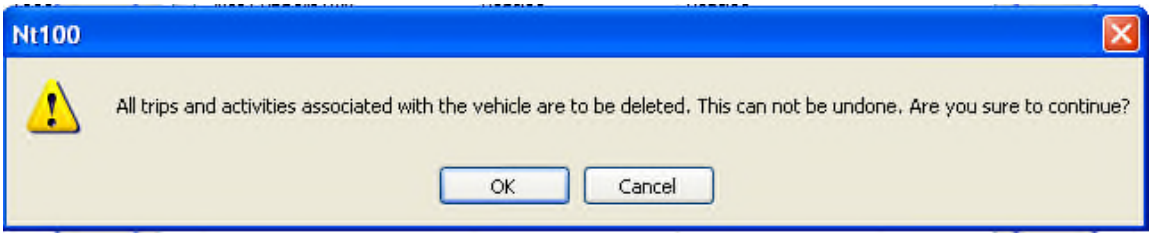


NOTE You are not allowed to edit the VIN field for the vehicle IDs.

6. If changes to the driver name to be saved, click Save; if changes not to be saved, click Cancel to exit without saving.
7. To create a new vehicle, click the New button.



8. Create a unique name or use the vehicle's VIN number to create an ID for the new vehicle.
9. To add the new vehicle, click OK; or click Cancel to exit without saving the change.
10. To delete an existing vehicle ID, select a vehicle name from the ***Vehicle ID*** table.
11. Click Delete to delete the vehicle ID from the list.



12. If the vehicle ID to be deleted, click OK; if the vehicle ID not to be deleted, click Cancel to exit.

4.12 Units of Measure

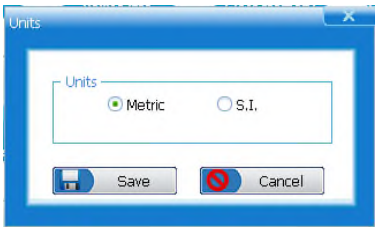
Units are used to change measurement system.

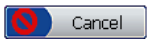
√ Metric is the default measurement unit.

To change measurement unit:

1.Click the  icon from  screen.

2.Select desired unit system.



3.Click  to change unit system, or click  to exit without saving the change.

4.13 Reset Check Engine Light

The Reset Check Engine Light ***Reset Check Engine Light*** is used to configure the EQP-104 data logger to turn off the vehicle Check Engine light next time it is connected to a vehicle.

√ EQP-104 is set to not to reset MIL by default.

√ Reset the Check Engine Light only after systems have been checked completely.

√ After servicing the vehicle, erase stored DTCs and verify no codes have been reset. If a DTC returns, problem has not been fixed or other faults are present, and the MIL indicator may illuminate again.

√ Depending on which monitor sets a code the vehicle may need to be driven and the monitor ran before concluding that the fault is repaired.

To enable/disable the Reset Check Engine Light function:

1.Click the Reset Check Engine Light checkbox from  screen to enable the function on, and the checkbox will be marked with a check mark.

2.To disable the function, click the checkbox again.

4.14 Enable LED

Enable LED ***Enable LED*** is used to control the operation of the LED on EQP-104 data logger.

√ The LED is enabled by default.

To turn on/off the LED indicator:

1.Click the Enable LED checkbox from  screen to enable the LED, and the checkbox will be marked with a check mark.

2.To disable the LED, click the checkbox again.

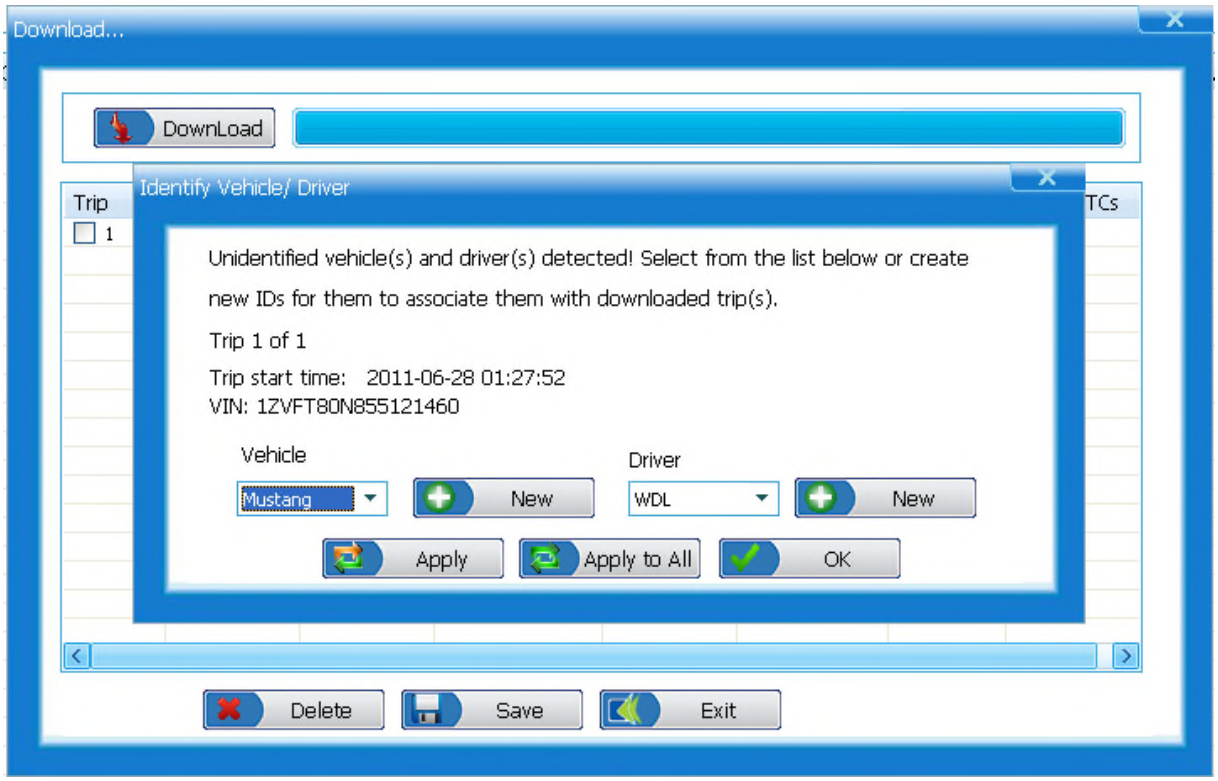
5. Download Data

Download is used to download recorded data from EQP-104 data logger to your computer.

To download data:

1.Click the 

icon to download trip details to computer.



2. Select a vehicle and driver from the drop-down lists and use 

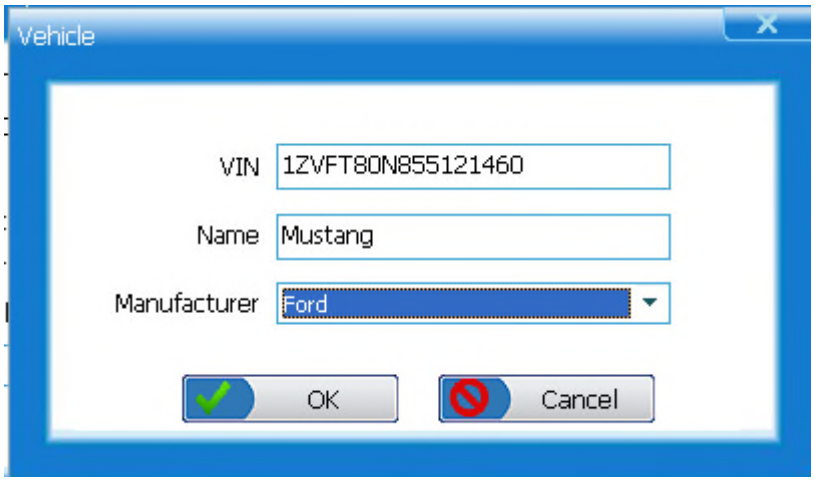
associate each trip with vehicle and driver.

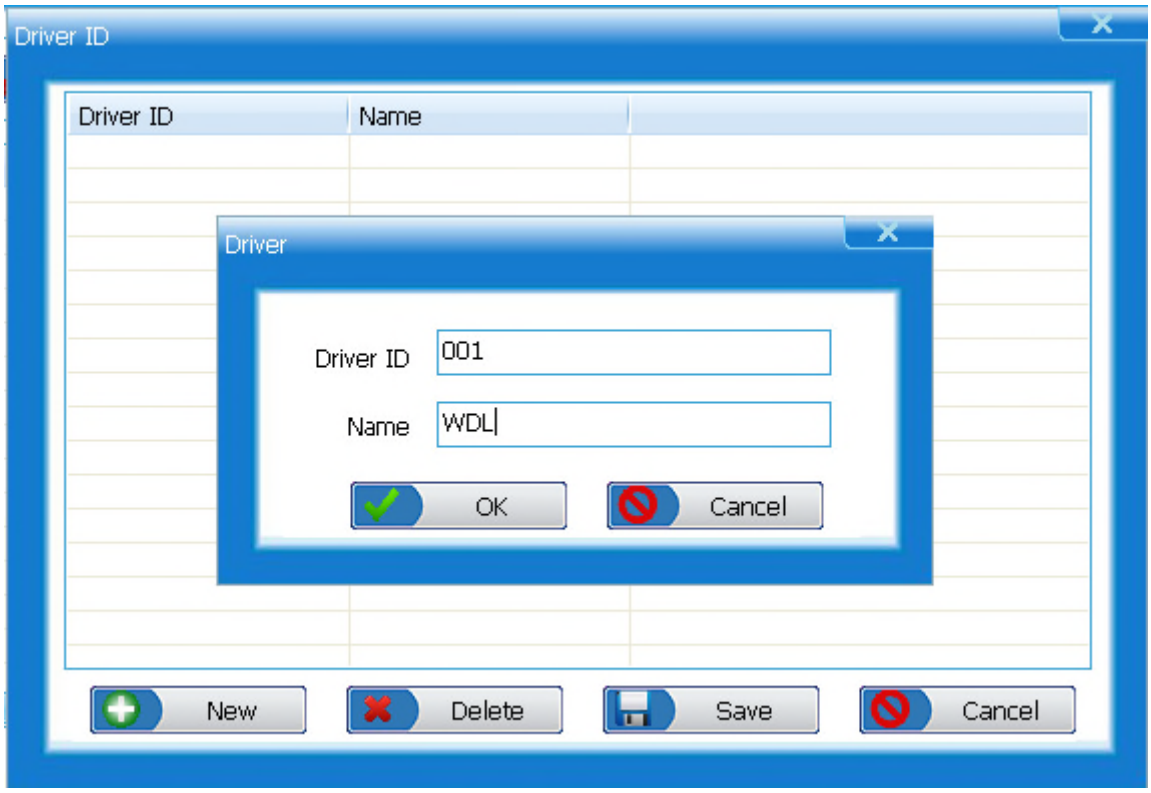
√ If all trips are collected from the same vehicle and driver, use 

.

√ If vehicle or driver is not listed, use the 

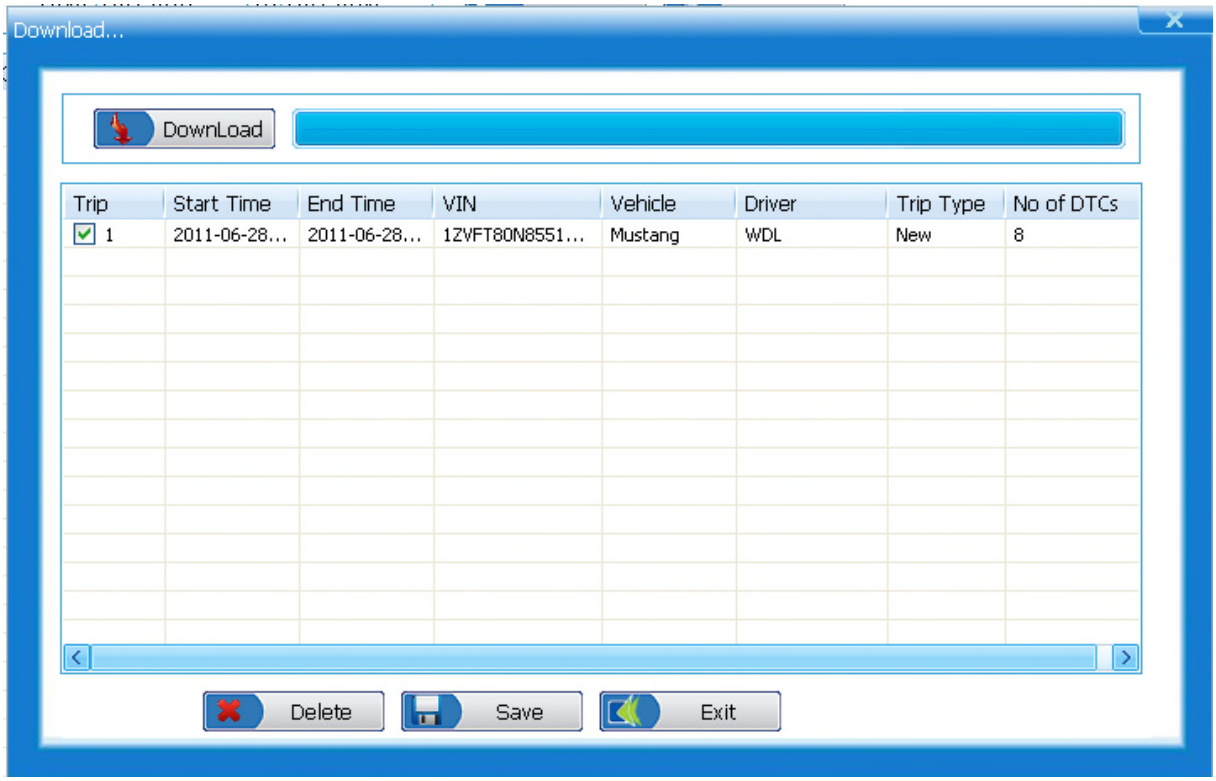
button to add a new vehicle or driver.





IMPORTANT: Make sure trip information is associated with correct vehicle; otherwise DTCs may not be matched when there is manufacturer specific code detected.

3. Click  to exit current screen and view a summary of downloaded trip(s).
4. To delete download trip, select a trip and click  .



5. If downloaded trip(s) to be saved to database, click  ; if trip(s) not to be saved, click  to exit without saving.

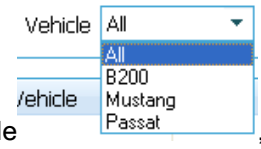
6. Home Page View

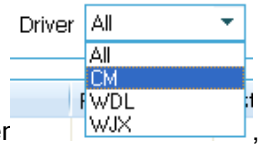
Home displays summary information of vehicles, and drivers associated with the data management software. You are allowed to access detailed summaries for every vehicle and driver in a specific period of time.

To view summaries for every vehicle and driver in a specific period of time:

1. Click the 

icon.

2. Select data by vehicle 

, driver 

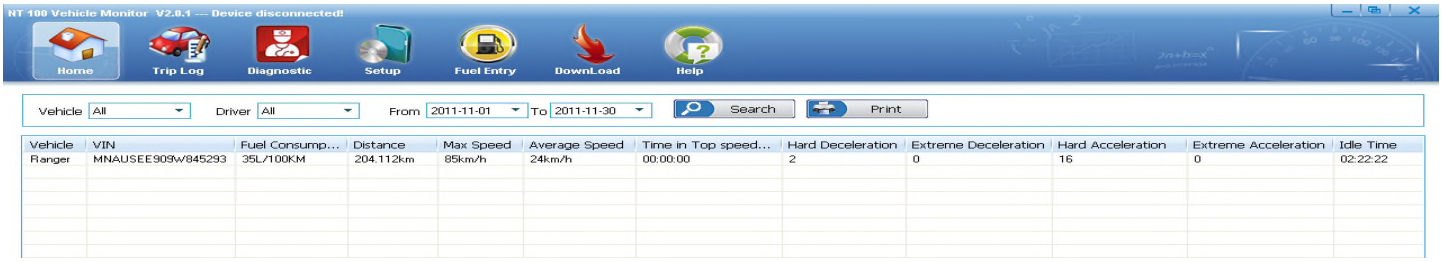
, and date

.

3. Click 

.

4. View vehicle and driver summary recorded by EQP-104 in a specific period of time.



7. Trip Log View

The 

displays trip data recorded by EQP-104. It provides summary view, report view and plot view of trip details.

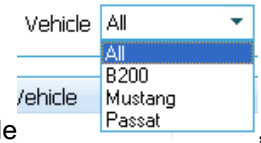
7.1 Trip Log Summary

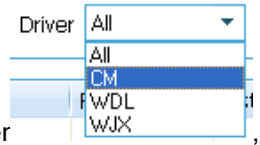
The trip log summary view displays basic information for each trip recorded by EQP-104, such as distance, start/end time, speeding and hard stats and stops. Also it provides fuel consumption and fuel efficiency of each trip.

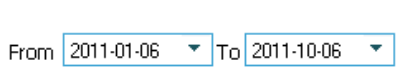
To view trip summary:

1. Click the 

icon.

2. Select data by vehicle 

, driver 

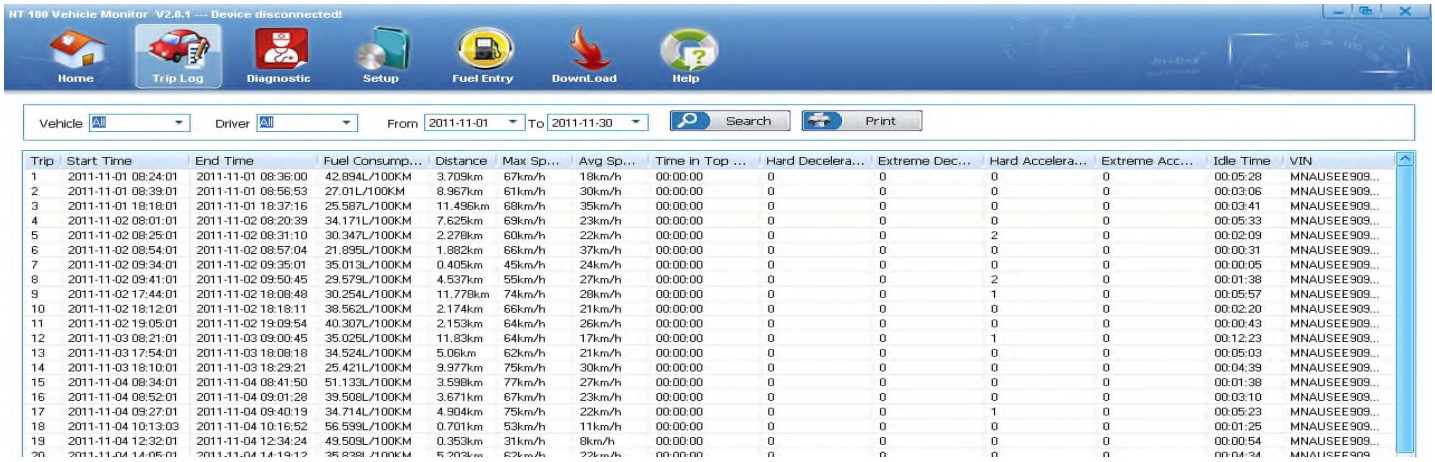
, and date 

.

3. Click 

.

4. View trip summary information.



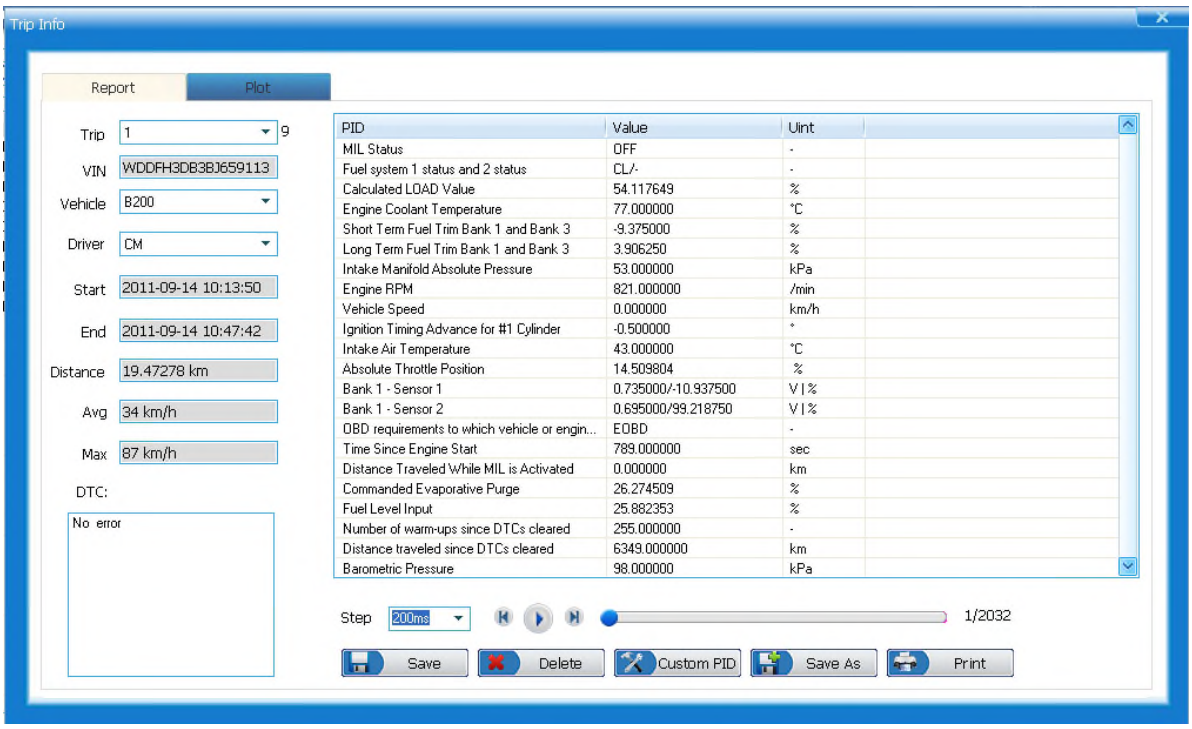
Trip	Start Time	End Time	Fuel Consump...	Distance	Max Sp...	Avg Sp...	Time in Top ...	Hard Decelera...	Extreme Dec...	Hard Accelera...	Extreme Acc...	Idle Time	VIN
1	2011-11-01 08:24:01	2011-11-01 08:36:00	42.894L/100KM	3.709km	67km/h	18km/h	00:00:00	0	0	0	0	00:05:28	MNAUSEE909...
2	2011-11-01 08:39:01	2011-11-01 08:56:53	27.01L/100KM	8.967km	61km/h	30km/h	00:00:00	0	0	0	0	00:03:06	MNAUSEE909...
3	2011-11-01 18:18:01	2011-11-01 18:37:16	25.587L/100KM	11.496km	68km/h	35km/h	00:00:00	0	0	0	0	00:03:41	MNAUSEE909...
4	2011-11-02 08:01:01	2011-11-02 08:20:39	34.171L/100KM	7.625km	69km/h	23km/h	00:00:00	0	0	0	0	00:05:33	MNAUSEE909...
5	2011-11-02 08:25:01	2011-11-02 08:31:10	30.347L/100KM	2.278km	60km/h	22km/h	00:00:00	0	0	2	0	00:02:09	MNAUSEE909...
6	2011-11-02 08:54:01	2011-11-02 08:57:04	21.895L/100KM	1.882km	66km/h	37km/h	00:00:00	0	0	0	0	00:00:31	MNAUSEE909...
7	2011-11-02 09:34:01	2011-11-02 09:35:01	35.013L/100KM	0.405km	45km/h	24km/h	00:00:00	0	0	0	0	00:00:05	MNAUSEE909...
8	2011-11-02 09:41:01	2011-11-02 09:50:45	29.579L/100KM	4.537km	55km/h	27km/h	00:00:00	0	0	2	0	00:01:38	MNAUSEE909...
9	2011-11-02 17:44:01	2011-11-02 18:08:48	30.254L/100KM	11.778km	74km/h	28km/h	00:00:00	0	0	1	0	00:05:57	MNAUSEE909...
10	2011-11-02 18:12:01	2011-11-02 18:18:11	38.562L/100KM	2.174km	66km/h	21km/h	00:00:00	0	0	0	0	00:02:20	MNAUSEE909...
11	2011-11-02 19:05:01	2011-11-02 19:09:54	40.307L/100KM	2.153km	64km/h	26km/h	00:00:00	0	0	0	0	00:00:43	MNAUSEE909...
12	2011-11-03 08:21:01	2011-11-03 09:00:45	35.025L/100KM	11.83km	64km/h	17km/h	00:00:00	0	0	1	0	00:12:23	MNAUSEE909...
13	2011-11-03 17:54:01	2011-11-03 18:08:18	34.524L/100KM	5.06km	62km/h	21km/h	00:00:00	0	0	0	0	00:05:03	MNAUSEE909...
14	2011-11-03 18:10:01	2011-11-03 18:29:21	25.421L/100KM	9.977km	75km/h	30km/h	00:00:00	0	0	0	0	00:04:39	MNAUSEE909...
15	2011-11-04 08:34:01	2011-11-04 08:41:50	51.133L/100KM	3.598km	77km/h	27km/h	00:00:00	0	0	0	0	00:01:38	MNAUSEE909...
16	2011-11-04 08:52:01	2011-11-04 09:01:28	39.508L/100KM	3.671km	67km/h	23km/h	00:00:00	0	0	0	0	00:03:10	MNAUSEE909...
17	2011-11-04 09:27:01	2011-11-04 09:40:19	34.714L/100KM	4.904km	75km/h	22km/h	00:00:00	0	0	1	0	00:05:23	MNAUSEE909...
18	2011-11-04 10:13:03	2011-11-04 10:16:52	56.699L/100KM	0.701km	53km/h	11km/h	00:00:00	0	0	0	0	00:01:25	MNAUSEE909...
19	2011-11-04 12:32:01	2011-11-04 12:34:24	49.509L/100KM	0.353km	31km/h	8km/h	00:00:00	0	0	0	0	00:00:54	MNAUSEE909...

7.2 Trip Report View

The trip report displays detailed trip information for each trip, including all supported engine parameters, recorded by EQP-104. You are also allowed to get access to trouble information when there is DTC(s) detected.

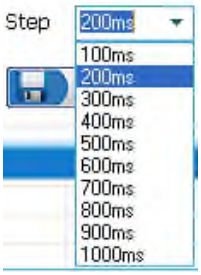
To view trip log report with complete PIDs:

1. Double click a trip that you are interested in from trip summary screen.
2. View trip details of the selected trip.



PID	Value	Uint
MIL Status	OFF	-
Fuel system 1 status and 2 status	CL/-	-
Calculated LOAD Value	54.117649	%
Engine Coolant Temperature	77.000000	°C
Short Term Fuel Trim Bank 1 and Bank 3	-9.375000	%
Long Term Fuel Trim Bank 1 and Bank 3	3.906250	%
Intake Manifold Absolute Pressure	53.000000	kPa
Engine RPM	821.000000	/min
Vehicle Speed	0.000000	km/h
Ignition Timing Advance for #1 Cylinder	-0.500000	°
Intake Air Temperature	43.000000	°C
Absolute Throttle Position	14.509804	%
Bank 1 - Sensor 1	0.735000/-10.937500	V | %
Bank 1 - Sensor 2	0.695000/99.218750	V | %
OBD requirements to which vehicle or engin...	EOBD	-
Time Since Engine Start	789.000000	sec
Distance Traveled While MIL is Activated	0.000000	km
Commanded Evaporative Purge	26.274509	%
Fuel Level Input	25.882353	%
Number of warm-ups since DTCs cleared	255.000000	-
Distance traveled since DTCs cleared	6349.000000	km
Barometric Pressure	98.000000	kPa

3. To view data of different frame, use the play button.



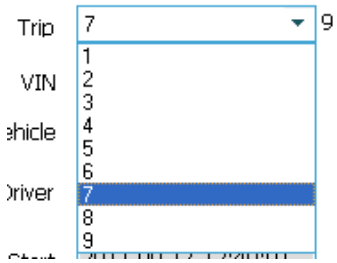
4. To change play speed, select from the Step drop-down list to change.

√ Step 200ms *xxx ms* indicates the software plays data at the speed of 1frame/xxx ms.

5. Use to scroll data back to the first frame or use to scroll data forth to the last frame. You are allowed to move the cursor to a desired place to view.

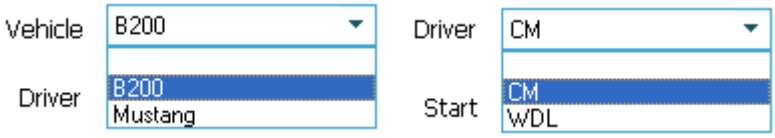
6. To stop playing of data, use the button.

7. To view data of another trip, select from the Trip drop-down list as illustrated below.



√ You are allowed to use the up and down arrow keys of your computer keyboard to scroll through trip records.

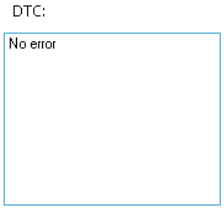
8. If incorrect vehicle and/or driver are associated with the trip, use the drop-down lists to change and then click Save to save the changes.



IMPORTANT: Make sure trip information is associated with correct vehicle; otherwise DTCs may not be matched when there is manufacturer specific code detected.

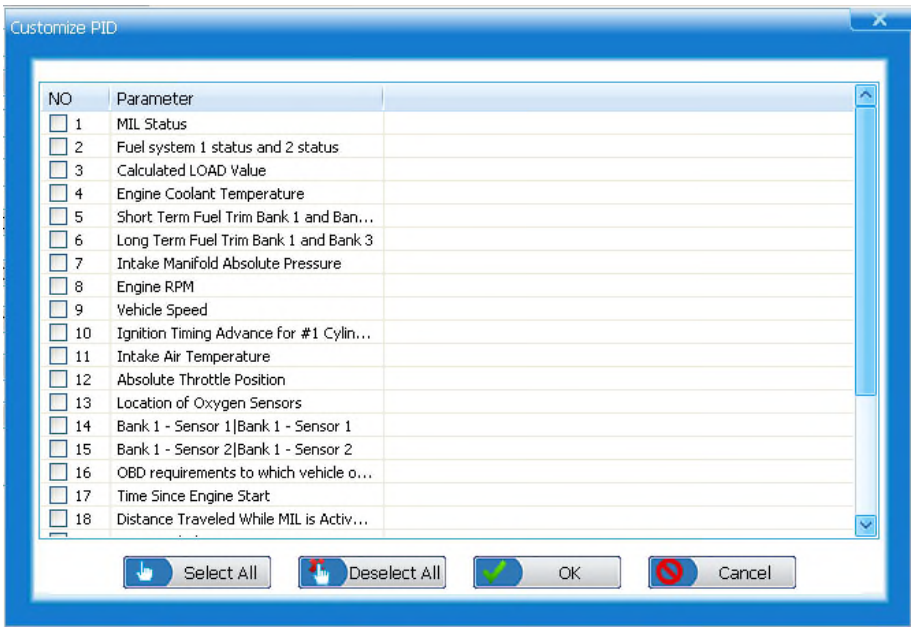
9. If current trip data to be saved and exported to spreadsheet, use the Save As button.
10. If current trip data to be deleted, use the Delete button.
11. If data of current trip to be printed, use the Print button.
12. When there is error detected in the engine control unit, all DTCs and detected time shows in the dialog box at the lower left part of the screen.

√ If no error detected, a “No error” message displays.



To view trip log report with customized PIDs:

1. To view a customized list of PIDs, use the Custom PID button.
2. Click the checkbox to select/deselect PIDs.



√ Click Select All or Deselect All to select/deselect all items.

3. To save the selections, click the OK button to confirm; if changes are not to be saved, use Cancel to quit and return to previous screen.

4. View selected PID data.

7.3 Trip Plots

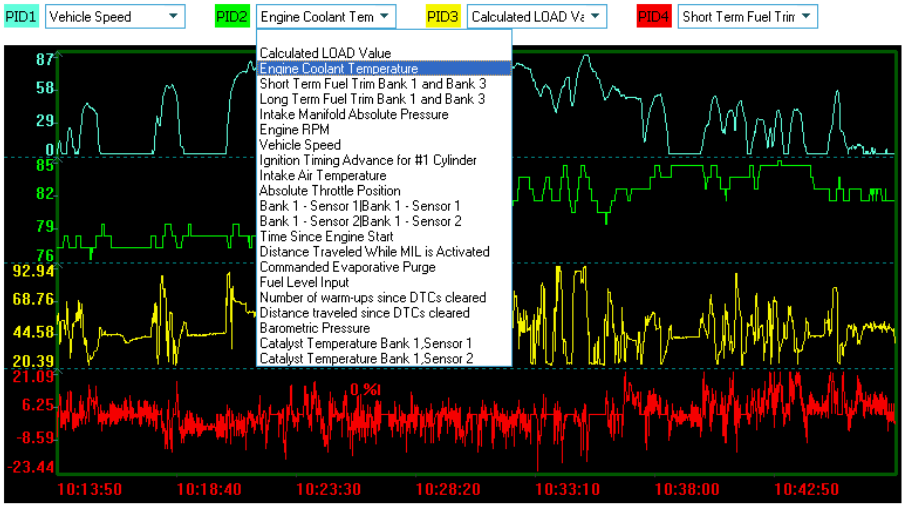
The plot view displays line graphs of supported PIDs for each trip recorded by EQP-104. 4 PID plots are displayed in one screen, and they are able to be merged for easy and intuitive diagnosis and analysis. If you are especially interested in a specific PID, you are also allowed to maximize the plot by double click the plot.

To view trip log plots:

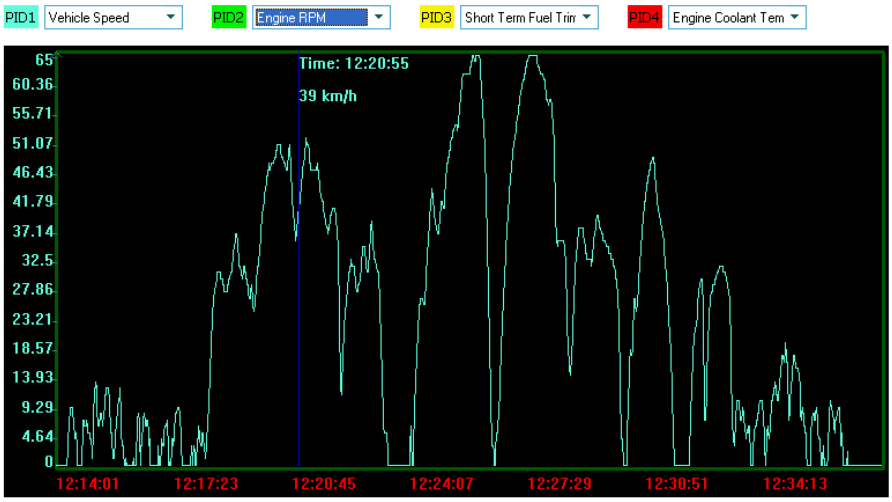
1. Double click a trip that you are interested in from trip summary screen.

2. Click the Plot tab to view.

3. To change different PID plots, select from one of the PID drop-down list.



4. Use ZoomIn or ZoomOut to view larger or smaller plots.
5. Use Restore to restore plots to their original size.
6. To view PID value, put the cursor to any place of the plots.
7. To maximize a plot, just double click you desired one with your left mouse key.

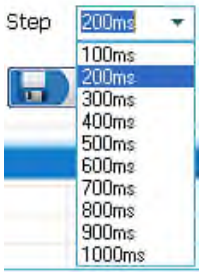


8. Double click the maximized plot to return.

9. To merge 4 plots into one coordinate to compare and analyse, just click the check-box Merge.

10. To undo merge, click the check-box Merge again to return.

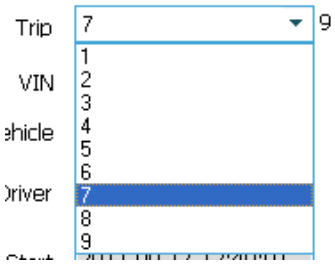
11. When plot is not able to be displayed in one screen, use the play button.

12. To change play speed, select from the Step drop-down list to 

change.

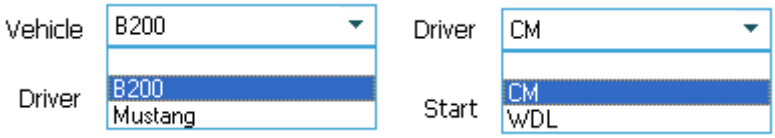
13. Use to scroll plots back to the first frame or use to scroll forth to the last frame. Also you are allowed to move the cursor to a desired place to view.

14. To stop playing of plots, use the button.
15. To view data of another trip, select from the Trip drop-down list as illustrated below.



√ You are allowed to use the up and down arrow keys of your computer keyboard to scroll through trip records.

16. If incorrect vehicle and/or driver are associated with the trip, use the drop-down lists to change and then click Save to save the changes.



IMPORTANT: Make sure trip information is associated with correct vehicle; otherwise DTCs may not be matched when there is manufacturer specific code detected.

17. If plots to be saved and exported to spreadsheet, use the Save As button.
18. If plots to be deleted, use the Delete button.
19. If plots to be printed, use the Print button.
20. When there is error detected in the engine control unit, all DTCs and detected time shows in the dialog box at the lower left part of the screen.

√ If no error detected, a “No error” message displays.

DTC:

No error

8. Diagnostic View

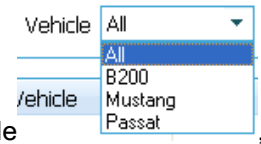
Diagnostic allows you to:

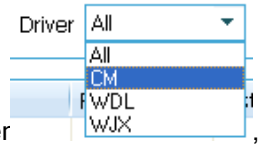
- Read DTCs.
- View freeze data.
- View I/M Readiness data

8.1 Diagnostic Summary

Diagnostics summary view displays trouble summaries for each trip detected by EQP-104 data logger.

1. Click the  icon.

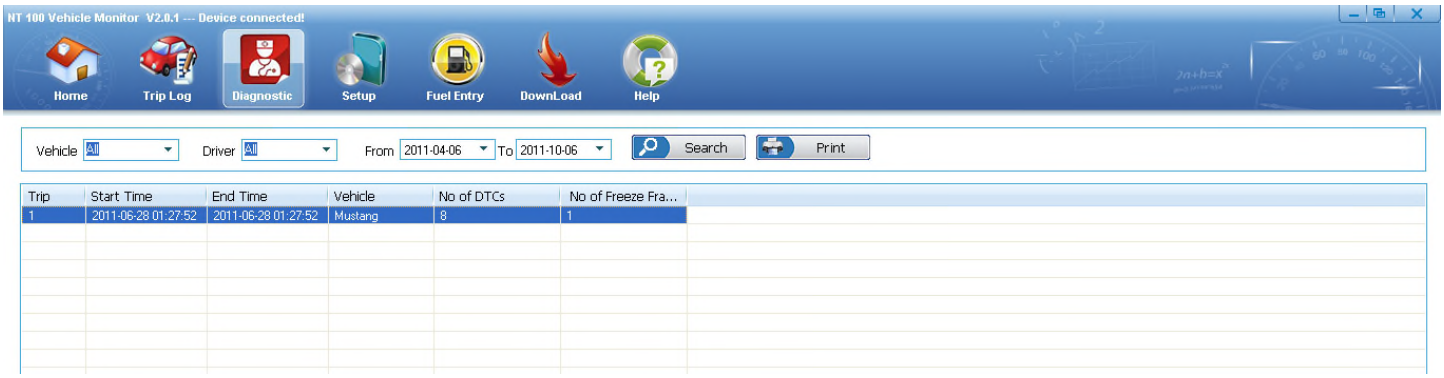
2. Select data by vehicle 

, driver 

, and date From 2011-01-06 To 2011-10-06 .

3. Click Search.

4. View trip summary information.



8.2 I/M Readiness Status Data

I/M Readiness function is used to view a snapshot of the operations for the emission system on OBDII/EOBD vehicles.

√ I/M Readiness is a useful function used to check if all monitors are OK or N/A.

√ The vehicle's computer performs tests on the emission system during normal driving conditions. After a specific amount of drive time (each monitor has specific driving conditions and time required), the computer's monitors decide if the vehicles emission system is working correctly when the monitor's status is:

- OK - vehicle was driven enough to complete the monitor.
- INC (Incomplete) - vehicle was not driven enough to complete the monitor.
- N/A (Not Applicable) - vehicle does not support that monitor.

√ I/M Readiness function is performed with the KOER or KOEO.

√ There is two types of I/M Readiness test

- Since DTCs Cleared - shows status of the monitors since the DTCs were last cleared.
- This Drive Cycle - shows status of monitors since the start of the current drive cycle.

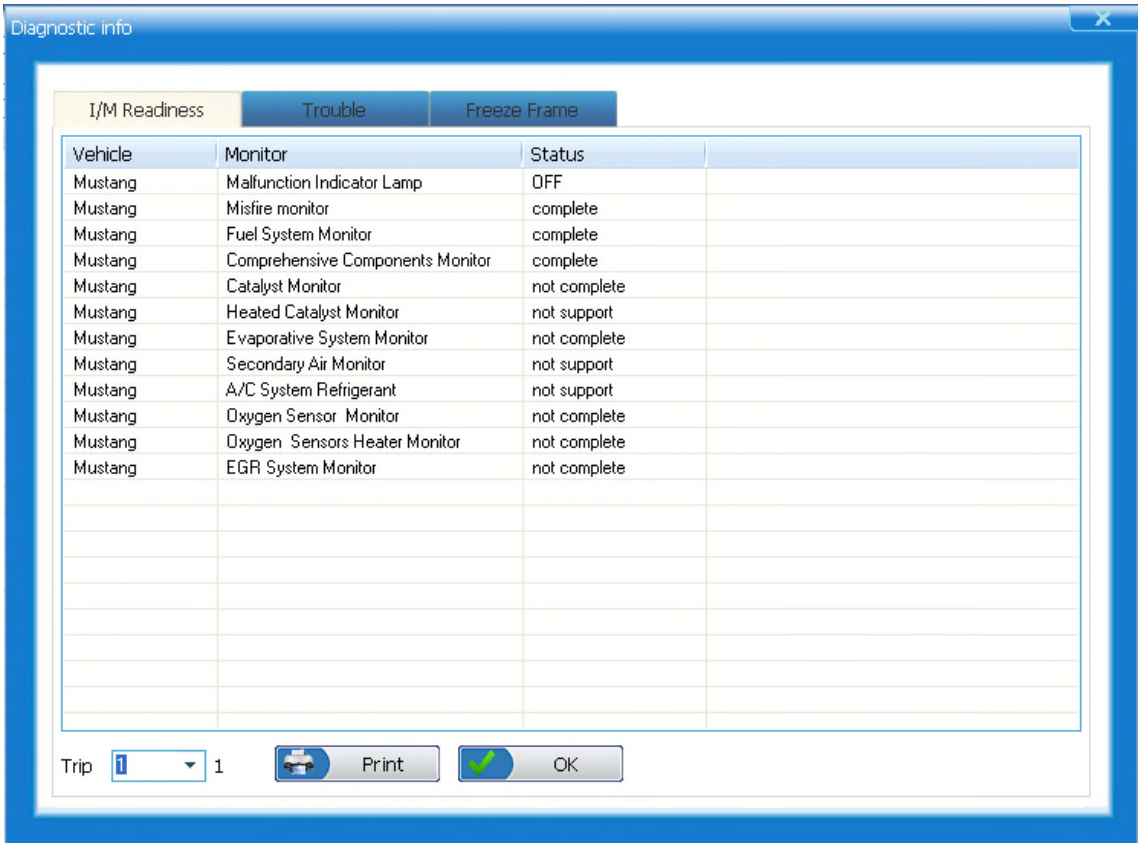
√ Below is a list of abbreviations and names of OBD II monitors supported by the Data logger.

No.	Abbreviation	Name
1	Misfire Monitor	Misfire Monitor
2	Fuel System Mon	Fuel System Monitor
3	Comp. Component	Comprehensive Components Monitor
4	Catalyst Mon	Catalyst Monitor
5	Htd Catalyst	Heated Catalyst Monitor
6	Evap System Mon	Evaporative System Monitor
7	Sec Air System	Secondary Air System Monitor
8	A/C Refrig Mon	Air Conditioning Refrigerant Monitor
9	Oxygen Sens Mon	Oxygen Sensor Monitor
10	Oxygen Sens Htr	Oxygen Sensor Heater Monitor
11	EGR System Mon	Exhaust Gas Recirculation System Monitor

NOTE Not all monitors are supported by all vehicles.

To view I/M Readiness status:

1. Double click a trip that you are interested in from diagnostic summary screen.



2. View I/M status information of selected trip.
3. To view data of another trip, select from the drop-down list as illustrated below.

√ You are allowed to use the up and down arrow keys of your keyboard to scroll through trip records.

4. If data to be printed, use the Print button.

5. To quit the report view and return to *Diagnostic Summary* screen, click OK button.

8.3 Trouble Codes

Trouble shows fault codes detected by EQP-104 data logger.

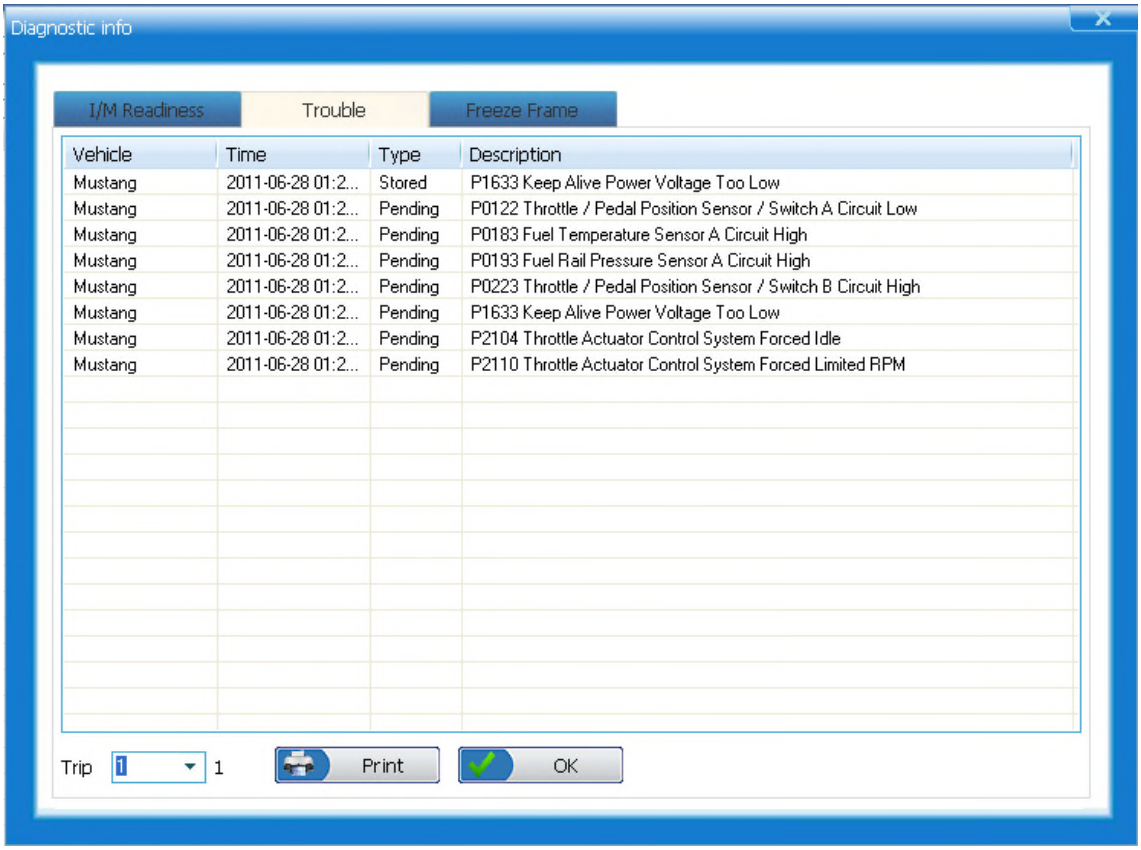
√ When emission-related or drivability fault occurs the control module illuminates the malfunction indicator lamp (MIL).

√ Pending codes are also referred to as continuous monitor or maturing codes that indicate intermittent faults. If the fault does not occur within a certain number of drive cycles (depending on vehicle), the code clears from memory. If fault occurs a specific number of times, the code matures into a DTC and the MIL illuminates or blinks.

To view trouble details:

1. Double click a trip that you are interested in from diagnostic summary screen.

2. Click the Trouble tab to view trouble codes.



3. To view data of another trip, select from the Trip drop-down list as illustrated below.

√ You are allowed to use the up and down arrow keys of your keyboard to scroll through trip records.

4. If data to be printed, use the Print button.

5. To quit the report view and return to *Diagnostic Summary* screen, click OK button.

8.4 Freeze Data

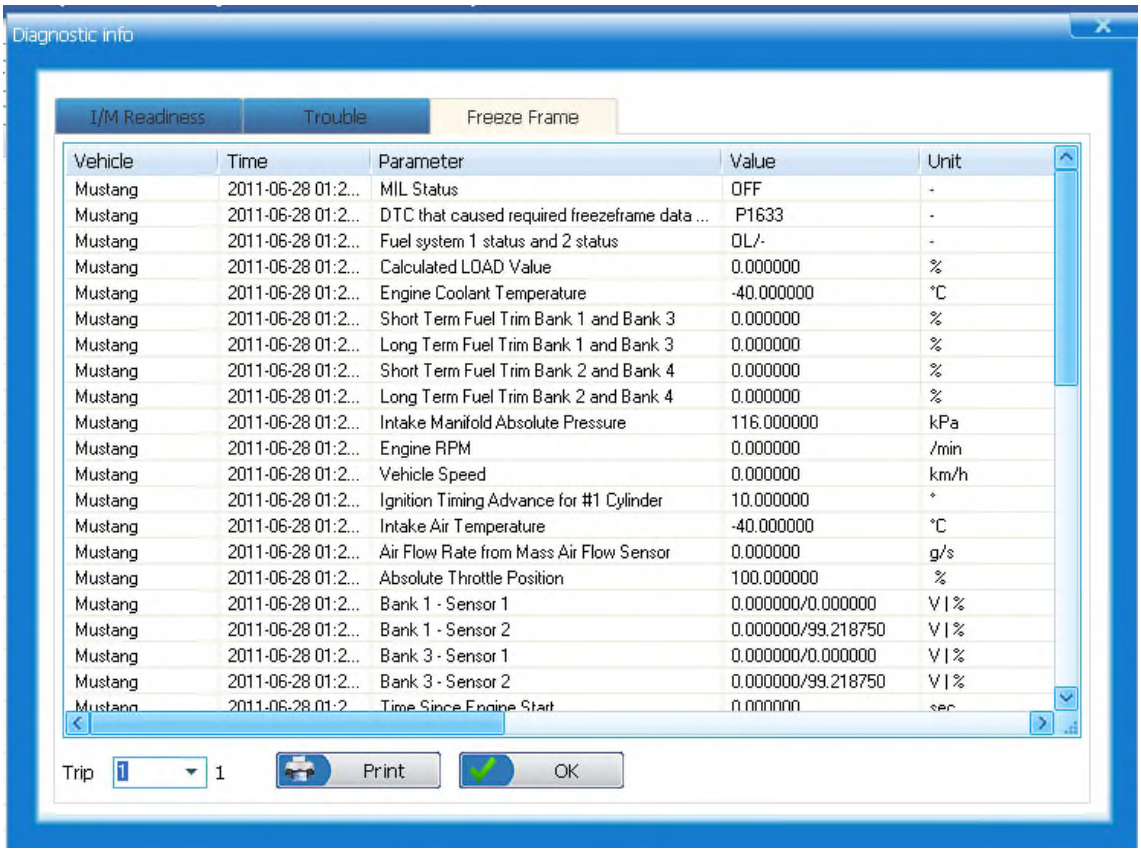
Freeze Frame function is used to view freeze frame data, a snapshot of vehicle operating conditions recorded by the on-board computer at the time of an emission-related fault.

√ If codes were cleared, freeze data may not be stored in vehicle memory depending on vehicle.

To view freeze frame data:

1. Double click a trip that you are interested in from diagnostic summary screen.

2. Click the Freeze Frame tab to view freeze data.



3. To view data of another trip, select from the Trip drop-down list as illustrated below.

√ You are allowed to use the up and down arrow keys of your keyboard to scroll through trip records.

4. If data to be printed, use the Print button.

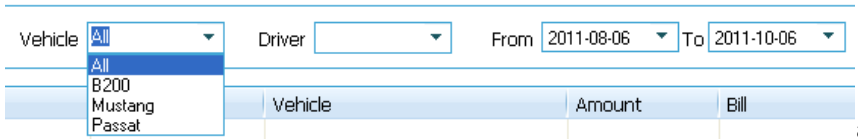
5. To quit the report view and return to ***Diagnostic Summary*** screen, click OK button.

9. Fuel Entry

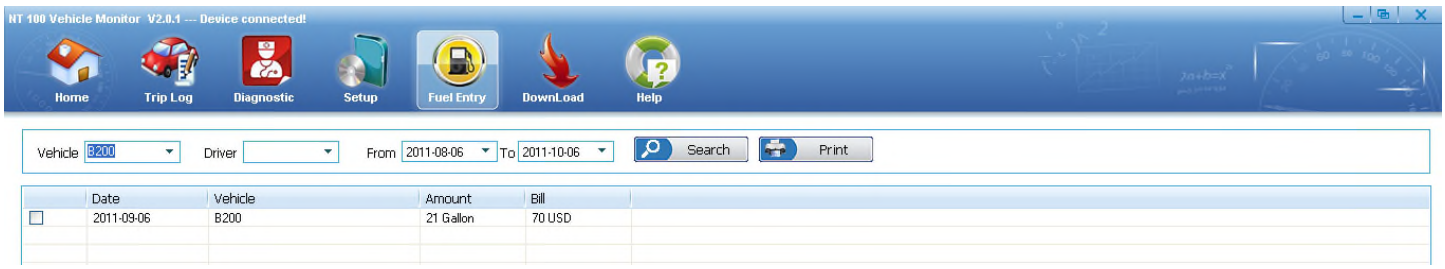
Fuel Entry is used to set up fuel usage and costs for every vehicle associated with the data management software. Fuel entry information is used to calculate fuel expense.

To enter a fuel entry:

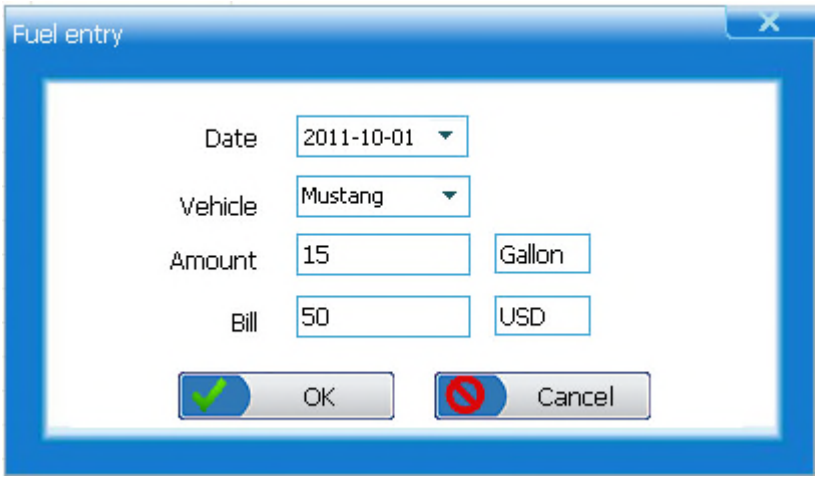
1. Click the  icon.

2.Select vehicle, driver and date 

and then click Search to view a list of fuel entry records in a specific period of time.



3.To add a new fuel entry record, use the New button.



4.Select the date when the fuel was purchased from **Date** box.
5.Select a vehicle from **Vehicle** box.
6.Enter the amount of fuel purchased in **Amount** box.
7.Enter the money paid for the fuel purchase in **Bill** box.
8.The fuel entry information to be saved, click OK button, the fuel entry information not to saved, click the Cancel button to quit without saving.
9. To delete fuel entry record(s), click the check-box before record(s) and then click the Delete button to delete.

10. Troubleshooting

When LED indicator illuminates constantly, please check the following:

- Verify ignition key is in the ON position.
- Make sure EQP-104 is correctly attached to vehicle's Data Link Connector (DLC).
- Check DLC for cracked or recessed pins, or for any substance that could prevent a good electrical connection.
- Check EQP-104's OBDII connector for bent or broken pins.
- Make sure the vehicle is OBDII/EOBD compliant.
- Cycle the vehicle key to OFF for 10s and then back to ON.
- Verify battery voltage is at least 8.0V with KOEO.
- Verify that the control module is not defective.