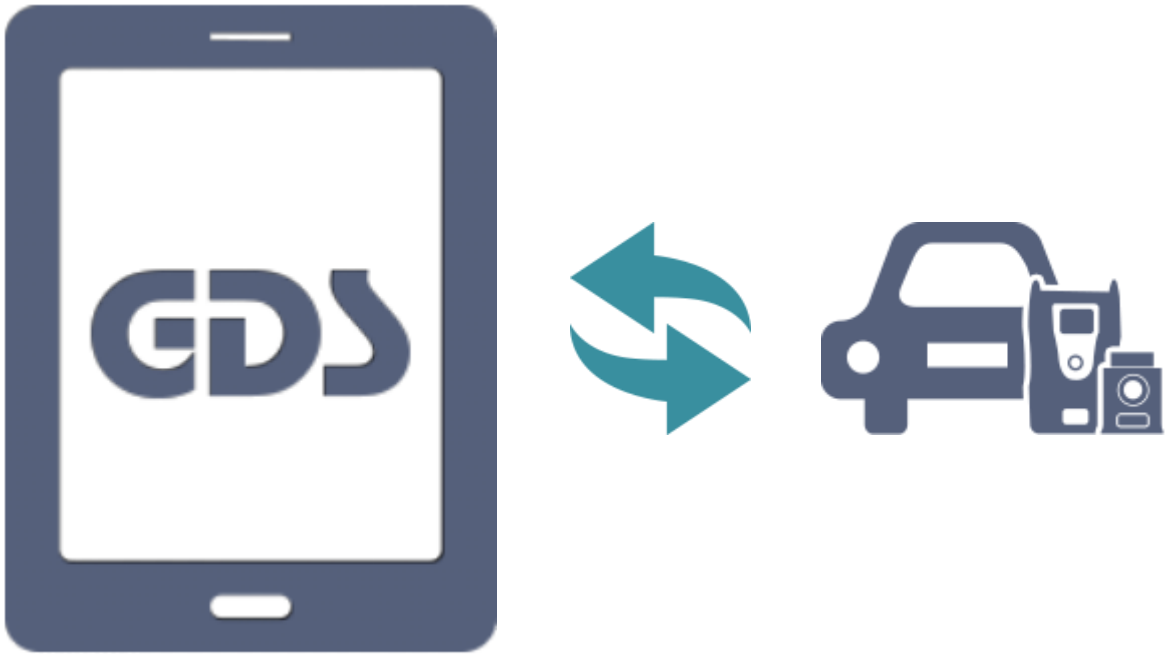
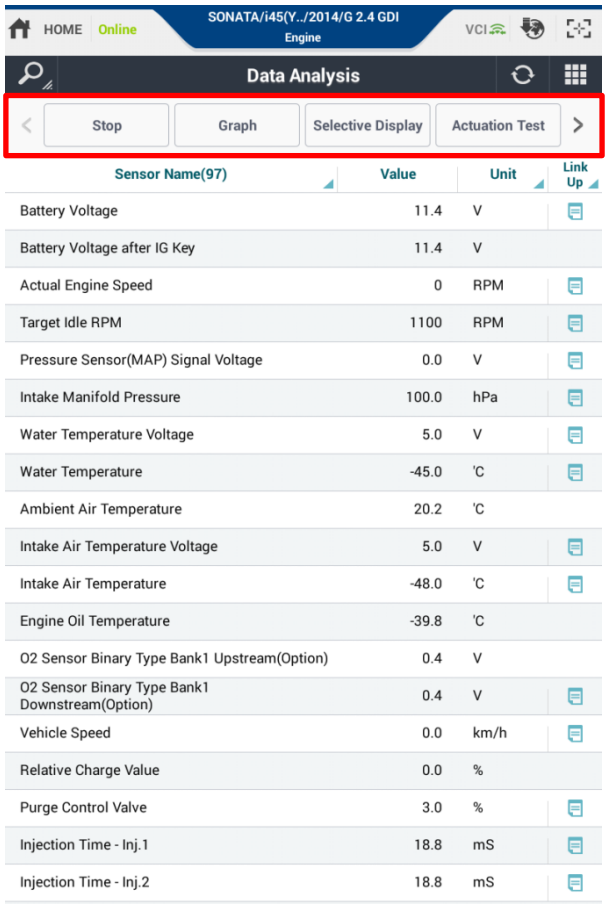
Data Analysis



This is to check the input/output information between sensors/actuators and ECU. For convenience, it supports text and graph mode.

The saved data can be displayed on “Recorded Data.”

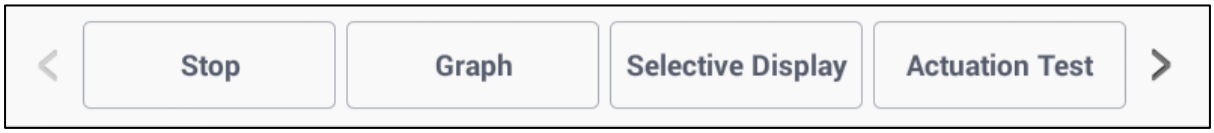
Data Analysis Screen :Text Mode



Sensor Name(97)	Value	Unit	Link Up
Battery Voltage	11.4	V	
Battery Voltage after IG Key	11.4	V	
Actual Engine Speed	0	RPM	
Target Idle RPM	1100	RPM	
Pressure Sensor(MAP) Signal Voltage	0.0	V	
Intake Manifold Pressure	100.0	hPa	
Water Temperature Voltage	5.0	V	
Water Temperature	-45.0	'C	
Ambient Air Temperature	20.2	'C	
Intake Air Temperature Voltage	5.0	V	
Intake Air Temperature	-48.0	'C	
Engine Oil Temperature	-39.8	'C	
O2 Sensor Binary Type Bank1 Upstream(Option)	0.4	V	
O2 Sensor Binary Type Bank1 Downstream(Option)	0.4	V	
Vehicle Speed	0.0	km/h	
Relative Charge Value	0.0	%	
Purge Control Valve	3.0	%	
Injection Time - Inj.1	18.8	mS	
Injection Time - Inj.2	18.8	mS	

◈ Function Buttons

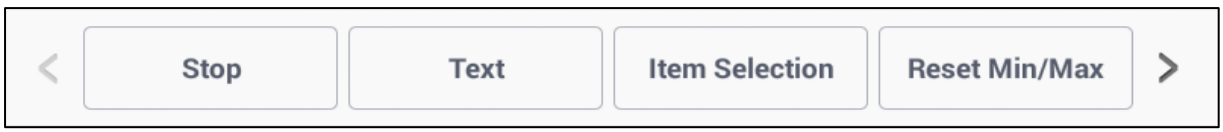
The below is the function buttons for Data Analysis.



Stop	Stops recording Sensor Data and the data can be saved by clicking the [Save] button. *The button toggles between [Stop] and [Start] button.
Graph	Shows the current data value in a graph format. Able to convert to Text format.
Selective Display	Refreshes data values for specific items. Toggles with [Normal Display] button.
Actuation Test	Performs Actuation test for the selected systems.
Recorded Data	Opens Files and reviews the recorded data on SD card.
Group	Shows sensor data by group
Save	All data, which has been recorded before [Stop] button is pressed, is saved as a file on SD card.

Data Analysis Screen :Graph Mode

This function is to display the sensor item value as a graph format. The user can see the value trend of the sensor data.



◈ Function Buttons

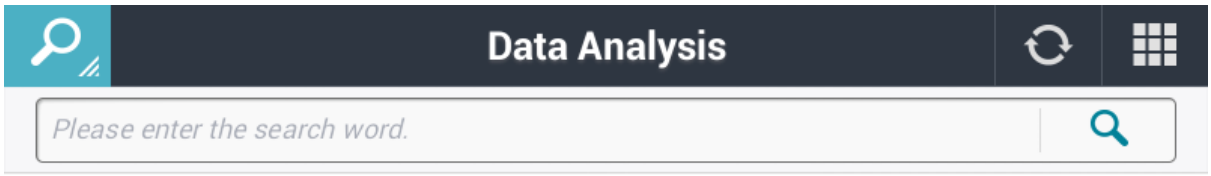
Stop	Stops recording Sensor Data and the data can be saved by clicking the [Save] button. *The button toggles between [Stop] and [Start] button.
Text	Shows the current data value as a text format. Able to convert to Graph format.
Item Selection	Moves on to “Item Selection”
Reset Min/Max	Initializes the value of MAX/MIN on the right side.
Actuation Test	Performs Actuation test for the selected systems.
Recorded Data	Opens Files and reviews the recorded data on SD card.
+ Time scale −	Magnifies/Reduces time base on the horizontal axis.
+ Zoom −	Magnifies/Reduces outcome value base on the horizontal axis.
Save	All data, which has been recorded before [Stop] button is pressed, is saved as a file on SD card.

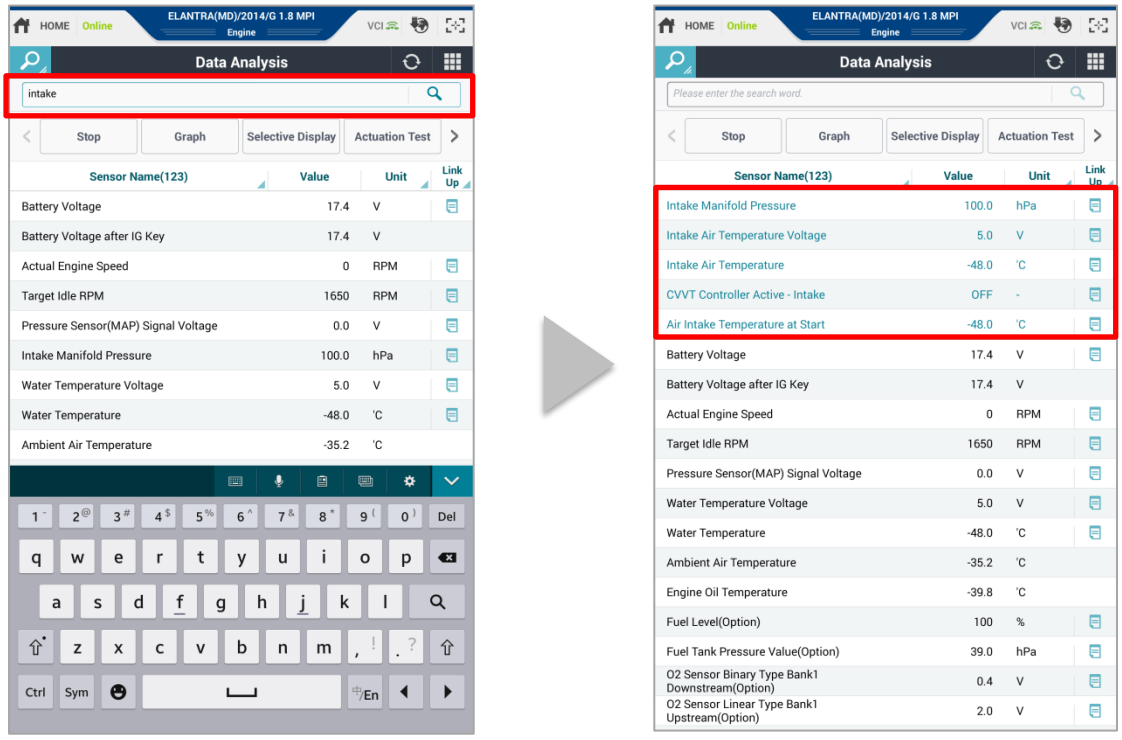
Sensor Data Item Search & Sort

It supports searching/sorting function for data item to search easily as a reference to the diagnosis.

◈ Search

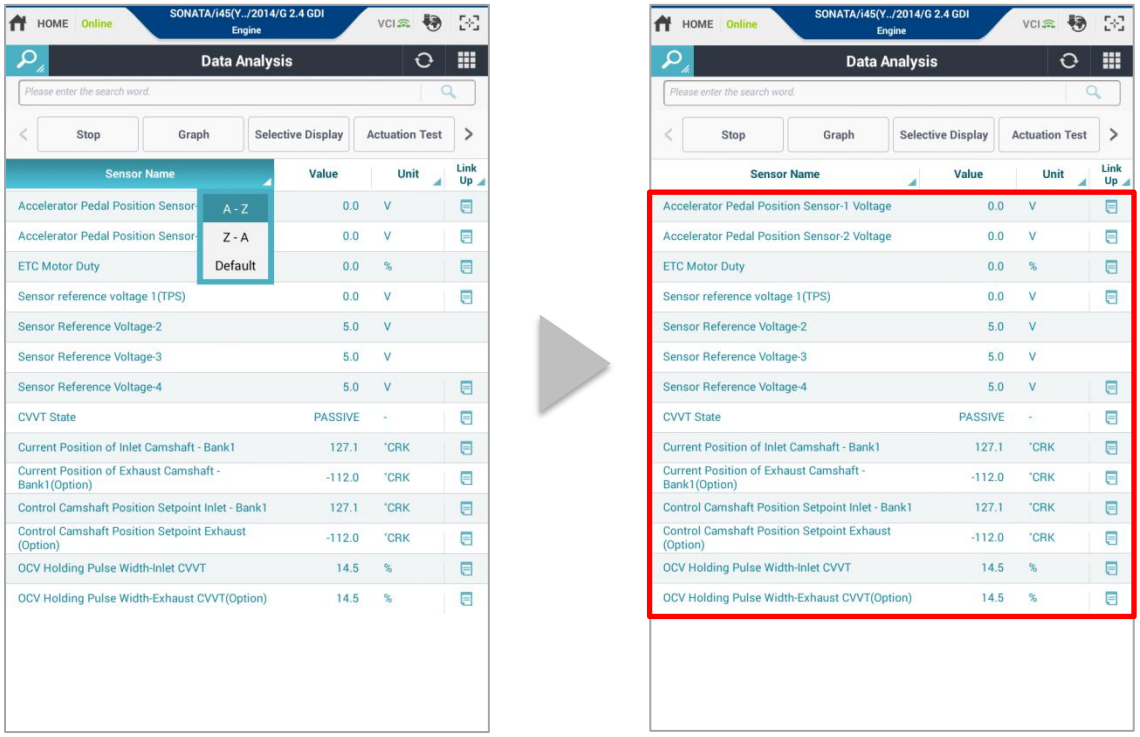
Tap button on the left side of the Data Analysis title bar to open search bar.
Enter the name (search words) on the search bar and tap button to search.





◈ Sort

The data can be sorted in alphabetical or reverse alphabetical order which makes the users convenient.

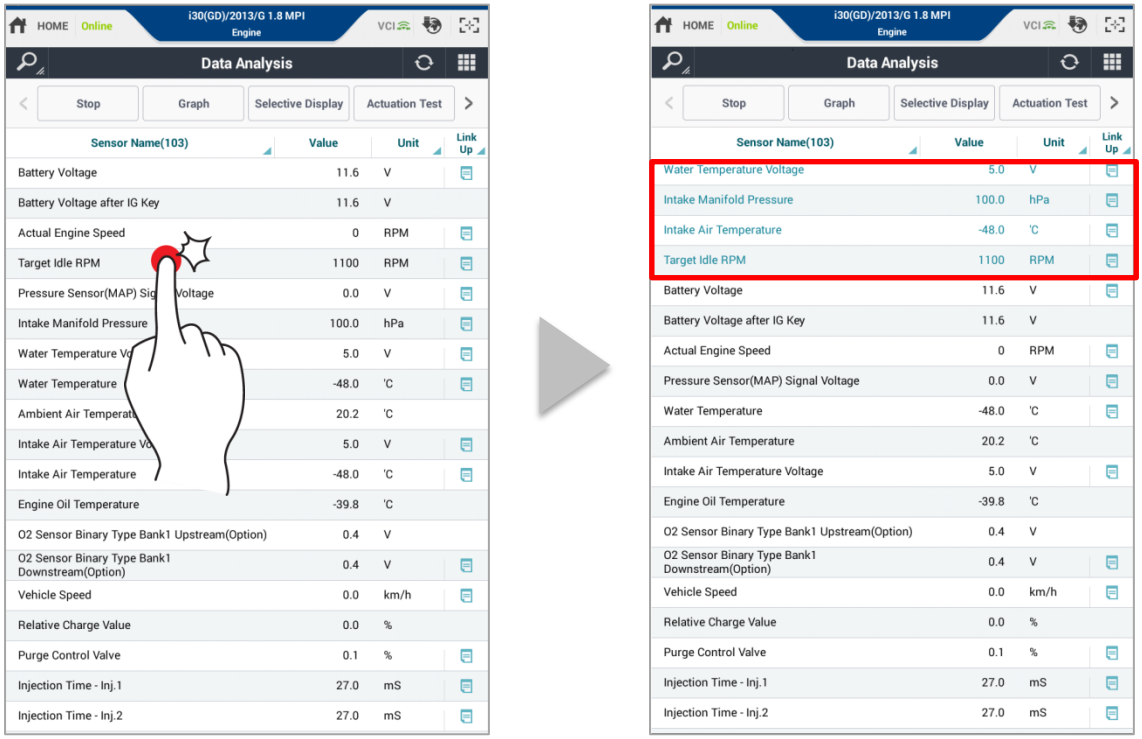


A - Z	**Sorts sensor items in alphabetical order.**
Z - A	**Sorts sensor items in reverse alphabetical order.**
Default	**Sorts sensor items in the basic order.**

FIX

This function is to fix the items at the top to diagnose the sensor data.

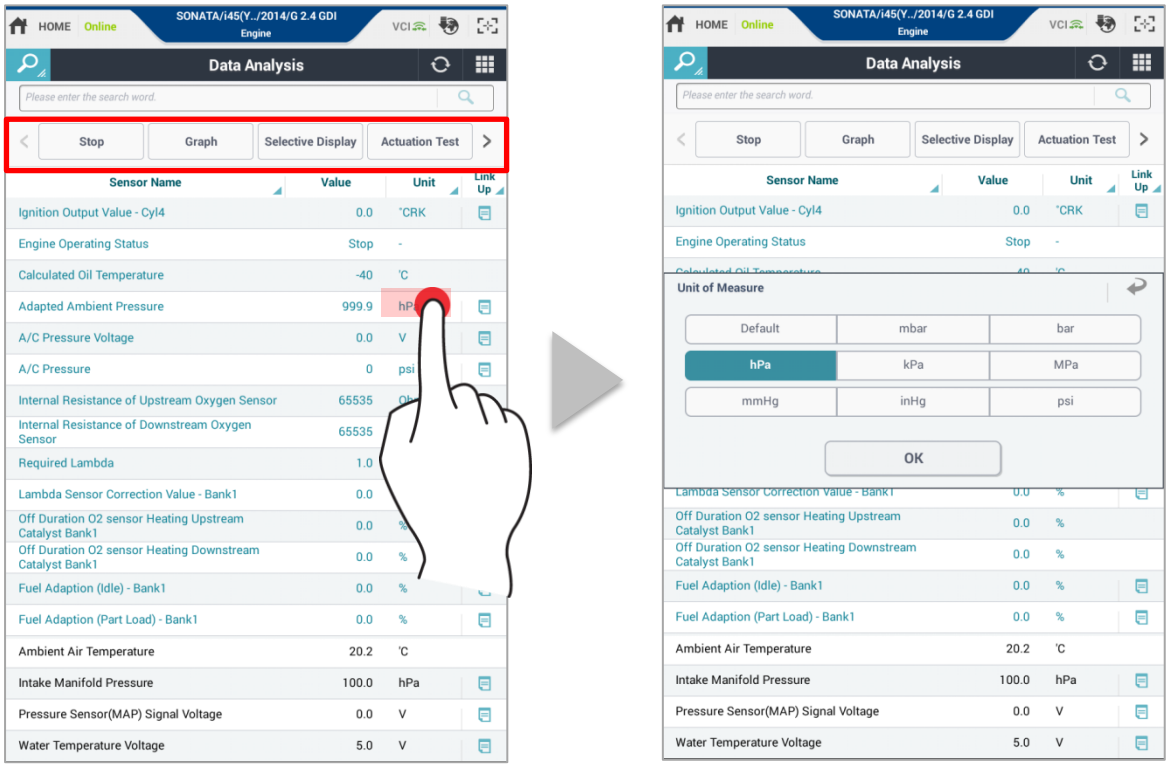
The fixed items, which will be located at the top of the page, can be shown as a graph format or be displayed selectively as the 2nd image below.



When a user taps a sensor item, it will be fixed at the top. And it will be unfixed when the user taps the fixed sensor item.

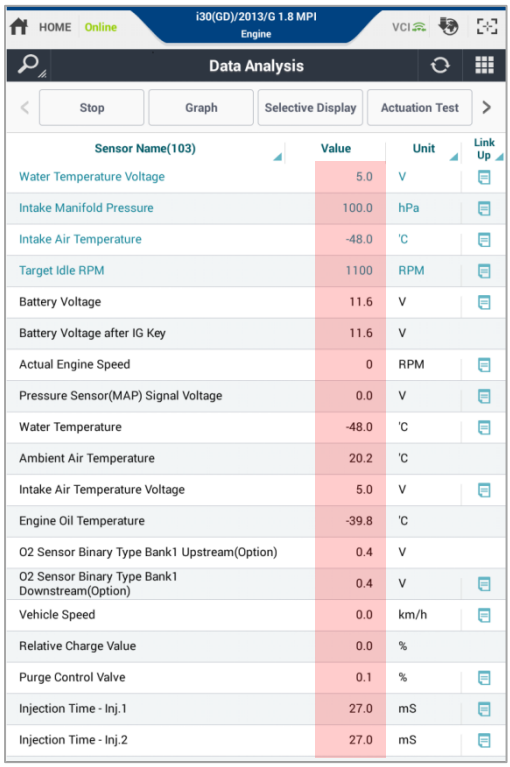
Sensor Data Measure Units change

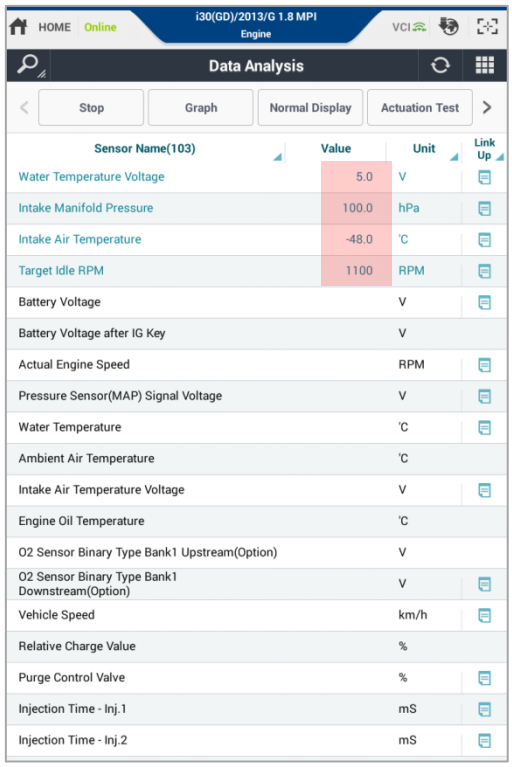
Measure units on DATA Analysis can change temporarily on GDS Mobile setting except for the specific units.

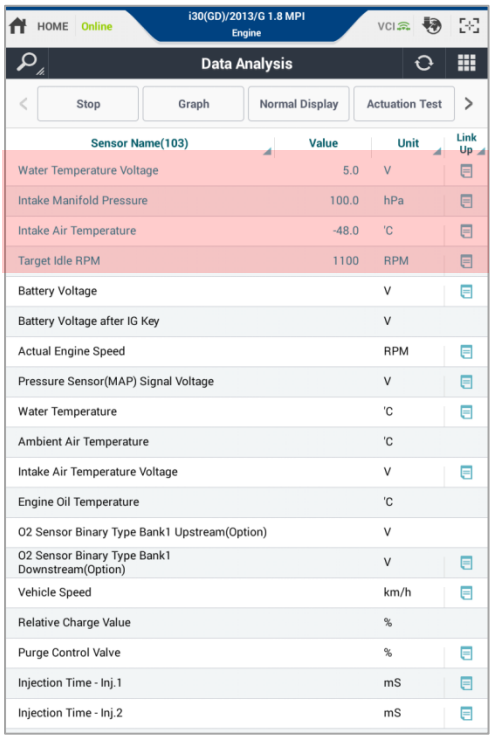


Selective Display

The user can select data items and they are displayed at the top of the item list. Compared to Normal Display, it shows the data in detail.







Step1

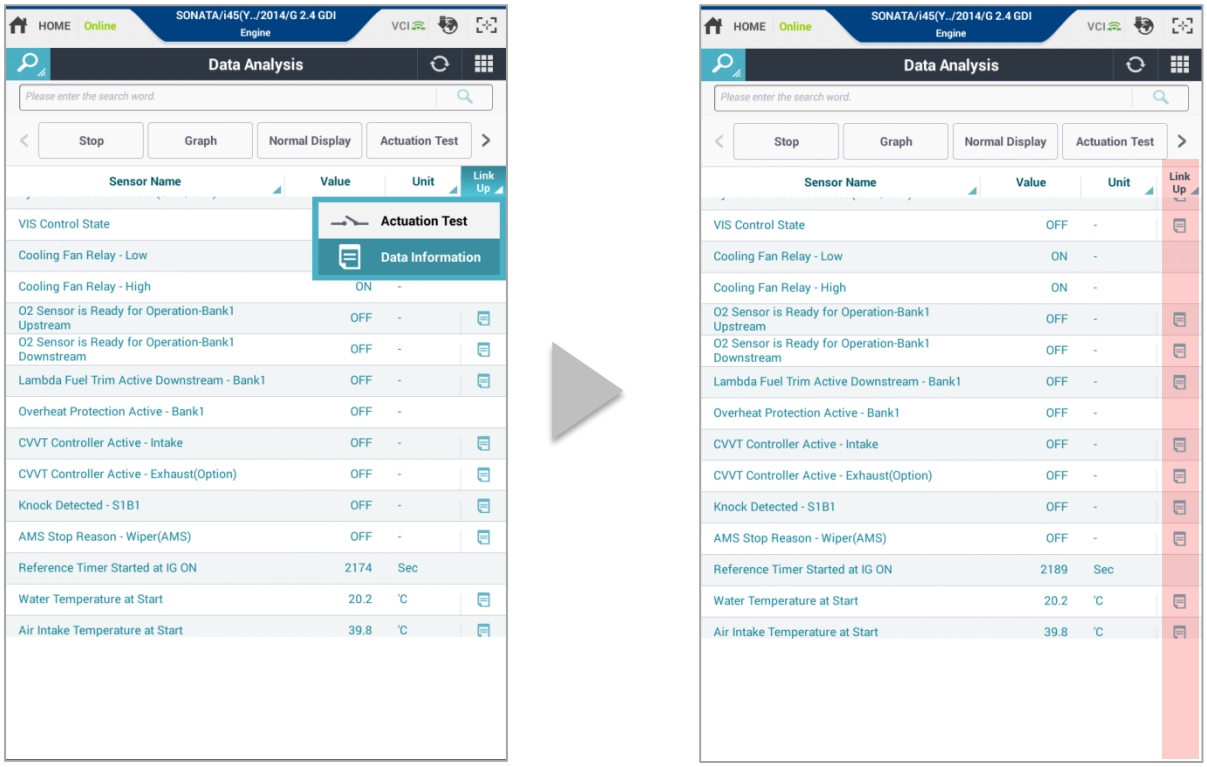
1. Fix the sensor item
2. Tap [Selective Display] button above.

Link Up

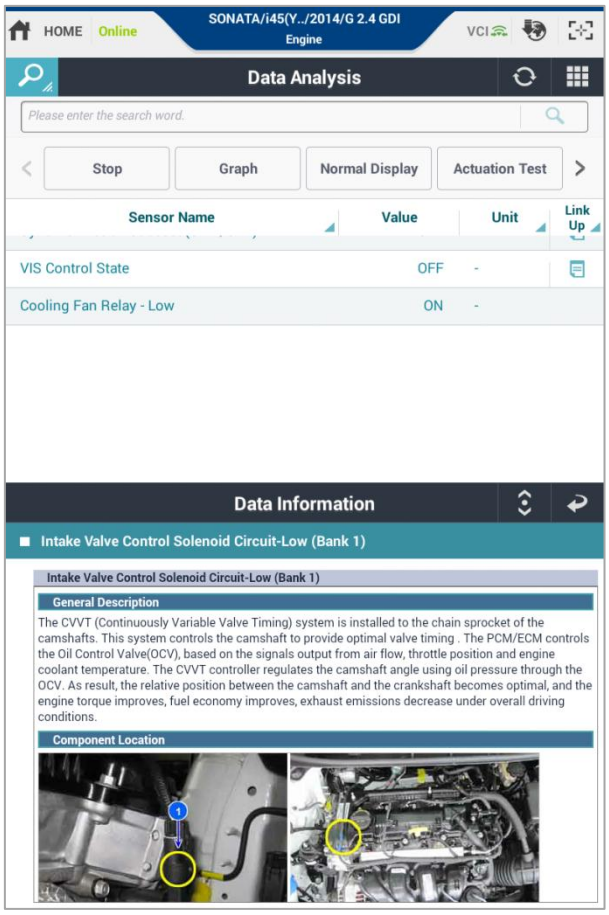
When there is Service Information or Actuation Test item for each sensor Item, will be displayed on the right side of the sensor data item bar.

◈ Data Information

When there is Service Information item for each sensor item, will be shown on the right side of each sensor item bar.



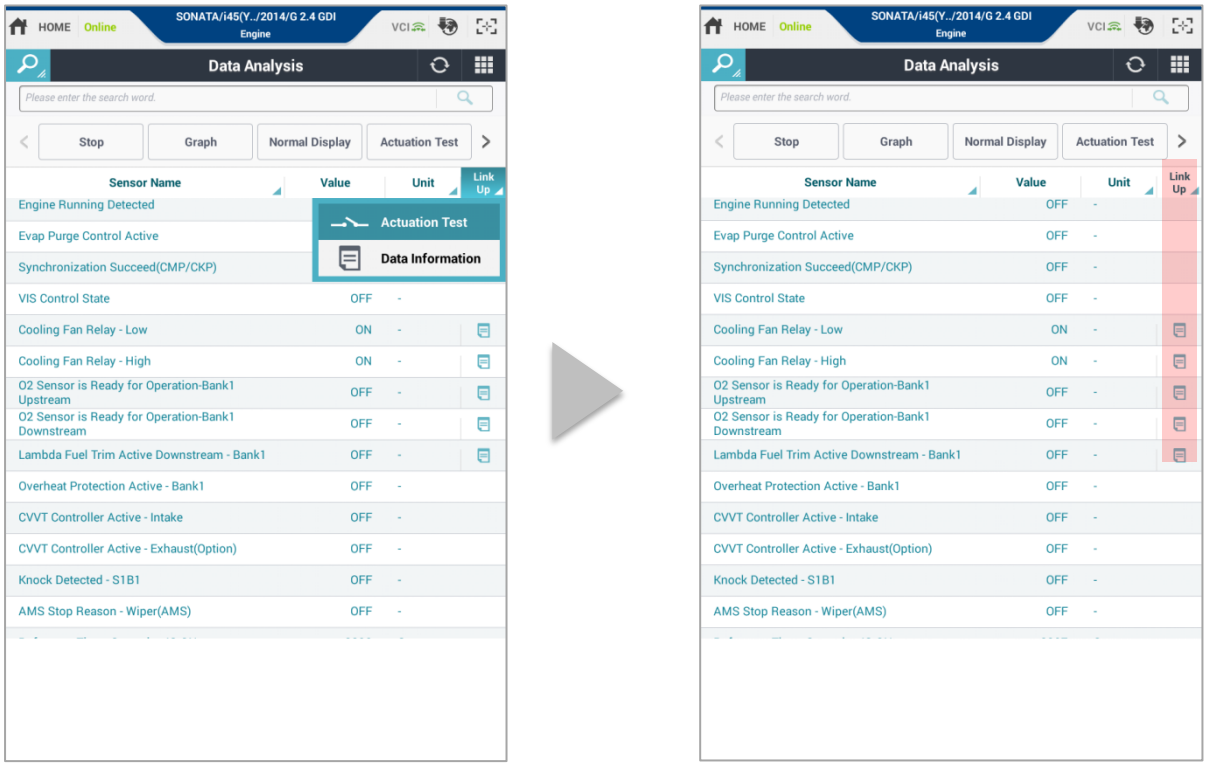
Tap icon, Data Information related to the sensor item will be shown at the bottom of the screen.

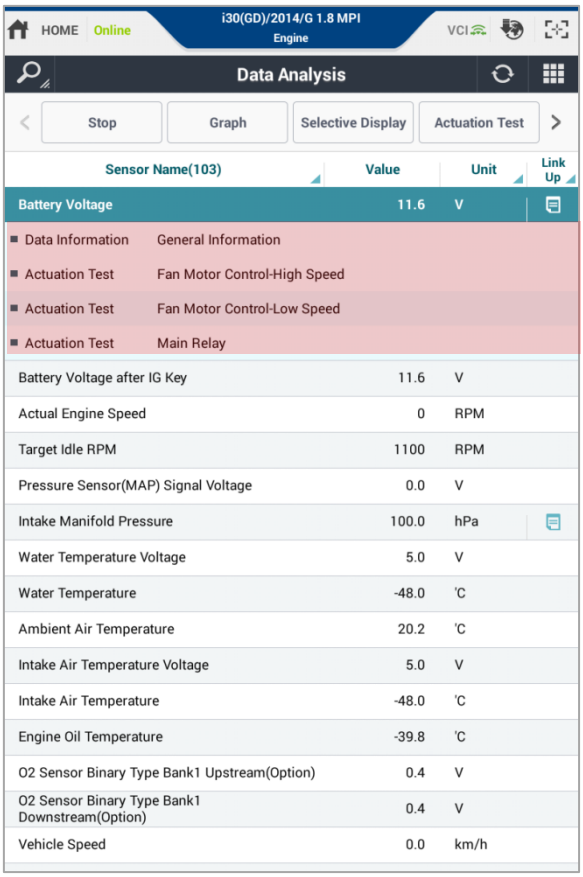

HOME
Online
SONATA/i45(Y../2014/G 2.4 GDI
Engine
VCI
Data Analysis
Please enter the search word.
Stop
Graph
Normal Display
Actuation Test
Sensor Name
Value
Unit
Link Up
VIS Control State
OFF
-
Cooling Fan Relay - Low
ON
-
Data Information
Intake Valve Control Solenoid Circuit-Low (Bank 1)
Intake Valve Control Solenoid Circuit-Low (Bank 1)
General Description
The CVVT (Continuously Variable Valve Timing) system is installed to the chain sprocket of the camshafts. This system controls the camshaft to provide optimal valve timing . The PCM/ECM controls the Oil Control Valve(OCV), based on the signals output from air flow, throttle position and engine coolant temperature. The CVVT controller regulates the camshaft angle using oil pressure through the OCV. As result, the relative position between the camshaft and the crankshaft becomes optimal, and the engine torque improves, fuel economy improves, exhaust emissions decrease under overall driving conditions.
Component Location
1

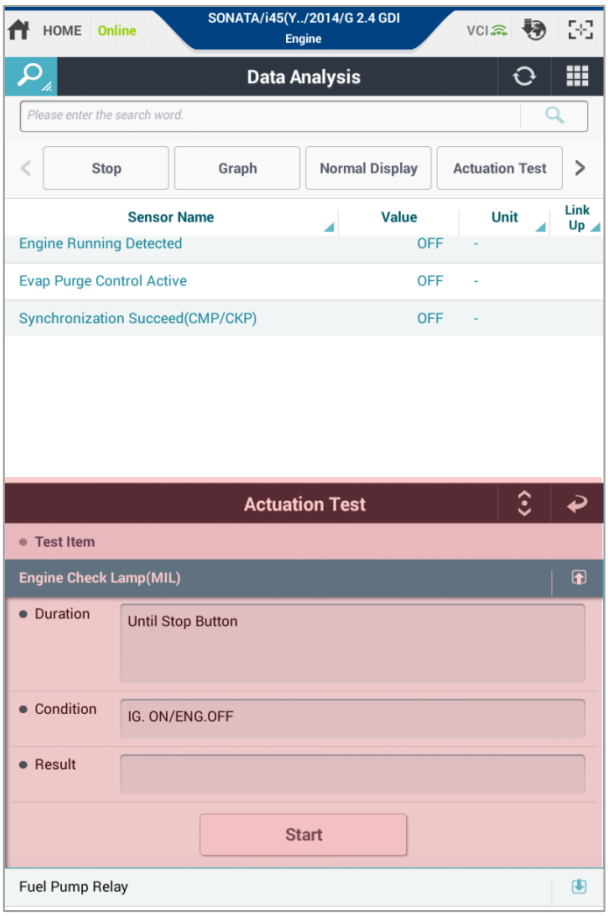
◈ Actuation Test

When there is Actuation test item for each sensor item,  will be shown on the right side of each sensor item bar.

Tap  icon, users can check the name of the Actuation test and perform the test immediately by tapping the item.



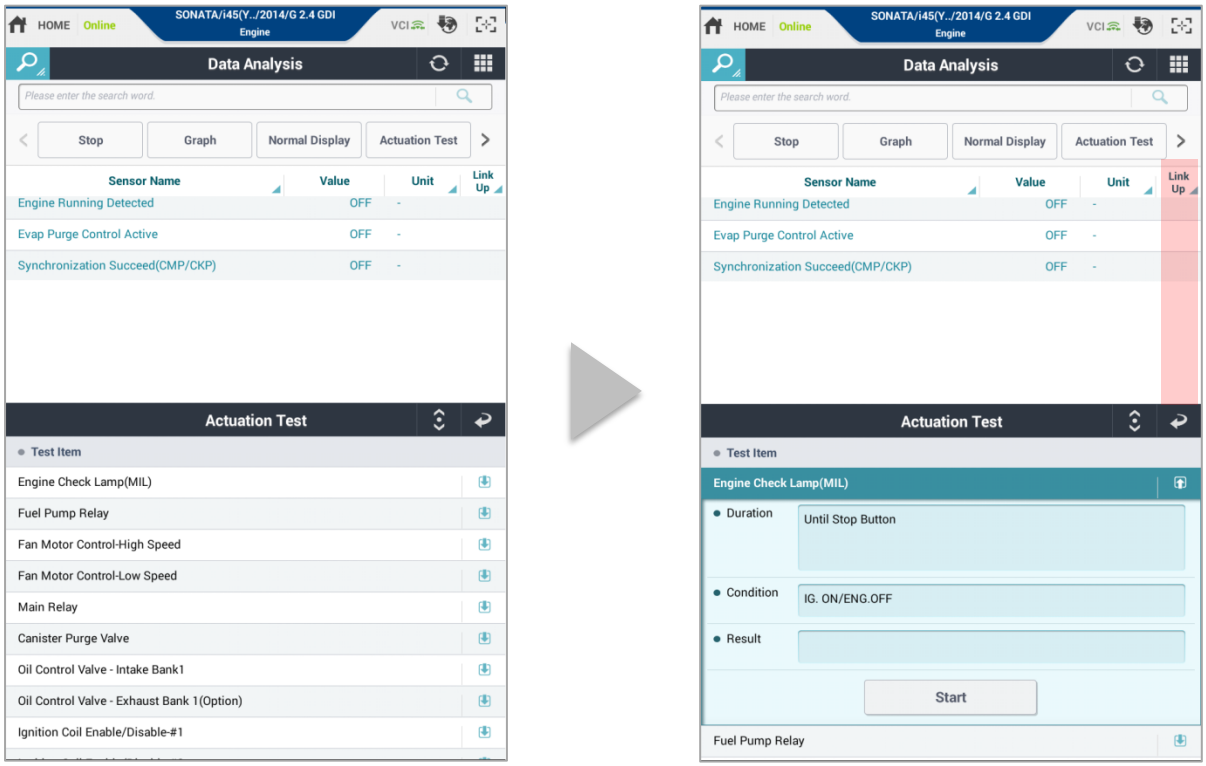

HOME
Online
i30(GD)/2014/G 1.8 MPI
Engine
VCI
Data Analysis
Stop
Graph
Selective Display
Actuation Test
Sensor Name(103)
Value
Unit
Link Up
Battery Voltage 11.6 V
Data Information General Information
Actuation Test Fan Motor Control-High Speed
Actuation Test Fan Motor Control-Low Speed
Actuation Test Main Relay
Battery Voltage after IG Key 11.6 V
Actual Engine Speed 0 RPM
Target Idle RPM 1100 RPM
Pressure Sensor(MAP) Signal Voltage 0.0 V
Intake Manifold Pressure 100.0 hPa
Water Temperature Voltage 5.0 V
Water Temperature -48.0 'C
Ambient Air Temperature 20.2 'C
Intake Air Temperature Voltage 5.0 V
Intake Air Temperature -48.0 'C
Engine Oil Temperature -39.8 'C
O2 Sensor Binary Type Bank1 Upstream(Option) 0.4 V
O2 Sensor Binary Type Bank1 Downstream(Option) 0.4 V
Vehicle Speed 0.0 km/h



Refer to Actuation Test about the detailed explanation.

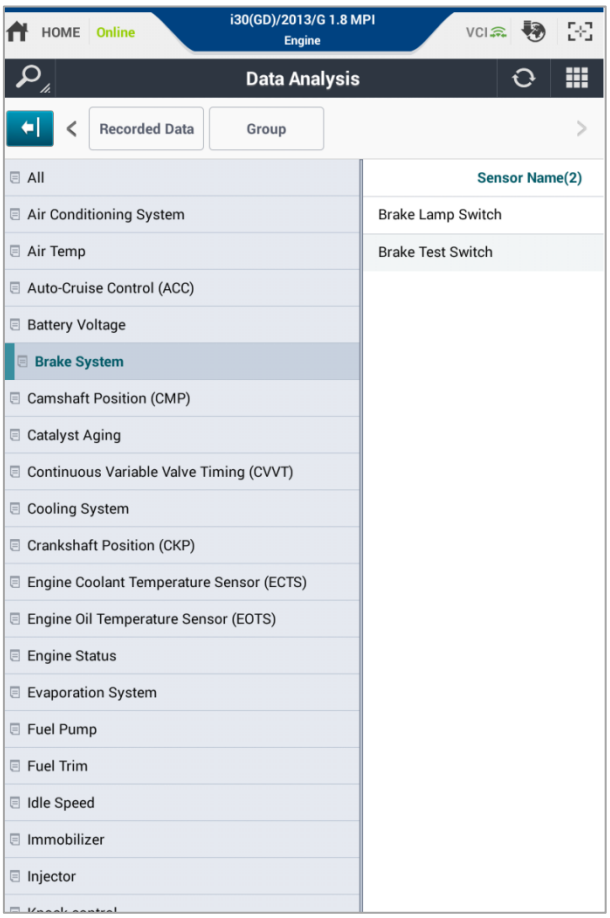
Actuation Test Interlock

Actuation test list supported by selected system can be checked at the bottom of the Data Analysis screen and it can be performed.



Data Item Fix by Grouping

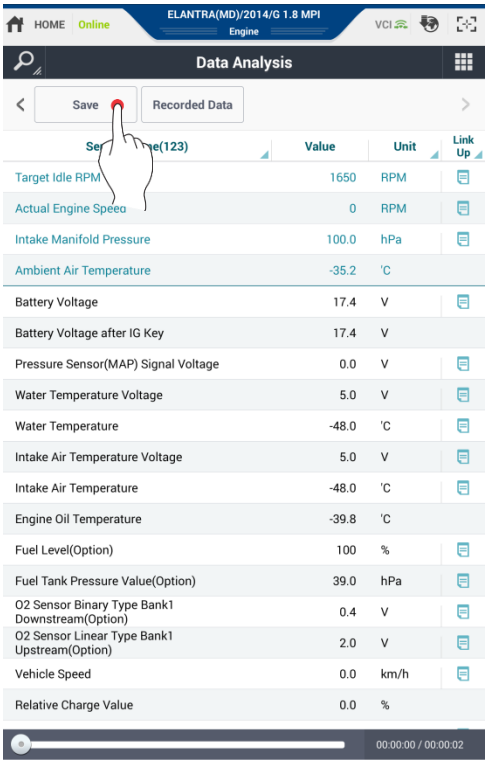
The sensor items are specified by the group as below.

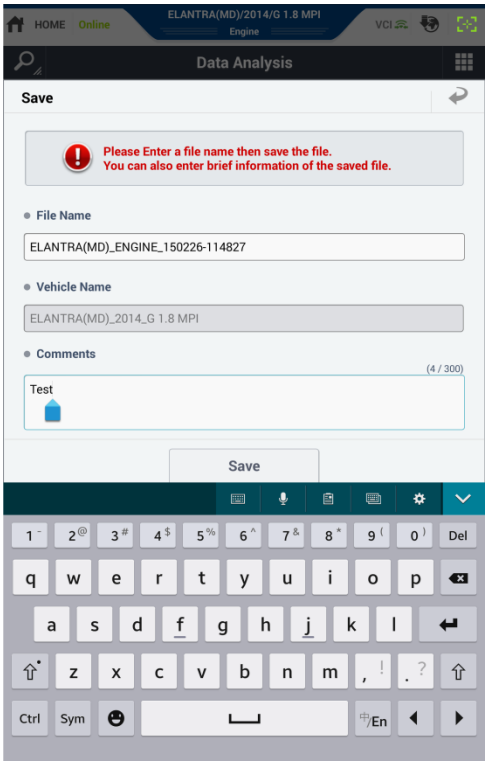


Data Save

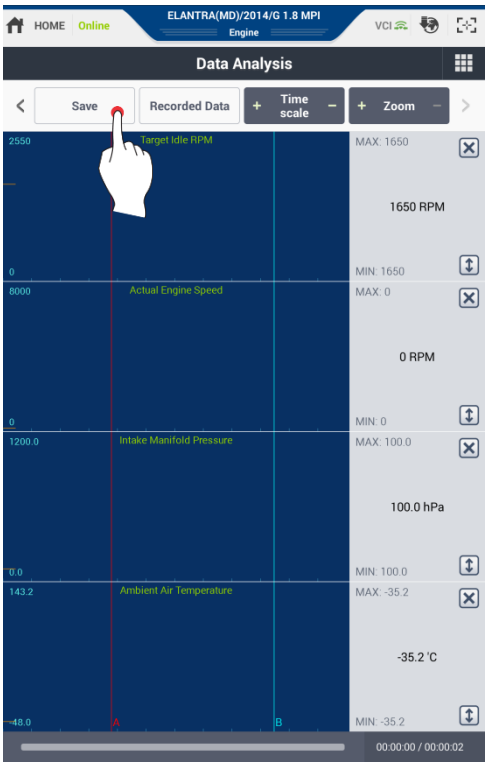
All the data, which has been recorded, will be saved as a file on SD card by pressing the [Save] button.

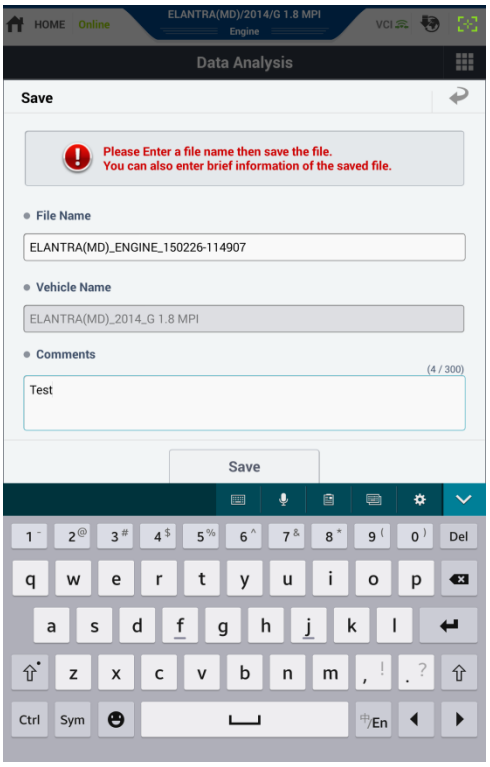
◈ Text Mode





◈ Graph Mode

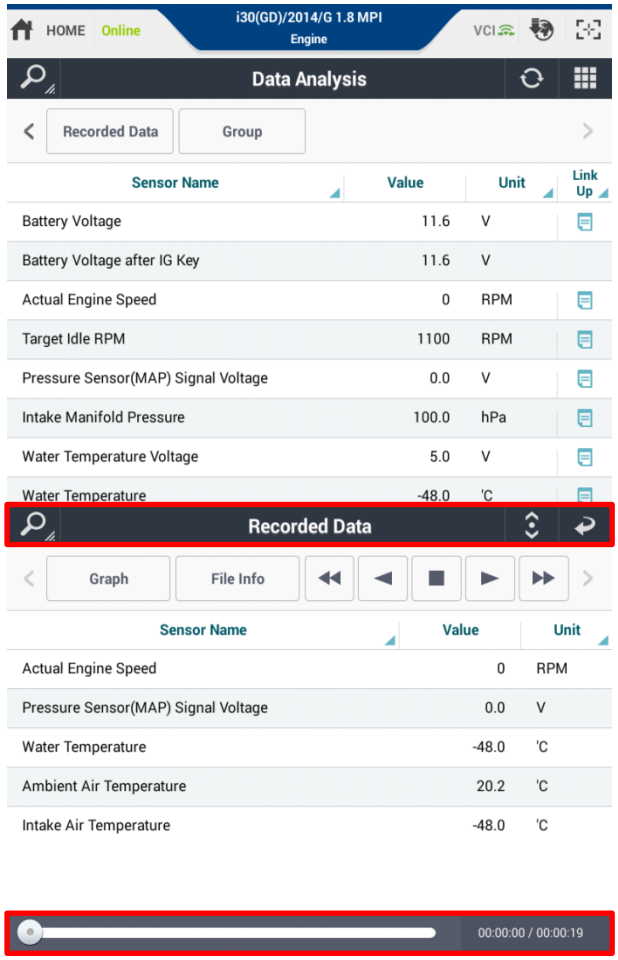

HOME
Online
ELANTRA(MD)/2014/G 1.8 MPI
Engine
VCI
Data Analysis
Save
Recorded Data
Time scale
Zoom
2550
Target Idle RPM
MAX: 1650
1650 RPM
MIN: 1650
0
8000
Actual Engine Speed
MAX: 0
0 RPM
MIN: 0
0
1200.0
Intake Manifold Pressure
MAX: 100.0
100.0 hPa
MIN: 100.0
143.2
Ambient Air Temperature
MAX: -35.2
-35.2 °C
MIN: -35.2
-48.0
A
B
00:00:00 / 00:00:02


HOME
Online
ELANTRA(MD)/2014/G 1.8 MPI
Engine
VCI
Data Analysis
Save
Please Enter a file name then save the file.
You can also enter brief information of the saved file.
File Name
ELANTRA(MD)_ENGINE_150226-114907
Vehicle Name
ELANTRA(MD)_2014_G 1.8 MPI
Comments
(4 / 300)
Test
Save

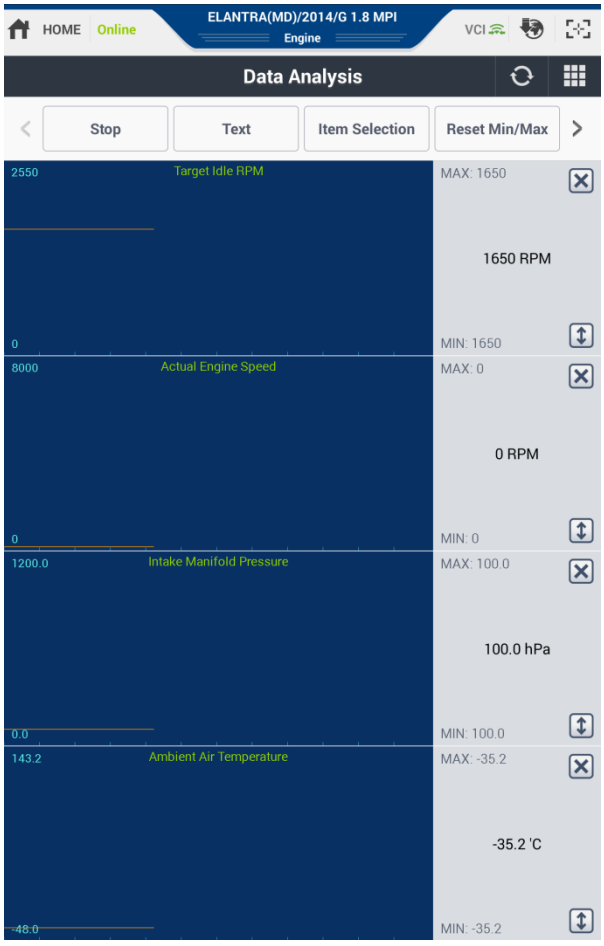
Recorded Data Display

The saved sensor data, which is saved on SD Card, can be loaded and be displayed.

◈ Text Mode



◈ Graph Mode

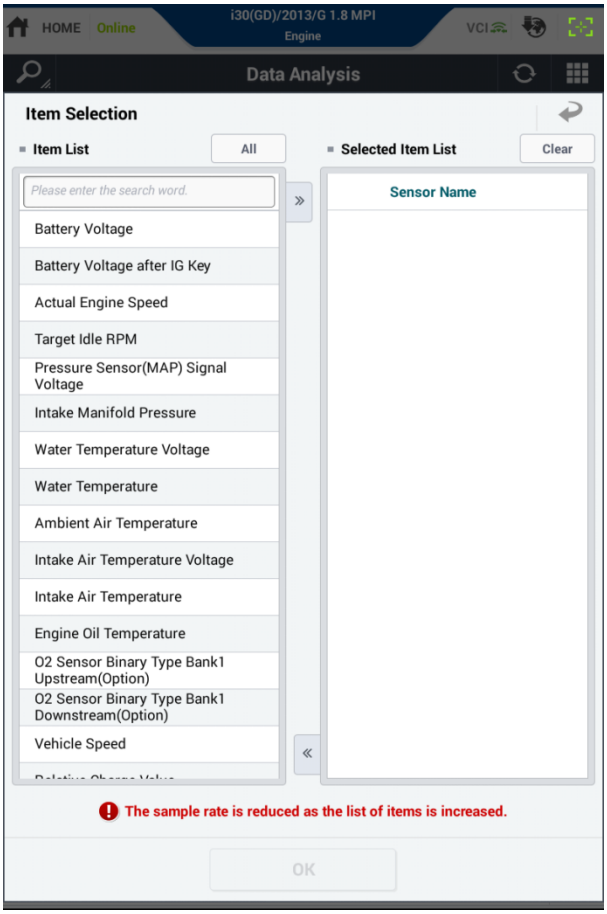


Stop	Stops recording sensor data and shows the recorded data.
Graph	Shows the current data value as a graph format. Able to convert to Text format.
◀◀	Plays reverse with double speed.
◀	Plays reverse with normal speed.
■	Pauses
▶	Plays with normal speed.
▶▶	Plays with double speed.

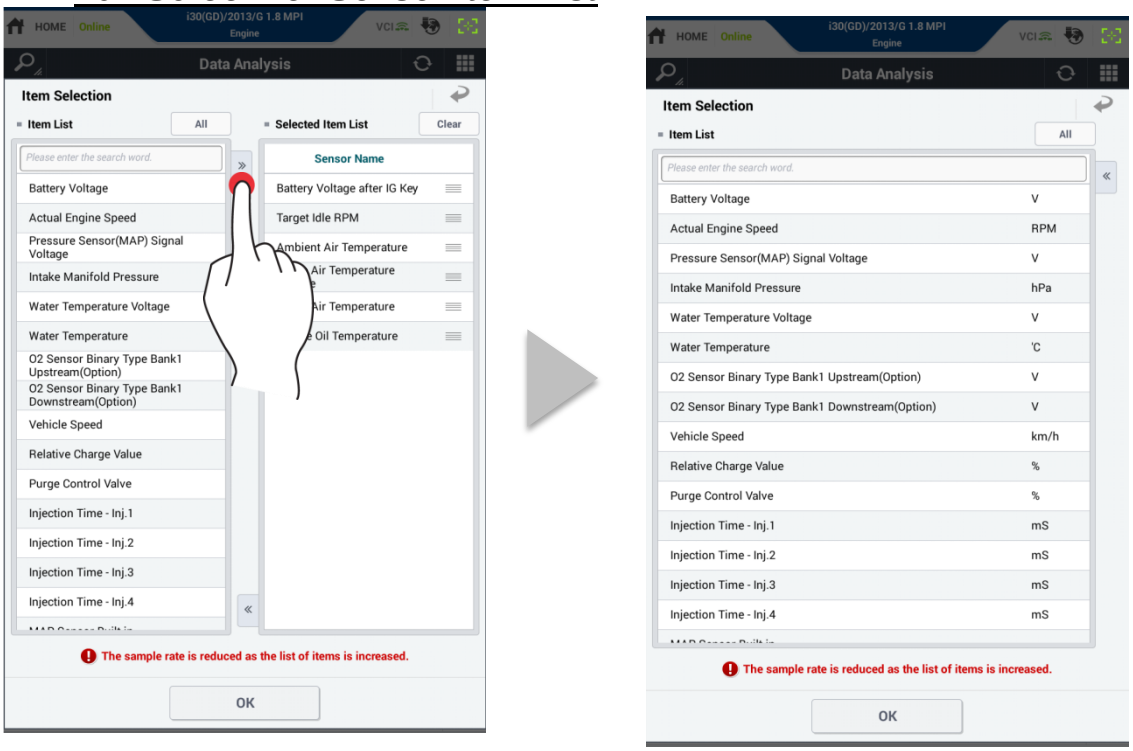
Data Analysis - Graph Mode

◈ Item Selection

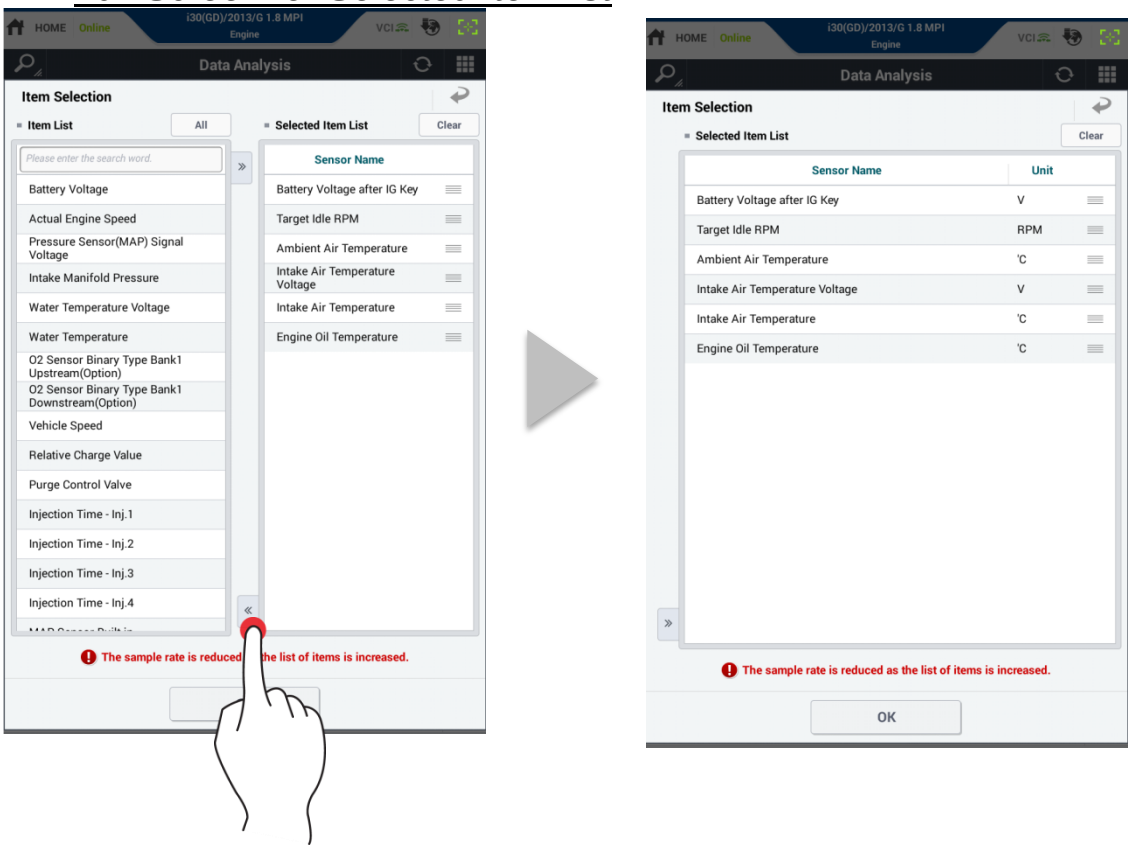
When sensor items are not fixed and switched to on a graph mode, to set the item the “Item Selection” screen appears. Please add / delete a sensor to read the following description.



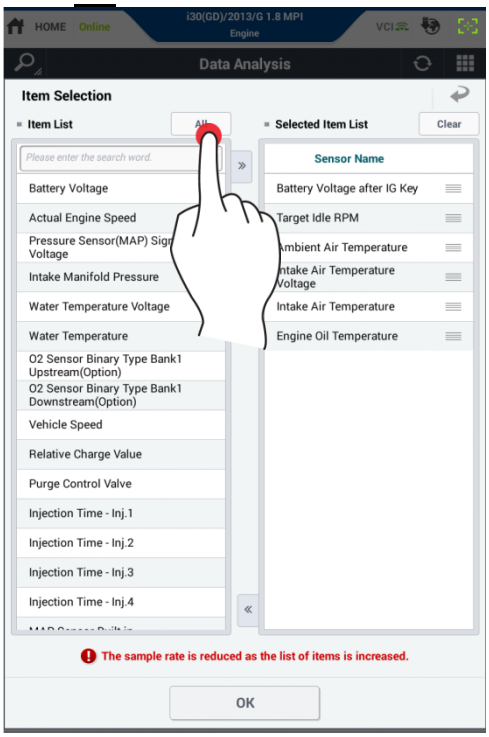
- *Full Screen for Sensor Item List*

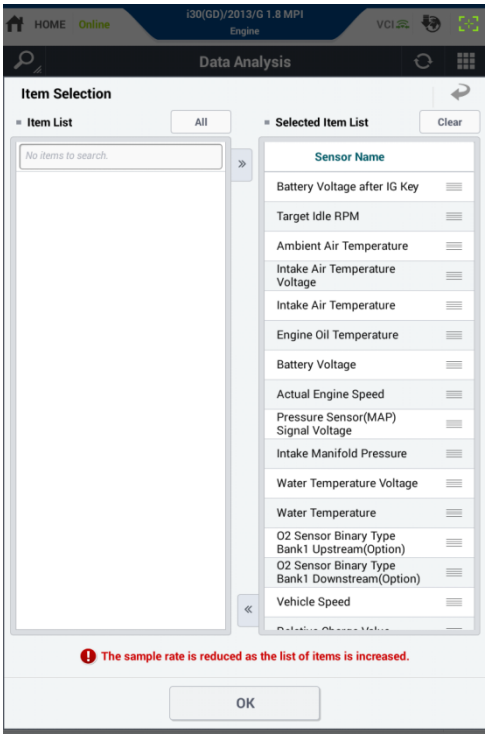


- *Full Screen for Selected Item list*

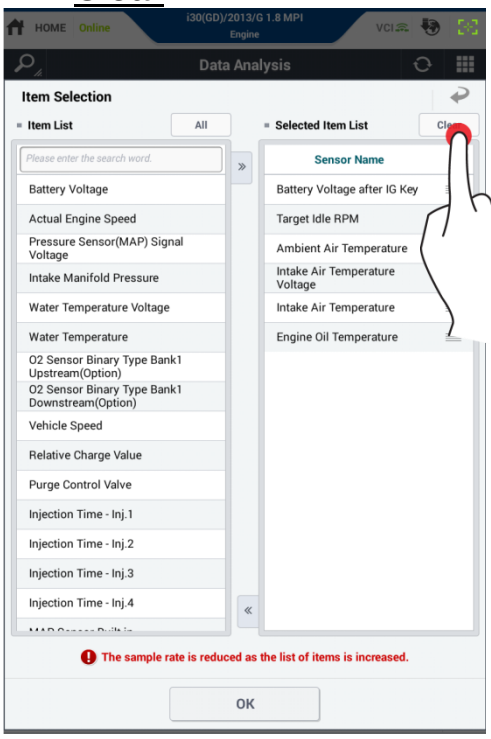


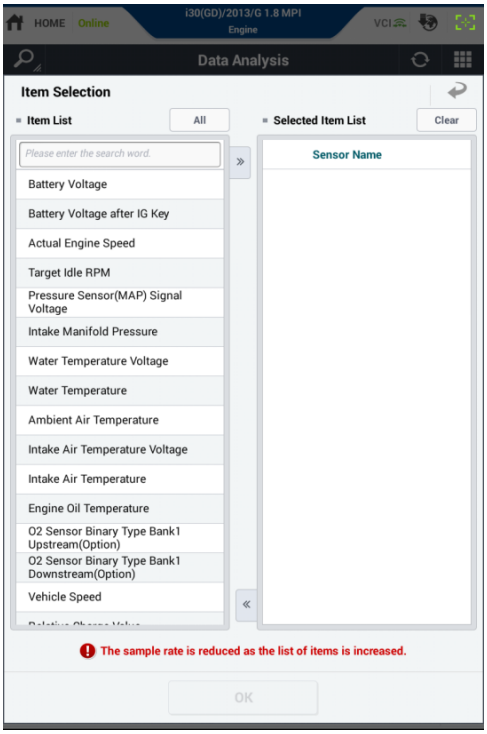
◆ *All*


HOME Online
i30(GD)/2013/G 1.8 MPI
Engine
VCI
Data Analysis
Item Selection
Item List
All
Selected Item List
Clear
Please enter the search word.
Sensor Name
Battery Voltage
Actual Engine Speed
Pressure Sensor(MAP) Signal Voltage
Intake Manifold Pressure
Water Temperature Voltage
Water Temperature
O2 Sensor Binary Type Bank1 Upstream(Option)
O2 Sensor Binary Type Bank1 Downstream(Option)
Vehicle Speed
Relative Charge Value
Purge Control Valve
Injection Time - Inj.1
Injection Time - Inj.2
Injection Time - Inj.3
Injection Time - Inj.4
Battery Voltage after IG Key
Target Idle RPM
Ambient Air Temperature
Intake Air Temperature Voltage
Intake Air Temperature
Engine Oil Temperature
The sample rate is reduced as the list of items is increased.
OK

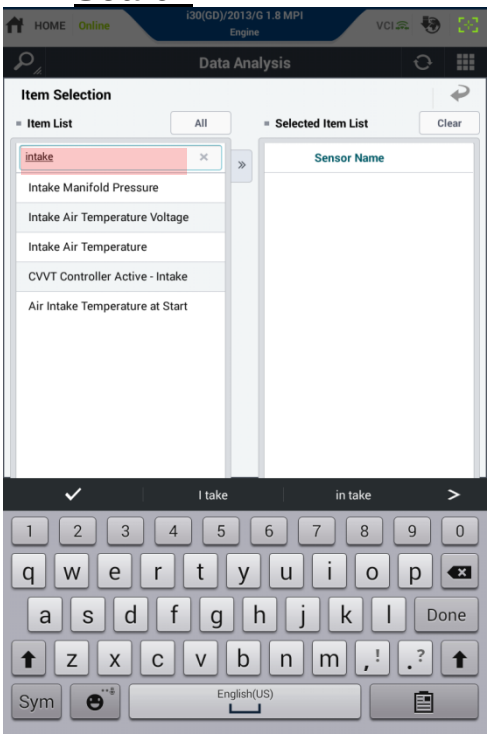

HOME Online
i30(GD)/2013/G 1.8 MPI
Engine
VCI
Data Analysis
Item Selection
Item List
All
Selected Item List
Clear
No items to search.
Sensor Name
Battery Voltage after IG Key
Target Idle RPM
Ambient Air Temperature
Intake Air Temperature Voltage
Intake Air Temperature
Engine Oil Temperature
Battery Voltage
Actual Engine Speed
Pressure Sensor(MAP) Signal Voltage
Intake Manifold Pressure
Water Temperature Voltage
Water Temperature
O2 Sensor Binary Type Bank1 Upstream(Option)
O2 Sensor Binary Type Bank1 Downstream(Option)
Vehicle Speed
The sample rate is reduced as the list of items is increased.
OK

◆ *Clear*


HOME Online
i30(GD)/2013/G 1.8 MPI
Engine
VCI
Data Analysis
Item Selection
Item List
All
Selected Item List
Please enter the search word.
Sensor Name
Battery Voltage
Actual Engine Speed
Pressure Sensor(MAP) Signal Voltage
Intake Manifold Pressure
Water Temperature Voltage
Water Temperature
O2 Sensor Binary Type Bank1 Upstream(Option)
O2 Sensor Binary Type Bank1 Downstream(Option)
Vehicle Speed
Relative Charge Value
Purge Control Valve
Injection Time - Inj.1
Injection Time - Inj.2
Injection Time - Inj.3
Injection Time - Inj.4
Battery Voltage after IG Key
Target Idle RPM
Ambient Air Temperature
Intake Air Temperature Voltage
Intake Air Temperature
Engine Oil Temperature
The sample rate is reduced as the list of items is increased.
OK

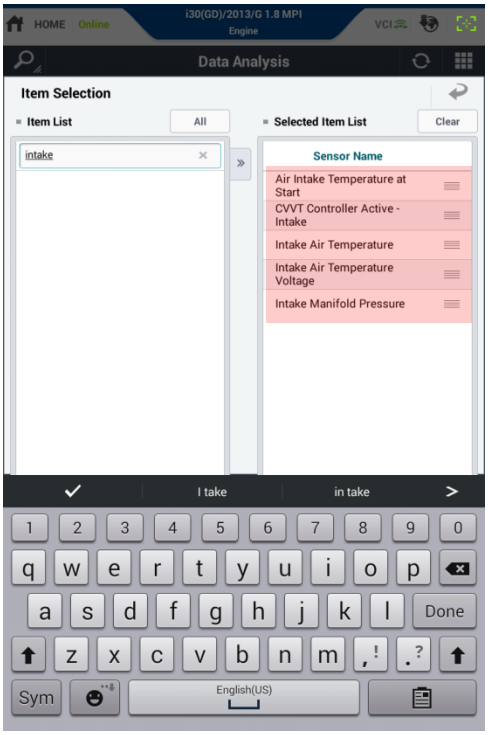

HOME Online
i30(GD)/2013/G 1.8 MPI
Engine
VCI
Data Analysis
Item Selection
Item List
All
Selected Item List
Clear
Please enter the search word.
Sensor Name
Battery Voltage
Battery Voltage after IG Key
Actual Engine Speed
Target Idle RPM
Pressure Sensor(MAP) Signal Voltage
Intake Manifold Pressure
Water Temperature Voltage
Water Temperature
Ambient Air Temperature
Intake Air Temperature Voltage
Intake Air Temperature
Engine Oil Temperature
O2 Sensor Binary Type Bank1 Upstream(Option)
O2 Sensor Binary Type Bank1 Downstream(Option)
Vehicle Speed
The sample rate is reduced as the list of items is increased.
OK

◆ *Search*



Step1

Enter search word in the search field



Step2

The Searched items are displayed on “Selected Item List”.

Step3

The graph mode data will be shown on the screen.

◈ Zoom in

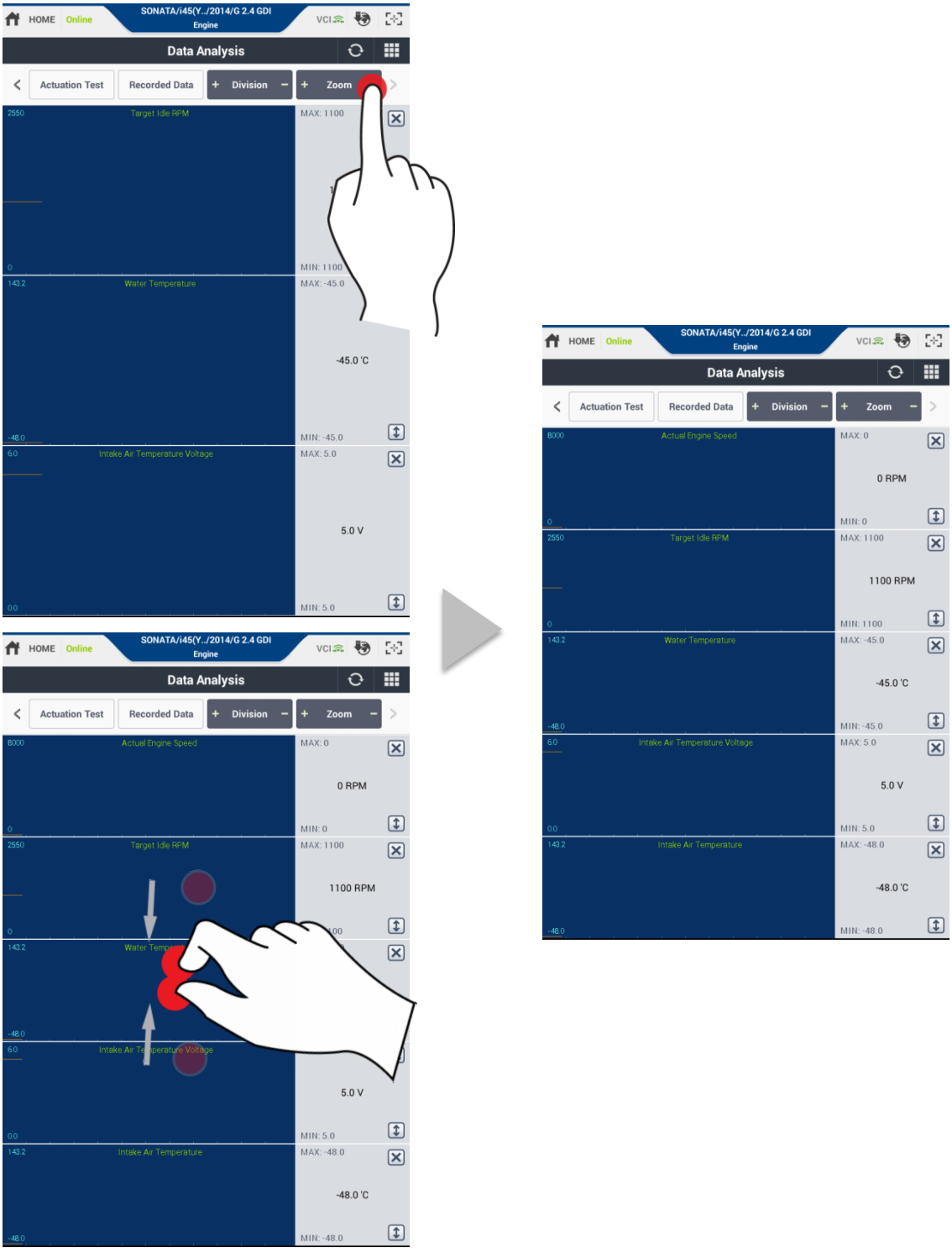
Tap (+) on 

or perform finger zoom-out on the screen using two fingers(Finger Zoom out) to expend the screen.

◈ Zoom out

Tap (-) on 

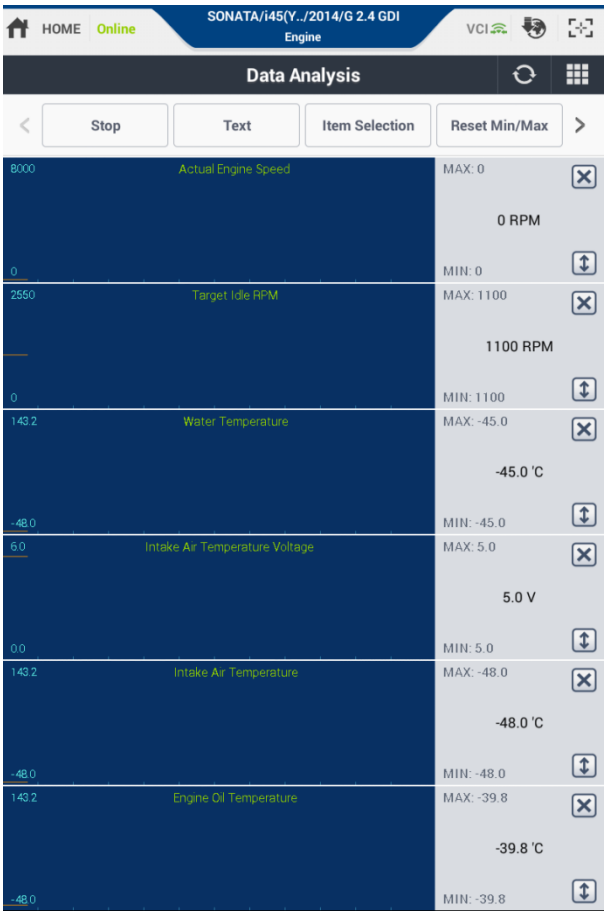
or perform finger zoom-in on the screen using two fingers(Finger Zoom out) to downsize the screen.



◈ Time scale Control

This is the function to control the time axis on Graph.

- *Time scale + : Reduce one gradation of the time.*
- *Time scale - : Extend one gradation of the time.*



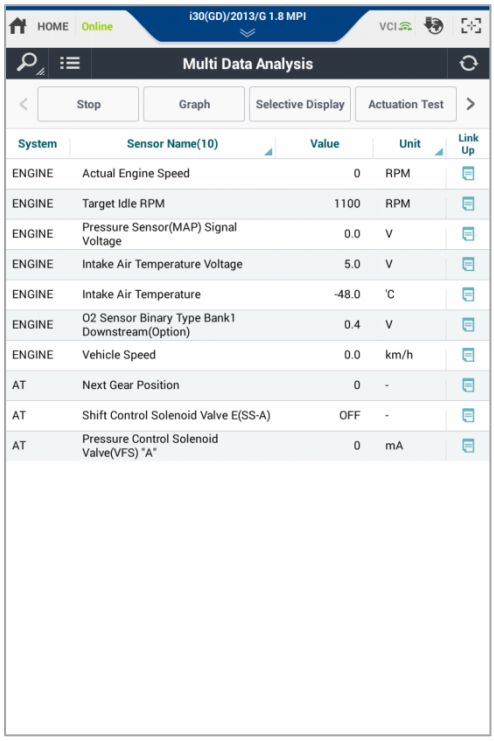
◈ Recorded Data Review on Graph

Refer to Review Recorded Data

Function to check the input/output information of more than one system on the vehicle and display all of the values on the screen at the same time. This is only for CAN protocol system.

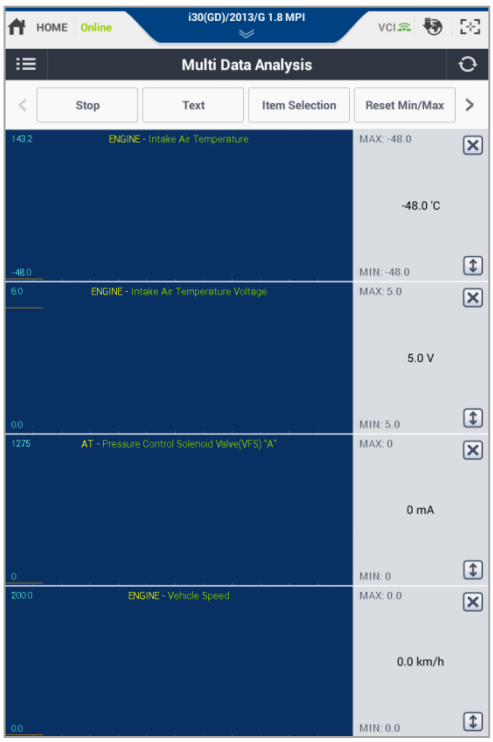
Screen Description

◈ Text Mode



System	Sensor Name(10)	Value	Unit	Link Up
ENGINE	Actual Engine Speed	0	RPM	
ENGINE	Target Idle RPM	1100	RPM	
ENGINE	Pressure Sensor(MAP) Signal Voltage	0.0	V	
ENGINE	Intake Air Temperature Voltage	5.0	V	
ENGINE	Intake Air Temperature	-48.0	'C	
ENGINE	O2 Sensor Binary Type Bank1 Downstream(Option)	0.4	V	
ENGINE	Vehicle Speed	0.0	km/h	
AT	Next Gear Position	0	-	
AT	Shift Control Solenoid Valve E(SS-A)	OFF	-	
AT	Pressure Control Solenoid Valve(VFS) "A"	0	mA	

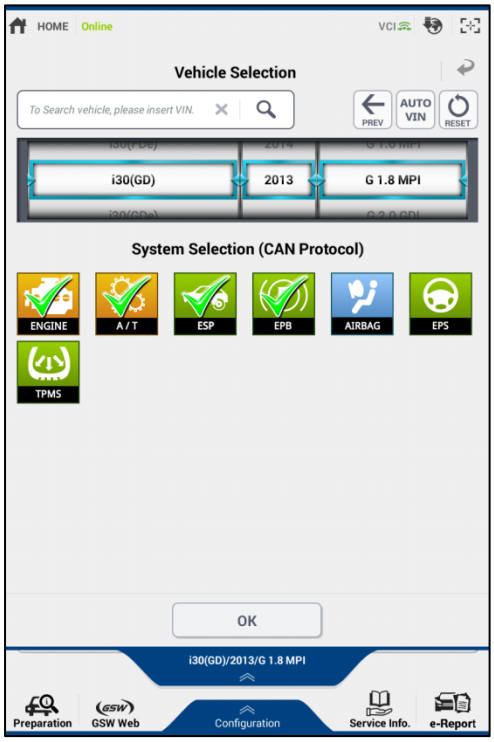
◈ Graph Mode



Notice

☞ **This function is only for CAN Protocol systems. So the display may be different from other diagnosis functions (DTC Analysis, Data Analysis, Actuation Test, S/W Management)**
*** Refer to the chapter, "Data Analysis"**

Multi Data Analysis System Selection



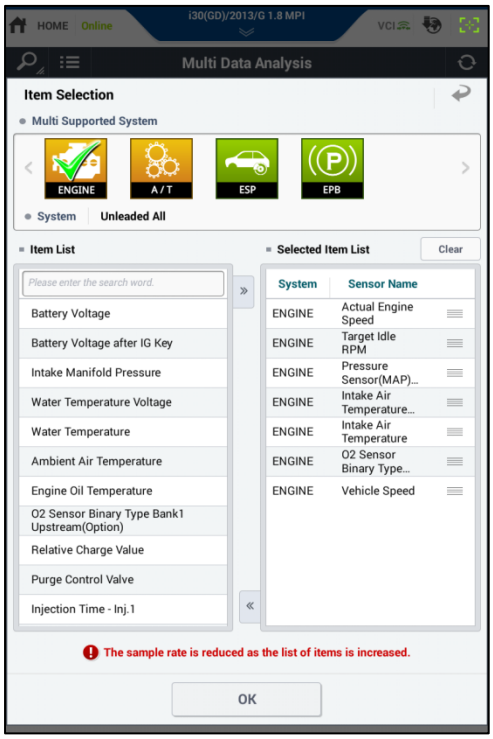
Step1

1 Select systems to diagnose a vehicle. More than one system can be selected.

2 Tap [OK] button below.

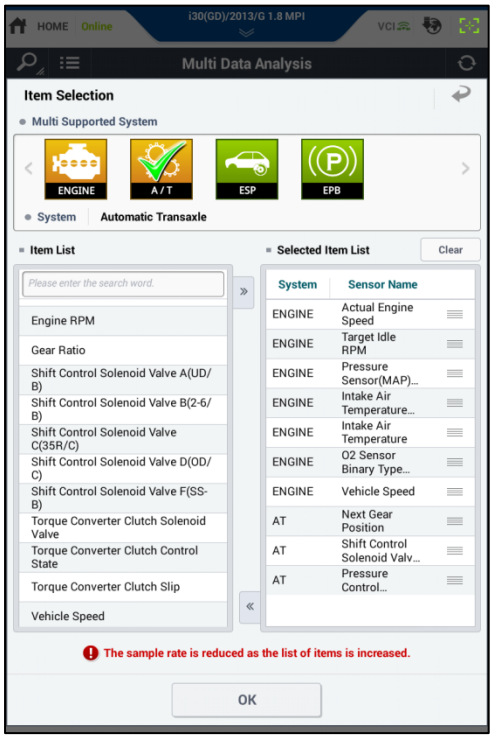
Notice

☞ **Only CAN Protocol systems display on the Vehicle Selection.**



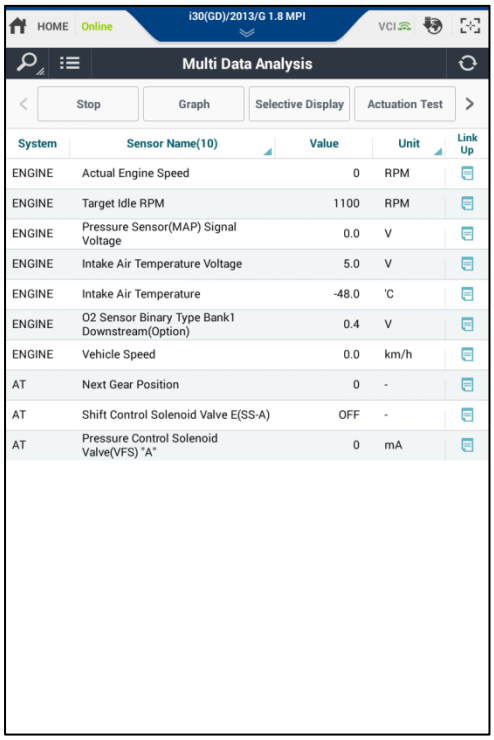
Step2

Select sensor items on each system.



Step3

After selecting the sensor items, tap [OK] button at the bottom of the screen.



Step4

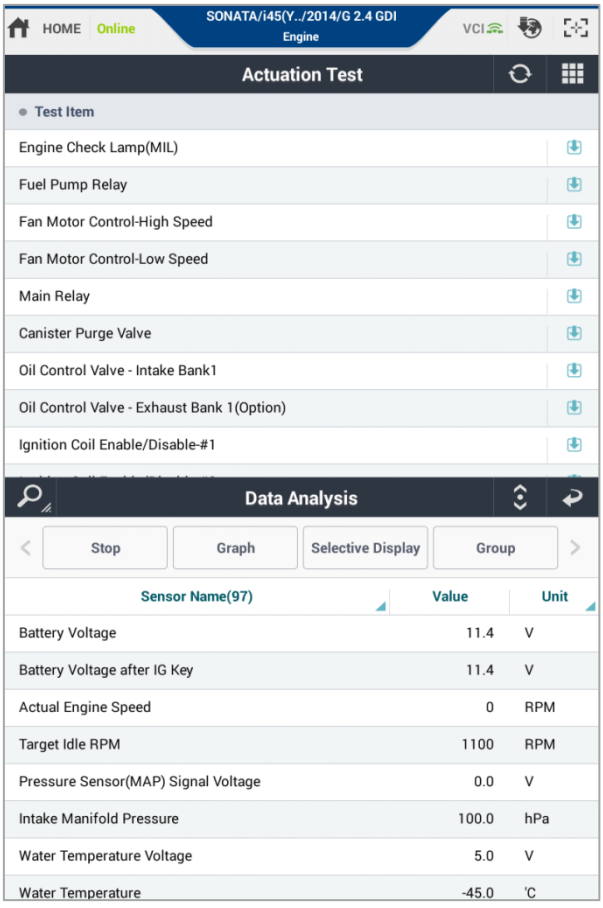
Check the values of Data Items in the selected systems.

How to use function button of Multi Data Analysis

*Refer to “Data Analysis”.

Function to check the sensor or the actuator to see if it works properly.

Screen Description



◈ Actuation Test

It displays Actuation Test Item supported on the selected vehicle and operates the selected actuator manually.

◈ Data Analysis

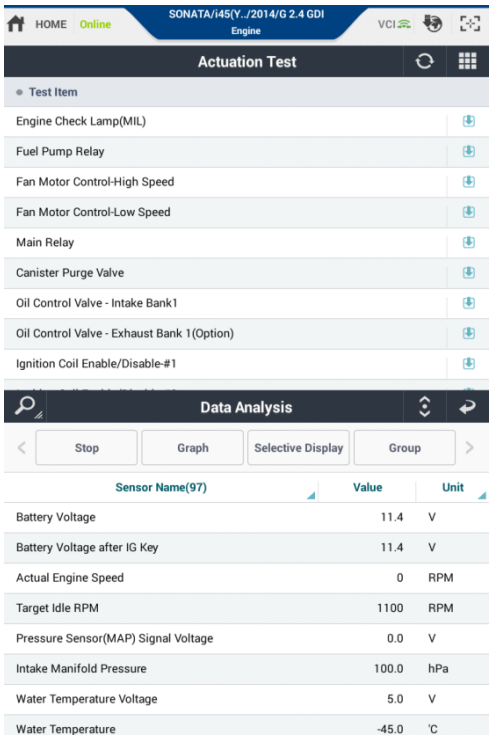
It displays the input/output value of sensor data when the user performs Actuation Test

Actuation Test Operation

Step1

Select a vehicle and a system.

* Refer to “Vehicle Selection”



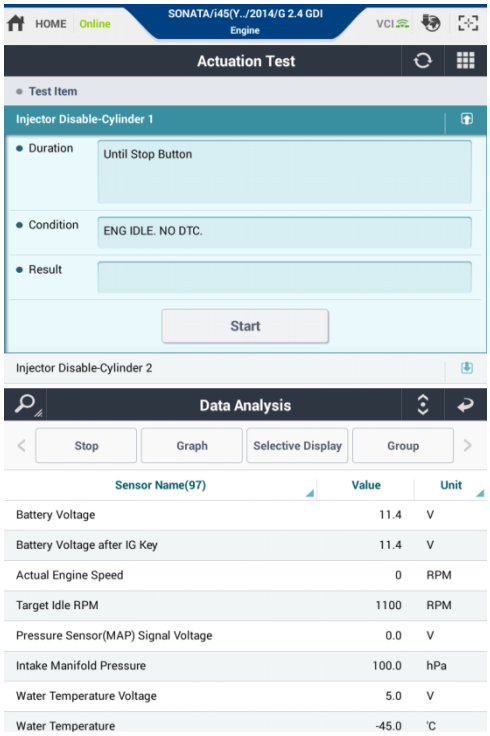
Step2

Select Actuation Test Item on the top screen.
Set Sensor Data Item on the bottom screen.

*Refer to “Data Analysis”.

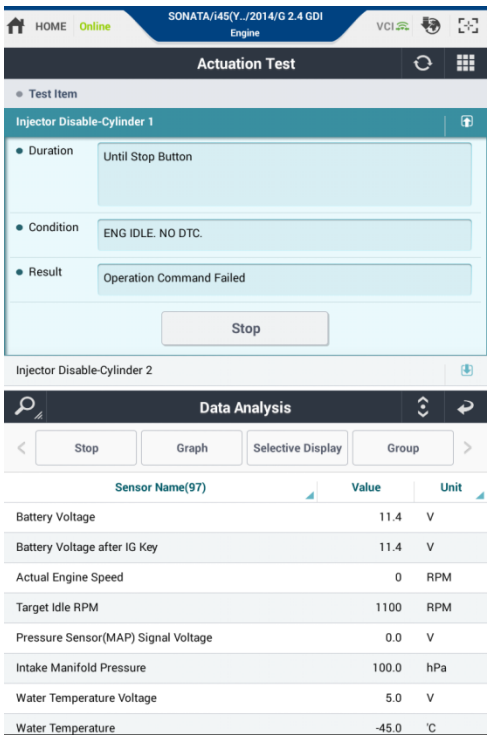
Notice

☞ **Drag the screen to see the hidden part on Actuation test screen.**



Step3

Check Duration and Condition and tap [Start] button below.



Step4

The result of Actuation Test displays on the screen.