

# User Guide

## AutoMobile2x

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## **1. Opening AutoMobile.**

### **Bluetooth Connection.**

Before the AutoMobile software can connect to the car OBD system, it must establish a Bluetooth connection with the OBD interface unit. The opening screen (*Figure 1*) displays information about the progress in establishing

this connection. The process takes about 10-20 seconds. After successful connection, you should see the **Main Menu** on the phone screen (*Figure 2*).



Figure 1. Opening screen.



Figure 2. Main Menu.

### Troubleshooting Bluetooth Connection.

Bluetooth uses radio frequency to transmit data. It is very efficient and reliable. From time to time, however, you may encounter problems with the Bluetooth connection, for example, when AutoMobile software is used for the first time and the OBD unit Pass Key must be entered or when you are using different versions of the software with the same OBD interface unit.

As a general rule, you should not wait more than 40 seconds for a successful connection. Instead, if the connection is not established



Figure 3. Connection Error.

during that time, you should exit the AutoMobile, reset the OBD unit (by disconnecting and connecting it back) and open the AutoMobile again. If this doesn't help, you should try to pair up manually both Bluetooth devices (the cell phone and the OBD unit), before opening the AutoMobile. To do it, follow these steps:

1. Turn on the ignition key (the engine doesn't have to be running). Disconnect and connect again the OBD unit to reset it. Do not open AutoMobile application!
2. On your cell phone, go to Menu > Connectivity > Bluetooth > Paired Devices (The menu names may differ on your phone.)
3. If your OBD unit is already on the list of Paired Devices, remove (delete) it.
4. Search for new devices and pair up the OBD device with the phone as a new device.
5. It should ask you for the Pass Key. The Pass Key depends on the OBD unit and it should be included in the package when you buy it. Most of them use 0000 (four zeros), some use 8888.
6. Set Permissions for the connection as "Always allow".
7. Open AutoMobile.

If the problem persists, please send an email to [support@carmobile.ca](mailto:support@carmobile.ca) with details, including the last message displayed at the bottom of the screen, for example, the message in **Figure 3** is "OBD Device not connected."

### **Demo off-line.**

The menu 'Demo off-line' is available from the opening screen (**Figure 1**). It allows you to use the AutoMobile software without connecting to a car. Selecting 'Demo off-line' gives you access to the **Main Menu (Figure 2)** where you can choose:

- a) 'Codes' or 'Live PIDs' that could be viewed with simulated Demo data;
- b) 'Open Log' to view real data that was previously saved.

By default, the AutoMobile tries to connect to the OBD unit Bluetooth module regardless of whether the phone is within the range of the working OBD unit or not. To use 'Demo off-line', you have to select it before the connection to the OBD unit is established, preferably within the first 10 seconds after the AutoMobile was opened. Normally, of course, you would open the AutoMobile in the 'Demo off-line' mode when the cell phone is out of range and the Bluetooth connection is not physically possible or the OBD unit is not even connected to the car.

Once the AutoMobile application connects successfully to the OBD interface unit, the **Main Menu** is displayed automatically with the AutoMobile in the live connection mode and the 'Demo off-line' menu is not available after that.

## 2. Main Menu.

The Main Menu contains six items that are briefly described in the following paragraphs.

1. Codes (DTC)
2. Live PIDs (Sensors)
3. Fuel Economy
4. Units/Language
5. Open Log
6. Interactive Mode

### 1. Codes (DTC)

Selecting 'Codes (DTC)' allows you to check the Diagnostic Trouble Codes associated with the MIL (Malfunction Indicator Light) or Check Engine light, as it is usually called. If any codes are present, you can view the codes descriptions or you can erase the codes from the car computer memory by selecting 'Clear Codes' from the menu.

### 2. Live PIDs (Sensors)

This option allows you to view live data sent by the car OBD system. First, you will see a list of available PIDs. Put a check mark beside each PID you want to view and press OK. You should see the Live Data Screen and the graphical display of the data.

If you have selected more than one PID to view simultaneously, you can switch between the PIDs by pressing the # Key on the keypad.

### 3. Fuel Economy

This feature allows you to view **instant fuel consumption** measured in the standard units *Litres/100 Km* or *MPG* (Miles per Gallon US/UK).

These units are based on the speed and distance travelled and, as a result, they become meaningless when the speed is zero, for example when the car stops at the red lights or when it is parked with the engine running. Because the fuel is being burned even though the car is not moving, the AutoMobile lets you also view the fuel consumption in the units based on time. The

appropriate units, *Litres/Hour* or *Gallons/Hour*, can be selected from the menu.

Fuel consumption data is displayed graphically in the same way as *Live PIDs* on the *Live Data Screen*. (See *Graphical View* for details how to edit and customize this type of display).

(**Note:** The instant fuel consumption may not be supported on some cars, because it requires the MAF sensor to be present in the car.)

#### **4. Units/Language**

Units/Language allows you to select the units system used in your country and the decimal separator (point or comma). The units can also be changed later, individually for each PID, from the menu 'Units' on the Live Data screen.

#### **5. Open Log**

The Log is the data saved on the cell phone for future viewing. The Log opens in a 'Log Viewer' that has similar features to the 'Playback', for example, you can move the cursor (trace point) left and right on the line graph using the keypad (see Playback). The difference between the 'Playback' and the 'Log Viewer' is that the 'Playback' always shows the current live data, whereas the 'Log Viewer' can only show the data after they had been saved.

You can view the saved Log in the 'off-line' mode (without connecting to the car) by choosing 'Demo Off-line' right after the AutoMobile opens.

#### **6. Interactive Mode**

Most users will not need this feature. It allows you to send a request message directly to the car OBD system and read the response on the phone screen. You must have knowledge of the format of the OBD messages in order to use the Interactive Mode effectively.

### **3. Live Data Screen.**

Live Data Screen opens after "Live PIDs (Sensors)" has been chosen from the Main Menu and the PIDs have been selected from the list of supported PIDs (**Figure 4**). Live Data Screen is also used to view instant fuel economy when you choose Fuel Economy from the Main Menu.

#### **Selecting PIDs for viewing.**

You can choose any number of PIDs for viewing at the same time but a larger number will affect the frequency of the update of the new values. For

the PIDs that require fast reading (2-3 times per second), it is recommended that you choose only one or two PIDs at a time.

### Viewing data.

Live Data can be displayed in one of the two 'views':

- A. Graphical View
- B. Table View

The *Graphical View* (**Figure 5**) allows you to see live data on a Line Graph, Gauge or Digital meter display. Choosing the *Table View* (**Figure 6**) allows you to see the data from many PIDs arranged as rows in a table.



Figure 4. Selecting PIDs.

Figure 5. Graphical View.

Figure 6. Table View.

### Switching between the *Graphical* and *Table* views.

Press and hold the **Key \*** or the **Key #** for about 2 seconds to toggle between the *Graphical* and *Table* views.

Note: The two keys, **\*** and **#**, have different functions when they are pressed and released quickly without holding (see **Using the Keypad**).

### The choices in the *Graphical View*.

Live data from an individual PID can be displayed using the following graphical types:

- Line graph
- Gauge
- Digital meter

One, two or all three graphical types could be displayed at the same time on the screen. Press and release the **Key \*** to change from one graphical type to another. Pressing the Key \* repeatedly (without holding) will cycle through all available types and their combinations in this order:

- Line
- Gauge
- Digital
- Line & Gauge
- Line & Digital
- Gauge & Digital
- Line & Gauge & Digital

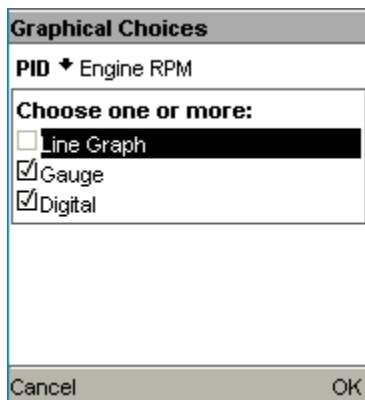


Figure 7. Graphical types.

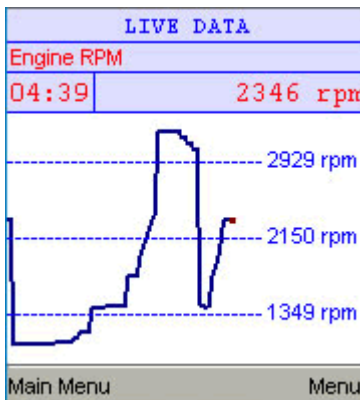


Figure 8. Line

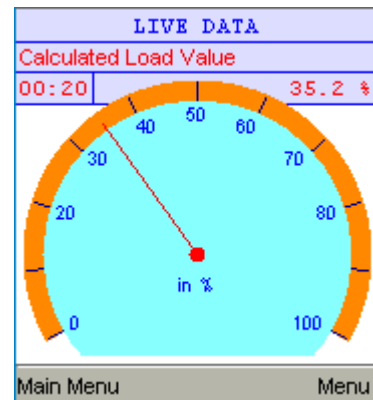


Figure 9. Gauge.

You can also choose the graphical type from the menu on the Live Data screen. Go to menu **Graphical Properties > Graphical Choices** while the AutoMobile is in the *Graphical View* (Figure 7).

The **Figures 8-12** show the screenshots of the graphical display of data. The position, size, color, etc., of the visual elements can be easily customized in the AutoMobile software. This improves the clarity and readability of the data on a small screen of an average cell phone.

For many PIDs, you can choose all 7 combinations of the 3 graphical types. For some PIDs, however, it is not very useful to be displayed with all three types (Line, Gauge and Digital). For example: Oxygen Sensor Voltage has only the Line graph. The **Key \*** will always toggle between the available types for a particular PID.

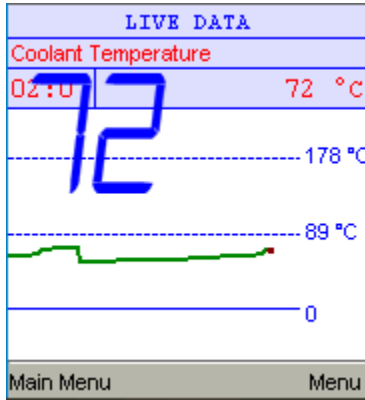


Figure 10. Line and Digital.

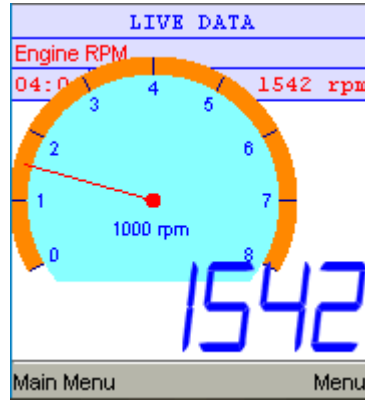


Figure 11. Gauge & Digital.

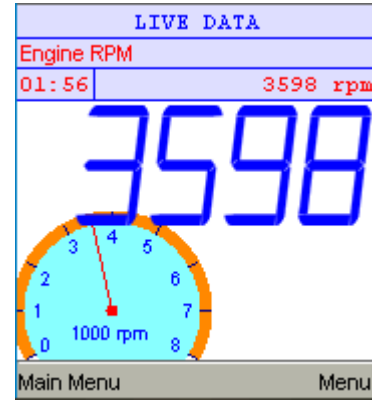


Figure 12. Gauge & Digital.

### Showing individual PIDs in Graphical View.

The Graphical View allows you to display data in the rich graphical form but only one PID at time is visible on the screen. You can quickly select another PID by pressing and releasing the Key #. Press the Key # repeatedly (without holding) to cycle through all the PIDs that were selected for viewing. (Note that the values of all PIDs selected for viewing are being updated at the same rate regardless of whether the PID is currently visible on the screen or not.)

### Table View.

The Table View is a simple way of displaying more than one PID's value on the same screen. You can scroll through the rows of PIDs using the keypad:

- a) Scroll down: Key #, **DOWN** or **8**;
- b) Scroll up: Key \*, **UP** or **2**.

Pressing any of these keys repeatedly will cycle through all the PIDs in the table.

The visual properties of the table such as colors of the font and the background can be customized using the **Table Properties** menu while in the *Table View* (Figure 14).

05:49 LIVE DATA	
Calculated Load Value	26.6 %
Coolant Temperature	29 °C
Short term fuel trim B1	-45.3 %
Engine RPM	4561 rpm
Vehicle Speed	72 km/h
Intake Air Temperature	
Main Menu	Menu

Figure 13. Data in Table View.

02:33 LIVE DATA	
Calculated Load Value	48.2 %
Coolant Temperature	
<b>Menu</b>	
Short	<b>1 Table Properties</b>
	2 Graphical View
Fuel F	3 Live PIDs (Sensors)
	4 Units
Engin	5 Playback
	6 Save Log
Intake	7 Exit
Main Menu	↓ Menu

Figure 14. Table properties.

If you need to see data from a particular PID in the Graphical View (perhaps as a line graph), move the PID you want to view to the top of the

table and then press and hold the **Key #** or the **Key \*** for 2 seconds to switch to the Graphical View. The PID you have selected will be displayed in the graphical form.

### Customizing display properties.

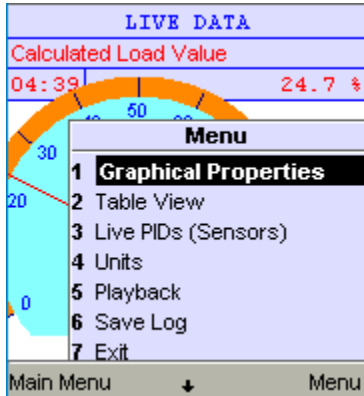


Figure 15. Menu. Graphical properties.

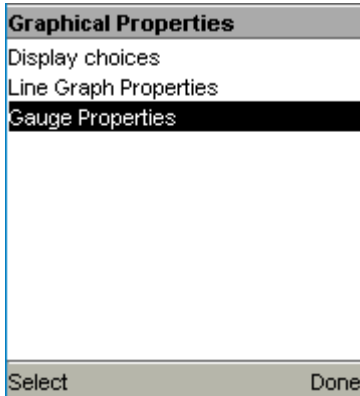


Figure 16. Menu. Gauge properties.

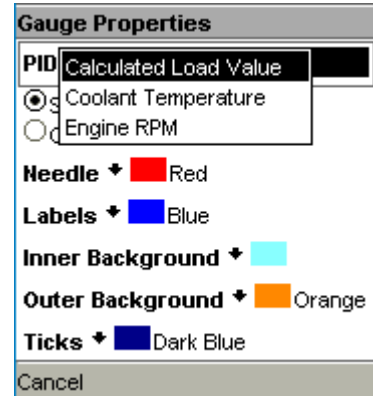


Figure 17. Gauge properties for a selected PID.

AutoMobile allows you to change many properties in both Graphical and Table view.

- **Line Graph Properties:** color of the line, font and background, thickness of the line, zoom (scale).
- **Gauge Properties:** position on the screen, zoom (size), color of the needle, labels, ticks and background.
- **Digital Meter Properties:** position on the screen and zoom (size).
- **Table Properties:** colors of the font and background.

The properties such as colors or line thickness can be changed only from the menus *Graphical Properties* and *Table Properties*.

The position on the screen, the size and the scale can be changed from the Keypad. (See **Using the Keypad** for details.)

All properties are always assigned and stored as properties of an individual PID object. Each dialog screen lets you choose the PID from the drop-down list (**Figure 17**).

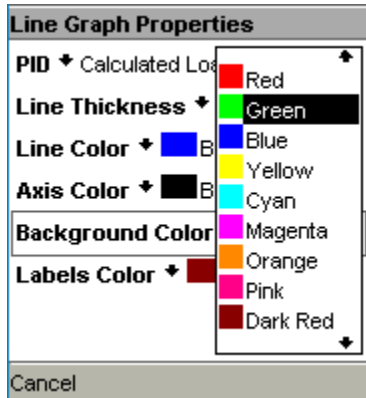


Figure 18. Choosing color properties.

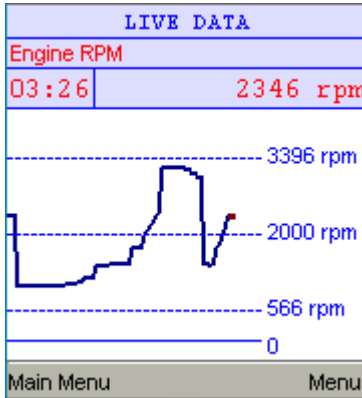


Figure 19. Scaled Line. Zoom in/out with Keys UP/DOWN.

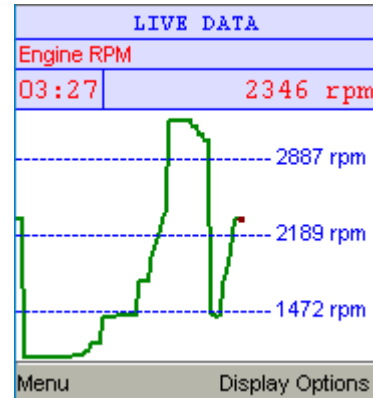


Figure 20. Scaled Line. Zoom in/out with Keys UP/DOWN.

### Choosing units.

'Language/Units' on the Main Menu allows you to change the system of units (US, Metric or UK) but not a specific unit for an individual PID (Figure 21). Fortunately, the latter could be done on the Live Data screen where you can access the menu **Units** (Figures 22) that allows you to choose a unit for a PID selected from the list. This unit selection overrides any selection made in the **Language/Units** menu. The selected units are applied to both *Graphical* and *Table* views. The **Figures 22-24** show the choice of units for the Coolant Temperature PID and the graphical display of data using the two available

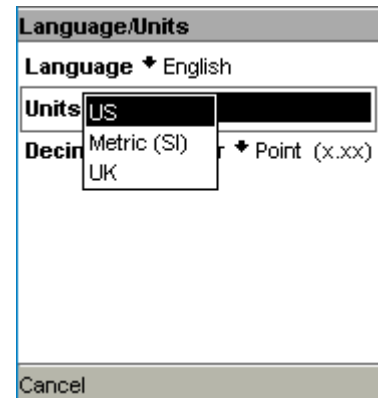


Figure 21. Units.

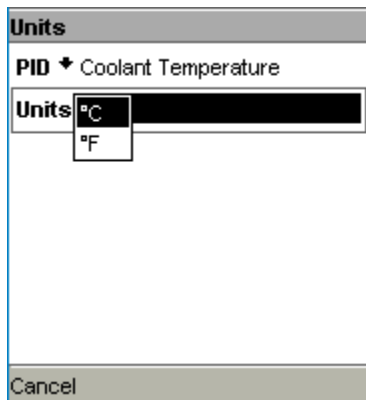


Figure 22. Choice of units.

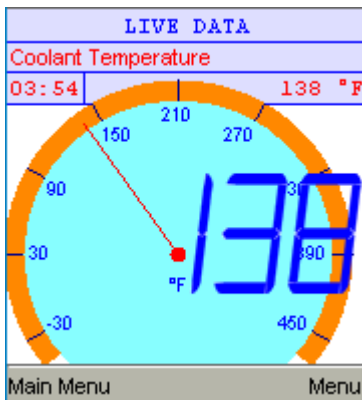


Figure 23. Temperature in °F.

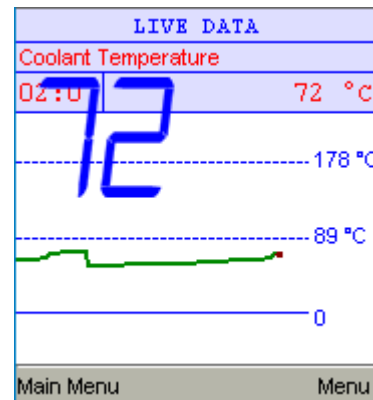
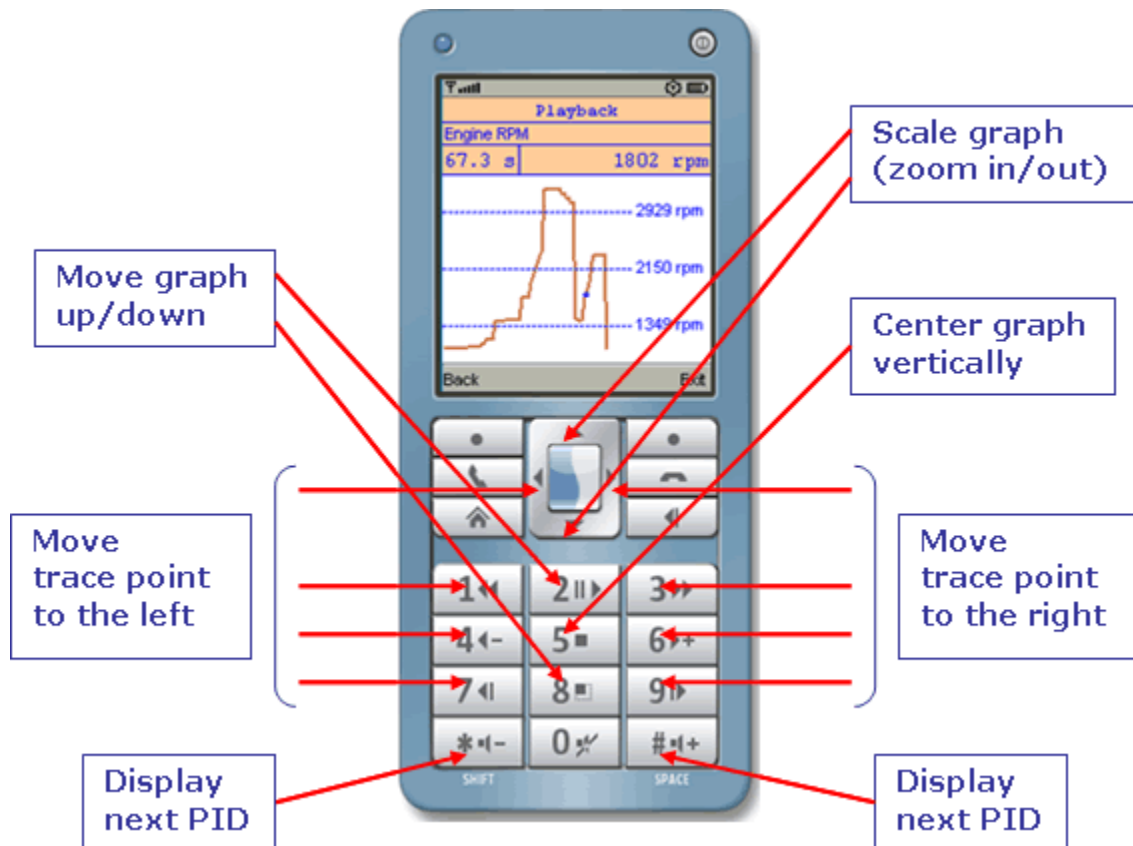


Figure 24. Temperature in °C.

units, Celsius (°C) and Fahrenheit (°F).

## 4. Playback.

The AutoMobile keeps the current data from the last 7-10 minutes and makes them available for viewing in the Playback **as a line graph**. If the AutoMobile runs longer, the new data replace the older but the most recent are always accessible in the Playback.



**Figure 25.** Using Keypad in Playback.

You can customize the graph using the keypad as illustrated in **Figure 25**.

Use the Keys UP/DOWN to zoom in or zoom out and the Keys 2 and 8 to shift the graph up or down respectively. Pressing the Key 5 will center the graph vertically with the default scale, making it clearly visible in the center of the screen. The key 5 becomes handy if you want to see the whole graph clearly, after you have zoomed in or shifted the graph up or down. The Keys # and \* can be used to select another PID for viewing. The two keys cycle through the PIDs in opposite direction.

### To switch from Live Data to Playback:

- a) *Using the menu:* The menu **Playback** is available at any time in both *Graphical* and *Table View*.
- b) *Using the keypad:* In the *Table View*, press any of the four keys: LEFT, 1, 4 or 7. In the *Graphical View*, you have to make sure that only the Line graph is visible, and then press any of the same four keys: LEFT, 1, 4 or 7. (These keys have other functions when the Gauge or the Digital are visible and therefore they cannot be used to open Playback. Instead, use the menu to start Playback or use the Key \* to display the line graph and then use any of the four keys to start Playback.)

### Tracing the line graph in Playback.

Press any of the four "left" keys (LEFT, 1, 4 or 7) to move the trace point to the left and any of the four "right" keys (RIGHT, 3, 6 or 9) to move the trace point on the graph to the right. Each left-right pair of keys (LEFT-RIGHT, 1-3, 4-6, and 7-9) moves the cursor at different speed: LEFT-RIGHT navigation keys are the fastest, the keys 1 and 3 are slower, 4 and 6 still slower and the keys 7 and 9 move the trace point left or right by just one dot. The value in the top right corner corresponds to the current value represented by the trace point. It changes as the point moves along the line graph. In **Figure 26**, the trace point is located at 2040 rpm. In the top left corner of the screen you see the time (in tenths of a second) that corresponds to the trace point value. The time value can be used to calculate the elapsed time between any two points on the graph.

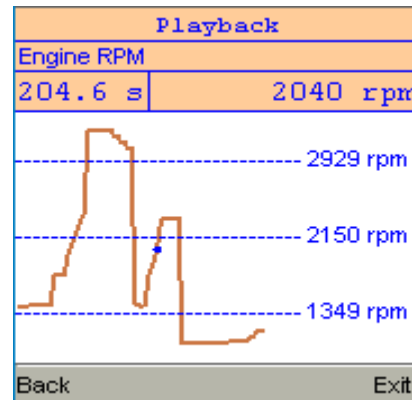


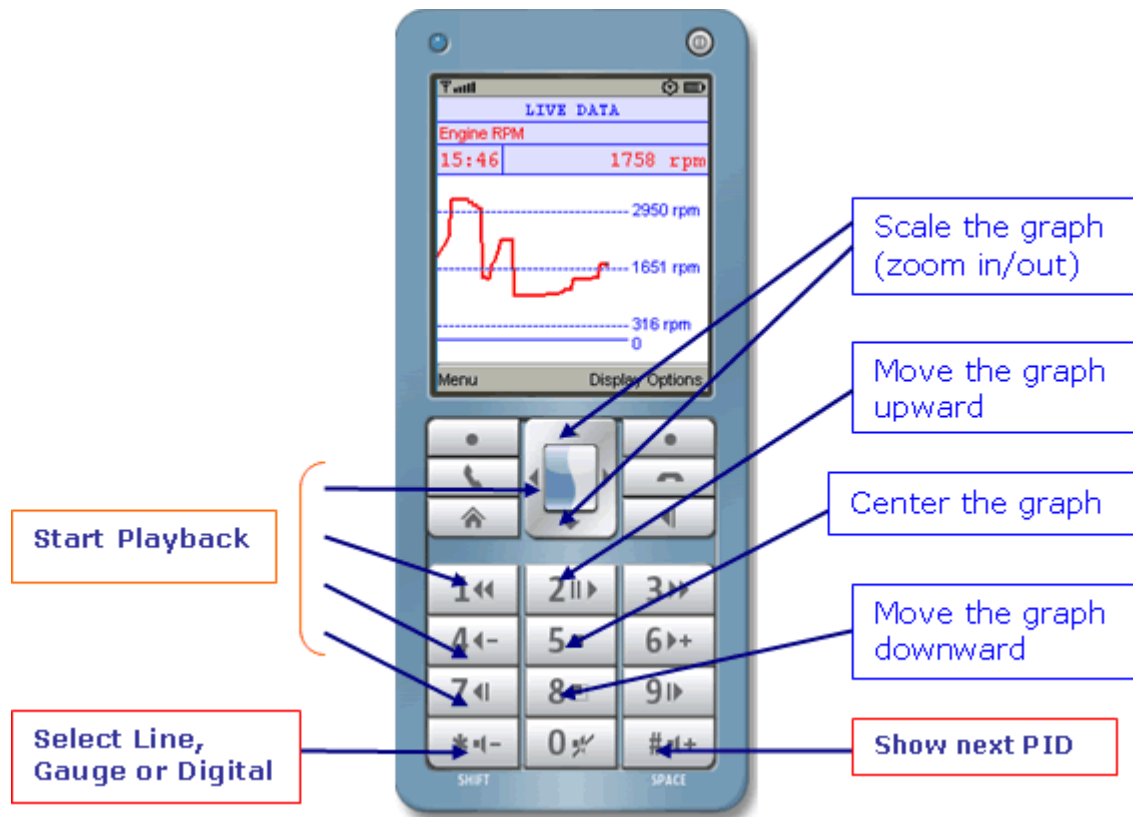
Figure 26. Trace point at 2040.

### To switch from Playback to Live Data

- a) *Using the menu:* Select the **Back** menu at any time.
- b) *Using the keypad:* First, move the cursor (trace point) to the right end of the line graph with any of the following four keys: RIGHT, 3, 6 or 9. Press any of these keys twice when the trace point is at the right edge of the line graph.

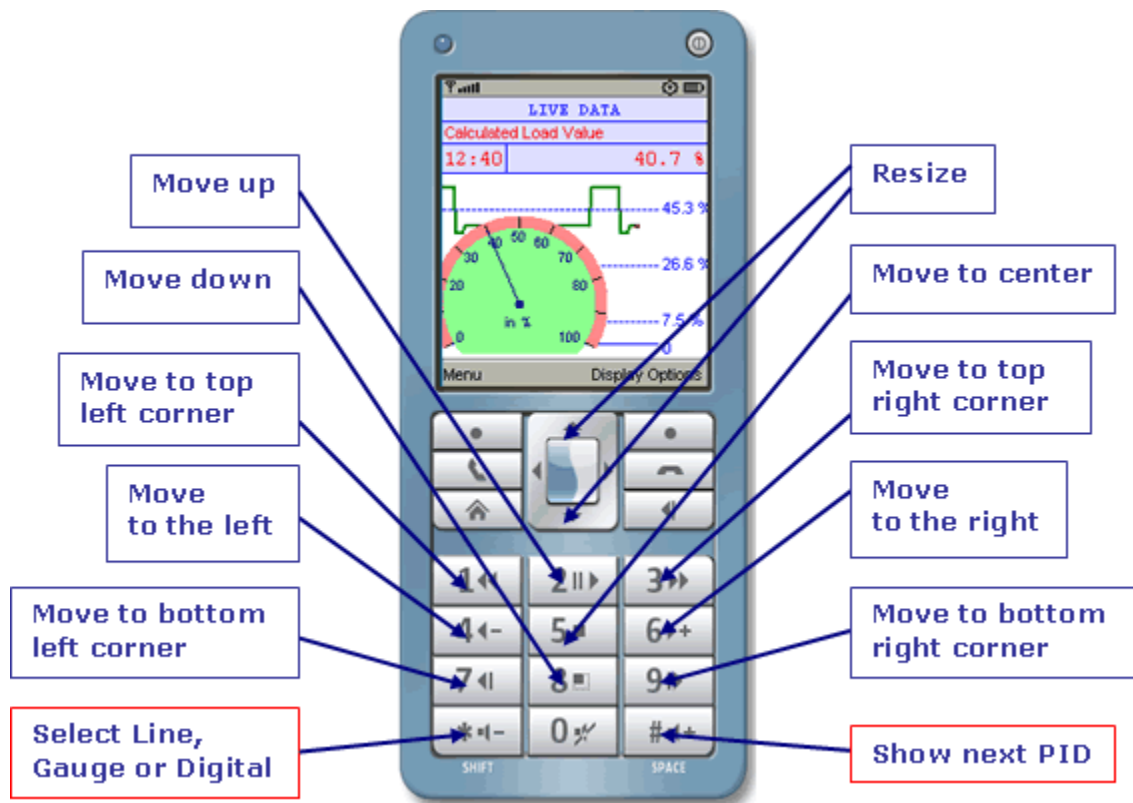
## 5. Using the Keypad.

The **Figures 27-29** show how to use the Keypad to change the properties of the Line, Gauge or Digital display. The properties that could be edited include the position on the screen, the size and the scale. If there is more



**Figure 27.** Using Keypad to customize Line Graph.

than one graphical element (Line, Gauge or Digital) on the screen, you can change the properties of only one element at a time. By default, the Digital gets changed first, if it is visible on the screen. If the Digital is not visible, the Gauge will get changed, if the Gauge is visible. (The rule is that the element that is on top gets changed and the Digital is always drawn on top of the Gauge and the Gauge is drawn on top of the Line.) This means that if you want to change the position or the size of a Gauge, you have to choose the display that doesn't include the Digital otherwise the Digital meter will be on top. To change the properties of a Line graph, you have to switch to a display that doesn't show the Gauge or the Digital display. Use the **Key \*** to select the graphical types (Line, Gauge or Digital).



**Figure 28.** Using Keypad to customize Gauge.

You can override this default behaviour by going to the menu **Graphical Properties > Edit** and select the graphical element (Line, Gauge or Digital) that you would like to edit with the Keypad, regardless of which graphical element is currently displayed on top.

## 6. Summary of Keypad functions.

### Key 0

Not used by AutoMobile. Use the number Key **0** to light up the screen, when it gets dim.

### Key 5 (in Graphical View and Playback)

Center the graphics on the screen. The centered graphical element may also be scaled or resized to a default size. It works for a Line graph, a Gauge and a Digital display. The Key **5** is particularly useful for a Line graph, if you

want to see the whole graph clearly on the screen, after you have previously zoomed in or shifted it up or down.

### Keys UP/DOWN (in Graphical View and Playback)

Resize the graphics. Key **UP** makes the graphical element larger (zoom in). Key **DOWN** makes the graphical element smaller (zoom out). For a Gauge or Digital display, it is equivalent to changing the size of the graphics. For a line graph, zooming in/out is equivalent to changing the scale of the graph.



Figure 29. Using Keypad to customize Digital meter.

### Keys 1, 3, 7, 9 (Gauge and Digital)

Move a Gauge or Digital to a fixed position at one of the four corners of the screen. The size of the graphical element is at the same time changed to small.

- Key **1**: top left corner
- Key **3**: top right corner
- Key **7**: bottom left corner
- Key **9**: bottom right corner

### **Keys 4, 6, 2, 8** (Gauge and Digital)

Move a Gauge or Digital in one of the four directions on the screen.

- Key **4**: left
- Key **2**: up
- Key **6**: right
- Key **8**: down

### **Keys 2, 8** (Line and Playback)

Shift a Line graph.

- Key **2**: up,
- Key **8**: down

### **Keys LEFT, 1, 4, 7** (Line)

Start Playback.

### **Keys LEFT, 1, 4, 7** (Playback)

Move the trace point to the left. The distance by which the trace point moves is the largest for the Key **LEFT** and smaller for the Key **1** and **4**. The Key **7** moves the trace point by just one dot.

### **Keys RIGHT, 3, 6, 9** (Playback)

Move the trace point to the right. The distance by which the trace point moves is the largest for the Key **RIGHT** and smaller for the Key **3** and **6**. The Key **9** moves the trace point by just one dot.

### **Key #**

- Display another PID (in Graphical View and Playback).
- Scroll through the table of PIDs (in Table View).

### **Key \***

- Select a graphical type (Line, Gauge or Digital).
- Scroll through the table of PIDs (in Table View).

### **Key #, Key \*** (Pressed and held for 2 seconds)

Select a *Graphical View* or a *Table View*. (Both keys are toggle keys).

### **Key 0**

Not used by AutoMobile. Use the number Key **0** to light up the screen, when it gets dim.