CODEBREAKER

ENGINE DIAGNOSTICS

4MODE

OBD2 COMPUTER

USER MANUAL

CONTENTS

1. SAFETY PRECAUTIONS AND WARNINGS

To prevent personal injury or damage to vehicles and/or the 4Mode OBD2 computer, read this instruction manual first and observe the following safety precautions at a minimum whenever working on a vehicle:

• Always pay attention while driving.

• **DO NOT** try to make any adjustments while driving.

• **DO NOT** mount the 4Mode OBD2 Computer in a position which can obstruct the view of the driver.

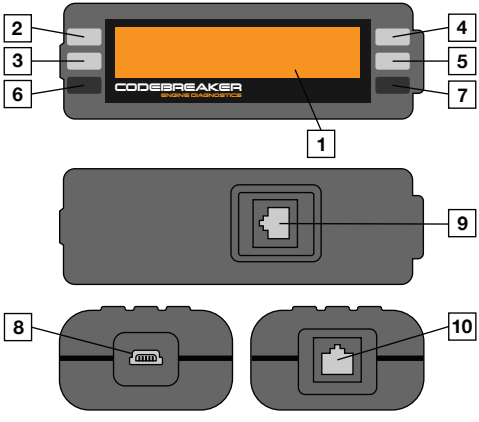
• **DO NOT** mount the 4Mode OBD2 Computer in a manner which could cause it to be propelled through the vehicle during an accident causing injury, such as over or near an airbag.

• **DO NOT** route the cable in a manner which would interfere with the operation of the vehicle controls.

• Keep the 4Mode OBD2 Computer dry, clean, free from oil/water or grease. Use a mild detergent on a clean cloth to clean the outside of the 4Mode OBD2 Computer when necessary.

2. USING THE 4MODE OBD2 COMPUTER

2.1 Interface



1. LCD Display – Displays retrieved data.

2, 3, 4, 5. Grey Buttons - Menu Selection.

6. Black button – Return to previous screen, exit a menu or wake up the unit from sleep mode.

7. Black Button – Move to next screen; it is also used to enter time setup screen.

8. USB Port – Connect to a computer with the supplied USB cable to update the unit's software.

9, 10. OBD2 Connector Port – Connect to the vehicle's DLC with the OBD2 cable supplied.

2.2 Specifications

Display:	Back-lit, 2 lines x 16 character display
Operating Temp.:	-10 to 70°C (14 to 158 F°)
Storage Temp.:	-20 to 70°C (-4 to 158 F°)
Power:	8 to 18 volts provided via vehicle power
Dimensions:	Length x Width x Height 126 mm (5 in) x 41.6 mm (1.61 in) x 26.6 mm (1.05 in)
Net Weight:	0.30kg (0.60lb)
Gross Weight:	0.35kg (0.72lb)

2.3 Accessories Included

- User Manual/Start Guide: Instructions on how to use the OBD2 Computer.
- OBD2 cable: Provides power to the OBD2 Computer and communicates with the vehicle.
- USB cable: Connects the unit to a computer for software update.
- Velcro mounting strips: Used to attach the OBD2 Computer to the vehicle dashboard.

2.4 Navigation Characters

Characters used to help navigate the 4Mode OBD2 Computer are:

< or **>** or ***** : Indicates the button next to it can be used and pressed to display the next function or screen.

< : Moves to previous digit.

> : Moves to next digit; Indicates an option is selected.

+ : Increase digit value.

- : Decrease digit value.

$: Indicates the cost of fuel consumption.

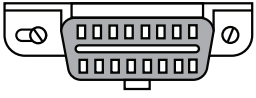
2.5 Connection to the Vehicle

Follow the below steps to connect the unit to the vehicle:

1. Connect the OBD2 cable to the unit.

2. Adhere the unit onto the position you have chosen with the supplied double-sided tape.

3. Locate DLC on vehicle.



Typical DLC Connector

The DLC (Data Link Connector or Diagnostic Link Connector) is a standardized 16-pin connector where diagnostic auto computers interface with the vehicle's on-board computer. The DLC is usually located within 30cm from the center of the instrument panel (dash), under or around the driver's side for most vehicles.

If the Data Link Connector is not located under dashboard, a label should be there advising the location. For some Asian and European spec vehicles, the DLC is located behind the ashtray and the ashtray must be removed to access the connector. A plastic DLC cover may be found for some vehicles and you need to remove it before plugging in the OBD2 cable.

If the DLC can not be found, refer to the vehicle's service manual for the location.

4. Plug OBD2 cable into the vehicle's DLC.

5. Turn the ignition on. Engine can be off or running.

6. The 4Mode OBD2 Computer starts to communicate with the vehicle.

If the 4Mode OBD2 Computer links to the vehicle, but fails to communicate with the vehicle's ECU (Engine Control Unit) for the first time, the unit will turn off automatically.

Follow steps below to troubleshoot if the unit can not open to the home screen:

- Verify that the ignition is ON;
- Check if the OBD2 connector is well connected to the vehicle's DLC;
- Verify that the vehicle is OBD2 compliant;
- Turn the ignition back to on and repeat the procedure from step 5.

7. When communication has been established, it shows the HOME screen:

The HOME screen is defaulted to display 4 menu options as shown in the figure above. It can also be set to show the 'GAUGE', 'TANK', 'TOTAL', 'TODAY and 'CURRENT' information also. 'HOME' screen hereafter in the manual refers to the default screen setting.

NOTE: The 4 Mode OBD2 Computer may also be referred to as 'OBD2 Computer' or 'Unit' within this user guide.

2.6 Switching Off

There are 4 ways to turn off the 4Mode OBD2 Computer:

1. Pull out the OBD2 connector from either the unit or DLC.

2. The unit will switch off automatically within 10-20 seconds of not operating, after communication stops or the engine stops.

3. Hold the left-lower black button to turn off the unit. This operation is only available from the first menu (HOME screen).

4. Switch off the vehicle, the unit will turn off after 20 seconds.

3. SCAN TOOL

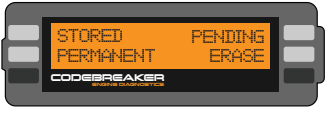
3.1 Reading and Erasing Codes

[Home > SCAN > DTC]

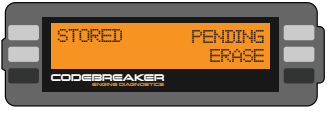
1. Press the grey button next to 'SCAN' to start scanning.

2. Press the grey button next to 'DTC' to read any trouble codes.

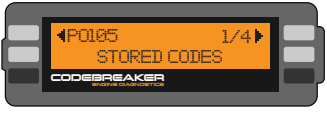
3. There are four options from the DTC menu if the vehicle protocol is CAN.



If the vehicle does not have CAN protocol, the menu contains only three options.



4. Press the button next to 'STORED' to read any stored codes.



NOTE: If no codes are found, the screen will show 'No codes!'. Press the lower-left black button to return to the 'DTC' menu.

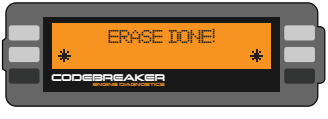
5. Press the grey button next to ‘PENDING’ to read any pending codes.

If no codes are found, the screen will show ‘NO CODES!’. Press the lower-left black button to return to the ‘DTC’ menu.

6. Press the grey button next to ‘Permanent’ to read any permanent codes.

If no codes are found, the screen will show ‘No codes!’. Press the lower-left black button to return ‘DTC’ menu.

7. Press the grey button next to ‘ERASE’ to erase any trouble codes.



***CAUTION:** Erasing the Diagnostic Trouble Codes may allow the trip computer to delete not only the codes from the vehicle’s on board computer, but also ‘Freeze Frame’ data and manufacturer enhanced data. Further, I/M Readiness Monitor Status for all vehicle monitors are reset to Not- Ready or Not-Complete status.*

***DO NOT** erase the codes before the system has been checked completely by a technician.*

8. Press the lower-left black button to return ‘DTC ‘ menu.

3.2 Retrieving I/M Readiness Status

[Home > SCAN > I/M]

The I/M Readiness function is used to check the operations of the Emission System on OBD2 compliant vehicles, including the below:

- Malfunction Indicator Lamp Status (MIL)
- Misfire Monitoring (MIS)
- Fuel System Monitoring (Fuel)
- Comprehensive Component Monitoring (CCM)
- Catalyst Monitoring (CAT)
- Heated Catalyst Monitoring (HCAT)
- Evaporative System Monitoring (EVAP)
- Secondary Air System Monitoring (AIR)
- A/C System Refrigerant Monitoring (ACRF)
- Oxygen Sensor Heater Monitoring (O2S)
- Oxygen Sensor Heater Monitoring (HTR)
- EGR System Monitoring (EGR)

The below words show the monitor's status:

OK - Indicates that a particular monitor being checked has completed its diagnostic testing.

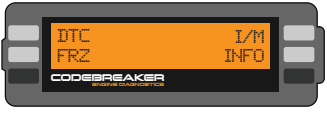
NC - Indicates that a particular monitor being checked has not completed its diagnostic testing.

NA - The function is not supported on that vehicle.

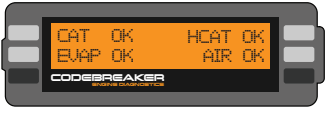
ON - The malfunction indicator lamp is on.

OFF - The malfunction indicator lamp is off.

1. Press the button next to 'I/M' to view the I/M Readiness status.



2. View the I/M readiness status on screen.



3. Use the four grey buttons next to any of the items or use lower-right black button to view additional data on the next screen(s).

4. Press lower-left black button to exit.

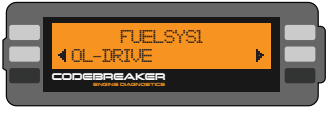
3.3 Reading Freeze Frame Data

[Home > SCAN > FRZ]

1. To view freeze frame data, press the grey button next to 'FRZ'.

NOTE: If there is no freeze frame data available, a 'No freeze frame' message shows on the screen. Press '' to return.*

2. Use the grey button next to '**<** ' and ' **>**' to view previous or next PID (Parameter ID) data.



3. Press the lower-left black button to exit.

3.4 Viewing VIN Number

[Home > SCAN > INFO]

The the unit is able to retrieve the Vehicle Identification Number on 2002 and newer vehicles that support Mode 9.

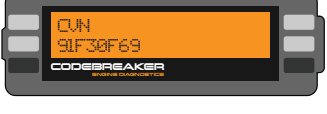
1. Press the grey button next to 'INFO' to view vehicle information.

NOTE: If the vehicle does not support this mode, a "NOT SUPPORTED!" message comes up on the display. Press "" or wait a few seconds to return.*

2. View VIN No. on screen.

NOTE: If the vehicle supports both VIN and CVN, the unit shows them as:

3. Press the relative gray button to review the CVN or VIN.



4. Press the lower-left black button to exit.

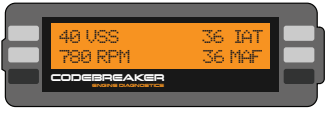
4. GAUGE

The 4Mode OBD2 Computer can be configured to measure and monitor up to four different sets of information simultaneously, providing real time engine performance analysis to allow you to adjust driving behavior and improve fuel economy.

- Fuel system 1 status (LP1)
- Fuel system 2 status (LP2)
- Calculated load value (LOD)
- Engine coolant temperature (ECT)
- Fuel rail pressure (FRP)
- Intake manifold absolute pressure (MAP)
- Engine speed (RPM)
- Vehicle speed (VSS)
- Ignition timing advance for #1 cylinder (IGN)
- Intake air temperature (IAT)
- Air flow rate from mass air flow sensor (MAF)
- Absolute throttle position (TP)
- Commanded secondary air status (AIR)
- Short term fuel trim (B1-S1) --- (B1-S4) if it supports PID 13 or 1D
- Oxygen sensor output voltage (B1-S1) --- (B1-S4) if it supports PID 13 or 1D
- Short term fuel trim (B2-S1) --- (B2-S4) if it supports PID 13 or 1D
- Oxygen sensor output voltage (B2-S1) --- (B2-S4) if it supports PID 13 or 1D
- Battery voltage (VLT)

1. Press the gray button next to ‘GAUGE’ to view gauge readings.

2. View currently selected gauges on screen.



• The information available varies from vehicle to vehicle. If the information is not available for a certain gauge, the OBD2 computer shows no value.

• When the selected gauges are displayed for about 12 seconds, the OBD2 computer records them automatically as the default set.

NOTE: The updated default set will show next time the gauge function is selected.

3. Use the four gray buttons next to any of the items or use lower-right black button to view additional data on the next screen(s).

4. Press the lower-left black button to exit.

5. TRIP COMPUTER

The OBD2 Computer records information about ‘CURRENT’, ‘TODAY’, ‘TANK’ and ‘TOTAL’ trips.

5.1 Current Trip

[Home > Trip > Current]

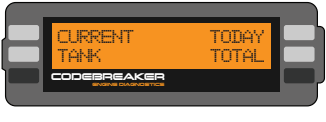
Displayed data is as follows:

- Average LPH (Unit: LPH)
- Average LHK (Unit: LHK)
- Time (Unit: __:__)
- Distance (Unit: KM)
- Fuel (Unit:L)
- Cost (Unit:$)
- Average Speed (Unit: KPH)
- Max. Speed (Unit: KPH)
- Instant LPH (Unit: LPH)
- Instant LHK (Unit: LHK)
- Horsepower (Unit: KW)

NOTE: Definition of one trip is: When time from engine ignition to engine turn-off is > 30 minutes.

1. Press the grey button next to ‘TRIP’ from the ‘HOME’ screen.

2. Press the grey button next to ‘CURRENT’ to enter Current Trip screen.



3. View detailed trip information on the screen.

4. Press the grey button next to '**<** ' and ' **>**' to choose the next trip information.

5. Press the lower-left black button to return to the previous menu.

5.2 Today Trip

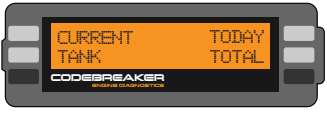
[Home > Trip > Today]

Displayed data is as follows:

- Average LPH (Unit: LPH)
- Average LHK (Unit: LHK)
- Time (Unit: __:__)
- Distance (Unit: KM)
- Fuel (Unit:L)
- Cost (Unit:$)
- Average Speed (Unit: KPH)
- Max. Speed (Unit: KPH)

1. Press the grey button next to 'TRIP' from the 'HOME' screen.

2. Press the grey button next to 'TODAY' to enter the Today Trip screen.



3. View detailed trip information on the screen.

4. Press the button next to'**<** ' and ' **>**' to choose the next trip information.

5. Press the lower-left black button next to return the previous menu.

5.3 Tank Trip

[Home > Trip > Tank]

The TANK trip shows the following items:

- Average LPH (Unit: LPH)
- Average LHK (Unit: LHK)
- Fuel (Unit: L)
- Cost (Unit:$)
- Fuel to empty (Unit: L)
- Distance (Unit: KM)
- Tank to empty (Unit: KM)
- Time (Unit: __:__)
- Time to empty (Unit: __:__)

1. Press the grey button next to 'TRIP' from the 'HOME' screen.

2. Press the grey button next to 'TANK' to enter the Tank Trip screen.

3. View detailed trip information on the screen.

4. Press the gray button next to ' >' to choose the next trip information screen.

5. Press the lower-left black button to return to the previous menu.

5.4 Total Trip

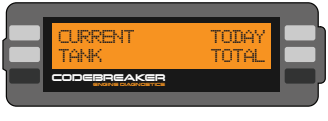
[Home > Trip > Total]

The Total trip shows the following items:

- Average LPH (Unit: LPH)
- Average LHK (Unit: LHK)
- Time (Unit: __:__)
- Distance (Unit: KM)
- Fuel (Unit: L)
- Cost (Unit:$)
- Average Speed (Unit: KPH)
- Max. Speed (Unit: KPH)

1. Press the grey button next to 'TRIP' from the 'HOME' screen.

2. Press the grey button next to 'TOTAL' to enter the Total Trip screen.



3. View detailed trip information on the screen.

4. Press the grey button next to '**>**' to choose the next trip information screen.

5. Press the lower-left black button to return to the previous menu.

6. REVIEW - DATA MEMORY

[Home > REVIEW]

The unit is able to save up to 300 hours of driving data. Data from each trip is recorded in the following categories:

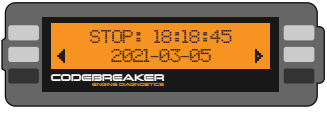
- Time and date for each trip started and ended
- Duration time for each trip
- Distance traveled each trip
- Fuel used
- Cost used
- Average speed
- Maximum speed during trip
- Average LPH
- Average LHK

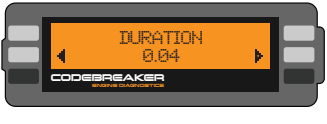
1. Press the gray button next to 'REVIEW' to show trip records.

2. Press the grey button next to '*' to show the recorded trips.

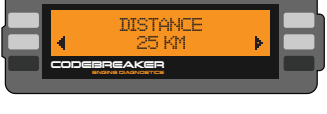
3. Select a set of trip information to view by pressing the relative grey button.

4. Press the grey button next to the arrow to cycle through detailed trip information such as start & finish time and date.

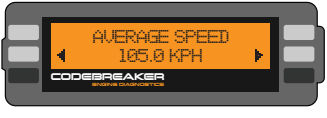




TRIP DURATION' and 'DISTANCE'.



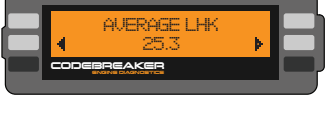
‘FUEL USED’ and ‘COST’.



AVERAGE SPEED’ and ‘MAXIMUM SPEED’.

‘

AVERAGE LPH’ (Litres per Hour) and ‘AVERAGE LHK’ (Litres per 100 KM).



5. Press the lower-left black button to return to the previous menu screen.

7. SETUP INFORMATION

The following section gives information on various settings that can be customised to suit the vehicle:

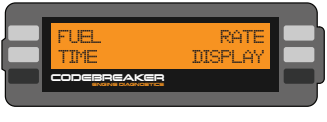
- **Fuel:** Used to refuel the vehicle every time.
- **Rate:** Sets sampling and recording rate.
- **Time:** Changes time displayed by the 4Mode OBD2 computer.
- **Display:** Sets contrast, display mode and back light colour of the unit.
- **Price:** Sets the fuel cost.
- **Setup:** Sets unit, type, size and engine of the tool.
- **Default:** Resets all units, engine displacement, engine type, tank size, gauge settings, trip data and screen settings to manufacturer defaults.
- **About:** The version and conversion.

7.1 Fuel

[Home >> Fuel] (>> = press the lower-right black button once)

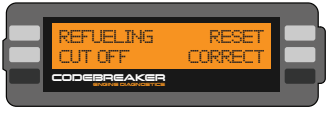
NOTE: In order to get more accurate fuel consumption readings, and to get valid TANK information, use the Fuel function every time your vehicle is refueled. Make sure the tank size and the fuel type are properly set before using this function.

1. Press the grey button next to 'FUEL' to enter fuel setup menu.



7.1.1 Refueling

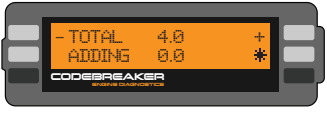
1. Press the grey button next to 'REFUELING'.



2. Two symbols will appear on the second line: '$' and 'L'. ('$' stands for the fuel cost and 'L' stands for the fuel volume in litres).

3. Press the grey button next to '$' or 'L' to adjust the fuel.

4. Use the grey button next to '**-**' or '**+**' to adjust the amount of fuel which the user actually puts in the tank.



5. Press '*****' to finish the adjustment, and the fuel economy will be immediately affected by the adjustment.

NOTE: Record the adjustment factor for your vehicle if you plan to use it in another vehicle. This will make resetting to the original vehicle easier without repeating all the steps above.

6. Keep the 4Mode OBD2 Computer connected to the vehicle and use the vehicle normally. When approximately 1/4 tank of fuel is left, refill the tank again.

• Fill the tank at the fuel station and let the pump shut off automatically.

• When filling the tank on your second refuel, try to use the same pump you used for your first refuel with the vehicle pointed in the same direction. If you refuel your fuel tank with your vehicle on an incline, it can have an effect on the amount of fuel the pump can dispense into your tank.

• Drive your vehicle normally with the 4Mode OBD2 computer connected.

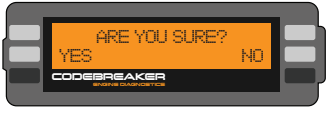
• When filling your tank, let the pump shut off automatically - don't top off.

• Use the 'REFUELING' operation after each fill up.

7.1.2 Reset

1. Press the grey button next to ‘RESET’ to enter fuel reset menu.

2. Choose the grey button next to ‘YES’ to reset the fuel settings or ‘NO’ to exit.



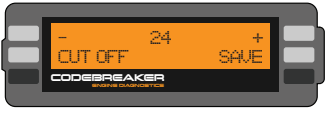
NOTE: Use the reset operation before the first refuel and it's better not to reset the product after the later refuel operation.

7.1.3 Cut Off

1. Press the grey button next to ‘CUT OFF’ to enter fuel cut off menu.

NOTE: Some vehicles will turn the fuel injectors off when coasting. This will cause the fuel economy to go to 9999 MPG to 0.00KHL. This shows when you are not using any fuel while coasting. This is sensed through the open/closed loop indicator and the throttle position. To tell if the throttle is closed, the throttle position is checked against the ‘CUT OFF’ value. ‘CUT OFF’ is the value the throttle has to be below in order to indicate a fuel cutoff and show 0 fuel flow.

2. Choose the suitable data via the button next to ‘**+**’ and ‘**-**’, then press the grey button next to ‘SAVE’ to return to the ‘SETUP’ Menu.

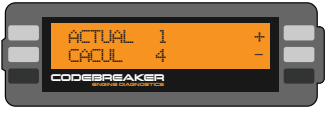


7.1.4 Correct

1. Press the grey button next to ‘CORRECT’ to enter fuel correct menu.

2. Press the grey button next to ‘*’ to adjust the real fuel consumption.

3. Press the grey buttons next to ‘-‘ or ‘+’ to adjust the amount of actual fuel refilled.



4. Press the lower-right button to save the adjusted result for correct operation after the second refueling.

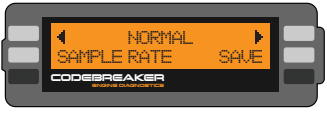
7.2 Rate

[Home >> Rate]

1. Press the lower-right black button from the ‘HOME’ screen.

2. Press the grey button next to ‘RATE’.

3. Use the grey buttons next to ‘**<**’ or ‘**>**’ to select a sampling rate among ‘AUTO’, ‘NORMAL’ and ‘SLOW’, and press the ‘SAVE’ button to save the setup and return to the ‘RATE’ Menu.

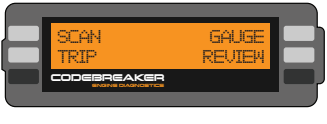


NOTE: ‘NORMAL’ is the factory default rate. If this causes some updates to be skipped or irregular operation, ‘SLOW’ should be used.

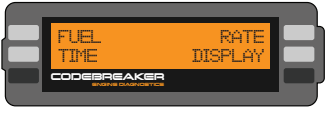
7.3 Time

[Home >> Time]

1. Press the lower-right black button from the ‘HOME’ screen.



2. Press the grey button next to ‘TIME’.



3. Press the lower-left black button to enter time adjustment screen.

4. Use the grey button next to ‘**>**’ to select a digit, and then use the grey button next to ‘**-**’ or ‘**+**’ to increase or decrease the value.

5. Press the lower-left black button to finish and save the setup, or press the lower-right hand black button to exit without saving the settings.

7.4 Display

[Home >> Display]

1. Press the lower-right black button from the ‘HOME’ screen.

2. Press the grey button next to ‘DISPLAY’.

7.4.1 Enter the Mode Menu

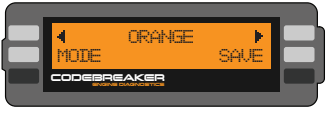
1. To change the display mode of trip items, press the grey button next to ‘MODE’.

2. Use the grey buttons next to '**<**' or '**>**' to change between 'MENU', 'CURRENT','TODAY', 'TOTAL', 'TANK' and 'GAUGE and press the grey button next to 'SAVE' to return to Display menu.

7.4.2 Enter Light Menu

1. To change the display colour, press the grey button next to 'LIGHT'.

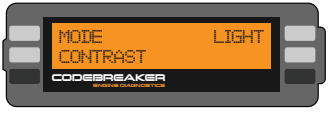
2. Use the grey buttons next to '**<**' or '**>**' to select the background colour. Select from 'WHITE' or 'ORANGE'.



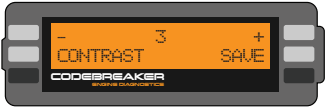
3. Select the grey button next to 'SAVE' to return to the Display menu.

7.4.3 Enter Contrast Menu

1. To change the contrast of the display, press the grey button next to 'CONTRAST'.



2. Use the grey buttons next to "**-**" or "**+**" to adjust the contrast.



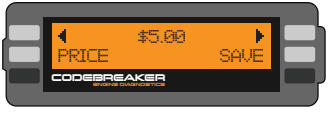
3. Select the grey button next to 'SAVE' to return to the Display menu.

7.5 Price

[Home >> >> Price] (>> means the user presses the lower-right button twice)

1. Press the grey button next to 'PRICE' and enter the menu.

2. Use the grey buttons next to '**<**' or '**>**' to adjust the price, and press 'SAVE'.



7.6 Setup

[Home >> >> Setup]

The OBD2 computer allows you to make the following adjustments and settings:

- Type: Selects the fuel type your vehicle uses.
- Size: Sets tank size of the vehicle.
- Engine: Sets up engine size.
- Units: Changes unit of measure.

The OBD2 computer uses flash memory to save settings, so the data will not be lost if the unit is disconnected from the vehicle.

Press the button next to ‘SETUP’ to perform various setups.

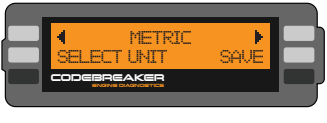
NOTE: To get accurate data of fuel consumption, distance to empty, time to empty, always perform setup the first time you use the 4Mode OBD2 Computer e.g. if you use it in another vehicle and return it back to the original one, or if the unit is reset to factory settings.

7.6.1 Units

[Home >> >> Setup > Unit]

1. Press the grey button next to ‘UNIT’ change units of system.

2. Use the upper-left or upper-right grey buttons to change between metric and imperial units of measure, and press ‘SAVE’. The screen will return to the ‘SETUP’ Menu.

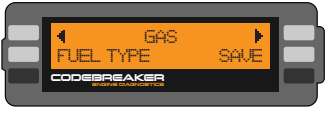


7.6.2 Type

[Home >> >> Setup > Type]

1. Press the grey button next to ‘TYPE’ to enter fuel setup menu.

2. Use the grey button on the upper-left or upper right to select the fuel type your vehicle uses.



There are 'DIESELa', 'DIESELb', 'HYBRID', 'GAS', 'LPG' fuel types to choose from. 'DIESELa' and 'DIESELb' do not refer to different types of diesel fuel. They only affect the way fuel consumption is computed and are selected based on the way the vehicle computer reports its sensor information.

Most diesel vehicles use 'DIESELa'. To determine which system your vehicle uses: Set engine size --> choose 'DIESELa' --> warm up the engine and idle in Neutral or Park --> select 'GAUGE' and have one of the gauges show 'RPM' and another show 'LPH' --> note the LPH value--> use the throttle to raise the engine RPM to about 1500 RPM. If the LPH reading increases, you have a DIESELa vehicle. If the LPH drops or stays the same you have a DIESELb vehicle.

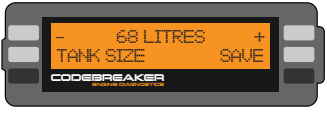
3. Press the grey 'SAVE' button and an '**->**' icon appears on the screen indicating the type is selected. Screen then returns to 'SETUP' Menu.

7.6.3 Tank Size

[Home >> >> Setup > Size]

1. Press the button next to 'SIZE' to set the tank size of your vehicle.

2. Use the grey button next to "**-**" or "**+**" to change the tank size, and press 'SAVE' button to save. Screen will return to 'SETUP' Menu.



7.6.4 Engine

[Home >> >> Setup > Engine]

1. Press the grey button next to ‘ENGINE’.

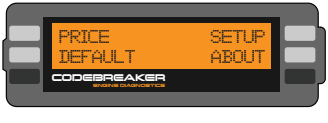
2. Use the grey button next to ‘**-**’ or ‘**+**’ to change engine size, and press ‘SAVE’ button. Screen returns to ‘SETUP’ Menu.

7.7 Default

[Home >> >> Default]

1. To reset the 4Mode OBD2 computer to original factory settings, press lower-right black button from ‘HOME’ screen twice.

2. Press the grey button next to ‘DEFAULT’.



3. Choose ‘RESET TRIP’ or ‘RESET SYSTEM’.

7.8 About

[Home >> >> ABOUT]

1. Press the grey button next to ‘ABOUT” to see the Software version and S/N.

2. Press the lower-left black button to return to ‘HOME’ screen.

8. UPDATE

- Any future software updates will be available on our website: http://www.ultimate9.co
- Download software file from the website to the computer.
- Install software to your 4Mode OBD2 Computer via the USB cable.
- After updating the 4Mode OBD2 Computer, please reset as per the steps in 7.8.

9. APPENDIX

9.1 GAUGE Abbreviations

LP1	Fuel System 1 Status	LP2	Fuel System 2 status
LOD	Calculated Load Value	ECT	Engine Coolant Temperature
FPR	Fuel Rail Pressure	MAP	Intake Manifold Absolute Pressure
RPM	Engine Revolutions (Speed)	VSS	Vehicle Speed
IGN	Ignition Timing Advance for #1 Cylinder	IAT	Intake Air Temperature
MAF	Mass Air Flow Rate	TP	Absolute Throttle Position
AIR	Commanded Secondary Air Status	(B1-S1) - (B1-S4)	Short Term Fuel Trim (if it supports PID 13) or 1D
(B1-S1) - (B1-S4)	Oxygen Sensor Output Voltage if it support PID 13 or 1D	(B2-S1) - (B2-S4)	Short Term Fuel Trim (if it supports PID 13) of 1D
(B2-S1) - (B2-S4)	Oxygen Sensor Output Voltage (if it supports PID 13 or 1D)	VLT	Battery Voltage

9.2. SCAN Abbreviations

MIL	Malfunction Indicator Lamp Status	CCM	Comprehensive Component Monitoring
MIS	Misfire Monitoring	FUEL	Fuel System Monitoring
CAT	Catalyst Monitoring	EGR	EGR System Monitoring
HCAT	Heated Catalyst Monitoring	EVAP	Evaporative System Monitoring
AIR	Secondary Air System Monitoring	ACRF	A/C System Refrigerant Monitoring
O2S	Oxygen Sensor Monitoring	HTR	Oxygen Sensor Heater Monitoring
FRZD	Freeze Data	VIN	Vehicle No.
ACL	Acceleration	Ext. Acl	Extreme Acceleration
DTC	Diagnostic Trouble Code	SMP Rate	System Management Processor Rate

9.3 TRIP UNIT Abbreviation

Current Trip Unit

	Metric	Definition	Imperial	Definition
Average LPH	LPH	Litre / Hour	GPH	Gallon / Hour
Average LHK	LHK	Litre /100 Kilometres	MPG	Mile / Gallon
Time	__:__	Hour: Minute	__:__	Hour: Minute
Distance	KM	Kilometre	MI	Mile
Fuel	L	Litre	GAL	Gallon
Cost	$	Dollar	$	Dollar
Average Speed	KPH	Kilometre / Hour	MPH	Mile / Hour
Maximum Speed	KPH	Kilometre / Hour Max.	MPH	Mile / Hour
Instant LPH	LPH	Litre / Hour	GPH	Gallon / Hour
Instant LHK	LHK	Litre /100 Kilometres	MPG	Mile / Gallon
Power	KW	Kilowatt	HPR	Horsepower
Time to Empty	__:__	Hour: Minute	__:__	Hour: Minute

Today Trip Unit & Total Trip Unit

	Metric	Definition	Imperial	Definition
Average LPH	LPH	Litre / Hour	GPH	Gallon / Hour
Average LHK	LHK	Litre / 100 Kilometres	MPG	Mile / Gallon
Time	__:__	Hour: Minute	__:__	Hour: Minute
Distance	KM	Kilometre	MI	Mile
Fuel	L	Litre	GAL	Gallon
Cost	$	Dollar	$	Dollar
Average Speed	KPH	Kilometre / Hour	MPH	Mile / Hour
Maximum Speed	KPH	Kilometre / Hour Max.	MPH	Mile / Hour

Tank Trip Unit

	Metric	Definition	Imperial	Definition
Average LPH	LPH	Litre /Hour	GPH	Gallon / Hour
Average LHK	LHK	Litre /100 Kilometres	MPG	Mile / Gallon
Fuel	L	Litre	GAL	Gallon
Cost	$	Dollar	$	Dollar
Fuel to Empty	L	Litre	GAL	Gallon
Tank to Empty	KM	Kilometre	MI	Mile
Time	__:__	Hour: Minute	__:__	Hour: Minute
Time to Empty	__:__	Hour: Minute	__:__	Hour: Minute

10. WARRANTY

Ultimate9 provides to the original purchaser, a 12 month replacement warranty against manufacturing faults or defects. Conditions resulting from normal wear & tear, modification, misuse, abuse or incorrect fitment are not covered and will void the warranty.

In order to make a claim under this warranty, the purchaser must:

- Return the product to the place of purchase with a valid receipt/invoice or proof of purchase or contact Ultimate9 customer service on 03 8740 1170.

- Provide Ultimate9 with any additional information as requested.

The purchaser is responsible for any return freight or fitting/removal costs incurred when making a claim under this warranty unless communicated otherwise by Ultimate9.

This warranty is limited to the original purchaser and is not transferable.

Our goods come with guarantees that cannot be excluded under the Australian Consumer Law. You are entitled to a replacement or refund for a major failure and compensation for any other reasonably foreseeable loss or damage. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure

11. NOTES

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