

THE SCANGAUGE

by *Linear*Logic



INSTALLATION AND OPERATION

www.scangauge.com
www.linear-logic.com

WARNING

Use of the ScanGauge while driving could lead to an accident and serious injuries. The primary attention of the driver should always be on safe driving. As with any gauge or other instrumentation system in a motor vehicle, the information should be observed as part of a normal sequence of observations performed in the operation of the vehicle. Changes to the selections in the ScanGauge should only be made when it is safe to do so. **The driver must remain attentive first to driving the vehicle.**

The mounting of the ScanGauge and the routing of the cable connecting it to the vehicle in the should be done with suitable caution that it does not create an unsafe condition. This includes but is not limited to the following:

- Don't mount the ScanGauge where it can obstruct the view of the driver.
- Don't mount the ScanGauge in a manner which could cause it to be propelled through the vehicle during an accident causing injury, such as over or near an air-bag.
- Don't route the cable in a manner which would interfere with the operation of the vehicle controls.

RIGHTS AND OBLIGATIONS

The ScanGauge may be used on any number of vehicles. The software contained in the ScanGauge is copyright protected by Linear-Logic and may not be transferred or disassembled and used in another product, in part or in whole. The artwork used in generation of the circuitry is also copyright protected and cannot be used in part or whole by any person or entity without the express written permission of Linear-Logic.

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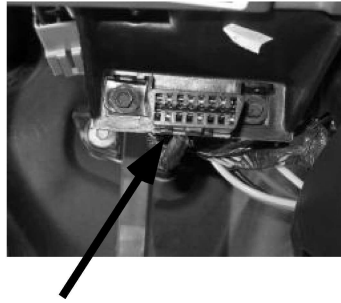
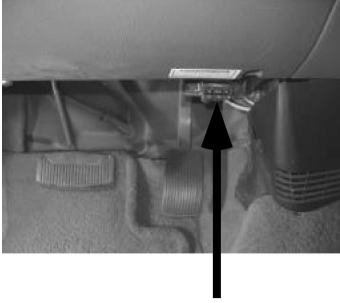
Version 1.0

Information in this manual and the specifications and operation of the ScanGauge itself are subject to change without notice.

INSTALLATION

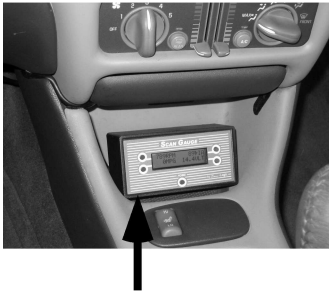
NOTE: If this is a temporary use of the ScanGauge in the vehicle, there is no need to perform vehicle displacement setup unless fuel economy or fuel consumption will be measured.

- 1) **Locate the OBD Connector.** This connector is normally located under the dash on either side of the steering column. It can also be located under the dash on the passenger side in some vehicles. On rare occasions it is behind the ashtray in the dash or in the armrest of the back seat. It may have a cover on it which can be pulled off by hand.



Typical OBD2 Connector Location OBD2 Plug

- 2) **Locate a place for the ScanGauge.** **IMPORTANT: Don't place it on an airbag cover or where it will be propelled by a deploying airbag.** The location should be where it can easily be seen from the normal driving position. It should not be placed where it will obstruct the drivers view outside the vehicle or of other gauges.



Typical below Dash Installation



Typical above Dash Installation

- 3) **Turn the vehicle on.** If it can be run, start it. If it can't be run, turn the key to the "run" position. This is the position it is normally in when the vehicle is being driven.
- 4) **Plug the connector into the OBD connector.** The ScanGauge derives all it needs to power and operate itself from the OBD connector. No other connections are needed for its operation. Wait for the unit to connect.
- 5) **Perform Vehicle Setup if this is the first time it has been used on this vehicle.** This step is optional. It is needed in some vehicles to make more accurate fuel economy and fuel consumption measurements. Setup can be done using the sequence: `MORE=>MORE=>ENGINE`. This is followed by setting the engine displacement. You may exit using `HOME` if this is a temporary value. You may use `SAVE` to exit if you want this value to be retained even if the ScanGauge or the vehicle battery is disconnected. The information can be changed and saved again as often as needed.

When the ScanGauge is first connected, it attempts to communicate with the vehicle. Communications can be established with the key to be in the run position, even if the engine is not actually running. It could take up to 30 seconds for the connection to be made after the unit is plugged in and the key in the run position.

While establishing communications, the first line on the display shows:

```
Connecting...  
<TRIP      MORE>
```

The TRIP and MORE buttons can be used even if a connection is not established. If the key is off, the ScanGauge will stay in this screen and continue attempting to communicate with the vehicle computer. It will not go to sleep mode until communications has been established.

When communications has been established, the display will change over to :

```
<SCAN      GAUGE>  
<TRIP      MORE>
```

OPERATION

The ScanGauge is easy to hook up to a vehicle equipped with an OBD2 connector. It is also very easy to use. The operation is menu driven and does not require memorizing sequences of operations to use. After each button press, new selections will appear in the display prompting you for what can be done next. The HOME button will take you back to the starting point at any time.

MENU DRIVEN SELECTIONS

There is a button located at each corner of the display. When a '<' or '>' is displayed next to the button, pressing the button will do what is shown in the display next to it. For instance the HOME screen shows the following:

```
<SCAN      GAUGE>
<TRIP      MORE>
```

Pressing the button at the upper-left corner will bring up selections for scanning the vehicles computer for trouble codes and other information. Pressing the upper-right button will bring up Gauges showing the current information for the vehicle, such as Speed, RPM, fuel economy, etc.. Pressing the lower-left button shows trip information and the lower right button brings up more types of selections.

Sometimes there is no '<' or '>' next to the button. In most of these cases, this is information like in the following display:

```
P0321      CLEAR>
<PREVIOUS  NEXT>
```

The P0321 is a trouble code, pressing the upper left button will not perform any function. The other buttons perform the functions shown next to them.

Some screens are strictly for information, such as the following:

```
Codes Cleared
```

This screen will be shown if the vehicle responds that all codes have been cleared following a button press telling it to clear them. This screen is exited by pressing the HOME button, returning you to the starting screen.

AUTOMATIC SLEEP MODE

About 20 seconds after turning off the vehicle or pressing a button after the vehicle engine is turned off, the ScanGauge will automatically power down into a sleep mode. The display will go blank and the backlighting will turn off if it was on. Starting the engine or pressing the HOME button will automatically restart the ScanGauge and it will return to the screen and lamp settings it had just before it went to sleep.

AUTOMATIC COMMUNICATIONS TYPE RECOGNITION

Different vehicles use different types of signaling from their computers. The ScanGauge can quickly determine which type your vehicle is using. You don't have to know which type it is for it to be used.

AUTOMATIC REPEAT BUTTONS

Pressing the buttons and holding them for more than a second will cause them to automatically repeat at a rate of about 2 times a second. This allows for rapid stepping to a value without a lot of button pressing.

USER PROGRAMMABLE COMMANDS

Up to 10 commands can be generated, edited, saved and sent to the vehicle computer. This allows for future codes and some special commands to be added by the user. This will allow any possible OBD command to be added by the user without the need for software changes.

NON-VOLATILE MEMORY

The ScanGauge uses a type of memory which doesn't require batteries or a source of power to maintain. This means that your settings will not be lost if you disconnect the vehicle battery or disconnect the ScanGauge.

The actual saving of the current settings occurs whenever the unit goes to sleep or when the SAVE selection is made in the ENGINE screen where you set the engine displacement.

The only information you should have to give the ScanGauge about the vehicle it is being used in is the engine displacement. This is only used in some vehicles to more accurately indicate the fuel consumption and economy. It is not necessary to enter this information for basic operation of the ScanGauge.

HOME

When the ScanGauge is running, pressing the HOME button will bring up the following HOME screen:

<SCAN	GAUGE>
<TRIP	MORE>

If the ScanGauge is asleep, pressing the HOME button will cause it to wake up to the screen it was using when it went to sleep. Pressing the HOME button again will take it back to the HOME screen. The following button sequences assume a start from HOME.

GAUGE

Pressing the button next to GAUGE causes the display to change to show the currently selected gauges. They are automatically updated. The following screen shows a typical gauge display:

710RPM	28MPH
15MPG	50FUT

This is a special case display. Even though there are no '<' or '>' next to the displayed gauges, pressing the button next to one of the gauges will cause them to change to different gauges. For instance, pressing the upper left button causes the display to change to:

10TPS	OPEN LP
15MPG	50FUT

The upper left display has changed from reading the RPM to reading how much the throttle is being pressed. Pressing the button again will change the display to the next available gauge. The selection will continue through all of the available gauges and then loop back to the starting gauge.

The information available will vary from vehicle to vehicle. If the information is not available for a certain gauge, no data will be shown for it. If the same gauge is selected for more than one position, only one of them will show data (if it is available). The other positions will show the abbreviation, but no data.

GAUGE ABBREVIATIONS

The following table shows what the gauge names mean. In some cases, the unit selection will determine the gauge abbreviation.

CLSD LP OPEN LP	Fuel system loop status	This indicates when the oxygen sensor is being used to control the mixture (closed-loop) and when it is not (open-loop). It is usually closed except when the engine is cold or under full throttle acceleration.
FIA CIA	Intake-Air-Temperature	Temperature of the air going into the engine. At highway speeds, this will typically be a few degrees higher than the outside air temperature. At idle or low speed, it may be much higher in temperature than the outside temperature due to the low air-flow into the engine and the high under-hood temperatures warming it up.
FWT CWT	Water Temperature	Water/Coolant temperature. A vehicle with a 50/50 mix of coolant and water will not boil over until about 265 degrees F at sea level. This will be reduced at higher elevations.
FPR	Fuel-Pressure	This is the fuel pressure from the fuel pump. Very few vehicles report this.
GPH LPH	Gallons-per-Hour Liters-per-Hour	Fuel consumption rate in the selected units. This is sensitive to throttle, gear and loading changes.
IGN	Ignition timing	Shows the amount of timing advance (or retard if -). The more advance there is (or less retard), the better for fuel economy and power. The limit is set by the octane of the fuel, the intake air temperature, and the load on the engine. A lower than normal amount of advance for similar temperature and speed could indicate too low an octane of fuel is being used.
LOD	Engine Loading	This is a percentage of the maximum power available at the current RPM that is being used. As this number approaches 100, it will be necessary to shift to a lower-gear (if possible) in order to obtain more engine power. As the number falls, a higher gear can be used.
MPG KPG MPL KPL	Miles-per-Gallon Kilometers-per-Gallon Miles-per-Liter Kilometers-per-Liter	Fuel economy in the units selected. At a NORMAL update rate, this is updated about once a second. This means that the fuel economy is for the previous second. Small changes in throttle position will show almost immediate changes in fuel-economy.
MPH KPH	Miles-per-hour Kilometers-per-Hour	Speed in the units selected.
MAP	Manifold-Absolute-Pressure	This indicates the pressure in the intake manifold. It is reported in pounds-per-square-inch (PSI) by default but can be changed to kilo-pascals (KPA) if desired. At sea level, the pressure at wide open throttle can be as high as 15 PSI or 10kPA. If the engine is turbocharged or supercharged, the pressure can be higher than this.
RPM	Revolutions-per-Minute	The RPM of the engine.
TPS	Throttle-Position-Setting	In some vehicles, a closed throttle will read 0 and full throttle will read 100. Other vehicles will have a higher value than 0 for a closed throttle and an open throttle value less than 100.
VLT	Battery Voltage	Normal running battery voltage is between 13 and 15. When the engine is off it should be between 12 and 13. Voltages higher than 15 volts can damage batteries and electrical components. Voltages below 13 when the vehicle is running could indicate poor charging of the battery. Voltage below 12 when the engine is off could indicate a low battery charge or a shorted battery cell.

SCAN

If there are no stored Diagnostic Trouble Codes (DTCs), the display will show:

```
No Codes Found
```

If there are any stored Diagnostic Trouble Codes (DTCs), the number will be displayed. An example screen would be:

```
2 Stored Codes  
<CODES    FRZD>
```

In this example 2 codes are stored.

This selection can only be reached if there is at least one trouble code. Pressing the button next to **FRZD** will show the data for each of the Parameter Identifications Descriptors (PIDs) if data was captured when the trouble occurred. The screen will allow you to step through the PID numbers using the lower left and right buttons and see the available data. Gauge values will be shown in the top line for those PIDs which directly correspond to a gauge. The values in the second line are in hexadecimal just as they are reported by the vehicle computer. You can exit this mode using the **HOME** button.

NOTE: Reading the Freeze Data does not clear it. This is done when the DTCs are cleared.

Selecting **CODES** will make the display show the trouble code. For example:

```
P0440    CLEAR>  
<PREVIOUS NEXT>
```

This example shows a trouble code of P0440. Since there were 2 stored trouble codes in this example, pressing **NEXT** will show the other trouble code.

```
P0450    CLEAR>  
<PREVIOUS NEXT>
```

Pressing **NEXT** again will not change the display because we are at the last trouble code. Pressing **PREVIOUS** will return the display to show the earlier trouble codes.

```
P0440    CLEAR>  
<PREVIOUS NEXT>
```

Pressing the **CLEAR** button will result in a prompt from the ScanGauge to verify that you want to clear the trouble code(s) and turn off the "Check Engine" lamp.

```
CLEAR CODES ???  
<YES      NO>
```

If you want to continue to clear the trouble codes, press **YES**. If you decide not to clear the trouble codes, press **NO**.

When the **YES** button is pressed, the ScanGauge will send out a signal to clear all of the trouble codes.

If it is successful, the display will show:

```
Codes Cleared
```

This should also turn off the "Check Engine" light on the dashboard and clear the freeze data.

DECODING DTCs

The DTCs vary from vehicle to vehicle and you will need to find the definitions for your vehicle.

An excellent way to do this is to use a good search engine on the internet. Use "Trouble Codes" as the search words. You can add your make of vehicle to narrow the search. Adding the actual DTC to the search could bring up a lot of information on the problem if it is a common failure.

A good web site to try is: <http://www.troublecodes.net/> .

Another way to find the trouble code meaning and also information on what might be causing the problem is to do a search on the trouble code and the type of vehicle. For instance searching for **P0440 Ford** will return not only the code definition, but also information on the cause and cure.

When you find a list of codes for your vehicle, it would be a good idea to print them out and keep them in the glove box for future reference. It is comforting when you are on a trip and the "Check Engine" light comes on to be able to read the code and determine if it is a critical problem or not.

A common problem is an evap or fuel tank pressure failure. If the DTC is one of these codes, the cure may be as simple as tightening the gas cap. You can test for this by tightening the gas cap and resetting the "Check Engine" light using the ScanGauge. If the "Check Engine" light doesn't come back on, that was the problem.

Printed sources to decode the DTCs are available at your auto parts store in the aftermarket repair manuals. Some have low cost manuals dedicated to trouble codes and troubleshooting.

The auto parts store personnel can often tell you what the code means and are sometimes familiar with what causes your particular type of vehicle to set the code and the common repair for it.

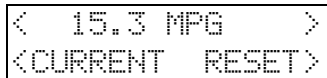
The shop manuals for your vehicle will also contain the information for the trouble codes.

TRIP

The trip button allows information about the current trip, all trips for today and all trips for a previous day to be obtained or monitored. The following information can be displayed:

- Maximum Speed
- Maximum Coolant Temperature
- Maximum Engine RPM
- Average Speed
- Average Fuel Economy
- Trip Miles
- Trip Elapsed Time
- Trip Fuel Used

The following display is a typical trip display. Pressing the upper right or left button will allow you to change the displayed information for the trip.



A digital display with two lines of text. The first line shows '< 15.3 MPG >' and the second line shows '<CURRENT RESET>'. The text is centered and appears to be on a monochrome screen.

For instance, pressing the upper right button will select the amount of fuel consumed on the trip. The following display is typical of the resulting output.

```
< 5.2 GALLONS >
<CURRENT RESET>
```

Pressing the **RESET** button will reset all or the current trip data. The following display would be seen:

```
< 0.0 GALLONS >
<CURRENT RESET>
```

Pressing the **CURRENT** button will change to a different trip. This is shown in the following screen:

```
< 5.2 GALLONS >
<TODAY * >
```

Notice that there is no **RESET** for **TODAY**. The **TODAY** trip will automatically reset after the engine has been off for 8 to 10 hours (as when sitting overnight). The values for **TODAY** will be transferred to the **PREVIOUS DAY** and the values which were in **PREVIOUS DAY** are thrown out.

The asterisk (*) in the lower right corner indicates that the ScanGauge was disconnected for at least part of the day and the data may not be complete. This will be transferred to the **PREVIOUS DAY** along with the data.

NOTE: If the vehicle is driven early in the morning and then not again until late that evening, the data will be transferred to the previous day. If the vehicle is driven until late at night and then used again very early in the morning, the data will stay in the **TODAY** trip. The end of **TODAY** requires the vehicle be off and the ScanGauge not activated for 8 to 10 hours.

Pressing the **TODAY** button again will change the display to the **PREVIOUS DAY**:

```
< 10.6 GALLONS >
<PREVIOUS DAY >
```

Pressing the lower left button again will return the selection to the **CURRENT** trip. Continuing to press it will cycle the trips from one to the next.

MORE

Pressing **MORE** from the **HOME** display will bring up the following display:

```
<CONTRAST UNITS>
<LAMP MORE >
```

Pressing the **CONTRAST** button will allow the display contrast to be changed. Pressing the upper left button will decrease the contrast. Pressing the upper right button will increase the contrast. The contrast should be set to just below where the empty spaces don't show as a solid box. The button can be held down and the contrast will slowly change. Changing contrast significantly could require holding the button down for up to a minute.

```
< CONTRAST >
```

The ScanGauge has a temperature compensation circuit which keeps the contrast from varying too much over its operating temperature range of 0°F to +160°F (-18°C to 71°C). At higher temperatures, the display will become dark and difficult to read. At lower temperatures, the contrast will be reduced and the characters will change more slowly. As long as the temperature doesn't exceed -22°F to 176°F (-30°C to +80°C), the display will return to normal operation when the ScanGauge temperature returns to the normal operating temperature range.

NOTE: A location in direct sunlight on the dashboard in a closed vehicle can easily exceed the normal operating temperature. The use of windshield shades or covering the ScanGauge with a piece of paper can significantly reduce this temperature.

NOTE: It is possible that the contrast can be adjusted so low that the display cannot be seen, or so high that it will appear as solid boxes. If nothing is visible, use the following sequence:

- 1) Press and release the Home button twice
- 2) Press and release the lower right button
- 3) Press and release the upper left button
- 4) Press and hold the upper right button until the display can be seen. It may be necessary to hold the button down for a full minute before the display is visible.

If only solid boxes are visible, use the following sequence:

- 1) Press and release the Home button twice
- 2) Press and release the lower right button
- 3) Press and release the upper left button
- 4) Press and hold the upper left button until the display can be seen. It may be necessary to hold the button down for a full minute before the solid boxes disappear and the display is readable.

MORE=>UNITS

Selecting UNITS will result in the following display:

```
<Miles Gallons>
< F          PSI >
```

This screen allows the units used and displayed to be changed. Pressing the MILES button will change the display to:

```
<KM          Gallons>
<F           PSI >
```

This means that all gauges which use distance will use the units of kilometers instead of miles. Pressing it again will change it back to "Miles".

Pressing the Gallons button will cause it to change to Liters.

Pressing the F (Fahrenheit) button will cause it to change to C (Centigrade).

Pressing the PSI (pounds-per-square-inch) button will cause it to change to KPA (kilo-pascals).

Pressing the HOME button will exit this screen with the units set to those indicated when the HOME button was pressed.

Pressing the LAMP button will cause the display to show:

```
<OFF          LOW>
<MED         HIGH>
```

These selections control the screen and button back-lighting. Pressing the button for one of these will cause the lamp intensity to be changed. The display will not change. The lamp intensity can be changed again by pressing another selection. Once the desired level is set, this mode must be exited by pressing the HOME button. The ScanGauge uses 4 high intensity solid-state LEDs for back lighting. Since there are no filaments to wear out, it should never be necessary to replace a lamp, regardless of how long they are used..

MORE=>MORE

Pressing MORE twice brings up less commonly used functions.

```
<MODE      CMNDS>
<ENGINE    MORE>
```

Pressing MODE allows the operating mode to be set or read.

```
<SET      READ>
```

Pressing SET brings up the following screen:

```
<PWM      VPW>
<ISO      AUTO>
```

This allows the interface to be set manually or searched for automatically. It should be set manually only if it cannot be determined automatically. When the ScanGauge is first connected to the vehicle it will show:

```
Connecting..
<TRIP    MORE>
```

If the ignition key is on, this display should change over to the normal home screen within a minute of being connected. If this doesn't happen the mode can be selected manually. This should not be necessary if the vehicle computer is working properly. The following mode selections generally apply:

PWM = Ford family vehicles

VPW = General Motors Family vehicles

ISO = All others

These are general rules and some models made for the manufacturers by other companies will not always follow these selections. For instance, Jaguar is in the Ford family of products but, it usually uses the ISO mode.

Pressing READ allows the currently selected mode to be seen on the second line. This could be the one which was found automatically or set manually.

```
<SET      READ>
      PWM
```

MORE=>MORE=>ENGINE

The ScanGauge can be used on any number of different vehicles. On some vehicles, the fuel economy will be more accurate if the engine displacement is set for it. When a value is saved, it will be retained even if the ScanGauge is unplugged or the vehicle battery is disconnected.

The setting can be changed at any time. If "SAVE" is not used, the entered value will be lost when the ScanGauge is disconnected. This may be the desired operation if the vehicle is not to have the ScanGauge regularly used on it.

```
< 3.0 LITERS >
SIZE      SAVE>
```

The right and left upper buttons can be used to increase/decrease the selected displacement in 0.1 Liter increments. Pressing **SAVE** will save the current displayed value of displacement to non-volatile memory and return to the HOME screen. Pressing the HOME button will exit this screen and return to the home screen. The value entered will be used until the ScanGauge is unplugged or the vehicle battery is disconnected or until it is changed by entering this screen again. The value will also be saved if the unit is allowed to enter the sleep mode.

MORE=>MORE=>CMNDS

```
< MEMORY 0 >
<EDIT SEND>
```

In this mode sequences can be selected, edited or sent to the vehicle and responses displayed. This allows special sequences which are unique to a specific vehicle or rarely used to be sent. Any returned data will be displayed. Up to 10 sequences can be put into these memory locations for later recall. They are stored in non-volatile memory and will not be lost when the unit is disconnected from the vehicle.

The upper right and left buttons cause the memory selection to be changed. When the desired memory has been chosen, it can be edited or transmitted to the vehicle.

Pressing HOME will return the display to the home screen. Pressing **EDIT** will switch to an entry screen.

```
<.....>
↑ OK>
```

This shows the display for an unprogrammed memory location. The lower-left button will increment the currently selected character through all the available hexadecimal values (0 to 9 and A to F) and back to a space. The upper-left and upper-right buttons will move the character selection. When the selection gets to the end of the top row, it will continue on the lower line. This allows the maximum length allowed to be sent by OBD to be sent. Pressing "SAVE" will save the value to non-volatile memory and return to the previous screen where it can be sent or another memory location selected. Pressing the HOME button will exit this screen without saving the value and return to the HOME screen. An even number of characters must be used. If an odd number is used, a "0" is automatically appended to the command. A CRC or Checksum is added automatically to the command when it is sent but it is not displayed in the edit screen.

An example of using these functions follows.

The **EDIT** function is used to set up the following command:

```
<686AF10100 >
↑ OK>
```

Pressing **OK** changes back to the previous screen:

```
< MEMORY 0 >
<EDIT SEND>
```

Pressing **SEND** causes the message to be sent. If there is a response to the message, it will be shown:

```
486B0E4100BE3EB8
10C6 OK>
```

The CRC sent back will be checked to make sure the correct data was received and will be removed from the displayed value.

Pressing **OK** will return you to the previous screen where you can edit the command, resend it, or select another command.

MORE=>MORE=>MORE

Pressing **MORE** three times from the HOME screen will get you to the following screen:

```
<VERSION  RATE>
  USE DEFAULTS>
```

Pressing **VERSION** will cause the software version to be displayed.

```
Version 1.0
Linear-Logic
```

This selection shows the version of firmware which is in the ScanGauge and also serves as the Copyright notice for Linear-Logic, the company which made the firmware. The actual version number you see may be different than the one shown here.

Pressing **RATE** will allow you to change the gauge update rate.

```
Rate      FAST>
<NORMAL   SLOW>
```

The update rate defaults to **NORMAL**. In some cases, a faster update rate can be used. If this causes some updates to be skipped or irregular operation, **FAST** should not be used. In some cases even **NORMAL** can be too fast and lead to poor operation. In these cases, **SLOW** should be used.

DEFAULTS will allow you to reset the ScanGauge to the factory default settings. All units, engine displacement, gauge settings, trip and screen settings will be changed to the factory settings. You will be prompted to assure that you want to do this before it is actually done.

```
USE DEFAULTS ???
<YES      NO>
```

Pressing **YES** will reset the values to factory defaults and pressing **NO** will exit the screen without changing the values.

Limited Warranty

Linear-Logic will repair this product with new or rebuilt parts, free of charge, in the U.S.A. for a period of 90 days from the date of original purchase in the event of a defect in materials or workmanship.

Warranty service can be obtained by sending the product to:

Linear-Logic attn: Service
2634 W Naranja Ave
Mesa, AZ 85202-7213

Include your name, address, telephone number and/or e-mail address along with a copy of the receipt if purchased at a retail store.

If purchased through mail order or the internet, include the date it was received and if it was sent to a different name and/or address, include the address it was sent to and the name it was sold to.

Also include a information about the problem including the type of vehicle you are using it on the a description of the problem.

An e-mail to service@linear-logic.com may be able to assist in solving a problem and will not diminish your rights to the full warranty.

Limits and Exclusions

There are no express warranties except as listed above.

LINEAR-LOGIC SHALL NOT BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES RESULTING FROM THE USE OF THIS PRODUCT, OR ARISING OUT OF ANY BREACH OF THIS WARRANTY. ALL EXPRESS AND IMPLIED WARRANTIES INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ARE LIMITED TO THE APPLICABLE WARRANTY PERIOD.

If a problem with this product develops after the warranty period, you may contact our service department via the mail address or e-mail address listed above for a cost estimate on repairs to the unit. If the problem is not handled to your satisfaction, contact our customer care department at customer.care@linear-logic.com