

## Gauge Installation Notes - GI-VETA-01

- The gauge and sensor assembly are tested and checked before posting.
- However, before installing the gauge, Gauge Innovations recommends that correct operation of the gauge be verified by:
  - Connecting the 4 pin cable plug into the back of the gauge.
  - Connecting the 2 pin DC power cable into the back of the gauge.
  - Using a 9v battery (or similar power source) to power up the gauge (red wire + positive, black wire – negative)

The gauge should show the engine and transmission sensor temperatures. Please contact [Gauge.Innovations@gmail.com](mailto:Gauge.Innovations@gmail.com) if there are any problems.

- For best viewing, select a location to install the gauge away from direct sunlight.
- During installation care must be taken with the plugs and cables to avoid damage.
- Please insert and remove plugs very carefully and avoid tension on the cabling,
- Gauge Innovations recommends the gauge be installed by an auto electrician.
- Please follow these steps to install:
  - 1) Connect the 12v DC power cable to the gauge and connect 12v DC vehicle power.
  - 2) Power up the gauge with nothing else connected. Verify the gauge display screen is operating. Typically, the display will show blue icons when the temperature sensors are not connected. Power down the gauge.
  - 3) Route the gauge to junction box connecting cable (2.5m long) through the firewall to the back of the gauge. Take care to not damage the 4 pin connector and wiring.
  - 4) Connect the 4 pin cable plug into the back of the gauge. Power up the gauge and verify the engine and transmission sensor temperatures are displayed. (A “factory reset” may be required if the sensor temperatures are not displayed correctly)
  - 5) Install the engine and transmission temperature sensors to the locations you have selected.
  - 6) Stick the plastic junction box (using the 3M double sided pad) to a suitable location away from heat and electrical noise sources.
  - 7) Finally, power up the gauge and check the icons and temperatures are displayed.

- 8) Set the engine and transmission temperature warning and alarm as required.

## Resolving Problems

### 1) Nothing is displayed on the gauge – screen is blank

- Remove the 4 pin plug and check if the gauge display works with just power connected. If the display then works, there is a short in the sensor cabling. If there is no display, the gauge is faulty. Please contact Gauge Innovations for assistance.

### 2) The gauge is showing flashing red icons, the alarm is sounding and the temperatures are showing as three asterisks “\*\*\*”

- This display indicates that the gauge is not receiving temperature signals from the sensors. Check the 4 pin plug on the back of the gauge and sensor cabling for loose or faulty connections. If required, please contact Gauge Innovations for assistance.
- A “factory reset” may also be required to restore the gauge configuration and sensors.

### 3) The gauge only displays the engine icon

- This display may show after a factory reset and indicates that the gauge was not able to detect both the engine and transmission sensors. Check the 4 pin plug and sensor cabling for loose connections. If required, please contact Gauge Innovations for assistance.

### 4) Cleaning the gauge

- Use a soft cloth (eg glasses cloth) or lens brush to clean the gauge. Don't use any harsh cleaning chemicals . isopropyl alcohol (ie glasses cleaner) is ok.

Gauge Innovations : Support Contact details

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## Temperature Gauge Overview

**Overheating can permanently damage your engine and transmission/gearbox. Monitor and provide early warning of overheating with a visual and audible temperature alarm you can set.**

### Why do you need a gauge to display and alarm engine and transmission temperatures?

Standard temperature indicators sometimes provide engine temperature information. But if you're focused on driving, you may miss the indicator going into the **RED** until it is too late and your engine or transmission is damaged.

Often standard indicators only measure the engine coolant water temperature. If your engine water is lost or the level drops for any reason, many indicators won't show that the engine is overheating. You may not be aware that your engine is being damaged.

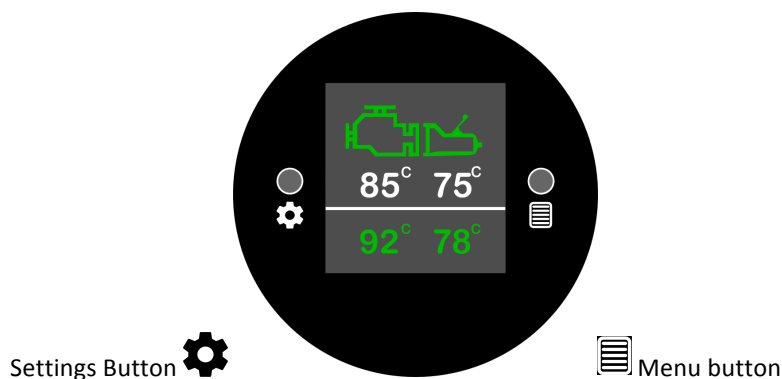
Most vehicles do not have an indicator showing transmission temperature. If you are 4WD'ing or towing a caravan, boat, trailer etc, your transmission and engine will be working hard, increasing the temperature. The temperature of the transmission can also become excessive during high speed highway driving. If you are not aware of your actual transmission temperature, you have no way of knowing whether it is being damaged by excessive heating.

This gauge allows you to monitor and set alarms for both the engine block and transmission housing temperatures during all driving conditions. The temperature gauge uses digital technology and has a full colour screen to display temperatures, settings and alarms. The display and settings can be in Celsius or Fahrenheit (option).

You can set **SAFE** engine and transmission temperature levels which the display will show in **GREEN**. By setting the **MAXIMUM** temperature levels, an audible alarm and flashing **RED** display will be triggered if the maximum temperature is exceeded. If the temperature is above **SAFE** but below the **MAXIMUM**, the display will show an **AMBER** warning. If the engine or transmission temperatures are below freezing, the gauge display will show **BLUE**. The gauge can also show the highest engine and transmission temperatures reached since the gauge was powered on.

The gauge dimensions and bezel conform to the 52mm diameter automotive gauge standard, so the gauge can be easily mounted in gauge housings or pods.

There are two gauge buttons - **Menu** and **Settings**. The steps required to set the temperature alarms, adjust the screen brightness etc are easy to follow.



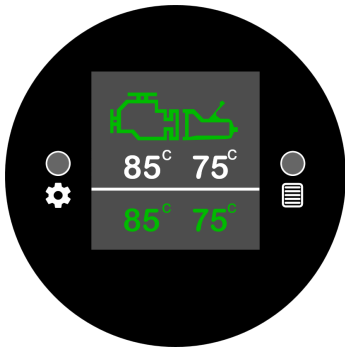
Simulated gauge display showing both engine and transmission temperatures are safe.

Highest temperatures have also been safe.

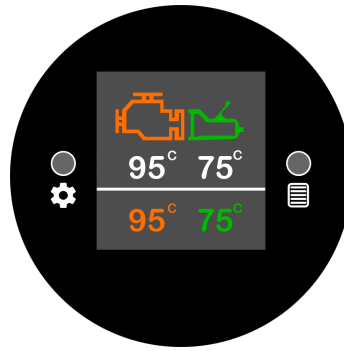


**To restore the gauge to factory default settings** - Press and hold the Settings button while the gauge is being powered on.

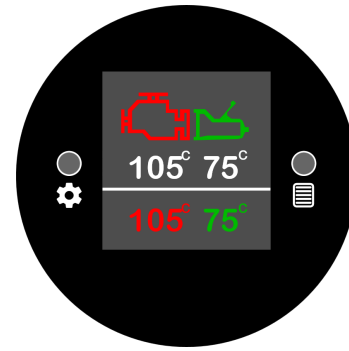
## Simulated Gauge Displays



Normal Safe Level



Warning Level



Alarm Flashing and Audible

Note: Values in the above displays can be set to your preferences

## How it Works

The gauge receives continuous engine and transmission temperature measurements from two digital temperature sensors mounted directly on the engine block and transmission housing.

Each digital temperature sensor can measure temperatures from -55°C to +125°C (-67°F to +257°F). The gauge displays temperatures in one degree increments.

The gauge checks the measured temperature against two temperature levels (SAFE and MAXIMUM) which are set separately for the engine and transmission.

- SAFE temperature. An engine (or transmission) temperature at or below SAFE is normal operation.
- MAXIMUM temperature. An engine (or transmission) temperature at or above the MAXIMUM will flash a **RED** display and trigger the audible alarm. The alarm will also be triggered if the gauge cannot receive a temperature reading from either sensor.

The SAFE temperature setting must be lower than the MAXIMUM temperature setting. An engine or transmission temperature in the range between SAFE and MAXIMUM is displayed as a warning in **AMBER**. By pressing the Settings button, the gauge will display the highest engine and transmission temperatures reached since the gauge was powered on.

For example, in the 3 simulated gauge displays above, the SAFE level is 90°C and the MAXIMUM level is 100°C. The warning range is 91°C to 99°C.

The gauge display icons, settings and colours used are clear and easy to understand. One glance at the gauge and, if the display is **GREEN**, all is normal.

### Options

- Celsius and Fahrenheit temperature standards are supported. Please nominate the standard you require when ordering or email [gaugeinnovations@gmail.com](mailto:gaugeinnovations@gmail.com) for advice on how to change standard.
- Two waterproof digital temperature sensors marked engine and transmission (blue stripe on the sensor) are supplied with the gauge. If you do not want to install the transmission sensor, you can set the gauge to display only the engine temperature. This is done by leaving the transmission sensor disconnected inside the junction box and restoring the gauge to factory settings once (refer to the Menu and Settings Summary). If you install the transmission sensor later, restore the gauge to factory settings again and the gauge will display both engine and transmission temperatures.
- Replacement sensors or sensors with longer cables are also available by emailing [gaugeinnovations@gmail.com](mailto:gaugeinnovations@gmail.com).

The gauge has been designed, developed, manufactured and extensively road tested in Australia. It is backed by a 12 month, return to manufacturer warranty against manufacturing defects.

As further enhancements become available, wherever practicable, gauge owners will be offered an option to upgrade.

The firmware, icons etc can also be modified to suit particular requirements. If you have a special requirement or a suggestion for improvement, contact us by email at [gaugeinnovations@gmail.com](mailto:gaugeinnovations@gmail.com).

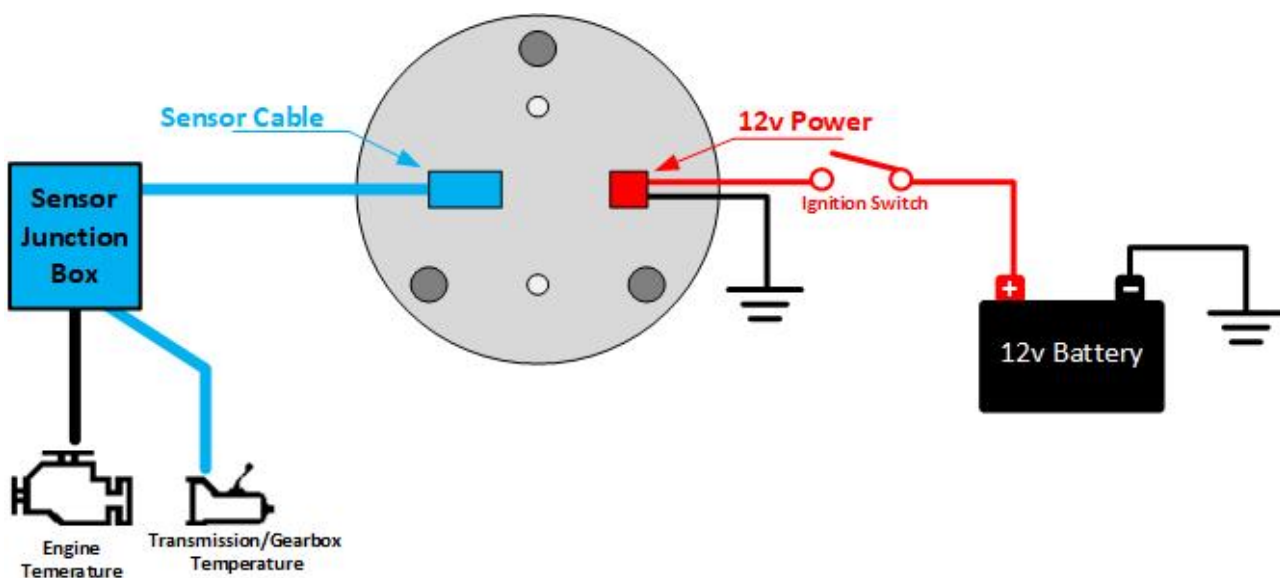
# Installation

## What's in the box

- Temperature Gauge 52mm diameter, 47mm long, bezel 57mm diameter.
- U shaped gauge mounting bracket for automotive style gauge pods and housings.
- Power connector plug and cable 12v DC. Red is positive, Black is negative chassis ground.
- Two waterproof digital temperature sensors including cables and connectors. Engine sensor ( 1 meter cable). Transmission sensor (2 meter cable marked with a **BLUE** strip).
- Junction box to mount under the vehicle bonnet.
- A cable (2.5 meters) with a plug at each end to connect the gauge to the junction box (normally through the firewall) 4 pin plug is at the gauge end, 3 pin plug at the junction box end.

Gauge installation is straightforward. Only two connections are required:

- One plug for power (2 wire, positive and negative)
- One plug for the temperature sensor junction box (single cable to run through the firewall)
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Wiring Diagram (gauge rear view)

The gauge requires 12 volts DC to operate. This should be from a switched power source that is activated by the ignition key. The gauge requires less than 25ma current during normal operation.

For best viewing, avoid installing the gauge where it will often be in direct sunlight.

The cable from the gauge to the sensors will need to be run to the central junction box located under the bonnet. Normally this will be through the firewall. Loop and secure any excess cable length.

The junction box under the bonnet is secured in a convenient location where the sensor cables can be connected.

In the case of 4WD vehicles, the junction box should be located where it will not be submerged if driving through water. Alternatively, the junction box and cable entry points can be sealed using silicone or similar material.

The temperature sensors are mounted using an existing M8 bolt located on the engine block and transmission housing where the temperature will be measured. It is important that a mounting point bolt for each sensor is used which:

- Will provide reliable measurement of the engine block or transmission housing temperature.
- Is well away from any other sources of heat such as exhausts, turbos etc.
- Is protected from mechanical damage to the sensor or its cable
- Is well away from sources of excessive electrical noise (e.g. spark plugs, distributor and two-way radios)

NOTE: You should not swap the engine and transmission sensors. If you do, the engine and transmission temperature display will be reversed.

## Temperature Gauge Menu and Settings Summary

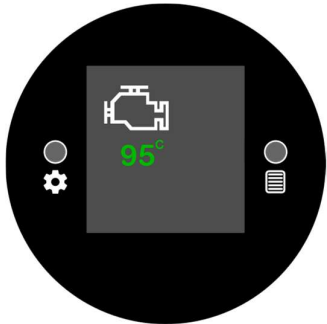
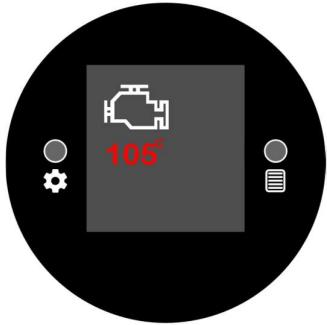
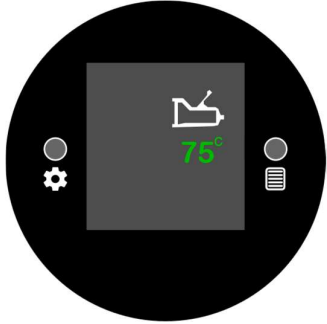






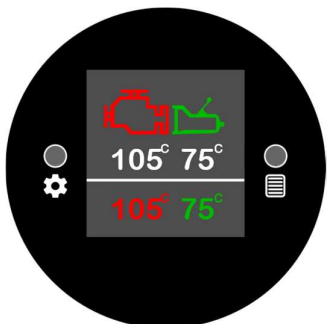
**Menu button** cycles through the gauge settings screens.



**Settings button** increases a setting. Press and hold to rapidly increase a setting. The setting value will only increase until it reaches the maximum value and then loop back to the lowest value where it will begin to increase with every press of the button.

Press the Menu or Settings button to silence an audible alarm.

	<p><b>1) SET THE HIGHEST SAFE ENGINE TEMPERATURE</b></p> <p>Press and release the Menu button.</p> <p>Press the Settings button to adjust the highest SAFE engine temperature. Range 0°C to 125°C (257°F).</p>
	<p><b>2) SET ENGINE MAXIMUM ALARM TEMPERATURE</b></p> <p>Press and release the Menu button again.</p> <p>Press the Settings button to adjust the engine MAXIMUM alarm temperature. The range will be from SAFE to 125°C (257°F).</p>
	<p><b>3) SET HIGHEST SAFE TRANSMISSION TEMPERATURE</b></p> <p>Press and release the Menu button again.</p> <p>Press the Settings button to adjust the highest SAFE transmission temperature. Range 0°C to 125°C (257°F).</p>
	<p><b>4) SET TRANSMISSION MAXIMUM ALARM TEMPERATURE</b></p> <p>Press and release the Menu button again.</p> <p>Press the Settings button to adjust the transmission MAXIMUM alarm temperature. The range will be from SAFE to 125°C (257°F).</p>

	<p><b>5) SET SCREEN BRIGHTNESS</b></p> <p>Press and release the Menu button again.</p> <p>Press the Settings button to adjust the screen brightness.</p>
	<p><b>6) TURN AUDIBLE ALARM ON/OFF</b></p> <p>Press and release Menu button again.</p> <p>Press the Settings button to turn the audible alarm on or off.</p> <p><b>NOTE: If the audible alarm is turned off, there will be no audible warning of engine or transmission temperature alarms. Please remember to keep the audible alarm setting on whenever you drive.</b></p>
	<p><b>6) SAVE SETTINGS AND RETURN TO MONITORING MODE</b></p> <p>Press and release the Menu button again.</p> <p>The gauge will also revert to the normal monitoring mode after approximately 30 seconds of no Menu or Settings button activity.</p>
	<p><b>7) DISPLAY HIGHEST ENGINE AND TRANSMISSION TEMPERATURES</b></p> <p>Press the Settings button while the gauge is in monitoring mode to toggle off/on the display of the highest engine and transmission temperatures reached since the gauge was powered on. The display is colour coded safe, warning or maximum.</p> <p>It can be useful to check the highest temperatures reached during normal operation as a guide to setting the SAFE and MAXIMUM levels.</p>



**To restore the gauge to factory default settings** - Press and hold the Settings button while the gauge is being powered on.



**To toggle between Celsius and Fahrenheit temperature standards and restore the gauge to factory default settings** hold down both the Menu and the Settings buttons while the gauge is being powered on.