

# Application

## How are fuel reports calculated in Geotab?

There are several different methods that the GO device uses to calculate the fuel used from a vehicle and the method that is used depends on the vehicle type and the type of data that the device is able to maintain from it. The methods are listed below:

1. **Instantaneous Fuel Used** - This method is the most accurate method and is obtained directly from the engine's computer. It is commonly found on all GM vehicles with CAN and on some newer CAN based OBD2 vehicles (from 2012).
2. **Total/Idle Fuel Used** - This method is similar to the first method, except it is slightly less accurate than it. This method is almost always available on vehicles with the J1708 and J1939 protocols.
3. **Mass Airflow with known fuel type** - This method calculates the fuel used by obtaining the mass airflow data from the engine and inputting it into an algorithm. This method of calculating the fuel used is less accurate but it is available on almost all vehicles.
4. **Mass Airflow with unknown fuel type** - If the GO device is unable to obtain the fuel type data from the vehicle, it will automatically default to GAS. Therefore, this method can be the least accurate because using a different fuel type alters the mass airflow to fuel used conversion slightly in the algorithm.

### Frequency of logs and fuel economy

The fuel calculation methods above are used to calculate trip fuel used and idle fuel used. Trip fuel used is saved after every ignition off event if fuel data is obtained from the vehicle. Idle fuel used is logged and accumulates when the road speed of the vehicle is zero. Once the total fuel used is known, the fuel economy is calculated by dividing the total fuel used by the distance traveled from GPS data.

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