How Do I Interpret Diagnostic Data

Link: https://help.gpsinsight.com/deep-dive/how-do-i-interpret-diagnostic-data/ Last Updated: August 17th, 2020

Are you curious about the various diagnostic data you're seeing reported from your vehicle? This article is meant to help give more insight and understanding regarding the multiple diagnostic values your device may be reporting.

Device Diagnostics

Please see the below table for the diagnostic type and a corresponding description. This data doesn't necessarily relate to your vehicle's engine diagnostics, but rather to the device's interpreted/accumulated data that can be influenced by reading the diagnostic port.

Type	Description
Max Speed	The maximum GPS speed reported from the device within its predefined update interval
Instantaneous Speed	The instantaneous speed reported from the device at the instance the device recorded the event
Trip Odometer	An interpreted value based on Vehicle Speed over Time; units = meters
External Battery Voltage	Actively monitored and reported through the A/D wiring/connection of the installation; units = ADC
Temperature	The instantaneous temperature reported from a device equipped with a temperature sensor; units = Celsius
Instantaneous Fuel Economy	An interpreted value based on ECU Vehicle Speed and ECU Fuel Rate; units = (Tenths of Km)/Liter

Vehicle Diagnostics

Please see the below table for the vehicle diagnostic type and a corresponding description. This data is directly related to the information voluntarily reported from the vehicle's ECU or otherwise polled from the vehicle on a predefined schedule.

> **Note.** Vehicle diagnostics reported from the ECU varies from vehicle to vehicle, based on vehicle make/model/year.

Type	Description
Engine Speed	The instantaneous RPM value reported from the vehicle's ECU at the instance the device recorded the event; units = 0.1 RPM
Fuel Level Percentage	Percentage of fuel level remaining; units = 0.01%
Fuel Level Remaining	ECU calculation on exact fuel level remaining; units = milliliters

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Type	Description
Engine Coolant Temp	ECU calculation on exact coolant temperature; units = 1/16 degree Celcius
Fuel Rate	ECU calculation on the rate of fuel consumed; units = milliliters/hour
Odometer	ECU calculation on the total distance traveled; units = meters
Vehicle Speed	ECU calculation on the instantaneous speed reported from the vehicle's ECU at the instance the device recorded the event; units = centimeters/sec
Max Acceleration	The maximum ECU calculated Vehicle Speed increase over a limited and shortened duration
Max Deceleration	The maximum ECU calculated Vehicle Speed decrease over a limited and shortened duration
Diagnostic Max Speed	The maximum ECU value of Vehicle Speed recorded within a predefined interval
Max Vehicle RPMs	The maximum ECU value of RPM recorded within a predefined interval
Engine Hours	ECU calculation on the total engine run time; units = 0.05 hours
Engine State	The instantaneous engine state value reported from the vehicle's ECU at the instance the device recorded the event; units = Engine Off, Engine On
DTC Count	The instantaneous count of diagnostic trouble codes reported from the ECU at the instance the device recorded the event; units = number of current DTC codes
Engine Oil Temperature	ECU calculation on exact engine oil temperature; units = 1/16 degree Celcius
Fuel Type	The instantaneous engine state value reported from the vehicle's ECU at the instance the device recorded the event; units = Not Available, Gasoline, Methanol, Ethanol, Diesel, LPG, CNG, Propane, Electric
Hybrid/EV: State of Charge	The percent remaining level of charge; units = 0.10%
Hybrid/EV: Current Voltage	The current voltage read from the ECU on an electric or hybrid vehicle; units = Volts/Amps
Seatbelt Fastened	The instantaneous value reported from the vehicle's ECU at the instance the device recorded the event; units = Yes, No
MIL Status	Malfunction Indicator Light (e.g. engine light), the instantaneous value reported from the vehicle's ECU at the instance the device recorded the event; units = On/Off

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Type	Description
TPMS Light Status	Tire Pressure Monitor System, the instantaneous value reported from the vehicle's ECU at the instance the device recorded the event; units = On/Off
Hybrid/EV: Charging State	The instantaneous value reported from the vehicle's ECU at the instance the device recorded the event; units = Sustaining (charging), Depletion (not charging)
Tire Pressure – Left Front	The instantaneous value reported from the vehicle's ECU at the instance the device recorded the event; units = kPa
Tire Pressure – Left Rear	The instantaneous value reported from the vehicle's ECU at the instance the device recorded the event; units = kPa
Tire Pressure – Right Front	The instantaneous value reported from the vehicle's ECU at the instance the device recorded the event; units = kPa
Tire Pressure – Right Rear	The instantaneous value reported from the vehicle's ECU at the instance the device recorded the event; units = kPa
Turn Signal Status	The instantaneous value reported from the vehicle's ECU at the instance the device recorded the event; units = Off, Left, Right, Left & Right
Transmission Gear	The instantaneous value reported from the vehicle's ECU at the instance the device recorded the event; units = Park, Reverse, Neutral, Drive

*GPS = satellite interpreted data

**Some unit values reported may be converted to larger values or Imperial measurements for easier interpretation

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