

Level 3 Automated Driving

What are the levels of automation?

SAE International has defined six levels of driving automation – from Level 0 (no driving automation) to Level 5 (full driving automation). Level 3 is defined by SAE as “Conditional Driving Automation.”

What is a Level 3 feature?

A Level 3 feature relies on an automated driving system. When a Level 3 feature on a vehicle is engaged, the vehicle is operating as an automated vehicle (or AV, for short). Put another way, when the required conditions are met and a Level 3 feature is engaged, the **vehicle can drive itself**. This type of feature is different than a Level 1 or Level 2 driver assistance feature which only supports or assists a human driver.

Where can a driver operate a Level 3 feature?

A Level 3 feature is designed by the manufacturer to be **operated under certain conditions, such as those related to traffic, the roadway, or the environment**. For example, several auto companies have developed Level 3 features that are designed to operate only on highways when there is traffic congestion.

What role, if any, does a driver have when operating a Level 3 feature?

When engaged, a Level 3 feature **handles the driving** – including acceleration, braking, and steering. During this time, a **human driver has no obligation to monitor the driving environment (e.g., the roadway, other road users, etc.) or supervise the performance of the feature**. This is distinct from a Level 1 or 2 driver assistance feature which requires a human driver to both monitor the driving environment and supervise the feature’s performance the entire time that the feature is engaged.

However, a Level 3 feature requires a **licensed human driver to always be available to resume the driving task**. This is because the feature may issue a **request to intervene**, alerting the human driver that he or she will need to resume control of the vehicle shortly. A request to intervene may be issued when, for example, the required conditions for the feature are no longer met or if the feature can no longer perform the

driving task. There may also be situations unrelated to the performance of the Level 3 feature, such as a vehicle mechanical failure or malfunction, where the driver must take over driving. In these rare situations, the Level 3 feature may not issue a request to intervene. This requirement distinguishes a Level 3 feature from a Level 4 or 5 feature which can respond to these sorts of situations without the intervention of a human driver and from a Level 2 feature which must be constantly supervised by the driver.

Finally, Level 3 features are being designed to **allow a human driver to override the feature and resume full control** of the driving task at any time.

What are the benefits of a Level 3 system?

- **Near-Term Availability** - Vehicles with Level 3 features are beginning to enter the U.S. market. Since these vehicles have conventional vehicles designs, they comply with existing motor vehicle safety standards and can be made available at scale to U.S. consumers in the near term.
- **Maintaining Global Competitiveness** - The auto industry in the U.S. has long been a global leader in advanced vehicle technology, including automated features. Level 3 features, which represent a logical progression in the evolution of next-generation vehicle technology, can help ensure that the U.S. stays on the leading edge of vehicle innovation.
- **Improving Energy and Driving Efficiency** - By reducing rapid acceleration and braking, when engaged, Level 3 features have the potential to improve real-world energy and driving efficiency as compared to human drivers.
- **Easing Demands on Human Drivers** – Some Level 3 features may be designed to allow human drivers to engage in other limited activities while the feature is engaged, such as sending emails or texts, reading, or watching a video, so long as the human driver remains available to resume control of the vehicle if needed. Since the human driver does not have to stay constantly attentive to the driving environment when a Level 3 feature is operating the vehicle, some of these features may also help mitigate fatigue, stress, and distraction.