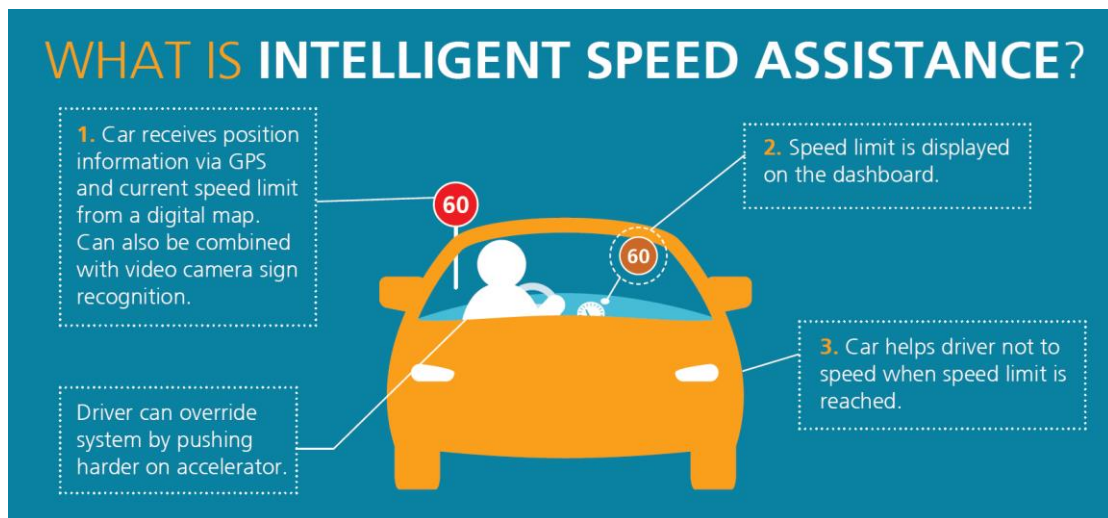


Briefing: Intelligent Speed Assistance (ISA)

September 2017

The European Commission is expected to propose the next set of mandatory vehicle safety standards for cars sold in the European Union in the coming months. ETSC is calling for Intelligent Speed Assistance to be one of the technologies that will be mandatory by 2020.



What is Intelligent Speed Assistance (ISA)?

ISA is a vehicle safety technology already available on several models of new car in EU showrooms. It uses a video camera and speed sign recognition technology usually combined with speed limit data from a digital map and GPS to advise drivers of the current speed limit and automatically limit the speed of the vehicle as needed.

What are the main benefits of ISA?

ISA is probably the single most effective new vehicle safety technology currently available in terms of its life-saving potential. A study for the European Commission found the other main positive impacts include: encouraging walking and cycling due to increased perceived safety of cars vis-à-vis vulnerable road users, a traffic calming effect, reductions in insurance costs, higher fuel efficiency and reduced CO2 emissions.¹

Tackling excessive speed is fundamental to reducing the figure of 26,000 road deaths

¹ <https://publications.europa.eu/en/publication-detail/-/publication/77990533-9144-11e7-b92d-01aa75ed71a1#>

every year in Europe. With mass adoption and use, ISA is expected to reduce collisions by 30% and deaths by 20%.

Can the system be overridden?

Yes. ETSC recommends fitting ISA systems that can be overridden temporarily.

Example: a driver is carrying out an overtaking manoeuvre to pass a lorry on a motorway at the same time as a decrease in the speed limit is encountered. In this case, the driver could temporarily override the lower speed limit and complete the manoeuvre at a higher speed by depressing the accelerator down hard to signal to the system that the limiter should be temporarily disabled. If the driver continues to drive above the speed limit for several seconds, the system should display and sound a warning. Once the vehicle is operating at or below the speed limit again, the override state should be cancelled and normal functionality should resume.

ETSC also supports a full on/off switch for the system, to aid public acceptance at introduction. However the system should be on by default and any temporary switched off state should remain only until the vehicle is restarted. Switching off the system should require the user to hold down the button for several seconds to avoid accidental switch off.

For lorries, buses and vans ETSC recommends a slightly different approach. Lorries and buses already have mandatory top speed limiters². These should remain, accompanied by ISA that is overridable at speeds below the top speed limit. ETSC believes that a new top speed limitation of 100km/h should be introduced for vans, also accompanied by overridable ISA for lower speeds.

Will the vehicle brake when it detects a lower speed limit?

No, the ISA system we recommend does not apply the brakes to reduce speed. When the vehicle encounters a lower speed limit it should display a visual warning to the driver. It is then the driver's responsibility to brake to reduce the speed appropriately. If the driver does not apply the brakes, the vehicle would in any case slow down naturally to the new speed limit by reducing engine power. This is the equivalent of the driver lifting his or her foot off the accelerator.

The driver may encounter automatic braking while using ISA if an automated emergency braking (AEB) or adaptive cruise control (ACC) system is also in operation on the vehicle.

² Top speed limiters for lorries and busses come under existing EU legislation: 2004/11/EEC <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32004L0011>

What happens if the vehicle limits the speed incorrectly?

ISA is a driver assistance technology: the driver, not the car, is responsible for obeying the current speed limit at all times.

Speed-sign recognition technology is improving rapidly. It should be possible to detect the current speed limit at a high level of accuracy including temporary speed limits, digital signs, overhead signs and the like. Similarly, over-the-air updates of speed limit information stored in the car is possible, especially now that all cars have to have the built-in communications technology required for the eCall system. In the limited number of cases where the car limits the speed incorrectly to a lower speed than is actually permitted, the driver would be able to override. Conversely, if the vehicle sets the limit higher than is actually permitted, then the driver would be responsible for ensuring that he or she does not exceed the speed limit.

The car industry is rapidly developing automated driving functionality where the ability of the car to obey the current speed limit will be essential and the carmaker will be responsible for any error. ISA's rapid adoption will therefore aid development of a robust approach.

Can I already buy a car with ISA fitted?



Yes, several manufacturers already sell cars in Europe with various implementations of ISA including Ford, Mercedes-Benz, Peugeot/Citroen, Renault and Volvo. The image on the left shows the ISA display on the dashboard of the current generation Ford S-Max.

Euro NCAP, the consumer safety rating organisation, gives points³ for vehicles that include ISA. .

Is ISA an expensive technology?

No. Most of the technology required for ISA is already becoming standard on new cars anyway. All cars will soon have GPS built-in, a requirement of the mandatory eCall emergency calling system in the EU. Many new cars also come fitted with a forward-

³ <https://www.euroncap.com/en/vehicle-safety/the-ratings-explained/safety-assist/speed-assistance/>

facing camera, required for technologies such as lane guidance and automated emergency braking. The majority also already have manually set speed limitation functions, so automating this feature is a natural next step. A recent cost assessment for the European Commission found that a camera-based system, shared between several systems such as Automated Emergency Braking (AEB), Lane Keeping Assistance (LKA) and Intelligent Speed Assistance (ISA), would cost in the range of €47–62 per vehicle. The total cost for components (camera, ECU, brackets, trim, wiring) and OEM design and development, tooling costs, etc. was estimated at €186–249, based on individual costs extracted from NHTSA, 2012.⁴

A report for the Commission by consultants TRL has found ISA to be ‘feasible in terms of the technology required’, already available on the market and offering a positive benefit-cost ratio.⁵

Do drivers like ISA?

ISA has been trialled on the road in eleven EU member states and, while drivers take a short time to adjust to the technology, the great majority appreciate it. One obvious benefit, as Ford has pointed out in a recent marketing campaign, is that it helps drivers avoid speeding tickets.⁶

>> Watch ISA in action on our website at [etsc.eu/isa](https://www.etsc.eu/isa)

⁴ <https://publications.europa.eu/en/publication-detail/-/publication/77990533-9144-11e7-b92d-01aa75ed71a1>

⁵ <https://publications.europa.eu/en/publication-detail/-/publication/47beb77e-b33e-44c8-b5ed-505acd6e76c0>

⁶ <http://social.ford.co.uk/could-this-spell-the-end-for-speeding-tickets/>