

## Press Release

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# The all-new Volvo S40: IDIS helps the driver avoid distractions in busy situations

- The electronic secretary
- Delays incoming calls in busy driving situations
- Prepared for a future with more on-board information and safety systems

IDIS (Intelligent Driver Information System) is an innovative feature introduced by Volvo in the all-new Volvo S40. IDIS helps the driver prioritise the information in the car depending on the current driving situation.

If necessary, IDIS steps in and delays incoming phone calls and other information until the driving situation is calmer. As such, it functions pretty much like an electronic secretary.

IDIS consists of two parts: a workload estimator and an information manager.

The workload estimator continuously monitors the driver's activity by checking on such parameters as steering wheel movement, speed variations and the turn signal indicators. This information is processed and at a certain workload level, the information manager delays the incoming information.

The driver's calculated workload level is the basis from which the information manager prioritises the flow of information in the car. Other parameters are time and the ranking of the various categories. Information vital to safety is never delayed. Nor does the driver ever lose any information – it is only presented a few seconds later, when the workload is somewhat lower.

### Measuring driver activity

In a Volvo, the Multiplex computerised electrical system contains most of the information that is supplied by various sensors and controls in the car. Examples of the type of information used to continuously calculate the driver's workload are:

Acceleration

Speed reduction

Turn signal indicators

Steering wheel angle

Reverse gear engagement

Infotainment controls

### Bridges over workload drops

When a signal exceeds its threshold value, this is known as an "event". However, it is more common for several different events to occur consecutively, with a small interval between each. In order to overcome this, IDIS has a built-in delay function that holds up the information for a short while even after a completed event. In this way, the system can detect situations where the workload drops only temporarily. The system will interpret the workload as high throughout this

situation, so information that is not safety-related will still be delayed.

### **How it works**

When coming to a T-junction, the driver is stressed by the fact that the phone rings just as he is about to enter the junction. Although the traffic situation requires all his concentration, he still answers the phone. If only just to silence it.

In this example, the driver is not focusing fully on safety and probably does not feel very comfortable with the situation.

With IDIS in the car, the driver simply does not receive the incoming call while he is negotiating the junction. IDIS accepts the call but silences it and delays alerting the driver until he has completed his turn and his workload is lower.

### **Calls delayed for up to five seconds**

With IDIS activated, phone calls can be delayed for up to five seconds. After that, calls are handled in the same way as if the driver were already speaking on the phone, that is to say by either issuing a "busy" signal or by transferring the call to a voice-mail function, depending on the settings registered with the operator.

In the event of call transfer, the driver always receives a message that he has missed a call. That message will be displayed once his workload has lessened.

### **Helps the driver prioritise**

The only information that comes through the information manager in high workload situations is time-critical safety-related messages. Information such as car messages, incoming SMS text messages and incoming phone calls is delayed accordingly.

The system is designed to help the driver concentrate on the road in tricky situations.

IDIS is fitted in all new Volvo S40 models and it is always active unless manually disengaged. The driver can also choose to disengage only the phone's IDIS function.

With the IDIS method of handling phone calls, Volvo takes a further step towards safer use of in-car phones.

### **Increasingly useful in the future**

The input used today is sufficient to manage the information being handled in the new S40. As more information is channelled into the system, there will be heightened demands concerning calculation of the driver's workload.

Volvo will continue to focus sharply on the development of these forthcoming generations of IDIS.

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