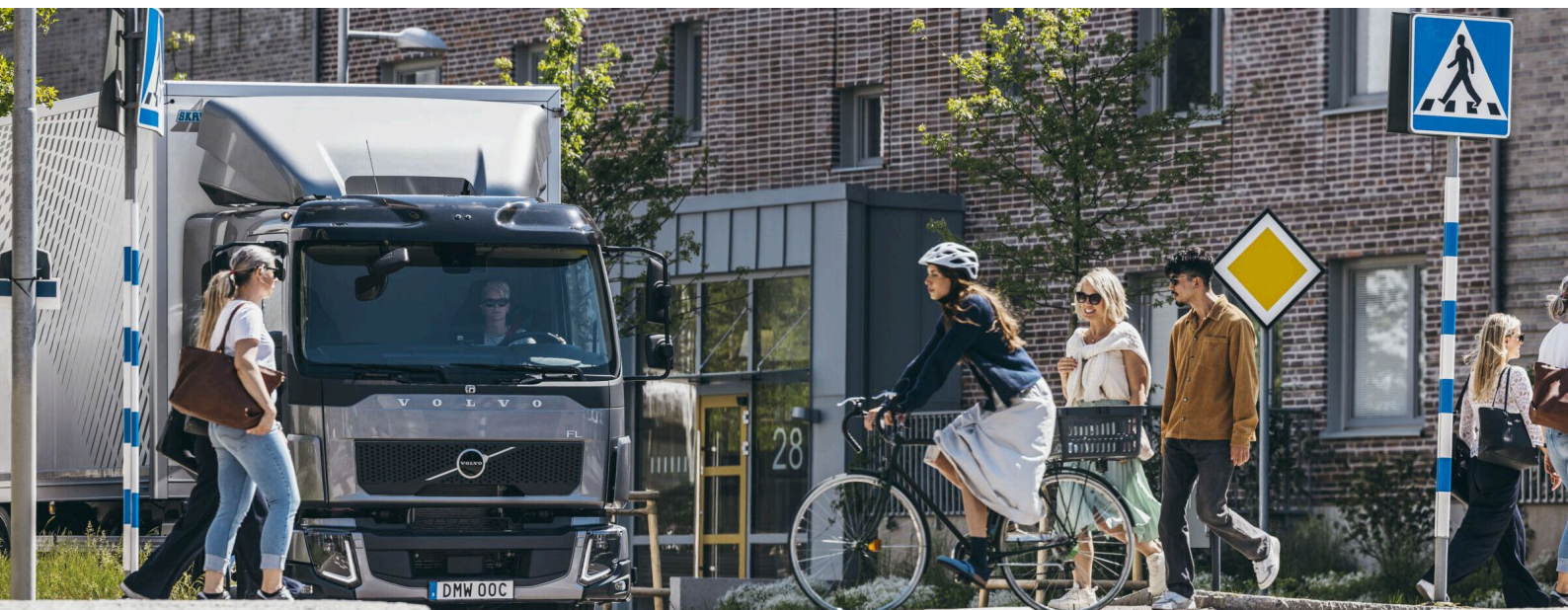


FACT SHEET

# DRIVING SUPPORT



## Driving support

Driving support is a collective term for various help systems that support the driver while driving.

The systems use both radar and camera to collect information.

## Sales variants

### Side Collision Avoidance Support

**LCS4** Side Collision Avoidance Support, passenger and driver side

**LCS5** Active Side Collision Avoidance Support, both sides, with emergency braking (active for passenger side only)

### Driver Alert Support

**DAS-W** Driver Alert Support

**DAS-W2** Driver Alert Support

### Lane Keeping Support

**LSS-DW** Lane Keeping Support



## SAFETY

- Improved safety in both city and motorway driving.
- An alert sound and pop-up will prompt the driver to refocus when driver distraction is detected.
- Detects vulnerable road users.
- Reduce the risk of accidents and collisions.
- Fulfils UN/ECE requirements.



## DRIVER APPEAL

- Easy and logical to handle.
- Audio and visual collision warning.

## FACT SHEET

# DRIVING SUPPORT

	LCS4 <sup>1</sup>	LCS5 <sup>1</sup>	DAS-W <sup>2</sup>	DAS-W2 <sup>2</sup>	LSS-DW <sup>2</sup>
Monitors the area on the passenger side	•	•	—	—	—
Monitors the area on the driver side	•	•	—	—	—
Detects vulnerable road users	•	•	—	—	—
Emergency braking	—	•	—	—	—
Monitors driving behaviour	—	—	•	•	—
Monitors deviation from driving lane	—	—	—	—	•
Uses radar technology	•	•	—	—	—
Uses camera technology	—	—	•	•	•
Activation speed	0 km/h	0 km/h	65 km/h	18 km/h	60 km/h

• Included, — Not available.

<sup>1</sup> Requires headway support system HWSS-FCB or HWSS-ACB and Lane Keeping Support LSS-DW, or headway support system HWSS-CW.

<sup>2</sup> Requires headway support system HWSS-FCB or HWSS-ACB and Side Collision Avoidance Support LCS4.

### Side Collision Avoidance Support

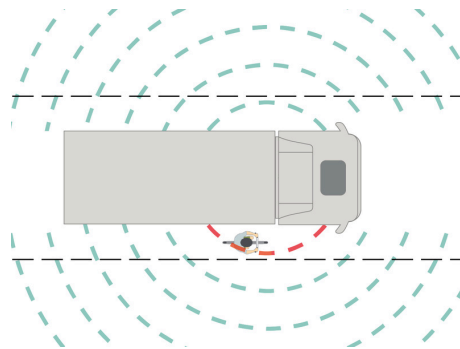
Side Collision Avoidance Support (LCS4) and Active Side Collision Avoidance Support (LCS5) assist the driver in preventing blind spot accidents with vulnerable road users when turning. It is part of Volvo's wide range of safety-enhancing systems and it complies with the EU General Safety Regulation as well as applicable UN regulations, such as R151.

LCS5 comes with the additional Emergency Braking feature. When the truck is making a turn with the turn indicator on, and a vulnerable road user is detected and the driver does not brake, the system will automatically activate Emergency Braking to avoid an accident. Note that this feature only applies to objects detected on the passenger side even for LCS5.

The system uses radar technology to monitor the area close to the truck, on both the passenger side and the driver side. The monitoring is done by a sensor unit with two radars - one forward-looking and one rearward-looking - that is placed in the chassis area near the mudguard of the first front axle.

The system monitors the area close to the vehicle, along the full length of the truck or vehicle combination, and also the side area forward of the cab.

In this area, Side Collision Avoidance Support can detect both other vehicles (trucks, cars, motorbikes, etc.) and vulnerable road users (cyclists, pedestrians, etc.). The Side Collision Avoidance Support system does not detect stationary objects or objects that are too slow or too small.



Side Collision Avoidance Support monitors the area close to the truck and can detect vulnerable road users.

The detection of other vehicles is functional at all speeds of the own vehicle. Vulnerable road users, moving at a speed of approximately from 2.5 km/h to 20 km/h, can be detected when the speed of the own vehicle is 30 km/h or below.

The system has two alert levels - information and warning. At the first alert level, information, Side Collision Avoidance Support has detected an object in the monitored area and decided that the object could be a potential risk if the driver decides to change lanes. To inform the driver about the potential risk, a static light comes on in the A-pillar that is closest to the object.

## FACT SHEET

# DRIVING SUPPORT



A static light in the A-pillar informs the driver that an object is detected on the side of the truck.

Below the light in the A-pillar is the Driver Alert Support system, designed to prevent accidents caused by tired or distracted drivers.

The second alert level, warning, is activated when the driver turns on the direction indicator on the side where the detected object is located. If the object is still considered a risk, the light in the A-pillar will blink, and a short acoustic warning will sound from the speaker closest to the object.

The warnings at the second alert level can be switched off with a switch in the instrument panel.

For a more detailed description of the system's behaviour in different traffic scenarios, see Driver Guide.

**Note!** Side Collision Avoidance Support is a highly sensitive radar-based system. Therefore, it is important not to install equipment above or near the radar sensor or its coverage area, as this may affect the system's performance. Carefully follow the Volvo Body Building Instructions (VBI), chapter General.

### Front Short Range Assist

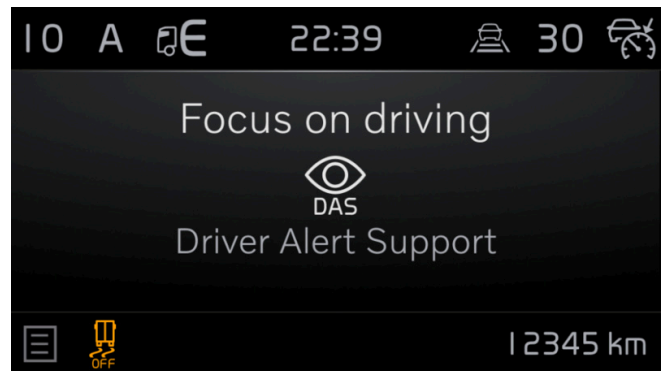
LCS4/LCS5 in combination with the headway support system (HWSS-FCB, HWSS-ACB or HWSS-CW) also includes Front Short Range Assist. It is a system that warns the driver of the presence of vulnerable road users in the close-proximity forward blind spot in front of the truck.

When a vulnerable road user is detected in front of the truck, a symbol is shown in the instrument display. The system has two alert levels - information and warning. At the first alert level, information, the symbol comes on with a steady light. At the second alert level, warning, the symbol flashes and an acoustic warning is emitted.

The warning can be switched off with a switch in the instrument panel. The same switch can be used to toggle the system on or off.

### Driver Alert Support

Driver Alert Support (DAS-W or DAS-W2) is a system that is designed to prevent accidents caused by tired or distracted drivers.



Driver Alert Support improves the safety by reducing the risk of accidents caused by driver inattention or distraction.

The system monitors the driving behaviour and the position of the truck in relation to the lane and road edges. It detects the typical characteristics of a drowsy or distracted driver and encourages the driver to focus on driving. If erratic driving behaviour is detected, the system warns the driver through visual and acoustic messages to focus on driving. The radio is automatically muted when these warnings are presented.

The DAS-W2 includes all the functions of DAS-W, plus it uses a camera that has driver eye tracking to detect drowsiness and driver distractions.

No driver behaviour will be recorded in the vehicle or sent to the back office. Deviation messages will be logged in the safety report, but no video footage will be captured by the camera.

DAS-W2 is also steering wheel position dependent.

The system is switched on automatically when the ignition is turned on. For DAS-W, it is active at speeds above 65 km/h, while the DAS-W2 is active at speeds exceeding 18 km/h.

The system can be switched off via the menu in the instrument panel display.

Driver Alert Support uses input from the same components as the headway support system and Lane Keeping Support. Hence, Driver Alert Support requires HWSS-FCB or HWSS-ACB and LCS4.

If necessary reference data such as lane or road edges cannot be detected, Driver Alert Support will be deactivated and a warning is displayed in the instrument display.

## FACT SHEET

# DRIVING SUPPORT

DAS-W2 will be standard on all trucks within EU markets. For markets outside of the EU, it is optional to choose between DAS-W and DAS-W2.

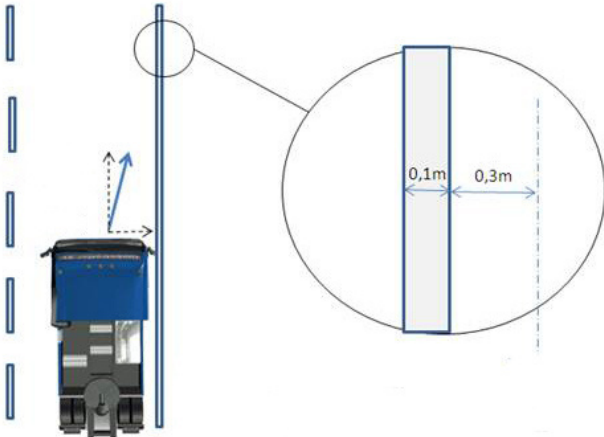
The function is intended for use on major roads outside cities and is active at speeds over 60 km/h. When adaptive cruise control is active, the Distance Alert will be inactive.

### Lane Keeping Support

Lane Keeping Support (LSS-DW) is a system with the task to alert the driver during unintentional lane departures.

The system alerts where unintentional deviations from the lane departure can result in accidents. The system uses a camera positioned in the upper centre area of the windscreen and alerts the driver with an acoustic signal from the speakers.

Lane Keeping Support provides a warning when the outer edge of the front wheel's tyre (closest to the lane markings) crosses a line located 0.3 metres beyond the visible lane marking to which the truck is drifting (see picture).



Lane Keeping Support alerts the driver during unintentional lane departures.

The system operates at speeds from 60 km/h and can be switched off/on with a switch in the instrument panel.

The system is switched on automatically when the truck is started.

**Note!** The function is not available on narrow roads. The minimum lane width equals the truck width + 0.2 m.

### Distance Alert

(Included in HWSS-FCB and HWSS-ACB)

The Distance Alert part of Forward Collision Warning (FCW) makes it easier for truck drivers to keep a safe distance to the vehicle ahead and avoid critical situations. Distance Alert warns drivers with an acoustic signal from the speakers.