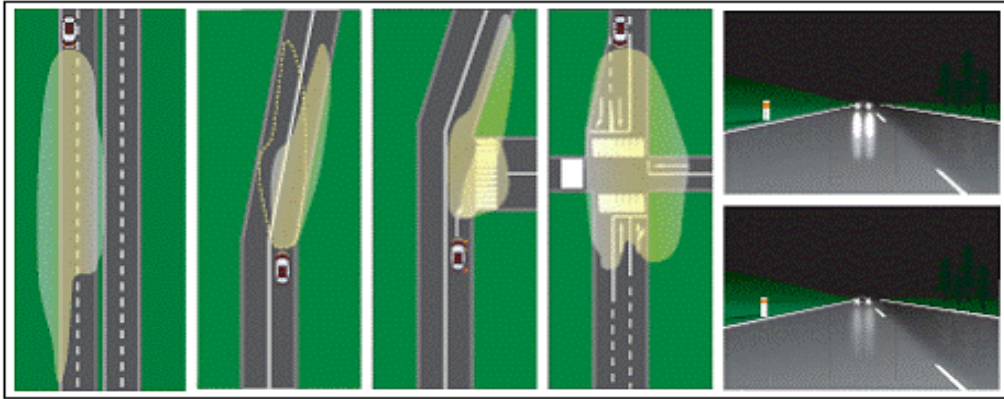




## SUSTAINABLE DEVELOPMENT

### AFS: Lights that adapt to the situation



*The diagrams show the ways in which AFS lights shine in various conditions  
From the left: in the Intercity, Cornering, Turning and City regimes, as well  
as the Rain function*

The second generation Superb brings Škoda cars a number of quite new technical solutions. One of them is the AFS adaptive front lighting system.

The abbreviation AFS stands for adaptive front lighting system. The front lighting management system makes use of the option of changing the alignment of the light from headlamps, and therefore adapting the lighting in front of the car to various driving situations. This highly developed system is supplemented by functions for cornering headlamps, turning lights and a function that dynamically regulates headlamp inclination. Merging these functions led to a sophisticated system of dynamically changing road lighting that significantly increases the safety of driving, as a driver can react earlier to better-illuminated barriers. The AFS system is supplied solely with xenon headlamps, which provide dimmed and long-distance lighting. If needed, a driver can turn the system off and use ordinary dimmed and long-distance lighting from the main headlamps. The principle of the AFS system consists of the horizontal and vertical turning of both main headlamp modules depending on the car's speed. At slower speeds, the main headlamps are supplemented by turning lights in the form of fog lamps with corner functionality.

If AFS is switched on, it works in several different regimes. The Intercity regime most closely resembles ordinary dimmed lighting. Unless another regime is activated, lights shine in this regime. The right and left-hand headlamp modules are in the basic position. It is active at speeds between 0 to 15 km/h and 50 to 90 km/h.

In City regime the distribution of the lighting is wider and shorter than in the Intercity regime. When driving slower, for example in a city, a long illuminated area is not needed; what a driver needs to see is pavements and crossroads. The right-hand module is in the basic position and the left-hand module is turned more to the left and inclined in such a manner that it does not blind an oncoming driver, but illuminates the whole road and the adjacent pavements. This regime is activated by a car's speed and a time delay, so if the activation conditions are met, this regime can be activated outside a city too. It is active at speeds between 15 and 50 km/h.



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When driving fast along the motorway, it is, on the contrary, necessary to illuminate a long area on the right-hand and left-hand lanes. Whereas the left-hand module of the headlamps is turned up and slightly to the left of its basic position, the right-hand module is only raised slightly, and each of the modules is raised to a different value. The Intercity regime moves gradually into the Motorway regime, so that the change to the lighting is smooth and natural. It is active at speeds from 90 km/h, but has its maximum effect over 120 km/h.

The Rain function is for driving in reduced visibility, for example in the rain or in heavy snow. The lighting is wider and shorter than in the Intercity regime. The right-hand module is inclined down and the left-hand to the left and down. This distribution of the lighting limits the risk of blinding oncoming drivers with light reflected from the wet road. The activation of this regime depends on the car's speed and also the use of windscreen wipers for more than two minutes. For safety reasons this regime is limited to speeds of between 0 and 70 km/h, so that there is a sufficient illuminated area at higher speeds. It is automatically switched off if the speed boundary is exceeded, or if the windscreen wipers are inactive for more than eight minutes. In addition to the ability to adapt the illuminated area to the current driving situation, the main headlamps, or rather their turning modules, have a function for lighting corners that the car is turning round. Based on the steering wheel's angle of turn and the car's speed, the control unit gives a signal to turn both modules in the direction in which the car is turning, which leads to better lighting of the corner and the option of a faster reaction to unforeseen obstacles. Front fog lights with a corner function also illuminate the space into which the car wants to turn. This better illuminates bends with a small radius, adjacent pedestrian crossings and parking spaces.

The AFS adaptive front light system increases the crew safety as well as the immediate environment of the car. Skoda Auto thus permanently contributes to the sustainable development of the society.

Text: ŠKODA MOBIL; Photo: ARCHIV

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