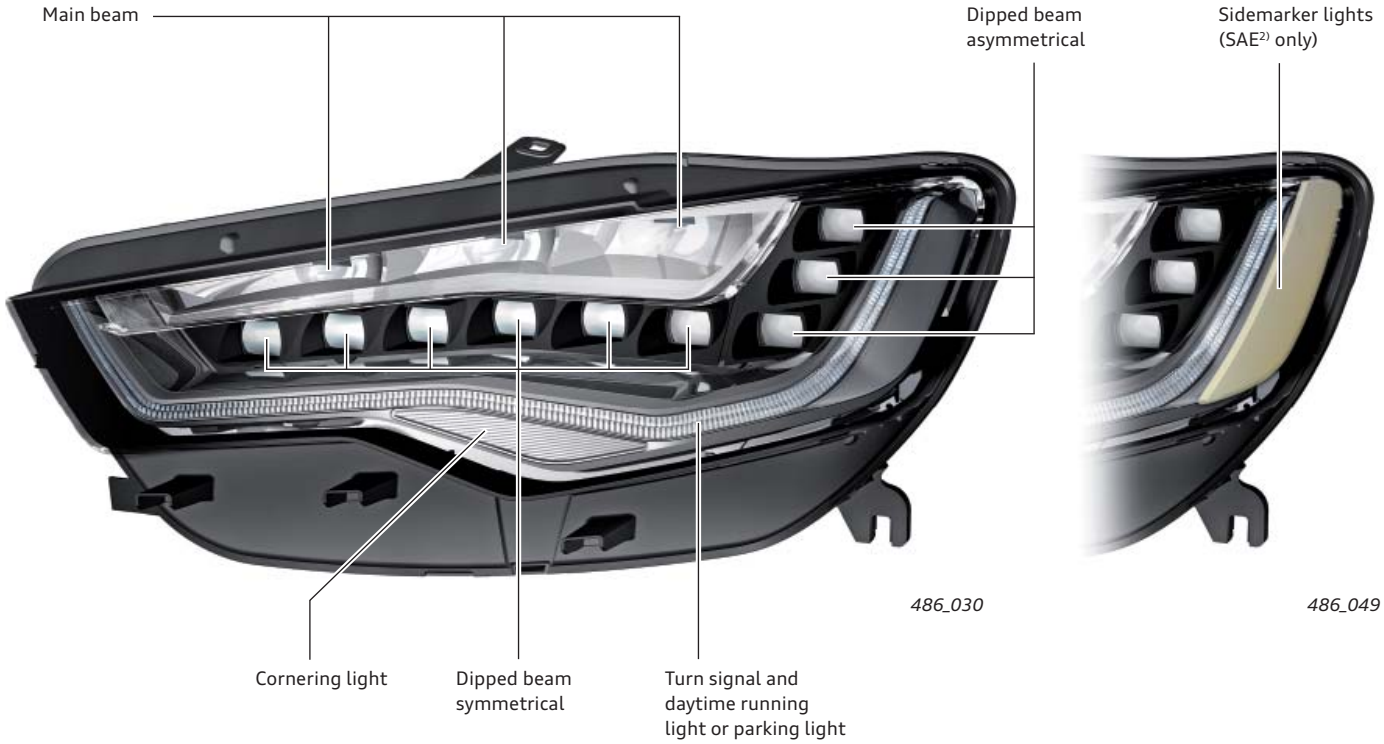
LED headlight

The LED headlight of the Audi A6 ’11 uses LEDs for all light functions. An LED headlight accommodates a total of 54 LEDs (or 57 in the SAE[2)] version) together with the accompanying heat sinks. A fan integrated in the headlight prevents the electronic components from overheating.

Reflectors or projection modules are used depending on light function. Thick wall technology is used for daytime running lights, parking lights and turn signals in order to ensure that these light functions have a homogeneous appearance.



LED headlight – light functions

Light functions	Illuminants used
Parking light	24 LEDs (white, dimmed)
Daytime running light	24 LEDs (white)
Turn signal ECE[1)] (activated by power module 2)	24 LEDs (yellow)
Turn signal SAE[2)] (activated by power modules 2 and 4)	2x 12 LEDs (yellow)
Dipped beam	14 LEDs (5 dual-LED chips and 4 single LEDs)
Main beam	12 LEDs (1 4-LED chip, in addition to dipped beam)
Motorway light	14 LEDs (5 dual-LED chips and 4 single LEDs)
Cornering light (one side)	4 LEDs (1 4-LED chip, in addition to dipped beam)
All-weather light (both sides)	4 LEDs (1 4-LED chip, in addition to dipped beam (reduced by 2 LEDs))
Tourist light (for driving on opposite side of road)	6 LEDs
coming home / leaving home	14 LEDs (5 dual-LED chips and 4 single LEDs)
Sidemarker lights[1)]	3 LEDs (white, with yellow reflector lens)

The all-weather light function is available for vehicles with LED headlights. On these models, the installation space for the ACC sensors is free and adaptive cruise control (ACC) is available.

In the SAE version, the 24 LEDs are subdivided into two groups of 12 LEDs for the turn signals and are activated by power modules 2 and 4. The reason for this is the higher current applied to the LEDs due to statutory requirements.

[1)] ECE = for the European market

[2)] SAE = for the North American market

486_103

Daytime running light / parking light

The daytime running light and parking light are produced by 24 white LEDs. They are activated by a pulse width modulated (PWM) signal. The LEDs are dimmed for the parking light function.

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Turn signal

The turn signal is produced by 24 yellow LEDs. When a turn signal is activated, the LEDs of the daytime running lights are switched off.

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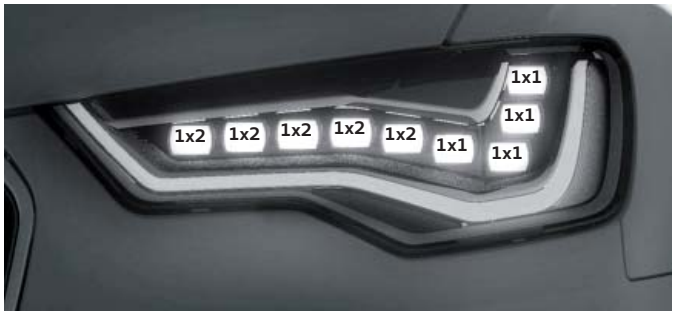
Dipped beam

The dipped beam is produced by nine projection modules with a total of 14 LEDs. The LEDs of the daytime running lights are dimmed to parking light level.



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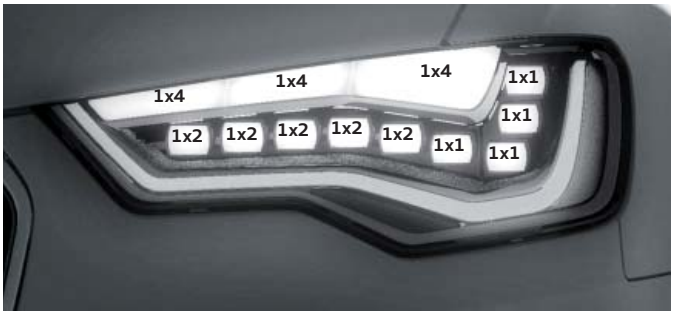
Main beam

For the main beam function, three 4-LED chips are activated in addition to the LEDs of the dipped beam and the parking lights. The main beam can be activated with the main beam stalk or by the main beam assist function.



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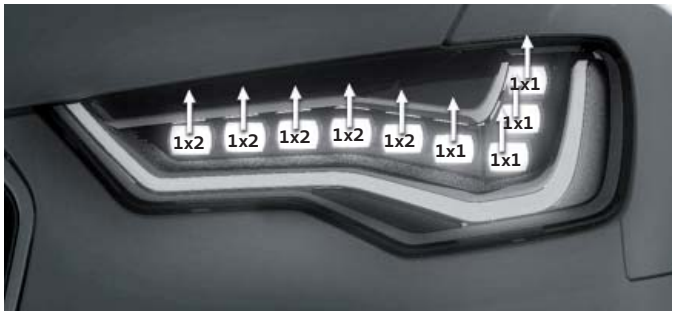
[1] ECE = for the European market

[2] SAE = for the North American market

Motorway light

For the motorway light, the light-dark boundary of the dipped beam is raised by the headlight range adjustment servomotor. The motorway light is activated when the speed is higher than 110 kph for an extended period of time or immediately if 140 kph is exceeded.



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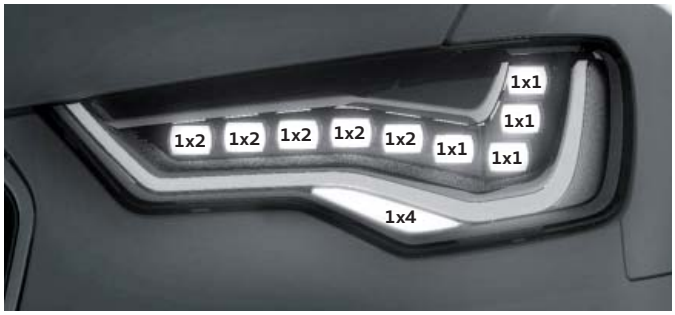
Cornering light

For the cornering light, a 4-LED chip below the parking lights is activated in addition to the dipped beam function. These LEDs have a reflector which illuminates the side area of the vehicle when turning a corner. A prerequisite for this is that either a turn signal is activated and the vehicle is travelling at a speed of less than 40 kph or heavy steering lock is applied at a speed of less than 70 kph.



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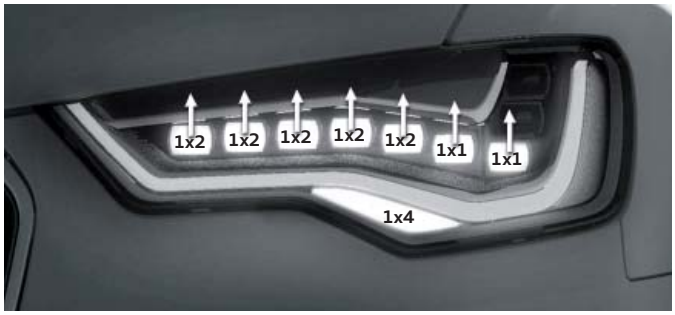
All-weather light

For the all-weather light function, which is activatable by a button in the light switch, 7 of the 9 dipped beam modules are powered and raised slightly by the headlight range control system. In addition, the dipped beam LEDs on both sides are activated. The upper two dipped beam LEDs stay switched off. This means that, when driving in the fog and rain, light reflection against water droplets is reduced and self-dazzling is prevented.



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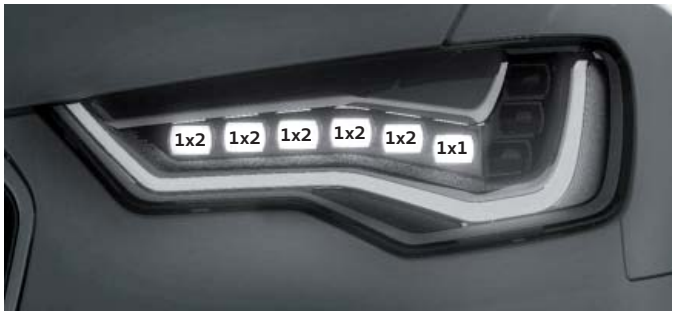
Tourist light

The purpose of the tourist light (adjustable via the MMI) is to prevent dazzling of oncoming traffic when driving in countries in which the traffic drives on the opposite side of the road to one's home country. The dipped beam function is used for this purpose, and the three LEDs for the asymmetric part of the dipped beam stay switched off.



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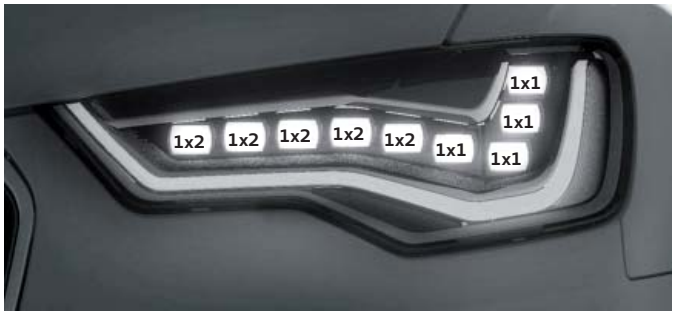
coming home / leaving home

The dipped beam is used for the coming home / leaving home functions. These functions are activated either when the driver exits the vehicle by opening the driver door or when the central locking is unlocked with the remote control key. Prerequisites for this are that the light switch is in the "AUTO" position, the rain and light detector sensor detects "dark" and both functions are enabled in the MMI (lights "on" when leaving / lights "on" when unlocking).



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[2)] SAE = for the North American market

LED headlight – component parts

In the LED headlight, the component parts shown here can be replaced.

LED clusters or individual LEDs are not replaceable on the LED headlight of the Audi A6 ’11.

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The illustration shows the SAE2) version of the LED headlight

Activation mechanism

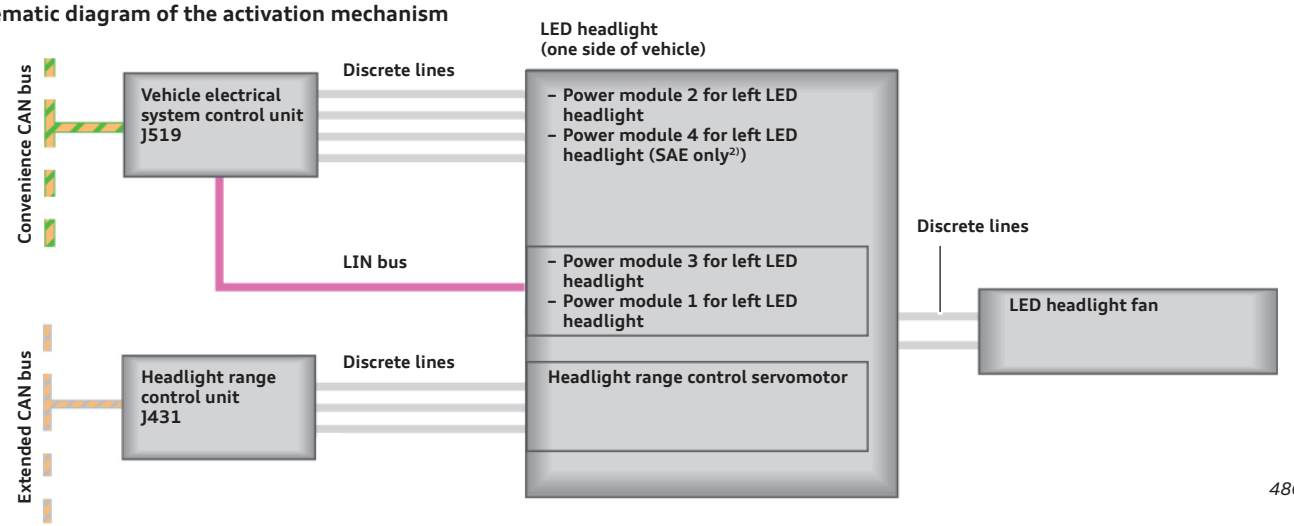
Powder modules 2 and 4 are activated by the onboard power supply control unit J519 via discrete lines. Power modules 1 and 3 are LIN slaves of the onboard power supply control unit J519. Powder module 1 A31 controls the fan in the LED headlight via discrete lines. The fan is activated at "terminal 15 on" and runs continuously until terminal 15 is deactivated again.

Adaptation for driving on the opposite side of the road

Headlights can be adapted for driving on the opposite side of the road via the MMI. In the "CAR" menu, the setting "Lights for driving on left" or "Lights for driving on right" can be selected under the menu option "Exterior lighting".

This adjustment is made by deactivating LEDs (see figure on page 61).

Schematic diagram of the activation mechanism



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Note

ESD protection must be ensured during all work on the headlights, particularly when replacing internal components. Workshop equipment VAS 6613 is available for this purpose.