



Design

The rain sensor module optically senses water on the windshield. An infra red beam of specific intensity lights a section of the windshield. The intensity of the reflected beam is measured and compared to the intensity of the transmitted beam. If there is water on the surface of the windshield, the beam distorts, reducing the intensity of the beam. If the beam is not reflected completely it is interpreted as rain on the windshield and the windshield wipers are started. The signals from the upper electronic module are carried via serial communication. The rain sensor transmits the signals to the upper electronic module. These signals request a particular windshield wiper speed (depending on the amount of rain falling on the windshield), indicate that a sudden large splash has hit the windshield and register the light conditions outdoors. The rain sensor is located in front of the rear view mirror on the inner side of the windshield. A special windshield is used on cars with rain sensors.

Function

- The rain sensor (7/149) determines that there is water on the windshield. The sensor assesses the volume of water on the windshield and the prevailing exterior light conditions. This data is then sent, via the upper electronic module (4/70), to other control modules in the car on the Control area network (CAN). These control modules in turn ensure that the windshield wipers are set to the correct speed. The rain sensor senses if the windshield is dirty or covered with traffic film and automatically compensates accordingly. The rain sensor also senses heavier splashes on the windshield. The windshield wipers are then operated at top speed.
- The rain sensor communicates with the upper electronic module via serial communication. The power supply is from the upper electronic module via the power supply signal EXT.X, when the ignition key is in positions I or II. The rain sensor is active for **10 minutes** after the ignition has been switched off.
- The steering wheel module (3/130) sends signals via the control area network (CAN) to the central electronic module (4/56) and upper electronic module about the position of the wiper stalk. If the stalk is moved to the intermittent wiping/rain sensor position, the upper electronic module transmits this data to the rain sensor

which is then activated.

- The rain sensor transmits data via the upper electronic module to the central electronic module, which then controls the wiper motor. The sensitivity can be adjusted using the collar on the wiper stalk.
- The upper electronic module transmits a fault message to the central electronic module if there is a fault in the rain sensor. If there is a fault message when the rain sensor is active, the central electronic module selects top speed for the windshield wipers until the windshield wiper stalk is moved from the intermittent/rain sensor position. If the fault recurs, intermittent wiping will be activated when the wiper stalk is next moved to the intermittent/rain sensor position, although at a fixed interval.