Technical Information

Electronics – Climate Sensors

HELLA®

Ideas today for the cars of tomorrow

Today, modern automobiles cannot be imagined without climate control. Even in the mild weather conditions in Germany the climate system equipment rate of new cars is 87 %. The basic conditions for an optimized climate control system are the measurement of parameters (such as temperature, humidity and temperature radiation), which influence the convenience in passenger compartments.

Temperature sensor for spot measurement

Temperature sensors for spot measurement are very versatile and are commonly used to determine the air temperature in evaporators and air inlets. Thanks to special process technologies, the ceramic part is directly molded into plastic and the thermal isolation from mounting parts is guaranteed by using suitable materials and designs.

In the mixing chambers of the heater hot and cold air streams are redirected continuously. This leads to temperature gradients along the cross section of the air ducts. Here temperature spot sensors are replaced by integrating temperature sensors. Those innovative sensors are able to measure the mean temperature measured over a wide area, which corresponds to the temperature felt by the occupants of the vehicle.

Integrating Temperature Sensor

Sun sensors measure the sun radiation hitting to the passenger compartment. This allows the system to react early to the heating up of the passengers and the passenger compartment by direct solar radiation. By dividing several measurement areas in mono, dual and multi zone sensors the temperature can be controlled individually for each passenger.

Humidity measurement comprises a capacitive humidity sensor and a thermopile sensor for contactless temperature measurement on the windscreen. This makes it possible to use humidity measurement as an influencing parameter for climate control and it allows the recognition of condensation on the front and rear windscreens for condensation suppression.

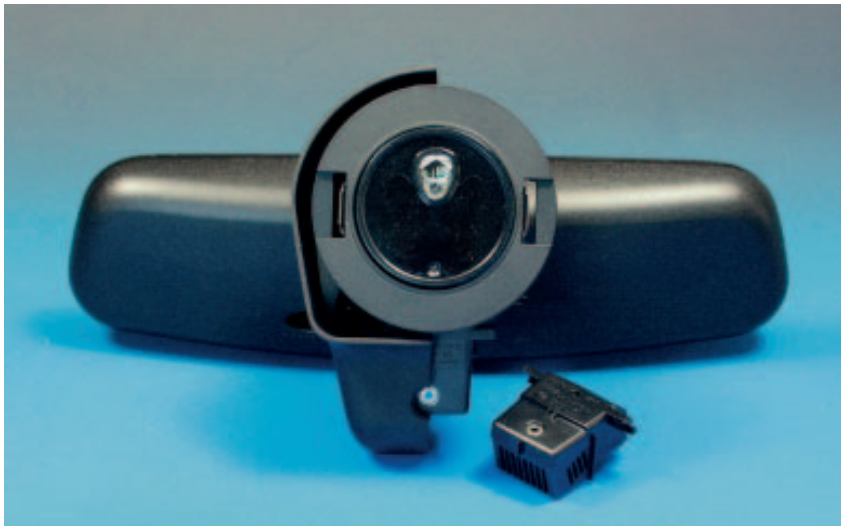
Sun Sensor

Since 1978, Hella has developed and produced electronic control heads for HVAC systems. Building on our system know-how, the design of the Hella climate sensors reaches an increase in climate comfort aiming at optimum comfort for the passengers. With the foresight of model evaluation it is possible to achieve an efficient power management for the compressor control resulting in optimized fuel consumption for the customers. With these concepts, Hella sets standards in the industry. Modern processes, such as pressing-in and molding-in are used in our production plants in Europe, Asia and North America.

Thermopile Sensor with integrated temperature sensor and capacitive humidity sensor

New sensor generations make a more individual co-ordinated climate for each car occupant possible. The sun sensor Dual Plus for example clearly links the angles of incidence in the half-space spanning over the vehicle and the intensity of radiation. Taking into account shaded and glazed areas of the vehicle, the radiation load can be determined individually for each passenger for each direction. Based on these values, different climate parameters can be set for each seat in the car.

Hella electronic systems make new innovative integration principles possible in a variety of vehicle areas. The integration of a dual sun sensor into the Hella Rain Light sensor and the integration of the humidity sensor in a mirror module are only two examples for this. The interface to the vehicle electric system can also be supported by Hella technologies such as central overhead consoles and body electronics.



Thermopile sensor and Rain/Light sensor integrated in the mirror base

Cut through mirror base with integrated Thermopile sensor and Rain/Light sensor

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