

LIN and CAN temperature sensors can be placed variably to provide freedom of design in the interior

Can components that perform an important function but disrupt the look, be positioned invisibly behind an elegant surface? The Preh GmbH makes this possible with their newest generation of fan less temperature sensors in the vehicle interior.

No matter if warm or cold. Every person has his or her own individual temperature of well-being and this affects our behavior. As American psychologists found out during a test in South Carolina, the driving behavior of the test person changed if they froze slightly or if it was too hot. When it was very hot in the vehicle, they would drive more aggressively and honked the horn much more often, if the vehicle in front did not start fast enough at a green traffic light.

The temperature is important

The right temperature is therefore not only a question of comfort, but also one of safety. Comfort air conditioners installed in vehicles today regulate the optimum temperature at all times. One of the challenges here is the continuous and precise monitoring of the interior temperature. This is done by using appropriate temperature sensors. In the past, fans and temperature sensors (NTCs) were used for this purpose. The indoor air was sucked in by the fan and flowed past the temperature sensor. Since various disadvantages were associated with this (relatively expensive, relatively large installation space requirement, fan noise, and limited service life), fan less temperature sensors have been state of the art for about ten years.

Fan less temperature sensors

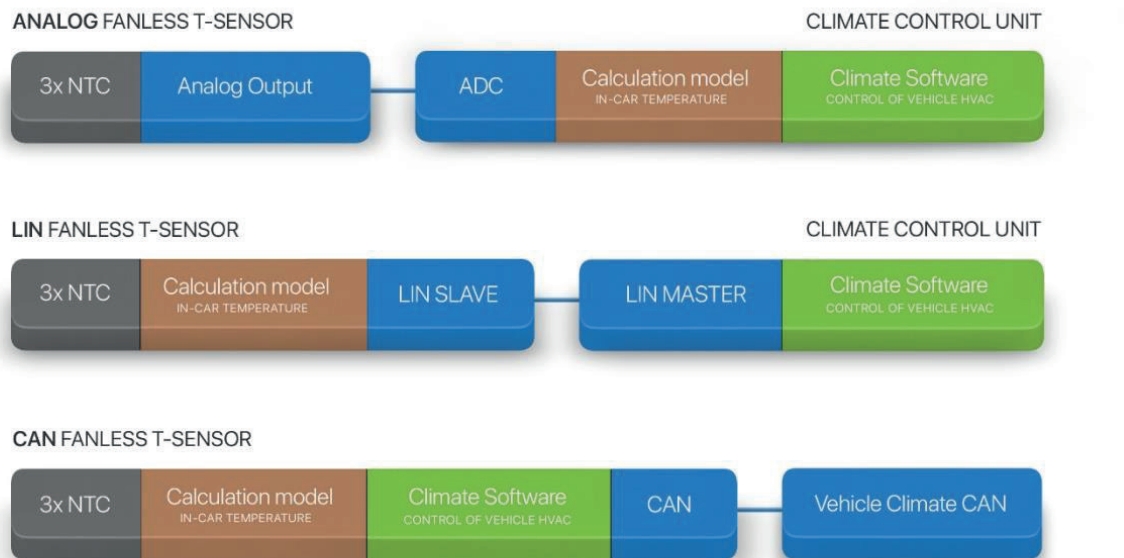
The fan less temperature sensors used so far are mostly analog stand-alone solutions. This means that a sensor measures the temperature at three positions and sends it analogously to a control unit. This then calculates the indoor temperature as a parameter for climate control. However, future customer requirements go even further as though they cannot be met with an analogue component anymore.

“Digitalization in the vehicle continues to grow faster and faster. In the meantime, so-called LIN sensors are used. Thanks to this vehicle protocol language, we can also implement the calculation software directly in the sensor and thus “relieve” the ECU”, explains Claudia Guck, Team Leader HMI Software at the automotive supplier Preh.

CAN based fan less sensors

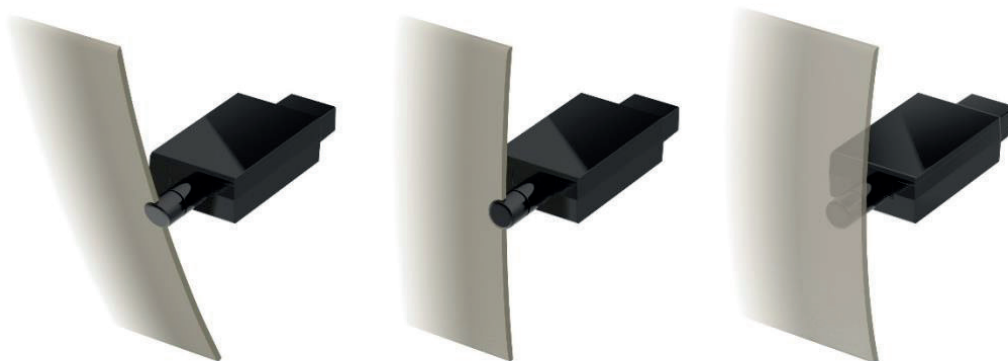
For future vehicle generations this will no longer be sufficient. A sensor communicating via LIN protocol is limited in terms of data volume and transmission speed. For this reason, the next sensor generations at Preh will also be available with the CAN vehicle protocol standard. A CAN-supported sensor contains not only the software for temperature determination, but also the climate control algorithm. Due to the much higher data volume and the higher transmission speed, significantly more functionalities can be combined on a CAN-based sensor.

The positive effect: There are significant reliefs for the control unit and increased flexibility in the development phase.



More room for sensor placements

There are also new possibilities for placement: As a stand-alone sensor, the temperature sensor can be adapted to the given contours of the interior design or installed in a design element invisible from the outside.



In addition to the integration in user interfaces, a wide variety of installation positions for the Preh temperature sensor have been tested and implemented in series developments, including in the B and C columns below the steering column, in the headliner, etc. This is where the high adaptability of the Preh technology proves itself very useful.

In cooperation with a major automotive manufacturer, Preh is currently developing a sensor that does not only determine the temperature but also the humidity on the windshield. The sensor is placed at the bottom of the rear-view mirror. "The temperature and humidity sensor is optimally positioned directly on the windscreen. That way, we can quickly detect the humidity that is generated, such as during rain, and take measures to prevent the windscreen from fogging up. Due to the possibilities offered by the LIN- and CAN- supported sensor, it is also possible to think about function extensions. Here one can imagine the control of the windscreen wipers, but also the integration of the automatic light function and the solar radiation in one and the same sensor," explains Claudia Guck.

