

BRIEF INFORMATION

Rain / light sensor

- › Fourth generation of the long-established rain sensors from FORVIA HELLA
- › Five functions in one product: Rain, light, solar and humidity measurement as well as adjustment of the light intensity on the head-up display
- › Optimised design – extremely compact package space

PRODUCT FEATURES

Application

The rain-light sensors (RLS) are used in a variety of vehicles, primarily for automatic rain or light control. These features reduce the driver's workload by virtually eliminating the need for the driver to react and manually operate the wiper lever in rain or the light switch in darkness (tunnels, garages, twilight). With sensors for passenger cars, it is also possible to integrate the solar and humidity detection functions so as to link them to an automatic climate control system. Furthermore, the sensor can be equipped with an optional head-up display function. HELLA views the lighting function of the RLS as safety-relevant in accordance with ISO 26262.

Design and function

This new sensor offers the user five functions in one product:

Rain sensor

The rain sensor is used to detect different rain conditions in the sensor area and controls the front windshield wiper accordingly. Manual driver intervention is no longer required.

Light sensor

As a light sensor it controls the activation and deactivation of the low beam light in different lighting conditions or in special situations such as in tunnels.

Head-up display

When used for the head-up display, the sensor records the brightness immediately surrounding the vehicle and adjusts the light intensity on the display depending on the current lighting conditions.

Solar sensor

As a solar sensor it measures the insolation and supports the air-conditioning control.

Humidity measurement

The humidity measurement is used to control the air conditioning control unit for the air conditioning in the vehicle interior, such as automatic ventilation of the windshield.

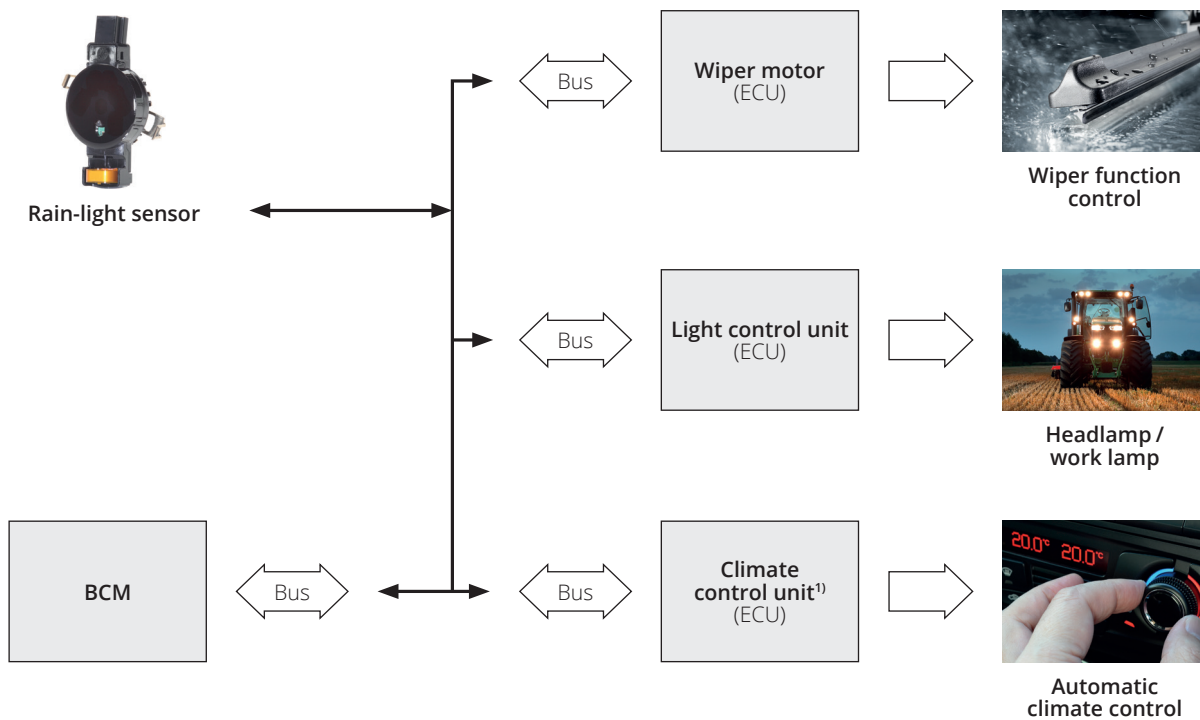
INTERFACES / FUNCTIONAL DESCRIPTION

The system overview illustration shows an option for how the sensor communicates with other system components in the vehicle via the LIN interface. Here the sensor is switched on by the overriding control unit and supplied with voltage. It thus provides the system with information, however does not have direct access to the system itself.

- 1 Spring
- 2 Infrared optics for rain, solar and tunnel detection
- 3 Connector
- 4 Transparent optics for surrounding light detection
- 5 Humidity sensor



FUNCTIONAL DIAGRAM



TECHNICAL DETAILS

Technical data

| | |
|---|--|
| Operating voltage range | Single-voltage (9 – 16 V) |
| Rated voltage | 12 V |
| Temperature range | - 40 °C to +85 °C |
| Storage temperature | - 40 °C to +100 °C |
| Protection class | IP 50 |
| Protection class (in the area of fogging sensors) | IP 20 |
| Overvoltage | 24 V |
| Rated current consumption | < 50 mA |
| Communication interface | LIN 2.0 |
| Weight | < 17 g |
| Mating connector ¹⁾ | 1-1718346-3 |
| Approved | FMVSS 302, ECE-R10 and ECE-R48 |
| Protection | Polarity reversal protection, overvoltage protection |

Requirements of the windshield

| | |
|--|--|
| Spectral working range | 400 – 1,050 nm |
| Permissible transmission of the windshield | 20 – 80 % (at 950 nm) |
| Permissible windshield thickness | 4 – 6 mm |
| Permissible windshield tilt | 20° – 36° (passenger car) 37° – 54° (van) |
| Permissible curvature radius in the area of the sensor | R => 1,400 mm |
| Diameter of the black print section | 28 ± 0,2 mm |

¹⁾ This accessory is not included in the scope of delivery. May be purchased from TE Connectivity. The connector coding is variant-specific.

Dimensional sketch

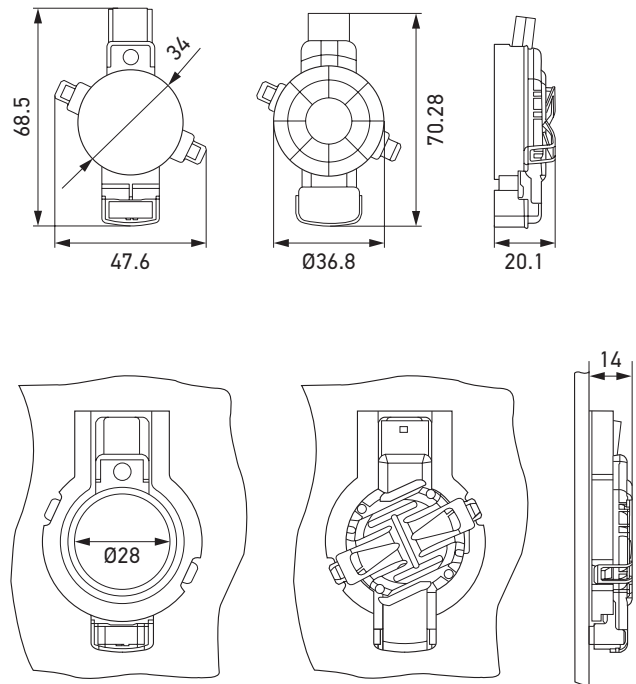
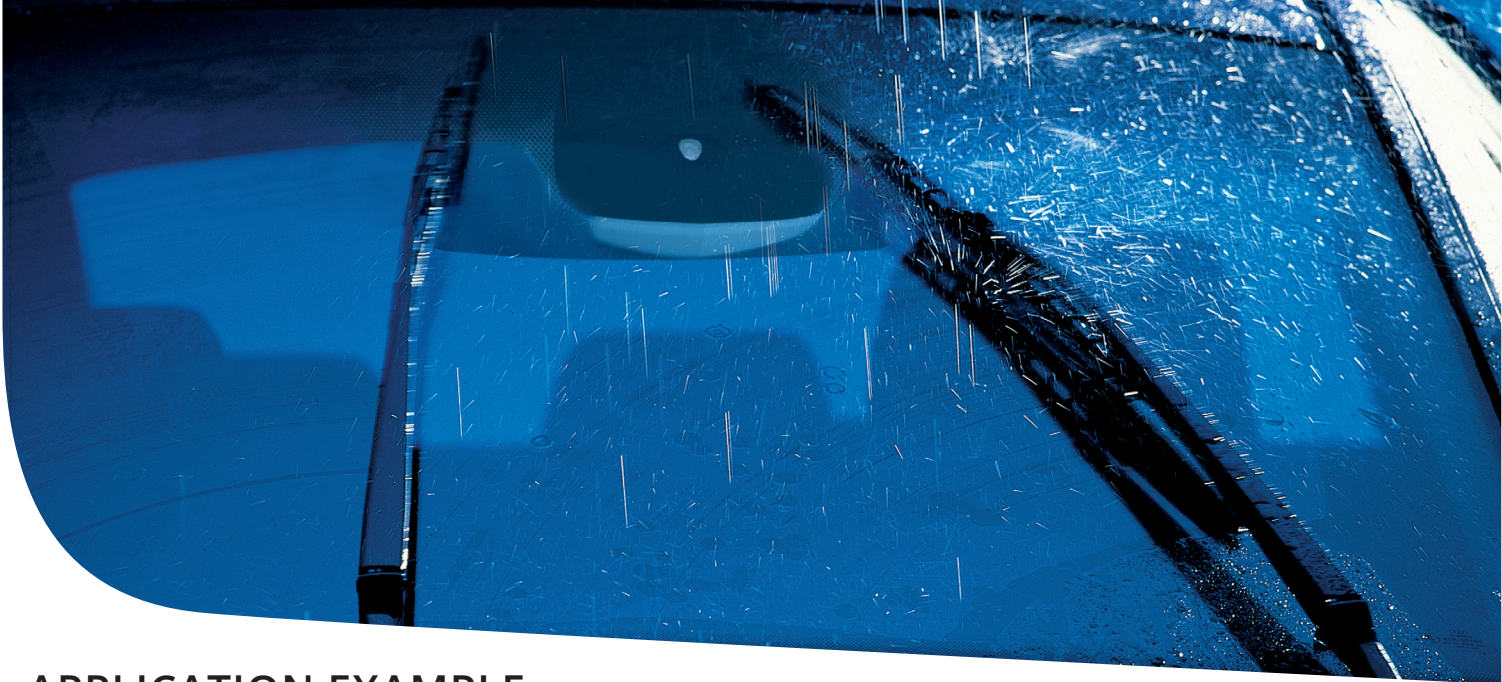


Illustration of installation on the windshield



APPLICATION EXAMPLE

PROGRAM OVERVIEW

| Variant | Permitted windscreen thickness | Permitted windscreen tilt | Part number |
|----------------------|--------------------------------|---------------------------|-------------|
| Passenger cars | 4 – 6 mm | 20° – 36° | On request |
| Passenger cars (van) | | 37° – 54° | On request |

* The sensors must be specially applied for each vehicle. All article numbers are therefore assigned on a customer-specific basis.

ACCESSORIES – BRACKETS

| Product picture | Dimensional sketch | Description | Part number |
|-----------------|--------------------|---|-----------------|
| | | For mounting with 3M adhesive tape Material: Plastic | 9XD 420 747-601 |
| | | For mounting with PUR liquid adhesive Material: Plastic | 9XD 420 747-501 |
| | | For mounting with 3M adhesive tape Material: Sintered metal | 9XD 420 747-007 |
| | | For mounting with PUR liquid adhesive Material: Sintered metal | On request |