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# BRIEF INFORMATION

## Vehicle level sensors

- Precise detection of vehicle height thanks to patented CIPOS technology
- Robust and compact design
- High functional reliability and safety
- Long service life

## PRODUCT FEATURES

### Application

Vehicle level sensors or ride height sensors detect the vertical position of the body relative to the axle or chassis and are an essential component of modern chassis, headlamp levelling and driver assistance systems. They are used in countless vehicle variants, both in passenger cars and also in commercial vehicles, regardless of whether the vehicle has a combustion engine or an electric one.

### Design and function

The vehicle level sensor is a precise electronic component that detects the vertical position of the vehicle body relative to the axle or chassis. Its design typically consists of a robust housing to protect the integrated electronics, a lever arm with a ball joint for mechanical connection and also a sensor element that converts the movement of the lever arm into electrical signals. In practice, potentiometer, Hall or inductive sensors are usually used for this purpose.

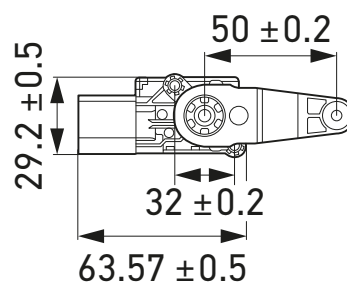
The functioning of the sensor is based on the detection of changes in height caused by uneven road surfaces, loads or dynamic driving conditions. These changes are recognised in real time and transmitted as electrical signals to a higher-level control unit. Depending on the version, various output signals are possible, for example analogue, PWM, SENT, CAN or LIN. The data collected is used, among other things, to control chassis systems such as air suspension and also automatic headlamp levelling, thus making a significant contribution to safety and comfort.

# TECHNICAL DETAILS

Technical data	
Operating voltage range	4–11 V
Temperature measuring range	-40 °C to +125 °C
Output signal	Analogue, PWM, SENT, PSI 5
Resolution	12 bit

## Dimensional sketch

Product: 6PM 012 699-511



# PROGRAM OVERVIEW\*

Manufacturer	OE number	Part number
Audi	4K0941285B	6PM 012 699-101
	4K0941286B	6PM 012 699-111
	4K0941309B	6PM 012 699-121
	4K0941310B	6PM 012 699-131
	8B3941309B	6PM 016 699-211
	8B3941310B	6PM 016 699-221
	4MN941285	6PM 016 699-231
	4MN941286	6PM 016 699-241
	4MN941309	6PM 016 699-251
	4MN941310	6PM 016 699-261
Nissan	538106SA0A	6PM 935 411-001
	538206SA0A	6PM 935 411-011
	538106SY0A	6PM 935 411-021
Porsche	992616213A	6PM 012 699-201
	992616214A	6PM 012 699-211
	992616571B	6PM 012 699-221
	992616572B	6PM 012 699-231
	9GT616213	6PM 012 699-281
	9GT616214	6PM 012 699-291
	9J0616213	6PM 012 699-601
	9J0616214	6PM 012 699-611
	9J0616571A	6PM 012 699-621
	9J0616572A	6PM 012 699-631
	8B3941285A	6PM 012 699-701
	8B3941286A	6PM 012 699-711
	8B3941309A	6PM 012 699-721
	8B3941310	6PM 012 699-731
	9Y0941285A	6PM 012 699-741
	9Y0941286A	6PM 012 699-751
	9Y0941309C	6PM 012 699-771
	9Y0941310A	6PM 012 699-781
	9J1616213AA	6PM 012 699-791
	9J1616214AA	6PM 012 699-801
	9J1616571AA	6PM 012 699-811
	9J1616572AA	6PM 012 699-821

Manufacturer	OE number	Part number
Porsche	9J0616213AA	6PM 016 699-061
	9J0616214AA	6PM 016 699-071
	9J0616571AA	6PM 016 699-081
	9J0616572AA	6PM 016 699-091
PSA / GM	9813069580	6PM 011 526-501
	9822827380	6PM 011 526-511
Renault / Nissan	538210780R	6PM 011 526-111
	538212463R	6PM 011 526-141
	538210151R	6PM 011 526-151
	538210929R	6PM 011 526-161
	85H941285C	6PM 012 699-141
	85H941286C	6PM 012 699-151
VAG	85H941309C	6PM 012 699-161
	85H941310C	6PM 012 699-171
	95C616571	6PM 012 699-181
	9J1616213	6PM 012 699-241
	9J1616214	6PM 012 699-251
	9J1616571B	6PM 012 699-261
	9J1616572B	6PM 012 699-271
	5WA412521D	6PM 012 699-301
	5WA412522D	6PM 012 699-311
	5WA512521	6PM 012 699-321
	5WA512521A	6PM 012 699-331
	5WA512521D	6PM 012 699-341
	5WA412521E	6PM 012 699-351
	1EA412521B	6PM 012 699-401
	1EA412521C	6PM 012 699-411
	1EA412522B	6PM 012 699-421
	1EA512521C	6PM 012 699-431
	1N3512521A	6PM 012 699-441
	7T0412521B	6PM 012 699-501
	7T0412521C	6PM 012 699-511
	7T0412522A	6PM 012 699-521
	7T0941273A	6PM 012 699-531

\* You can get an up-to-date overview of the product range in TecDoc or in your local catalogue.

# Q&A



## – Vehicle level sensors –

### 1 What is the task of a vehicle level sensor?

The level sensor measures the vertical position of the body in relation to the axle or chassis, usually via a lever mechanism with a potentiometer, Hall or inductive sensor. The recorded data is transmitted to control units and serves as the basis for systems such as automatic headlamp levelling, adaptive damper control, air suspension and level control and also ESP and roll stabilisation. In this way, the sensor makes an important contribution to safety and driving comfort.

### 2 What are the main advantages of the HELLA level sensor?

The level sensor from HELLA impresses with its precise measurements thanks to the patented CIPOS technology, which is contactless, wear-free and highly accurate. Its robust and compact design makes it resistant to vibrations, temperature fluctuations and moisture, ensuring a high level of functional reliability and safety even under extreme conditions.

### 3 For which vehicles is the sensor relevant?

The level sensor is relevant for vehicles with xenon or LED lamps where automatic headlamp levelling is required by law, and also for vehicles with active chassis, air suspension or adaptive damping. It is used in various vehicle models and supports the respective comfort and safety systems in operation in each type of vehicle.

### 4 What are the typical causes of failure?

Workshops often encounter defects in level sensors because of interrupted connection cables, internal short circuits that cause faulty signals, and also because of mechanical damage brought about by, for example, stones, accidents or chassis repairs. Corrosion caused by moisture and road salt is also a typical cause of failure.

### 5 What happens when you drive with a defective vehicle level sensor?

A defective sensor can lead to incorrect controlling of the chassis and stability systems. The result: reduced driving comfort, unsafe driving behaviour or malfunctions in the headlamp levelling system. A quick diagnosis and sensor replacement are therefore important.

### 6 Why should wholesalers have HELLA vehicle level sensors on offer?

HELLA offers a constantly growing portfolio of level sensors for many popular vehicle brands so that wholesalers can stock their warehouses in line with requirements. The broad vehicle coverage and the increasing number of vehicles with LED or xenon lamps and with active chassis also open up strong market opportunities in the aftermarket.