



## BRIEF INFORMATION

### Angular position sensors

- High precision due to internal 14 bit resolution
- High thermal stability and linearity
- High insensitivity to magnetic fields
- Zero position can be individually programmed
- Various connection elements available

## PRODUCT FEATURES

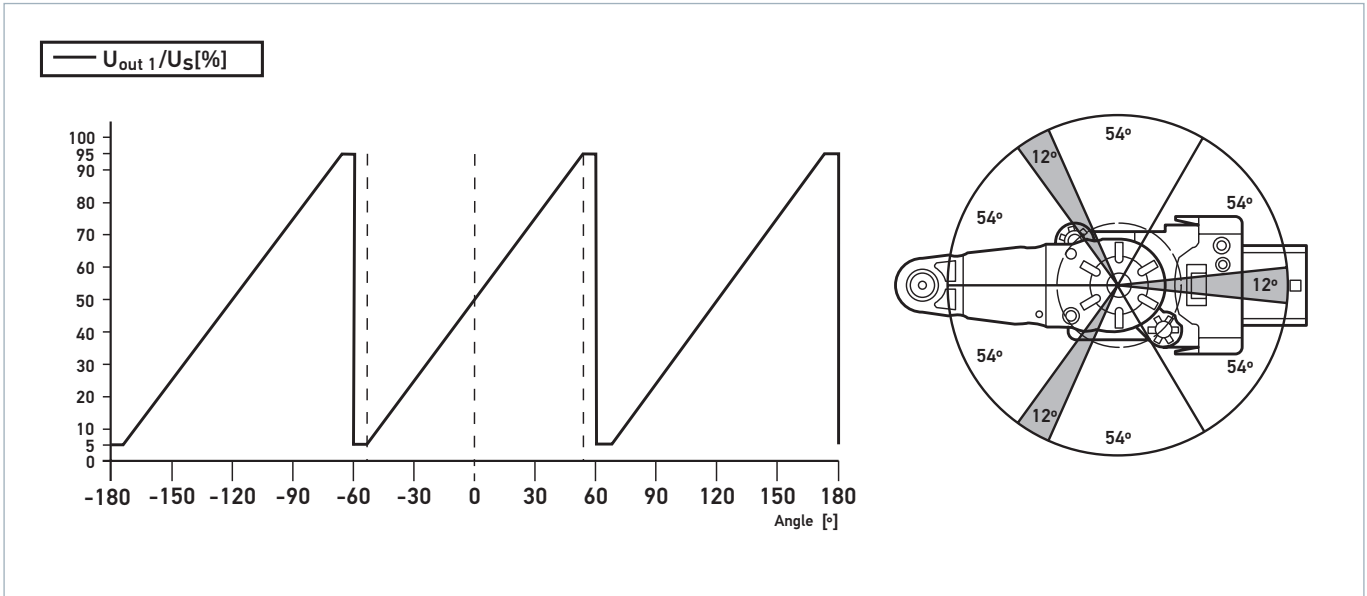
### Application

The CIPOS®-type angular position sensors (contactless inductive position sensors) are designed for many different applications to measure angles accurately and reliably even in tough environments. Their insensitivity to magnetic fields and their high level of temperature stability in particular are the characteristic qualities of the CIPOS® technology used in all angular position sensors. Angles are measured inductively using a contactless and thus wear-resistant method.

Angular position sensors can be installed in vehicles in a variety of ways. Potential application examples include:

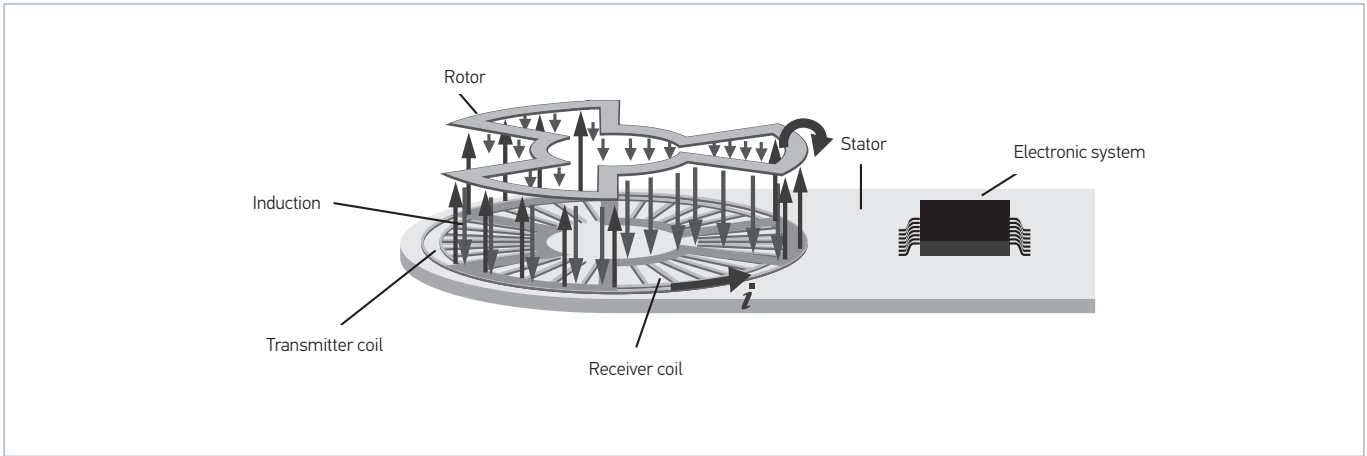
- Accelerator pedal position for recording the torque requirement for the engine control system
- Throttle valve position for throttle valve control
- Steering angle
- Vehicle level measurement
- Position measurements of adjustable elements

# DESIGN AND FUNCTION



The characteristic curve of the angular position sensor repeats every 120°. The sensor can therefore not only be mounted in the position shown, but also rotated by 120° or 240°. This will not affect the behaviour of the connected system in any way. The measuring angle range is 108°. If it is exceeded by up to 6°, the output signal remains limited to the measuring range final value.

If the signal further exceeds these values, the next section of the characteristic curve is applied. The resulting measuring ranges and zero positions are shown on the graph. The segments of the circle shown in grey represent the angles that cannot be measured.



Inside the laser-welded polyamide housing (PA66), the rotation of the lever arm is transferred to the rotor and measured by induction. An ASIC (Application Specific Integrated Circuit) accurately computes the rotor position. Various mounting

positions are possible thanks to the repeating characteristic curve of the output signal (which depends on the structure of the sensor that is used), which increases the flexibility of the sensor.

# TECHNICAL DETAILS

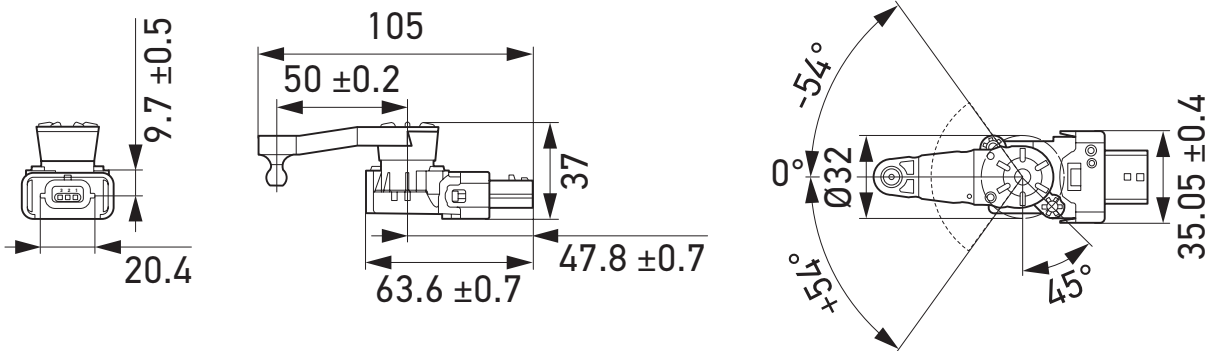
## Technical data

<b>Part number</b>	<b>6PM 010 200-547</b>
Mechanical connection	Ball, bottom
Mechanical angle range	-54° to +54°
Supply voltage	5 V
Output signal	0.5–4.5 V ratiometric
Zero position	0° / 120° / 240°
Lever arm	50 mm

## Technical data

<b>Part number</b>	<b>6PM 010 200-557</b>
Mechanical connection	Ball, top
Mechanical angle range	-54° to +54°
Supply voltage	5 V
Output signal	0.5–4.5 V ratiometric
Zero position	0° / 120° / 240°
Lever arm	70 mm

## Technical drawing



# APPLICATION EXAMPLES

The Sensor is characterized by temperature robustness, high accuracy and measuring speed. HELLA's CIPOS® technology (contactless inductive position sensor) is an essential part of precise position measurement within the sensor.

The vehicle level sensor is a compact rotary encoder solution assembled on the vehicle suspension, and supports automatic headlamp leveling and active chassis control. The angular position sensor can also be used in the brake pedal, clutch pedal or another application that can be coupled by a linkage.



# PROGRAM OVERVIEW

Mechanical connection	Output signal <sup>1)</sup>	Lever arm	Part number	Packaging unit
<b>Basic sensors – Compact design<sup>2)</sup></b>				
Ball, bottom	0.5–4.5 V ratiometric	50 mm	<b>6PM 010 200-547</b>	150
Ball, top	0.5–4.5 V ratiometric	70 mm	<b>6PM 010 200-557</b>	150

<sup>1)</sup> PWM on request.

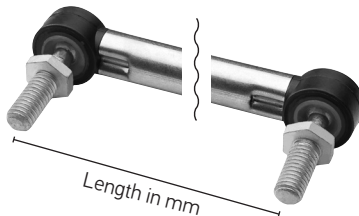
<sup>2)</sup> Double sensors on request.

## CONNECTING ELEMENTS

Head section, left  
Type A – ball head screw  
Rotated 180°

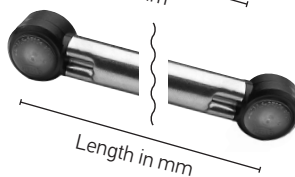


Head section, left  
Type A – ball head screw



Head section, right  
Type A – ball head screw

Head section, left  
Type B – cover cap



Head section, right  
Type B – cover cap

Summary of versions

Head section – left	Rotation	Length of connection element	Head section – right	Part number
A	0°	56.0 mm	A	<b>9XB 732 588-207</b>
A	0°	78.2 mm	A	<b>9XB 732 588-197</b>
A	0°	90.0 mm	A	<b>9XB 732 588-167</b>
B	0°	120.0 mm	A	<b>9XX 732 588-237</b>
B	180°	56.0 mm	A	<b>9XX 736 603-167</b>
A	180°	70.0 mm	A	<b>9XX 736 603-107</b>
A	180°	90.0 mm	B	<b>9XX 736 603-117</b>

### Technical specifications

Length (total)	29.5 mm ± 0.6
Length (screw)	14 mm ± 0.3
Layout	M6

Part number 9NS 740 413-317

