

BRIEF INFORMATION

Angular Position Sensors Single and double sensors

- Single or redundant 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.

This guarantees a high degree of measurement accuracy throughout the entire life of the sensor. The redundant sensors (double sensors) are specially designed for failure detection, thus improving the reliability of the overall system.

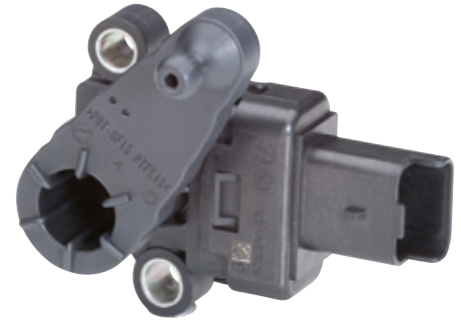
HOUSING VARIANTS



Housing variant A

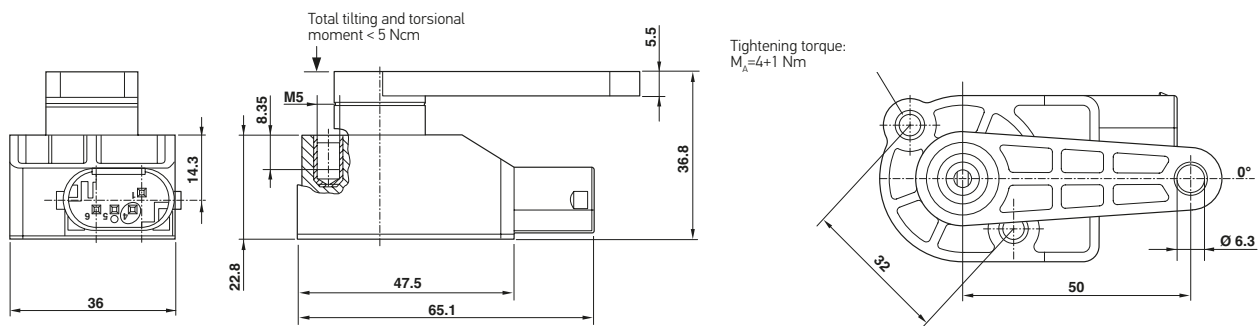


Housing variant B

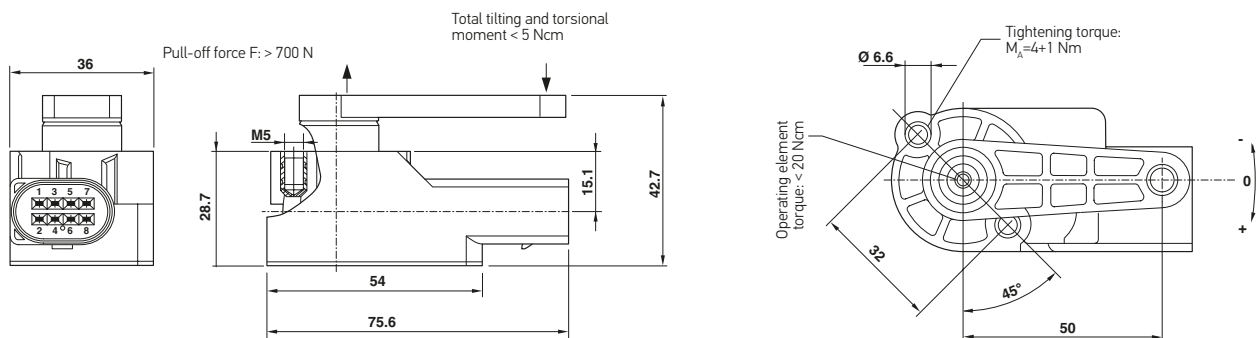


Housing variant C

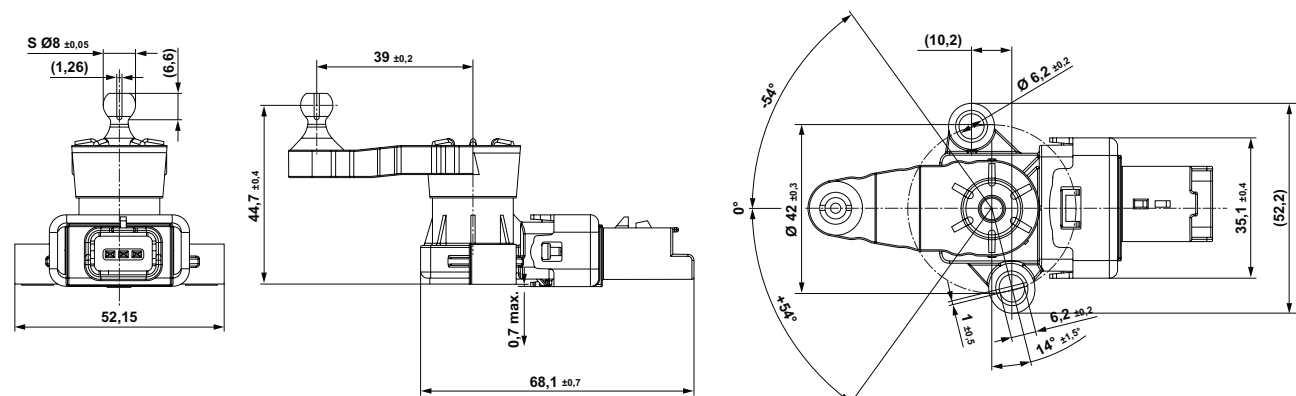
TECHNICAL DRAWING, HOUSING VARIANT A



TECHNICAL DRAWING, HOUSING VARIANT B



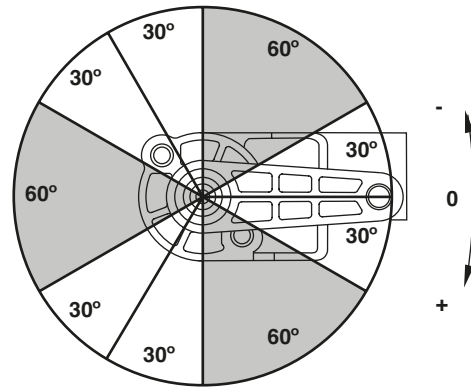
TECHNICAL DRAWING, HOUSING VARIANT C



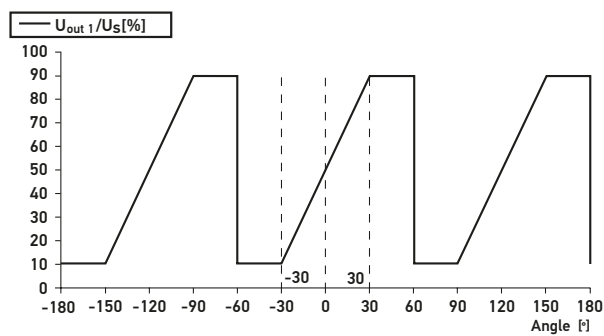
ANGULAR POSITION SENSOR CHARACTERISTIC CURVE

The characteristic curves of the turning angle sensor repeat after 120 degrees. The sensor can therefore not only be attached in the position shown, but can also be considerably offset from the 120-degree mark.

The behavior of the connected system does not change in any way. The measuring angle range is 60 degrees. If it is exceeded by up to 30 degrees, the output signal remains limited to the measuring range final value. For further exceedance, the next characteristic curve section is run through. The resulting measuring ranges and zero positions can also be obtained from the graphic representation. The grey circle segments reflect the non-measurable angular range.

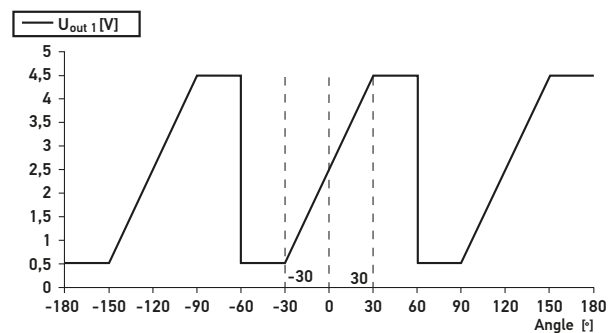


**Ratiometric output signal $U_{out 1}$
With 5 V voltage supply**



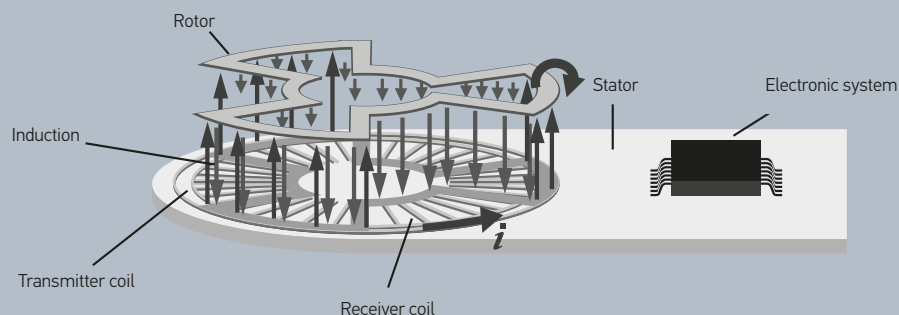
Output signal $U_{out 2} = 100\% - U_{out 1} / U_s$ [%] (opposite curve)

**Absolute output signal $U_{out 1}$
with 9 - 32 V voltage supply**



Output signal $U_{out 2} = 5 V - U_{out 1}$ [V] (opposite curve)

FUNCTION



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.

SUMMARY OF VERSIONS

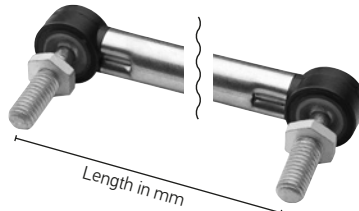
Mechanical connection	Angle range	Supply voltage	Output signal	Zero position	Lever arm	Part number
Single sensors						
Socket	-30° to +30°	5 V	0.5 - 4.5 V ratiometric and PWM	0° / 120° / 240°	50 mm	6PM 008 161-241
Socket	-51° to +51°	5 V	0.5 - 4.5 V ratiometric and PWM	0° / 120° / 240°	50 mm	6PM 008 161-251
Socket	-54° to +54°	5 V	0.25 - 4.75 V ratiometric and PWM	0° / 120° / 240°	70 mm	6PM 008 161-121
Socket	-54° to +54°	5 V	0.25 - 4.75 V ratiometric and PWM	60° / 180° / 300°	70 mm	6PM 008 161-131
Socket	-54° to +54°	5 V	0.25 - 4.75 V ratiometric and PWM	30° / 150° / 270°	50 mm	6PM 008 161-141
Socket	-54° to +54°	5 V	0.25 - 4.75 V ratiometric and PWM	90° / 210° / 330°	50 mm	6PM 008 161-151
Basic sensors – Compact design						
Ball, top	-54° to +54°	5 V	0.5 - 4.5 V ratiometric	0° / 120° / 240°	39 mm	6PM 010 200-501
Ball, bottom	-54° to +54°	5 V	0.5 - 4.5 V ratiometric	0° / 120° / 240°	39 mm	6PM 010 200-511
Ball, bottom	-54° to +54°	5 V	0.5 - 4.5 V ratiometric	0° / 120° / 240°	51 mm	6PM 010 200-521
Ball, top	-54° to +54°	5 V	0.5 - 4.5 V ratiometric	0° / 120° / 240°	64 mm	6PM 010 200-531
Double sensors						
Socket	-30° to +30°	5 V or 9 - 32 V	0.5 - 4.5 V ratiometric/ absolute	0° / 120° / 240°	50 mm	6PD 009 583-001
Socket	-54 to +54°	5 V or 9 - 32 V	0.5 - 4.5 V ratiometric/ absolute	0° / 120° / 240°	50 mm	6PD 009 583-011
Socket	-54 to +54°	5 V	0.5 - 4.5 V ratiometric	0° / 120° / 240°	70 mm	6PD 009 580-017
Ball, top	-54 to +54°	5 V or 9 - 32 V	0.5 - 4.5 V ratiometric/ absolute	0° / 120° / 240°	90 mm	6PD 009 584-017

CONNECTING ELEMENTS

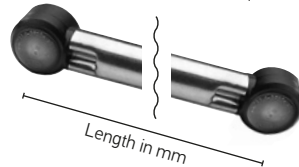
Head section, left
Type A – ball head screw
Rotated 180°



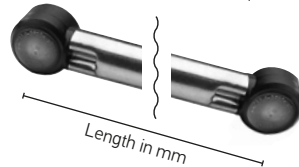
Head section, left
Type A – ball head screw



Head section, right
Type A – ball head screw



Head section, left
Type B – cover cap



Head section, right
Type B – cover cap

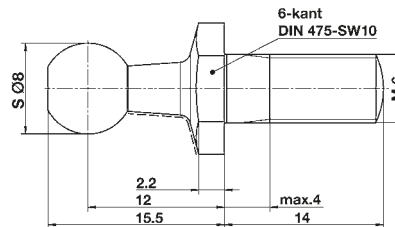
Summary of versions

Head section – left	Rotation	Length of connection element	Head section – right	Part number
A	0°	56 mm	A	9XB 732 588-207
A	0°	78.2 mm	A	9XB 732 588-197
A	0°	90 mm	A	9XB 732 588-167
B	0°	120 mm	A	9XB 732 588-237
B	180°	56 mm	A	9XX 732 603-167
A	180°	70 mm	A	9XX 732 603-107
A	180°	90 mm	B	9XX 732 603-117

Technical specifications

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

Part number 9NS 740 413-317



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Subject to technical and price modifications.