



GUEMISA (Electrónica Guerra y Miró Guemisa S.L.)
 Sta. Virgilia, 29 - local - 28033 Madrid (Spain)
 Tlfno.: (034) 91 764 21 00 Fax.: (034) 91 764 21 32
 Email.: ventas@guemisa.com Web.: www.guemisa.com

**Sensor
 Potentiometers**

Series SP4000



Special features

- easy mounting
- protection class up to IP 67 (mounted with o-ring), IP 40 shaft side
- long life
- return spring
- good price/performance ratio

Designed to convert rotary movement into a proportional voltage signal, these rotary sensors utilize proven conductive plastic technology.

The housing is made of a special high-grade temperature-resistant plastic material. Fixings with brass bushings allow simplicity of mounting.

Effective design making use of the customer-sided bearing of the insert shaft. Due to the insert shaft a fast and easy mounting is permitted.

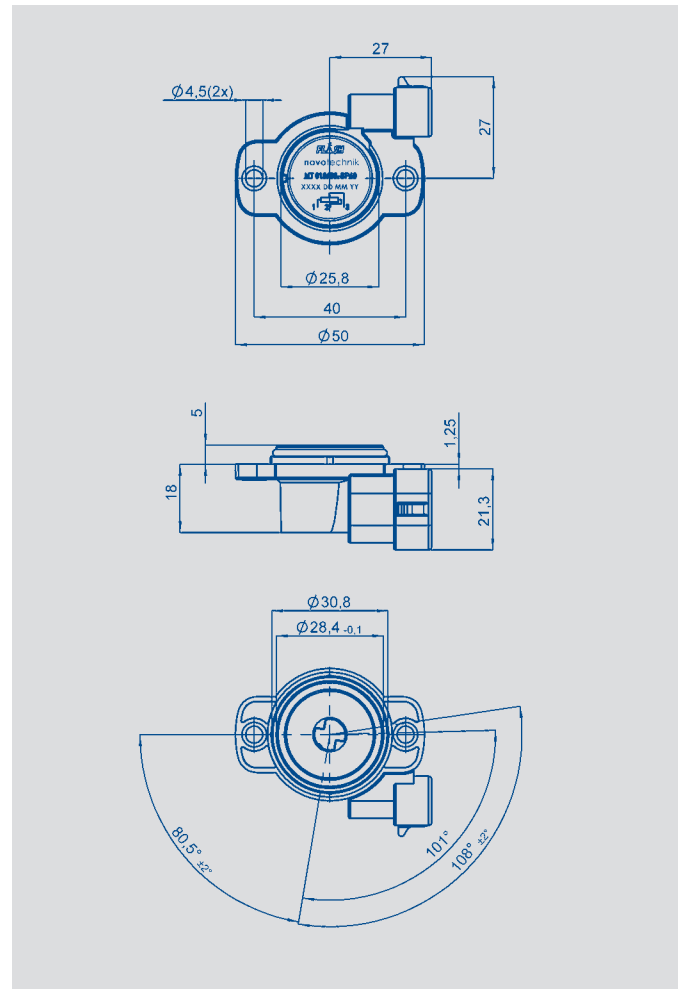
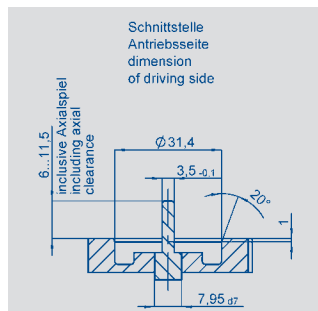
Despite of its compact and wear-free design the sensors are very robust against environmental influences like vibrations, temperature variations, dirt and humidity.

These sensors are suitable for use in all kinds of rough environment for example close to engines in automotive applications.

The 3-pin Delphi Metri-Pack connector offers a popular and reliable plug connection.

The use of a precious metal multifinger wiper ensures reliable contact even under most severe working conditions.

Special models with different electrical angles and contact versions are available upon request.



Description

Housing	high-grade, temperature-resistant plastic
Integrated shaft coupling	high-grade plastic
Resistance element	conductive plastic
Wiper assembly	precious metal multi-finger wiper
Electrical connections	connector (male) with 3 pins Delphi Metri-Pack 150, document No. 12059265
Sealing	O-ring

Mechanical Data		
Dimensions	see drawing	
Mounting	with 2 cylinder head screws M4	
Mechanical angle	ca. 108	°
Max. permissible torque at end stops	0.6	Nm
Torque	2...12	Ncm
Mounting torque of clamps at housing flange	2.5 ±0.5	Nm
Weight	ca. 20	g
Electrical Data		
Actual electrical angle	ca. 101 ±3	°
Nominal resistance	1.2	kΩ
Resistance tolerance	± 30	%
Absolute linearity	≤ ±2	% VDD
Repeatability	1,0	°
Protective wiper resistor	0.75	kΩ
Effective temperature coefficient of the output-to-applied voltage ratio	typical 15	ppm/K
Max. permissible applied voltage	16	V
Recommended operating wiper current	≤ 1	μA
Max. wiper current in case of malfunction	10	mA
Insulation resistance (500 VDC)	≥ 10	mΩ
Dielectric strength (500 VAC, 50 Hz)	≤ 100	μA
Environmental Data		
Temperature range	-40 ... +125	°C
Vibration	5...2000 A _{max} = 0,75 a _{max} = 20 10	Hz mm g cycles
Life	4 x 10 ⁸	move- ments
Operating speed	100	min ⁻¹
Protection class ISO 20653 / IEC 60529	up to IP 67 (mounted with O-ring)	

Order designations

Type	Art.no.	Electr. angle	Output on	Resistance
SP4001 101 003 003	018400	101°	pin 3	1,2 kΩ

Other versions on request.

Important

All the values given in this data sheet for linearity, lifetime and temperature coefficient in the voltage dividing mode are quoted for the device operating with the wiper voltage driving on operational amplifier working as a voltage follower, where virtually no load is applied to the wiper ($I_e \leq 1 \mu\text{A}$).

Necessary accessories

Delivery via Delphi:
Socket plug (female) Delphi Metri-Pack 150 connector No. 12047909 rev. B, tinned contacts

Recommended accessories

Process-controlled indicators MAP... with display Signal conditioner MUW.../MUK... for standardized output signals.