

# SENSOFOIL® MEMBRANE POTENTIOMETER

SENSOFOIL® membrane potentiometers are the perfect linear position sensors. They work similar to conventional, mechanical potentiometers, but are only 0.7 - 2.2 mm thick and perfectly suited for limited installation space. They feature a quick and inexpensive adaption to customer designs, also for smaller quantities. SENSOFOIL® membrane potentiometers are already successfully used in the medical and laboratory industry, aerospace, automation, consumer electronics as well as machine building industry.

## MATERIALS UND VARIATIONS

### SENSOFOIL® STANDARD

The membrane potentiometers based on PET foil are an inexpensive and easy-to-use position sensor for temperatures between -40°C and +55°C (-40°F and +131°F) and a life cycle of up to 1 million operations.



### SENSOFOIL® MAGNET

Similar to SENSOFOIL® Standard, but with an integrated ferro-magnetical material for non-contact operations. An operation through a thin enclosure is possible.



### SENSOFOIL® HYBRID *patent pending*

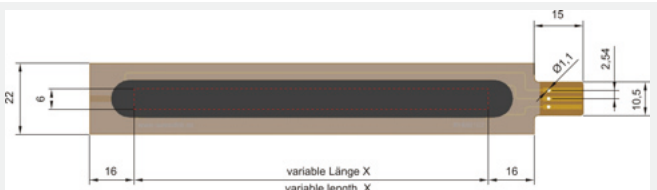
Similar to SENSOFOIL® Standard, but the upper collector foil is additionally protected through an integrated metal layer. Perfect for higher temperatures, long periods of inactivity, vacuum conditions as well as harsh environmental conditions.



## OPTIONAL

### SENSOFOIL® ON FR4

All SENSOFOIL® variations (Standard, Hybrid and Magnet) are also available on FR4. These options feature enhanced temperature ranges, longer life cycles as well as the possibility to operate them in extreme environmental conditions.

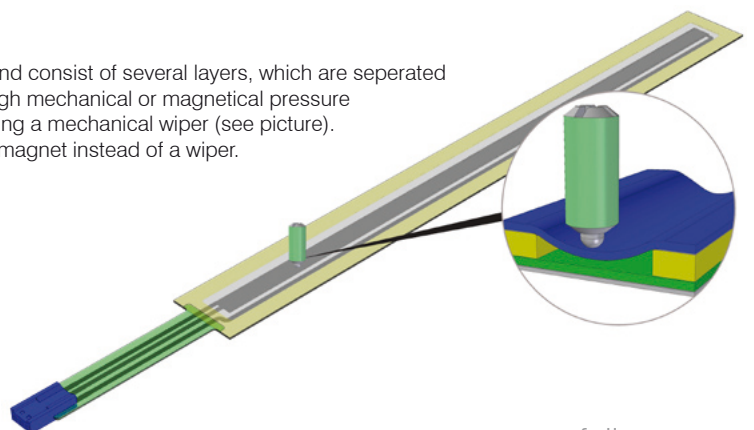


## HOW DOES IT WORK

SENSOFOIL® membrane potentiometers are used as voltage dividers and consist of several layers, which are separated by a so-called 'spacer'. These layers are connected to each other through mechanical or magnetical pressure and create a contact. The contact can be made either by hand or by using a mechanical wiper (see picture). It is also possible to have a non-contact operation through the use of a magnet instead of a wiper.

## CUSTOMIZED DESIGN

There are virtually no limitations when it comes to the customization of SENSOFOIL® membrane potentiometers. No matter if linear, rotary or custom-shaped - with SENSOFOIL® almost any customer requirement can be fulfilled.



**SPECIFICATIONS SENSIFOIL® MEMBRANE POTENTIOMETER** linear

	SENSIFOIL® foil-based			SENSIFOIL® FR4-based			Options
<b>Electrical Data</b>	SENSIFOIL® Standard	SENSIFOIL® Magnet	SENSIFOIL® Hybrid <sup>(1)</sup>	SENSIFOIL® Standard	SENSIFOIL® Magnet	SENSIFOIL® Hybrid <sup>(1)</sup>	
Resistance / 100mm (Standard)	2,5 kΩ	2,5 kΩ	2,5 kΩ	10 kΩ	10 kΩ	10 kΩ	up to 150 kΩ per 100mm
Resistance Tolerance	± 30%	± 30%	± 30%	± 30%	± 30%	± 30%	± 10%
Linearity (Independent) <sup>(2)</sup>	2% linear		n.a.	2% linear		n.a.	1% (Foil) 0.5% (FR4)
Repeat Accuracy	0.5 mm	1.0 mm	0.75 mm	0.5 mm	1.0 mm	0.75 mm	
Voltage (Standard)	5V to 30 V	5V to 30 V	5V to 30 V	5V to 30 V	5V to 30 V	5V to 30 V	1V to 64V
<b>Mechanical Data</b>	SENSIFOIL® Standard	SENSIFOIL® Magnet	SENSIFOIL® Hybrid	SENSIFOIL® Standard	SENSIFOIL® Magnet	SENSIFOIL® Hybrid	Options
Life Cycle (Operations) <sup>(3)</sup>	> 1 Million	> 20 Million	> 3 Million	> 1 Million	> 20 Million	> 3 Million	
Wiper Force <sup>(4)</sup>	1-3 N		2-6 N	1-3 N		2-6 N	
Recommended Wiper	# 64500002		# 64500003	# 64500002		# 64500003	
Recommended Magnet		# 60000048			# 60000048		
Distance to Magnet in mm		≤ 1.5 mm			≤ 1.5 mm		
Height without connector <sup>(5)</sup>	0.7 mm	1.7 mm	0.7 mm	1.2 mm	2.2 mm	1.2 mm	
Connector (Standard)	Berg 3-pole	Berg 3-pole	Berg 3-pole	Solder Tabs	Solder Tabs	Solder Tabs	Solder Tabs / ZIF
Stand. length (min./max.) <sup>(5, 6)</sup>	50 - 500 mm	50 - 500 mm	50 - 500 mm	50 - 500 mm	50 - 500 mm	50 - 500 mm	9 - 1000 mm
Width (min. / Standard) <sup>(5)</sup>	13 / 22 mm	13 / 22 mm	16 / 22 mm	13 / 22 mm	13 / 22 mm	16 / 22 mm	min. 9 mm
<b>Other Specifications</b>	SENSIFOIL® Standard	SENSIFOIL® Magnet	SENSIFOIL® Hybrid	SENSIFOIL® Standard	SENSIFOIL® Magnet	SENSIFOIL® Hybrid	Options
Temperature Range	-40°C / +55°C	-25°C / +55°C	-40°C / +125°C	-40°C / +55°C	-25°C / +55°C	-40°C / +125°C	
	-40°F - 131°F	-13°F - 131°F	-40°F - 257°F	-40°F - 131°F	-13°F - 131°F	-40°F - 257°F	
IP Rating (full product)	IP 54	IP 42	IP 42	IP 42	IP 42	IP 42	up to IP 67

**Remarks:**

- (1) Values based on current product development.  
 (2) Values can vary depending on customer design.  
 (3) Values have been determined with Hoffmann + Krippner specifications. Life Cycle can vary depending on customer wiper design.  
 (4) Recommended magnet D44/N52 with 2mm distance will create 1N wiper pressure (with SENSIFOIL standard products).  
 (5) Dimensions based on DIN ISO 2768  
 (6) Active electrical path

**YOUR SENSIFOIL® CONTACT**

SENSIFOIL® is a product by HOFFMANN + KRIPPNER.  
 Our regional sales & engineering team will be happy to assist you with your customized design.

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**STANDARD PARTS**

All SENSIFOIL® parts can be customized depending on your individual requirements (Size, electrical and mechanical specifications etc.).

**Additionally, we also offer numerous standard SENSIFOIL® parts,** which you can find in the „Standard Parts List“. These parts are in stock and we can ship them immediately.

These SENSIFOIL® standard parts are also **available online** at [www.sensofoil.com](http://www.sensofoil.com) (USA/Canada) [www.sensofoil.ch](http://www.sensofoil.ch) (Switzerland/Liechtenstein)  
 More countries will follow shortly.