

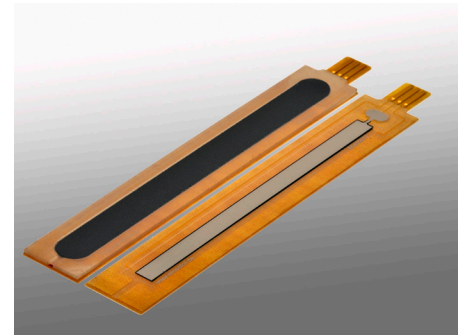
## DATASHEET

### Sensofoil® FR4-MAGNET

#### Resistive track printed on circuit board

Features:

- Linear design
- Contactless operation
- Operating temperature 0 °C to +55 °C
- Placement of additional electronics possible



#### How does it work? Sensofoil® FR4-Magnet

A Sensofoil® membrane potentiometer FR4-Magnet consists of a resistive track printed onto a circuit board and a collector track printed onto the top PET foil layer. These layers are separated by a so-called spacer. Only when the layers connect through mechanical pressure using a wiper a signal is produced.

For contactless operation, an additional layer is added using a ferromagnetic material. The ferromagnetic strip is pulled by a magnet, pressing the collector foil against the resistive track, therefore creating a contact. With the correct dimensions, linear paths and angles can be measured contactless, even through enclosures.

Ideally, a low DC voltage is connected to the resistive track and tapped at the collector track in the form of a voltage divider. A linear relation exists between the length of the resistive track, or the angle of the resistive track for rotary sensors, and the applied voltage. At 50% of distance traveled, 50% of the applied voltage is measured.

Quality characteristics of the Sensofoil® membrane potentiometers are resistance values, their corresponding tolerances and the non-linearity. The non-linearity represents the actual deviation of the output signal to an ideal reference line and is expressed as a percentage of the applied supply voltage.

**DATASHEET**  
**Sensofoil® FR4-MAGNET**

**Part Numbers (standard portfolio)**

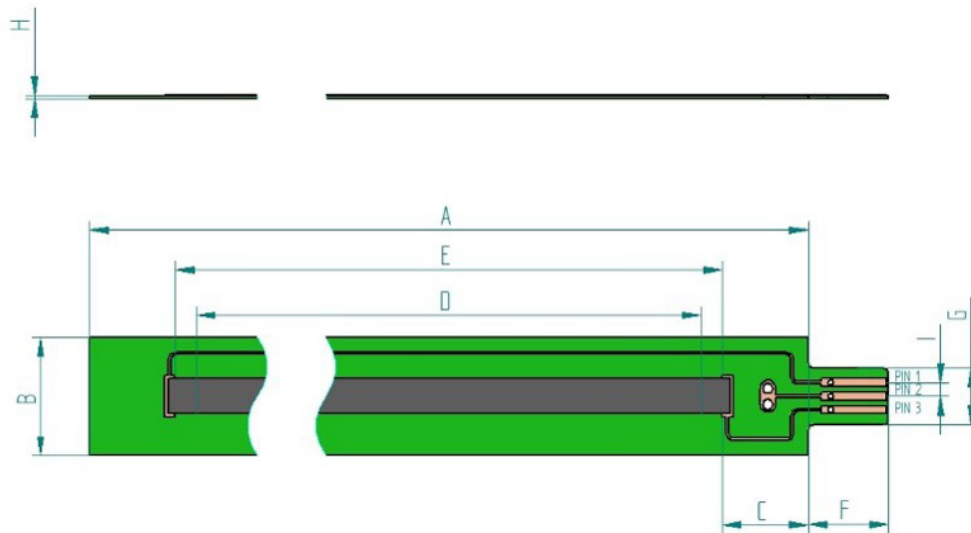
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**Mechanical Data** (at room temperature) <sup>(1)</sup>

Total length	A	137 mm			
Total width	B		22 mm		
Beginning of effective electrical length	C		16 mm		
Effective electrical length <sup>(2)</sup>	D	95 mm			
Active length	E	105 mm			
Length connector tail	F		15 mm		
Width connector tail	G		10.5 mm		
Height	H		2.1 mm		
Contact Spacing	I		2.54 mm		
Travel speed			≤ 3 m/s		
Life cycles (tested to date)			20 Million cycles		
Mounting type			self-adhesive foil		

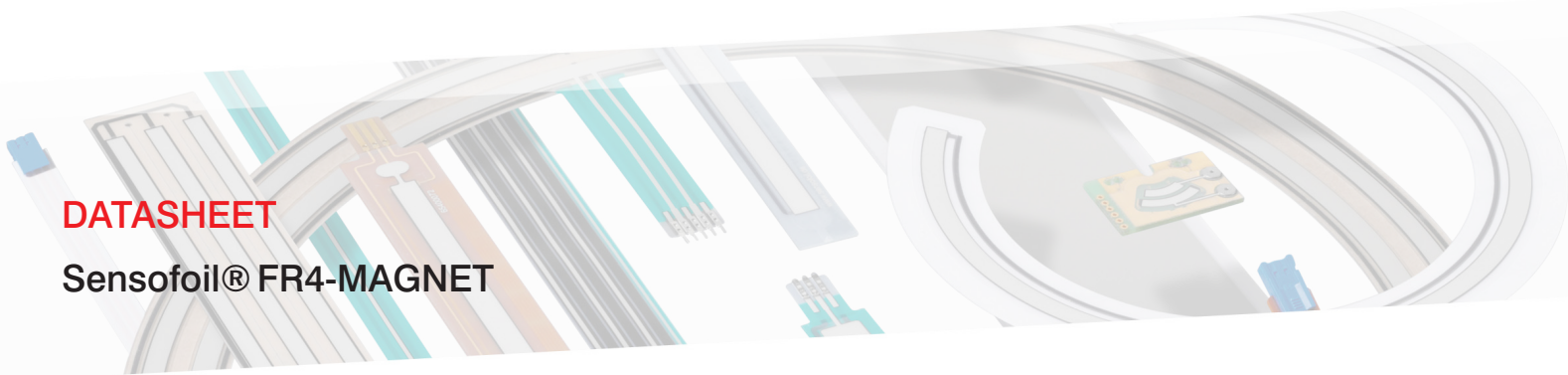
Above values are based on internal tests and inspections and represent typical values.  
Hoffmann + Krippner does not guarantee completeness or absolute accuracy based on varying conditions.  
Test set up information and conditions can be obtained.

- (1) Tolerances based on DIN ISO 2768
- (2) Area in which the specified linearity is guaranteed. Approx. 90% of the total active length.



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**Environmental Conditions**

Operating temperature	0°C to +55°C
Storage temperature	-25°C to +85°C
Protection Class <sup>(3)</sup>	IP 54

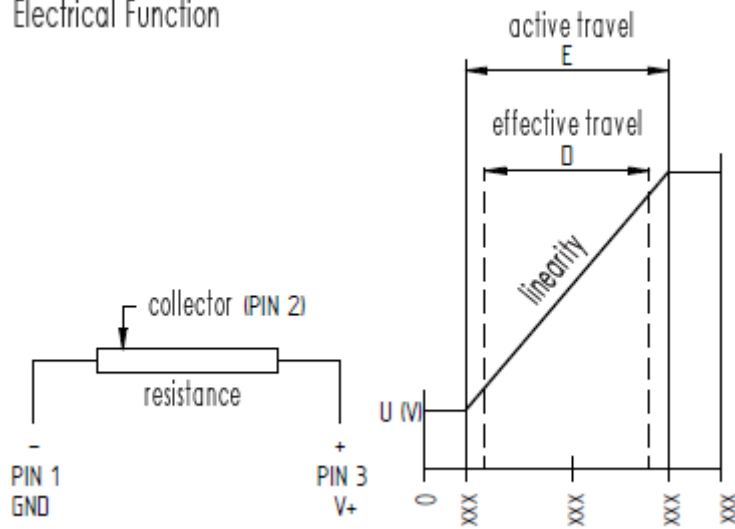
**Electrical Data (at room temperature)**

Resistance	10.0 kOhm
Tolerance	+/- 30%
Independent linearity	2%
max. wiper current in case of failure	0.1A
suggested wiper current during operation	0.1µA
Operating voltage	1-42 VDC

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(3) Protection class for sensor ONLY.

Electrical Function



**DATASHEET****Sensofoil® FR4-MAGNET****Sensofoil® FR4-Magnet Accessories**

Magnet for Sensofoil® FR4-Magnet  
(datasheet available upon request)



Magnet H+K part number 60300004 (D44-N52 Neodymium Magnet)

Contacts for membrane potentiometers with circuit board  
(datasheets available upon request)

- All common contacts solderable
- SMD contacts
- Cables or stranded wire soldered directly

Other connector and soldering options available upon request.