

# ORIGA- Sensoflex

Displacement measuring system  
for automated movement

Series SFI-plus  
(incremental measuring system)

for cylinder series

- OSP-P...

## Characteristics

- Contactless magnetic displacement measurement system
- Displacement length up to 32 m
- Resolution 0.1 mm (option: 1 mm)
- Displacement speed up to 10 m/s
- For linear and non-linear rotary motion
- Suitable for almost any control or display unit with a counter input



The SFI-plus magnetic displacement measuring system consists of 2 main components.

- **Measuring Scale**

Self-adhesive magnetic measuring scale

- **Sensing Head**

Converts the magnetic poles into electrical signals which are then processed by counter inputs downstream

(e.g. PLC, PC, digital counter)

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Characteristics			
Characteristics	Unit	Description	
Type		21210	21211
<b>Output Function</b>			
Resolution	mm	0.1	1
Pole lengths magnetic scale	mm	5	
Maximum speed	m/s	10	
Repeat accuracy		± 1 Increment	
Distance between sensor and scale	mm	≤ 4	
Tangential deviation		≤ 5°	
Lateral deviation	mm	≤ ± 1.5	
Switching output		PNP	
<b>Electrical Characteristics</b>			
Operating voltage $U_b$	V DC	18 – 30	
Voltage drop	V	≤ 2	
Continuous current for each output	mA	≤ 20	
Power consumption at $U_b = 24V$ , switched on, without load	mA	≤ 50	
Short-circuit protection		yes	
Reverse polarity protection			yes
Protection from inductive load		yes	
Power-up pulse suppression		yes	
<b>EMC</b>			
Electrostatic discharge immunity	kV	6, B, to EN 61000-4-2	
Electromagnetic field immunity	V/m	10, A, to EN61000-4-3	
Electrical fast transient/burst immunity (for signal connections)	kV	1, B, to EN 61000-4-4	
Electrical fast transient/burst immunity (for DC connections)	kV	2, B, to EN 61000-4-4	
Surge immunity (for signal connections)	kV	1, B, to EN 61000-4-5	
Surge immunity (for DC connections)	kV	0,5, B, to EN 61000-4-5	
Immunity to conducted disturbances	V	10, A, to EN 61000-4-6	
Power frequency magnetic field immunity at 50 Hz	A/m	30, A, to EN 61000-4-8	
Emission standard for residential		to EN 61000-6-4	
Radio disturbance characteristics		to EN 55011, Group 1, A	
<b>Mechanical Characteristics</b>			
Housing		Aluminum	
Cable length	m	5.0 – fixed, open end	
Cable cross section	mm <sup>2</sup>	4 x 0.14	
Cable type		PUR, black	
Bending radius	mm	≥ 36	
Weigth (mass)	kg	ca. 0.165	
<b>Environmental Conditions / Shock Resistance</b>			
Degree of protection	IP	67 to EN60529	
Ambient temperature range	°C	-25 to +80	
Broad-band random vibration to EN 60068-2-64	g	5, 5 Hz to 2 kHz, 0.5 h each axis	
Vibration stress to EN 60068-2-6	g	12, 10 Hz to 2 kHz, 2 mm, 5 h each axis	
Shock to EN 60068-2-27	g	100, 6 ms, 50 bumps each axis	
Bump to EN 60068-2-29	g	5, 2 ms, 8000 bumps each axis	

# Displacement Measuring System

for automated movement

## ORIGA-Sensoflex (incremental displacement measuring system)

Series SFI-plus for cylinder series

- OSP-P...

### Note:

For combinations Active Brake AB + SFI-plus + Magnetic Switch contact our technical department please.



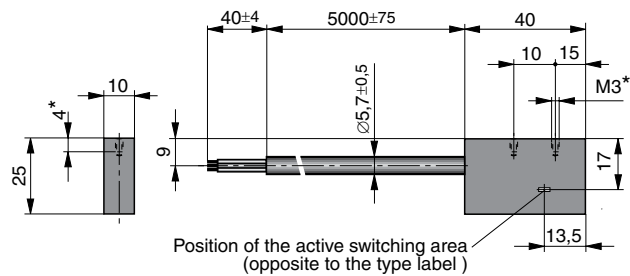
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**Sensoflex – Dimensions**

**Sensing Head**

The sensing head provides two pulsating, 90° out of phase counter signals (phase A/B) with a 0.4 mm resolution (option 4 mm). External processing can improve the resolution to 0.1 mm (option 1 mm). The counting direction can be determined automatically from the phase variance of the counter signals.

**Dimensions (mm) – Sensing Head**



\* Maximum thread depth 4mm

**Output signal – Sensing Head**

U <sub>a</sub> = U <sub>e</sub>	Phase B	U <sub>a1</sub>	0°	
	Phase A	U <sub>a2</sub>	90°	

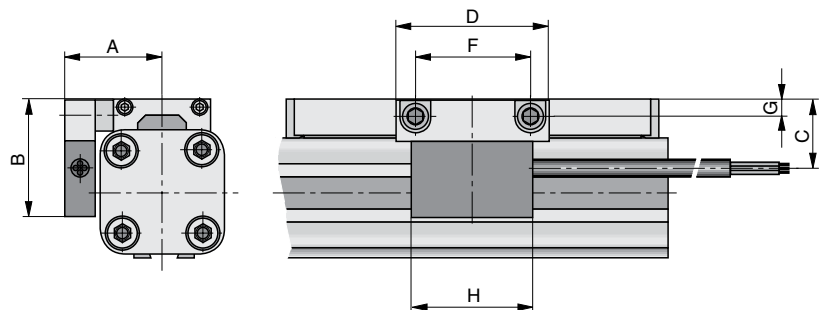
Electrical Connection	
Color	Description
bn = brown	+ DC
bu = blue	- DC
bl = black	Phase A
wt = white	Phase B

**SFI-plus mounted on a rodless cylinder series OSP-P**

The SFI-plus system can be mounted directly on a rodless OSP-P cylinder with the special mounting kit. The position of the sensing head is generally 90° to the carrier.



**Dimensions – in combination with OSP-P cylinders**



**Dimension Table (mm)**

Series	A	B	C	D	F	G	H
OSP-P25	32	39	23	50	38	5.5	40
OSP-P32	37.5	46	30	50	38	6.5	40
OSP-P40	42.5	50	34	50	38	6.5	40
OSP-P50	49.5	55	39	50	38	6.5	40
OSP-P63	59.5	65	49	50	38	10	40
OSP-P80	72.5	80	64	50	38	12	40

Combinations consisting of SFI-plus and OSP-P Cylinders with guides are available on request.

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**Sensoflex – Ordering Information**

Order instructions	
Description	Order No.
Sensing head with measuring scale – Resolution 0.1 mm (scale length = required measuring distance + a minimum of – see table below)	<b>21240</b>
Option: Sensing head with measuring scale – Resolution 1 mm (scale length = required measuring distance + a minimum of – see table below)	<b>21241</b>
Sensing head – Resolution 0.1 mm (spare part)	<b>21210</b>
Option: Sensing head – Resolution 1 mm (spare part)	<b>21211</b>
Measuring scale per meter (spare part)	<b>21235</b>
Mounting kit for OSP-P25	<b>21213</b>
Mounting kit for OSP-P32	<b>21214</b>
Mounting kit for OSP-P40	<b>21215</b>
Mounting kit for OSP-P50	<b>21216</b>
Mounting kit for OSP-P63	<b>21217</b>
Mounting kit for OSP-P80	<b>21218</b>



\* Overall length of the measuring scale results from stroke length of the cylinder + dead length  
 Dead length for linear drives series OSP-P see table.

Series	Dead length (mm)
OSP-P 25	154
OSP-P 32	196
OSP-P 40	240
OSP-P 50	280
OSP-P 63	350
OSP-P 80	422

**Example:**

Cylinder OSP-P, Ø25 mm, stroke length 1000 mm

$$\begin{array}{rcl}
 \text{dead length} & + & \text{stroke length} & = & \text{overall length of the measuring scale} \\
 \mathbf{154\text{ mm}} & + & \mathbf{1000\text{ mm}} & = & \mathbf{1154\text{ mm}}
 \end{array}$$

**Notes**

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