

# Data Sheet for Linear Sensors

## Potentiometric Linear Transducer (Conductive Plastic)

Series SPR18



The SPR18 series is used in applications where a displacement sensor with spring-suspended probe is required.

- Linear potentiometer (conductive plastic) with almost infinite resolution
- Measuring lengths from 25 mm to 100 mm
- Long lifetime (20 million movements)
- With spring return
- Compact dimensions

The transducer has a stainless steel ball in the probe tip, for example for scanning profiles or for monitoring distances.

Electrical Data	SPR18-25	SPR18-50	SPR18-75	SPR18-100
Effective electrical travel 1.)	25 ±1 mm	50 ±1 mm	75 ±1 mm	100 ±1 mm
Total resistance 1.)	0,5, 1, 2, 5, 10 kOhm		1, 2, 5, 10 kOhm	
Resistance tolerance	±10%			
Independent linearity (best straight line) 1.)	±0,2%	±0,1%		
Theoretical resolution 1.)	Almost infinite			
Backlash (Hysteresis) 1.)	≤ 0,1 mm			
Max. / recommended wiper current1.)	1 mA (@ 40°C, 1 min in case of failure) / 2 µA			
Power rating @ 70°C (0W @ 105°C)	≤ 0,5 W	≤ 0,75 W	≤ 1 W	≤ 1,25 W
Isolation voltage 1.)	500 VAC, 1min			
Isolation resistance 1.)	1000 MOhm @ 500 VDC			

Mechanical Data, Environmental Conditions, Miscellaneous	SPR18-25	SPR18-50	SPR18-75	SPR18-100
Mechanical stroke 1.)	ca. 30 mm	ca. 55 mm	ca. 80 mm	ca. 105 mm
Lifetime (90% effective electrical travel) 2.)	20 Mio. movements			
Max. operational speed	< 5 m/s			
Operational force @ RT 1.) 2.)	< 3 N			
End stop force in case of failure	< 90 N			
Operational temperature	-30..+105°C*			
Storage temperature	-30..+105°C			
Protection grade (IEC60529)	IP40 (optional IP54)			
Vibration (IEC 68-2-6, Test Fc)	15 g (10..2000 Hz, 0,75mm, 12h)			
Shock (IEC 68-2-27, Test Ea)	50 g, halfsine, 11 ms (18x)			
Housing length	63 ±1 mm	88 ±1 mm	113 ±1 mm	138 ±1 mm

\*Note: Spring return versions in IP54 have an operating temperature range of 0..+60 °C

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Mechanical Data, Environmental Conditions, Miscellaneous	SPR18-25	SPR18-50	SPR18-75	SPR18-100
Mass	ca. 100 g	ca. 150 g	ca. 200 g	ca. 250 g
Mounting parts (included in delivery)	4 x mounting clamps			
Material housing	Aluminium			
Material push rod	Stainless steel			
Connection type	Round cable 1 m or connector 5-pole M16			

1.) According IEC 60393

2.) Determined by climatic conditions according to IEC 68-1, para. 5.3.1 without load collectives

Please note: Max. permissible supply voltage <75 VDC respectively <50 VAC in addition the max. power rating must be observed

### Order Code

Description	Selection: standard=black/bold, possible options=grey/cursive						
<b>Series:</b>	<b>SPR18</b>						
<b>Electrical connection:</b> <b>Connector 5-pole M16</b> <b>Round cable 1 m</b>		<b>S</b> <b>K</b>					
<b>Effective electrical travel:</b> <b>25 mm</b> <b>50 mm</b> <b>75 mm</b> <b>100 mm</b>			<b>25</b> <b>50</b> <b>75</b> <b>100</b>			<b>L0,2%</b> <b>L0,1%</b> <b>L0,1%</b> <b>L0,1%</b>	
<b>Total resistance:</b> <i>Option 500 Ohm (only for 25 mm and 50 mm)</i> <b>1 kOhm</b> <i>Option 2 kOhm</i> <b>5 kOhm</b> <b>10 kOhm</b>				<i>R500</i> <b>R1K</b> <i>R2K</i> <b>R5K</b> <b>R10K</b>			
<b>Resistance tolerance :</b> <b>±10%</b>					<b>W10%</b>		
<b>Independent linearity:</b> <b>Standard depends on electrical travel</b>						<b>see above</b>	
<b>Protection class:</b> <b>Standard IP40</b> <i>Option IP54</i>							<b>-</b> <i>IP54</i>

### Accessory (not included in delivery):

- Mating connector (STEM16) #110906: M16 thread, 5-pole, IP67, straight, shielded (STE M16 5POL IP67 G S)
- Mating connector (STEM16) #114462: M16 thread, 5-pole, IP67, angled, shielded (STE M16 5POL IP67 W S)
- Mating connector with cable (STKM16) #127664: M16 thread, 5-pole, IP67, straight, shielded, 2 m (STK M16 5POL IP67 G GS 2M AWG24)
- Mating connector with cable (STKM16) #127665: M16 thread, 5-pole, IP67, angled, shielded, 2 m (STK M16 5POL IP67 W GS 2M AWG24)

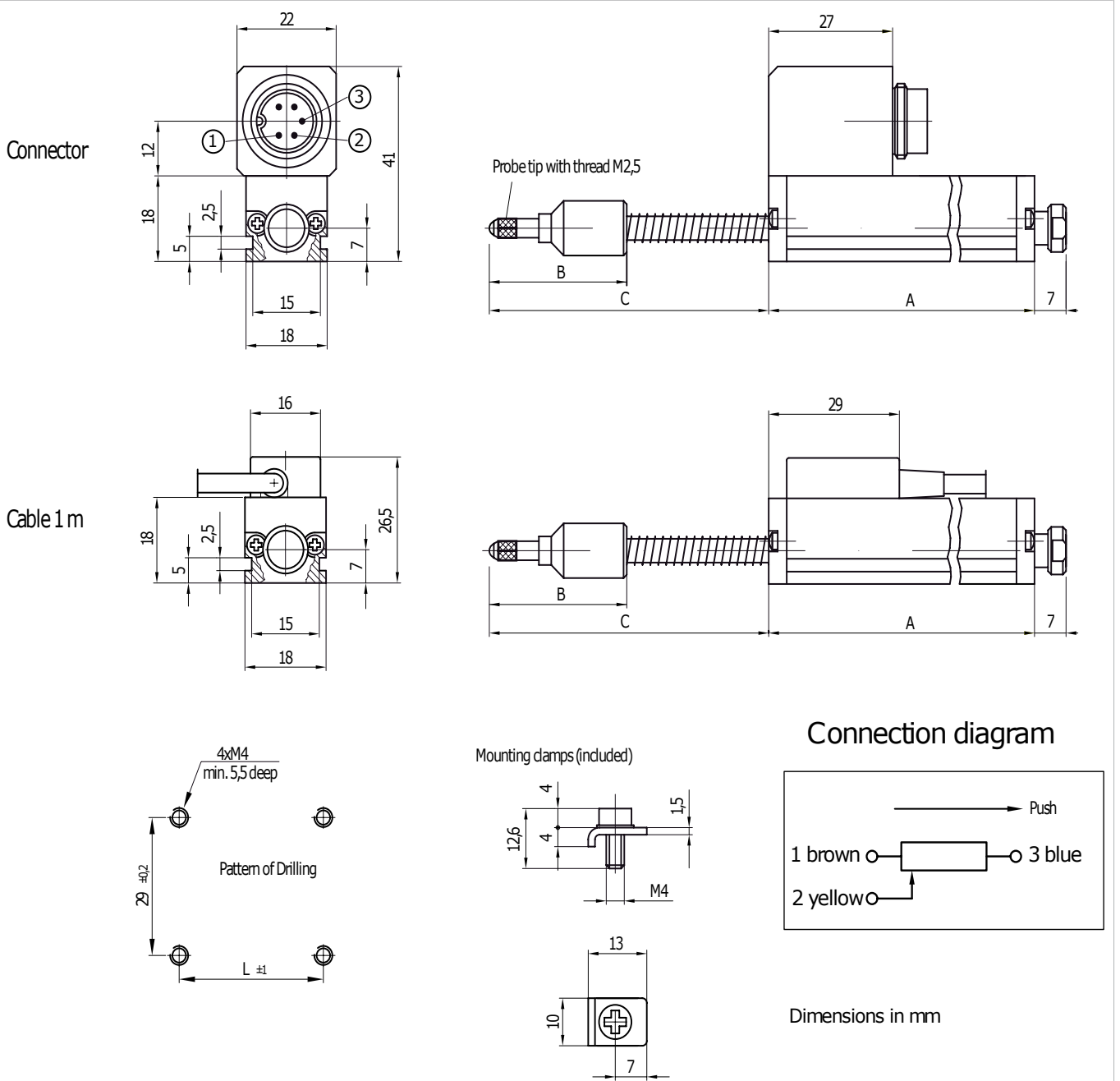
More connectors with and without cable on request. Take a look at data sheet STEM16 for connector without cable or STKM16 for connector with cable.

### For higher quantities or on-going demand, additional options are available as described below on request

For example:

- Assembled leads and cables with / without connector
- Probe, special axis length and much more

**Drawing**



Dimensions in mm

Dimensions	SPR18-25	SPR18-50	SPR18-75	SPR18-100
A* [±1 mm]	63	88	113	138
B [±0,1 mm]	32	40	55	62
C [±2 mm]	62	95	135	167
L [±1 mm]	33	58	83	108

\*Sealed type IP54: the length of "A" is extended by apt. 12mm.