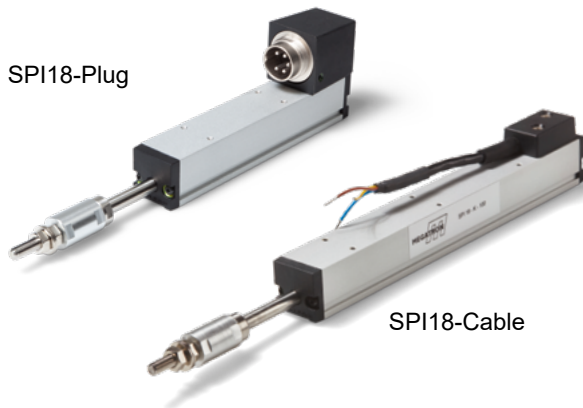


# Data Sheet for Linear Sensors

## Potentiometric Linear Transducer (Conductive Plastic)

Series SPI18



The SPI18 linear transducers are used in industrial applications where a compact sensor with ball joints, long life, high accuracy and a front guided push rod are required in measurement lengths from 25 to 200 mm.

- In compact industrial design
- Front guided push rod and ball joints
- Long lifespan and high accuracy
- Linear potentiometer with almost infinite resolution
- Measuring lengths from 25 mm to 200 mm

The SPI18 sensor is available with plug or cable connection.

Electrical Data	SPI18 25	SPI18 50	SPI18 75	SPI18 100	SPI18 150
Effective electrical travel 1.)	25 ±1 mm	50 ±1 mm	75 ±1 mm	100 ±1 mm	150 ±1 mm
Total resistance 1.)	500 Ohm..10 kOhm			1..20 kOhm	
Resistance tolerance	±10%				
Independent linearity (best straight line) 1.)	±0.2%	±0.1%			±0.05%
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	≤ 1.5 W
Isolation voltage 1.)	500 VAC, 1min				
Isolation resistance 1.)	1000 MOhm @ 500 VDC				

Mechanical Data, Environmental Conditions, Miscellaneous	SPI18 25	SPI18 50	SPI18 75	SPI18 100	SPI18 150
Mechanical stroke 1.)	ca. 30	ca. 55	ca. 80	ca. 105	ca. 155
Lifetime (90% effective electrical travel) 2.)	40 Mio. movements				
Max. operational speed	< 5 m/s				
Operational force @ RT 1.) 2.)	< 1,2 N				
End stop force in case of failure	< 90 N				
Operational temperature	-30 °C up to +105 °C				
Storage temperature	-30 °C up to +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 (with option IP54 +6 mm)	74.5 ±1	99.5 ±1	124.5 ±1	149.5 ±1	199.5 ±1
Mass	ca. 90 g	ca. 120 g	ca.140 g	ca. 160 g	ca. 250 g
Mounting parts (included in delivery)	Servomount clamps (1 set = 4 pc.)				
Material housing	Aluminium				
Connection type	Cable, connector				
Ball joint (included in delivery)	1 pc. WKM8 (not mounted)				

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

# Data Sheet for Linear Sensors

Potentiometric Linear Transducer (Conductive Plastic)

Series SPI18

Order Code							
<b>Description</b>	Selection: <b>standard=black/bold</b> , possible <i>options=grey/italic</i>						
<b>Series:</b>	<b>SPI18</b>						
<b>Electrical connection:</b>							
<b>Connector</b>		<b>S</b>					
<b>Cable 1 m</b>		<b>K</b>					
<i>Option length of cable 2, 3, 4, 5 or 10 m</i>		<i>Kxx</i>					
<b>Effective electrical travel:</b>							
<b>25 mm</b>			<b>25</b>			<b>L0,2%</b>	
<b>50 mm</b>			<b>50</b>			<b>L0,1%</b>	
<b>75 mm</b>			<b>75</b>			<b>L0,1%</b>	
<b>100 mm</b>			<b>100</b>			<b>L0,1%</b>	
<b>150 mm</b>			<b>150</b>			<b>L0,05%</b>	
<i>Option 200 mm</i>			<i>200</i>			<i>L0,05%</i>	
<b>Total resistance:</b>							
<i>Option 500 Ohm (only for 25 mm and 50 mm)</i>					<i>R500</i>		
<b>1 kOhm</b>					<b>R1K</b>		
<i>Option 2 kOhm</i>					<i>R2K</i>		
<b>5 kOhm</b>					<b>R5K</b>		
<b>10 kOhm</b>					<b>R10K</b>		
<i>Option 20 kOhm (not for 25 mm and 50 mm)</i>					<i>R20K</i>		
<b>Resistance tolerance :</b>							
<b>±10%</b>						<b>W10%</b>	
<b>Independent linearity depends on electrical travel</b>							
<i>(e.g. L0,2 means ±0.2%)</i>							<b>see above</b>
<b>Protection class:</b>							
<b>Standard IP40</b>							<b>-</b>
<i>Option IP54</i>							<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)

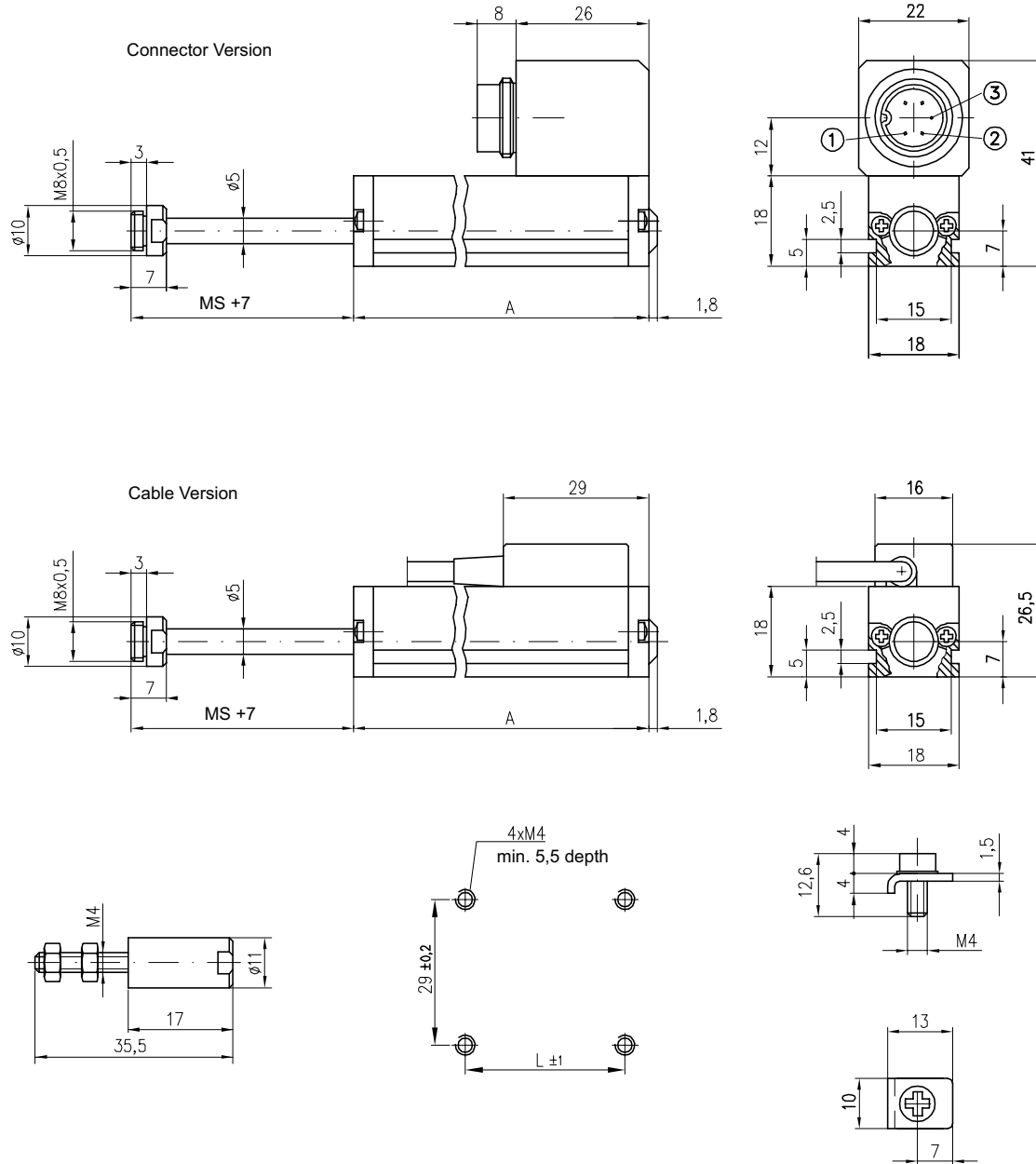
More connectors with and without cable on request. Take a look at data sheet STEM16 for connector without cable or STKM16 for connector with cable.

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

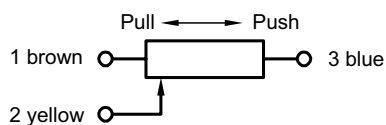
For example:

- Assembled cables with / without connector, special axle lengths, probe and much more

### Drawing



### Connection diagram



Dimensions in mm

	SPI18 25	SPI18 50	SPI18 75	SPI18 100	SPI18 150
A (with IP54 +6)	74,5 ±1	99,5 ±1	124,5 ±1	149,5 ±1	199,5 ±1
MS	30	55	80	105	155
L	44,5	69,5	94,5	119,5	169,5