

# Data Sheet for Linear Sensors

## Potentiometric Linear Transducer (Conductive Plastic)

Series MM / MMR



The MM / MMR series is used in applications where a miniaturized displacement sensor is required.

- Linear potentiometer (conductive plastic) with almost infinite resolution
- Measuring lengths from 10 mm to 30 mm
- Compact dimensions
- Double bearing push rod
- Long lifetime (up to 40 million movements)
- With and without spring return

This compact sensor will be mounted by means of the pilot ring and the two thread holes on the front side

Electrical Data	MM(R)11	MM(R)15	MM(R)20	MM(R)30
Effective electrical travel 1.)	10 ±0,5 mm	15 ±0,5 mm	20 ±0,5 mm	30 ±0,5 mm
Total resistance 1.)	0,5, 1, 2, 5, 10 kOhm			
Resistance tolerance	±10%			
Independent linearity (best straight line) 1.)	±1% (±0,5%)	±0,5%		
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)	≤ 0,2 W	≤ 0,3 W	≤ 0,4 W	≤ 0,5 W
Isolation voltage 1.)	1000 VAC, 1min			
Isolation resistance 1.)	1000 MOhm @ 1000 VDC			

Mechanical Data, Environmental Conditions, Miscellaneous	MM(R)11	MM(R)15	MM(R)20	MM(R)30
Mechanical stroke 1.)	10 +2 mm	15 +2 mm	20 +2 mm	30 +2 mm
Lifetime (90% effective electrical travel) 2.)	40 / 20 Mio. movements (MM / MMR)			
Max. operational speed	< 2 m/s			
Operational force @ RT 1.) 2.)	< 0,3 N / 3 N (MM / MMR)			
End stop force in case of failure	< 20 N			
Operational temperature	-30..+105°C			
Storage temperature	-30..+105°C			
Protection grade (IEC60529)	IP40			
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	37 ±1 mm		52 ±1 mm	

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Mechanical Data, Environmental Conditions, Miscellaneous	MM(R)11	MM(R)15	MM(R)20	MM(R)30
Mass	ca. 30 g			
Mounting parts (included in delivery)	2 x washer, 2 x nut			
Material housing	Plastic			
Material pushrod	Stainless steel			
Connection type	Gold plated solder tail			

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

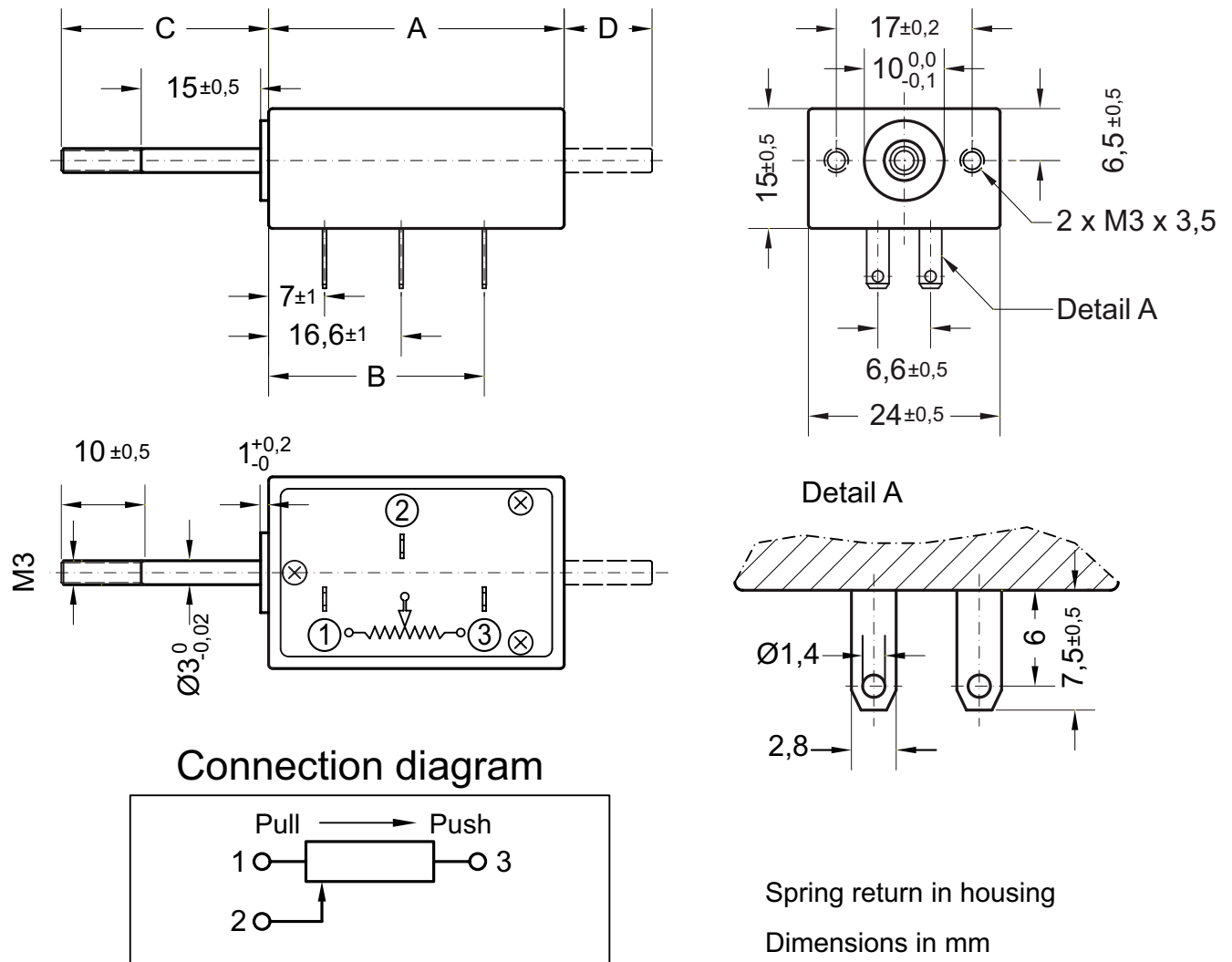
Order Code				
<b>Description</b>	Selection: standard=black/bold, possible options=grey/cursive			
<b>Series:</b>				
<b>Without spring return</b>	<b>MM</b>			
<b>With spring return</b>	<b>MMR</b>			
<b>Effective electrical travel:</b>				
10 mm		<b>11</b>		
15 mm		<b>15</b>		
20 mm		<b>20</b>		
30 mm		<b>30</b>		
<b>Total resistance:</b>				
<i>Option 500 Ohm</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>	
<b>Resistance tolerance :</b>				
<b>±10%</b>				<b>W10%</b>
<b>Independent linearity:</b>				
<b>±1% only for 10 mm stroke</b>				<b>L1%</b>
<b>±0,5%</b>				<b>L0,5%</b>

**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, IP54 versions, better linearity, other probe tips, special axis length and much more

Drawing



Dimensions	MM(R)11	MM(R)15	MM(R)20	MM(R)30
A [ $\pm 1$ mm]	37	37	52	52
B [ $\pm 1,5$ mm]	27	27	42	42
C max [ $\pm 0,1$ mm]	26	31	36	46
C min [ $\pm 0,5$ mm]	15	15	15	15
D max [ $\pm 0,5$ mm]	11	16	21	31
D min [ $\pm 0,5$ mm]	0	0	0	0