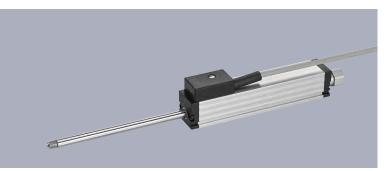


# **Position Transducer** with return spring potentiometric up to 100 mm

# Series TR / TRS





## **Special features**

- long life up to 100 million movements, depending on application
- outstanding linearity -
- up to ±0.075 %
- Repeatability to ±0.002 mm
- actuating shaft with doublesided support
- special ball-coupling
- eliminates sideways forces • high operational speeds -
- up to 10 m/s
- insensitive to shock and vibration
- TR-series with cable or TRS-
- series with connector versions

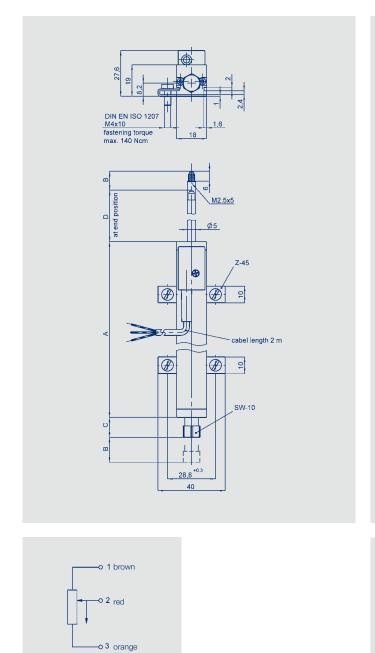
Position transducers employing conductive plastic tracks provide direct, accurate measurement of travel in display or control systems and for continuous contour gauging.

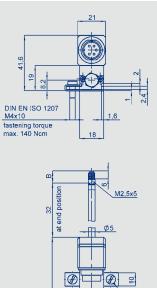
The push rod is supported on both ends by metal glide bearings, allowing high lateral forces on the tip of the rod. The elastomer-damped wiper provides reliable contact when experiencing shock or vibration.

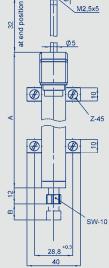
The design of the rear end stop nut on the push rod simplifies the mechanical connection of actuators like pneumatic cylinders and solenoids.

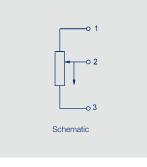
Description				
Housing	aluminium, anodized			
Mounting	adjustable clamps			
Actuating rod	stainless steel AISI 303, with anti-twist safeguard,			
	internal thread M2.5x6			
Probe tip	stainless steel with external thread M2.5			
	and pressed-in hardened metal ball			
Bearings	both ends in glide bearings			
Resistance element	conductive-plastic			
Wiper assembly	precious metal multi-finger wiper, elastomer damped			
Electrical connections				
Series TR	3-wire, PVC-cable, 3 x 0.14 mm <sup>2</sup> , shielded, 2 m length			
Series TRS	5-pin round connector IEC 130-9			









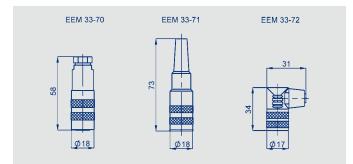


Schematic



Type designations	TR-0010	TR-0025 TRS-0025	TR-0050 TRS-0050	TR-0075 TRS-0075	TR-0100 TRS-0100	with cable with plug
Electrical Data						
Defined eletrical range	10	25	50	75	100	mm
Electrical stroke	12	27	52	77	102	mm
Nominal resistance	1	1	5	5	5	kΩ
Resistance tolerance	20					±%
Independent linearity	0.25	0.2	0.15	0.1	0.075	±%
Repeatability	0.002					mm
Recommended operating wiper current	≤1					μΑ
Maximum wiper current in case of malfunction	10					mA
Maximum permissible applied voltage	24	42	42	42	42	V
Effective temperature coefficient of the output-to-applied voltage ratio	typical 5					ppm/K
Insulation resistance (500 VDC)	≥10					MΩ
Dielectric strength (500 VAC, 50 Hz)	≤ 100					μΑ
Mechanical Data						
Body length (dimension A)	48	63	94.4	134.4	166	+1 mm
Mechanical stroke (dimension B)	15	30	55	80	105	±1,5 mm
Dimension C (TR series)	7	12	12	12	12	mm
Dimension D (TR series)	6	32	32	32	32	mm
Weight with cable with plug	80	120 74	150 100	180 128	200 150	g
Weight of shaft with coupling	18	25	36	48	57	g
Operating force extended (horizontal)	≤ 3.5	≤ 2.5	≤ 2.5	≤ 2.5	≤ 2.5	N
Operating force retracted (horizontal)	≤ 5.0	≤ 5.0	≤ 5.0	≤ 5.0	≤ 5.0	Ν
Operating force to end stop	max. 5					Ν
Operating frequency (maximum) (in critical applications, mount probe tip upwards)	20	18	14	11	10	Hz
Maximum permitted torque for mounting screws (with washer)	140					Ncm
Environmental Data						
Temperature range	-30 +100					°C
Vibration	52000 Amax = 0.75 amax = 20					Hz mm g
Shock	50 11					g ms
Life	> 100x10 <sup>6</sup>					movements
Protection class	IP40 (DIN EN 60529)					





#### Order designations

Туре	P/N	
TR-0010	023260	
TR-0025	023261	
TRS-0025	023271	
TR-0050	023262	
TRS-0050	023272	
TR-0075	023263	
TRS-0075	023273	
TR-0100	023264	
TRS-0100	023274	
Available on request		
Order designations		
Туре	P/N	independent linearity
TR-00251	023265	±0,1 %
TRS-00251	023275	±0,1 %
TR-00501	023266	±0,1 %
TRS-00501	023276	±0,1 %
TR-005005	023267	±0,05 %
TRS-005005	023277	±0,05 %
TR-007505	023268	±0,05 %
TRS-007505	023278	±0,05 %
TR-010005	023269	±0,05 %
TRS-010005	023279	±0,05 %

#### © 02/2014 Subject to changes.

### Important

All values specified in this data sheet for linearity, lifetime and temperatur e coefficient are only valid for a sensor used as a voltage divider with virtually no load applied to the wiper (ie  $\leq 1 \ \mu$ A).

## Included in delivery

2 mounting clamps Z-45 incl. 4 cylinder screws M4x10; 1 probe tip with pressed-in hardened metal ball.

### Optional accessories

4 mounting clamps Z3-31, P/N 059010. Straight connector IEC130-9 (5x0.75 mm<sup>2</sup>, Ø 4-6 mm); EEM 33-70, unshielded, IP67; EEM 33-71, shielded, IP40; Angled connector IEC130-9: EEM 33-72, shielded, IP40; 1 roller head Z 50, P/N 005678.

## **Recommended accessories**

MAP - Process monitor /display MUP/MUK - signal conditioners

