

Position Transducers with Restoring Spring 10, 25, 50, 75, 100 mm

TR, TRS Series



Special features

- long life 100 x 10⁶ movements
- outstanding linearity up to
- ±0.075%
- choice of plug or cable
- connection
- DIN standard gauging end
- double bearing system on shaftinsensitive to shock and vibration
- Repeatability to ±0.002 mm

Position sensors employing conductive-plastic resistance and collector tracks provide direct means of measuring position or profile, without the need of a solid mechanical coupling.

One important feature of the TR, TRS Series is the industry proven double-bearing systems on both actuator shaft and spring. This arrangement reduces side load errors that could occur in an application such as cam-following and is one of the design factors that enables the outstanding linearity of this series.

The back end of the actuator shaft has a special collar that allows the attachment of an air cylinder of solenoid to automatically retract the actuator when required.







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Description Housing

Housing	aluminum, anodized
Actuating shaft	stainless steel with anti-rotation device, inside thread M 2.5 x 6
Fixings	adjustable clamps
Gauging head	stainless steel with external M 2.5 thread and hardened ball point
Bearings	both ends in DU plastic bearings
Resistance element	conductive plastic
Wiper assembly	precious metal multi-finger wiper, elastomer-damped
Electrical connections type TR type TRS	three conductor stress-relieved, shielded cable, 2 m plug connector

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TR 10 TR 25 TR 50 TRS 50 TR 75 TRS 75 TR 100 Type designations with cable TRS 25 TRS 100 with plug **Electrical Data** Defined electrical range 10 25 50 75 100 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 μA 10 Max. wiper current in case of malfunction m Max. 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, 1 bar, 2 s) ≥ 10 MΩ Dielectric strength (50 Hz, 2 s, 1 bar, 500 VAC) ≤ 100 μΑ Mechanical Data Overall 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 (at TR) 12 12 12 12 7 mm Dimension D (at TR) 32 6 32 32 32 mm Weight with cable 80 120 150 180 200 g with plug 74 100 128 150 g Weight of the actuating shaft with coupling and wiper block 18 25 36 48 57 g Operating force (horizontal) ≤ 5 Ν Operating frequency max. 20 18 14 11 10 Hz (In critical applications mount the transducer with the gauging head upwards.) Maximum permitted torque for fixing screws 140 Ncm

Included in delivery

2 fixing clamps Z 45 incl.4 screws M4x10,1 gauging head with hardened ball point

Recommended accessories

Plug type EEM 33-70, protection class IP 67 Plug type EEM 33-71, protection class IP 40 Plug type EEM 33-72, protection class IP 40 1 roller head Z 50 Process-controlled indicators MAP... with display, Signal conditioner MUP.../MUK... for standardized output signals

Important

All values given for this series – including linearity, lifetime, microlinearity, resistance to external disturbances and temperature coefficient in voltage dividing mode – are quoted for the device operating with the wiper voltage driving an operational amplifier working as a voltage follower where virtually no load is applied to the wiper (le $\leq 1 \mu A$).

Environmental Data				
Temp. range	-30+100	°C		
Vibration	52000 A _{max} = 0.75 a _{max} = 20	Hz mm g		
Shock	50 11	g ms		
Life	> 100 x 10 ⁶	movements		
Protection class	IP 40 (DIN 400 50 / IEC 529)			



Order designations		
Туре	Art. no.	
TR 10	023260	
TR 25	023261	
TRS 25	023271	
TR 50	023262	
TRS 50	023272	
TR 75	023263	
TRS 75	023273	
TR 100	023264	
TRS 100	023274	

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