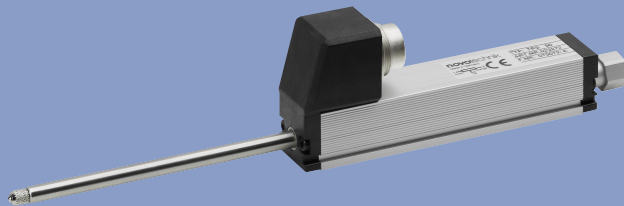
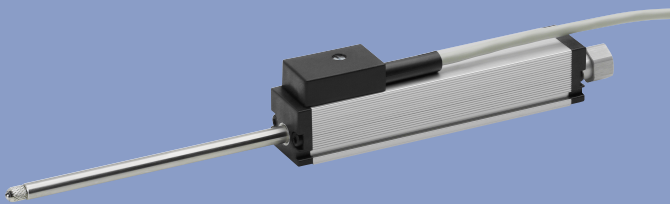


**Position Transducers
with restoring spring
10, 25, 50, 75, 100 mm**

Series TR, TRS



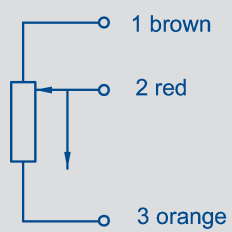
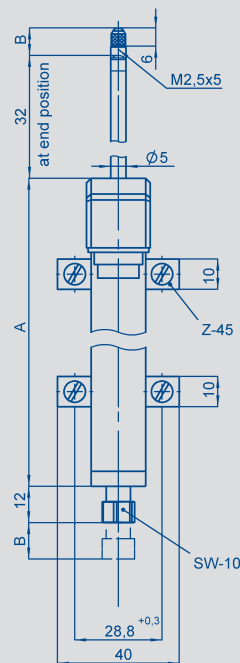
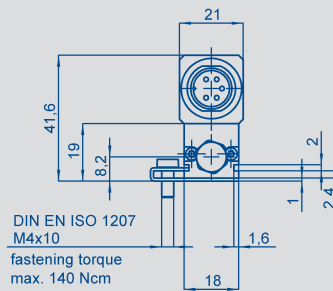
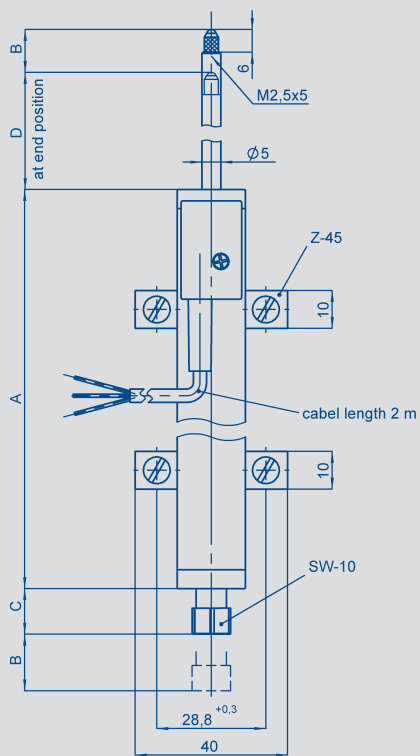
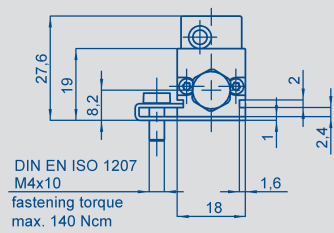
Special features

- long life - 100×10^6 movements
- outstanding linearity - up to 0.075 %
- cable or plug connection optional
- DIN standard gauging end
- double bearing system on shaft
- insensitive to shock and vibration

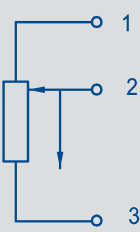
Position transducers employing conductive-plastic resistance and collector tracks provide direct means of measuring position or profile, without the need of any form of solid mechanical coupling.

An important and special feature of these particular units is their robust, industry-proven design. Of particular significance is the double bearing arrangement which really comes into its own when side forces (such as would be experienced in a cam-following application) are met. The rear end of the actuating rod has a special collar, which can be very easily employed where automatic retraction by means of air cylinders or solenoid is required.

Description	
Housing	aluminium, anodized
Mounting	adjustable clamps
Actuating rod	stainless steel with anti-rotation device, inside thread M 2.5 x 6
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	3-wire, shielded cable strain-relieved, 2 m long
type TRS	5-pin round connector IEC 130-9



Schematic



Schematic

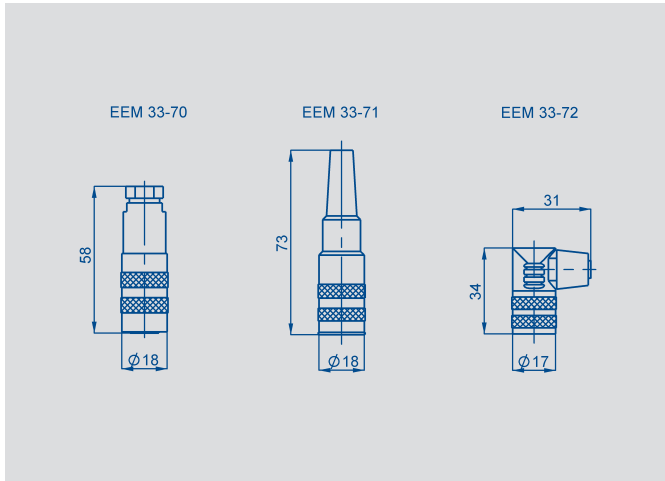
Type designations	TR 10	TR 25 TRS 25	TR 50 TRS 50	TR 75 TRS 75	TR 100 TRS 100	with cable with plug
Electrical Data						
Defined electrical range	10	25	50	75	100	mm
Electrical stroke	12	27	52	77	102	mm
Nominal resistance	1	1	5	5	5	k Ω
Resistance tolerance	20					\pm %
Independent linearity	0.25	0.2	0.15	0.1	0.075	\pm %
Repeatability	0.002					mm
Recommended operating wiper current	≤ 1					μ A
Max. wiper current in case of malfunction	10					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)	≥ 10					M Ω
Dielectric strength (500 VAC, 50 Hz)	≤ 100					μ A
Mechanical Data						
Overall length (dimension A)	48	63	94.4	134.4	166	+1mm
Mechanical stroke (dimension B)	15	30	55	80	105	± 1.5 mm
Dimension C (at TR)	7	12	12	12	12	mm
Dimension D (at TR)	6	32	32	32	32	mm
Weight with cable with plug	80	120 74	150 100	180 128	200 150	g g
Weight of actuator with coupling and wiper	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	N
Operating force to end stop	max. 5					N
Operating frequency max. (In critical applications mount the transducer with the gauging head upwards.)	20	18	14	11	10	Hz

Environmental Data

Temperature range	-30...+100	$^{\circ}$ C
Vibration	5...2000 $A_{\max} = 0.75$ $a_{\max} = 20$	Hz mm g
Shock	50 11	g ms
Life	$> 100 \times 10^6$	movem.
Protection class	IP 40 (DIN EN 60529)	

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© 04/2010
 Art.-Nr.: 062 740
 Subject to changes
 Printed in Germany



Included in delivery

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

Optional accessories

4 mounting clamps Z3-31,
 Art.No. 059010

Important

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

Order designations	
Type	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

Available on request		
Order designations		
Type	Art.-No.	independent linearity
TR 25-.1	023265	±0,1 %
TRS 25-.1	023275	±0,1 %
TR 50-.1	023266	±0,1 %
TRS 50-.1	023276	±0,1 %
TR 50-.05	023267	±0,05 %
TRS 50-.05	023277	±0,05 %
TR 75-.05	023268	±0,05 %
TRS 75-.05	023278	±0,05 %
TR 100-.05	023269	±0,05 %
TRS 100-.05	023279	±0,05 %

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 current supply 24
 V and standardized output
 signals.



Signal conditioner MUP