

Position Transducers
25, 50, 75, 100, 150 mm

T, TS Series

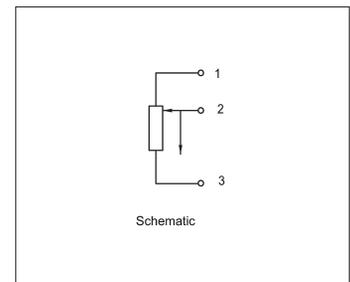
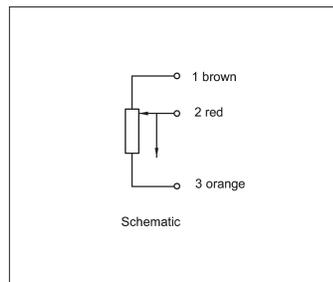
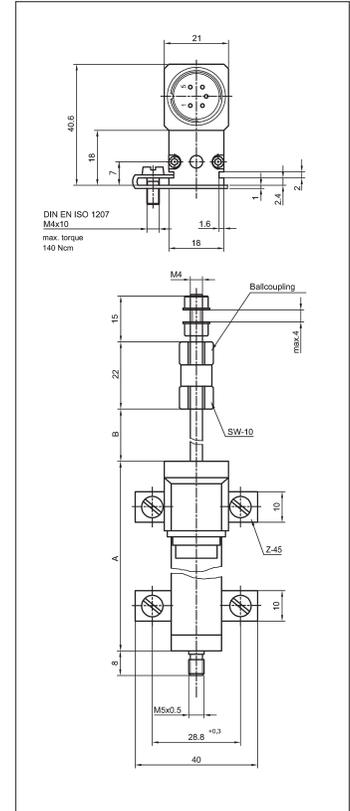
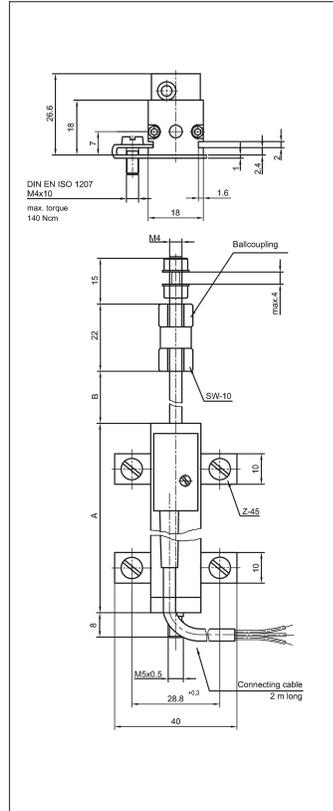


Special features

- long life – 100 x 10⁶ movements
- outstanding linearity up to ±0.075%
- actuating shaft with double bearing system
- special ball coupling eliminates sideways forces
- high operational speeds up to 10 m/s
- insensitive to shock and vibration
- choice of plug or cable connection
- Repeatability to ±0.002 mm

Position transducers employing conductive plastic resistance and collector tracks provide direct means of measurement in control and regulation systems and in instrumentation.

A ball coupling (which may be fitted to either end of the shaft) offers backlash-free operation even where there are parallel or angular errors between the transducer axis and the direction of movement. The elastomer-damped, independently-sprung precious metal multi-finger wiper has been designed to provide a reliable contact even at high speeds or when experiencing shock or vibration.

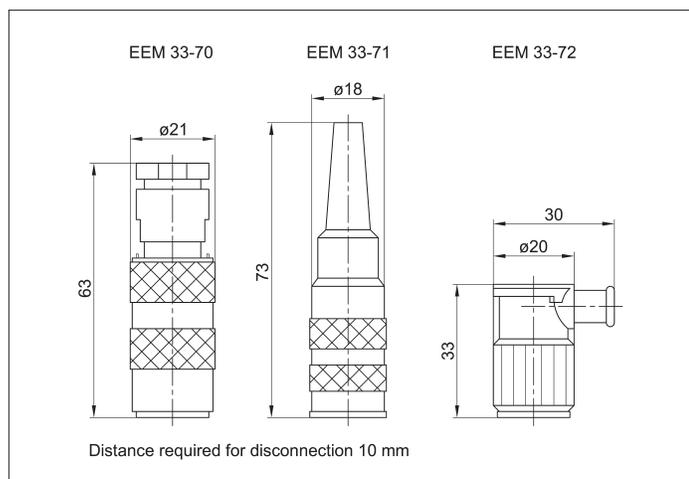


Description

Housing	aluminum, anodized
Actuating shaft	stainless steel
Bearings	both ends in DU plastic bearings
Fixings	adjustable clamps
Ball coupling	stainless steel with a hardened ball sprung against a hardened plate surface
Resistance element	conductive plastic
Wiper assembly	precious metal multi-finger wiper, elastomer-damped
Electrical connections	
series T	three conductor stress-relieved shielded cable, 2 m
series TS	plug connector

Type designations	T25 TS25	T50 TS50	T75 TS75	T100 TS100	T150 TS150	with cable with plug
Electrical Data						
Defined electrical range	25	50	75	100	150	mm
Nominal resistance	1	5	5	5	5	k Ω
Resistance tolerance	20					$\pm\%$
Independent linearity	0.2	0.15	0.1	0.075	0.075	$\pm\%$
Repeatability	0.002					mm
Recommended operating wiper current	≤ 1					μA
Max. wiper current in case of malfunction	10					mA
Max. permissible applied voltage	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					M Ω
Dielectric strength (50 Hz, 2 s, 1 bar, 500 VAC)	≤ 100					μA
Mechanical Data						
Overall length (dimension A)	63	88	113	138	188	+1 mm
Mechanical stroke (dimension B)	30	55	80	105	155	± 1.5 mm
Weight with cable	140	160	170	190	220	g
Weight with plug	86	107	132	150	190	g
Weight of the actuating shaft, with coupling and wiper block	35	43	52	58	74	g
Operating force (horizontal)	≤ 0.30					N
Compensation provided by ball bearing	± 1 mm parallel offset, $\pm 2.5^\circ$ angular offset					
Maximum permitted torque for fixing screws (with washer)	140					Ncm

Environmental Data		
Temp. range	-30...+100	$^\circ\text{C}$
Vibration	5...2000	Hz
	$A_{\text{max}} = 0.75$	mm
	$a_{\text{max}} = 20$	g
Shock	50	g
	11	ms
Life	$> 100 \times 10^6$	movements
Protection class	IP 40 (DIN 400 50 / IEC 529)	



Included in delivery

2 fixing clamps Z 45 incl.
4 screws M4x10,
1 ball coupling

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,
Process-controlled indicators
MAP...with display,
Signal conditioner
MUP.../MUK...for
standardized output signals.

Important

All values given for this series – including linearity, lifetime, micro-linearity, 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 ($I_e \leq 1 \mu\text{A}$).

Order designations

Type	Art. no.
T 25	023202
TS 25	023232
T 50	023203
TS 50	023233
T 75	023204
TS 75	023234
T 100	023205
TS 100	023235
T 150	023206
TS 150	023236

Subject to changes

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Position Transducers 25,50,75,100,150 mm

Series T, TS



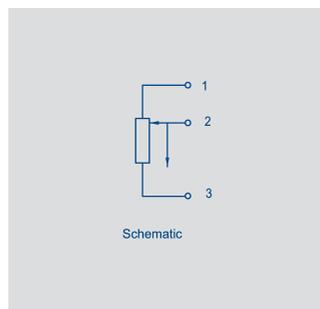
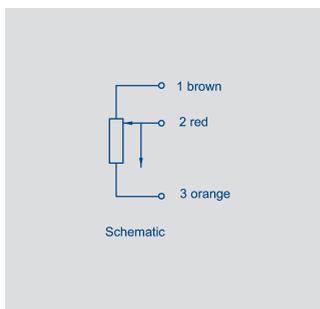
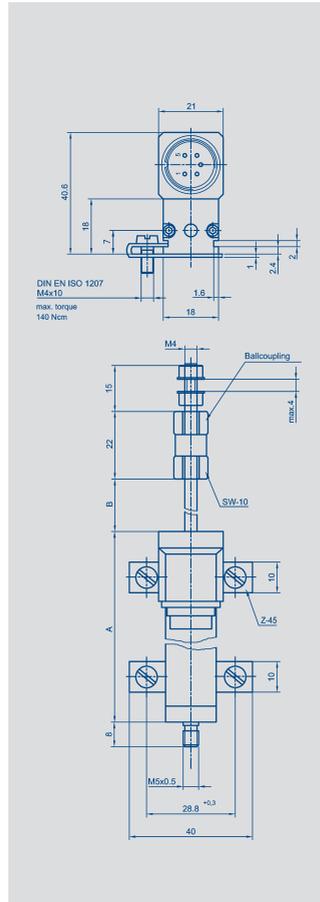
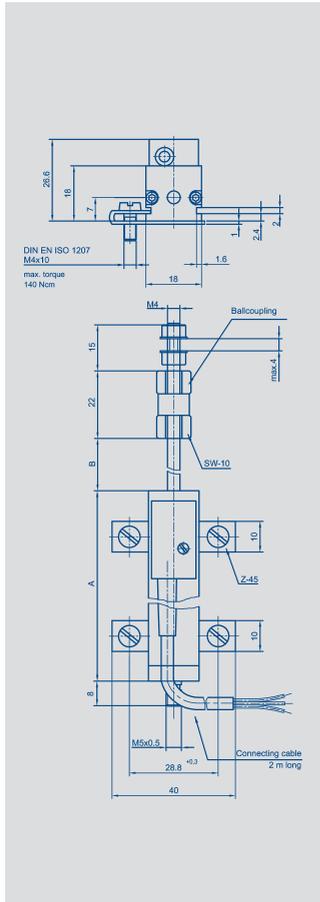
Special features

- long life - 100×10^6 movements
- outstanding linearity up to $\pm 0.075\%$
- actuating shaft with double bearing system
- special ball coupling eliminates sideways forces
- high operational speeds up to 10 m/s
- insensitive to shock and vibration
- choice of plug or cable connection

Position transducers employing conductive plastic resistance and collector tracks provide direct means of measurement in control and regulation systems and in instrumentation.

Using this type of transducer, problems traditionally associated with rotary potentiometers, especially reliability, life expectancy, accuracy and operational speed, are overcome. Thus opening up new fields of application in direct position measurement.

A ball coupling (which may be fitted to either end of the shaft) offers backlash-free operation even where there are parallel or angular errors between the transducer axis and the direction of movement. The elastomer-damped, independently sprung precious metal multi-finger wiper has been designed to provide a reliable contact even at high speeds or when experiencing shock or vibration.

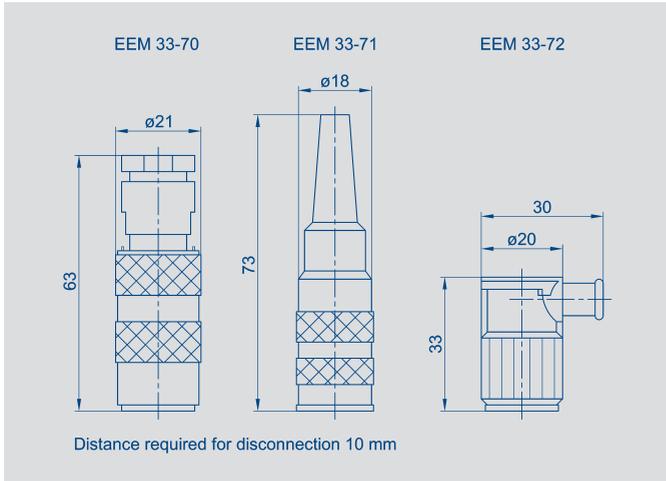


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Wiper assembly	precious metal multi-finger wiper, elastomer-damped
Electrical connections series T series TS	3core stress-relieved shielded cable, 2 m plug connector

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MUP... /MUK ... for
standardized output signals.

Important

All the values given in this data sheet for linearity, lifetime and temperature coefficient in the voltage dividing mode are quoted for the device operating with the wiper voltage driving on operational amplifier working as a voltage follower, where virtually no load is applied to the wiper ($I_e \leq 1 \mu A$).

Order designations

Type	Art.no.
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TS 25	002332
T 50	002303
TS 50	002333
T 75	002304
TS 75	002334
T 100	002305
TS 100	002335
T 150	002306
TS 150	002336