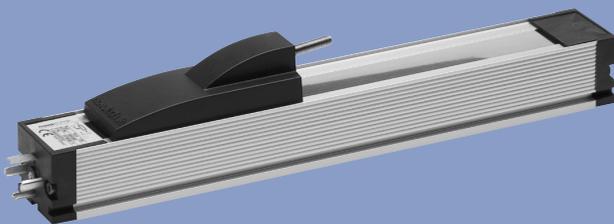


Position Transducers up to 3000 mm potentiometric

Series TLH
Special Lengths
(on request)



Special features

- rodless design
- ball coupling avoids side loads
- long life up to 100 Mio. movements, depending on application
- outstanding linearity up to $\pm 0.02\%$
- high resolution - better than 0.01 mm
- very high operating speed
- Connector to DIN 43650 (hydraulic connector)
- protection class IP 54
- mounted "up-side-down"

Designed for the direct, accurate measurement of displacement or length in control, regulation and measuring applications. The rodless design allows the actuator to be driven from the side, along the unit length, thereby avoiding the „pump“ effect problems normally associated with conventional transducers, and allowing standard stroke length up to 3000 mm.

A magnetically restrained stainless steel band completely covers the opening through which the actuator operates. The ball coupling is of a new design which prevents forces, generated through parallel or angular offsets, from being transmitted to bearing surfaces. Fixing is achieved through the use of clamps which permit fine adjustment after initial mounting.

Due to the design and the selected materials the temperature coefficient of the transducer is extremely small. Careful attention to detail and choice of materials has resulted in a transducer with an extremely low temperature drift. The robust design ensures reliable operation even under harsh environmental conditions such as vibration or temperature changes. The simplicity of the measuring technique - both passive and absolute - ensures that the transducer is immune to external electrical interference, and that it does not require any built-in power supply to maintain positional information in the event of power failure.

Description	
Housing	aluminium, anodized
Fixings	adjustable clamps
Sliding parts	aluminium with plastic inserts
Coupling	ball coupling, incorporating a hardened ball, with spring and hardened plate. Coupling bolts, stainless steel (1.4305), male thread M5
Resistance element	conductive plastic
Wiper assembly	precious metal multi-finger wiper, elastomer-damped
Electrical connections	4pole socket to DIN 43650

Type designations	TLH 0175	TLH 0200	TLH 0275	TLH 0325	TLH 0400	TLH 0425	TLH 0525	TLH 0650	TLH 0800	TLH 0875	TLH 0950	TLH 1100	TLH 1350	TLH 1600	
Electrical Data															
Defined electrical range	175	200	275	325	400	425	525	650	800	875	950	1100	1350	1600	mm
Electrical stroke	178	203	279	330	406	432	533	660	813	889	965	1118	1370	1620	mm
Nominal resistance	5	5	5	5	5	5	5	5	10	10	10	10	10	20	k Ω
Resistance tolerance	20														±%
Independent linearity	0,07	0,07	0,07	0,05	0,05	0,05	0,05	0,05	0,04	0,04	0,04	0,04	0,03	0,03	±%
Repeatability	0.01														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 (500 VAC, 50 Hz)	≤100														μA
Mechanical Data															
Body length (dimension A)	326	351	427	478	554	580	681	808	961	1037	1113	1266	1518	1748	±2 mm
Mechanical stroke (dimension B)	184	209	285	336	412	438	539	666	819	895	971	1124	1376	1626	±2 mm
Total weight	560	590	700	780	880	920	1070	1250	1460	1580	1680	1900	2250	2610	g
Weight of sliding part	45														g
Permitted movement of ball coupling	±1° angular offset, ±1.5 mm parallel offset														
Operating force horizontal	≤ 0.4														N
vertical	≤ 1.1														N
Environmental Data															
Temperature range	-30...+100														°C
Vibration	5...2000 A _{max} = 0,75 a _{max} = 20														Hz mm g
Shock	50 11														g ms
Life	>100 x 10 ⁶														movements
Operating speed	10														m/s max.
Operating acceleration	200 (20 g)														m/s ² max.
Protection class	IP 40 (DIN EN 60529) IP 54 (DIN EN 60529) mounted "up-side-down"														

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Order designations

Type	Art.no.
TLH-0175	025307
TLH-0200	025308
TLH-0275	025311
TLH-0325	025313
TLH-0400	025316
TLH-0425	025317
TLH-0525	025321
TLH-0650	025326
TLH-0800	025332
TLH-0875	025335
TLH-0950	025338
TLH-1100	025344
TLH-1350	025354
TLH-1600	025364

Other lengths see data sheet TLH

Included in delivery

Fixing clamps Z-43 with 4 screws
1 plug connector GDM 3009 (Ø 4.5 mm - 7 mm)
1 sealing gasket GDM 3-16

Recommended accessories

Process-controlled indicators MAP... with display. Signal conditioner MUW... (integrated in plug connector) with supply voltage 24 V and standard output signals.

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 ($I_e \leq 1 \mu A$).

Mounting instructions

It is recommended that the transducer be mounted „up-side-down“. Only when orientated in this manner, the drop-off-edges which are parallel to the actuator slot work effectively and a build-up of dirt on the sealing band be prevented when the device is used in a dusty environment.



Signal conditioner MUW