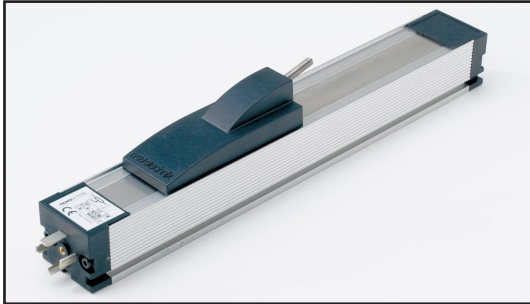


# Position Transducers up to 3000 mm

## Series TLH



### Special features

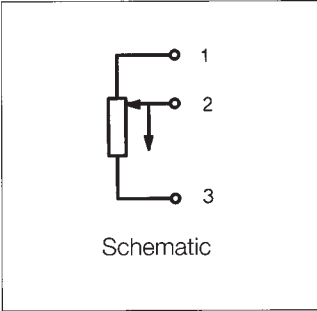
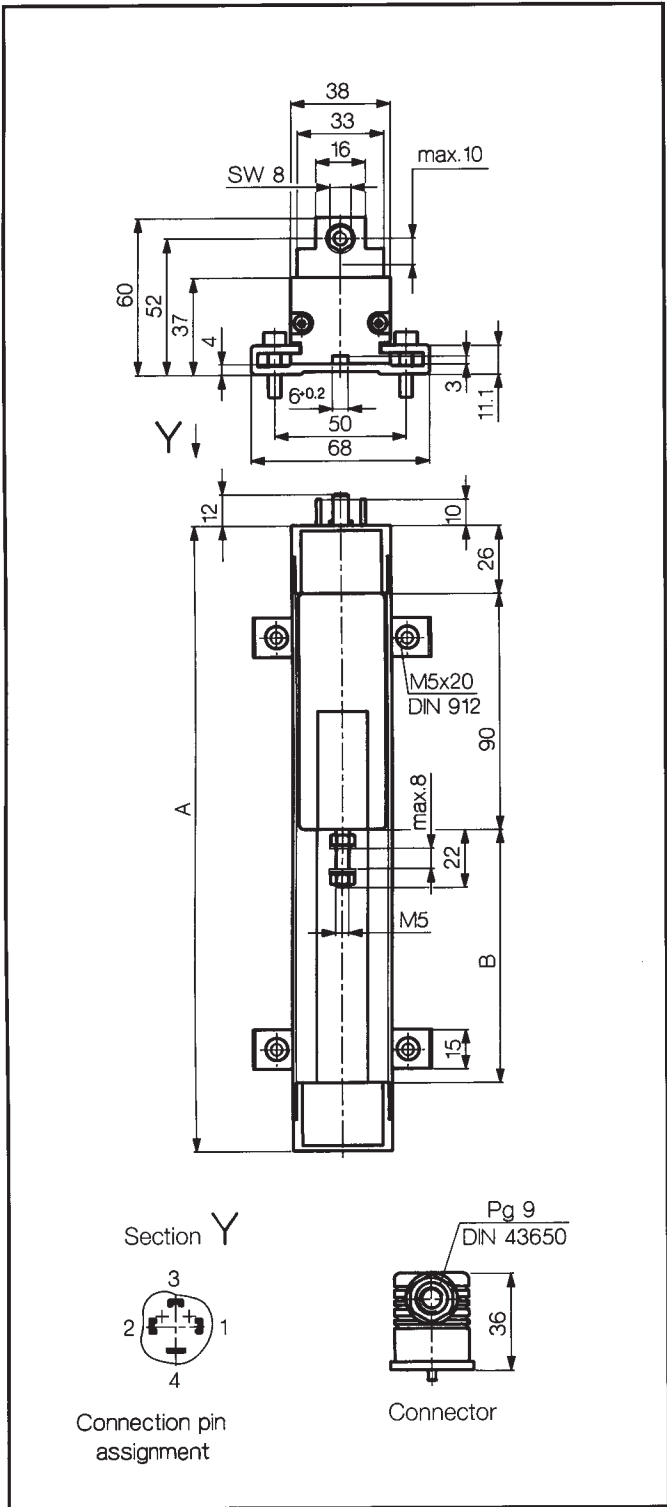
- rodless design
- ball coupling avoids side loads
- very long life  $>100 \times 10^6$  operations
- outstanding linearity
- high resolution - better than 0.01 mm
- very high operating speed
- Connector to DIN 43650 (hydraulic connector)

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.

Careful attention to detail and choice of materials has resulted in a transducer with an extremely low temperature drift. The robust construction ensures reliable operation even under adverse environmental conditions such as vibration or temperature changes. The inherent 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 inbuilt 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.
Resistance element	conductive plastic
Wiper assembly	precious metal multi-finger wiper, elastomer-damped
Electrical connections	4pole socket to DIN 43650 (hydraulic connector)

Type designations	TLH 100	TLH 130	TLH 150	TLH 225	TLH 300	TLH 360	TLH 450	TLH 500	TLH 600	TLH 750	TLH 900	TLH 1000	TLH 1250	TLH 1500	TLH 1750	TLH 2000	TLH 2250	TLH 2500	TLH 2750	TLH 3000	
<b>Electrical Data</b>																					
Defined electrical range	100	130	150	225	300	360	450	500	600	750	900	1000	1250	1500	1750	2000	2250	2500	2750	3000	mm
Electrical stroke	102	132	152	228	304	366	457	508	610	762	914	1016	1270	1520	1770	2020	2270	2570	2770	3020	mm
Nominal resistance	3	3	5	5	5	5	5	5	5	10	10	10	10	10	20	20	20	20	20	20	kΩ
Resistance tolerance	20																				%
Independent linearity	0.1	0.09	0.08	0.07	0.06	0.05	0.05	0.05	0.05	0.04	0.04	0.04	0.03	0.03	0.03	0.02	0.02	0.02	0.02	0.02	±%
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/°C
Insulation resistance (500 VDC, 1 bar, 2 s)	≥10																				MΩ
Dielectric strength (50Hz, 2s, 1bar, 500 VAC) ≤100																					μA
<b>Mechanical Data</b>																					
Body length (dimension A)	250	280	300	376	452	514	605	656	758	910	1062	1164	1418	1668	1918	2168	2418	2668	2918	3168	±2 mm
Mechanical stroke (dimension B)	108	138	158	234	310	372	463	514	616	768	920	1022	1276	1526	1776	2026	2276	2526	2776	3026	±2 mm
Total weight	440	480	500	620	730	820	950	1020	1170	1390	1600	1750	2110	2470	2830	3200	3560	3920	4280	4650	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

<b>Environmental Data</b>		
Temperature range	-30...+100	°C
Vibration	5...2000 A <sub>rmax</sub> = 0,75 a <sub>rmax</sub> = 20	Hz mm g
Shock	50 11	g ms
Life	>100 x 10 <sup>6</sup>	operations
Operating speed	10	m/s max.
Operating acceleration	200 (20 g)	m/s <sup>2</sup> max.
Protection class	IP 40 (DIN 400 50 / IEC 529)	

Order designations	
Type	Art.no.
TLH 100	002520
TLH 130	002519
TLH 150	002521
TLH 225	002523
TLH 300	002525
TLH 360	002526
TLH 450	002527
TLH 500	002528
TLH 600	002529
TLH 750	002531
TLH 900	002532
TLH 1000	002534
TLH 1250	002536
TLH 1500	002538
TLH 1750	002540
TLH 2000	002542
TLH 2250	002544
TLH 2500	002546
TLH 2750	002548
TLH 3000	002550

Greater lengths on request.

#### Included in delivery

fixing clamps Z 43,  
1 plug connector  
GDM 3009 EEM 33-98,  
1 seal  
GDM 3-16 EEM 33-99

#### Recommended accessories

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

#### Important

All the values given in this data sheet for linearity, lifetime, micro-linearity, resistance to external disturbances 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 ( $I_e \leq 1 \mu A$ ).

#### Mounting instructions

It is recommended that the transducer be mounted "up side-down". Only when orientated in this manner, can be edge seals 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.

**novotechnik**  
Siedle Group

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Subject to changes