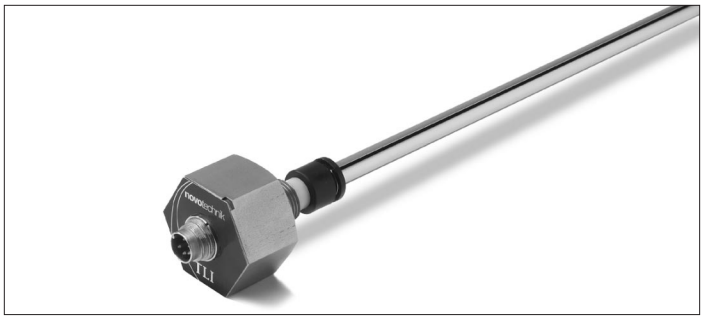
Non-Contacting Position Transducer For Internal Applications

TLI Series



Description	
Dimensions	see drawing
Connection flange	stainless steel
Guide rail	aluminum, anodized
Resistance element	conductive plastic
Probe carrier	plastic
Slider housing	plastic
Electrical connections	shielded cable with 4 lead wires, 1 m long 5-pin plug connection
Electronics	SMD, sealed

Special features

- non-contacting measuring system, PSP
- for integration in hydraulic cylinders
- accuracy up to 0.15%
- resolution better than 0.01 mm
- operating speed up to 10 m/s
- compressive strength 35 MPa, compression peaks up to 60 MPa
- screw flange M 18x1.5 or 3/4–16UNF, plug-in flange Ø48 mm (other flanges on request)
- plug or cable connection option available

TLI position transducers can be integrated directly into the pressure chamber of cylinders, providing compact and cost-effective position assessments.

The non-contact measurement method provides the advantages of potentiometric systems, while being virtually wear-free.

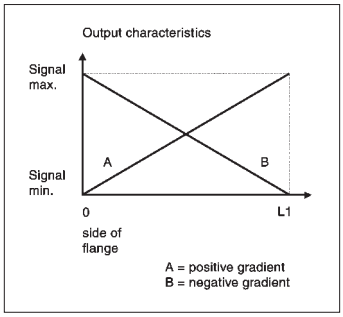
A capacitive, moving pick-up receives an input current signal from a resistor track, reflecting the position of the pick-up. The current is then transferred to a parallel collector track by the capacitive pick-up and evaluated by an integrated electronic module. The output signal indicates the pick-up position and is directly proportional to the displacement.

In addition to the standard configuration, the modular construction provides customer specific terminal flanges and mounting variations.

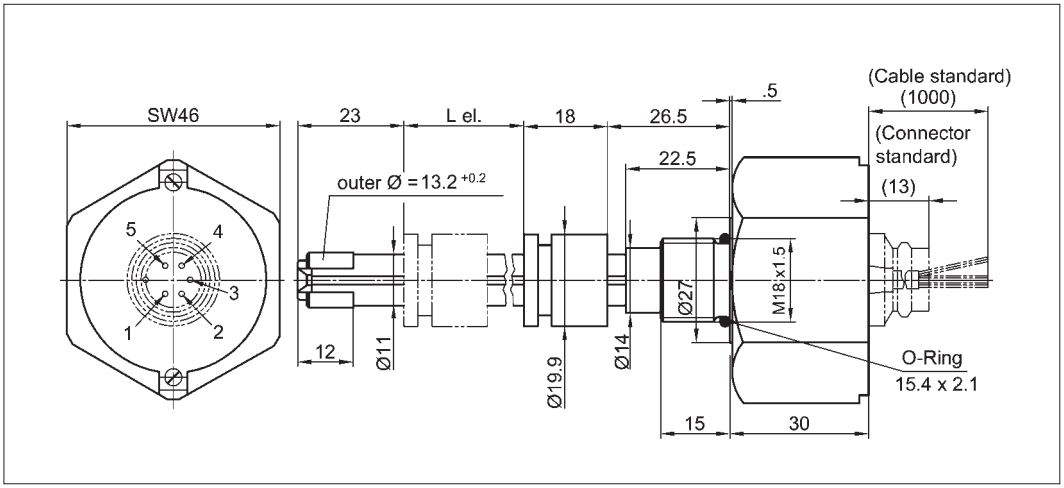
Please find further details under “Technical Reference Information”.

	Plug	Cable
Ground	Pin 1	brown
Current output	Pin 2	white
Voltage supply	Pin 3	green
Not assigned	Pin 4	-
Voltage output	Pin 5	yellow

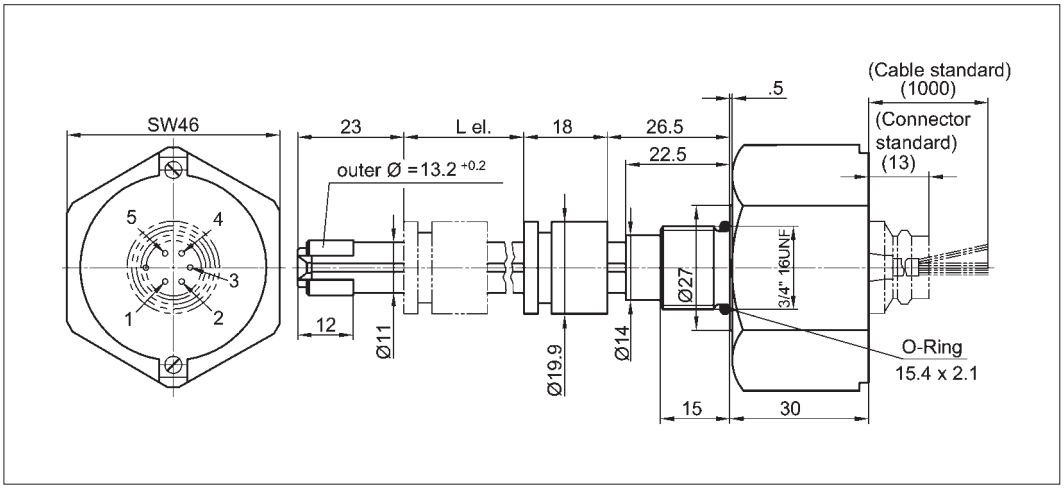
Note:
Connect shield of the connecting cable to ground of your own electronics.
Do not connect the shield of the connecting cable to the sensor.



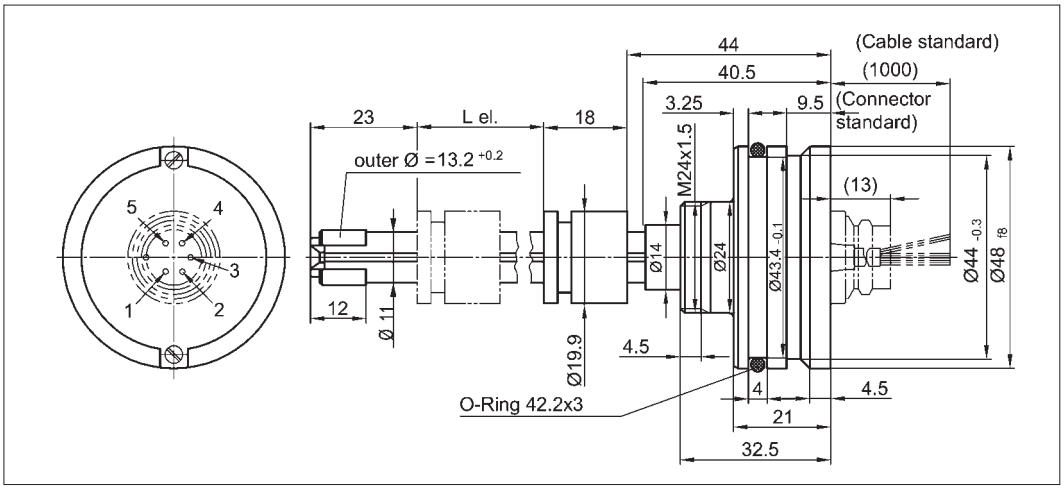
Screw flange M18x1.5



Screw flange 3/4–16UNF



Plug-in flange Ø48 mm



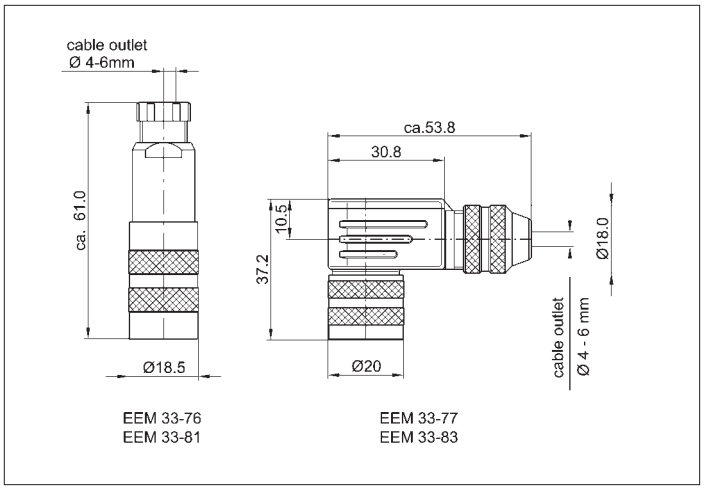
Subject to changes

Type designations	TLI 50	TLI 100	TLI 150	TLI 200	TLI 250	TLI 300	TLI 400	TLI 500	TLI 600	TLI 800	TLI 1000	
Electrical Data												
Defined electrical range	50	100	150	200	250	300	400	500	600	800	1000	mm
Independent linearity	0.2	0.2	0.2	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	± %
Reproducibility	12.5	15	17.5	20	22.5	25	30	35	40	50	60	µm
Repeatability	2.5	5	7.5	10	12.5	15	20	25	30	40	50	µm
Hysteresis	10											µm
Gradient tolerance	0.3											±%
Operating voltage Ub												
1) standard Ub1	18…30											
2) alternative Ub2	8.5...16.5											VDC
Ripple of operating voltage	max. 1											VDC
Current consumption												
Ub1	max. 30 (without signal current)											mA
Ub2	max. 25 (without signal current)											mA
Output signal												
1) standard	0.1...10 (only Ub1, load ≥ 10 kΩ)											VDC
2) alternative	4...20 (only Ub1, burden ≤ 500 Ω)											mA
3) alternative	0...20 (only Ub1, burden ≤ 500 Ω)											mA
4) alternative	0.5...4.5 (only Ub2)											VDC
Output characteristics												
a) standard	positive gradient, seen from flange											
b) alternative	negative gradient, seen from flange											
Temperature coefficient	< 50 (voltage output)											ppm/K
	< 80 (current output)											ppm/K
Max. tolerable voltage at Ub1	40 (max. 100 ms)											VDC
at Ub2	24 (max. 5 min)											VDC

Mechanical Data		
Dimensions	see drawing	
Operating force	max. 0.1	N
Operating speed	max. 10 (mechanical)	m/s
Operating acceleration	max. 300	m/s^2
Radial load on probe	max. 0.5	N
Pressure	max. 35 (compression peaks up to 60)	MPa
Mechanical stop resistance	5 (max. 50 times)	N

Environmental Data		
Temperature range at Ub1	-40...+80	°C
at Ub2	-40...+105	°C
Humidity range	0...3 (H_2O in oil)	%
Shock (DIN IEC 60068-2-27)	50 (11 ms)	g
Vibration (DIN IEC 60068-2-6)	6 (electrical function 10 Hz…150 Hz, mechanical function 10 Hz…2000 Hz)	g
Life	200,000	km
Protection class (DIN 40050 / IEC 529)	IP 67	

CE-conformity
EN 61 000-6-2 (4.99, interference resistance)
EN 50061-1 (1.92, emitted interference lim.)



Ordering specifications

Operating voltage
1 Standard: 24 VDC (18 VDC...30 VDC)
2 Option: 12 VDC (8,5 VDC...16.5 VDC)

Output signal
1 Standard: 0.1 VDC...10 VDC (only Ub1)
2 Alternative: 4mA...20mA (only Ub1)
3 Alternative: 0mA...20mA (only Ub1)
4 Standard: 0.5 VDC...4.5 VDC (only Ub2)

Output characteristics
1 Standard: pos. gradient, seen from flange
2 Alternative: neg. gradient, seen from flange

Electrical characteristics
101 Standard: 5-pin connector
201 Altern: NT standard cable 1 m
203 Option: NT standard cable 3 m
205 Option: NT standard cable 5 m

T	L	I	0	8	0	0	0	0	1	1	1	1	1	0	1

Series

Defined electrical range
0050 up to 1000

Connection flange
001 Standard: plug-in flange Ø 48 mm
002 Alternative: screw flange M 18 x 1.5
003 Alternative: screw flange 3/4-16UNF

Included in delivery

1 spring washer
1 lock ring

Recommended accessories

Mating plug EEM 33-76
protection class IP 67,

Right-angled plug EEM 33-77
protection class IP 67