

### Transducer Potentiometric

### TX2

Pivot Head Mounting up to 300 mm



### **Special Features**

- $\bullet$  Outstanding linearity up to ±0.05 %
- Sealed to IP67 suitable for harsh environmental conditions (moisture,oil, dust)
- Very long life up to 50 million movements
- Compact dimensions =  $\emptyset$  16 mm
- $\bullet$  Easy to assemble via low backlash pivot heads with a large angle of freedom (up to  $\pm 12.5$  degrees)
- Cable or plug connection optional

• For transducers with mounting clamps series TX2, see separate data sheet

### Applications

• Mobile working machines (industrial trucks, construction machinery, agricultural and forestry machinery)

High protection class and very compact dimensions characterize this inexpensive transducer. The heavy-duty design together with metal flanges and double sealed actuating rod make the TX2 Series an ideal choice for applications used in adverse environments with dirt, dust and humidity.

Users with mobile applications can especially benefit from the TX2 Series' pivot-head mounting.

The electrical connection is made by radial plug connector or radial cable.

For transducers with and without return spring and mounting clamps, central thread or flange plates see separate TEX Series data sheets.

Description					
Material	Housing: aluminium, anodized				
	Actuating rod: SS 1.4305 / AISI 303, rotatable, external thread M5				
Mounting	Pivot Head Mounting (SS pivot heads on request)				
Bearing	Sintered bronze bushing				
Resistance element	Conductive plastic				
Wiper	Precious metal multi-finger wiper				
Electrical connection	Connector M8x1, 3-pin / Cable 4x 0.14 mm² (AWG 26), PUR, shielded, L = 2 m				

Mechanical Data

Туре	TX2	TX2	TX2	TX2	TX2	TX2	TX2	TX2
	0025	0050	0075	0100	0150	0200	0250	0300
Dimensions	See dimension drawing							
Length of housing (dim. A ±1 mm)	86 mm	111 mm	136 mm	161 mm	224 mm	274 mm	324 mm	374 mm
Mechanical travel (dim. B ±1 mm)	30 mm	55 mm	80 mm	105 mm	158 mm	208 mm	258 mm	308 mm
Min. distance between pivot heads	136 mm	161 mm	186 mm	211 mm	274 mm	324 mm	374 mm	424 mm
(dim. C, nominal)								
Weight (cable/connector version)	120/100 g	156/110 g	160/120 g	177/130 g	190/150 g	225/163 g	250/190 g	270/205 g
Operating force, horizontal	≤ 5 N (at RT 20°C)							
Operating force, vertical	≤ 5 N (at RT 20°C)							
Initial operating force	max. 15 N *							
	*) Initial operating force is dependent on ambient temperature and inactive time.							





### Ordering Specifications





# Drawing



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# **Technical Data**

TX2	TX2	TX2	TX2	TX2	TX2	TX2	TX2
0025	0050	0075	0100	0150	0200	0250	0300
0 27 mm	0 52 mm	0 77 mm	0 102 mm	0 155 mm	0 205 mm	0 255 mm	0 305 mm
0 25 mm	0 50 mm	0 75 mm	0 100 mm	0 150 mm	0 200 mm	0 250 mm	0 300 mm
Voltage divider							
1 kΩ	2 kΩ	3 kΩ	4 kΩ	6 kΩ	8 kΩ	10 kΩ	12 kΩ
± 20 %							
≤ ±0.2 %FS	≤ ±0.1 %FS	≤ ±0.1 %FS	≤ ±0.1 %FS	≤ ±0.05 %FS	≤ ±0.05 %FS	≤ ±0.05 %FS	≤ ±0.05 %FS
≤ ±0.01 mm							
≤1μA							
10 mA							
42 VDC							
typ. 5 ppm/K							
≥ 10 MΩ							
≤ 100 μA							
5 m/s							
20 g, 5 2000 Hz, Amax = 0.75 mm							
50 g, 6 ms							
IP67 **							
-40 +85°C (connector M8), -20 +100°C (Cable)							
0 95 % R.H. (no condensation)							
typ. > 50 Mio. m	novements						
	TX2           0025           0 27 mm           0 25 mm           Voltage divider           1 kΩ           ± 20 %           ≤ ±0.2 %FS           ≤ ±0.2 %FS           ≤ ±0.2 %FS           ≤ ±0.01 mm           ≤ 1 µA           10 mA           42 VDC           typ. 5 ppm/K           ≥ 10 µA           5 m/s           20 g, 5 2000           50 g, 6 ms           IP67 **           -40 +85°C (c           0 95 % R.H. i           typ. > 50 Mio. m	TX2         TX2           0025         0050           027 mm         052 mm           025 mm         050 mm           Voltage divider         1 kΩ           1 kΩ         2 kΩ           ± 20 %         ≤ ±0.1 %FS           ≤ ±0.2 %FS         ≤ ±0.1 %FS           ≤ ±0.01 mm         ≤ 1.0.1 %FS           ≤ ±0.01 mm         ≤ 1.0 MΩ           ≤ 100 μA         5 m/S           20 g, 5 2000 Hz, Amax = 0.75 fr           50 g, 6 ms           IP67 **           -40 +85°C (connector M8), -20           0 95 % R.H. (no condensation)           typ. > 50 Mio. movements	TX2       TX2       TX2         0025       0050       0075         0 27 mm       0 52 mm       0 77 mm         0 25 mm       0 50 mm       0 75 mm         Voltage divider       1 kΩ       2 kΩ       3 kΩ         ± 20 %       ≤       ±0.1 %FS       ≤ ±0.1 %FS         ≤ ±0.2 %FS       ≤ ±0.1 %FS       ≤ ±0.1 %FS       ≤ ±0.1 %FS         ≤ ±0.01 mm       ≤       10 mA       42 VDC         typ. 5 ppm/K        ±10 MΩ       ≤         ≥ 10 MΩ       ≤       5 m/s       20 g, 5 2000 Hz, Amax = 0.75 mm         50 g, 6 ms       IP67 **       -40 +45°C (connector M8), -20 +100°C (Cable)         0 95 % R.H. (no condensation)       typ. > 50 Mio. movements	TX2       TX2       TX2       TX2       TX2         0025       0050       0075       0100         0 27 mm       0 52 mm       0 77 mm       0 102 mm         0 25 mm       0 75 mm       0 100 mm       0 100 mm         0 25 mm       0 50 mm       0 75 mm       0 100 mm         Voltage divider       1 kΩ       2 kΩ       3 kΩ       4 kΩ         ± 20 %       ≤ ±0.1 %FS       ≤ ±0.1 %FS       ≤ ±0.1 %FS       ≤ ±0.1 %FS         ≤ ±0.2 %FS       ≤ ±0.1 %FS       ≤ ±0.1 %FS       ≤ ±0.1 %FS       ≤ ±0.1 %FS         ≤ ±0.01 mm       ≤       10 mA       10 mA       10 mA         42 VDC       typ. 5 ppm/K       5       10 MΩ       5         ≥ 10 MΩ       5       5       10 μA       5         5 m/s       20 g, 5 2000 Hz, Amax = 0.75 mm       50 g, 6 ms       100 μA         1P67 **       -40 +85°C (connector M8), -20 +100°C (Cable)       095 % R.H. (no condensation)         typ. > 50 Mio. movements       5       100 condensation       100°C (Cable)	TX2       TX2       TX2       TX2       TX2       TX2       TX2         0025       0050       0075       0100       0150         0 27 mm       0 52 mm       0 77 mm       0 102 mm       0 155 mm         0 25 mm       0 50 mm       0 75 mm       0 100 mm       0 155 mm         0 25 mm       0 50 mm       0 75 mm       0 100 mm       0 150 mm         Voltage divider       1 kΩ       2 kΩ       3 kΩ       4 kΩ       6 kΩ         ± 20 %       ≤       ±0.1 %FS       ≤ ±0.1 %FS       ≤ ±0.05 %FS         ≤ ±0.2 %FS       ≤ ±0.1 %FS       ≤ ±0.1 %FS       ≤ ±0.05 %FS         ≤ ±0.01 mm       ≤       10 mA       42 VDC         10 mA       42 VDC       10 mA       5 ppm/K         ≥ 10 MΩ       5 m/s       20 g, 5 2000 Hz, Amax = 0.75 mm       50 g, 6 ms         FP67 **       -40 +85°C (connector M8), -20 +100°C (Cable)       0	TX2       D0050       D0000       D0000       D0100       D1150       D2000         0 27 mm       0 52 mm       0 77 mm       0 102 mm       0 155 mm       0 205 mm       0 205 mm       0 200 mm       0 200 mm         0 25 mm       0 50 mm       0 75 mm       0 100 mm       0 150 mm       0 200 mm         0 25 mm       0 50 mm       0 75 mm       0 100 mm       0 150 mm       0 200 mm         0 20 %         4 kΩ       6 kΩ       8 kΩ       2 kΩ       3 kΩ       4 kΩ       6 kΩ       8 kΩ       2 kΩ       3 kΩ       4 kΩ       6 kΩ       8 kΩ       2 kΩ       3 kΩ       4 kΩ       6 kΩ       8 kΩ       2 kΩ       3 kΩ       4 kΩ       5 kΩ       2 kΩ       5 kΩ	TX2         TX2 <thty2< th=""> <thty2< th=""> <thty2< th=""></thty2<></thty2<></thty2<>

\*\*) Use mating connector with protection class IP67 or higher. Protection class was determined according to the standard in new condition. Durability of actuating rod seal is dependent upon both application environment and operating cycles. Read manual instructions prior to starting application equipment.

Functional safety	If you need assistance in using our products in safety-related systems, please contact us
Traceability	Serial number on type labeling: production batch of the sensor assembly and relevant sensor components
Conformity/Approval	CE, UKCA see https://www.novotechnik.de/en/downloads/certificates/declarations-of-conformity-eu/uk
	WEEE see https://www.novotechnik.de/en/downloads/certificates/eu-directive-weee/

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 (le ≤ 1 µA).

### **Connection Assignment**

Signal	Connector	Cable			
	code 101	code 202			
Connection 1	Pin 1	BN			
Connection 4 Signal output	Pin 4	WH			
Connection 3	Pin 3	GN			
	The signal output slope on pin 2 (or black wire) is rising while extending the rod with "+" of the power supply at pin 3 (or red wire) and falling with power				
	supply "+" at pin 1 (or brown wire).				





# Sensor Mounting





# Connector System M8





### Signal Processing





# **Signal Processing**





Product Models by request



Product variant TX2 with bellows Version with bellows to protect the actuating rod from contamination in environments heavily exposed to media • By request (with minimum order quantity)



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© Feb 27, 2025

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