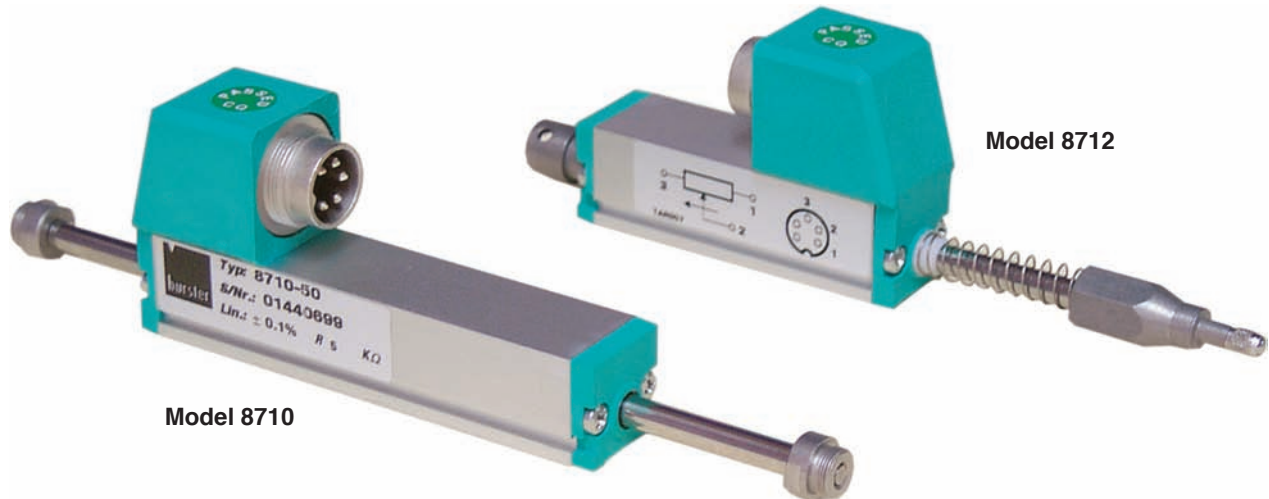


# Potentiometric Displacement Sensors

Models 8710, 8712

Code: 8710-E  
 Manufacturer: burster  
 Delivery: ex stock/4 weeks  
 Warranty: 24 months



Model 8710

Model 8712

- Measurement ranges: 0 ... 25 mm to 0 ... 150 mm
- Non-Linearity: up to 0.05 % full scale
- Life duration: 10<sup>8</sup> operations
- Displacement speed up to 10 m/s
- Lateral force-free drive through ball joint coupling
- Integrated cable or plug connection

## Application

Displacement sensors series 8710, 8712 with a resistance track made of conductive polymer are used for direct measurement, testing and monitoring of mechanical displacements. A special ball joint coupling can be mounted at both ends of the push rod. Hereby the sensor can be actuated lateral force and backlash-free also upon. The spring-loaded control rod at model 8712 eliminates the need of a form-fitting connection with the measurement object.

A prerequisite for a very long life duration of the devices is a parallel alignment of the direction of motion of the measurement object with the control rod.

Areas of application are:

- Displacement on electromagnets, hydraulic cylinders, switches and buttons.
- Measurements of deformation, bending, press-in operations, crowd distances.

## Description

Based on their technology, potentiometric displacement sensors consistently make use of sliding components. The resistance track is trimmed in special process to minimize friction and stick-slip for long stability and measuring quality.

The double supported rod is equipped with durable, low-friction, narrow-tolerance plain bearings which ensure a long service life and high measuring accuracy too.

Model 8710 is designed without spring. Mechanical linkage using joint with take up of play, M4 thread.

At model 8712 a pre-stressed spring presses sensor tip against the measurement object. Tip with M 2.5 thread and stainless steel ball. The bore at rod end serves for coupling retraction units.

The stainless steel pallet is recessed into the sensor tip. The bore in the connecting rod stop at the rear serves for coupling retraction units.

**Technical Data**

**Model 8710**

Order code	Measuring range	Dimensions [mm]			Non-Linearity*	Total weight	Movable weight	Dissipation at 40 °C (0W 120 °C)
		A	B**	C				
8710 -5025	0 ... 25 mm	63	30	107	± 0.2 % F. S.	83 g	32 g	0.6 W
8710 -5050	0 ... 50 mm	88	55	157	± 0.1 % F. S.	102 g	40 g	1.2 W
8710 -5075	0 ... 75 mm	113	83	207	± 0.1 % F. S.	121 g	48 g	1.8 W
8710 -5100	0 ...100 mm	138	105	257	± 0.1 % F. S.	140 g	56 g	2.5 W
8710 -5150	0 ...150 mm	188	155	357	± 0.05 %F. S.	140 g	56 g	3.6 W

\* without mounting parts \*\* mechanical stroke

**Model 8712**

Order code	Measuring range	Dimensions [mm]				Non-Linearity*	Total weight	Movable weight	Dissipation at 40 °C (0W 120 °C)
		A	B**	C	D				
8712 -5010	0 ... 10 mm	48	15	32	108	± 0.3 % F. S.	60 g	18 g	0.2 W
8712 -5025	0 ... 25 mm	63	30	32	138	± 0.2 % F. S.	75 g	23 g	0.6 W
8712 -5050	0 ... 50 mm	88	55	40	196	± 0.1 % F. S.	95 g	33 g	1.2 W
8712 -5100	0 ...100 mm	138	115	40	298	± 0.1 % F. S.	140 g	50 g	2.2 W
8712 -5125	0 ...125 mm	163	148	40	364	± 0.05 %F. S	190 g	58 g	2.2 W
8712 -5150	0 ...150 mm	188	188	40	427	± 0.05 %F. S	245 g	66 g	2.2 W

\* without mounting parts \*\* mechanical stroke

**Electrical ratings**

Resistance: Measuring range 10 mm and 25 mm 1 kΩ  
 Measuring ranges 50 mm up to 150 mm 5 kΩ

Tolerance on resistance: ± 20 %

Maximum operating voltage:  
 Measuring range 10 mm 14 V  
 Measuring range 25 mm 25 V  
 Measuring ranges 50 mm ... 150 mm 50 V

Recommended operating current in the slider circuit: < 0.1 μA  
 Maximum current in the slider circuit: 10 mA  
 (> 0.1 μA: negative influence on linearity and lifespan)

Insulation resistance: >100 MΩ at 500 V<sub>rms</sub>, 2 s, 1 bar

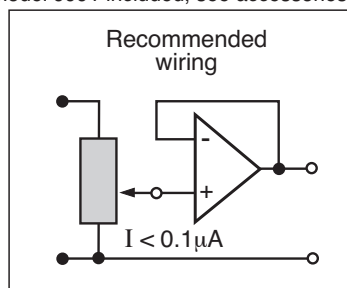
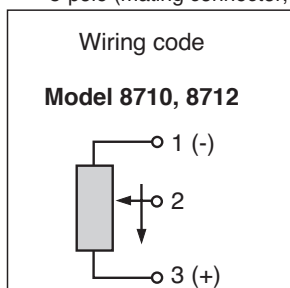
Voltage resistance: < 100 μA at 500 V<sub>rms</sub>, 50 Hz, 2 s, 1 bar

**Environmental conditions**

Working temperature range: -30 °C ... 100 °C  
 Storage temperature range: -50 °C ... 120 °C  
 Temperature coefficient:  
 of the connection resistor max. -200 ± 200 ppm/K  
 of the voltage divider < 1.5 ppm/K

**Mechanical values**

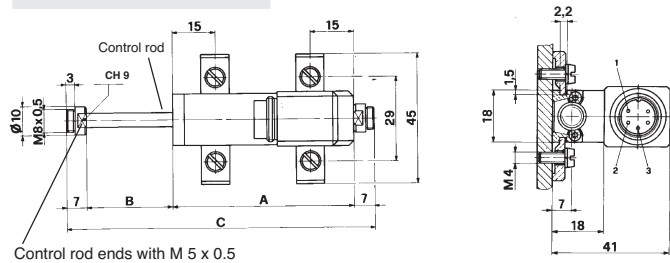
Non-linearity: see table  
 Resolution: 0.01 mm  
 Service life (overtravel): > 10<sup>8</sup> at 2.5 m/s and < 0.1 μA slider current  
 Displacement force, horizontal: 8712 only ≤ 4 N  
 Displacement speed: max. 10 m/s  
 Vibration resistance: 5 ... 2000 Hz, A<sub>max</sub> = 0.75 mm, a<sub>max</sub> = 20 g  
 Impact resistance: 50 g, 11 ms  
 Protection: IP 40 in compliance with EN 60529  
 Material: Housing Aluminium, anodised  
 Control rod High-grade steel AISI 303  
 Fixing: Brackets with variable longitudinal distance  
 Electrical connection: Connector, 5-pole (mating connector, model 9991 included, see accessories)



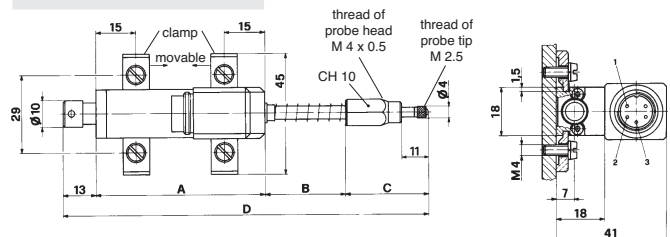
**Important:**

The excellent characteristics of the sensors are particularly evident when the slider load in the voltage divider < 0.1 μA. If the measuring chain requires higher currents, it is advisable to use an operational amplifier connected as a voltage follower (I < 0.1 μA), (see diagram above).

**Dimensions model 8710**



**Dimensions model 8712**



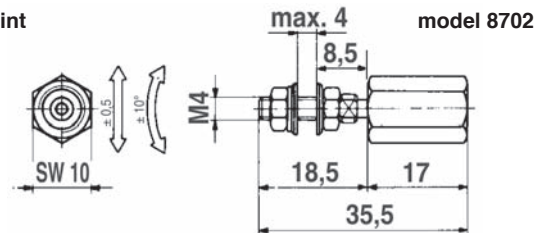
**Order Code**

Potentiometric displacement sensor with ball tip  
 Measuring range 50 mm **model 8712-50**

**Accessories**

**Coupling joint**

1 unit included in slope of delivery



**Sensor tip (pellet ø =3)**

(1 unit included in slope of delivery for 8712) **model 8707**

**Assembly** (4 Brackets + 4 M4 screws) (1 set included) **model 8710-Z001**

**Mating connector, 5-pole** (1 unit included) **model 9991**

**Cable**, length 3 m one end mating connector of sensor, other end free **model 99130**

**Cable** for burster desktop devices, length 3 m **model 99132**

**Cable** for DIGIFORCE® 9310, length 3 m **model 99209-591A-0090030**

Electronic devices for connecting these sensors **Refer to section 9 of the catalog.**

**Option WKS**  
 Factory calibration 6 points, 20 % increment