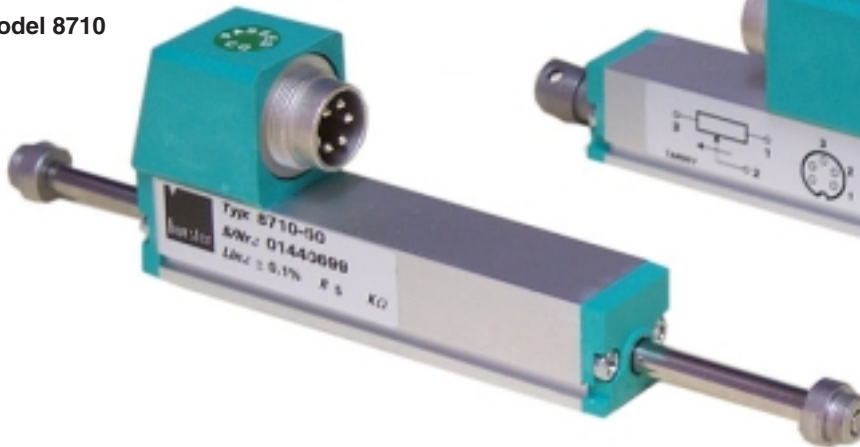


# Potentiometric displacement sensors

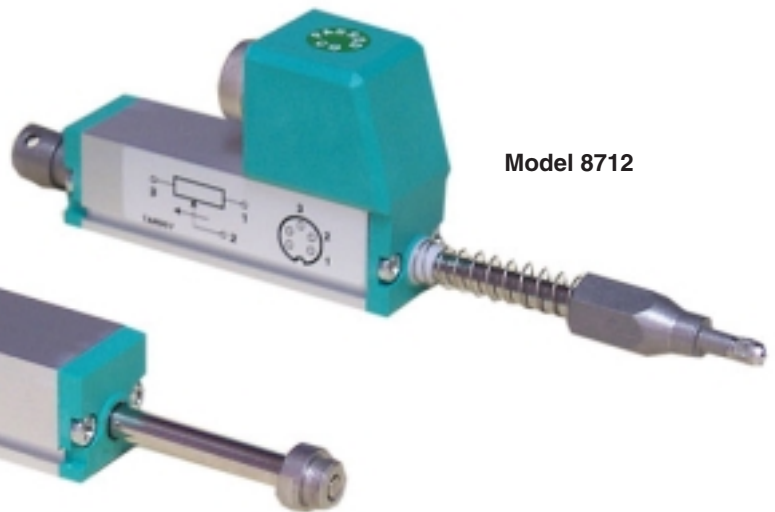
Models 8710, 8712

Code:	8710 E
Manufacturer:	burster
Delivery:	upon request
Warranty:	12 months
Issue:	1.8.2002

Model 8710



Model 8712



- Measurement ranges: 0 ... 10 mm to 0 ... 150 mm
- Linearity: up to 0.05 % full scale
- Life duration: 10<sup>8</sup> operations
- Resolution: 0.01 mm
- Displacement speed up to 10 m/s

## Application

These displacement sensors are used for direct measurement, testing and monitoring of mechanical displacements. The spring-loaded control rod at model 8712 eliminates the need coupling 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, indentation.

## 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]			Linearity*	Total weight	Movable weight	Dissipation at 40 °C (0W 120 °C)
		A	B**	C				
8710 - 25	0 ... 25 mm	63	30	107	± 0.2 % F. S.	83 g	32 g	0.6 W
8710 - 50	0 ... 50 mm	88	55	157	± 0.1 % F. S.	102 g	40 g	1.2 W
8710 - 75	0 ... 75 mm	113	83	207	± 0.1 % F. S.	121 g	48 g	1.8 W
8710 - 100	0 ... 100 mm	138	105	257	± 0.1 % F. S.	140 g	56 g	2.5 W
8710 - 150	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]				Linearity*	Total weight	Movable weight	Dissipation at 40 °C (0W 120 °C)
		A	B**	C	D				
8712 - 10	0 ... 10 mm	48	15	32	108	± 0.3 % F. S.	60 g	18 g	0.2 W
8712 - 25	0 ... 25 mm	63	30	32	138	± 0.2 % F. S.	75 g	23 g	0.6 W
8712 - 50	0 ... 50 mm	88	55	40	196	± 0.1 % F. S.	95 g	33 g	1.2 W
8712 - 100	0 ... 100 mm	138	105	40	296	± 0.1 % F. S.	140 g	50 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

Insulation resistance: > 100 MΩ at 500 V

Voltage resistance: 500 V<sub>rms</sub> at 50 Hz

**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**

Linearity deviation: 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

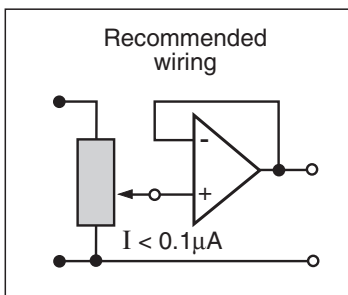
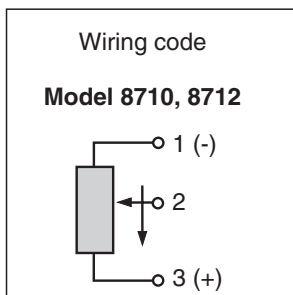
Displacement speed: max. 10 m/s

Protection: IP 40 in compliance with DIN 40050

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)

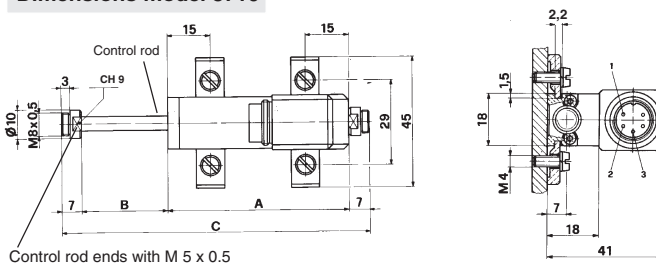


**Important:**

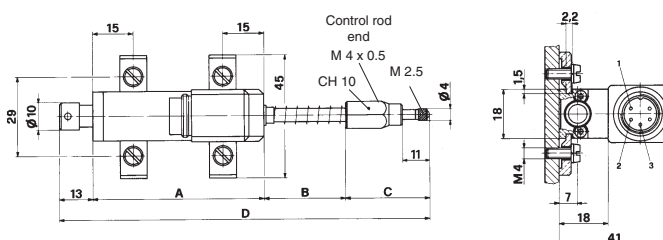
The excellent characteristics of the sensors are particularly evident when the slider load in the voltage divider < 0.1 μA. If the measuring chain requires higher currents, it is advisable to use an operational amplifier connected as a voltage follower (I < 0.1 μA), (see diagram above).

Technical changes reserved

**Dimensions model 8710**



**Dimensions model 8712**

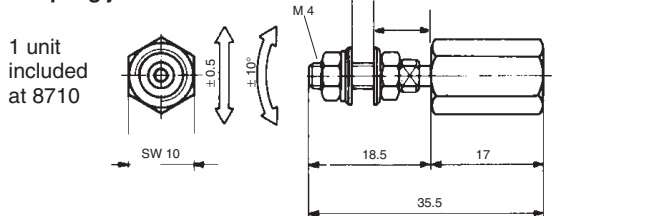


**Order Code Example**

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

**Accessories**

**Coupling joint**



**Sensor tip (pellet ø = 3)**

(1 unit included at 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