Potentiometric Displacement Sensors

Models 8712, 8713

Code:	8712 EN
Delivery:	ex stock
Warranty:	24 months

CAD data 2D/3D for this sensor:
Download directly at www.traceparts.com
Info: refer to data sheet 80-CAD-EN

Model 8712

Model 8713

8712 EN

- **Measurement ranges: 0 ... 10 mm to 0 ... 150 mm**
- **Non-linearity up to 0.05 % F.S.**
- **Durability 10^8 operations**
- **Resolution 0.01 mm**
- **Follower roll on request**

Application

These displacement sensors are potentiometric displacement sensors used for direct measurement, testing and monitoring of mechanical displacements. The spring-loaded control rod eliminates the need of coupling with the measurement object.

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

Areas of application are:

Displacement on

- ► Electromagnets
- ► Hydraulic cylinders
- ► Switches and buttons

Measurements of

- ► Deformation
- ► Bending
- ► Press-fits
- ► Feed strokes

Description

Due to the technology employed in potentiometric displacement sensors, they always operate with a sliding contact system. Special processes are applied to give the resistance tracks low friction, low tendency to stick/slip, resistance to abrasion and a long-term stability.

The rods are guided in long-life, low friction sliding bearings with close tolerances which provide high durability and measuring quality. The pre-stressed spring presses the sensor tip against the measurement object. This spring is double-guided and disappears in the probe head, if the rod is in its end position.
The probe tip consists of a ball made of stainless steel. The bore at rod end serves for coupling retraction units.
The rod is protected against twist for measurement ranges up to 50 mm. The probe tip (hexagonal) must not be turned by any tool, otherwise its anti-twist protection will be destroyed.

Technical Data

*length of housing **total mechanical deflection

Order Code	Measuring Range (+1/ -0)	Dimensions [mm] A*	B**	C	D	Non-Linearity	Total Mass	Moveable Mass	Dissipation at 40 °C
8712 - 10	10 mm	48	15	32	108	± 0.3 % F.S.	60 g	18 g	0.2 W
8712 - 25	25 mm	63	30	32	138	± 0.2 % F.S.	75 g	23 g	0.6 W
8712 - 50	50 mm	88	55	40	196	± 0.1 % F.S.	95 g	33 g	1.2 W
8712 - 100	100 mm	138	115	40	298	± 0.1 % F.S.	140 g	50 g	2.2 W
8712 - 125	125 mm	163	148	40	364	± 0.05 % F.S.	190 g	58 g	2.2 W
8712 - 150	150 mm	188	186	40	427	± 0.05 % F.S.	245 g	66 g	2.2 W
8713 - 10	10 mm	48	15	32	108	± 0.3 % F.S.	60 g	18 g	0.2 W
8713 - 25	25 mm	63	30	32	138	± 0.2 % F.S.	75 g	23 g	0.6 W
8713 - 50	50 mm	88	55	40	196	± 0.1 % F.S.	95 g	33 g	1.2 W

Electrical values

Resistance:
- measuring range 10 mm and 25 mm: 1 kΩ
- measuring range 50 mm and 100 mm: 5 kΩ

Tolerance of resistance: ± 20 %

Max. operating voltage:
- measuring range 10 mm: 14 V
- measuring range 25 mm: 25 V
- measuring range 50 mm up to 150 mm: 50 V

Recommended current in slider circuit: < 0.1 µA

Max. current in slider circuit: 10 mA
(> 0.1 µA negative influence to linearity and durability)

Insulation resistance: > 100 MΩ at 500 V

Electrical strength: 500 V_{eff} at 50 Hz

Environmental conditions

Storage temperature range: - 50 °C ... 120 °C

Nominal temperature range: - 30 °C ... 100 °C

Temperature coefficient:
- of connection resistance: max. - 200 ± 200 ppm/K
- of output voltage: < 1.5 ppm/K

Mechanical values

Non-linearity: refer to table

Resolution: 0.01 mm

Durability: > 10^8

Displacement force, horizontal: ≤ 4 N

Displacement speed: max. 10 m/s

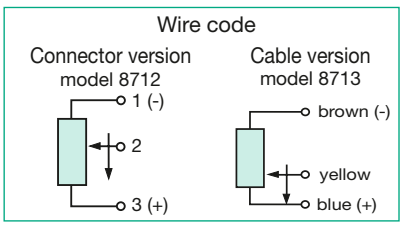
Endurance limit: 5 ... 2000 Hz, A_{max} = 0.75 mm, a_{max} = 20 g

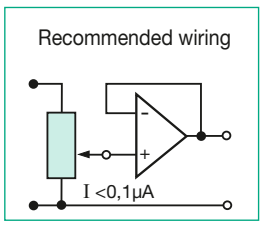
Shock resistance: 50 g, 11 ms

Protection class: acc. to EN 60529 IP40

Material: housing aluminium, anodized; rod stainless steel AISI 303

Electrical connection:
- model 8712: Plug-in connector 5 pin, (Mating connector model 9991 is in scope of delivery, refer to accessories)
- model 8713: integrated connecting cable, length 1 m, ø 4 mm





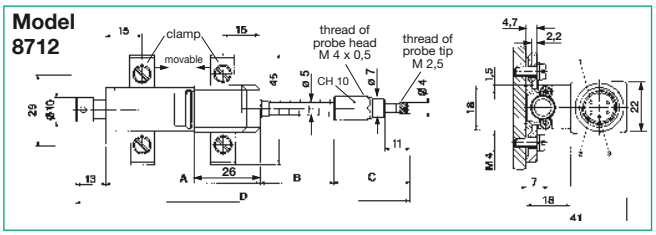
Important:

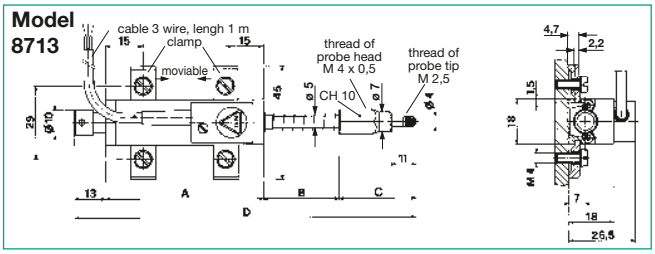
The excellent characteristics of these sensors are only evident when the slider current is < 0.1 µA. If the measuring chain requires higher currents, it is recommended to use an operational amplifier connected as a voltage follower (I < 0.1 µA), (refer to drawing above).

Mounting:

with 2 axial movable clips, refer to drawing (included in scope of delivery)

Dimensional drawings





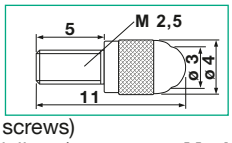
The CAD drawing (3D/2D) for this sensor can be imported online directly into your CAD system.
Download via www.burster.com or directly at www.traceparts.com. For further information about the burster traceparts cooperation refer to data sheet 80-CAD-EN.

Order Information

Potentiometrical displacement sensor, range 50 mm **Model 8712-50**

Accessories

Probe Tip (Ball ø = 3) **Model 8707**
(1 unit is included in scope of delivery)



Mounting set (4 Angle + 4 M4 screws)
(1 set is included in scope of delivery) **Model 8710-Z001**

for Model 8712:

Mating connector, 5 pin (socket)
(1 unit is included in scope of delivery) **Model 9991**

Mating connector, 5 pin, 90° outlet **Model 9900-V590**

Connecting cable, length 3 m, one end open **Model 99130**

Connecting cable to burster desktop devices, length 3 m **Model 99132**

Connecting cable to 9310, length 3 m **Model 99209-591A-0090030**

Connecting cable to 9162 panel housing, length 3 m **Model 99564-591B-0160030**

for Model 8713:

Connector, 12 pin, for burster desktop devices **Model 9941**

Cable connector, 5 pin **Model 99121**

Mounting of a coupling connector to cable **Order Code: 99004**

Only for connection to SENSORMASTER 9163, desktop version **Order Code: 99002**

Evaluation units, amplifiers and process control units, like digital indicator model 9180, modular amplifier model 9243 or DIGIFORCE® 9306 **refer to section 9 of the catalog**

Manufacturers Calibration Certificate (WKS)

Calibration of a displacement sensor with or without evaluation electronics in 20 % increment of the measurement range (6 points) .