Potentiometric Displacement Sensor

Model 8719

**Application**
Due to its high resolution also when measuring long distances, linear displacement measurements up to 900 mm can be carried out. Conversions between rotatory and translation movements through ball screws, wire or cord connections and so on are not necessary for direct displacement measurement.

Application fields include:
- Electromagnets
- Deformations - bending
- Pneumatic cylinders
- Length tolerances
- Press-insertions (longitudinal press-fits)
- Feed strokes
- Machine hubs
- Punch, knee lever or extruder distances
- Hydraulic cylinders

**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 long-term stability.

The rod is guided in a low-play floating frontal bearing. This absorbs small angular and parallel displacements. The guide lug and slide block have particularly tight tolerances, in order to ensure reliable slider contact.

A ball joint coupling (see accessories) at the end of the sliding shaft minimizes axial errors between the sensor and the equipment.

- Measuring ranges: between 0 ... 50 mm and 0 ... 900 mm
- Non-linearity ± 0.05% F.S.
- Resolution: 0.01 mm
- Durability: Up to 100 x 10⁶ movements
- Adjustment speed up to 10 m/s
- Plug or cable connection
- Optional protection classes IP65 and IP67

NEW   Option Protection Class IP67
Technical Data

Measuring Range [mm] 50 100 130 150 175 200 225 275 300 375 400 450 500 600 750 900
Length of Housing [mm] 112 163 192 212 237 263 288 338 363 439 465 516 571 672 825 977
Total Displacement [mm] 59 109 139 159 184 210 235 285 310 386 412 463 518 619 772 924
Weight of Rod and Slider ca. [g] 50 50 50 50 50 50 100 100 100 200 200 250 250 300 350 400
Total Weight ca. [g] 300 350 400 500 500 500 600 600 650 700 800 900 1000 1200 1400 1600
Order Code 8719-5050 5100 5130 5150 5175 5200 5225 5275 5300 5375 5400 5450 5500 5600 5750 5900

Electrical values
Resistance: 50-600 mm electr. usable length 5 kΩ
750-900 mm electr. usable length 10 kΩ
Tolerance of resistance: ± 20 %
Operating voltage: max. 50 V DC
Operating current in slider circuit (see drawing 2): recom. < 0.1 µA
max. 10 mA
Dissipation at 40 °C: max. 3 W
Insulation resistance: > 100 MΩ at 500 V DC, 2s
Electric strength: < 100 µA at 500 V AC, 50 Hz, 2s

Environmental conditions
Range of operating temperature: - 30 °C ... 100 °C
Range of storage temperature: - 50 °C ... 120 °C
Influence of temperature: to resistance -200 ± 200 ppm/°C
to output voltage < 1.5 ppm/°C

Mechanical values
Non-linearity: ± 0.05 % F.S.
Resolution: 0.01 mm
Durability: 10^6
Displacement force: ≤ 4 N at IP60 and ≤ 25 N at IP65
Displacement speed: max. 10 m/s
Vibrations: 5 ... 2000 Hz, A\text{max} = 0.75 mm, a\text{max} = 20 g
Acceleration in operation: max. 200 m/s² (20 g)
Shock resistance: 50 g, 11 ms
Material: Rod stainless steel AISI303
Housing anodized aluminium
Protection class: acc. to EN 60529 standard IP60 (IP65 option)
Electrical connection: refer to drawing 1

Important:
The technical data quoted can only be maintained if the sensors are used properly. Their outstanding properties are only available when the loading of the slider in the voltage divider is kept < 0.1 µA. If the measuring chain draws higher currents, the use of an operational amplifier as a voltage follower (I < 0.1 µA) is necessary (see Drawing 2).

Mounting Instructions:
Clamps with adjustable clearance; sensor can be clipped into the fitted clamps.

Order Information
1. Potentiometric displacement sensor standard version, range 200 mm Model 8719-5200
2. Potentiometric displacement sensor range 375 mm, Option: protection class IP65 Model 8719-5375-V001

Options
Identification Meaning
V002 protection class IP65
V002 cable outlet (length of the cable 1 m)
V004 V 001 and V 002
V007 protection class IP67

Manufacturer Calibration Certificate (WKS)
Calibration of the sensor with or without evaluation electronics in 20 % steps (6 calibration points).

Model 8719 ball joint (accessory)
The CAD drawing (3D/2D) for this sensor can be imported online directly into your CAD system.
For further information about the burster traceparts cooperation refer to data sheet 80-CAD-EN.

Accessories
Ball joint, refer to drawing above Model 8705
Mounting set, 2 clamps and 4 screws included in scope of delivery Model 8719-Z001
Mating connector, 5 pin (socket, IP40) included in scope of delivery Model 9991
Mating connector, 5 pin (socket, IP40) 90°-outlet Model 9990-V590
Mating connector (socket, IP67) for sensor with mating connector IP65 Model 9990-V554
Mating connector for sensors with IP67 Model 8719-Z002
Cable, length 3 m, one end open Model 99130
Cable for connection to burster desktop devices, length 3 m Model 99132
Connecting cable to DIGIFORCE® 9310, length 3 m Model 99209-591A-0090030
Connecting cable to 9163 desktop version, length 3 m Model 99209-591B-0090030

Supply units, amplifiers or indicators like digital indicator 9163, amplifier 9243 or DIGIFORCE® refer to section 9 of the catalog

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