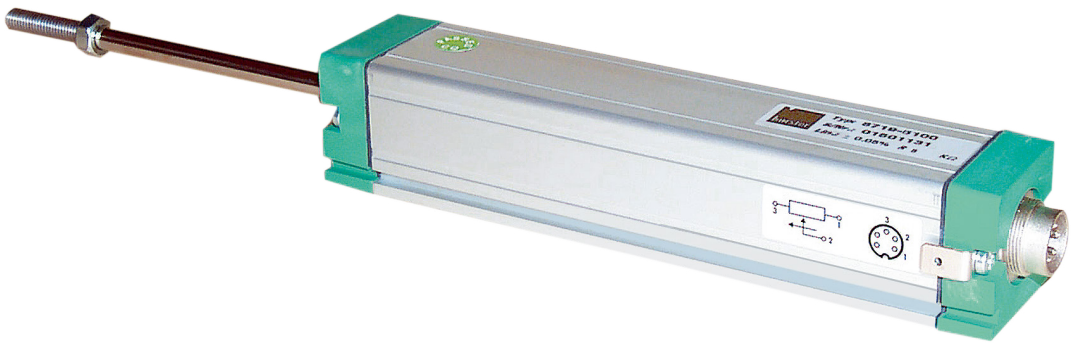
# Potentiometric Displacement Sensor

## Model 8719

| | |
|---|---|
| Code: | 8719 EN |
| Delivery: | ex stock / 5 weeks |
| Warranty: | 24 months |



**NEW** **Option Protection Class IP67**

- **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 $10^6$ movements**
- **Adjustment speed up to 10 m/s**
- **Plug or cable connection**
- **Optional protection classes IP65 and IP67**

8719 EN

### 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.



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## 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<br>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 |

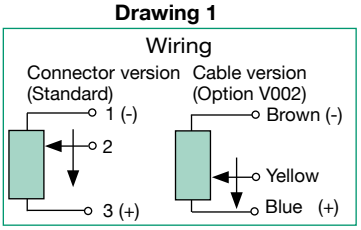
### Environmental conditions

| | | |
|---|---|---|
| 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 |

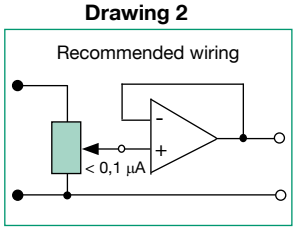
### Mechanical values

| | | |
|---|---|---|
| Non-linearity: | | ± 0.05 % F.S. |
| Resolution: | | 0.01 mm |
| Durability: | | $10^8$ |
| Displacement force: | | ≤ 4 N at IP60 and ≤ 25 N at IP65 |
| Displacement speed: | | max.10 m/s |
| Vibrations: | | 5 ... 2000 Hz, $A_{max}$ = 0,75 mm, $a_{max}$ = 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 |

**Drawing 1**




**Drawing 2**




## Important:

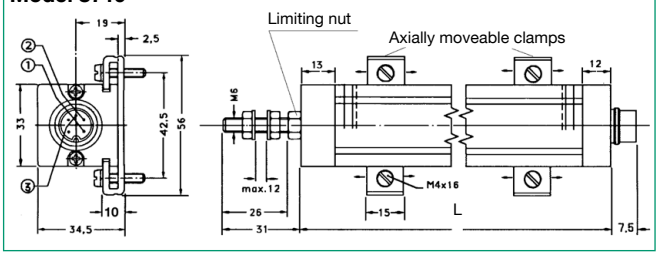
The technical data quoted can only be maintained if the sensors are used properly. Their outstanding properties are only available when the loading of the slider in the voltage divider is kept < 0.1 µA. If the measuring chain draws higher currents, the use of an operational amplifier as a voltage follower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

## Mounting Instructions:

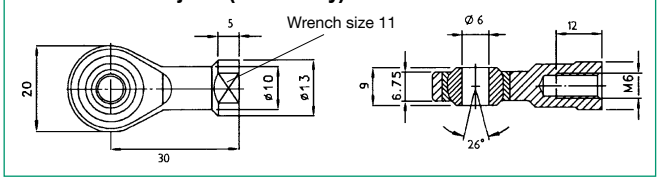
Clamps with adjustable clearance; sensor can be clipped into the fitted clamps.

**Dimensional drawings**

**Model 8719**




**Model 8705 ball joint (accessory)**




**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

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**

## 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 9900-V591** |
| Mating connector, 5 pin (socket, IP40) 90°-outlet | **Model 9900-V590** |
| Mating connector (socket, IP67) for sensor with mating connector IP65 | **Model 9900-V554** |
| Mating connector for sensors with IP67 | **Model 8719-Z002** |
| Cable, length 3 m, one end open | **Model 99591-000A-0090030** |
| 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** |

## Options

| Identification | Meaning |
|---|---|
| **V001** | 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).



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