

# LVDT Displacement Sensor With IN-LINE Amplifier

Model 8739

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



IN-LINE amplifier

Displacement sensor



- Ranges from 0 ... 1 mm to 0 ... 10 mm
- Non-linearity 0.25 % F.S.
- Sensor diameter 8 mm
- Vibration and wear free
- Output 0 ... 10 V
- Sensor without IN-LINE amplifier
- Sensor with IN-LINE amplifier or USB interface

## Application

Inductive displacement sensors of this series measure linear displacements and indirectly all mechanical values convertible into displacements by additional equipment (i.e. tension and compression forces, extension, torque, vibration). The sensor body equipped with a connector has an outer diameter of only 8 mm and therefore is especially well suitable for the integration in dimensionally restricted structures.

Typical application fields are displacement and extension measurements on

- ▶ Machines
- ▶ Servo systems
- ▶ Motor vehicles
- ▶ Test benches
- ▶ Production plants

## Description

The cylindrical case made of stainless steel, houses a differential transformer (LVDT). It consists of a primary and two secondary coils with axially moveable core. A displacement of this core changes the magnetic induction of the coils. The IN-LINE carrier frequency amplifier converts the displacement into a direct proportional electrical DC voltage.

The transducer is constructed as a probe at which within the measuring range a spring pushes the probe tip towards the measuring object. Bellows protect the mechanical guidance of the probe tip against pollution and splash water.

The IN-LINE amplifier is integrated in the connector cable and adjusted specifically to the sensor. Both components form a unit while they can be separated for mounting purposes (miniature plug connection at the transducer). The use of not harmonized components may lead to increased measurement errors. For the IN-LINE amplifier version the sensor body is galvanically isolated from the excitation and from the measuring signal.

Lateral forces decrease the durability.

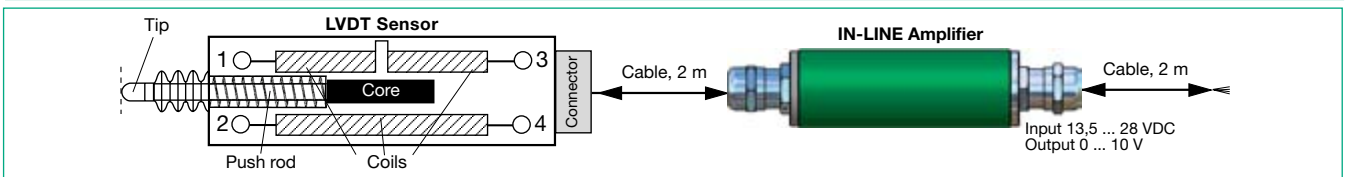
**Technical Data**

**Model 8739**

Order Code	Measuring Range	Dimensions [mm]				Cut-Off Frequency [Hz]	Tip Force at Full Scale max. [N]	Weight [g]
		L	A	B	H			
8739-5001-V501	0 ... 1 mm	103	97.5	15.5	4	100	2.3	25
8739-5002-V501	0 ... 2 mm	103	97.5	15.5	4	100	2.3	25
8739-5005-V501	0 ... 5 mm	140	130	23	7	100	2.3	25
8739-5010-V501	0 ... 10 mm	146	140	27	11	100	3.3	25

**Model 8739 with out IN LINE Amplifier**

Order Code	Measuring Range	Sensitivity	Sensor Excitation Voltage [V]	Operation Frequency [kHz]	Calibration Resistor [kΩ]
8739-5001-V000	0 ... ± 0.5 mm	106 mV/V /mm	2	5	10
8739-5002-V000	0 ... ± 1 mm	106 mV/V /mm	2	5	10
8739-5005-V000	0 ... ± 2.5 mm	62 mV/V	2	5	10
8739-5010-V000	0 ... ± 5 mm	62 mV/V	2	5	10



**Electrical values**

Excitation voltage (protected against wrong polarity): 13.5 ... 28 V DC  
 Current input: < 30 mA  
 Output voltage of measuring range: (standard): 0 ... +10 V  
 Ripple of output voltage: approx. 20 mV<sub>ss</sub>  
 Internal carrier frequency: 4 kHz  
 Output resistance: 1 kΩ  
 Load resistor: recom. > 1 MΩ

**Environmental conditions**

Operation temperature range (incl. amplifier): -20 °C ... 80 °C  
 Nominal temperature range: -20 °C ... 80 °C  
 Influence of temperature\*: 0.03 % F.S./K  
 \* relating to the range of nominal temperature.

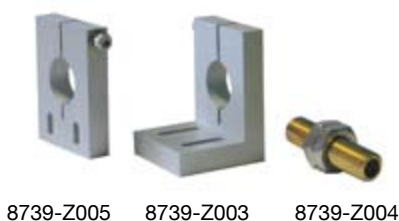
**Mechanical values**

Non-linearity: < 0.25 % F.S.  
 Non-repeatability: ± 0.1 % F.S.  
 Hysteresis: ± 0.1 % F.S.  
 Driving rod: guided by ball-bearings  
 Probe tip (included in scope of delivery): thread M 2.5  
 Case material of sensor body: ST 25, nickel-plated  
 Case material IN-LINE amplifier: Aluminium  
 Protection class: according to EN 60529 Model 8739 IP60  
 Protection class of IN-LINE amplifier: IP65  
 Dimensions of IN-LINE amplifier: 25 x 73.7 [mm]  
 Dimensions with PG bolts: 25 x 114 [mm]  
 Electrical connection: shielded, PVC insulated wire, total length 4 m, the IN-LINE amplifier is centrally and inseparably mounted, bending radius ≥ 10 mm, with a 4 pin connector to sensor, other side open ends.

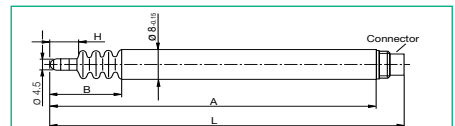
Pin assignment: with IN-LINE Amp. without Amp. Pin  
 excitation (+) brown OSC+ 4  
 signal (+) green OSC- 2  
 excitation/signal (-) white OUT+ 1  
 Connect the shield to ground (GND) OUT- 3

**Mounting advice**

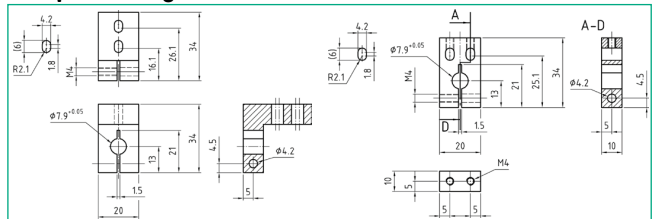
Mounting of the sensor body by clamp or fixing threaded sleeve (refer to picture)



**Dimensional drawing model 8739**



**Clamp and fixing bracket**



The CAD drawing (3D/2D) for this sensor can be imported online directly into your CAD system.

Download via [www.burster.com](http://www.burster.com) or directly at [www.traceparts.com](http://www.traceparts.com). For further information about the burster traceparts cooperation refer to data sheet 80-CAD-EN.

**Order Information**

Inductive displacement sensor with measuring range 0 ... 5 mm including IN-LINE amplifier 0 ... +10 V analog output **Model 8739-5005-V501**  
 Inductive displacement sensor with measuring range 0 ... 2 mm **Model 8739-5002-V000**

**Accessories**

Clamp for model 8739 (refer to picture) **Model 8739-Z005**  
 Fixing bracket for model 8739 (refer to picture.) **Model 8739-Z003**  
 Threaded sleeve (refer to picture) **Model 8739-Z004**  
 Connector 12 pin suitable to burster desktop devices **Model 9941**  
 Installation of connector to cable **Model 99004**  
 Connector 9 pin Min-D for model 9310 **Model 9900-V209**

Upon connection of the sensor to DIGIFORCE® 9310 display version an external excitation voltage is requested for the IN-LINE amplifier version (model 8739 - ...-V505 or -V506).

Devices or systems for measuring value collection or process monitoring: refer to section 9 of the catalog.

**Option**

V302: Sensor housing with fixing thread M24x1.5x45 including two nuts (refer to mounting advice). The thread sleeve is mounted flush to the housing.

Inductive sensor with current output 4-20 mA, on request.



Inductive displacement sensor with USB interface and evaluation software (for more technical data please refer to data sheet 9205)

**Manufacturer Calibration Certificate (WKS)**

Standard manufacturer calibration raising in 20 % increments, with or without indicator.