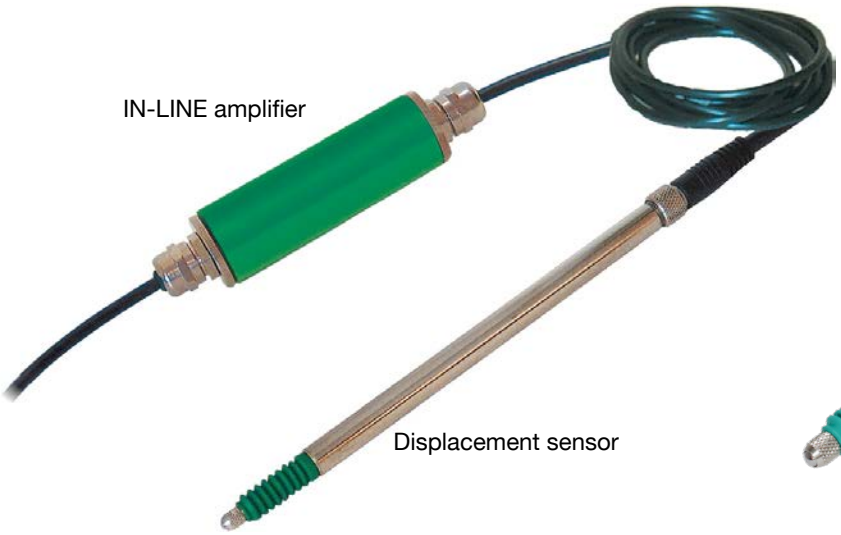
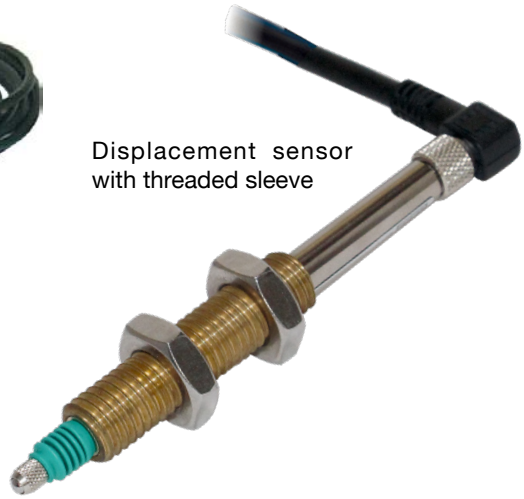
LVDT Displacement Sensor

With IN-LINE Amplifier

Model 8739

Code:	8739 EN
Delivery:	ex stock
Warranty:	24 months





- **Ranges from 0 ... 1 mm to 0 ... 25 mm**
- **Non-linearity 0.25 % F.S.**
- **Sensor diameter 8 mm**
- **Output 0 ... 10 V**
- **Optional output 0 ... 5 V, ± 5 V, 4 ... 20 mA**
- **Sensor with or without IN-LINE amplifier**
- **Vibration and wear free**

8739 EN

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.

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Technical Data

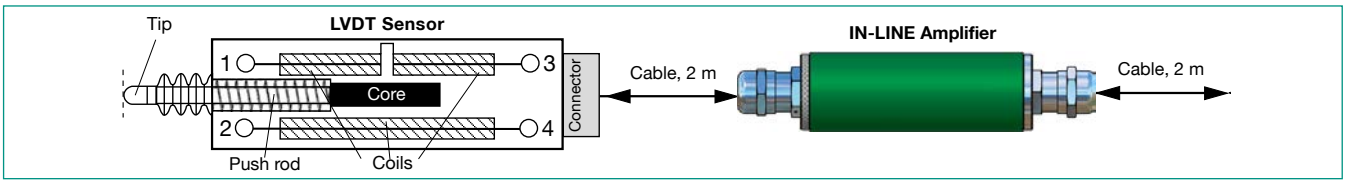
Model 8739

Order Code	Measuring Range	Dimensions [mm] L	A	B	H	Cut-Off Frequency [Hz]	Tip Force at Full Scale max. [N]	Weight [g]
8739-5001-V501	0 ... 1 mm	103	97.5	15.5	4	100	1.2	25
8739-5002-V501	0 ... 2 mm	103	97.5	15.5	4	100	1.5	25
8739-5005-V501	0 ... 5 mm	140	130	23	7	100	2.3	25
8739-5010-V501	0 ... 10 mm	146	140	27	12	100	2.4	25
8739-5025-V501	0 ... 25 mm	driving rod without return spring with sliding rings made of teflon				100	0	25

Model 8739 without IN LINE Amplifier

Order Code	Measuring Range	Sensitivity	Sensor Excitation Voltage [V]	Operation Frequency [kHz]	Calibrator 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 /mm	2	5	10
8739-5010-V000	0 ... ± 5 mm	62 mV/V /mm	2	5	10

Measuring range 0 ... 25 mm on request



Electrical values

Excitation voltage (protected against wrong polarity):	13.5 ... 28 V DC
Excitation voltage at Ua 0 ... 5 V:	9 ... 28 VDC
Current input:	< 30 mA
Output voltage of measuring range:	(standard): 0 ... +10 V
Ripple of output voltage:	approx. 20 mV_{ss}
Internal carrier frequency:	4 kHz
Output resistance:	1 kΩ
Load resistor:	reccom. > 1 MΩ

Environmental conditions

Operation temperature range (only sensor):	- 20 °C ... 80 °C
Nominal temperature range (only sensor):	- 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]

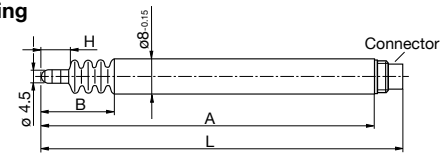
Electrical connection: shielded, PVC insulated wire, total length 4 m, the IN-LINE amplifier is centrically and inseparably mounted, bending radius ≥ 10 mm, with a 4 pin connector to sensor, other side open ends.

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

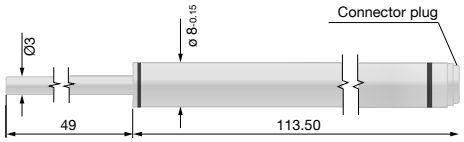
Manufacturer Calibration Certificate (WKS)

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

Dimensional drawing model 8739 0 ... 1/2/5/10 mm



Dimensional drawing model 8739 0 ... 25 mm



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

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

Accessories

Clamp (s. accessory data sheet)	**Model 8739-Z005**
Fixing bracket (s. accessory data sheet)	**Model 8739-Z003**
Threaded sleeve (s. accessory data sheet)	**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 - 5XXX-V505 or -V506).

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

Optionen

V302: Sensor housing with fixing thread M12x1.75x45 including two nuts (refer to mounting advice). The thread sleeve is mounted flush to the housing.
V502: Sensor plug with 90° depature
V503: Inductive displacement sensor with voltage output 0 ... 5 V
V504: Combination of V502 and V503
V510: Inductive displacement sensor with voltage output ± 5 V
V514: Inductive displacement sensor with current output 4 ... 20 mA

Dragchain cable	on request
Other cable lengths	on request
Comparsion in Inch	on request

Other adjustment of the amplifier, e. g. 0 ... 4 mm ≙ 0 ... 10 V on request

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