

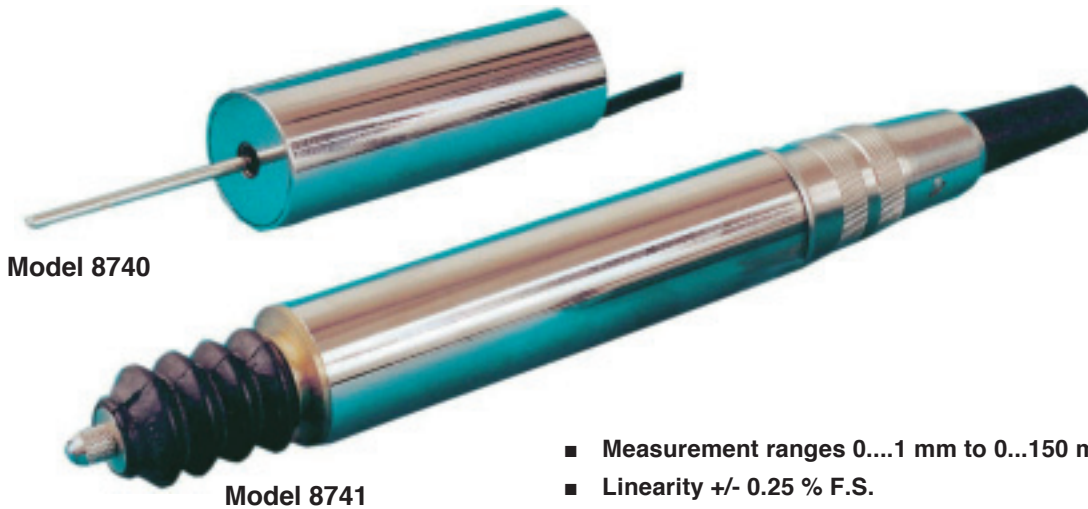
DC/DC Displacement Transducers

Model 8740

Model 8741 (Gauging Type; Spring Loaded)

Code:	8740 E
Manufacturer:	burster
Delivery:	ex stock
Warranty:	24 months
Issue:	1.3.2005

CAD data in 3D/2D available on
POWERPARTS by web2CAD
 Info: data sheet 80-CD-ROM-E



- Measurement ranges 0...1 mm to 0...150 mm
- Linearity +/- 0.25 % F.S.
- Free of hysteresis
- Integrated measurement amplifier, output 0...5 V
- Insensitive to vibrations and impulse
- Special versions (e.g. output 0...10 V, linearity +/-0.1 % F.S.) upon request

Application

Displacement or convertible values to displacement such as force, pressure, strain, torque, vibrations, etc. can be measured with the inductive displacement transducers which function is based on the linear variable differential transformer principle (LVDT).

These sensors are used in many technology branches (industry, R&D, ...) due to their very good measurement accuracy, the high protection class as well as their long-life duration.

Applications are found in the measurement, regulation and control of slow and fast movements between machine parts, position measurements and position changes of parts components and ground, servo regulators, valve control, robot control, growth measurement, etc.

The construction is robust – the inner coils and electronics are coalesced – so that impulses or vibrations can be endured without problems. As a result, these sensors are suitable for mobile applications (e.g. automobiles) and test stands with high test cycle numbers.

Description

These inductive displacement sensors with integrated electronics contain a differential transformer and a carrier frequency amplifier (oscillator, demodulator, filter and amplifier) that are installed and coalesced in a stainless steel housing.

The supply voltage is in DC and a DC voltage proportional to the displacement is given to the output. The differential transformer consists of a primary and two secondary coils that are arranged symmetrically to the primary coil.

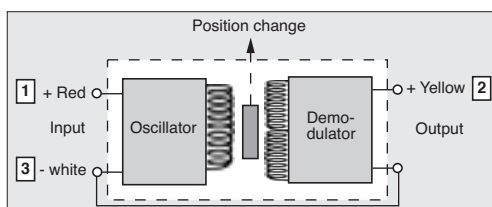
The induced DC voltage in the secondary coils is demodulated, filtered and amplified with the integrated electronic. A rod-shaped core is moveable within the differential transformer. In dependence to the position of this core the analog DC voltage supplied to the sensor's output is changed.

The model 8740 contains an axially free moveable core with two plastic slip rings. These take care of the centering of the core in the perusing drill of the sensor body.

The mechanical coupling of the core with the measurement object can be arranged with clamps or screws. Lateral forces have to be avoided.

The model 8741 features ball bearings to hold the core. The core and its sensing device's top is pushed against the measurement object with the help of an internal spring. The use of this version is advantageous when the mechanical coupling is either complicated or simply not practical. The measurement side of the sensor is protected against dirt or dust and spray by a rubber bellow.

Block scheme



Technical Data

DC/DC Displacement Transducer Model 8740

Order code	Measuring range	Dimensions [mm]					Frequency response [Hz]	Sensor weight [Grams]	Core weight [Grams]
		L	øD	ø C	K	S			
8740 - 5001	0 ... 1 mm	45	20	4	27	34	300	30	2
8740 - 5002	0 ... 2 mm	45	20	4	27	34	300	30	2
8740 - 5005	0 ... 5 mm	61	20	4	45	40	150	60	3.3
8740 - 5010	0 ... 10 mm	61	20	4	45	40	150	60	3.3
8740 - 5025	0 ... 25 mm	91	20	4	56	69	100	90	4.7
8740 - 5050	0 ... 50 mm	151	20	4	97	84	100	130	6.9
8740 - 5100	0 ... 100 mm	271	20	4	136	164	100	250	11.7
8740 - 5150	0 ... 150 mm	441	20	4	288	212	100	400	17.1

DC/DC Displacement Transducer Model 8741

Order code	Measuring range	Dimensions [mm]						Tip force max [N]	Mechanical frequency [Hz]	Sensor weight [Grams]
		L _g	L _G	l	h	øD	ød			
8741 - 5001	0 ... 1 mm	97	66	14.5	3	20	4.5	2	10	85
8741 - 5002	0 ... 2 mm	98	66	14.5	4	20	4.5	2	10	85
8741 - 5005	0 ... 5 mm	125	84	34	7	20	4.5	3	10	110
8741 - 5010	0 ... 10 mm	130	84	39	12	20	4.5	3	5	120
8741 - 5025	0 ... 25 mm	190	133	50	27	20	4.5	5	5	150
8741 - 5050 *	0 ... 50 mm	307	210	90	52	20	4.5	8	5	250

* at this measuring range the sensor has a sealing rubber lip instead of a rubber bellows for protection of the guidance on ball bearings.

Electrical Value

Supply voltage (protected against wrong polarity): 9 ... 25 VDC
 Current input: ≤ 26 mA
 Output voltage for nominal displacement: 0 ... + 5 V
 Ripple output voltage: nom. 50 mV_{pp}
 Internal carrier frequency: 12 kHz
 Output impedance: 1 kΩ
 Load resistance: recom. >1 MΩ

- **Connecting cable**, 4-wire, length 3 m, other end open wire **Model 99552-000A-0090030**

- **Connecting cable**, 4-wire, length 3 m other end with mating connector 9941 for burster desktop version instruments **Model 99141-552A-0090030**

- **Tip for model 8741**, thread M 2.5, ball ø 3mm (included) **Model 8741-Z001**

Environmental Conditions

Temperature operating: - 20 °C ... + 80 °C
 Temperature compensated: - 20 °C ... + 80 °C
 Influence of temperature: 0.03 % F.S./K

Amplifiers, process indicators like e.g. digital displays 9180, 9181 (please refer to product section 9 of catalog)

Mechanical Values

Linearity: ≤ 0.25 % F.S.
 Repeatability (unchanged mounting): 0.01 % F.S.
 Material (Case): ST 37, nickel plated
 Protection class according to EN 60529 model 8740 IP 64
 model 8741 IP 60

Option

Option V 302
 Threaded sleeve M 24 x 1.5 x 45 fixed on sensor body for mounting, 2 nuts included, see drawing.

Manufacturer calibration (WKS)
 Calibration of sensor with indicator in 20 % steps (6 reading points). **Order Code 87WKS-8740**

Mounting: Fixation of sensor body with a holder (refer to accessories) or with mounting thread (refer to options).
 Coupling of rod (8740) with thread M 2 x 1.5 (two nuts incl. in scope of delivery)

Electrical connection:
 Model 8740 Shielded 3-wire PVC cable, dia. 3 mm, min. bending radius ≥ 10 mm, length 2 m
 Model 8741 Connecting plug, 7 pin (counterplug incl. in scope of delivery)

Terminal assignment:

	Model 8740	Model 8741
Excitation +	brown	1
Output +	green	2
Excitation/output -	white	3
	Shield (connect on GND)	

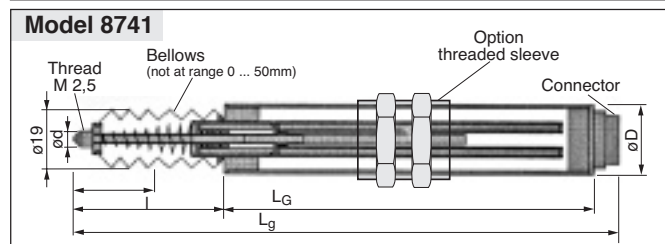
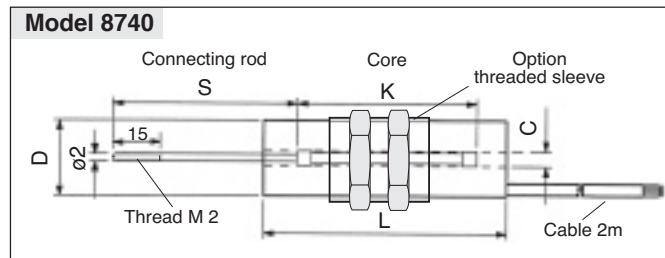
Accessories

Holder, flat design **Model 8740-Z002**
Holder, angle design **Model 8740-Z003**

For model 8740:
 - **Mating connector** 12-pin for burster desktop devices **Model 9941**
 - **Mating connector** 9-pin for model 9310 **Model 9900-V209**
 - **Mounting of mating connector** to sensor cable **Model 99004**

For model 8741:
 - **Mating connector** 7-pin, ø 18 mm, length 70 mm (included) **Model 9952**
 - **Mating connector** 7-pin, 90° angle design, IP40 length 30 mm **Model 9900-V557**

Dimensions



Total displacement h: Ahead 1 mm + range + beyond 1 mm (see tables)

Sensor CAD drawing can be imported in 3D or 2D version from CD-ROM or downloaded from the Internet. For more information on **POWERPARTS** by web2CAD please refer to the introduction of product section 8 in the catalog.