

## DC-EC Schaevitz™ LVDT

- Measurement ranges from  $\pm 1.27$  mm to 254 mm
- LVDT
- Non-linearity 0.25 % FS
- Output signal  $\pm 10$  V
- Supply voltage  $\pm 15$  VDC



The DC-EC Series of DC operated LVDTs combine a computer-designed AC LVDT with custom integral signal conditioning to achieve premium performance. Operating on a nominal  $\pm 15$ VDC supply, the DC-EC Series delivers an extremely linear, low noise, yet high frequency response  $\pm 10$ VDC output.

Innovative design and manufacturing techniques further enhance the DC-EC performance and cost efficiency. The micro-miniature components employed were meticulously selected for maximum stability and thermal performance. Vacuum encapsulation of all elements affords excellent shock and vibration tolerance, while double magnetic shielding provides the utmost protection from stray electrical fields.

Available in a variety of stroke ranges from  $\pm 0.05$  to  $\pm 10$  inches, the DC-EC Series can be configured with a number of standard options including metric threaded core, guided core and small diameter/low mass core.

### ■ Features

- Bi-polar DC operation
- Shock and vibration tolerant
- Captive core option (available on select models)
- AISI 400 Series stainless steel housing
- CE compliant
- Calibration certificates supplied with each unit

### ■ Applications

- Materials testing
- Z-axis position feedback for punch-presses
- Microscope X-Y stage position control
- Medical imaging
- Automotive suspension testing
- Flight simulators

### ■ Specifications

Input voltage:	$\pm 15$ VDC
Current:	$\pm 25$ mA
Output:	$\pm 10$ VDC
Linearity, max:	$\pm 0.25$ % of FS
Output ripple, max:	25 mVDC
Stability:	0.125 % of FS
Output impedance:	1 $\Omega$
Operating temperature range:	0 °C ... +70 °C
Survival temperature range:	-55 °C ... +95 °C
Shock survival:	250 g (11 ms half-sine)
Vibration tolerance:	10 g up to 2 kHz
Housing material:	AISI 400 stainless steel
Electrical connection:	4 conductor, 28 AWG, stranded copper with braided shield and polyurethane jacket, 1 m

#### Notes:

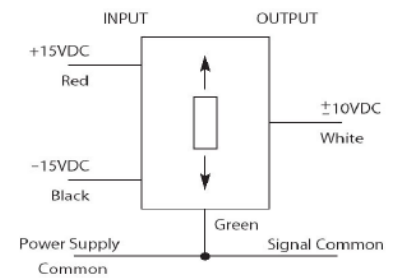
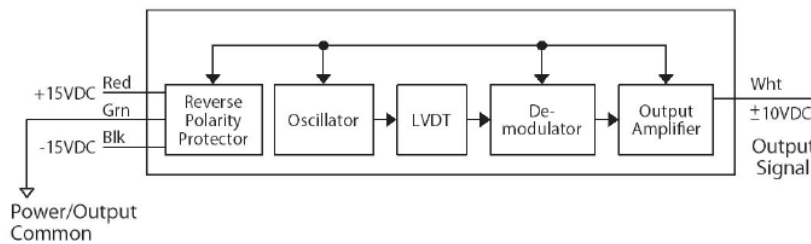
All values are nominal unless otherwise noted  
FS: Full Scale is 2X for  $\pm X$  stroke

Model number	Stroke range		Sensitivity		Frequency response (-3 dB)
	inch	mm	V/inch	V/mm	Hz
050 DC-EC	±0.050	±1.27	200	8	500
125 DC-EC	±0.125	±3.17	80	3.2	500
250 DC-EC	±0.25	±6.35	40	1.6	500
500 DC-EC	±0.5	±12.7	20	0.8	200
1000 DC-EC	±1	±25.4	10	0.4	200
2000 DC-EC	±2	±50.8	5	0.2	200
3000 DC-EC	±3	±76.2	3.3	0.13	200
5000 DC-EC	±5	±127	2.0	0.08	200
10000 DC-EC	±10	±254	1.0	0.04	200

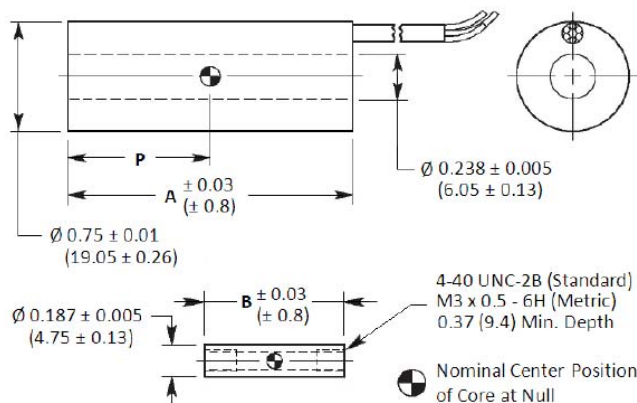
**Notes:**

All values are nominal unless otherwise noted  
 FS: Full Scale is 2X for ±X stroke

**Block Diagram and Wiring**



**Mechanical Specifications**



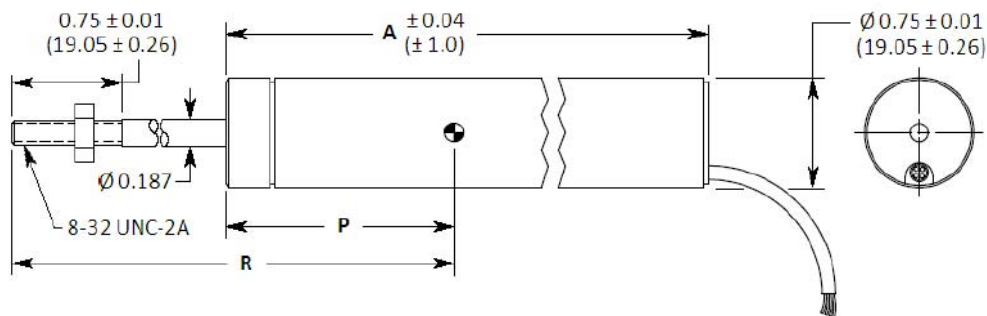
All dimensions in inches, values in brackets in mm, approx. values.

These drawings are for information only and not intended for construction purpose. Please ask for detailed drawings.

Model number	Weight, approx.				Dimensions, approx.					
	Body		Core		A		B		P	
	oz	g	oz	g	inch	mm	inch	mm	inch	mm
050 DC-EC	2.19	62	0.07	2	2.10	53.5	0.75	19.1	0.50	12.7
125 DC-EC	2.44	69	0.11	3	2.93	74.4	1.25	31.8	0.93	23.6
250 DC-EC	2.58	73	0.18	5	3.80	96.5	2.00	50.8	1.35	34.3
500 DC-EC	2.93	83	0.28	8	5.49	139.4	3.00	76.2	2.20	55.9
1000 DC-EC	4.24	120	0.35	10	7.75	196.9	3.80	96.5	3.18	80.8
2000 DC-EC	5.47	155	0.46	13	11.12	282.4	5.30	134.6	5.3	134.6
3000 DC-EC	9.39	266	0.49	14	16.32	414.5	6.20	157.5	7.55	191.8
5000 DC-EC	11.47	325	0.60	17	20.15	511.8	6.20	157.5	9.53	242.1
10000 DC-EC	15.71	445	0.85	24	35.38	898.7	12.00	304.8	16.58	421.1

## ■ Captive Core Option

The DC-EC features a captive core design that greatly simplifies installation. The design utilizes a core rod and bearing assembly that is captured and guided within the LVDT providing low friction travel throughout the stroke length. The assembly incorporates two Delrin bearings on the core rod traveling through the stainless steel boreliner. A bronze bearing on the front end utilizes a self-aligning feature to accommodate lateral LVDT movement during operation, the core rod and bearing assembly is field replaceable.



Dimensions in inches, approx. values.

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Model number	Dimensions, approx.					
	A		R		P	
	inch	mm	inch	mm	inch	mm
050 DC-EC	3.85	97.8	3.69	93.7	0.85	21.6
125 DC-EC	4.70	119.4	4.28	108.7	1.27	32.3
250 DC-EC	5.54	140.7	4.75	120.7	1.69	42.9
500 DC-EC	7.23	183.6	6.04	153.4	2.54	64.5
1000 DC-EC	9.21	233.9	7.90	200.7	3.53	89.7
2000 DC-EC	12.59	319.8	10.52	267.2	5.22	132.6
3000 DC-EC	17.95	455.9	15.27	387.9	7.90	200.7

## ■ Ordering Information

Specify the DC-EC Model followed by the desired option number(s) added together.

### Example

**Model Number 050DC-EC-200** is a DC-EC Series LVDT with a  $\pm 1.27$  mm range (050 DCEC) with the captive core option (200).

## ■ Options

Option number	Description
006	metric threaded core
010	guided core
020	Small diameter/low mass core <sup>(1)</sup>
200	captive core <sup>(2)</sup>

(1) Mass, dimensions and thread size on request

(2) Available on 050DC-EC through 3000DC-EC models only

Due to continual product development, ALTHEN and partners reserve the right to vary the foregoing details without prior notice.