

DC-SE

Schaevitz™ General Purpose LVDT

- Measurement ranges from 0 ... 2.5 mm to 0 ... 150 mm
- LVDT
- Non-linearity 0.25 % full range
- Output signal 0 ... 5 V, 1 ... 6 V
- Supply voltage 8.5 ... 28 VDC



The DC-SE Series has been designed to meet today's requirements for operation from a single ended power supply. The output is also single ended over the full range displacement of the LVDT making the unit compatible with unipolar inputs on analog-to-digital converters and programmable logic controllers, etc. The DC-SE design features internal regulation which provides immunity from line ripple and allows operation from an unregulated 8.5 to 28 VDC supply. The DC-SE current draw is 6 mA (typical), making remote or portable operation from batteries possible. The incorporation of a new high stability oscillator provides improved temperature stability, while the synchronous demodulator insures excellent noise rejection. The electronics design uses surface mount technology to keep costs and size of the unit to a minimum. Built-in EMI/ESD protection and shielded cable allows operation in industrial environments. The DC-SE meets CE requirements.

■ Specifications

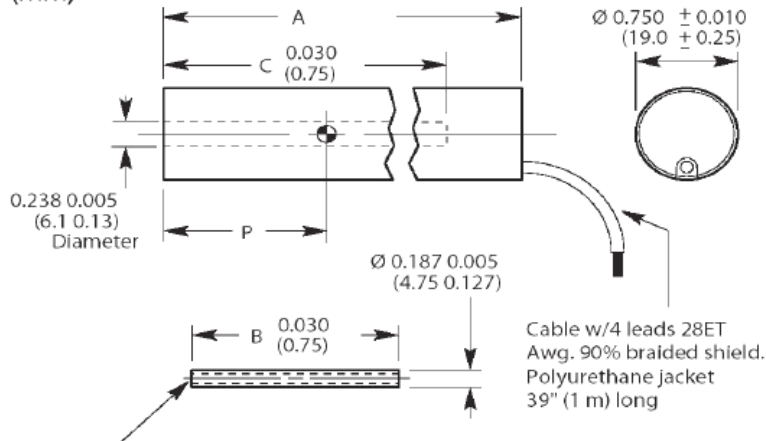
Supply voltage:	+8.5 ... +28 VDC
Input current:	<10 mA (typical 6 mA)
Line regulation:	<1 mV/V (typical 0.2 mV/V)
Operating temperature range:	-25 ... +85 °C
Storage temperature range:	-55 ... +125 °C
Output signal:	0 ... 5 V (4-wire), 1 ... 6 V (3-wire)
Ripple and noise:	<10 mV _{rms}
Linearity:	0.25 % full range
Stability:	0.125 % full scale
Temperature coefficient of scale factor, max.:	0.05 %/K
Shock survival:	250 g for 11 ms
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 PU jacket, 1 m
EMC	CE certified (The DC-SE series, when correctly installed, comply with the EMC Directive 89/336/EEC)
Output impedance	<1 Ω

■ Performance and Electrical Specifications at Room ambient Temperature

Model number	Linear range, nom.		Scale factor		Response Hz (-3 dB)
	Inch	mm	V/inch	V/mm	
100 DC-SE	0 ... 0.100	0 ... 2.5	50	2.00	200
250 DC-SE	0 ... 0.250	0 ... 6.25	20	0.80	200
500 DC-SE	0 ... 0.500	0 ... 12.5	10	0.40	200
1000 DC-SE	0 ... 1.000	0 ... 25	5	0.20	200
2000 DC-SE	0 ... 2.000	0 ... 50	2.5	0.10	200
4000 DC-SE	0 ... 4.000	0 ... 100	1.25	0.05	200
6000 DC-SE	0 ... 6.000	0 ... 150	0.83	0.03	200

Mechanical Specification

in (mm)



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

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

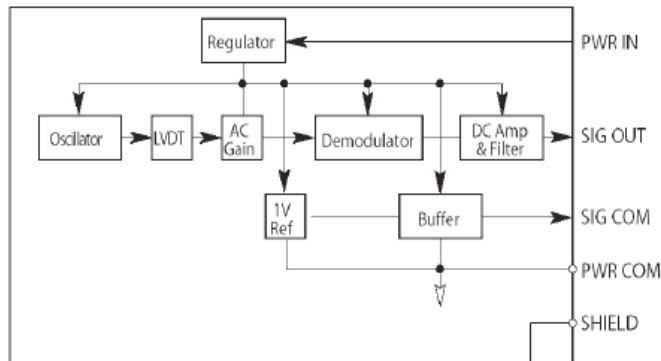
Please ask for detailed drawings.

#4 - 40UNC - 2B (M3 x.5-6H)
x 0.38 (9.5) Min. Depth Both Ends

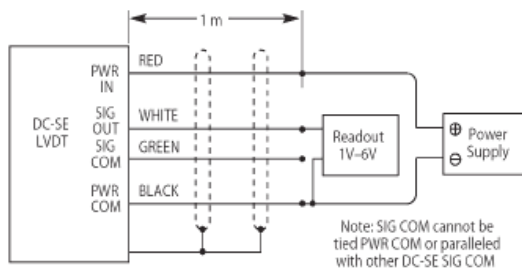
Nominal Center Position
of Core at Null

Model number	Weight, approx.				Dimensions, approx.							
	Body		Core		A		B		C		P	
	oz	g	oz	g	inch	mm	inch	mm	inch	mm	inch	mm
100 DC-SE	2.54	72	0.035	1	3.51	89.2	0.59	14.9	1.21	30.7	0.51	13.0
250 DC-SE	3.21	91	0.11	3	4.36	110.7	1.10	27.9	2.06	52.2	0.93	23.6
500 DC-SE	3.39	96	0.18	5	5.20	132.1	1.80	45.7	2.91	73.8	1.35	34.3
1000 DC-SE	4.38	124	0.28	8	6.89	175.0	3.00	76.2	4.59	116.7	2.20	55.9
2000 DC-SE	6.25	177	0.35	10	8.87	225.3	3.80	96.5	6.57	166.8	3.19	81.0
4000 DC-SE	8.33	236	0.53	15	12.25	311.2	5.30	134.6	9.95	252.8	4.88	124.0
6000 DC-SE	10.48	297	0.64	18	17.30	439.4	6.20	157.5	15.06	382.5	7.56	192.0

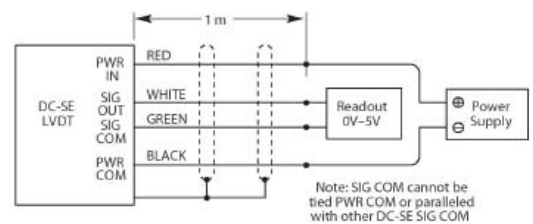
Block Diagram and Wiring



3-wire hookup: output 1 ... 6 V

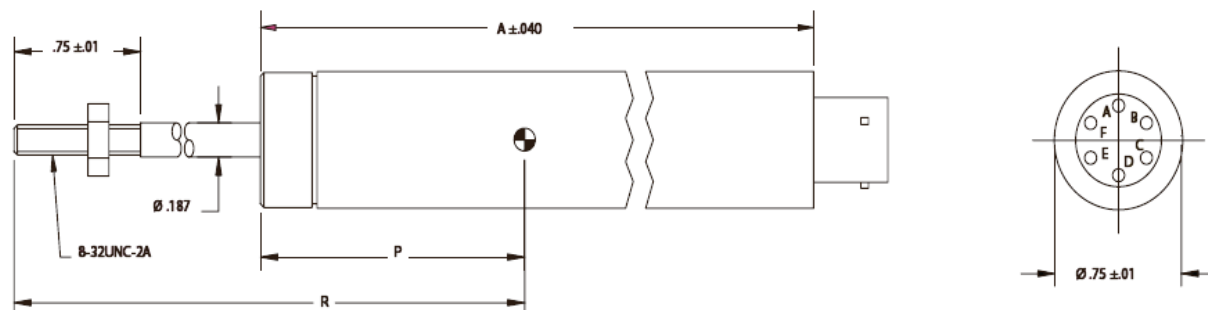


4-wire hookup: output 0 ... 5 V



■ Captive Core Option

The DC-SE 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	Linear range		Weight		Dimensions, approx.					
	in	mm	oz	g	A		P		R	
					in	mm	in	mm	in	mm
100 DC-SE	0 ... 0.100	0 ... 2.5	1.52	43	3.85	97.8	0.85	21.6	3.69	93.7
250 DC-SE	0 ... 0.250	0 ... 6.25	4.09	116	4.70	119.4	1.27	32.3	4.28	108.7
500 DC-SE	0 ... 0.500	0 ... 12.5	4.34	123	5.54	140.7	1.69	42.9	4.75	120.7
1000 DC-SE	0 ... 1.000	0 ... 25	5.51	156	7.23	183.6	2.54	64.5	6.04	153.4
2000 DC-SE	0 ... 2.000	0 ... 50	7.62	216	9.21	233.9	3.53	89.7	7.90	200.7
4000 DC-SE	0 ... 4.000	0 ... 100	10.13	287	12.59	319.8	5.22	132.6	10.52	267.2
6000 DC-SE	0 ... 6.000	0 ... 150	12.92	366	17.64	448.1	7.90	200.7	15.27	387.9

■ Ordering Information

Specify the DC-SE model followed by the desired option(s) ordered together.

Example:

Model 100DC-SE-206 is a DC-SE series LVDT with a 0 ... 2.5 mm range (100DC-SE), with captive core option (200) and metric thread core (006)

■ Options

Option number	Description
006	metric thread core
010	guided core
020	small diameter, low mass core ⁽¹⁾
200	captive core

(1) Weight, mass and dimensions on request

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