

## HCD

### Hermetically Sealed LVDT

- Measurement ranges from  $\pm 1.25$  mm to  $\pm 250$  mm
- LVDT
- Linearity 0.25 % full range
- Output  $\pm 10$  V
- Supply voltage  $\pm 15$  VDC



The HCD series LVDTs are impervious to dirt, water, steam spray and most corrosives. Tungsten inert gas (TIG) welding provides hermetic sealing that is free from oxidation-producing faults that may cause leakage. They have been qualified at pressures up to 1000 psi (70 bars) and are suitable for numerous high-pressure applications. They are terminated with a glass-sealed, MS-type terminal connector. The connector prohibits the core from passing completely through the coil assembly. HCD units have double magnetic shielding that makes them insensitive to external magnetic influences.

- Hermetically sealed by TIG
- CE compliant
- Glass-sealed MS-type connector
- Calibration certificate supplied with all models
- Ideal for pressure installations up to 1000 psi (70 bar)
- Submersible with appropriate connector

#### Options

- Metric thread core
- Guided core
- Small diameter, low mass core
- Captive core for convenient installation

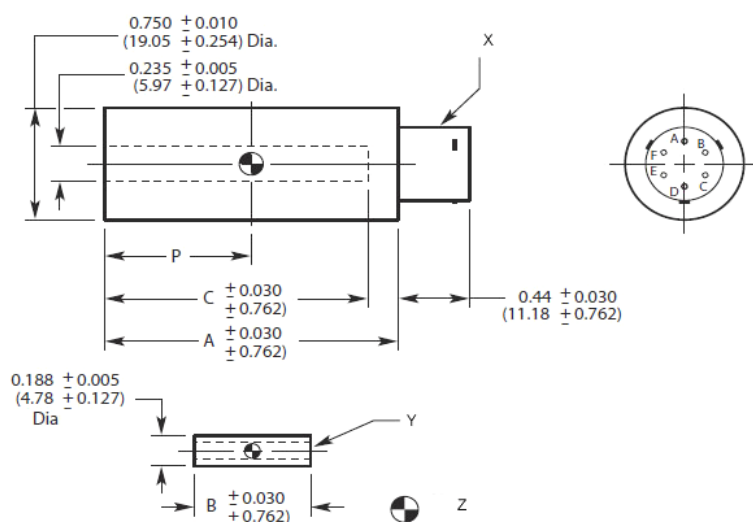
#### Specifications

Supply voltage	$\pm 15$ VDC (nominal), $\pm 25$ mA
Output signal	$\pm 10$ V
Operating temperature range	0 ... +70 °C (+32 ... +160 °F)
Survival temperature range	-55 ... +95 °C (-65 ... +200 °F)
Null voltage	0 VDC
Ripple	$< 0.25$ mV <sub>rms</sub>
Linearity	0.25 % full range
Stability	0.125 % full scale
Temperature coefficient of scale factor	0.08 %/°C
Shock survival	250 g for 11 ms ½ sine
Vibration tolerance	10 g to 2 kHz
Coil form material	High density, glass filled polymer
Housing material	AISI 400 stainless steel
Electrical Termination	6-pin connector
Output impedance	$< 1$ $\Omega$

#### Performance and Electrical Specifications at Room Ambient Temperature

Model number	Nominal linear range		Scale factor		Response -3 dB
	inch	mm	V/in	V/mm	Hz
050 HCD	$\pm 0.050$	$\pm 1.25$	200.0	8.00	500
125 HCD	$\pm 0.125$	$\pm 3.0$	80.0	3.00	500
250 HCD	$\pm 0.250$	$\pm 6.0$	40.0	1.60	500
500 HCD	$\pm 0.500$	$\pm 12.5$	20.0	0.80	200
1000 HCD	$\pm 1.000$	$\pm 25$	10.0	0.40	200
2000 HCD	$\pm 2.000$	$\pm 50$	5.0	0.20	200
3000 HCD	$\pm 3.000$	$\pm 75$	3.3	0.13	200
5000 HCD	$\pm 5.000$	$\pm 125$	2.0	0.08	200
10000 HCD	$\pm 10.00$	$\pm 250$	1.0	0.04	200

## Mechanical Specifications



**X:** mates with Bendix PT06A-10-6S connector (not included)

**Y:** 4-40 UNC-2B (Standard)  
M3 x 0.5 -6H (metric thread core)  
0.38 (9.65) minimum depth

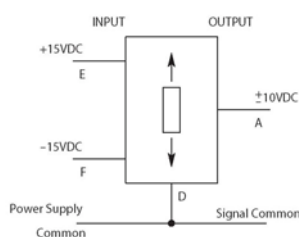
**Z:** nominal center position of core at null

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							
	Body		Core		A (Body)		B (Core)		C		P	
	oz	g	oz	g	inch	mm	inch	mm	inch	mm	inch	mm
<b>050 HCD</b>	1.41	40	0.07	2	2.40	61.0	0.75	19.1	1.90	48.3	0.55	14.0
<b>125 HCD</b>	1.77	50	0.11	3	3.23	82.0	1.25	31.8	2.73	69.3	0.96	24.5
<b>250 HCD</b>	2.19	62	0.18	5	4.10	104.1	2.00	50.8	3.60	91.4	1.39	35.3
<b>500 HCD</b>	2.93	82	0.28	8	5.79	147.1	3.00	96.2	5.29	134.4	2.23	56.5
<b>1000 HCD</b>	4.24	120	0.35	10	8.05	204.5	3.80	96.5	7.55	191.8	3.32	84.3
<b>2000 HCD</b>	6.09	174	0.53	15	11.42	290.1	5.30	127.0	10.92	277.4	5.05	128.3
<b>3000 HCD</b>	8.33	236	0.64	18	16.62	422.1	6.20	157.5	16.10	408.9	7.59	192.8
<b>5000 HCD</b>	10.38	294	0.64	18	20.45	519.5	6.20	157.5	19.95	506.7	9.56	242.8
<b>10000 HCD</b>	18.57	526	0.85	24	34.57	878.1	12.00	304.8	34.03	864.4	16.61	421.9

## Wiring



## Ordering Information

Specify the HCD model followed by the desired option number(s) ordered together.

### Example:

Model 050HCD-026 is an HCD series LVDT with a  $\pm 1.25$  mm range (050HCD), with a metric thread core (006) and a small diameter core (020)

Option number	Description
<b>006</b>	metric thread core
<b>010</b>	guided core
<b>020</b>	small diameter, low mass core <sup>(1)</sup>
<b>200</b>	captive core <sup>(2)</sup>

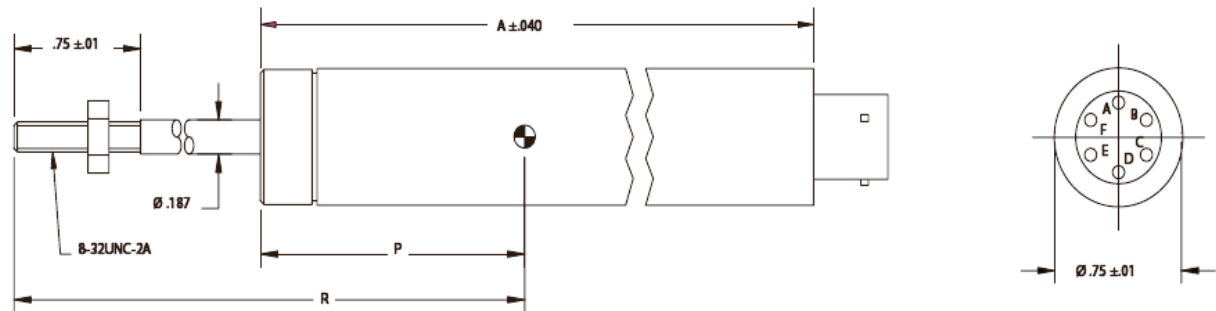
(1) Mass, dimensions and thread size in request

(2) Available on 050HCD through 3000HCD models only

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

## Captive Core Option For LVDT Series HCA, HCD and HCT

These LVDTs feature 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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### ■ Mechanical Specifications HCA Series

Model	Linear range		Weight, approx.		Dimensions, approx.					
	Inches	mm	oz	g	A		P		R	
					in	mm	in	mm	in	mm
050 HCA	±0.050	±1.25	1.98	56	2.00	50.8	0.89	22.8	3.70	94.0
125 HCA	±0.125	±3.0	2.61	74	2.84	72.1	1.30	33.0	4.28	108.7
250 HCA	±0.250	±6.0	3.14	89	3.70	94.0	1.73	43.9	4.75	120.7
500 HCA	±0.500	±12.5	4.06	115	5.39	136.9	2.57	65.3	6.04	153.4
1000 HCA	±1.000	±25	6.64	188	7.63	193.8	3.66	93.0	7.90	200.7
2000 HCA	±2.000	±50	7.38	209	11.02	279.9	5.39	138.9	10.52	267.2
3000 HCA	±3.000	±75	10.63	301	16.10	408.9	7.93	201.4	15.27	387.9

### ■ Mechanical Specifications HCD Series

Model	Linear range		Weight, approx.		Dimensions, approx.					
	Inches	mm	oz	g	A		P		R	
					in	mm	in	mm	in	mm
050 HCD	±0.050	±1.25	2.19	62	2.74	69.6	0.89	22.8	3.78	96.0
125 HCD	±0.125	±3.0	2.65	75	3.57	90.7	1.30	33.0	4.36	110.7
250 HCD	±0.250	±6.0	3.14	89	4.44	112.8	1.73	43.9	4.85	123.2
500 HCD	±0.500	±12.5	4.06	115	6.13	155.7	2.57	65.3	6.04	153.4
1000 HCD	±1.000	±25	5.61	159	8.39	213.1	3.66	89.4	7.90	200.7
2000 HCD	±2.000	±50	7.87	223	11.76	298.7	5.39	113.4	10.52	267.2
3000 HCD	±3.000	±75	10.63	301	16.96	430.8	7.93	201.4	15.27	387.9

## ■ Mechanical Specifications HCT Series

Model	Linear range		Weight, approx.		Dimensions, approx.					
	Inches	mm	oz	g	A		P		R	
					in	mm	in	mm	in	mm
<b>HCT 420-250</b>	0 ... 0.250	0 ... 6.25	3.74	106	4.63	117.6	1.30	33.0	4.36	110.7
<b>HCT 420-500</b>	0 ... 0.500	0 ... 12.5	4.66	132	5.75	146.1	1.86	47.2	4.75	120.7
<b>HCT 420-1000</b>	0 ... 1.000	0 ... 25	5.47	155	7.16	181.9	2.57	65.3	6.04	153.4
<b>HCT 420-2000</b>	0 ... 2.000	0 ... 50	6.85	194	9.42	239.3	3.88	93.5	7.87	199.9
<b>HCT 420-5000</b>	0 ... 5.000	0 ... 125	9.60	272	12.52	318.0	5.25	133.4	12.36	313.9

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