

HR Series

General Purpose LVDT

The high reliability HR Series of LVDTs is suitable for most general applications. The HR Series features a large core-to-bore clearance, high output voltage over a broad range of excitation frequencies, and a magnetic stainless steel case for electromagnetic and electrostatic shielding.

Features

- ❑ **Optimum performance for a majority of applications**
- ❑ **Large 1/16 inch radial core-to-bore clearance**
- ❑ **Calibration certificate supplied with all models**
- ❑ **Compatible with all Schaevitz® signal conditioners**
- ❑ **High temperature (220°C) and high pressure (vented case) available – consult factory**

Applications

- ❑ **General**

Options

- ❑ **5.0 kHz excitation frequency testing***
- ❑ **Metric thread core**
- ❑ **Guided core**
- ❑ **Small diameter/low mass core**
- ❑ **Mild radiation resistance (withstands 10^{12} NVT total integrated flux; 10^7 rads Gamma)**

* Performance and electrical specifications for alternative frequencies will differ from the standard specifications listed below which are based on a 2.5 kHz excitation frequency. Consult factory for further information.



Specifications

Input Voltage	3 V rms (nominal)
Frequency Range	400 Hz to 5 kHz
Operating Temperature ... Range	-65°F to 300°F (-55°C to 150°C)
Null Voltage	<0.5% full scale output
Shock Survival	1,000 g for 11 msec
Vibration Tolerance	20 g up to 2 kHz
Coil Form Material	High density, glass-filled polymer
Housing Material	AISI 400 series stainless steel
Lead Wires	28 AWG, stranded copper, Teflon-insulated, 12 inches (300 mm) long (nominal)

Performance and Electrical Specifications @ 2.5 kHz¹

HR Series Model Number	Nominal Linear Range		Linearity (± % full range)				Sensitivity mV out/V in Per		Impedance Ohms		Phase Shift Degrees
	inches	mm	50	100	125	150	0.001 in	mm	Pri	Sec	
050 HR	±0.050	±1.27	0.10	0.25	0.25	0.50	5.8	230	430	4000	-1
100 HR	±0.100	±2.54	0.10	0.25	0.25	0.50	4.2	165	1070	5000	-5
200 HR	±0.200	±5.08	0.10	0.25	0.25	0.50	2.5	91	1150	4000	-4
300 HR	±0.300	±7.62	0.10	0.25	0.35	0.50	1.3	51	1100	2700	-11
500 HR	±0.500	±12.70	0.15	0.25	0.35	0.75	0.7	25.6	460	375	-1
1000 HR	±1.00	±25.4	0.15	0.25	1.00	1.30*	0.39	14.2	460	320	-3
2000 HR	±2.00	±50.8	0.15	0.25	0.50*	1.00*	0.23	8.3	330	330	+5
3000 HR	±3.00	±76.2	0.15	0.25	0.50*	1.00*	0.25	9.1	315	830	+11
4000 HR	±4.00	±101.6	0.15	0.25	0.50*	1.00*	0.20	7.1	275	550	+1
5000 HR	±5.00	±127.0	0.15	0.25	1.00*	n/r	0.14	5.5	310	400	+3
7500 HR	Now available — Contact factory for details										
10000 HR	±10.0	±254	0.15	0.25	1.00*	n/r	0.07	2.8	550	750	-5

¹ All calibration is performed at room ambient temperature.

* Requires special reduced core length.

HR Series LVDT

High Reliability
Large Core-to-Bore Clearance
AC-Operated

How to Order

Specify the HR Model followed by the desired option number(s) added together.

Ordering Example:

Model Number 050 HR-018 is an HR Series LVDT with a $\pm 0.05''$ range (050 HR), with 5 kHz testing (002), Metric thread core (006), and a guided core (010).

HR Model

Options

050 HR
100 HR
200 HR
300 HR
500 HR
1000 HR
2000 HR
3000 HR
4000 HR
5000 HR
10000 HR

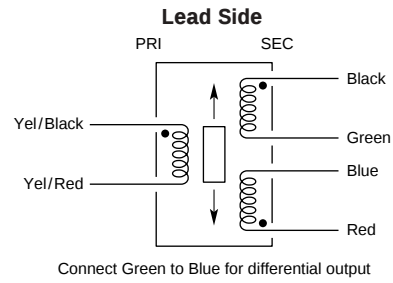
Number	Description
002	5.0 kHz Linearity Test ¹
006	Metric Thread Core
010	Guided Core ²
020	Small Diameter/Low Mass Core ³
080	Radiation Resistance ²

¹Available on models 050 HR, 100 HR, 200 HR, and 500 HR only.

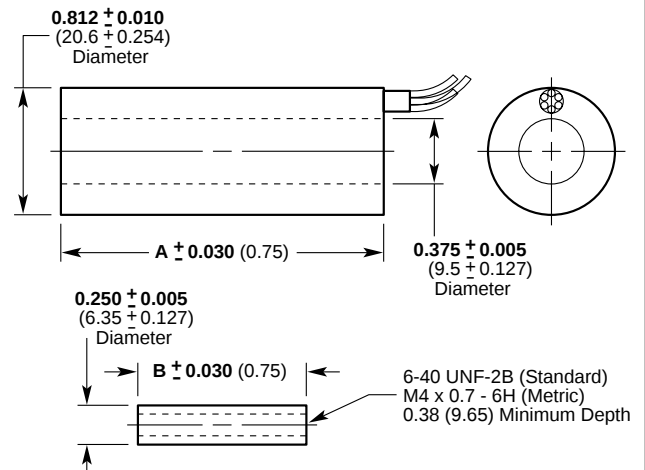
²Guided core and radiation resistance options cannot be ordered together.

³Available on models 050 HR - 500 HR only. Consult factory for mass, dimensions and thread size.

Wiring



Dimensions in (mm)



Mechanical Specifications

HR Series Model Number	Weight				Dimensions			
	Body		Core		A (Body)		B (Core)	
	oz	gm	oz	gm	in	mm	in	mm
050 HR	1.13	32	0.41	4	1.13	28.7	0.80	20.3
100 HR	1.69	48	0.21	6	1.81	46.0	1.30	33.0
200 HR	1.93	60	0.28	8	2.50	63.5	1.65	41.9
300 HR	2.72	77	0.35	10	3.22	81.8	1.95	49.5
500 HR	3.85	109	0.64	18	5.50	139.7	3.45	87.6
1000 HR	4.45	126	0.74	21	6.63	168.4	4.00	101.6
2000 HR	5.93	168	0.95	27	10.00	254.0	5.30	134.6
3000 HR	7.94	225	0.99	28	12.81	325.4	5.60	142.2
4000 HR	10.41	295	1.27	36	15.64	397.3	7.00	177.8
5000 HR	11.99	340	1.27	36	17.88	454.2	7.00	177.8
10000 HR	20.56	580	1.52	43	30.84	783.3	8.50	215.9

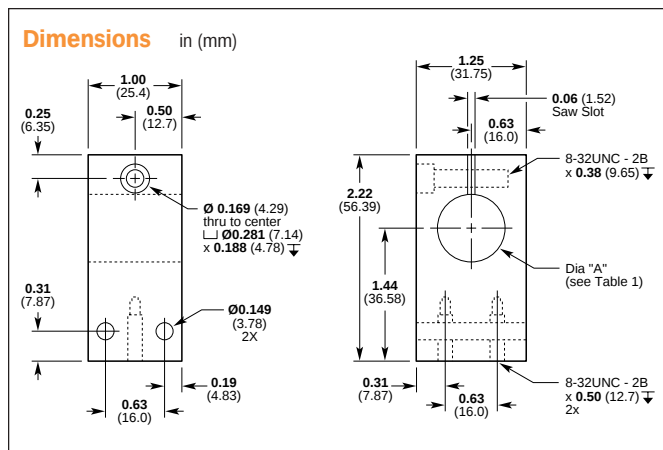
LVDT Accessories

LVDT Mounting Blocks

Frequently, LVDT installations require a convenient method to mount the units. Ready-made mounting blocks are available for all LVDT Series (except XS-B). Constructed of reinforced phenolic and other nonconductive materials with a low-temperature coefficient of expansion, mounting blocks are a convenient, inexpensive and fast solution for LVDT installation.



To Order: use the chart below to specify the part number for the appropriate LVDT Series.



LVDT Mounting Blocks

Part Number	Use with LVDT Series	Dim. A Diameter	LVDT Diameter
04560950-000	E	0.77	0.750
04560952-000	HR	0.83	0.812
04560953-000	M	0.33	8 mm
04560954-000	MHR	0.39	0.375
04560956-000	M-12	0.49	12 mm

MS-Type Connector Cables

Consult factory for price and availability of adaptor cables for LVDTs and signal conditioners.

Core Connecting Rods

LVDT installations require a connecting rod between the LVDT core and the object whose motion is being measured. These connecting rods are fabricated from non-magnetic stainless steel to prevent distortion of the LVDT's magnetic field.



Manufactured from AISI 300 Series stainless steel, core connecting rods are threaded end to end. (Consult factory for available lengths and sizes.)

To Order: Specify CCR-(Length)-(LVDT Series)-(S for standard thread or M for metric thread). For example, to order a 4" rod to go with an MHR Series LVDT equipped with the optional metric thread core, specify: CCR-4-MHR-M

PSD 4-15 DC LVDT Power Supply

The PSD 4-15 DC LVDT power supply is designed to work with all of Schaevitz® DC powered LVDTs. The module will operate on either a 115 VAC or 230 VAC input at 47 to 63 Hz. The PSD 4-15 provides the necessary ± 15 VDC excitation to operate as many as four DC-EC or HCD Series LVDTs, as well as GCD Series gage heads or DC powered Schaevitz® RVDTS (see rotary section) or pressure transducers (see pressure section) that require a ± 15 VDC input. The rugged, compact design can be chassis mounted and features a DIN standard rail mount for secure installation in most industrial environments. In addition, the PSD 4-15 is UL, VDE and cUL approved and CE certified.



General Specifications

Input Voltage	115/230 VAC $\pm 10\%$
Input Frequency	47 to 63 Hz
Input Current	0.1 A (max)
Output Voltage	± 15 VDC $\pm 0.05\%$
Output Current	100 mA continuous
Ripple	< 5mV. pp.
Noise	< 5mV. pp.
Overload Protection	Continuous
Overall Dimensions	2.00 x 4.31 x 0.90 inches; (51 x 110 x 23 mm)
Operating Temperature	-25°C to 70°C