

MHR Series

Miniature LVDT

The MHR series of LVDTs is ideal for applications where excessive core weight could influence the motion of sensitive mechanisms. The lightweight core also helps minimize stresses and preserves the structural integrity of the core actuation assembly. High sensitivity results from close electrical coupling between coil and core. A magnetic stainless steel housing provides electromagnetic and electrostatic shielding.

Features

- ☐ **For applications where installation space or weight is limited**
- ☐ **Lightweight core**
- ☐ **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

- ☐ **Sensitive, lightweight devices**

Options

- ☐ **Alternative 5.0 and 10.0 kHz excitation frequency testing***
- ☐ **Metric thread core**

* Performance and electrical specifications for alternative frequencies will differ from the standard specifications listed below which are based on a 10 kHz excitation frequency. Consult factory for further information.



Specifications

Input Voltage	3 V rms (nominal)
Frequency Range	2 kHz to 20 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	32 AWG, stranded copper, Teflon-insulated, 12 inches (300 mm) long (nominal)

Performance and Electrical Specifications @ 10 kHz¹ (recommended)

MHR 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	
005 MHR	±0.005	±0.13	0.20	0.25	0.30	0.40	8.70	342	84	302	+38
010 MHR	±0.010	±0.25	0.10	0.25	0.35	0.35	6.05	238	165	300	+20
025 MHR	±0.025	±0.64	0.15	0.25	0.25	0.30	8.10	319	238	485	+15
050 MHR	±0.050	±1.27	0.15	0.25	0.35	0.50	3.15	124	419	154	+8
100 MHR	±0.100	±2.54	0.15	0.25	0.25	0.30	2.80	110	400	200	+5
250 MHR	±0.250	±6.35	0.15	0.25	0.35	0.50	2.07	86	345	420	+7
500 MHR	±0.500	±12.70	0.15	0.25	0.30	0.75	1.96	77	264	810	+4
1000 MHR	±1.000	±25.40	0.20	0.25	0.50	—	0.77	30	155	450	-1

Performance and Electrical Specifications @ 2.5 kHz¹

MHR 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	
005 MHR	±0.005	±0.13	0.20	0.25	0.30	0.40	3.14	124	59	260	+73
010 MHR	±0.010	±0.25	0.10	0.25	0.35	0.35	3.29	129	78	192	+39
025 MHR	±0.025	±0.64	0.15	0.25	0.25	0.30	4.36	172	116	286	+38
050 MHR	±0.050	±1.27	0.15	0.25	0.35	0.50	2.55	100	141	90	+36
100 MHR	±0.100	±2.54	0.15	0.25	0.25	0.30	2.40	94	135	125	+30
250 MHR	±0.250	±6.35	0.15	0.25	0.35	0.50	1.73	68	147	268	+29
500 MHR	±0.500	±12.70	0.15	0.25	0.30	0.75	1.60	67	145	445	+19
1000 MHR	±1.000	±25.40	0.20	0.25	0.50	—	0.70	27	100	370	+6

¹All calibration is performed at room ambient temperature.

MHR Series LVDT

Compact, Lightweight Design
Ideal for Sensitive Instruments
AC-Operated

How to Order

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

Ordering Example:

Model Number 050 MHR-009 is an MHR Series LVDT with a $\pm 0.05''$ range (050 MHR), with the 10 kHz testing option (003), Metric thread core (006).

MHR Model

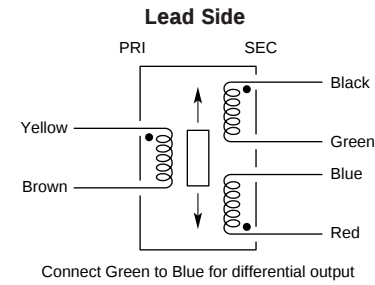
005 MHR
010 MHR
025 MHR
050 MHR
100 MHR
250 MHR
500 MHR
1000 MHR

Options

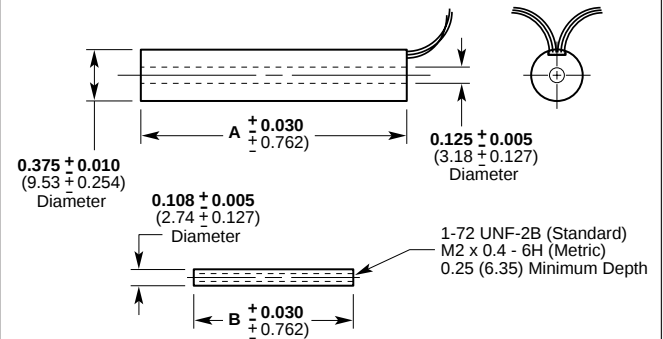
Number Description

002 5.0 kHz Linearity Test
003 10 kHz Linearity Test
006 Metric Thread Core

Wiring



Dimensions in (mm)



Mechanical Specifications

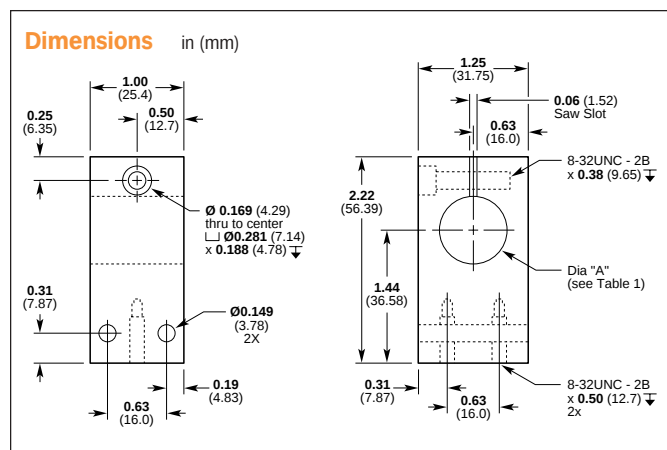
MHR Series Model Number	Weight		Core		Dimensions			
	Body				A (Body)		B (Core)	
	oz	gm	oz	gm	in	mm	in	mm
005 MHR	0.07	2	0.004	0.1	0.38	9.7	0.18	4.6
010 MHR	0.11	3	0.007	0.2	0.54	13.7	0.23	5.8
025 MHR	0.18	5	0.016	0.4	0.66	16.8	0.40	10.2
050 MHR	0.21	6	0.016	0.4	0.80	20.3	0.50	12.7
100 MHR	0.21	6	0.025	0.5	1.00	25.4	0.62	15.7
250 MHR	0.32	9	0.032	0.9	1.85	47.0	1.12	28.4
500 MHR	0.60	17	0.056	1.6	3.30	83.8	2.00	50.8
1000 MHR	0.92	26	0.088	2.5	5.60	142.2	3.00	76.2

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