RoHS

MHR SERIES

Miniature General Purpose AC LVDT

SPECIFICATIONS

- **Small size and low mass core**
- **High output signal**
- **Stroke ranges from ± 0.005 to ±2 inches**
- **AC operation from 2kHz to 20kHz**
- **Stainless steel housing**
- **Imperial or metric threaded core**

FEATURES

- Compact size
- Lightweight core
- ±0.25% linearity (100% stroke)
- Shock and vibration tolerant
- Stainless steel case
- Calibration certificate supplied with each unit

APPLICATIONS

- X, Y, Z stage position feedback
- Wire-die bonding machines
- Cylinder position feedback
- Voice coil testing
- Materials testing machines
- Space restricted installations

The legendary **MHR Series** LVDTs provide precision measurements in space restrictive applications. With a diameter of just 3/8 inch [9.5mm], and an extremely lightweight core, the MHR Series is ideal for applications where excessive core weight could influence the motion; with less inertia, accurate measurements at higher displacement speeds are easier to achieve. The lightweight core also reduces mechanical stresses and helps preserve the structural integrity of the core actuation assembly.

The high output sensitivity resulting from the close electrical coupling between the coil and core provides ample signal for interfacing with practically all signal conditioners and conditioning circuits. The magnetic stainless steel housing provides electromagnetic and electrostatic shielding.

The high temperature operation (200ºC) model, MHR-T is available for stroke ranges of ±0.025 to ±1 inch. A High pressure (vented case) model, MHR-V is also available. The MHR is compatible with the full line of Measurement Specialties LVDT signal conditioners.

Like in most of our LVDTs, the MHR windings are vacuum impregnated with a specially formulated, high temperature, flexible resin, and the coil assembly is potted inside its housing with a two-component epoxy. This provides excellent protection against hostile environments such as high humidity, vibration and shock.

PERFORMANCE SPECIFICATIONS

ELECTRICAL SPECIFICATIONS (common)	
Input voltage	3 VRMS sine wave
Input frequency	2kHz to 20kHz
Test frequency	2.5kHz (standard)

ELECTRICAL SPECIFICATIONS @ 10kHz (recommended operation)									
Parameter	**MHR 005**	**MHR 010**	**MHR 025**	**MHR 050**	**MHR 100**	**MHR 250**	**MHR 500**	**MHR 1000**	**MHR 2000**
Stroke range	±0.005 [±0.13]	±0.010 [±0.25]	±0.025 [±0.64]	±0.05 [±1.27]	±0.10 [±2.54]	±0.25 [±6.35]	±0.5 [±12.7]	±1 [±25.4]	±2 [±50.8]
Sensitivity V/V/inch [mV/V/mm]	8.70 [343]	6.05 [238]	8.10 [319]	3.15 [124]	2.80 [110]	2.07 [81.5]	1.96 [77.2]	0.77 [30.3]	0.49 [19.3]
Output at stroke ends mV/V *(*)*	43.5	60.5	202.5	157.5	280	517.5	980	770	980
Phase shift	+38°	+20°	+21°	+8°	+5°	+7°	+7°	-1°	-15°
Input impedance (PRIMARY)	84Ω	165Ω	238Ω	419Ω	400Ω	345Ω	264Ω	155Ω	504Ω
Output impedance (SECONDARY)	302Ω	300Ω	485Ω	154Ω	200Ω	420Ω	810Ω	450Ω	1780Ω
Non-linearity	±% of FR								
@ 50% stroke	0.20	0.10	0.15	0.15	0.15	0.15	0.15	0.20	/
@100% stroke (max)	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.50**
@125% stroke	0.30	0.35	0.25	0.35	0.25	0.35	0 .30 *(**)*	0 .50	/
@150% stroke	0.40	0.35	0.30	0.50	0.30	0.50 *(**)*	0.75 *(**)*	/	/
Null voltage (max.)	2.5% FRO	1.0% FRO	0.5% of FRO						

ELECTRICAL SPECIFICATIONS @ 2.5kHz (standard calibration)									
Parameter	**MHR 005**	**MHR 010**	**MHR 025**	**MHR 050**	**MHR 100**	**MHR 250**	**MHR 500**	**MHR 1000**	**MHR 2000**
Stroke range	±0.005 [±0.13]	±0.010 [±0.25]	±0.025 [±0.64]	±0.05 [±1.27]	±0.10 [±2.54]	±0.25 [±6.35]	±0.5 [±12.7]	±1 [±25.4]	±2 [±50.8]
Sensitivity V/V/in [mV/V/mm]	3.19 [126]	3.36 [132]	4.36 [172]	2.55 [100]	2.40 [94]	1.73 [68]	1.60 [63]	0.70 [27]	0.47 [19]
Output at stroke ends, mV/V *(*)*	16	33.6	109	127.5	240	432.5	800	700	940
Phase shift	+73°	+59°	+58°	+36°	+30°	+33°	+23°	+6°	+3°
Input impedance (PRIMARY)	59Ω	78Ω	116Ω	141Ω	135Ω	147Ω	145Ω	100Ω	304Ω
Output impedance (SECONDARY)	260Ω	192Ω	286Ω	90Ω	125Ω	268Ω	445Ω	370Ω	13620Ω
Non-linearity	±% of FR								
@ 50% stroke	0.20	0.10	0.15	0.15	0.15	0.15	0.15	0.20	/
@100% stroke (max)	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**
@125% stroke	0.30	0.35	0.25	0.35	0.25	0.35	0.30 *(**)*	0 .50	/
@150% stroke	0.40	0.35	0.30	0.50	0.30	0.50 *(**)*	0.75 *(**)*	/	/
Null voltage (max)	3% FRO	1.5% FRO	0.5% of FRO						

(*) Unit for output at stroke ends is millivolt per volt of input voltage

(**) Requires special reduced core length