

HR-T SERIES

General Purpose, High Temperature LVDT

SPECIFICATIONS

- **Operating temperature 392°F [200°C]**
- **High Reliability**
- **Large core-to-bore clearance**
- **Stroke ranges from ± 0.05 to ±10 inches**
- **AC operation from 400Hz to 5kHz**
- **Stainless steel housing**
- **Imperial or metric threaded core**

The **HR-T Series** LVDTs are a variant of the popular HR Series. The HR-T Series LVDTs provide the optimum performance required for a majority of high-temperature applications up to 392°F [200°C] continuous. The large 1/16 inch [1.6mm] bore-to-core radial clearance provides for ample installation misalignments and therefore reduces the application costs. Featuring a high output voltage and a broad operating frequency range, these versatile and highly reliable LVDTs deliver worry-free and precise position measurements.

Available in a variety of stroke ranges from ±0.05 to ±10 inches, the HR-T Series can be configured with a metric threaded core as an option. The HR-T is compatible with the full line of Measurement Specialties LVDT signal conditioners.

Like in most of our LVDTs, the HR-T 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.

FEATURES

- 392°F [200°C] continuous operation
- 0.25% linearity (100% stroke)
- Large 1/16” core-to-bore clearance
- Shock and vibration tolerant
- Electromagnetic/electrostatic shielding
- Calibration certificate supplied with each unit

APPLICATIONS

- High temperature applications
- Process control
- Factory automation
- Materials testing
- Applications with large misalignments
- General industrial

PERFORMANCE SPECIFICATIONS

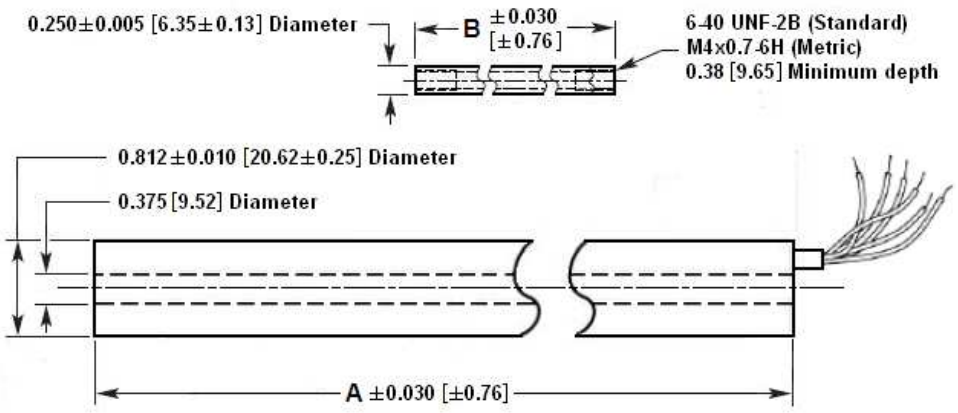
ELECTRICAL SPECIFICATIONS												
Parameter	**HR-T 050**	**HR-T 100**	**HR-T 200**	**HR-T 300**	**HR-T 500**	**HR-T 1000**	**HR-T 2000**	**HR-T 3000**	**HR-T 4000**	**HR-T 5000**	**HR-T 7500**	**HR-T 10000**
Stroke range	±0.05 [±1.27]	±0.1 [±2.54]	±0.2 [±5.08]	±0.3 [±7.62]	±0.5 [±12.7]	±1 [±25.4]	±2 [±50.8]	±3 [±76.2]	±4 [±101.6]	±5 [±127]	±7.5 [±190.5]	±10 [±254]
Sensitivity V/V/inch [mV/V/mm]	5.8 [228]	4.2 [165]	2.5 [98.4]	1.3 [51.2]	0.7 [27.6]	0.39 [15.4]	0.23 [9.1]	0.25 [9.8]	0.20 [7.9]	0.14 [5.5]	0.13 [5.1]	0.07 [2.8]
Output at stroke ends, mV/V (*)	290	420	500	390	350	390	460	750	800	700	975	700
Phase shift	-1°	-5°	-4°	-11°	-1°	-3°	+5°	+11°	+1°	+3°	+1°	-5°
Input impedance (PRIMARY)	430Ω	1070Ω	1150Ω	1100Ω	460Ω	460Ω	330Ω	315Ω	275Ω	310Ω	260Ω	550Ω
Output impedance (SECONDARY)	4000Ω	5000Ω	4000Ω	2700Ω	375Ω	320Ω	300Ω	830Ω	400Ω	400Ω	905Ω	750Ω
Non-linearity	±% of FR											
@ 50% stroke	0.10	0.10	0.10	0.10	0.15	0.15	0.15	0.15	0.15	0.15	/	0.15
@100% stroke (maximum)	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**
@125% stroke	0.25	0.25	0.25	0.35	0.35	1.00	0 .50 *(**)*	0 .50 *(**)*	0 .50 *(**)*	1.00 *(**)*	/	1.00 *(**)*
@150% stroke	0.50	0.50	0.50	0.50	0.75	1.30 *(**)*	1.00 *(**)*	1.00 *(**)*	1.00 *(**)*	/	/	/
Input voltage	3 VRMS sine wave											
Input frequency	400Hz to 5kHz											
Test frequency	2.5kHz											
Null voltage	0.5% of FRO, maximum											

ENVIRONMENTAL SPECIFICATIONS & MATERIALS	
Operating temperature	-4°F to +392°F [-20°C to 200°C]
Shock survival	1,000 g (11ms half-sine)
Vibration tolerance	20 g up to 2KHz
Housing material	AISI 400 Series stainless steel
Electrical connection	Six lead-wires, 28 AWG stranded plated Copper, PTFE insulated, 3 foot [1 meter] long
IEC 60529 rating	IP61

Notes:
Dimensions are in inch [mm]
All values are nominal unless otherwise noted
Electrical specifications are for the test frequency indicated in the table
FR: Full Range is the stroke range, end to end; FR=2xS for ±S stroke range
FRO (Full Range Output): Algebraic difference in outputs measured at the ends of the range
(*) Unit for output at stroke ends is millivolt per volt of excitation (input voltage)
(**) Requires special reduced core length

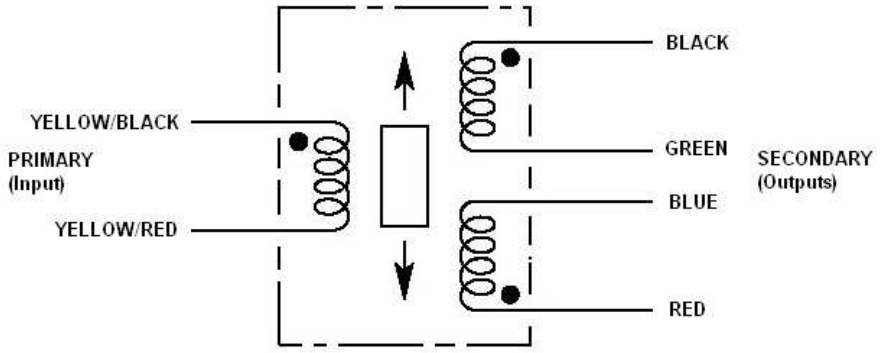
MECHANICAL SPECIFICATIONS

Parameters	HR-T 050	HR-T 100	HR-T 200	HR-T 300	HR-T 500	HR-T 1000	HR-T 2000	HR-T 3000	HR-T 4000	HR-T 5000	HR-T 7500	HR-T 10000
Body length "A"	1.13 [28.7]	1.81 [46.0]	2.50 [63.5]	3.22 [81.8]	5.50 [139.7]	6.63 [168.4]	10.00 [254]	12.82 [325.6]	15.64 [397.3]	17.88 [454.2]	24.09 [611.9]	30.85 [783.6]
Core length "B"	0.80 [20.3]	1.3 [33.0]	1.65 [41.9]	1.95 [49.5]	3.45 [87.6]	4.00 [101.6]	5.30 [134.6]	5.60 [142.2]	7.00 [177.8]	7.00 [177.8]	7.00 [177.8]	8.50 [215.9]
Body weight, oz [g]	1.13 [32]	1.69 [48]	2.12 [60]	2.72 [77]	3.85 [109]	4.45 [126]	5.93 [168]	7.94 [225]	10.41 [295]	11.99 [340]	16.16 [458]	20.46 [580]
Core weight, oz [g]	0.14 [4]	0.21 [6]	0.28 [8]	0.35 [10]	0.64 [18]	0.74 [21]	0.95 [27]	0.99 [28]	1.27 [36]	1.27 [36]	1.27 [36]	1.52 [43]



Dimensions are in inch [mm]

WIRING INFORMATION



Connect blue (BLU) to green (GRN) for differential output

ORDERING INFORMATION

Description	Model	Part Number
±0.05 inch LVDT	HR-T 050	02562389-000
±0.1 inch LVDT	HR-T 100	02562390-000
±0.2 inch LVDT	HR-T 200	02562391-000
±0.3inch LVDT	HR-T 300	02562392-000
±0.5 inch LVDT	HR-T 500	02562394-000
±1 inch LVDT	HR-T 1000	02562395-000

Description	Model	Part Number
±2 inch LVDT	HR-T 2000	02562396-000
±3 inch LVDT	HR-T 3000	02562398-000
±4 inch LVDT	HR-T 4000	02562399-000
±5 inch LVDT	HR-T 5000	02562400-000
±7.5 inch LVDT	HR-T 7500	02562011-000
±10 inch LVDT	HR-T 10000	02562401-000

OPTIONS AND ACCESSORIES	
Metric threaded core option (use base part numbers from above)	xxxxxxx-006
Core connecting rod, 6 inches long, 6-40 threads	05282947-006
Core connecting rod, 12 inches long, 6-40 threads	05282947-012
Core connecting rod, 24 inches long, 6-40 threads	05282947-024
Core connecting rod, 36 inches long, 6-40 threads	05282947-036
Core connecting rod, 6 inches long, M4x0.7 metric threads	05282978-006
Core connecting rod, 12 inches long, M4x0.7 metric threads	05282978-012

Refer to our "Accessories for LVDTs" data sheet for our LVDT signal conditioning instrumentation and other accessories.

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