

Ideal for linear control & precision measurement applications, the sub-miniature DVRT features a fast response and rugged packaging. The sensing head is also capable of total submersion in aqueous environments.

Features of our DVRT's include micron resolution, linear analog output, flat dynamic response to kHz levels, and very low temperature coefficients. Free-sliding transducer cores are lightweight, strong, and corrosion resistant. Spring tipped DVRT's feature



Subminiature DVRT (8 mm stroke)

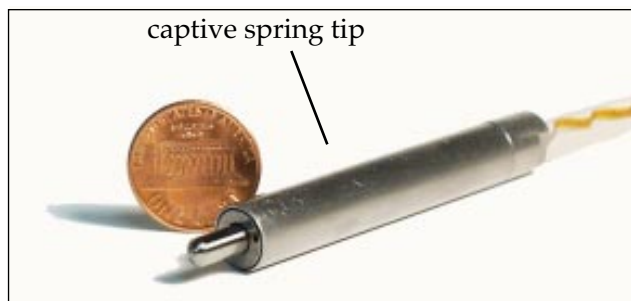
APPLICATIONS

- ▲ automotive, robotic systems
miniature control elements
- ▲ quality control
dimensional gauging
- ▲ materials science, civil engineering
structural deflections, strain extensometry
- ▲ optical components
linear/angular positioning
- ▲ miniature sensors
force, torque, acceleration

superelastic nickel-titanium cores for enhanced strength & durability. Cores are precision ground to insure a close sliding fit within the open bore, stainless steel lined DVRT body. This precision fit allows the DVRT to achieve extremely high repeatability.

The sub-miniature DVRT includes an integral flex circuit lead, robust polyurethane jacket, & strain relief. Compact signal conditioning modules (see below) will fit into tight space constraints. Custom strokes, attachments, and "plug and play" multichannel enclosures, with embedded microprocessors & digital displays, are also available.

As with all MicroStrain products, every device is carefully tested prior to shipment, and calibration data are included with each order. To place an order, or for more information, call us today at 800-449-DVRT.

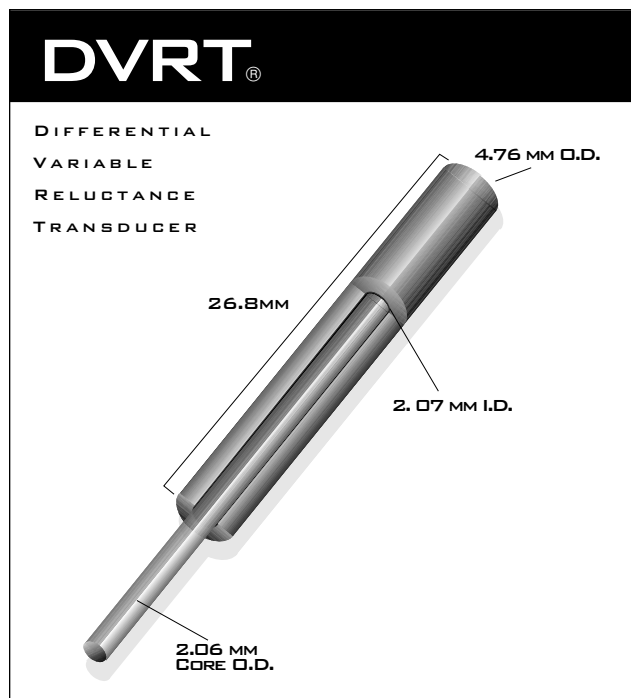


gauging DVRT (8mm stroke)

How it works

Core position is detected by measuring the coils' differential reluctance, using a sinewave excitation and synchronous demodulator. This differential detection method provides a very sensitive measure of core position, while cancelling out temperature effects.

The transducers' coils and flex circuit leads are sealed in vacuum pumped epoxy, within the stainless steel case. This provides outstanding environmental resistance. The DVRT® has been successfully employed in harsh applications, including immersion in saline and pressurized oil.



ELECTRICAL SPECIFICATIONS

(tested with integral MicroStrain DVRT Synch. Demod. @ 25 deg. C.)

| | | |
|-------------------------------|---|---------------------------------|
| ▲ Linear stroke lengths | 8 mm (std. res. version & high res.) & 38 mm (std. res. version only) | |
| ▲ Nonlinearity | +/- .4% over 6 mm +/- .7% over 8 mm | — TYPICAL FOR 8 MM STROKE |
| | +/- .3% over 24 mm +/- .7% over 38 mm | — TYPICAL FOR 38 MM STROKE |
| ▲ Sensitivity | 1 volt/mm typ. (for 8 mm stroke) | |
| ▲ Null voltage | less than 1% of full scale typ. | |
| ▲ Signal to noise | 4200 to 1 (with filter 3 dB down at 800 Hz, std.); 466 to 1 (unfiltered) | |
| ▲ Resolution | .160 microns (std. w/ filter tested on Fluke digital multimeter) | |
| ▲ Frequency response | 7 Khz (unfiltered) | |
| ▲ Temp. coeff. offset span | .002% / degree C .030% / degree C | |
| ▲ Hysteresis | +/- 1 micron | |
| ▲ Repeatability | +/- 1 micron | |
| ▲ Synch. demod. input | +/- 7 volts min. @ 10 milliamps/rail | |
| ▲ Synch. demod. output | +/- 4 volts typ., buffered line out | |

MECHANICAL SPECIFICATIONS

| | |
|-------------------------|--|
| ▲ Overall body length | approx. 3.5 times linear stroke (29 mm for 8 mm stroke) (118 mm for 38 mm stroke) |
| ▲ Outside diameter | 4.76 mm (3/16 inch) |
| ▲ Housing material | 300 series stainless steel (SS) 400 SS optional, 1/4-28 threaded |
| ▲ Leadouts | 20 cm, high temp. polyimide flex |
| ▲ Jacket, strain relief | Polyurethane tubing |
| ▲ Connectors | sensor: keyed Lemo 4-pin power, out: 10-pin header (2 mm) |
| ▲ Operating temperature | - 55 to 105 degrees C (standard) -55 to 175 degrees C (optional) |
| ▲ Core weight | 350 milligrams (for 8 mm stroke) |
| ▲ Synch. demod. size | 20 mm wide, 45 mm long, by 8 mm thick |
| ▲ Synch. demod. package | stainless steel & anod. aluminum w/ integral connectors to sensor, power, & output |

U.S. Patent No. 4,813,435 and Patents Pending