Linear Variable Differential Transformer

With stable and reliable specific, LVDT(Linear Variable Differential Transformer) can be used for many different area as: high-speed online detection, automatic measurement and automatic control etc.

Application field:

Metrology
Test benches
Dimensional controls
Monitoring of structures
Special machines
Tests on vehicles
Automated production lines
Valve position measurement
Servo-actuator position feedback
Fire system remote control
Steam turbine servo-valve control
Vapocracker valve control
Monitoring and sounding of large structures
High accuracy dimensional control
Industrial instrumentation in severe environments

The reasons to choose LVDT

Contactless measurement
There is no physical contact between the core and the coil assembly. This allows both vibration measurements and tests of delicate materials.

Unlimited life-time
Contactless specific allows an infinite life time as well as an exceptional reliability. These criteria allow fatigue testing use and severe environmental conditions such as space and military applications.

Infinite resolution
As an inductive frictionless transducer, LVDT has an infinite resolution only limited by the associated electronics.

Severe environment compatibility
According to its independant free moving core assembly, LVDT can withstand very hard environments such as pressure up to 600 bar, temperature up to 235°C, radiation up to 2.5 x 108 rads, corrosive and explosive atmospheres etc...

Input/ output insulation
As a transformer, the LVDT's excitation and measurement electrical windings are completely insulated.

Excellent repeatability (<10-5 of FS)

Insensitivity to transverse movement

CE

The most significant parameters of LVDT

The linearity
The maximum deviation between calibration points and the best straight line drawn through all calibration points; Indicated as a percentage of the Full Scale Output (FSO).

The sensitivity error
The difference between the theorical sensitivity and the real one determined by linear regression. The sensitivity is indicated as m V/V/mm. Associated electronics provide a span adjustment, so this error term can be avoided by the end user.

Thermal sensitivity shift
Indicated in ppm/°C of FS (1ppm=1.10-6).
Excitation frequency influence
LVDT can be used at different frequencies. Nevertheless, for a given LVDT, some limits determine a change in linearity. Generally, LVDT can be used with excitation frequencies from 1,5kHz up to 20kHz.

Magnetic field influence
The influence of external magnetic fields could be negligible

Primary to secondary coil phase shift
Phase shift can be observed between primary and secondary voltage; it gives an error which is integrated in the specified linearity, sensitivity and drift.

Bandwidth
The limitation is not determined by LVDT, but determined by the associated electronics and the excitation frequency.

Special LVDT used in other modes such as DIFFERENCE/ SUM (V1-V2/V1+V2) can be supplied.
Such processing can minimize the influence of external parameters (temperature, excitation...)