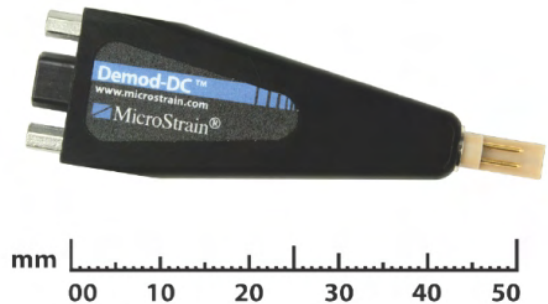


# DEMODO-DC®

## Miniature In-Line Signal Conditioner

The **DEMODO-DC®** in-line signal conditioner makes **DVRT®** sensors as easy to use as a potentiometer. With integral signal conditioning electronics, the user connects power, ground and analog out, and the DEMODO-DC® outputs a buffered, high-frequency response voltage proportional to linear position. During the manufacturing process the analog output voltage is digitally trimmed, ensuring that every DVRT®'s offset and gain values match one another. The DEMODO-DC® provides internal power regulation and reverse polarity protection, and will operate with a wide range of input voltages.



## Features & Benefits

### Ease of Implementation

- out-of-the-box use with all standard LORD MicroStrain® DVRT® sensors
- miniature body for embedded and space restricted applications
- identical performance between units for quick scaling

### High Performance

- high dynamic range for difficult measurements
- ready for use with LORD MicroStrain® wireless sensor network

## Applications

- In vivo Strain, Micromotion and deformation in Bone & Tissue
- Process Control for Production-Line Monitoring
- Miniature Position Control Elements
- Linear & Angular Motion Control
- Measuring Strain and Deflection in Materials and Structures
- Dimensional Gauging for Quality Control

## System Overview

Operating from a DC power supply, the DEMODO-DC® Miniature In-line Signal Conditioner filters incoming transients from the power supply, and supplies a sine wave excitation to the DVRT®. This excitation is used to measure minute impedance changes of the sensing elements. Precision demodulator components provide rectification and differential amplification. Digital trimming ensures conformity from sensor to sensor. The analog output is filtered and buffered to provide clean, high level signals.

The DEMODO-DC® is recommended for use with all standard LORD MicroStrain® DVRT® where a lower cost and smaller size signal conditioner is required. If the sensor is expected to be exposed to thermal gradients across its sensing coils (its body), the temperature compensated DEMODO-DVRT® -TC is recommended. Additionally, if the LORD MicroStrain® DVRT® has been customized and built with one coil, the DEMODO-DVRT® -TC is again recommended.

Typically, a DEMODO-DC® is ordered with a specific LORD MicroStrain® DVRT® and sold as a pair. The pair is calibrated together at the factory and delivered with a common calibration certificate. This 'paired' calibration ensures accurate performance in the user's hands. The certificate provides several output calculations including Linear Fit, Multi-Segment Fit and Polynomial Fit.

## Specifications

Sensor Types	inductive ( <b>DVRT®</b> )
Excitation	regulated sinewave, 150 kHz standard other frequencies available on request
Demodulation	asynchronous, DC output
Output	0 to 5 V typical, digitally trimmed
Gain	factory adjustable from 10 to 10,000
Low pass filter	2 Pole, 3 dB down @ 800 Hz standard factory adjustable 10 Hz – 20 kHz
Supply voltage	+ 6.0 to + 16 volts DC
Supply current	22 mA typical (15 mA when modified for use with LORD MicroStrain® V-Link® or DVRT-Link™ wireless nodes)
Warm-up time	30 seconds recommended
Operating temperature	-40 to +85 °C
Enclosure size	65.7 mm x 19.9 mm x 8.3 mm
Connections	power, ground, analog output
Connector	micro-D (MIL-C-83513/5) mating connector included
Weight	12.02 g

Electrical Block Diagram

