

# MINIATURE DC OUTPUT LVDT DISPLACEMENT TRANSDUCERS WITH ACETAL BEARINGS

$\pm 1$  to  $\pm 5$  mm  
( $\pm 0.04$  to  $\pm 0.20$ " )

## LD400 Series



- ✓ High-Output Miniature Transducers
- ✓ Acetal Bearings for Precise Motion
- ✓ Infinite Resolution
- ✓ Rugged, Low-Mass Construction
- ✓ Compatible with Standard DC Signal
- ✓ Conditioning Modules and Instruments

The LD400 Series miniature DC to DC transducers can measure displacements up to  $\pm 5$  mm ( $\pm 0.20$ " ) with very high accuracy and infinite resolution. Their free-guided armature incorporates acetal bearings, which provide near-frictionless motion to detect the smallest movement the associated instrumentation is capable of identifying.

These transducers use a precision linear variable differential transformer as the measuring source, along with hybrid ICs, including an oscillator, demodulator, and filter. Together, they make up a self-contained unit that accepts DC input and provides DC output relative to armature position. The unit's high linearity and low mass of moving parts are ideal for applications in civil, mechanical, chemical, and production engineering.



LD400-5, shown actual size.

## SPECIFICATIONS

### ELECTRICAL

**Linearity:** 0.3% FS

**Sensitivity:** (mV/V/mm) see chart below (actual output supplied with each unit)

**Excitation:** 10 to 24 Vdc regulated

**Energizing Current at 10 Vdc:**

LD400-1, 10 mA; LD400-25, 10 mA;  
LD400-5, 13 mA

**Response Time:** LD400-1 and  
LD400-2.5 = 5 ms; LD400-5 = 3 ms

**Frequency Response:** 50 Hz for -3 dB

**Ripple:** <1% FS

**Thermal Effect:** Zero: LD400-1 <0.02% FS/°C; LD400-2.5 and LD400-5 <0.01% FC/°C; sensitivity: <0.025% FC/°C

**Compensated Temperature Range:**  
-20 to 80°C (-4 to 176°F)

**Operating Temperature Range:**  
-20 to 80°C (-4 to 176°F)

**Electrical Connection:** 2.9 m (9') shielded, color-coded cable

**Sensitivity and Linearity Data:**  
Provided with a transducer output impedance of 2.4 k $\Omega$  into a calibration load of 20 k $\Omega$  at 20°C (68°F); variations in these parameters will change performance

### MECHANICAL

**Threaded Core:** M2 thread

**Core Material:** Ni/Fe—Radio Metal 50

**Case Material:**

400 Series stainless steel

**Weight:** See chart on next page

### CONNECTIONS

**Electrical Connections:**

**Red:** + Excitation

**Blue:** - Excitation

**White:** + Signal\*

**Green:** - Signal

**Yellow:** No connection

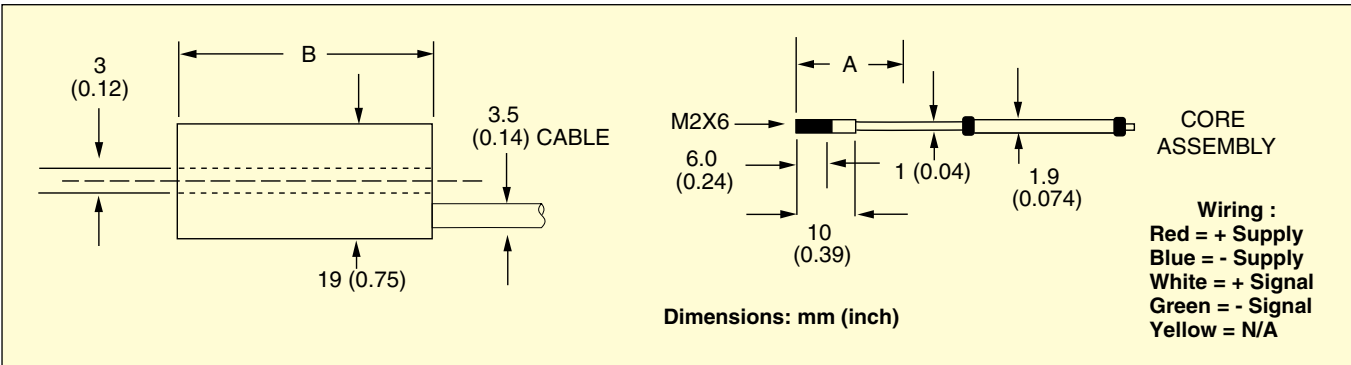
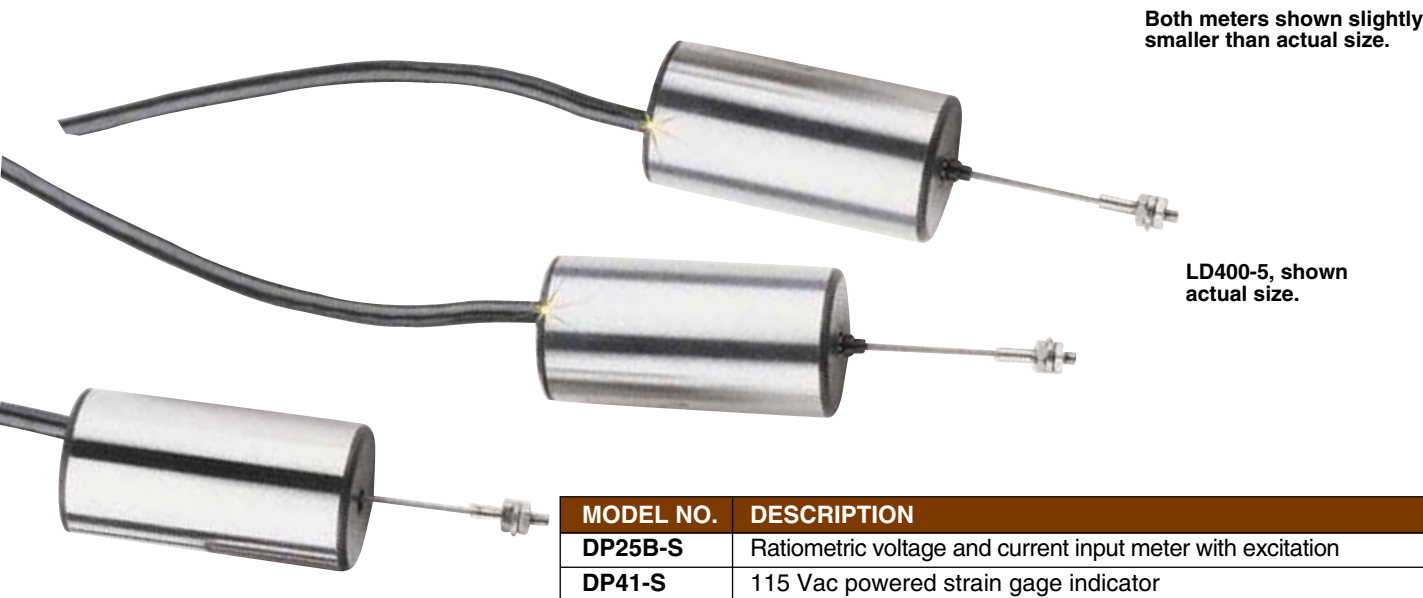
\* White and red in phase for positive inward displacement.

## To Order

MODEL NO.	STROKE	SENSITIVITY	COMPATIBLE METERS
LD400-1	$\pm 1.0$ mm (0.06")	75 mV/V/mm	DP41-S, DP25B-S
LD400-2.5	$\pm 2.5$ mm (0.10")	75 mV/V/mm	DP41-S, DP25B-S
LD400-5	$\pm 5.0$ mm (0.20")	54 mV/V/mm	DP41-S, DP25B-S

Ordering Example: LD400-5, stroke of  $\pm 5$  mm.

# MINIATURE DC DISPLACEMENT TRANSDUCERS



MODEL NO.	LINEAR STROKE mm (inch)	DIMENSIONS*: mm (inch)		WEIGHT g (oz)	
		A	B	BODY	CORE (GUIDED)
LD400-1	±1.0 (0.04)	21.5 (0.85)	37 (1.46)	26 (1.02)	1.0 (0.04)
LD400-2.5	±2.5 (0.10)	21.5 (0.85)	37 (1.46)	26 (1.02)	1.0 (0.04)
LD400-5	±5.0 (0.20)	20.5 (0.81)	43 (1.69)	30 (1.18)	1.2 (0.04)

\* At electrical zero.