



## XS-B SERIES

### Subminiature AC LVDT

#### SPECIFICATIONS

- ✦ Micro size
- ✦ Low mass core
- ✦ 3/16 or 1/4 inch housing diameter
- ✦ Stroke ranges  $\pm 0.1$  and  $\pm 0.25$  inch
- ✦ Operating frequency up to 20kHz
- ✦ Standard or threaded bulkhead mount
- ✦ Stainless steel housing
- ✦ Magnetically shielded

The **XS-B Series** of subminiature LVDTs were specifically designed for micro applications, where small physical size is the prime requirement. Featuring an extremely low core weight, the XS-B Series are the perfect choice for high speed displacement measurements, measurement of delicate materials and films, or where heavier cores would influence the measurement result.

The XS-B Series are available in stroke ranges of  $\pm 0.1$  inch [ $\pm 2.54$ mm] or  $\pm 0.25$  inch [ $\pm 6.35$ mm], standard or threaded mounting configurations, and in flying lead or polyurethane jacketed lead termination (all model dependent). All models incorporate a ferromagnetic stainless steel housing providing electromagnetic and electrostatic shielding. The XS-B Series is compatible with most Measurement Specialties LVDT signal conditioners, controllers and readouts (consult factory).

#### FEATURES

- ✦ 0.250" [6.35mm] max diameter
- ✦ Threaded mount version available (XS-BG)
- ✦ Lead-wires (XS-B) or cable (XS-BG)
- ✦ Axial and radial cable exit (XS-BG)
- ✦ Electromagnetic shielding
- ✦ Stainless steel housing
- ✦ 220°C operation (*Option; call factory*)
- ✦ Calibration certificate supplied with all units

#### APPLICATIONS

- ✦ Servomechanisms
- ✦ Robotics
- ✦ Surfometers
- ✦ Measurement of films/delicate materials
- ✦ Space restrictive applications
- ✦ Multi-point measurement of small components
- ✦ Multi-finger calipers for pipe contour inspection
- ✦ Measurements at high displacement speeds

**PERFORMANCE SPECIFICATIONS**

ELECTRICAL SPECIFICATIONS							
Parameter	XS-B 099			XS-B 249			XS-BG 100
Stroke range	±0.10 [±2.54]			±0.25 [±6.35]			±0.10 [±2.54]
Test input frequency	2.5kHz	5kHz	10kHz	2.5kHz	5kHz	10kHz	5kHz
Sensitivity V/V/inch [mV/V/mm]	1.5 [59.1]	2.7 [106]	4.0 [157]	1.4 [55.1]	1.7 [66.9]	1.85 [72.8]	5.25 [207]
Output at stroke ends (*), mV/V	150	270	400	350	425	462	525
Phase shift	+69°	+55°	+38°	+35°	20°	12°	+3°
Input impedance (PRIMARY), ohms	30	40	50	110	160	210	960
Output impedance (SECONDARY), ohms	45	60	75	135	160	200	2150
Non-linearity, maximum	±0.5% of FR			±0.5% of FR			±0.2% of FR
Input voltage, sine wave	1 VRMS			1 VRMS			3.5 VRMS
Input frequency range	2.5 to 20kHz (Standard test frequency is 2.5kHz)						2.5 to 20kHz
Null voltage, maximum	0.5% of FRO						

ENVIRONMENTAL SPECIFICATIONS & MATERIALS		
Parameter	XS-B 099 and XSB 249	XS-BG 100
Operating temperature	-67°F to +302°F [-55°C to +150°C]	-40°F to +140°F [-40°C to +60°C]
Shock survival	1, 000 g (11ms half-sine)	1, 000 g (11ms half-sine)
Vibration tolerance	20 g up to 2KHz	20 g up to 2KHz
Housing material	Kovar	AISI 430 Series stainless steel
Electrical connection	Five lead-wires Stranded 36 AWG PTFE insulated 1 foot [0.3m] long Axial exit	Shielded cable with Polyurethane jacket Six conductors, stranded 32 AWG, PTFE insulated 6.5 feet [2m] long Axial and radial exit (**)
IEC	IP61	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

(\*): Unit for output at stroke ends is millivolt per volt of excitation (input voltage)

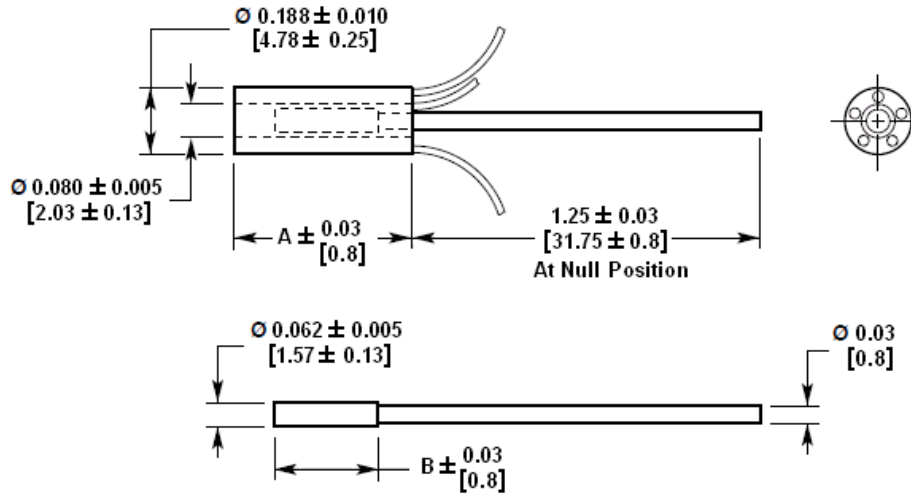
(\*\*): Adapter provided for radial exiting of cable

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

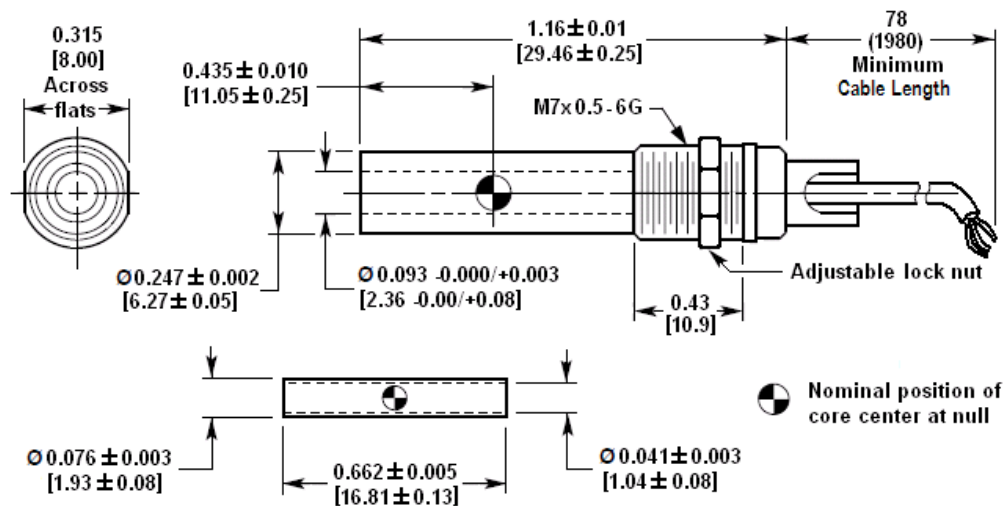
**MECHANICAL SPECIFICATIONS**

Parameter	XS-B 099	XS-B 249
Main body length "A"	0.88 (22.35)	1.88 (47.75)
Core length "B"	0.50 (12.7)	1.25 (31.75)
Body weight, oz [g]	0.14 [4.0]	0.31 [8.8]
Core weight, oz [g]	0.013 [0.37]	0.021 [0.60]



**XS-B**

*(Supplied with extension rod already attached to core)*



**100 XS-BG**

*Dimensions are in inches [mm]*