



## 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 [ $\pm 2.54\text{mm}$ ] or  $\pm 0.25$  inch [ $\pm 6.35\text{mm}$ ], 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)

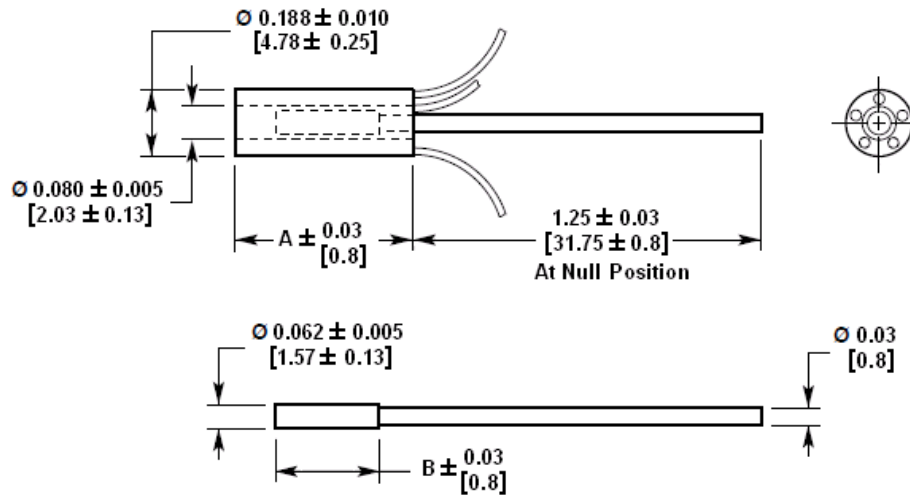
(\*\*): Adapter provided for radial exiting of cable

FR: Full Range is the stroke range, end to end; FR=2xS for  $\pm S$  stroke range

FRO (Full Range Output): Algebraic difference in outputs measured at the ends of the range

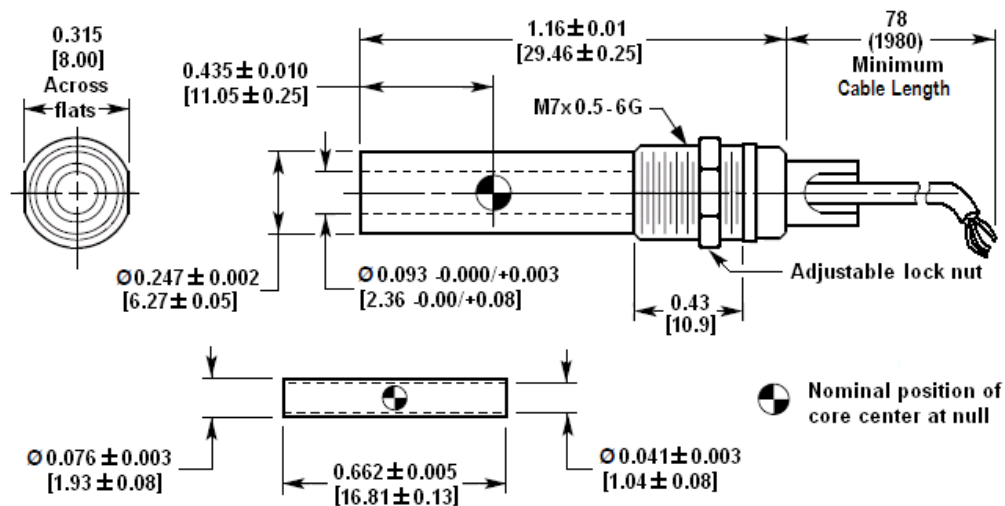
## MECHANICAL SPECIFICATIONS

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

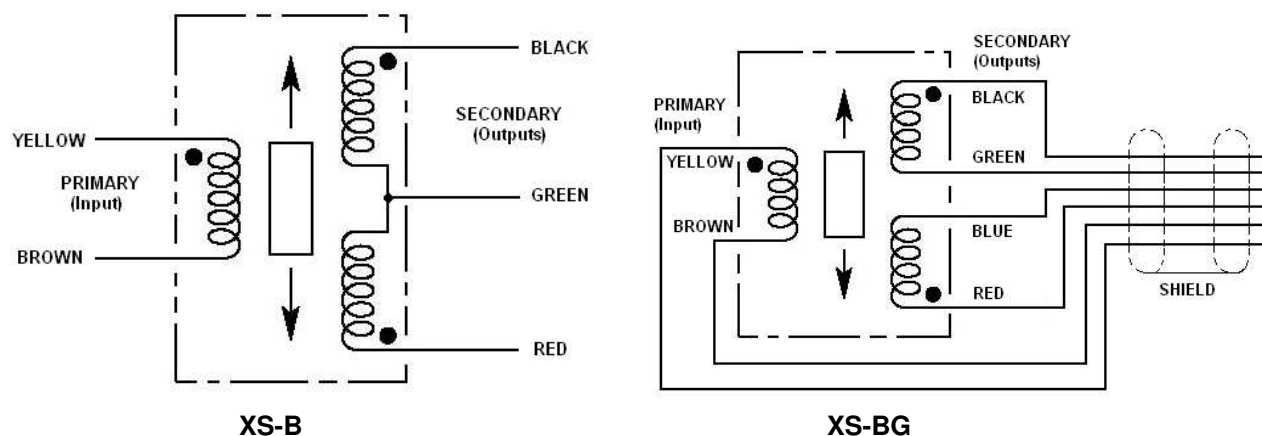
(Supplied with extension rod already attached to core)



### 100 XS-BG

Dimensions are in inches [mm]

## WIRING INFORMATION



## ORDERING INFORMATION

Description	Model	Part Number
±0.1 inch LVDT	XS-B 099	02560629-000
±0.25 inch LVDT	XS-B 249	02560630-000
±0.1 inch LVDT	XS-BG 100	02560997-000

### NORTH AMERICA

Measurement Specialties, Inc.,  
a TE Connectivity company  
Tel: 800-522-6752  
Email: [customercare.frm@te.com](mailto:customercare.frm@te.com)

### EUROPE

Measurement Specialties (Europe), Ltd.,  
a TE Connectivity Company  
Tel: 800-440-5100  
Email: [customercare.bevx@te.com](mailto:customercare.bevx@te.com)

### ASIA

Measurement Specialties (China) Ltd.,  
a TE Connectivity company  
Tel: 0400-820-6015  
Email: [customercare.shzn@te.com](mailto:customercare.shzn@te.com)

[TE.com/sensorsolutions](http://TE.com/sensorsolutions)

Measurement Specialties, Inc., a TE Connectivity company.

Measurement Specialties, TE Connectivity, TE Connectivity (logo) and EVERY CONNECTION COUNTS are trademarks. All other logos, products and/or company names referred to herein might be trademarks of their respective owners.

The information given herein, including drawings, illustrations and schematics which are intended for illustration purposes only, is believed to be reliable. However, TE Connectivity makes no warranties as to its accuracy or completeness and disclaims any liability in connection with its use. TE Connectivity's obligations shall only be as set forth in TE Connectivity's Standard Terms and Conditions of Sale for this product and in no case will TE Connectivity be liable for any incidental, indirect or consequential damages arising out of the sale, resale, use or misuse of the product. Users of TE Connectivity products should make their own evaluation to determine the suitability of each such product for the specific application.

© 2015 TE Connectivity Ltd. family of companies All Rights Reserved.