

SUBMERSIBLE LVDT

Position Transmitters
MACRO SSI 937 | SSIR 937

Overview

Due to their extraordinary repeatability despite variations in pressure and temperature, Macro Sensors SS 937 Series submersible LVDTs are ideal for incorporation into a wide variety of subsea measurement systems. These rugged, .94 inch [nom.] (24 mm) diameter sensors are available in standard ranges of 2.00 inches (50 mm), 3.00 inches (75 mm) or 4.00 inches (100 mm), although other ranges are available at special request.

To withstand deep-sea environments with external pressures to 5000 psi, SS Series LVDTs are constructed of Inconel. Inconel enhances the already high-reliability of the LVDT assembly, ensuring that it can meet service life requirements of at least 20 years, even if the device is fully exposed to seawater.

SS Series LVDTs also resolve the problem of getting a signal back to the surface, even at great water depths. To minimize the number of pressure sealed I/O connections and to minimize noise over long transmission lines, a 4-20 mA two-wire, loop-powered I/O is utilized. Offsets can be easily made in the data acquisition system on the platform above. Electrical termination is through a high pressure axial or radial Seacon-Brantner subsea connector.

Some typical applications include monitoring structural movement for long-term FEA (Finite Element Analysis) of pipelines, derricks, moorings and other critical high stress members on offshore oil platforms. SS Series LVDTs are designed for use in either pressure-balanced, oil-filled containers or directly in seawater.

Benefits

- Long term reliability (20+ years)
- Inconel construction standard
- High pressure applications (to 5,000 psi)
- 4-20mA two-wire, loop-powered I/O
- Non-linearity of ±0.10% of FRO or better
- High pressure Seacon-Brantner subsea connector standard
- Available in either inline axial or radial connector configurations
- Welded connector also available

Applications

- Off-shore drilling platforms
- Pipeline monitoring
- Choke valves
- ROV and exploration
- Mooring cables
- Extensometers

Performance @ 25°C (77°F)

Linearity Error	≤ ±0.10% of Full Range
Repeatability Error	≤ 0.01% of Full Range

Environmental Data

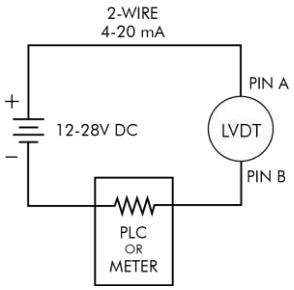
Operating Pressure	5000 PSIG*
Proof Pressure	7500 PSIG*
Operating Temperature	-30 to 80°C (-20 to 175°F)
Temperature Sensitivity	0.027%/°C (0.015%/°F) max.
Vibration Tolerance	20 g to 2 kHz
Shock Survival	100 g, 11 ms
Ingress Protection	IP69K*

*with appropriate Seacon-Brantner mating connector

Electrical Data

Output	4-20mA
Input	12-28VDC
Loop Resistance:	50Ω (min.) see graph at right
Current Consumption:	-
Output Noise & Ripple:	<10 µArms
Bandwidth; Electrical:	(-3dB): DC to 50 Hz
Pin A	**Loop +**
Pin B	**Loop -**
Pin C	**Do Not Connect**
Pin D	**Do Not Connect**
Pin E	Not Connected
Pin F	Case Ground

Electrical Connection

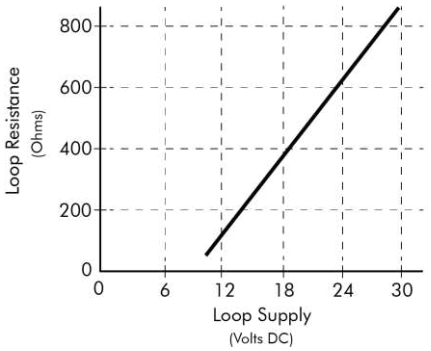


Connector Wiring



XSEE-6-BCR
Connector

SSI (4-20 mA)
Loop Resistance (Max.) vs. Loop Supply Voltage



Ordering Information

SS	I	R	937	4000	006
Series					

Outputs
I = 4-20mA

Connector
R = Radial
Leave Blank for Axial

0.937" (23.8 mm) Body Diameter

Range (see table above)
2000 = 2.00″ (50.8 mm)
3000 = 3.00″ (76.2 mm)
4000 = 4.00″ (101.6 mm)

Metric Threaded Core Option
006 = M3 x 0.5, 6H Metric Thread
No suffix required for standard #4-40 UNC-2B Thread

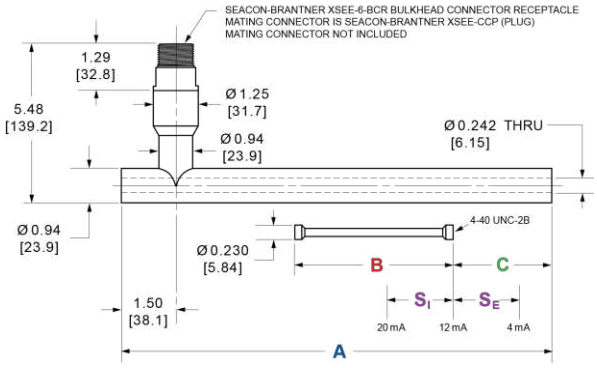
Dimensions

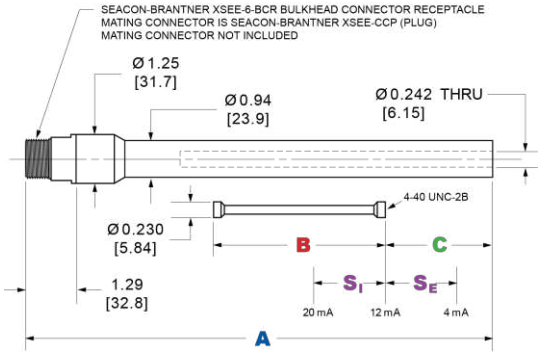
SSIR 937 Parameter	Range Code	2000	3000	4000
Range	Inches	2.00	3.00	4.00
	mm	50.8	76.2	101.6
Scale Factor	V/inch	8.0	5.33	4.0
	V/mm	0.31	0.21	0.16
Body Length "A"	Inches	8.80	11.95	11.95
	mm	223.5	303.5	303.5
Core Length "B"	Inches	4.36	6.33	6.33
	mm	111.0	161.0	161.0
Core Position "C" (at 12 mA)	Inches	1.70	2.70	2.70
	mm	43.2	68.6	68.6
Stroke "S" (S_I = Insert Stroke) (S_E = Extend Stroke)	Inches	1.00	1.50	2.00
	mm	25.4	38.1	50.8
Weight - Body	ounces	30	40	40
	g	850	1130	1130
Weight - Core	ounces	0.50	0.65	0.65
	g	14	18	18

SSIR 937

SSI 937 Parameter	Range Code	2000	3000	4000
Range	Inches	2.00	3.00	4.00
	mm	50.8	76.2	101.6
Scale Factor	V/inch	8.0	5.33	4.0
	V/mm	0.31	0.21	0.16
Body Length "A"	Inches	12.85	16.25	16.25
	mm	326.4	412.8	412.8
Core Length "B"	Inches	4.36	6.22	6.22
	mm	111.0	158.0	158.0
Core Position "C" (at 12 mA)	Inches	1.70	2.42	2.42
	mm	43.2	61.5	61.5
Stroke "S" (S_I = Insert Stroke) (S_E = Extend Stroke)	Inches	1.00	1.50	2.00
	mm	25.4	38.1	50.8
Weight - Body	ounces	30	40	40
	g	850	1130	1130
Weight - Core	ounces	0.50	0.65	0.65
	g	14	18	18

SSI 937
all dimensions in inches [mm]





ABOUT MACRO SENSORS

Macro Sensors, founded by Howard A. Schaevitz, has more than three hundred man-years of experience in just one thing: the design and manufacture of LVDTs. We believe that you need solutions, not simply products. When you call us, you get the benefit of our experience and our commitment.

Most products listed are in stock for immediate delivery, and we strive to offer the finest customer service in the industry: technical support from people who understand LVDTs and how to apply them to your benefit, and a commitment to excellent pricing, quality products, and deliveries that you can truly rely on. Macro Sensors also has a comprehensive network of representatives and distributors in the U.S. and around the world to provide you with local support.

We manufacture an enormous array of LVDTs, from modified standards to complete custom designs. Our customers consistently tell us it is Macro Sensors? quality and service that keeps them coming back. Let our experience go to work for you.

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