

LSOC/LSOP (L)

4-20mA Output, Gravity-Referenced
Servo Inclinometer

Features

- Fully self-contained - connect to a DC power source and a readout or control device for a complete operating system
- 4-20mA output proportional to sine of the angle of tilt
- $\pm 3^\circ$ to $\pm 90^\circ$ ranges available
- Extremely rugged, withstands 1500g shock

Applications

- Bore-hole mapping, dam and rock shifts and other geophysical, seismic and civil engineering studies
- Ballast transfer systems for offshore barges, ships and other marine applications
- Level control and calibration systems
- Pipeline levelling, setting tilt of grading machines, crane overturning-moment alarms, and other heavy duty construction control requirements
- Large machinery installation and other electronic level applications

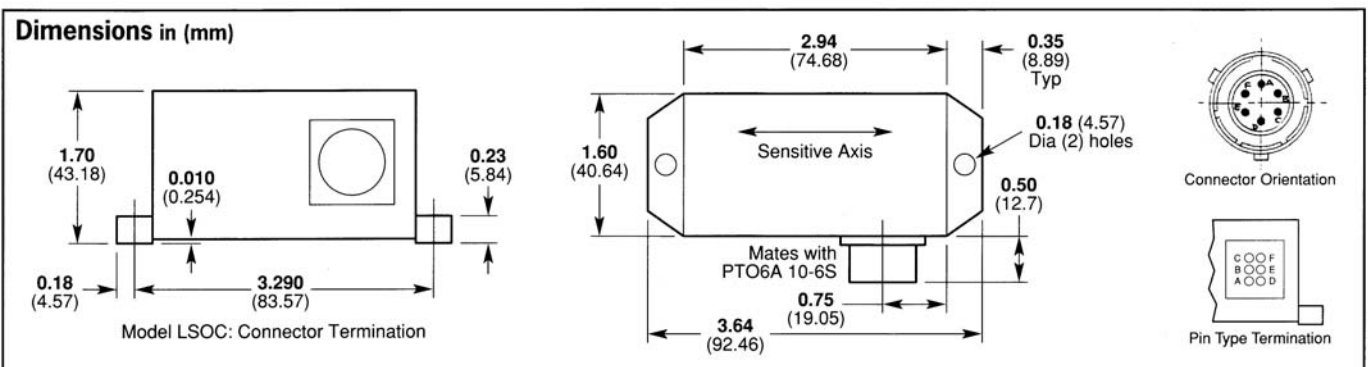


LSOC/LSOP (L)

The LSO (L) Series are high precision gravity referenced servo inclinometers with integral 4-20mA outputs that can be used for a wide variety of commercial and military applications. Models are available in a variety of angular ranges. Electrical terminations are via 6-way connector or solder pins.

Electrical Connections

- Pin A – Supply 20-30Vdc
- Pin B – 0V common
- Pin C – Not used
- Pin D – Output 4-20mA
- Pin E – Not used
- Pin F – Not used



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Sherborne Sensors, a Nova Metrix company



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Environmental Characteristics

Operating Temperature Range	°C	-18 to 70
Survival Temperature Range	°C	-40 to 70
Constant Acceleration Overload	g	50
Shock Survival		1500g, 0.5msec, ½ sine
Vibration Endurance		35g rms, 20 Hz to 2000 Hz sinusoidal
Environmental Sealing		IP65

Specifications by Range @ 20°C

Range		±3°	±14.5°	±30°	±90°
Excitation Voltage	Volts dc		20 to 30		
Current Consumption	mA (nom)		35		
Full Range Output (FRO) (see note 1)	mA (nom)		16		
Output Load Resistance	Ohms (max)		400		
Output Standardisation	% FRO		±1		
Output Noise (DC to 10kHz)	mA		0.02		
Non-Linearity (see note 2)	% FRO (max)	0.08	0.05	0.05	0.08
Non-Repeatability	% FRO (max)	0.02	0.004	0.004	0.004
Resolution	arc seconds	0.4	2.0	4.0	8.0
-3 dB Frequency	Hz	15	30	40	55
Sensitive Axis-to-Case Misalignment	deg (max)	±0.15	±0.25	±0.5	±1.0
Cross-axis sensitivity (see note 3)	% FRO (max)		0.2		
Output at Zero Angle	mA (nom)		12		
Zero Angle Output Tolerance (see note 4)	mA (max)	±0.1	±0.07	±0.07	±0.07
Thermal Zero Shift	%FRO/°C (max)	0.05	0.02	0.01	0.01
Thermal Sensitivity	%Reading/°C (max)	0.05	0.05	0.02	0.01
EMC Directive	EN 61326: 1998				
EMC Emissions	EN 55022: 1998			30 MHz to 1 GHz	
EMC Immunity	EN61000-4-2: 1995 inc A1: 1998 & A2: 2001			±4 kV	
	EN61000-4-3: 2002			10 V/m	
	EN61000-4-4: 2004			± 1 kV	
	EN61000-4-6: 1996 inc A1: 2001			3 Vrms	
	EN61000-4-6: 2007			10 Vrms	
	EN61000-4-8: 1994 inc A1: 2001			30 A/m	

Notes

1. Full Range Output is defined as the full angular excursion from positive to negative, i.e. ±90°=180°
2. Non-linearity is determined by the method of least squares
3. Cross-axis Sensitivity is the output of unit when tilted to full range angle in cross-axis.
4. Zero offset is specified under static conditions with no vibration inputs

How to Order

Specify model type with appropriate range e.g.

LSOC-14.5L – fitted with connector ±14.5° range
LSOP-90L – fitted with solder pins ±90° range

Please specify Mating Electrical Connector/cables 3CON-0009, 3CON-0009-3M or 3CON-0009-15M if required.



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