

T435 'L' Series



DC-Operated, Gravity Referenced Servo Inclinometer with 4-20 mA Output

Introduction

The Sherborne Sensors T435 'L' series is a family of single axis, high-precision, closed loop, gravity referenced servo inclinometers, ideal for use within a variety of application environments, and where space is at a premium.

Available in ranges from $\pm 1^\circ$ to $\pm 90^\circ$, with a form factor measuring only 61mm (2.41 inches) high and a diameter measuring less than 37mm (1.46 inches). The Series T435 'L' offers a high-level 4-20mA signal, proportional to the sine of the angle of tilt. Units are fully self-contained, and able to connect to a DC power source and readout or control device, to form a complete operating system. Units are extremely rugged, and can withstand a 1500g shock event. Solder pin terminations are standard.

The 4-20mA output of the T435 'L' series is specifically designed for electrically noisy environments, or where inclinometer output signals must travel over a long distance. T435 'L' series inclinometers operate on a single 24Vdc supply and the output series load resistance can be as high as 400 Ω . Sherborne Sensors T435 'L' series inclinometers have a long and successful market history under the Schaevitz® brand. Acquisition of this technology by Sherborne Sensors has allowed customers to benefit from the same exceptional product qualities as its predecessors, with the added benefits of extensive applications engineering support, global technical sales presence, repair, refurbishment and calibration services, stocking programs, and continuous product improvements.

Applications

- Bore hole mapping, dam and rock shifts and other geophysical, seismic & civil engineering studies
- Downhole logging
- Any precision measurement application where space is at a premium



Features

- Available in ranges from $\pm 1^\circ$ to $\pm 90^\circ$
- Fully self-contained, able connect to a DC power source and a readout or control device for a complete operating system
- High level 4-20mA output signal proportional to sine of the angle of tilt
- Extremely rugged, withstands 1500g shock



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Specifications

Environmental Characteristics

Operating Temperature Range °C (°F)	-18 to 70 (0 to 160)
Survival Temperature Range °C (°F)	-40 to 70 (-40 to 160)
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 (+ 68°F)

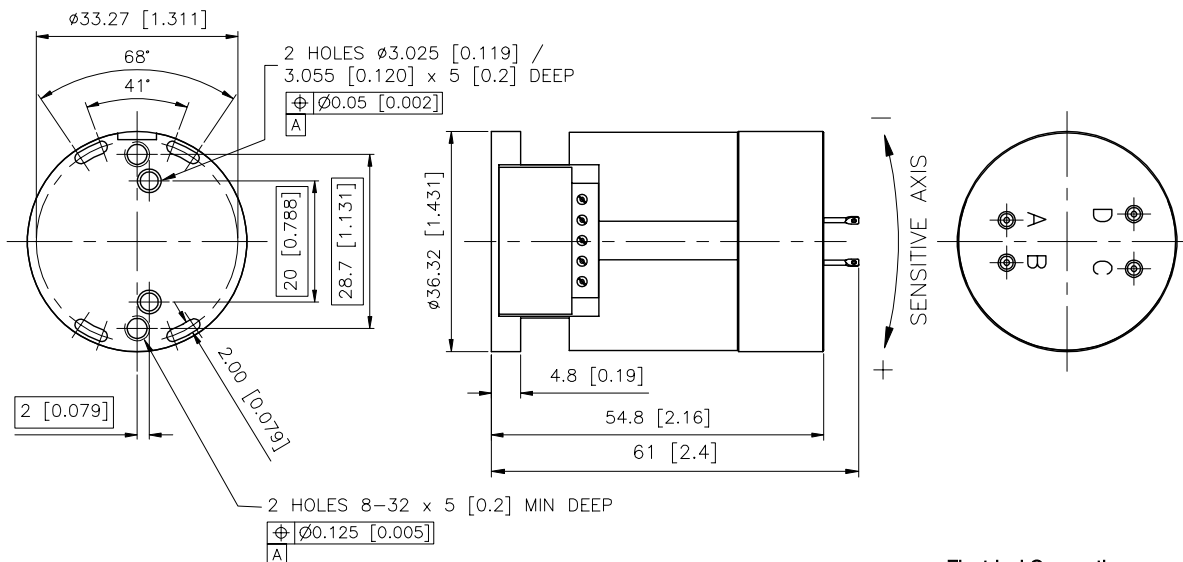
		±1°	±3°	±14.5°	±30°	±90°
Excitation Voltage	Volts DC			24 ±10%		
Current Consumption	mA (nom)			35		
Full Range Output (FRO) (see Note 1)	mA (nom)			16		
Output Load Resistance	Ohms (max)			400		
Output Standardisation	% FRO			±2		
Output Noise	mA (max)			0.020		
Non-linearity (see Note 2)	% FRO (max)	0.10	0.08	0.05	0.05	0.08
Non-repeatability	% FRO(max)	0.03	0.02	0.004	0.004	0.004
Resolution	arc seconds	0.1	0.2	1.0	2.0	4.0
-3 dB Frequency	Hz (nom)	10	15	30	40	55
Sensitive Axis-to-Case Misalignment	deg (max)	±0.15	±0.15	±0.25	±0.5	±1.0
Cross-axis Sensitivity (see Note 3)	% FRO (max)			0.1		
Output at Zero Angle (see Note 4)	mA (nom)			12		
Zero Angle Output Tolerance	mA (max)	±0.30	±0.10	±0.07	±0.07	±0.07
Thermal Zero Shift	%FRO/°C (max)	±0.05	±0.05	±0.02	±0.01	±0.01
Thermal Sensitivity Shift	%Reading/°C (max)	±0.05	±0.05	±0.02	±0.01	±0.01

Notes

1. Full Range Output (FRO) 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 without any vibration inputs

How to Order

Specify model with appropriate range
e.g. T435-14.5L denotes an inclinometer of range ±14.5°



Electrical Connections

Pin A: Supply 24VDC
Pin B: Supply Ground
Pin C: Signal Ground
Pin D: Signal Output