AIT430L

Servo Inclinometer with taut-band suspension and 4 … 20 mA output, X and Y measurements

- **Ranges ±1° to ±90°**
- **Non-Linearity 0.05 % FRO to 0.10 % FRO, depending on range**
- **Excitation Voltage 24 VDC**
- **Output 4 … 20 mA**

The AIT430L 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 ±1° to ±90°, with a form factor measuring only 61 mm high and a diameter measuring less than 37 mm. The AIT430L offers a high-level 4 … 20 mA 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 1500 g shock event. Solder pin terminations are standard.

The 4 … 20 mA output of the AIT430L series is specifically designed for electrically noisy environments, or where inclinometer output signals must travel over a long distance. AIT430L series inclinometers operate on a single 24 VDC supply and the output series load resistance can be as high as 400 Ω. The AIT430L series inclinometers have a long and successful market history under the Schaevitz® brand.

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 ±1° to ±90°
- Fully self-contained, able connect to a DC power source and a readout or control device for a complete operating system
- High level 4 … 20 mA output signal proportional to sine of the angle of tilt
- Extremely rugged, withstands 1500 g shock

Specifications

Performance by Range at 20 °C

Range		±1°	±3°	±14.5°	±30°	±90°
Excitation voltage:	VDC			24 ±10 %		
Current consumption:	mA (nom)			35		
Full range output (FRO) (see note 1):	mA (nom)			16		
Output load resistance:	Ω (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
Frequency -3 dB:	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/K (max)	±0.05	±0.05	±0.02	±0.01	±0.01
Thermal sensitivity shift:	% reading/K (max)	±0.05	±0.05	±0.02	±0.01	±0.01

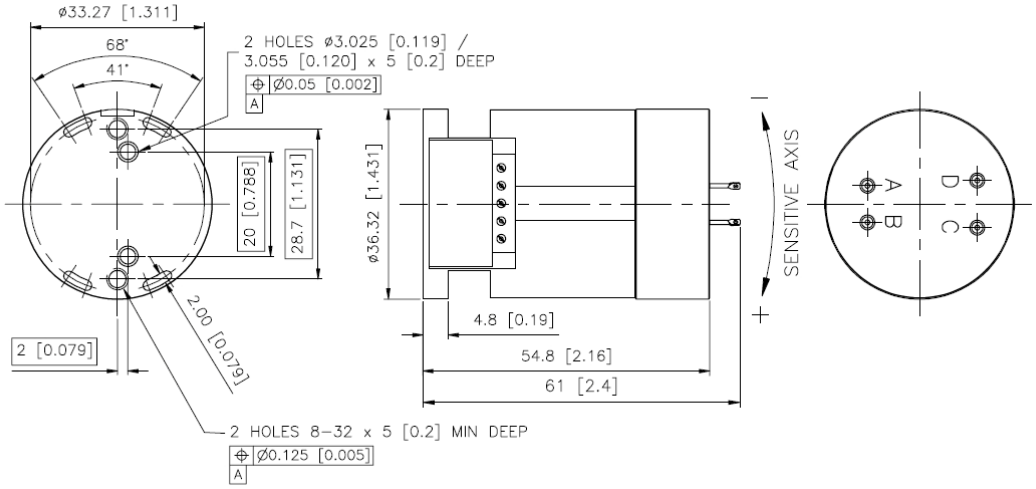
ALTHEN GmbH Mess- und Sensortechnik
Frankfurter Str. 150 - 152 ☏ +49 6195 70060 http://www.althensensors.com
65779 Kelkheim / Germany 🖷 +49 6195 700666 info@althen.de

Environmental Characteristics

Operating temperature range:	-18 … +70 °C (0 … 160 °F)
Survival temperature range:	-40 … +70 °C (-40 … 160 °F)
Constant acceleration overload:	50 g
Shock survival:	1500 g, 0.5 ms, ½ sine
Vibration endurance:	35 g rms, 20 Hz to 2000 Hz sinusoidal
Environmental sealing:	IP65

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.

Dimensions and Electrical Connections



Connections:

Pin A	Supply 24 VDC
Pin B	Supply ground
Pin C	Signal Ground
Pin D	Signal output

Dimensions in mm, values in brackets in inch, approx. values.
These drawings are for information only and not intended for construction purpose.
Please ask for detailed drawings.

Ordering Information

AIT43 [ ] - 0001 - [ ] L

Series number

5 = Solder pin outlet

Range in °

1 = ±1°

3 = ±3°

14.5 = ±14.5°

30 = ±30°

90 = ±90°

Specify model type with appropriate range e.g.

AIT435-0001-14.5L is a standard inclinometer with solder pins, output 4 ... 20 mA, and a range of ±14.5°

Due to continual product development, ALTHEN and partners reserve the right to vary the foregoing details without prior notice.

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