



AIT820

Dual Axis Inclinometer

- ▣ Ranges $\pm 14.5^\circ$, $\pm 30^\circ$, $\pm 60^\circ$
- ▣ Non-Linearity 0.07 % FRO to 0.12 % FRO, depending on range
- ▣ Full Range Output [Supply Voltage]:
 - $\pm 5 \text{ V}$ [$\pm 12 \dots \pm 18 \text{ VDC}$]
 - $0.5 \dots 4.5 \text{ V}$ [$9 \dots 18 \text{ VDC}$]



The AIT820 is a high precision, gravity referenced, dual axis inclinometer. The diameter of just 23 mm is ideal for borehole applications or other space restricted areas. The unit can withstand high levels of mechanical shock without any degradation in specification and is sealed against the ingress of contaminants.

▣ Applications

- Bore-hole logging
- Seismic studies
- Measurements in confined areas

▣ More Features

- 23 mm diameter cylindrical housing with precision angular alignment feature
- Ranges $\pm 14.5^\circ$ to $\pm 60^\circ$
- Input voltage options:
 - bi-polar: $\pm 12 \dots \pm 18 \text{ VDC}$
 - single ended: $9 \dots 18 \text{ VDC}$
- Output: $\pm 5 \text{ VDC}$ (bi-polar input) or $0.5 \dots 4.5 \text{ VDC}$ (single ended input)
- Solder pin terminations or connector within diameter of housing
- Stainless Steel Construction, reduces angular errors due to flexibility of sensor
- Sealing to IP67 / NEMA 6

▣ Specifications

Performance Specifications

Range		$\pm 14.5^\circ$	$\pm 30^\circ$	$\pm 60^\circ$
Excitation voltage:	VDC	$\pm 12 \dots \pm 18$ (bi-polar supply) $9 \dots 18$ (single ended supply)		
Current consumption:	mA (max)	30		
Full range output (FRO) (see note 1):	VDC	$\pm 5 \pm 1 \%$ (bi-polar supply) $0.5 \dots 4.5 \pm 1 \%$ (single ended supply)		
Output impedance:	Ω	<10		
Non-linearity (see note 2):	% FRO (max)	0.07	0.07	0.12
Non-repeatability:	% FRO (max)	0.02 (bi-polar supply) 0.03 (single ended supply)		
Resolution:	arc seconds	1	2	4
Frequency -3 dB:	Hz	5		
Sensitive axis to case misalignment:	deg (max)	± 0.25	± 0.5	± 1.0
Cross axis sensitivity (see note 3):	% FRO (max)	± 0.2		
Zero offset:	mV (max)	± 20		
Thermal zero shift:	% FRO/K	± 0.010	± 0.005	± 0.005
Thermal sensitivity:	% reading/K	± 0.010	± 0.006	± 0.006

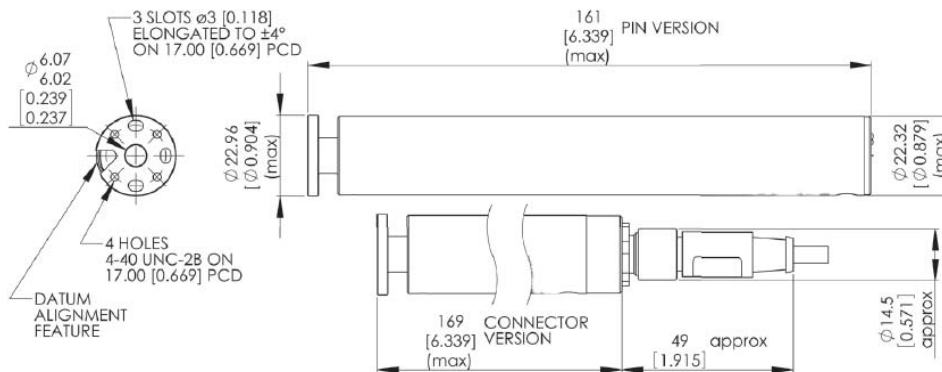
Notes:

1. Full Range Output is defined as the full angular excursion from positive to negative, i.e. $\pm 30^\circ = 60^\circ$
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.

Environmental Characteristics

Operating temperature range:	-18 ... +70 °C (-0.4 ... +158 °F)
Survival temperature range:	-40 ... +70 °C (-40 ... +158 °F)
Constant acceleration overload:	50 g
Shock survival:	1000 g, 0.5 ms, ½ sine
Vibration endurance:	20 g rms, 20 Hz to 2000 Hz sinusoidal
Environmental sealing:	IP67 / NEMA6

Dimensions



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.

Wiring

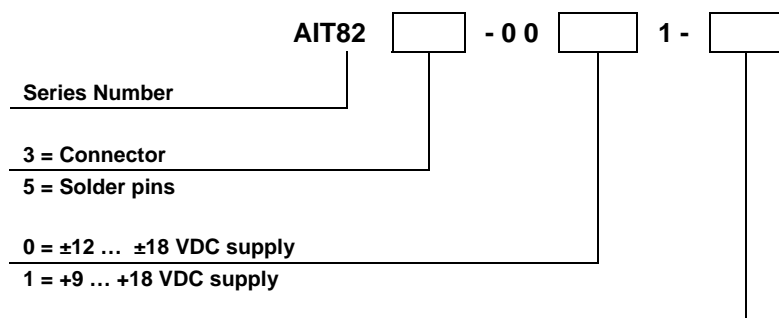
Model AIT825 (Solder Pin):

Pin	Function
1	- supply (bi-polar only)
2	0 V common
3	X signal output
4	Y signal output
5	+ supply
6	chassis

Model AIT823 (Connector/Cable):

Colour	Function
Brown	- supply
White	0 V common
Blue	X signal output
Black	Y signal output
Grey	+ supply

Ordering Information



Specify model type with appropriate range.

Example:

AIT825-0011-30: solder pins, range $\pm 30^\circ$ range, 9 ... 18 VDC supply

Range:

- 14.5 = $\pm 14.5^\circ$
- 30 = $\pm 30^\circ$
- 60 = $\pm 60^\circ$

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