AT-201-SIA232

Inclinometer

Feature

- Silicon MEMS sensor takes the level as reference plane to measure the change of two-axis tilt.
- The output angle takes the factory calibrated datum plane as reference plane.
- The change of inclinometer is in the output of data format with R232 interface
- User can reset the inclinometer by sending commands through operating
- Waterproof (IP55) with metal-housed enclosure high capacity of resisting outside electromagnetism and disturbance.
- High capacity of enduring hard pressure and shaking.
- The inclinometer outputs 4-20ma through the change of angle

Description

AT-201-SIA232-EGOW measures static gravity acceleration then transfer into the change of tilt angle with two-axis tilt sensor in a wild range(max ±90 º)，then the change outputs in the way of current(4-20ma).

The response speed of sensor's angle is from 4Hz to 12.8Hz. It is provided with 5-step filter which can be adjusted by any user. Balance the relationship between the stability of angle and the response speed of tilt sensor.

The products mainly aim at static measurement and slowly motive measurement .it is not suitable to the speedily motive measurement the measurement to carrier deliver good performance under angle variation of 5°/s in horizontal or pitch state. due to the influence of acceleration which generated by carrier's movement，it may cause error to the angle output if under the circumstance of over 10 °/s . Under the circumstance of vertical oscillation, the influence from high frequency oscillation to angle output data is small within the shock of 0.5g.

Main index

（Measuring condition： Temperature=20℃， Power supply=+24V， Speed=5Hz， Start to measure after 20 minutes when powered.

Measuring tool：Agilent 34401A Digital voltage meter， Adjustable switch，±0.01%、Use a resistance (Temperature drift at 5ppm) as load（See table 2）

Index		Min	Typ	Max	Unit
Response speed		4	6.8	12.8	Hz
Measuring range			Dual-axis±60		º
Resolution			±0.02		º
Accuracy(<±15°)			±0.05	0.06	º
Accuracy (<±30°)			±0.08	0.1	º
Accuracy(<±60°)			±0.15	0.18	º
Non-linearity		0.3	0.8	0.9	%
Null-point repeatability			±0.09		º
Null-point drift in all temperature range			±0.25	±0.3	º
Temperature drift in all angle range			±0.3	±0.4	º
Cross-disturbance （Tilt below 30 º）	X-AXIS Positive-going disturbance		<0.5	<1.5	% FSB
	X-AXIS Negative-going disturbance		<0.5	<1.5	% FSB
	Y-AXIS Positive-going disturbance		<0.5	<1.5	% FSB
	Y-AXIS Negative-going disturbance		<0.5	<1.5	% FSB

Table 2

2. Other index（Measuring temperature=20℃）（See table3）：

	Min	Normal	Max	Unit
Operating voltage	20	24	30	V
Operating current	60	70	85	MA
Operating temperature	-40		+85	℃
Interface data format	9600，n，8，1			BPS*

Table 3

3. The output range of voltage（See table 4）：

	Min	Typ	Max	Unit
TXD	±5	±7	±15	V
RXD	±5	±7	±15	V

GND	0	0	0	V

Table 4

4. The utmost operating parameter（See table5）

	Min	Max	Unit
Operating voltage	+18	+32	V
Operating temperature	-50	+100	℃

Table 5

Note: Long time utmost operating can cause inaccuracy to data or permanent damage to the product.

5. Data on cross-disturbance(See table 6 and 7)

When Y-axis is at ±20°and X-axis at 0°—45°, the change of error caused by cross-disturbance on bevel

Measured side's angle	0°	5°	15°	30°	45°	Unit
Y=20 º	0.17	0.17	0.19	0.20	0.30	°
Y=-20 º	-0.20	-0.18	-0.17	0.19	-0.21	°

Table 6

When X-axis is at ±20°and X-axis at 0°—45°, the change of error caused by cross-disturbance on bevel

Measured side's angle	0°	5°	15°	30°	45°	Unit
X=20 º	-0.07	-0.08	-0.04	-0.06	0.10	°
X=-20 º	-0.10	-0.10	0.02	0.07	0.02	°

Table 7

Connection:

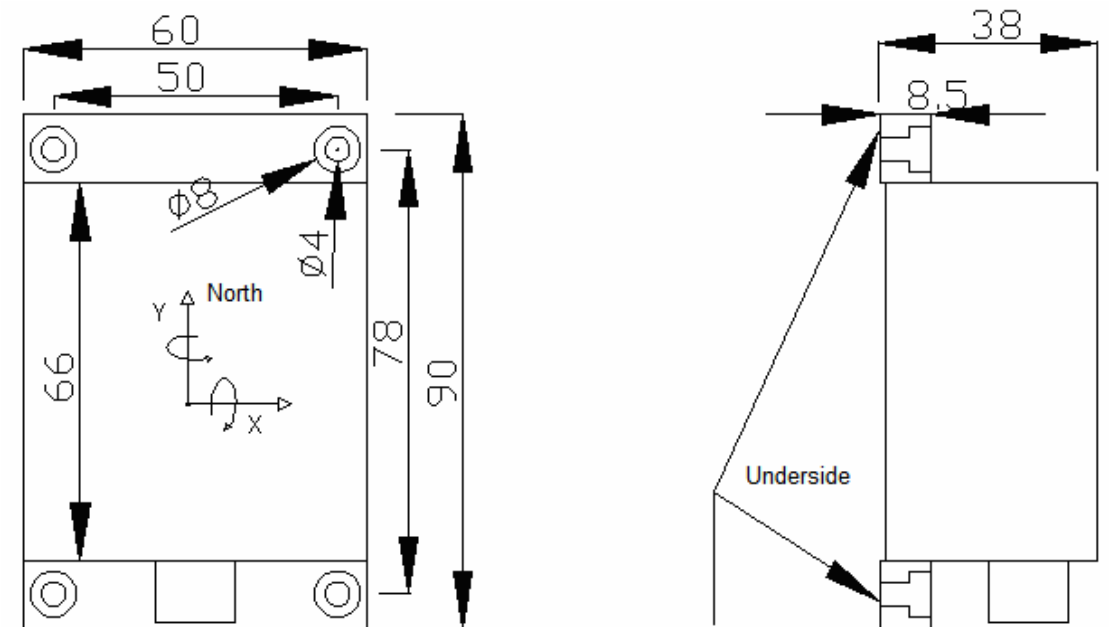
Note: Build-in XS12J7C K7ABR55 7 waterproof outlet

1. Connection(See table 8)

Pin	Name	Remarks
1	GND	Input power supply point
2	+24V	Input power supply (anode)
3	I1	Current output(first line)
4	P	Free
5		
6		
7	I2	Current output(second line)

Table 8

2. Enclosure dimensions (Unit：mm）
   Note: Waterproof level is above IP55



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