

PEI-Z210L-LAS-1B-3 two-axis tilt switch



General discription:

PEI-Z210L-LAS-1B-3 is a high precision tilt switch:

- two-axis
- range $\pm 10^\circ$
- Real-time angle through RS232
- Set switch operating point through RS232
- 2 switches (alarm: open)
- Shockproof better 10'000g
- Overload and short circuit protection
- IP65 sealing

Specification (at room environment 25^o)

	Parameter	Condition	Min	Typical	Max	Unit	
Operating specification	Supply voltage		8		30	V (DC)	
	Quiescent current	Horizontal Vcc=12V		70	75	mA	
	Operating temp. range		-40		+85	°C	
	Out. voltage ¹⁾	I=0.5A		VCC-0.2	VCC	V	
	Output current				500	mA	
Performance specification	range	Two-axis	-10		+10	°	
	Resolution ²⁾			0.01		°	
	Accuracy ³⁾			± 0.05	± 0.1	°	
	Zero temp. drift	-40~+85°C			± 0.008		°/°C
					± 0.5	± 0.86	°
Response Time ⁴⁾			0.5		s		
Others parameter	size	Without cable outlet		80*75*58		mm	
	Standard cable length		0.9	1	1.1	m	

¹⁾: output voltage means the drop voltage between the signal lines and GND, when the angle is less than the alarm angle.

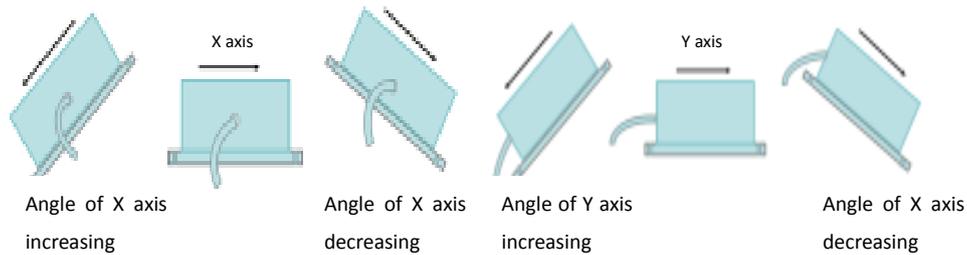
²⁾: resolution means the smallest angular increment at which a detectable change in output can be measured.

³⁾: accuracy means the max deviation of output from the absolute input angle .

⁴⁾:the amount of time it takes, after a stepped angular movement to produce an output equal to 85% of that stepped movement.

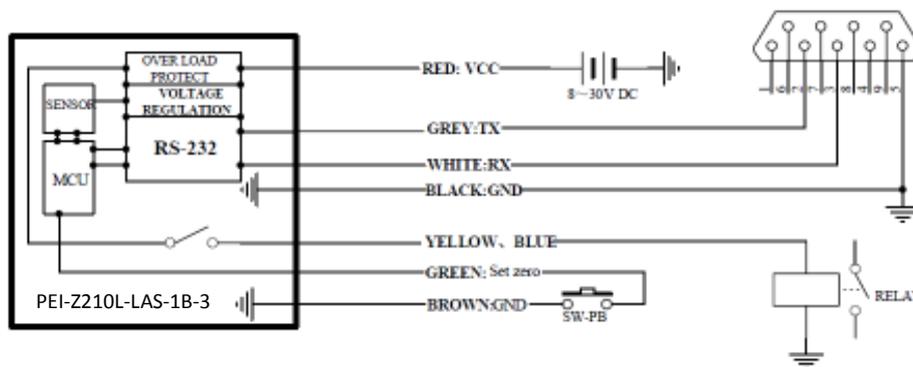
Wire connection definition and using instruction

Angle definition:



Wire connection:

color	RED	BLACK	WHITE	GREY	BLUE	YELLOW	GREEN	BROWN
function	V+	GND	RS232 RX	RS232 TX	Alarm signal	Alarm signal	zero setting	GND



Comments

- When the sensor's tilt is **less** than the alarm angle (defaulted 1.5°, can be changed by user commands), the internal relay is **on** and there is a voltage output which is close to supply voltage. As there is overload protection device in the sensor, the output is slightly less than the supply.
- When the tilt is **greater** than the alarm angle, the internal switch is **off** and the signal line output high impedance.
- Therefore, there are 3 reasons for alarm-signal output (internal switch off):
 - angle exceed alarm angle.
 - inclinometer broken.
 - 3 wire connection or control system broken
- At power on, there is 0.7s for outputting alarm signal.
- Digital output of RS232 is sending real-time angle to set the operating point of the switch exactly and conveniently.

Digital angle output

1. RS232 serial interface setting

Baud rate:9600, start bit: 1 bit, data bit: 8 bit, stop bit: 1 bit, parity bit: none.

2. Angle output form(ASCII)

There is a data set of 18 bits:

Byte1: X	Byte10: Y
Byte2: +/-	Byte11: +/-
Byte3: tens of X axis angle	Byte12: tens of Y axis angle
Byte4: units of X axis angle	Byte13: units of Y axis angle
Byte5: point'.'	Byte14: point'.'
Byte6: one digit after the decimal point	Byte15: one digit after the decimal point
Byte7: two digit after the decimal point	Byte16: two digit after the decimal point.
Byte8: space (0x20)	Byte17: enter (0x0D)
Byte9: space (0x20)	Byte18: tab (0x0A)

Form as follow:

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ITEM  SIGN  DATA  SPACE  SPACE  ITEM  SIGN  DATA  ENTER
NEWLINE
X    +/-  **.**.  space  space  Y    +/-  **.**.  enter  tab

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Eg: the current angle of X axis is 3.65°, angle of Y axis is-01.06°, then display is::

X+03.65 Y-01.06

Notes :

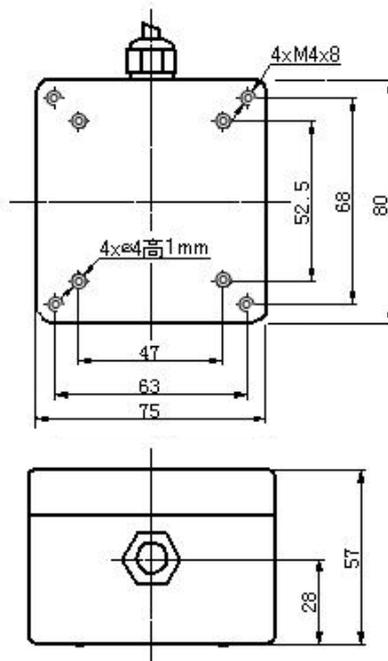
- 1) Output of the sensor is from -15° to 15°. It will display 99.99 when overrange ±15°.
- 2) System reports the version information 'PEI-Z210L-LAS-1B V*.*' to PC when power on.
- 3) If relative zero position has been set on last booting, and when power up again, the system will output 'relative angle measure!'. That means measuring the relative angle.

User command words (The following command is case sensitive):

1. &Z ——setting the current position as relative zero. Store the relevant data in EEPROM and output the relative angle. It will output “Relative angle measure!” when receiving the command.
2. &R —— output absolute angle , and it will output “absolute angle measure!” when receiving the command.
3. *xp=????——setting alarm point of +X axis, “????” stand for angle value, from 0001 to 1000. Defaulted value is 0150. Output “SetxP OK!” when receiving the command.
4. *xn=????——setting alarm point of -X axis, “????” stand for angle value, from 0001 to 1000. Defaulted value is 0150. Output “SetxN OK!” when receiving the command.
5. *yp=????——setting alarm point of +Y axis, “????” stand for angle value, from 0001 to 1000. Defaulted value is 0150. Output “SetyP OK!” when receiving the command.
6. *yn=????——setting alarm point of -Y axis, “????” stand for angle value, from 0001 to 1000. Defaulted value is 0150. Output “SetyN OK!” when receiving the command.
7. Shorting green line and brown line for 2s will set the current angle as relative zero position. The function is same as the command “&Z”. The difference is : there is 1s for outputting alarm signal if using the first method successfully, while command “&Z” has no such output. (please properly handle the green line to avoid short circuit.)

Dimensions :

unit: mm



Ordering information: Part model PEI-Z210L-LAS-1B-3

Specifications are subject to change without notice!

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