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# PEI-Z100AL-232-1 1-axis Tilt Sensor

PEI-Z100AL-232-1 is a low cost 1-axis tilt sensor intended for vertical mounting.

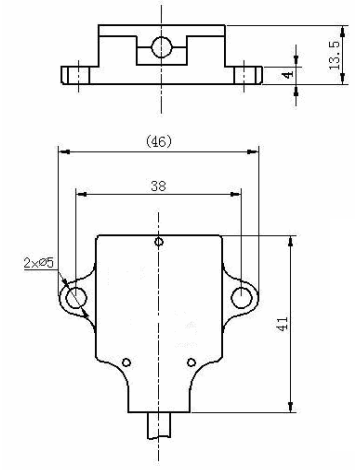
- Range:0°-360°.
- Serial duplex communication RS232.
- Zero setting
- Mechanical shock resistance 10'000g

**Specifications**

| Parameter | Value | Unit | Remark |
|---|---|---|---|
| Measuring Range | 0°～ 360° | Degree | one-axis |
| Resolution | 0.1 | Degree | |
| Accuracy | <0.5 | Degree | @25 +/-4℃ |
| Temperature Drift | 0.6 | Degree | Typical value |
| Angle output rate | 2.5 | Hz | Typical value |
| Operating Voltage | 5±0.2<br>7..15V | V （DC）<br>V （DC） | Standard -1<br>Optional -2 |
| Operating Current | <20 | mA | |
| Operating Temperature | -40 ～+85 | ℃ | |
| Storage Temperature | -40 +120 | ℃ | |
| Environment | IP65 | | Optional IP68 |

**Ordering information: PEI-Z100AL-232-1: 5V Power supply, PEI-Z100AL-232-2: optional 7-15V power supply**

## Installing Size and Connection Definition




**Connection**

RED：+5V

BLACK：GND

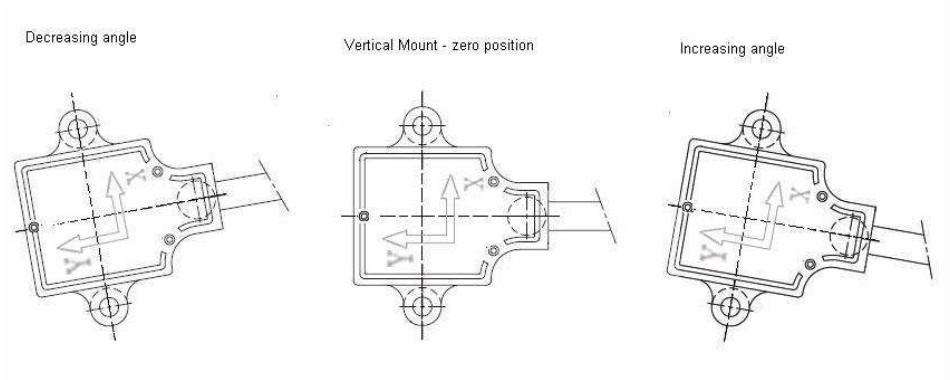
BLUE：RXD-232

YELLOW:TXD-232

Notes:

①. The module is to be installed vertically. It is in zero angle when the output cable is on the right. The angle increases when the tilt sensor rotates clockwise.

②. A wrong installation will result in a large measurement inaccuracy




## Data output format

output in ASCII or hex format. Baud rate is optional. Default value: 9600bp/s

**1 ASCII Format**

One set of data has 9 bytes.

Byte1：X

Byte2：＝

Byte3：hundreds digit of angle

Byte4：tens digit of angle

Byte5：units digit of angle

Byte6：point "."

Byte7：one digit after the decimal point of angle value

Byte8：/R（Enter）

Byte9：/N（New line）

| ITEM | DATA | STOP |
|---|---|---|
| X= | ***.* | "\R\N"（enter/new line） |

Eg. current angle 273.6 degrees is displayed as X=273.6

**2 Hex Format**

bit15－bit0（2 bytes）：value of angle×10 then translated into hex data

**Eg.** current angle 273.6 degrees；Hex format:：273.6×10=2736 (to hex) = 0AB0

After sending data, send newline command (0A), this ends the data set.

## 3 User Instructions

Baud rate and Output format（hex or ASCII）are programmable via serial communication.

**Command words**（all data are in ASCII format）:

"**BAUD00**"—— Baud rate is 9600

"**BAUD01**"—— Baud rate is 19200

"**BAUD02**"—— Baud rate is 4800

→ Module returns "S" and the baud rate is stored in ROM.

"**&ZEROP**"——Zero storage command. Store the current angle value as zero angle in ROM.

→ returns "S" after command acceptation.

"**RDZERO**"——Read zero command; the system outputs now angles relatively to the angle stored by "&ZEROP"(considered as zero degree). This setting will be lost after system power- off

→ returns "R" after command acceptation

"**COMHON**"——Hex communication mode. → returns "N" after command acceptation.

"**COMHOF**"——ASCII communication mode. → returns "F" after command acceptation.

"**COMOFF**"——Single step output mode. After sending command "SENDDD" the module will output a single set of data. The module is sampling information continuously and will output data based on the PC command.

"**COMONN**"——Close single step mode. System will change to continuous output mode.

**"SENDDD"**—— Angle output mode

**"$"**—-———— Enters command mode. The module doesn't anymore sample & transmit angle information.

**Notes :**

- SW-version will be sent out after power-on:
- Default mode is angle output mode.
- All commands consist of exactly six characters. More or less than six bytes is not allowed.
- After receiving a command, the module will return an acknowledgement to the PC.

  Eg. After sending "BAUD00", returning "S" means successful parameter setting. Returning nothing means a wrong command has been sent.
- To quit the command mode, the PC can send "SENDDD" and the system returns to angle output mode.
- All the commands received by the module are stored in ROM. Command setting is valid after reset.

**Specifications are subject to change without notice**



**GUEMISA** (Electrónica Guerra y Miró Guemisa S.L.)
Sta. Virgilia, 29 - local - 28033 Madrid (Spain)
Tlfno.: (034) 91 764 21 00 Fax.: (034) 91 764 21 32
Email.: ventas@guemisa.com Web.: www.guemisa.com