# PEI-Z100-PCB-232 One-axis 360° Inclinometer

## General Description

PEI-Z100-PCB-232 is a one axis tilt sensor module with measuring range 0°-360°.

- RS232 half duplex, programmable baudrate
- Programmable zero setting
- Supply 5V, optional 7..15V
- Resolution 0.1°
- Vertical mounting

**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 |
| Angular Data 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 | ℃ | |
| Module Size | 25*25*12 | mm | |

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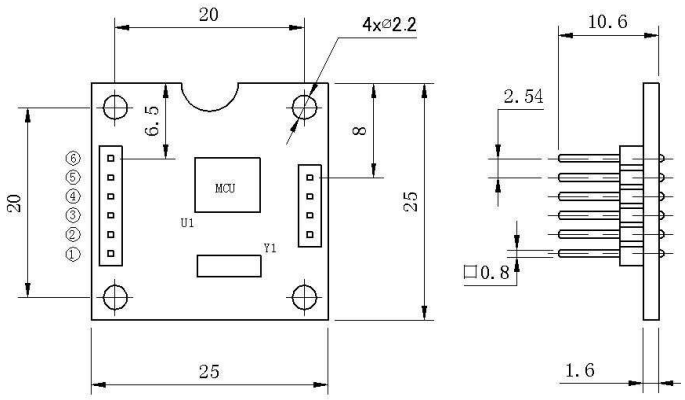
**PCB Size and Definition of Connection**（Unit：mm）

①———+5V
②———GND
③———TXD-TTL
④———RXD-TTL
⑤———RXD-232
⑥———TXD-232




**Ordering information:**

**PEI-Z100PCB-232-1: 5V Power supply**

**PEI-Z100PCB-232-2: 7-15V power supply optional**



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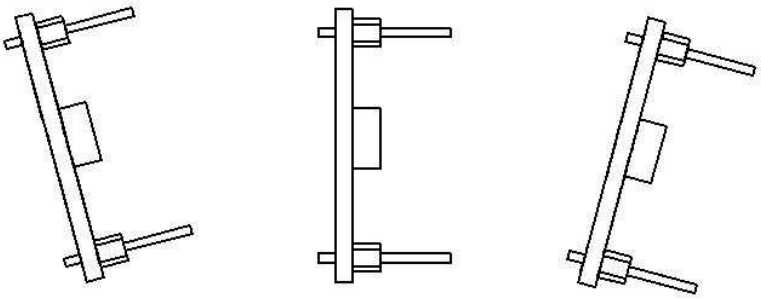
Mounting:

1. The sensor has to be mounted vertically, with the half-circle on the LEFT side (zero position).
2. The angle is increasing by clockwise rotation.
3. A faulty mounting will cause a large error of the angle value.



Faulty Correct Faulty

## 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



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## 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** :

- Output version of soft to PC 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**



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