

NTI-245DL-I1 2-axis current type tilt sensor +/-45 degree



1. General description:

NTI-245DL-I1 is researched and produced by Z Tech, it is a high accuracy and high stability current type two-axis inclinometer. The measuring range is:±45°, output standard 4 ~ 20mA analog current. It has anti-jamming characteristic, adapt to long distance signal transmission.

2. Features:

Standard three wire 4-20mA current output
 High accuracy
 High performance-price ratio
 Protection level:IP67

3 Applications:

All kinds of construction machinery
 Machinery arm, dams, bridge angle measurement
 Original position control, tilt gesture recorder

4. Technical parameter:

| Item | Test condition | Min. | Typ. | Max. | unit |
|------------------------|----------------------|-------|----------|-------|--------|
| Measuring range | 2-axis | -45 | | 45 | ° |
| Resolution | | | 0.03 | | ° |
| Non-linearity | VCC=24V RL=200Ω | | ±0.2 | | %/ FS |
| Sensitivity | | 0.176 | 0.178 | 0.180 | mA/° |
| Zero output current | | 11.99 | 12 | 12.01 | mA |
| Supply power | | 12 | | 24 | V (DC) |
| Operating current | VCC=24V/without load | | 20 | 25 | mA |
| Load resistance | | | | 600 | Ω |
| Operating temperature | | -40 | | +85 | □ |
| Zero temperature drift | -30---+75 | | | 0.5 | ° |
| | -40---+85 | | | 1.2 | ° |
| Cable length | | 1 | 5 | 10 | m |
| Case size | | | 72*72*45 | | mm |

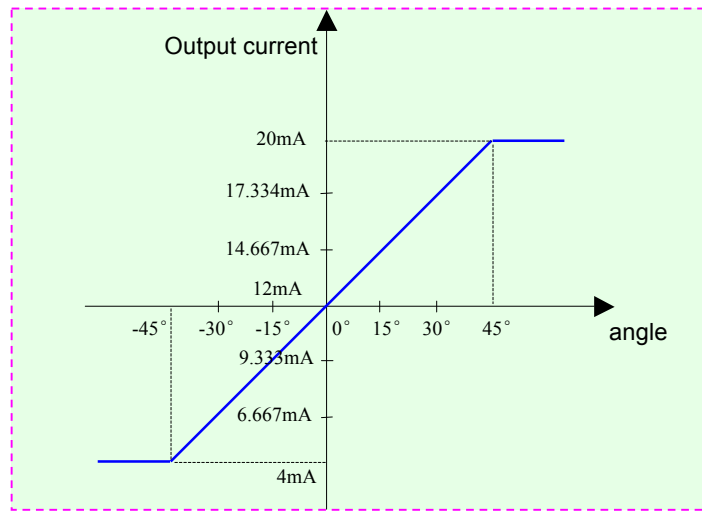
Remark1: resolution means the smallest angular increment at which a detectable change in output can be measured

Remark2: non-linearity means the amount of deviation between the output curve and the best fitting line in the measuring range from -45° to 45° .

Remark3: sensitivity is definite as: $I_{sens} = \{I_{out}(@45^\circ) - I_{out}(@-45^\circ)\} / \{90^\circ\} [mA/^\circ]$

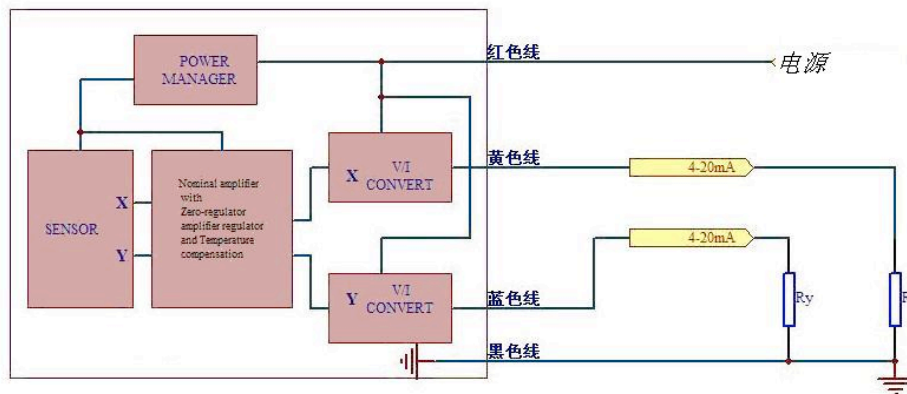
5. use introduction:

①. angle-output current characteristic:



②. wire connection:

- Red : Power supply
- Black: GND
- Yellow: X-axis current output
- Blue: Y-axis current output



③ **Note:**

(1) Load resistance and supply voltage need to meet the following formula:

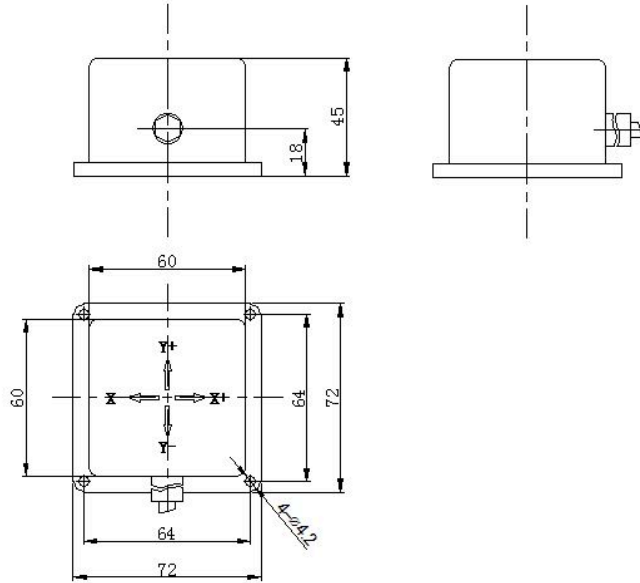
$$\text{Load resistance} \leq (\text{supply voltage} - 6V) / \text{max output current}$$

Eg. when supply is 12V, $\text{Load resistance} \leq (12 - 6) / 0.02 = 300\Omega$. So load resistance should be less than or equal to 300Ω.

(2) In order to avoid the electromagnetic interface, please connect the shielded cable with the GND.

(3) angle-current conversion formula: $\text{angle} = (\text{current output} - 12\text{mA}) / 0.178$

6. Mounting diagram: (unit: mm)

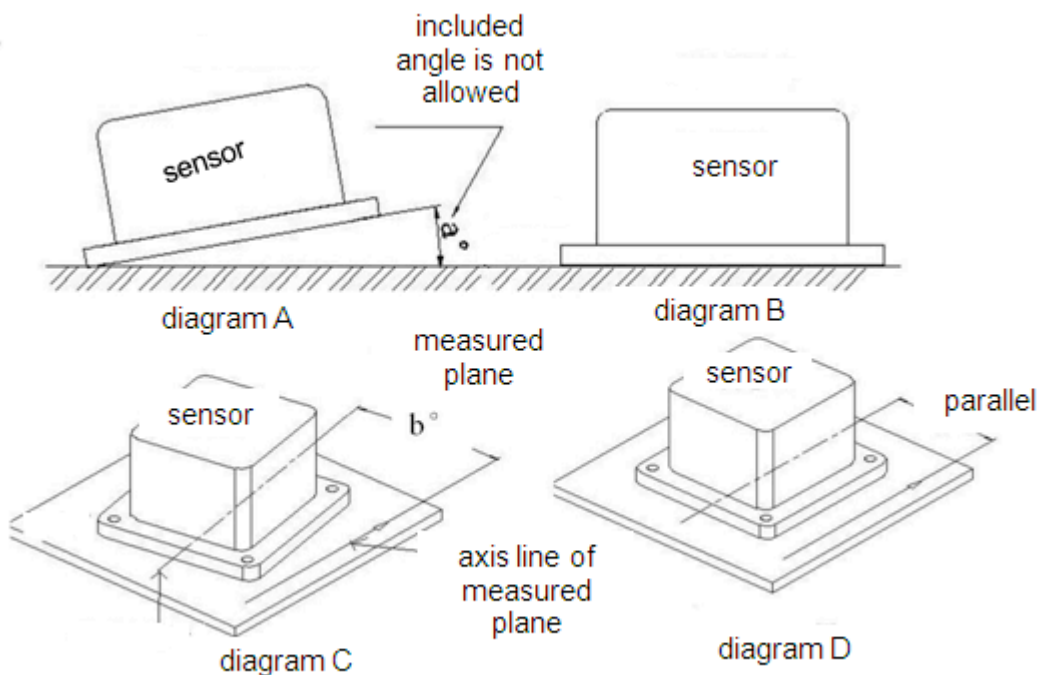


7. Attention when installation:

Incorrect mounting way will cause large angle error. Please make sure correct mounting way of two surfaces and two lines.

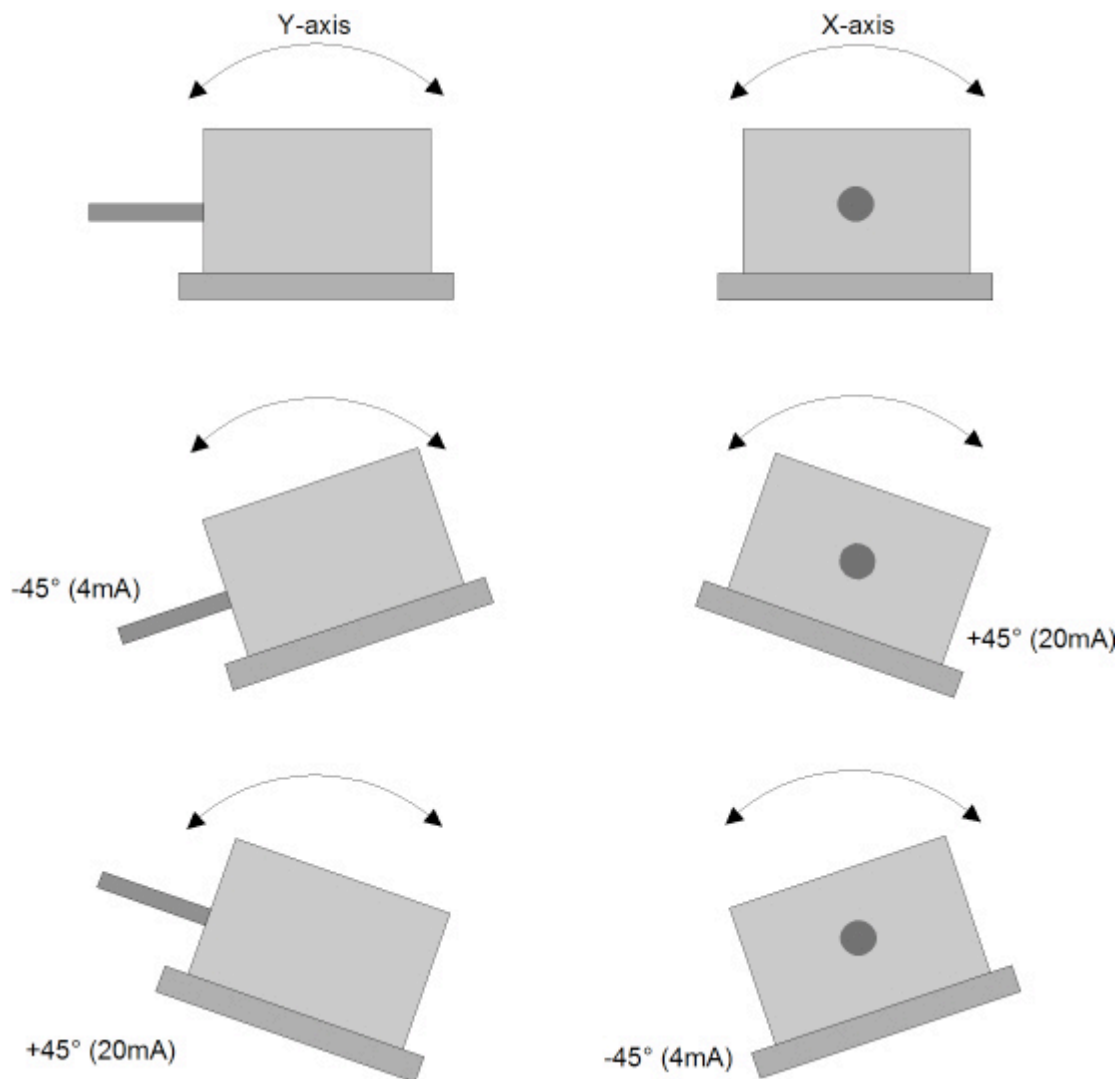
(1) Two surfaces means mounted surface of inclinometer should completely close to mounted surface of measured object(mounted surface of measured object should be horizontal), included angle is not allowed. Correct mounting way is as diagram B.

(2).Two lines means axis of inclinometer horizontal to axis of measured surface, no included angle between this two axis. Correcting mounting way is as diagram D.



8. Order information: Part NO: NTI-245DL-I1

Way of orientation



Specifications subject to change without notice!