

ZCT245CL series tilt sensor specification



Features

Small size
 Light weight
 Cost effective
 Ease of installing
 With the internal digital filter function,
 Shock resistance

Description:

ZCT245CL series two-axis inclinometer is developed and produced by our company with high accuracy and high stability. Its measuring range is $\pm 45^\circ$. Support different application condition. Output RS232, RS485 or TTL serial interface.

Applications

Angle measuring,
 leveling adjustment.
 Security control, monitoring, alarm system,
 Angular measurement of arm
 Initial position control, grapher for tilt attitude

Technical specification: (Unless otherwise specified, the following data is typical value at room temperature (25 °C))

	Parameter	Test condition	Min. Value	Type value	Max. value	Unit
Performance specification	Measuring range ^①	2 axis	-45		+45	Degree
	Resolution ^②			0.001		Degree
	Accuracy ^③			0.05		Degree
	Output frequency		1.5	2		HZ
	Zero temperature drift	-40---+85 °C		0.008	0.01	°/C
Electrical specification	Supply Voltage ^④		8		30	V (DC)
	Operating current ^⑤	VCC=12V		25	35	mA
	Operating temperature ^⑥		-40		+85	°C
Other	Cable length		0.95	1	1.05	m
	Size of case			72*72*45		mm

Note1: Measuring range refers to the maximum angle which can be measured when the device take the horizontal plane as zero angle.

Note 2: Resolution refers to the minimum input angle which is resolved by device.

Note 3: Accuracy definition: the degree of consistency of the measured angle and the true angle value.

Note 4: Recommend to use DC 12V power supply, in order to reduce internal loss. When power supply voltage is larger than 28V, it may lead parts damaged or short lifetime. Please avoid the situation occur during normally using condition.

Note 5: Current means the device input current when supply voltage is 12V and no signal output.

Note 6: When the ambient temperature exceeds this temperature range, it will lead to shortened life expectancy or permanent damage of the device. It should try to avoid the situation happening in normal use.

Angle output:

Serial port default setting:

1. Baud rate: 9600bps 2. Data bit: 8 bit Stop bit: 1 bit parity bit: none 3. interface port

ASCII format (One set of data has 20 bytes.)

Byte1: X	Byte11: Y
Byte2: +/-	Byte12: +/-
Byte3: X-axis tens digit of angle value.	Byte13: Y-axis tens digit of angle value
Byte4: X-axis units digit of angle value	Byte14: Y-axis units digit of angle value
Byte5: point“.”	Byte15: point“.”
Byte6: one digit after the decimal point of X-axis angle value.	Byte16: one digit after the decimal point of Y-axis angle value.
Byte7: two digit after the decimal point of X-axis angle value.	Byte17: two digit after the decimal point of Y-axis angle value.
Byte8: three digit after the decimal point of X-axis angle value.	Byte18: three digit after the decimal point of Y-axis angle value.
Byte9: 0x20	Byte19: 0x0d
Byte10: 0x20	Byte20: 0x0a

Format as follow:

ITEAM	SIGNED	DATA	SPACE	ITEAM	SIGNED	DATA	STOP
X	+/-	**.***	space	Y	+/-	**.***	enter/new line

Eg. current angle is +23.675 degrees on X-axis, -01.026 degrees on Y-axis, displaying as follows

X+23.675 Y-01.026

Note: display angle 99.999 when over range.

User Instructions:

Remarks :

- 1). Sensor will output version of soft to PC after power-on: ZCT245C-V1.0
- 2). If user had setted relative zero, the system will output" relative angle measure" after power

on.

System will enter into angle output mode automatically.

3).PC send "\$" command to module, it will enter into command mode.(module can only receive command,do not collect and send angle data under this mode).

4).PC send "*@" to module,then it can exit command mode.System will return to angle output mode,continue to output angle data.

5)The modified settings through command will store in EEP ROM. The information will store after power off.

Command word related:

(Take the following data in ASCII format for example, the command which the module can accept has difference in capitalization and lower case.)

"*^9600"——Set baud rate as 9600bps, output"Baud rate:9600"after accept command.

"*^1920"——Set baud rate as 19200bps, output"Baud rate:19200"after accept command.

"*^4800"——Set baud rate as 4800bps, output"Baud rate:4800"after accept command.

"*^1200"——Set baud rate as 1200bps, output"Baud rate:1200"after accept command.

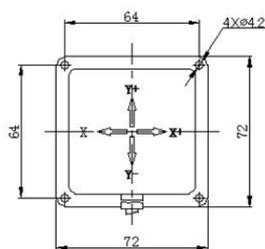
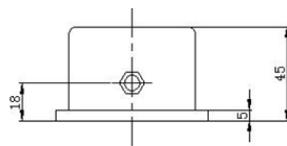
"&S"——Set current angle as zero,store in ROM,output"set current zero over"after accept command;

"&R"——Clear away the current zero setting,output"clear zero seted" after accept command.

*RESET—— Return to factory set. Output "V"after accepted command, it will be successful setted after power off.

Installing and Connection Definition:

In order to get max tilt range, module shall be installed horizontally under normal condition.



单位:mm

Connection definition:

Red—— VCC

Black—— GND

Yellow (Green) —— TXD
(485B)

Blue—— RXD(485A)

Attentions in mounting:

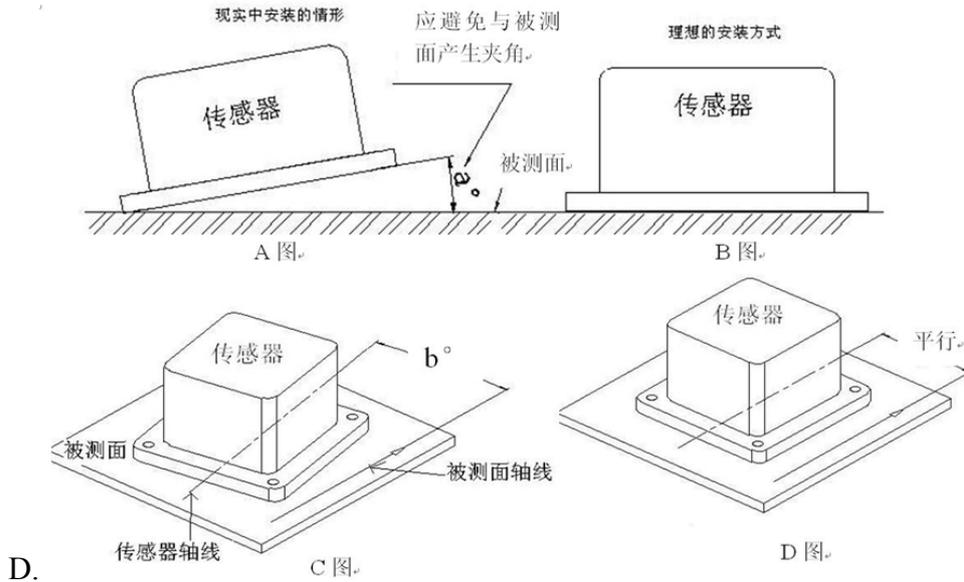
Incorrect mounting way will cause large angle error. Please make sure correct mounting way of two surfaces and two lines.

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(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



Order information:	Interface RS-485	Part number:	ZCT245CL-485
	Interface RS-232		ZCT245CL-232
	Interface TTL		ZCT245CL-TTL

Specifications subject to change without notice!