ZCT100AL-485-BUS 1-axis Inclinometer sensor

Ⅰ. General Description:

ZCT100AL-485-BUS is 1-axis inclinometer sensor designed and produced by ZC Tech with a measuring range of 0~360°, output of RS485 BUS.

Ⅱ. Features:

Small size, light weight

Entirely industrial device

Stable and reliable performance

Shockproof

High cost performance,easy to integration

Wide supply

Ⅲ。Applications:

Aerial lifts, medical devices

Security control, monitoring, alarm system

Boom angle measurement

Ⅳ. Technical Specification: （room environment（25℃））

	Parameter	Test condition	Min.	Typ.	Max.	Unit
Operating parameters	Power supply		7		15	V（DC）
	Quiescent current	No load		17	25	mA
	Operating temp range		—40		+85	℃
Performance parameters	Total range	1-axis	0		360	°
	Resolution(1			0.1		°
	Accuracy	RMS		≤0.5		°
	Zero temp drift	-40～+85℃		±0.03		°/℃
Other parameters	Size	Housing		41*46*15.2		mm
	Standard cable			0.3		m

Remark 1: resolution is the smallest angular increment at which a detectable change in output can be measured.

Ⅴ. Digital output of the angle

1. RS485 serial port setting:

Baud rate：9600bps, one start byte, eight data bytes, one stop byte, and no parity byte.

2. Output format of the angle:

There is nine bytes of a group output data.

Byte1：0x2A

Byte2：0x2B/0x2D

Byte3：thousands of the angle (ASCII)

Byte4：hundreds of the angle (ASCII)

Byte5：tens of the angle (ASCII)

Byte6：units of the angle (ASCII)

Byte7：0x2E

Byte8：tenths of the angle (ASCII)

Byte9：0x0F

Eg: the current angle value is +3.6 deg, the display of the hexadecimal is:

2A 2B 30 30 30 33 2E 36 0F

Note:

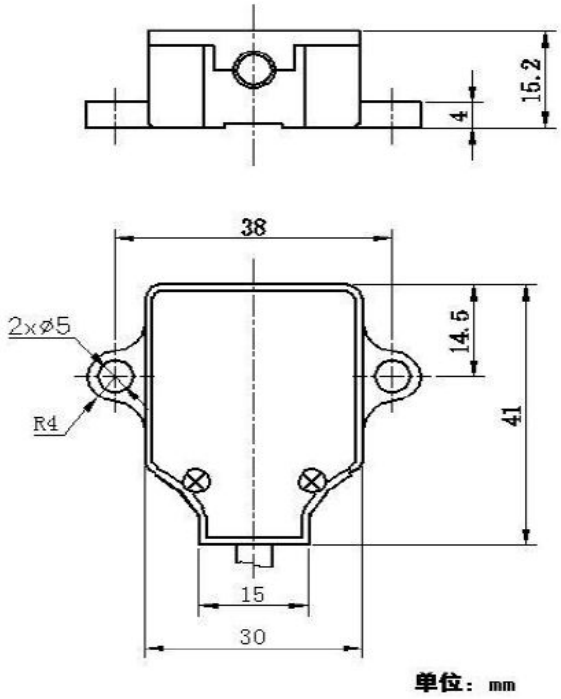
When the measured angle is out of the range, it will display:为 2A 2B 30 38 38 38 2E 38 0F.

Ⅵ. User Commands（the following commands is hexadecimal）：

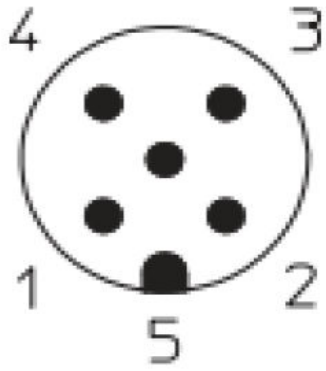
1. 0x1A 0x0C XX 0x0D —— Set address of the sensor's axes. Successful setting will get a return value of 0x2A 0x0C XX 0x0F, XX represents the sensor's axes' address, which can be valued from 0x01 to 0x20, factory default address is 0x01;
2. 0x1A 0x1C XX 0x0D —— Set the current angle as zero position. Successful setting will get a return value of 0x2A 0x1C 0x0F, XX represents the sensor's axes' address;
3. 0x1A 0x0E NN 0x0D —— Set filter parameter. NN can be valued 0x01(the fastest) /0x02/ 0x03 /0x04(the slowest). There is no return value after successfully set, and the sensor get into the ready state;
4. 0x1A 0x1E XX 0x0D —— Read the tilt angle, XX represent the sensor's axes' address, and the return value can be referred to the digital output of the angle.

Ⅶ. Mounting Size and Attentions:

1.Appearance and Mounting Size



2. Wire connection （ provided by customers ）



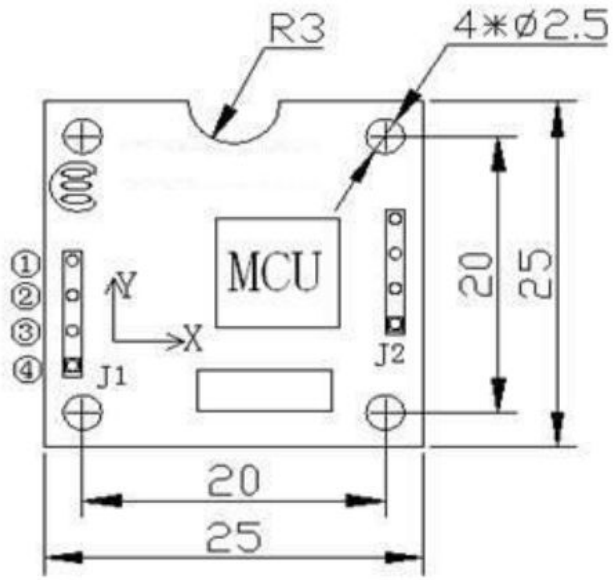
1	Schirm / shield
2	7V～12V
3	GND (0 V)
4	RS-485 A
5	RS-485 B

3. Wire connection (default parameter)

1 Red	7V～12V
2 Black	GND (0 V)

3 Blue	RS-485 A
4 Yellow	RS-485 B

4. PCB Size and Wire definition



Wire definition:

① ——— 7V～12V

② ——— GND

③ ——— RS-485 A

④ ——— RS-485 B

4.Attentions when mount the sensor

①. The sensor should be mounted vertically. When the lead cable is toward to right, sensor is in the zero position. Rotate the sensor in clockwize, the angle will increase.

②. Incorrect installation methods will lead to the measurement error. In order to minimize the mount error,please make sure the sensor perpendicular with the horizontal plane.

Ⅷ. Order Information：Part# ZCT100AL-485-BUS：Aluminum alloy housing

ZCT100AN-485-BUS：PCB Moudle

Specifications subject to change without notice!