Rotation Sensor User Manual

1. Features

Operating voltage	3.0V-5.3V
Pulses outputted per circle	15 pluses
Dimensions	32.0mm*15.0mm
Fixing hole size	2.0mm

Operating principle:

Incremental encoder is a kind of rotation sensor for translating the rotary displacement into a sequential of digital pulse signal. The displacement can be gained by counting the number of the pluses outputted in the course of clockwise or anticlockwise rotation. Comparing with the potentiometer, the rotary counter has no limit for counting. So, there is a reset button provided to reset the counter to the initial state, restarting at 0.

2. Applications

This module can be applied to the location solution of industrial control.

3. Interfaces

Pin No.	Symbol	Descriptions
1	SIA	Work with SIB to judge the rotary direction of the encoder
2	SIB	Work with SIA to judge the rotary direction of the encoder
3	SW	Read the state of the reset button on the encoder.
4	GND	Power ground
5	VCC	Positive power supply(3.0V-5.3V)

4. How to use

We will illustrate the usage of the module with an example of rotation detection by connecting a development board.

① Download the relative codes to the development board.

② Connect the development board to a PC via a serial wire and the module to the development board. Then, power up the development board and start the serial debugging software. Here is the configuration of the connection between the module and the development board.

Port	STM32 MCU pin
SIA	GPIOA.0
SIB	GPIOA.1
SW	GPIOA.2

GND	GND
VCC	3.3V

Port	Arduino pin
SIA	D2
SIB	D3
SW	NC
GND	GND
VCC	5V

Here is the configuration of the serial port.

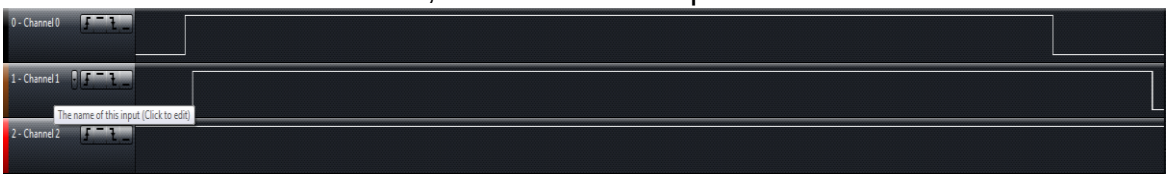
Baud rate	115200
Data bits	8
Stop bit	1
Parity bit	None

③ There are three actions of the rotary encoder: clockwise rotation, anticlockwise rotation, and reset button press. The serial ouput of the module varies with different actions.

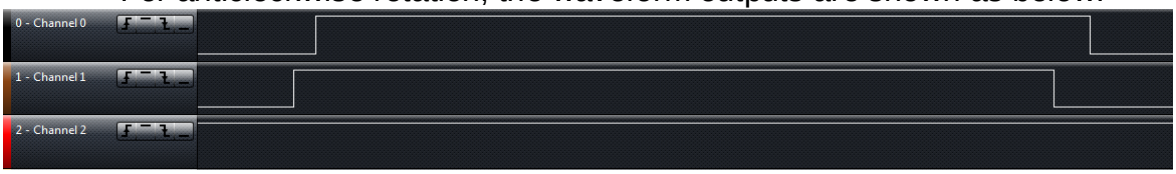
Clockwise rotation	Anticlockwise rotation	Reset button press
Turn right	Turn left	Turn down

④ Connect SIA, SIB, SW of the module to CH0，CH1，CH2 of a logic analyzer, respectively.

For clockwise rotation, the waveform outputs are shown as below:



For anticlockwise rotation, the waveform outputs are shown as below:



When the reset button is pressed, the waveform outputs are shown as below: