

# CP316

## Rotary Pulse Generator

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# Introduction

# Introduction

- *Incremental rotary encoding*

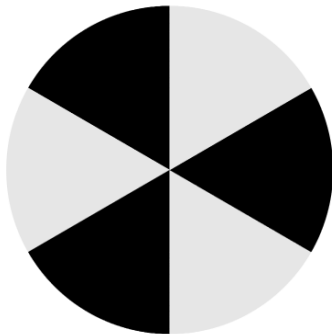
# Introduction

- *Incremental rotary* encoding uses PWM

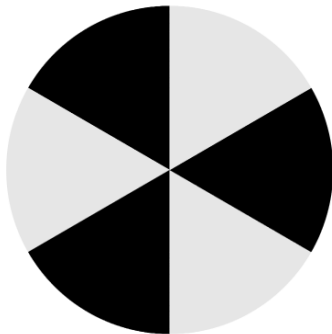
# Introduction

- *Incremental rotary* encoding  
uses PWM

As long as you know the initial position, you can update if you can sense changes.

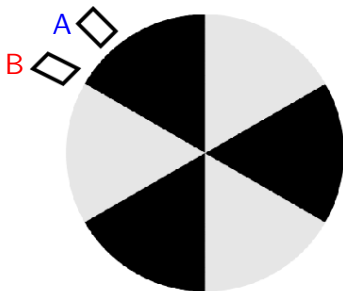




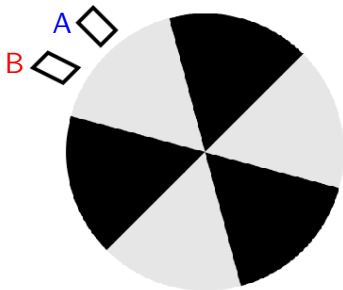


- Shaft encoder wheel
- Two sensors will allow determination of rotation *speed* and *angle*

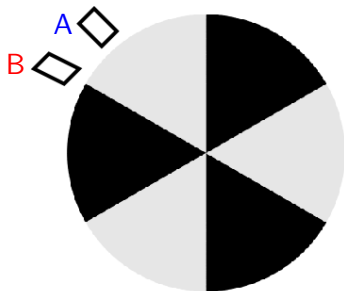




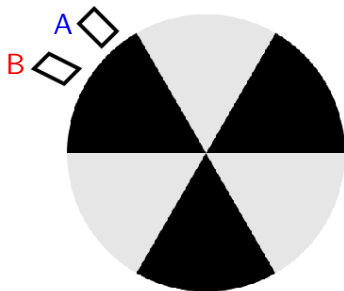
- Clockwise



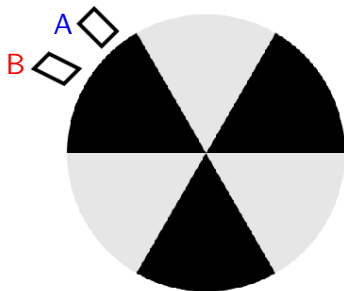
- Clockwise



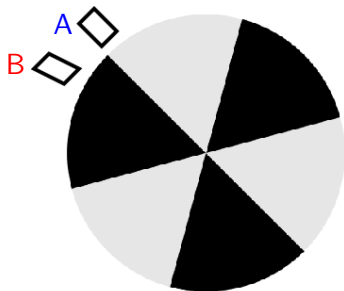
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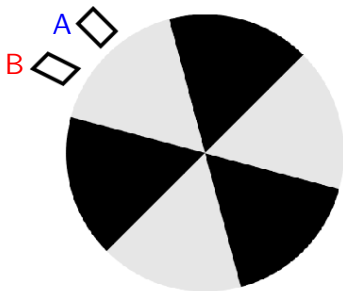
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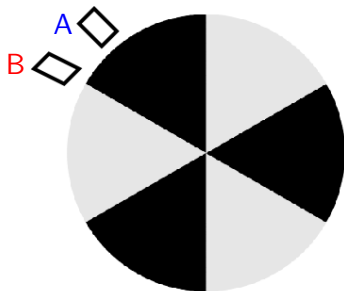
- Counter-clockwise



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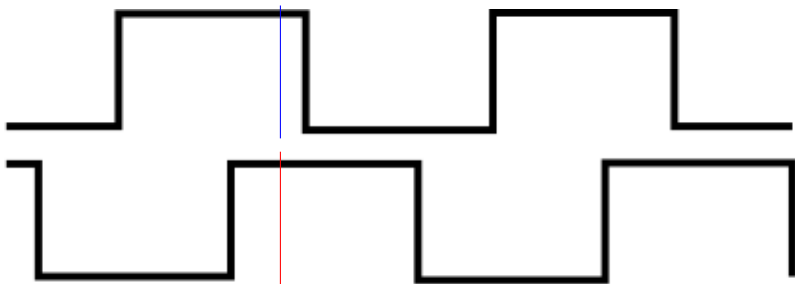


- Counter-clockwise

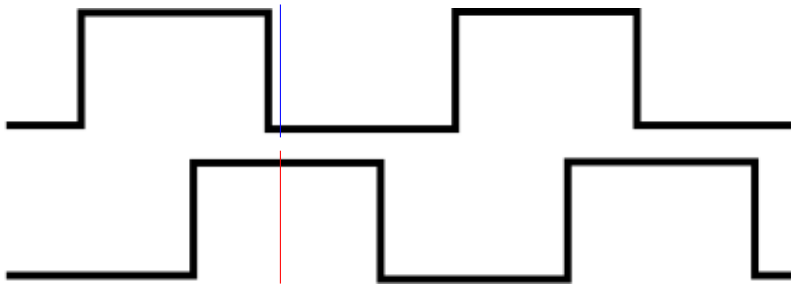


- Counter-clockwise

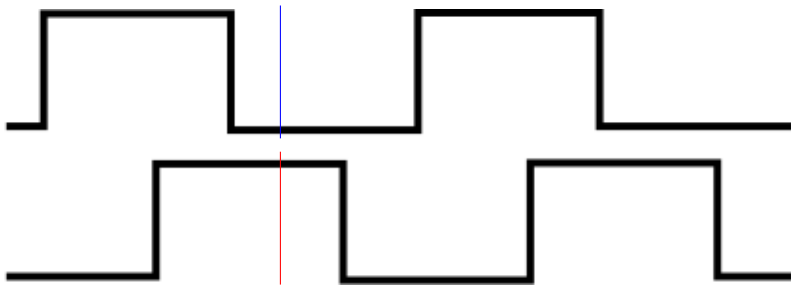




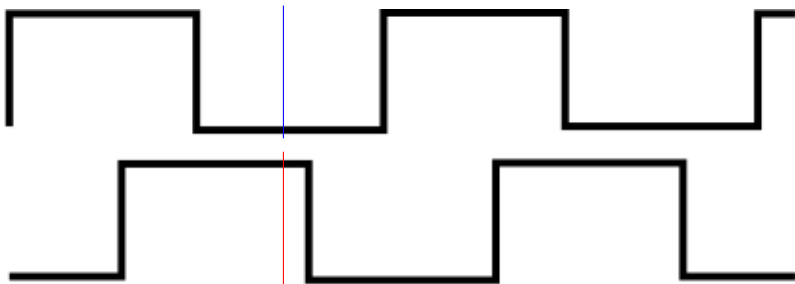
- Shaft encoder timing
- 1
- 1



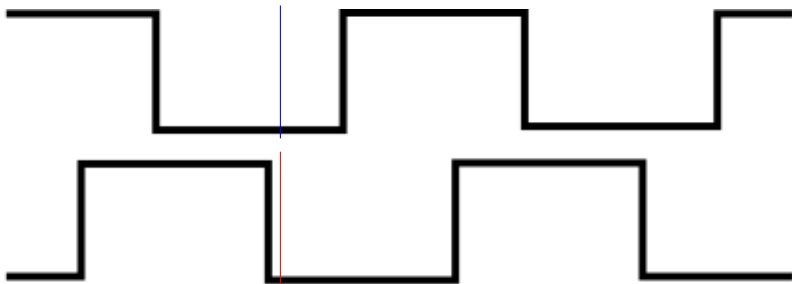
- Shaft encoder timing
- 0
- 1



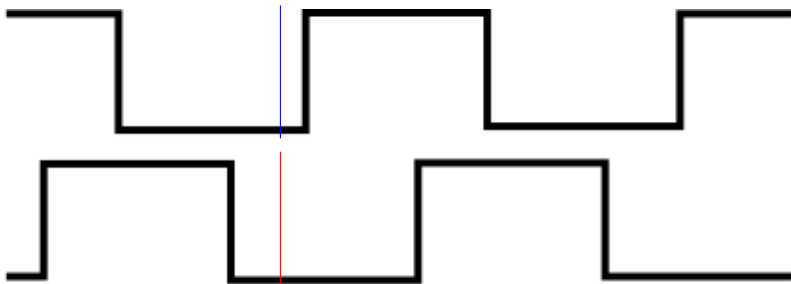
- Shaft encoder timing
- 0
- 1



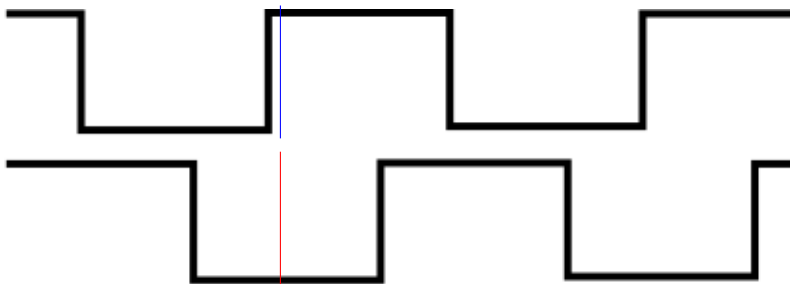
- Shaft encoder timing
- 0
- 1



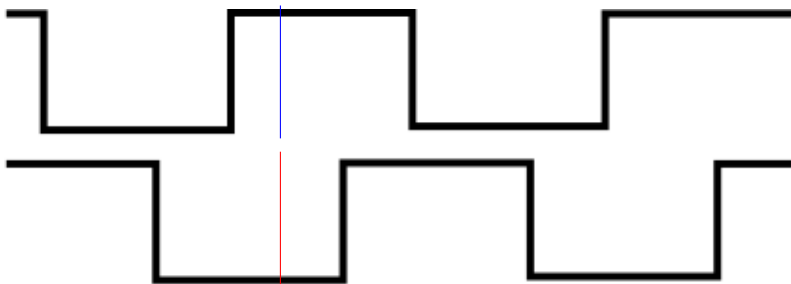
- Shaft encoder timing
- 0
- 0



- Shaft encoder timing
- 0
- 0

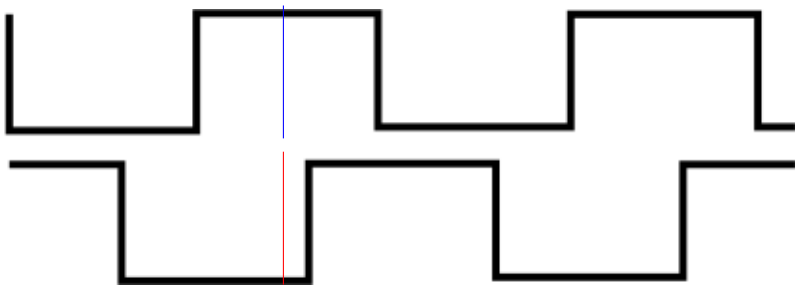


- Shaft encoder timing
- 1
- 0

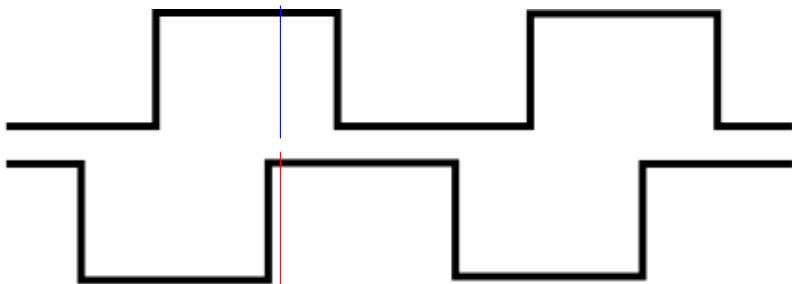


- Shaft encoder timing
- 1
- 0





- Shaft encoder timing
- 1
- 0



- Shaft encoder timing
- 1
- 1

- *Speed* of rotation from frequency of either channel

- *Speed* of rotation from frequency of either channel
- *Angle* of rotation from combination

# RPG on QwikFlash board

# RPG on QwikFlash board

QwikFlash connections

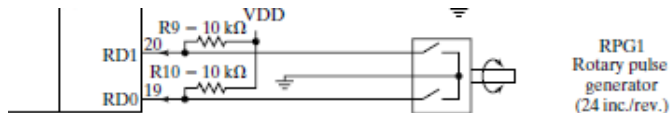
# RPG on QwikFlash board

QwikFlash connections  
ramifications???

# Qwikflash RPG connections



# Qwikflash RPG connections



# Code

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## PORT configuration

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→ macro or subroutine?

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→ macro or subroutine?

Initiallization

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PORT configuration

→ macro or subroutine?

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Read position

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PORT configuration

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Read position

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timing considerations?