

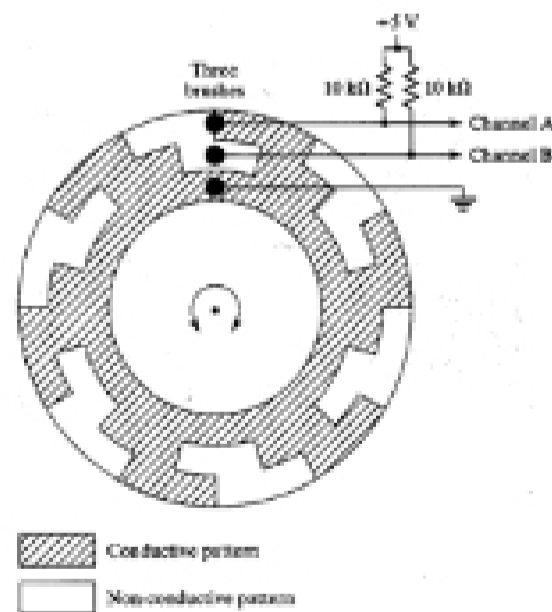
Rotary Pulse Generators and other Lab 3 Considerations

55:036
 Embedded Systems and Systems Software

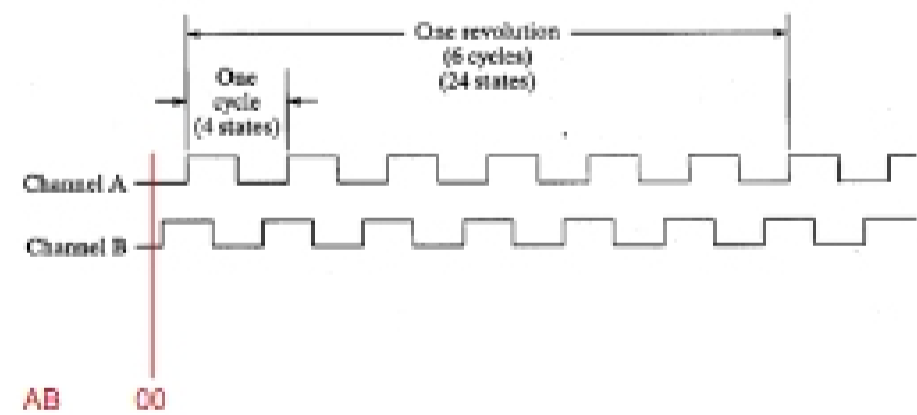
Rotary Encoders (Pulse Generators)

Specifications	1151	1152	1153	1154
Product Photo				
Type	absolute	absolute	absolute	absolute
Package Gender	pin	pin	through hole	pin
Resolution	1024	1024	1024	1024
Debounce	no	no	no	no
Switch	no	no	no	no
Shield	no	no	no	no
Mounting	flange	flange	flange	flange
Terminal Configuration	17 pins	17 pins	17 pins	17 pins
Resolution Range	1 to 1024	1 to 1024	1 to 1024	1 to 1024
Rotational Speed	100 rpm	100 rpm	100 rpm	100 rpm
Contact Rating	100 mA	100 mA	100 mA	100 mA
Rotational Life	100,000,000 cycles	100,000,000 cycles	100,000,000 cycles	100,000,000 cycles
Material Declaration Sheet	View	View	View	View

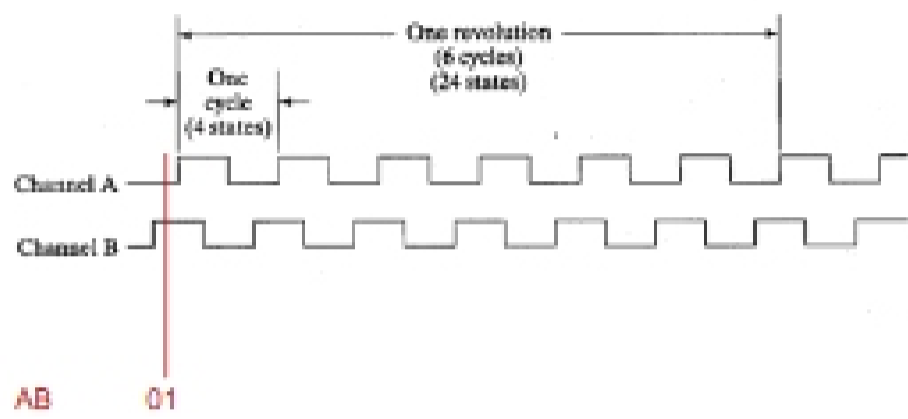
Rotary Encoder Internals



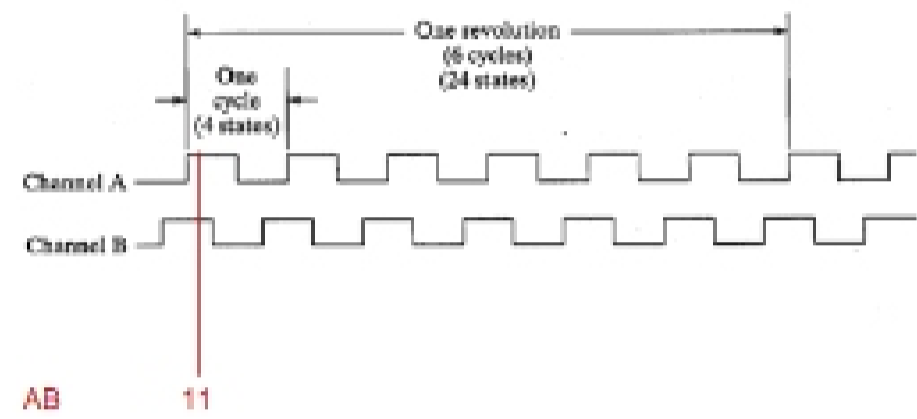
Gray-Code Output



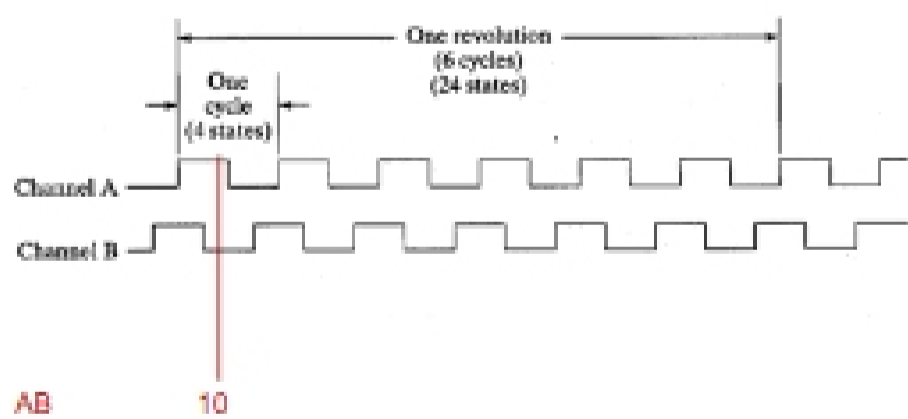
Gray-Code Output



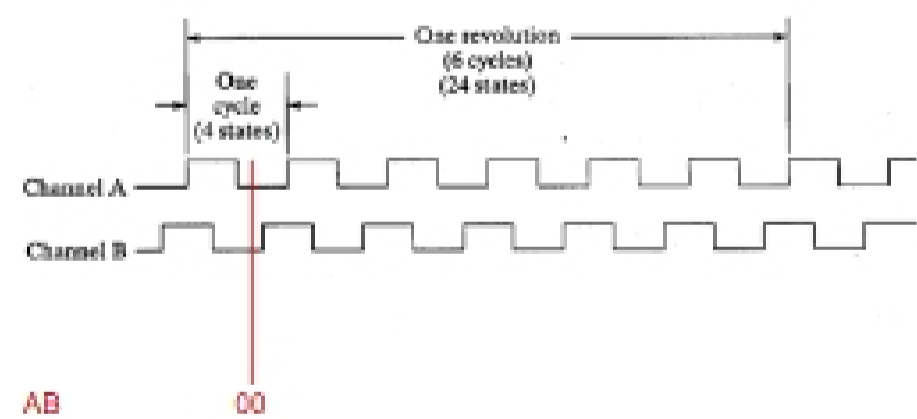
Gray-Code Output



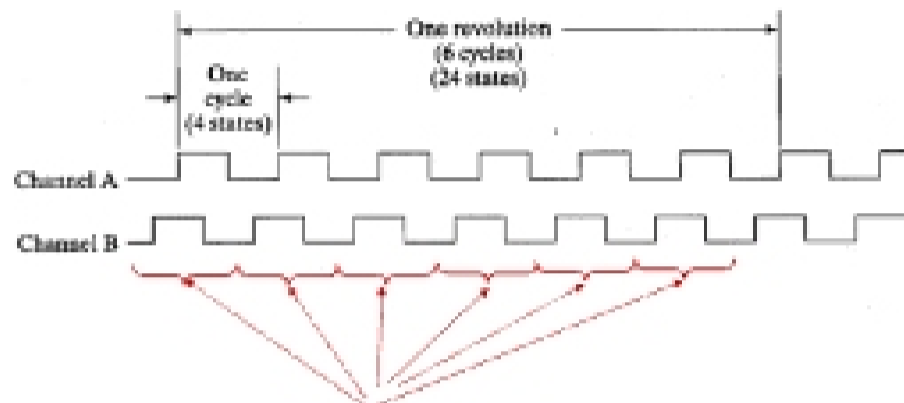
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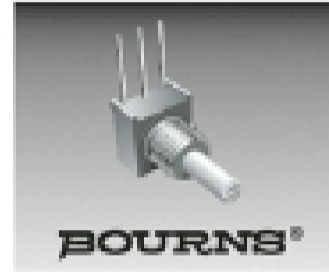


Gray-Code Output



Gray code sequence 00 => 01 => 11 => 10 repeats six times per revolution

Rotary Encoders—Some Considerations



Features

- Miniature package for design flexibility
- Long operating life
- Conductive plastic element
- Bushing or PC board mount
- Quadrature output

3315 - 9 mm Square Sealed Incremental Encoder

Electrical Characteristics

Output	2-bit gray code, Channel A leads Channel B electrically timing clockwise (CW)
Closed Circuit Resistance	5 ohms maximum
Contact Rating	TTL compatible loads
Insulation Resistance (500 VDC)	1,000 megohms minimum
Dielectric Withstanding Voltage	See Level
See Level	300 VAC minimum
Electrical Travel	Continuous
Contact Bounce	5 milliseconds maximum
RPM (Operating)	120 maximum

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Contacts may "bounce" during transitions. This can cause erroneous readings— e.g. a 00 => 01 transition may be read as: 00 => 01 => 00 => 01.

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Device has a maximum rotational speed of 120 RPM (2 revs/sec)
This corresponds to a max. count rate of 48 counts/sec or a minimum count period of 20.8 msec./count