



iC-PXL 3212

Optical Reflective 2-Channel Digital/Analog Encoder

Description

The iC-PXL3212 is an optical-reflective encoder iC, featuring integrated HD Phased Array photosensors with newest amplification technology, on-chip interpolation and embedded blue LED.

It provides 2-Channel digital AB outputs with on-chip interpolation or sin/cos analog signal outputs and thus complements our existing EncoderBlue family.

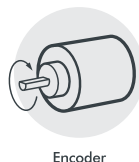
The sensor can be used with existing iC-PX series code discs or custom disc designs ranging from 10 mm in diameter to linear scanning.

OTP FlexCount® allows chip to be customized after fabrication.

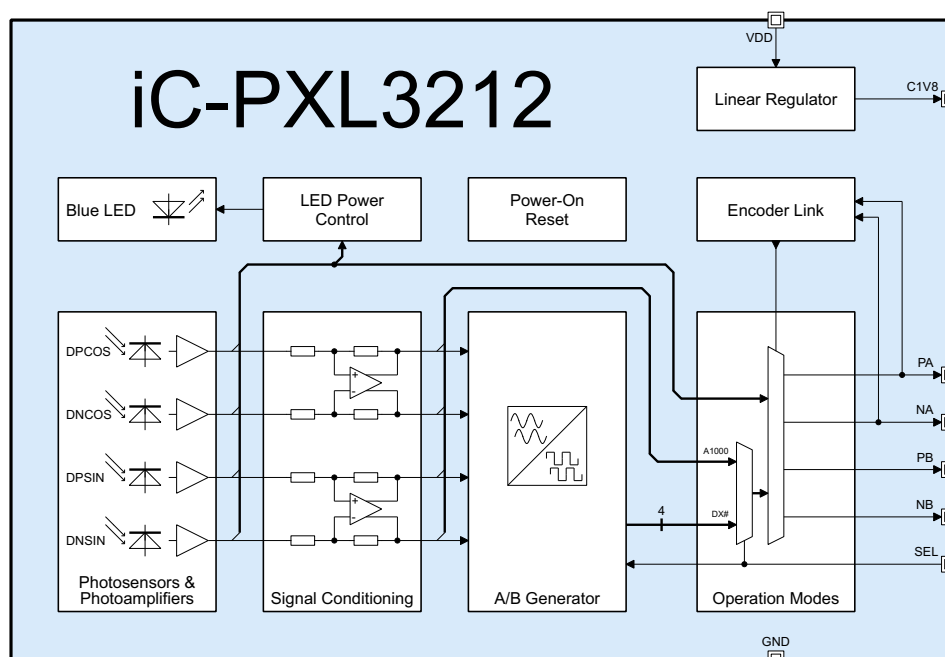
Features

- Lensless reflective opto-encoder iCs, compact, high-resolution, incremental
- For reflective discs of $> \varnothing 10$ mm and linear scales
- Monolithic HD Phased Array with excellent signal matching
- Integrated blue LED with power control, EncoderBlue®
- Low-noise signal amplifiers with high EMI tolerance
- Pin-selectable modes of operation: Digital A/B ($\times 16$, $\times 64$ interpolated) or analog sin/cos
- OTP FlexCount®
- Analog signal output for ease of alignment and resolution enhancement by external interpolation
- Operating temperature range of -40°C to $+125^{\circ}\text{C}$
- Compact and lensless optoDFN mold package ($3\text{ mm} \times 3\text{ mm} \times 0.9\text{ mm}$)
- Evaluation kits available

Applications



Block Diagram



Key Specifications

Product	Diameter	Resolution per Rev.	Output	Package	Tolerance range (see figure below)
 iC-PXL3212	 $\geq \varnothing 10 \text{ mm}$	$\geq 128 \text{ CPR}$	• AB • Analog Sin Cos	$\text{oDFN8-3} \times 3$	• Tangential (X): $\pm 0.5 \text{ mm}$ • Radial (Y): $\pm 0.5 \text{ mm}$ • Tilt (ϕ): $\pm 2^\circ$ • Air gap (Z): 1 mm to 3 mm

Operation Modes

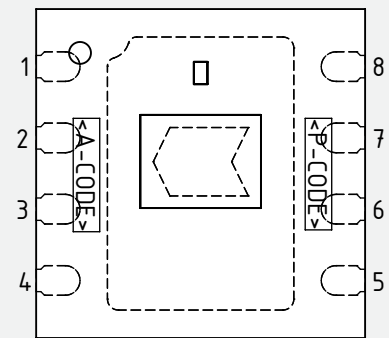
SEL 1	Mode	Description
high	DX64	digital A/B ($\times 64$ interpolation)
open	DX16	digital A/B ($\times 16$ interpolation)
low	A1000	analog

Device Overview

	Disc Size	Opt. Radius	Native CPR	CPR $\times 16$	CPR $\times 64$
	Linear		152 LPI		
	$\varnothing 30 \text{ mm}$	13.35 mm	500	8,000	32,000
	$\varnothing 32 \text{ mm}$	13.67 mm	512	8,192	32,768
	$\varnothing 36 \text{ mm}$	16.69 mm	625	10,000	40,000
	$\varnothing 43 \text{ mm}$	19.22 mm	720	11,520	46,080

Pin Configuration $\text{oDFN8-3} \times 3$

No.	Name	Function
1	PA	Digital Output A+ / Analog Output COS+
2	NA	Digital Output A- / Analog Output COS-
3	PB	Digital Output B+ / Analog Output SIN+
4	NB	Digital Output B- / Analog Output SIN-
5	SEL	Operation Mode Selection Input
6	C1V8	Core Voltage Buffer Capacitor
7	VDD	Supply Voltage Input 4.5V ... 5.5V
8	GND	Ground
	BP	Backside Paddle



Wide assembly tolerance range and operating principle

