



PLN203 I

Product Specification

CONFIDENTIAL INFORMATION

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Table of Contents

1	General Description	4
2	Key Features	4
3	Quick Reference Data	4
4	Ordering Information	5
5	Pinning Information	5
5.1	Pinning Diagram	5
5.2	Pin Description	5
6	Block Diagram	6
7	Functional Description	6
7.1	Device Architecture	6
7.1.1	Digital Signal Processor	6
7.1.2	Modulator	6
7.1.3	DAC	7
7.1.4	Laser safety protection	7
7.1.5	Optical Path	7
7.1.6	ADC	7
7.1.7	Pre-processing Unit	7
7.1.8	Serial Interface	7
7.1.9	Clock Generator and Power Controller	7
7.1.10	Voltage Regulator	7
7.1.11	Interrupt Output	7
7.2	Serial Interface Protocol	7
7.2.1	Register Access	7
7.2.2	Memory Access	8
7.3	Operating Modes	9
7.3.1	Power-up	9
7.3.2	Configuration Mode	9
7.3.3	Active mode	9
7.3.4	Initial configuration	10
7.4	Power and Resolution Management	11
7.5	Displacement reporting	11
7.5.1	Polling Cycle	13
7.5.2	Interrupt handling cycle	13
8	Registers and Programming Information	15
8.1	User registers	15
8.1.1	Status register	15
8.1.2	Delta X register	16
8.1.3	Delta Y register	16
8.2	Device Settings registers	16
8.2.1	Command register	16
8.2.2	System Control register	19
8.2.3	Memory Address porting register	19
8.2.4	Memory Data porting register	19
8.2.5	R_TC Mode	19
8.2.6	Miscellaneous registers	19
9	Limiting Values	20
9.1	Absolute Maximum Ratings	20
10	Characteristics	21
10.1	Electrical Characteristics	21
10.2	Optical Characteristics	23
10.3	System Characteristics	23
11	Application Information	24
11.1	Electrical	24
11.2	PCB Layout Considerations	25
11.3	Mechanical	26
12	Package Outline	28
13	Handling	29
13.1	Cleaning	29
14	Soldering	29
15	Marking	29
16	Laser Safety Information	30
17	Revision History	30

List of Figures

Figure 1: PLN2031 Pin Configuration (top view)	5
Figure 2: PLN2031 Block Diagram.....	6
Figure 3: Write Access Sequence	8
Figure 4: Read Access Sequence	8
Figure 5: Write Memory Address Pointer	8
Figure 6: Write Memory Data	9
Figure 7: Read Memory Data	9
Figure 8: Operating Modes	9
Figure 9 twin-eye laser sensor initial configuration sequence.....	10
Figure 10: Sequence for Displacement reporting.....	12
Figure 11 Sensor power modes.....	18
Figure 12: SPI Timing Diagram	22
Figure 13: Interrupt timing diagram	23
Figure 14: Application Diagram	24
Figure 15: PLN2031 PCB footprint.....	25
Figure 16: PLN2031 mounting	26
Figure 17: PLN2031 Orientation in Optical Mouse.....	27
Figure 18: Sensor soldering	29
Figure 19: PLN2031 product marking.....	30

List of Tables

Table 1: Quick Reference Data	4
Table 2: PLN2031 Pin Description	5
Table 3: Reported tracking speed versus the selected CPI resolution and the effective number of bits.....	13
Table 4: mandatory polling cycle time.....	13
Table 5: Status register bits	15
Table 6: Status register Power Mode.....	15
Table 7: Delta X register	16
Table 8: Delta Y register	16
Table 9: Command register bits in Gaming mode	16
Table 10: Command register resolution fields.....	16
Table 11: Command register: CPI control settings	17
Table 12: Command register bits when not in Gaming mode	18
Table 13: Command register bit 2 – 0: Power Management mode	18
Table 14: Register programming values at startup.....	19
Table 15: Limiting Values.....	20
Table 16: Operating Conditions.....	21
Table 17: SPI Interface specification	22
Table 18: Interrupt specification.....	23
Table 19: Optical Characteristics.....	23
Table 20: Typical performance data	23
Table 21 Soldering temperatures.....	29
Table 22: Product Marking	29

1 General Description

The Philips PLN203I twin-eye laser sensor is a high-precision, ultra-fast, low-power, small-sized, single-component, laser-based tracking device for use in input and navigation devices like professional PC mice, gaming and CAD applications as well as graphical workstations. The PLN203I twin-eye laser sensor offers accurate performance over a wide range of speeds and accelerations covering the demands for e.g. gaming applications.

The device is a compact (6.8 mm square, 3.86 mm high), robust, self-aligning, fully integrated System-in-Package solution that is suitable for many applications. The 11-pin twin-eye laser sensor incorporates lenses for its two lasers in the package assembly.

The PLN203I twin-eye laser sensor is based on laser tracking technology. It measures changes in position by coherent detection of the scattered laser light that is reflected by the surface, and mathematically by on-chip logic and software, determining the direction and magnitude of the movement. It is capable of measuring extremely accurate in pre-defined, re-programmable resolution steps up to 4000 CPI.

The PLN203I twin-eye laser sensor does not require a smooth surface, but can be used on virtually all light-scattering surfaces, even those with a relatively rough structure.

As there are no moving parts, and because of its self-aligning optical path, the application of the technology is simple and can be mass-produced in a cost-effective manner without applying expensive aligning procedures.

2 Key Features

- 3D motion sensor
- Complete single integrated component solution (System-In-Package)
- No optical, electrical or mechanical adjustments required
- No mechanical moving parts
- Accurate optical navigation up to 4000 CPI over all light scattering surfaces
- Sensor resolution programmable during mouse operation
- Independent resolution programming for X- and Y axis
- Accurate and predictable motion reporting up to 2.85 m/s (115 ips)¹
- Class 1M laser safety verified by German TÜV Rheinland Gruppe, no laser power calibration required
- High speed SPI serial bus interface for programming and data transfer
- Single 3.3 volt power supply
- Customer programmable Power Save Modes
- Interrupt pin offers capability to wake up microcontroller when sensor movement is detected in Power Save mode
- 11-pin miniature square package
- RoHS compliant

3 Quick Reference Data

Table 1: Quick Reference Data

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
Module dimensions						
L	Length			6.8		mm
W	Width			6.8		mm
H	Height			3.86		mm
W _h	Sensor mounting height		2.1	2.3	2.5	mm
V _{DD}	Supply voltage			3.3		V
P _{act}	Power consumption	Gaming mode		40		mW
P _{ps}	Power consumption	Power Save mode		100		μW
Res	Resolution	Programmable during operation	125		4000	CPI
R _{stp}	Resolution step size			125		CPI
V _{max}	Maximum speed			2.85		m/s
a _{max}	Maximum acceleration				50	g

¹ Depending on test conditions

4 Ordering Information

Type number	Description
PLN2031	twin-eye laser sensor

The products are packed in trays of 144 pieces/tray, ten trays are packed in a sealed ESD-bag, and two bags are packed in an outer carton, resulting in packing quantity of 2880 pieces/carton.

The Minimum Order Quantity (MOQ) equals 2880.

5 Pinning Information

5.1 Pinning Diagram

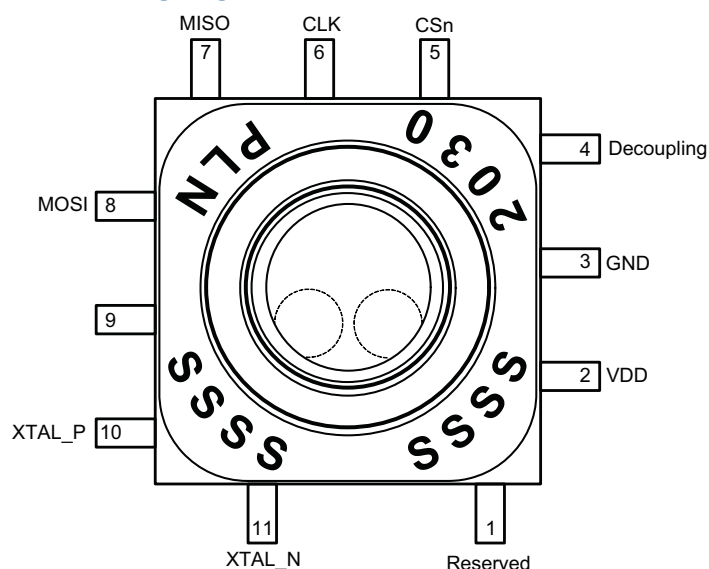


Figure 1: PLN2031 Pin Configuration (top view)

5.2 Pin Description

Table 2: PLN2031 Pin Description

Symbol	Pin	Type	Description
Reserved	1	Supply	Do not connect
VDD	2	Supply	Supply
GND	3	Supply	Ground
Decoupling	4	Supply	External decoupling capacitor connection for internal 1.8V
CSn	5	Input	SPI chip select (active low)
CLK	6	Input	SPI clock
MISO	7	Output	SPI master in slave out
MOSI	8	Input	SPI master out slave in
Interrupt	9	Output	Interrupt output
XTAL_P	10	Analog	Oscillator input
XTAL_N	11	Analog	Oscillator output