RoHS COMPLIANT

Description

style="font-size: 12.8px;">The H3 series ball bearing optical shaft encoder has a molded plastic, glass-filled enclosure, which utilizes a 5-pin standard connector. This non-contacting rotary to digital converter is designed to provide digital feedback information.

The H3 is fully assembled with a brass shaft, two 1/4" ID by 1/2" OD ball bearings and a mounting plate. The mounting plate comes with two mounting holes for screws #4 or smaller.

style="font-size: 12.8px;">The H3 is normally designed for applications of 10 feet or less. For longer cable lengths, adding a PC4 / PC5 differential line driver is recommended.

A connection to the H3 series encoder is made through a 5-pin standard connector (sold separately). The mating connectors are available from US Digital with several cable options and lengths.

Features

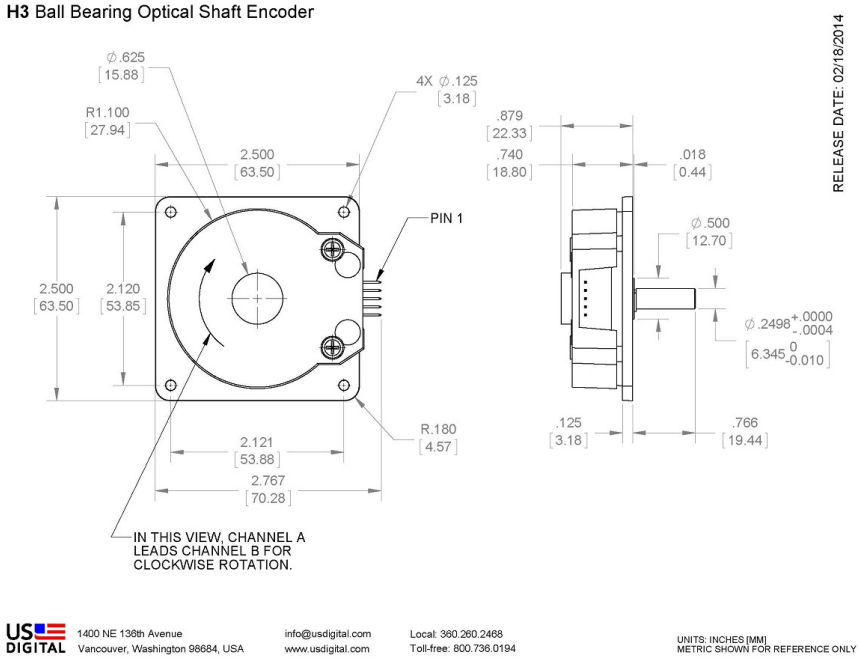
- Ball bearing option tracks to 10,000 RPM
- 2-channel quadrature, TTL squarewave outputs
- 3rd channel index option available on some resolutions
- 32 to 10,000 cycles per revolution (CPR)
- 128 to 20,000 pulses per revolution (PPR)
- Wide operating temperature
- Single +5VDC supply

Mechanical Drawing

US DIGITAL
1400 NE 136th Avenue
Vancouver, Washington 98684, USA
info@usdigital.com
www.usdigital.com
Local: 360.260.2468
Toll-free: 800.736.0194

RoHS COMPLIANT

H3 Ball Bearing Optical Shaft Encoder



Environmental

Parameter	Value	Units
Operating Temperature (CPR < 3600)	-40 to 100	C
Operating Temperature (CPR ≥ 3600)	-25 to 100	C
Vibration (5Hz to 2kHz)	20	G
Electrostatic Discharge, IEC-61000-4-2	± 4	kV

Mechanical

Parameter	Value
Max. Acceleration	100000 rad/sec²
Max. Shaft Speed	10000 rpm
Max. Shaft Torque	0.05 in-oz
Max. Shaft Loading	2 lbs.
Bearing Life	life in millions of revs = $(90/P)^3$ where P = radial load in pounds.
Weight	2.69 oz.
Max. Shaft Total Indicated Runout	0.006 in.

Parameter	Value
Moment of Inertia	0.001 oz-in-s²
Technical Bulletin TB1001 - Shaft and Bore Tolerances	Download

Phase Relationship

B leads A for clockwise shaft rotation, and A leads B for counterclockwise rotation viewed from the shaft side of the encoder (*see the EM1 page*).

Electrical

- Specifications apply over entire operating temperature range.
- Typical values are specified at Vcc = 5.0Vdc and 25 ° C.
- For complete details, see the EM1 andEM2 product pages.

Parameter	Min.	Typ.	Max.	Units	Conditions
Supply Voltage	4.5	5.0	5.5	V	
Supply Current		27	33	mA	CPR < 1000, no load
		54	62	mA	CPR ≥ 1000 and < 3600, no load
		72	85	mA	CPR ≥ 3600, no load
Low-level Output			0.5	V	I_{OL} = 8mA max., CPR < 3600
			0.5	mA	I_{OL} = 5mA max., CPR ≥ 3600
		0.05		mA	no load, CPR < 3600
		0.25		mA	no load, CPR ≥ 3600
High-level Output	2.0			V	I_{OH} = -8mA max., CPR < 3600
	2.0			V	I_{OH} = -5mA max., CPR ≥ 3600
		4.8		V	no load, CPR < 3600
		3.5		V	no load, CPR ≥ 3600
Output Current Per Channel	-8		8	mA	CPR < 3600
	-5		5	mA	CPR ≥ 3600
Output Rise Time		110		nS	CPR < 3600
		50		nS	CPR ≥ 3600
Output Fall Time		35		nS	CPR < 3600
		50		nS	CPR ≥ 3600

Pin-out

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Pin	Description
1	Ground
2	Index
3	A channel
4	+5VDC power
5	B channel

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Ordering Information

H3 - [ ] - [ ] - [ ]

CPR	Index	Housing
64 =	NE =*No Index*	D =*Default*
100 =	IE =*Index*	
200 =		
400 =		
500 =		
512 =		
1000 =		
1024 =		
1800 =		
2000 =		
2048 =		
2500 =		
3600		
4000		
4096		
5000		
7200		
8000		
8192		
10000		

Notes

- Cables and connectors are not included and must be ordered separately.
- US Digital warrants its products against defects in materials and workmanship for two years. See complete warranty for details.

Base Pricing

Quantity	Price
1	$112.50
5	$83.30
10	$72.35

For volume discounts, please contact us at sales@usdigital.com or 800.736.0194.

- Add 18% per unit for **CPR** of 3600 , 4000 , 4096 , 5000 , 7200 , 8000 , 8192 or 10000

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