RoHS COMPLIANT

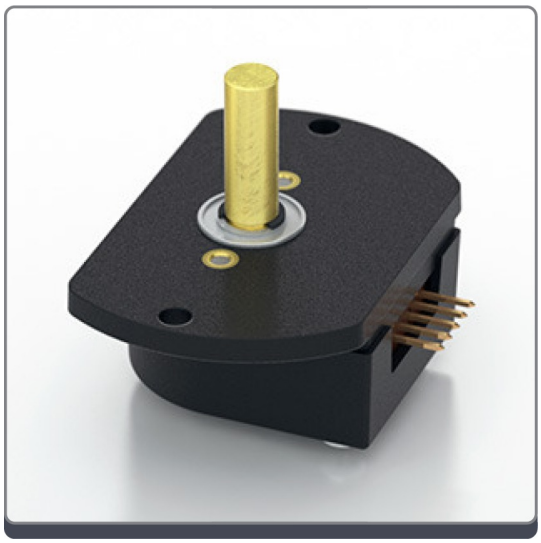
Description

The H1 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 H1 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.

The H1 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 H1 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 5,000 cycles per revolution (CPR)
- 128 to 20,000 pulses per revolution (PPR)
- Wide operating temperature
- Single +5VDC supply

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

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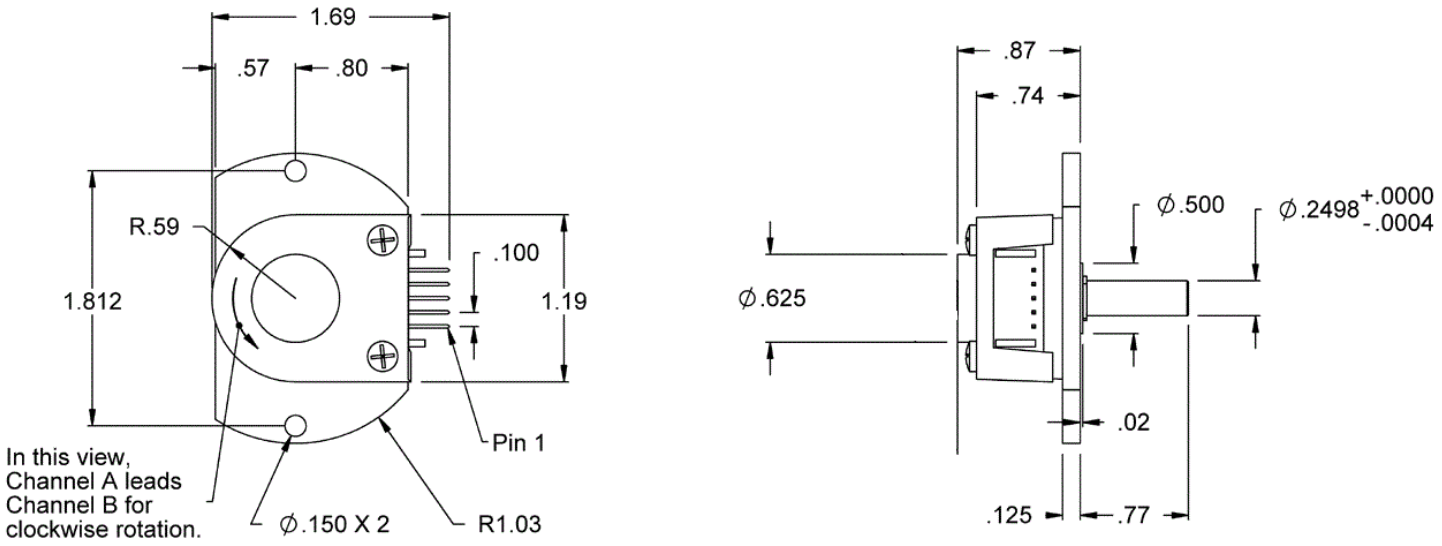
Mechanical Drawing



- Module pins are 0.06" shorter for resolutions: 32-I, 720-I, 900-I, 1000-I, 1024-I and 1250-I

Environmental

Parameter	Value	Units
Operating Temperature, CPR < 2000	-40 to 100	C
Operating Temperature, CPR ≥ 2000	-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. continuous
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	1.49 oz.
Max. Shaft Total Indicated Runout	0.006 T.I.R. max.
Moment of Inertia	0.001 oz-in-s²

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Parameter	Value
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 or EM2 product pages.

Parameter	Min.	Typ.	Max.	Units	Conditions
Supply Voltage	4.5	5.0	5.5	V	
Supply Current		27	33	mA	CPR < 500, no load
		54	62	mA	CPR ≥ 500 and <2000, no load
		72	85	mA	CPR ≥ 2000, no load
Low-level Output			0.5	V	I_{OL} = 8mA max., CPR < 2000
			0.5	V	I_{OL} = 5mA max., CPR ≥ 2000
		0.25		V	no load, CPR ≥ 2000
High-level Output	2.0			V	I_{OH} = -8mA max. and CPR < 2000
	2.0			V	I_{OH} = -5mA max. and CPR ≥ 2000
		4.8		V	no load and CPR < 2000
		3.5		V	no load and CPR ≥ 2000
Output Current Per Channel	-8		8	mA	CPR < 2000
	-5		5	mA	CPR ≥ 2000
Output Rise Time		110		nS	CPR < 2000
		50		nS	CPR ≥ 2000, ± 5mA load
Output Fall Time		100		nS	CPR < 2000
		50		nS	CPR ≥ 2000, ± 5mA load

Pin-out

Pin	Description
1	Ground

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

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Ordering Information

H1 - [ ] - [ ] - [ ]

CPR	Index	Housing
32 =	NE =*No Index*	D =*Default*
50 =	IE =*Index*	
96 =		
100 =		
192 =		
200 =		
250 =		
256 =		
360 =		
400 =		
500 =		
512 =		
540 =		
720 =		
900 =		
1000 =		
1024 =		
1250 =		
2000 =		
2048 =		
2500 =		
4000 =		
4096 =		
5000 =		

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.

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Base Pricing

Quantity	Price
1	$92.95
5	$68.85
10	$59.80

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

- Add 22% per unit for **CPR** of , , , , or
- Add 15% per unit for **Index** of IE or **CPR** greater than or equal to 1000.

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